120 h. 12
Vlast

AN

Universal HISTORY

OF

ARTS and SCIENCES:

Or, A comprehensive

Illustration, Definition, and Description

OF

All SCIENCES, Divine and Human;

AND OF

All ARTS, Liberal and Mechanical.

The Origin and Progresses of all RELIGIONS, SECTS, HERESIES and SCHISMS:

The Description of all COUNTRIES; their Government, Ecclesiastical, Civil and Military; their different Climates, Soils, Products, and the Manners of the Inhabitants:

The different Systems of PHILOSOPHERS, curious and accurate Observations of ASTRONOMERS, both Antient and Modern:

The History of all ORDERS, Religious and Military:

WITH

Curious and entirely new Treatises on the Duties of Embassadors and Plenipotentiaries, the Education of Princes and their Subjects, and the Manner of travelling into Foreign Parts.

The Whole extracted from

The best AUTHORS in all Languages, and enriched with the new Systems, Hypotheses, Maxims, and Reflections of the AUTHOR.

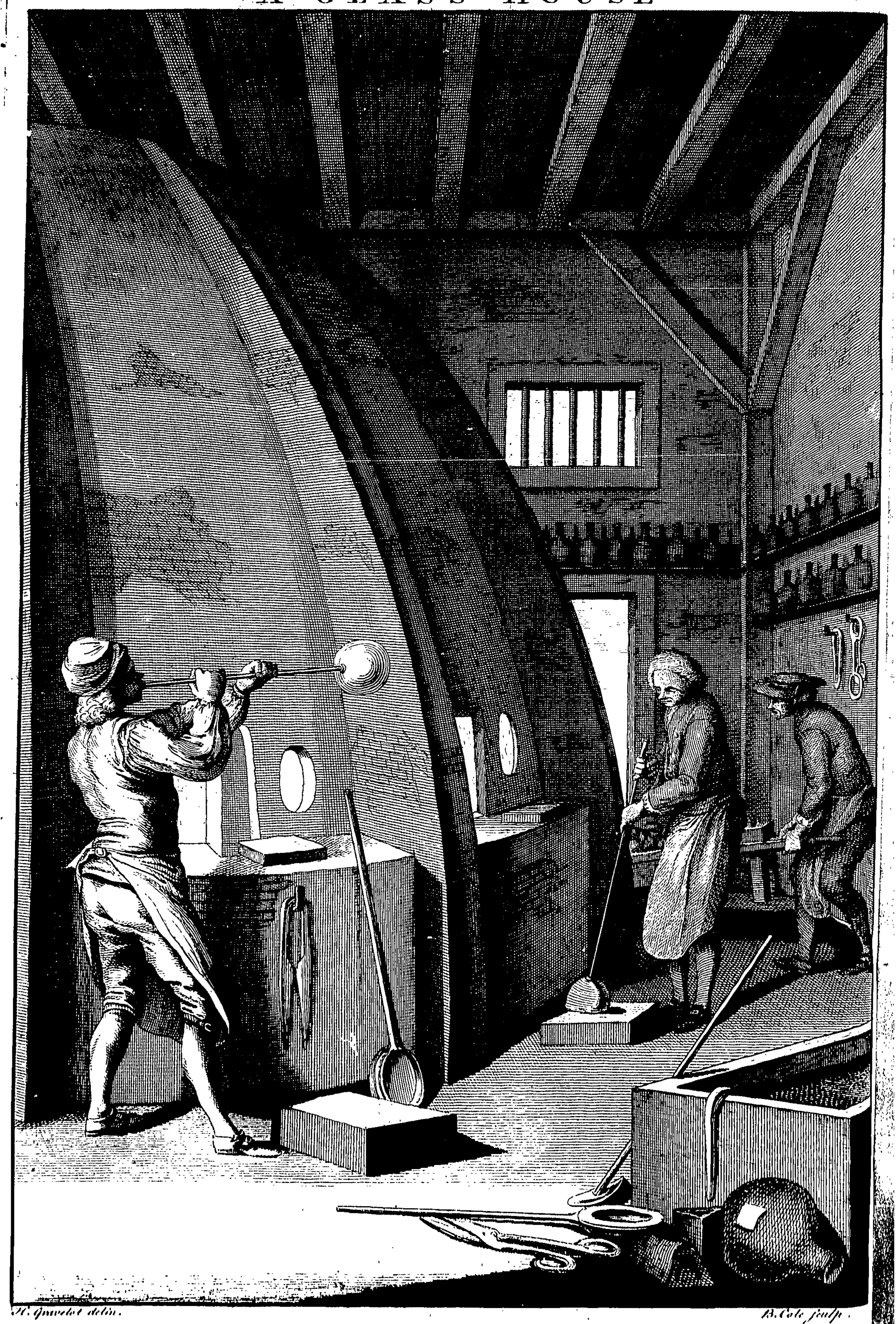
By the Chevalier DENNIS DE COETLOGON, *Knt. of* St. Lazare, M.D.
AND
MEMBER of the Royal Academy of *Angers.*

VOLUME the Second.

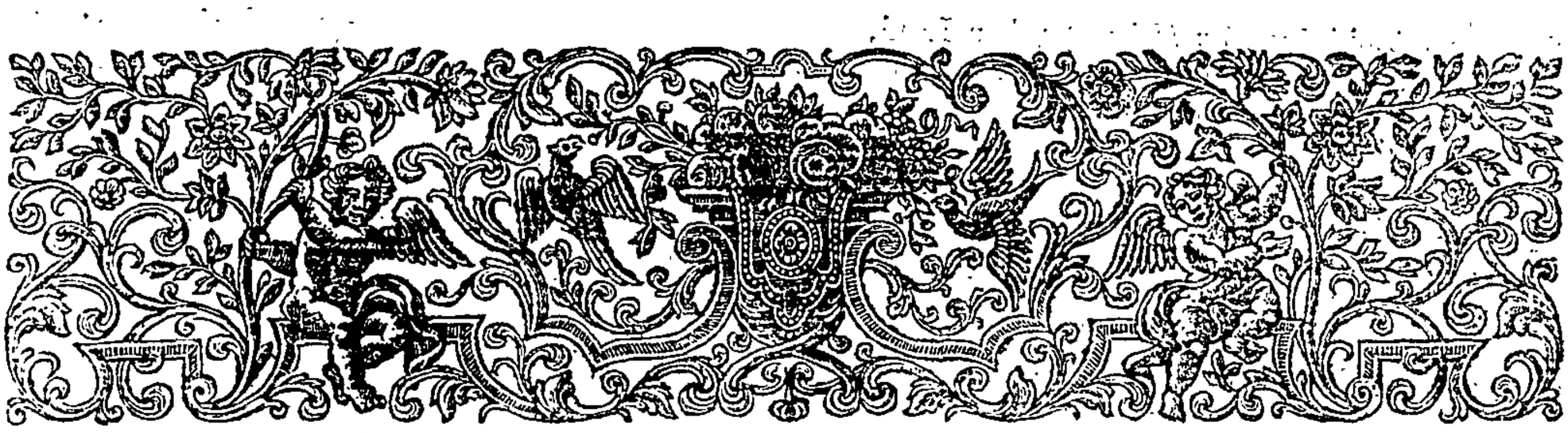
LONDON:
Printed and Sold by JOHN HART, in *Popping's-Court, Fleet-street.*

M.DCC XLV.

A GLASS HOUSE



H. Quivolet delin. B. Cole sculp.



AN Universal HISTORY OF ARTS and SCIENCES.

VOL. II.

GLASS-MAKING.

GLASS-MAKING, is the Art of reducing Salt, Sand, or Stone, by the Action of the Fire into a transparent, brittle, and factitious Body, called *Glass*.

Note, That before I proceed further, it is necessary we should enquire into the Nature and Characters of *Glass*, that we may be well versed in all the Secrets and Mysteries of our Art, and be capable to speak pertinently of it, when Occasion offers; and not appear like a vast Number of other Artists, who know nothing of their Profession, but merely the mechanical Part.

Naturalists are divided in what Class of Bodies to rank *Glass*. *Agricola* considers it as a concrete Juice; *Bellovacensis* as a Stone; *Fallopius* ranks it among the *Media Mineralia*; and the Workmen, when in Fusion, call it *Metal*. But Dr. *Merret* sets aside all these Opinions, from this Consideration, that all the forementioned Bodies are naturally Concretes, whereas *Glass* is a Compound made by Art, and never found in the Earth as the others are. *Fallopius*, indeed, contends, that *Glass* is no more artificial than a Metal, and that they are both equally extracted and educed from other Bodies; the one from Sand, the other from its Ore. He adds, that though Ashes be added to Sand, for the making of *Glass*, yet it is false, that they contribute to the Composition of *Glass*; their Use, according to him, being only for the better extracting of the *Glass* from the Mineral Stone. This Dr. *Merret* confutes, by observing, that if *Glass* were extracted from the Stones, or Sand only, the Weight of the Metal must be much less than that of the Stones alone; whereas it is much greater, an hundred Weight of Sand sufficing for one hundred and fifty of *Glass*. He is therefore of Opinion, that the Ashes contribute a deal of Salt to the Composition of *Glass*; for in Pieces of old *Glass*, one may sometimes pick out Grains of Salt, easily discoverable to the Taste; besides that, the finest *Glass* standing long in a subterraneous Place, will moulder or resolve into its first Ingredients, Salt and Sand, by the Decay of the Union thereof; whence he concludes, that the Salt remains in the *Glass* in Specie. To support this Sentiment of Dr. *Merret*, the following Experiment of *Van-Helmont*, on *Glass*, *cap. de Terra*, is quoted. Melt *Glass-Dust* with Sandever and Water, pour on *Aqua-Regia* enough to saturate the Sandever, and the Sand will precipitate to the Bottom in the same Quantity and Weight, as was first used. I am neither of *Fallopius* nor of Dr. *Merret*'s Opinion; for I really believe that *Glass* is a Sort of Metal, not extracted from Sand by a simple Separation, as *Fallopius* imagined, but form'd of Sand both naturally and artificially. That *Glass* is naturally form'd of Sand, or rather that the Sand is an imperfect *Glass*, appears from this, that all Sorts of Sands are not proper to make *Glass* with, but only a particular Sand; and even in that particular Sand, are found several different Species, some fit for one Sort of Glass, and others for another Sort; according to their Fineness or Coarseness; or rather, according as the Parts the Sand is composed of, have been better elaborated in their respective Matrices, and better prepared to undergo those Changes, and be susceptible of the different Positions they acquir'd in the Furnace, so as to suffer that violent Extension given by the Artist, without the least Disunion, or Laceration of those Parts. It is true, that *Glass* cannot be called properly a Metal, till it has undergone this last Operation, no more than all other Metals, before they are purg'd of all their Impurities. The Objections of Dr. *Merret*, against its being a Metal, seem to me frivolous. 1. As to its not being a natural Concrete like other Metals, is false; for the other Things added to the Sand in the Furnace, are not to make with it an artificial Concrete, but only to help towards the new Configuration of its Parts, and free them from the heterogeneous Particles, which could obstruct their closer Coadunation; as Antimony, *&c.* are mix'd with Gold to free it of its Impurities, and render it more perfect. 2. *Glass*, exceeding in Weight the Matter it is made of, does not proceed from the Addition of other Matter, but only from the closer Coadunation of its Particles. 3. It cannot be more surprising, that *Glass* is subject to those Mutations

tations mention'd by *Van Helmont*, than Lead, and other Metals, which are cryſtalized when put in ſome humid, or damp Place, and ſuffer other Alterations, according to the different Qualities of the other Bodies added to them; all theſe Objections ſeem rather to prove that *Glaſs* is a Metal like them.

Note alſo, That the Characters and Properties of *Glaſs*, whereby it is diſtinguiſhed from all other Bodies, are, 1. That it is fuſible by a ſtrong Fire; 2. When fuſed, tenacious and coherent; 3. It does not waſte or conſume in the Fire; 4. When melted it cleaves to Iron; 5. Ductile when red-hot, and faſhionable into any Form, but not malleable; and capable of being blown into a Hollowneſs, which no Mineral is; 6. Frangible when thin, without annealing; 7. Friable when cold; 8. Always diaphanous, whether hot or cold; 9. Flexible and elaſtick; 10. Diſſoluble by Cold and Moiſture; 11. Only capable of being graven, or cut with Diamond and Emery; 12. Receives any Colour or Dye, both externally or internally; 13. Not diſſoluble by Aqua-fortis, Aqua Regia, or Mercury; 14. Neither acid Juices, nor any other Matter, extract either Colour, Taſte, nor any other Quality from it; 15. It admits of poliſhing; 16. Neither loſes of Weight nor Subſtance by the longeſt and moſt frequent Uſe; 17. Gives Fuſion to other Metals, and ſoftens them; 18. The moſt pliable Thing in the World, and that which beſt retains the Faſhion given it; 19. Not capable of being calcined; 20. An open Glaſs, filled with Water in the Summer-Time, will gather Drops of Water on the Outſide, ſo far as the Water on the Inſide reaches; and a Man's Breath blown upon it will manifeſtly moiſten it; 21. Little *Glaſs* Balls filled with Water, Mercury, or other Liquor, and thrown into the Fire; as alſo Drops of green *Glaſs* broken, fly aſunder with a loud Noiſe; 22. Neither Wine, Beer, nor any other Liquor, will make it muſty, change its Colour, nor ruſt it; 23. It may be cemented as Stones, and other Metals; 24. A Drinking *Glaſs* partly filled with Water, and rubbed on the Brim with a wet Finger, yields muſical Notes, higher or lower, as the *Glaſs* is more or leſs full, and makes the Liquor friſk and leap.

To theſe general Notions of the Subject we are to work upon; we muſt add theſe particular Obſervations; that there are ſeveral Sorts of *Glaſs*, and different Methods of making them, *viz. White*, and *Cryſtal Glaſs*, *Round Glaſs*, *Window*, or *Table Glaſs*, of which there are ſeveral Kinds, as *Crown Glaſs*, *French Glaſs*, *German Glaſs*, *Dutch Glaſs*, *Newcaſtle Glaſs*, *Looking Glaſs*, &c.

All theſe Sorts of *Glaſs*, are made, as we have already obſerved, of ſeveral Ingredients, *viz. Salt*, *Sand*, or *Stone*. The *Salt* is the firſt Kind, ſuch as will not evaporate with the moſt intenſe Heat. The *Sand*, or *Stone*, muſt be ſuch as will melt eaſily, and is what gives Firmneſs and Conſiſtence to the *Glaſs*, or is rather *Glaſs* itſelf.

Note, That this *Salt* is procur'd chiefly from a Kind of Aſhes, called *Polverine*, or *Rochetta*, brought from the *Levant*, and particularly from *Alexandria*, and *Tripoli*. The *Aſhes* are thoſe of a Vegetable, frequent in the Country, commonly called *Kali*; ſometimes *Kalli*, *Kallu*, *Cali*; by *Geſner*, *Alkali*; by *Lobel*, *Soda*; by *Dodonæus*, *Salſola*; and by *Camer*, *Cordus*, *Fuchſius*, &c. *Anthyllis*. Dr. *Merret* calls it *Engliſh Salt-wort*, from its ſaline Taſte; and *Glaſs-Weed*, from the Uſe made of its Aſhes in making of *Glaſs*. *Bauhin* mentions ten Species of this Plant, whereof there are four uſed by the *Alexandrians*, &c. for the making of Polverine, and Soap, *viz. Kali*, *Geniculatum*, *Kali Secunda Species*, *Kali Ægyptiacum*, and *Kali Spinoſum*. The firſt and laſt the *Engliſh* Coaſts afford, where they are called by the People *Frog-Graſs*, and *Sea-Graſs*; but they are of no Uſe for making of *Glaſs*: Being laid on a hot Iron, they fly off almoſt wholly in Fumes, leaving no Aſhes at all; whereas the *Kali's* brought from the *Levant*, applied on the ſame Iron, are ſoon converted almoſt wholly into Polverine, *i. e.* very ſaline Aſhes, of a dark Colour. To get the Salt from this Polverine, they pulverize, and ſift it very fine; then boil it in a Braſs Copper, with fair Water and Tartar, till a third Part of the Water is conſumed; taking Care to ſtir it from Time to Time, till half be conſumed: This done, they have a Lee impregnated with Salt. To get the Salt from the Lees, they boil them till the Salt ſhoots at the Top, which they ſkim off as it riſes. A hundred Pounds of Aſhes, this Way, uſually yields eighty or ninety of Salt; which, when dry, they beat groſly, and put it into a Furnace, to dry it further with a gentle Heat. When ſufficiently dry, they pound, and ſift it very fine, and lay it by to make Frit.

Note alſo, That inſtead of the Aſhes of the Plant *Kali*, thoſe of Fern will alſo yield a Salt, which makes excellent *Glaſs*, nothing inferior to that of Polverine; which I can anſwer for, for our *Glaſs* in *Britanny* is made of no other. The Method of Preparation is the ſame; add that the Aſhes of Cods, and Stalks of Beans, as alſo thoſe of Coleworts, Bramble Buſh, Millet Stalks, Ruſhes, Fern Ruſhes, and many other Plants, may be uſed for the like Purpoſe, and after the ſame Manner.

Note beſides, That for *Stone*, the ſecond Ingredient in *Glaſs*, the beſt, we have obſerved, is that which will melt, is white, and tranſparent. This is found principally in *Italy*, being a Sort of Marble, called *Tarſo*; the next is *Puocoli*, or *Cuogolo*, a Sort of Pebbles found at the Bottom of Rivers. Indeed nothing makes fairer and clearer *Glaſs* than Flint, but the Charge of preparing it deters the Glaſs-Men from uſing it. The Preparation neceſſary for Stone, is to calcine, powder, and ſierce.

Ant. Nari obſerves, that all white, tranſparent Stones, which will not burn to Lime, are fit to make *Glaſs*; and that all Stones which will ſtrike Fire with Steel, can be employ'd in making of *Glaſs*. But this latter Rule, Dr. *Merret* obſerves, does not hold univerſally.

Where proper Stone cannot be had, *Sand* is uſed; the beſt for the Purpoſe, is that which is white and ſmall; for *Green Glaſs*, that which is harder and more gritty: It is to be well waſhed, which is all the Preparation it needs. *Engliſh Glaſs Houſes* are furniſhed with white Sand, for their *Cryſtal Glaſſes*, from *Maidſtone*; and with the coarſer, for *Green Glaſs*, from *Woolwich*.

Some mention a third Ingredient in *Glaſs*, viz. *Manganeſe*, or *Syderea*, a Kind of *Pſeudo*-Loadſtone, dug up in *Germany*, *Italy*, and even *Mendip Hills* in *Somerſetſhire*, but the Proportion hereof to the reſt, is very inconſiderable; beſides that it is not uſed in all *Glaſs*. Its Office is to purge off the natural greeniſh Colour, and give it ſome other Tincture requir'd.

Being thus provided with the neceſſary Ingredients of *Glaſs*, we proceed to the Building our Furnaces; which are of three Sorts, one to prepare the Frit, called the *Calcar*; a ſecond to work the *Glaſs*; and a third called the *Leer*, to anneal it.

The firſt Furnace, called the *Calcar*, is made in Faſhion of an Oven, ten Foot long, ſeven broad, and two deep. The Fuel, which in *England* is Seacoal, is put in a Trench, on one Side of the Furnace, and the Flame reverberates from the Roof back upon the Frit, in order to calcine it.

The ſecond is the working Furnace, ſerving to melt the Metal in, or make the *Glaſs*; its Figure is round, three Yards in Diameter, and two high, being arched over. Round the Inſide, are eight or more Pots placed, and piling Pots on theſe. The Number of Pots is always double that of the Bocca's or Mouths, or that of the Workmen, that each may have one Pot refin'd, to work out of, and another for Metal to refine in, while he works out of the former.

The Furnace has two Partitions, the lower, ſeparating the

the Pots from the Fire-place, has a circular Hole in the Centre, covered with a Grate, through which the Flame passes from the Fire-place into the *Furnace*; from the arched Sides and Roof whereof it is reverberated into the melting Pots. The second Partition divides this from the *Leer*, or *Annealing Furnace*. Through the Bocca's or working Holes, the Metal is taken out of the Pots, and the Pots put in the *Furnace*. These Bocca's are stopp'd with moveable Covers, made of Lute and Brick, to skreen the Workmens Eyes from the Fire. On each Side the Bocca is a Boccarella, out of which coloured *Glass*, or the finer Metal, is taken from the Piling Pots to the *Furnace*; likewise Ovens, or Holes near the Leer, for the calcining of Tartar, Iron, *&c.*

The *Leer*, which serves to anneal and cool the Vessels, and which *Agricola* makes a particular *Furnace*, consists of a Tower besides the Leer. The Tower lies directly over the melting *Furnace*, with a Partition betwixt them a Foot thick; having an Aperture called *Occhio* or *Lumella*, through which the Flame or Heat ascends out of the *Furnace* into the Tower: On the Floor, or Bottom of this Tower, the Vessels fashioned by the Masters are set to anneal. It has also two Bocca's, or Mouths, by which the *Glasses* are put in with a Fork, and set on the Floor.

The *Leer*, is an Avenue five or six Yards long, continued to the Tower: Through this the *Glasses*, when annealed, are drawn in Iron Pans called *Frasbes*; by which they come to cool by degrees: Being quite cold by that time they reach the Mouth of the *Leer*, which enters the *Sarosel*, or Room where the *Glasses* are to be set.

The third is the *Green Glass Furnace*, which is a kind of Compound of all the former. It is made square (the two former being circular) having an Arch at each Angle thereof, for annealing and cooling the Glasses. The Metal is wrought on two opposite Sides; and on the other two they have their *Calcars*, into which are made Linnet Holes, for the Fire to come from the *Furnace* to bake the Frit, and also to discharge the Smoak. Fires are made in the Arches to anneal the Vessels, so that the whole Process is done in one *Furnace*.

Note, That the Stones wherewith the Insides of these *Furnaces* are built, are not Brick (which would soon melt into Glass, as also all the softer Stones) but hard and sandy, by *Imperatus* called *Pyromachia*.

The Utensils to these *Glass-Houses*, are *Pots* made of Tobacco-pipe Clay, capable to sustain not only the Heat of the Fire, but also the Effect of the Pulverine, which penetrates every Thing else: *Blowing Irons*, which are hollow Tubes, about two Foot and a half long; *Passaga's*, an Iron Instrument to make the first Aperture; *Procello's*, another Iron Instrument, to widen the Aperture; *Shears*, &c.

Our *Glass-House* being thus fitted with all its Implements, we'll proceed next to prepare the Matter for making *White* and *Crystal Glass*, which must be of the whitest *Tarso* (pounded small, and sifted as fine as Flour) two hundred Pounds; and an hundred and thirty Pounds of the Salt of *Polverine*: These are mixed together, and put into the Furnace, call'd *Calcar*, first heating it; for an Hour keeping a moderate Fire, and stirring continually the Materials, that they may incorporate, and calcine together: Then increasing the Fire for five Hours; after which the Matter must be taken out, which, being now sufficiently calcined, is called *Frit*; and which from the *Calcar*, is to be put in a dry Place, and cover'd up from the Dust, for three or four Months.

The *Glass*, or *Crystal*, is made, by taking of this *Frit*, called also *Bollito*, and setting it, in Pots, in the Furnace; adding to it a due Quantity of Manganese. When the two are fused, the *fluor* is cast into fair Water, to clear it of the Salt, call'd *Sandever*, which, otherwise, would make the Crystal obscure, and cloudy. This Lotion must be repeated again, and again, as often as needful, till the Crystal be fully purged. Then it must be set to boil four, five, or six Days; which done, it must be seen if it has Manganese enough; if not, and it be greenish yet, more Manganese is to be added to it at Discretion, by little and little at a Time; taking Care not to overdose it, by reason the Manganese inclines it to a blackish Hue. Then the Metal is set to clarify, till it becomes of a clear and shining Colour; which done, it is fit to be blown, or formed into Vessels at Pleasure.

Our Materials thus prepared, we'll begin the Operation, by *blowing round Glasses*; and presupposing that our *Furnace* is heated as it should be, and the Matter in the two of the six Pots, placed in it, sufficiently vitrified, we'll take our *blowing Iron*, and dipping it in one of these two Pots, turn it about in it; the Metal will stick to the Iron like a glutinous, or clammy Juice, much like Turpentine. For each *Glass* we'll dip it four Times, and at each Dip roll the End of our blowing Iron, with the *Glass* thereon, on a Piece of Iron, over which is a Vessel of Water, the Coolness whereof helps to consolidate the *Glass* more readily, and disposes it the better to bind with the next to be taken out of the Pot. After we have dipped a fourth Time, and there is now Matter enough on the Instrument, we begin to blow gently thro' the Iron; by which we rise, or lengthen it nearly a Foot, the same as we do by blowing in a Bladder, or Globe; and to give it a Polish, we roll it to and fro on a Stone, or Marble. This done, we blow a second Time, and thus form the Bunch, or Belly of the *Glass*: The Matter, by this second Blast, assumes the Figure of a Gourd, or Calebass, eighteen or twenty Inches in Diameter. As often as we blow into the Iron (which must be very often) we must remove it hastily from our Mouth to our Cheek, least we should draw the Flame into our Mouth, when we re-apply it to the Iron.—We must whirl our Iron-Rod many Times round our Head, to lengthen and cool the Glass; sometimes the *Glass*, thus blown round, is returned to the Fire, where it flattens a little of itself; when flatten'd, it is taken out, and cooled; and, if needful for the Design, we must flat its Bottom, by pressing it on the Marble, or mould it in the Stamp-Iron, and thus deliver it to the Master-Workman to break off the Collet; which *Collet* is the narrow Part, which clave to the Iron.

To set the *Glass* at Liberty, we must lay a Drop of cold Water on the Collet; which by its Coldness will cut, or crack about a Quarter of an Inch: After which giving it a slight Blow, the Fracture is communicated all around the Collet. We'll throw the waste Piece by to make *green Glass*.

This done, we dip an Iron-Rod, or *Ponteglo*, in the melting Pots, and with the Matter that sticks thereto, we'll apply and fasten it to the Bottom of the Vessel, opposite to the *Collet*.—The Vessel thus sustained by the Iron Rod, is carried to the great *Bocca* to be heated, and scalded; and while another Person takes Care thereof, the former Operator rests, and prepares himself for the Branching, or making the Bowl, which is done by thrusting in an Iron Instrument, call'd *Passago*, whereby the Aperture is opened, and afterwards augmented further, and widened with the *Procello*: In turning this Instrument about, to form the Bowl, the Edge becomes thickned; the *Glass* being, as it were, doubled in that Part; whence the Hem observed on the Circumference of our *Glasses*. What is superfluous, is cut off with the Shears.

The Vessel thus opened is returned to the great *Bocca*, where being sufficiently heated a second Time, the Workman gives the Bowl its finishing, by turning it about with a circular Motion; which it increases in Proportion as the Bowl opens, and enlarges by means of the Heat and Agitation.

The *Glass* thus finished, they carry it from the *Bocca* still turning it round, to a kind of earthen Bench covered with Brands, or Coals extinguished: Here they let it cool a little, and come to its Consistence; having first detached it from the Iron Rod, by a Stroke or two with the Hand. Thus with blowing, scalding, amplifying, and cutting the *Glass*, is framed into the Shape, preconceived in the Workman's Mind. If need be he proceeds to put on a Foot and Handle, and with the *Spiei* puts on Rigarines and Marblings.

When the Master has finished a Number of them, a Servitor takes them with an Iron Fork, and speedily places

places them in the Tower or *Leer*, to anneal and harden.

Note, That *Annealing*, or *Nealing* of *Glass*, is the baking of *Glass* to dry, harden, and give it the due Consistence, after it has been blown and fashioned in the proper Works. Nealing is also used for the Art of staining *Glass* with metal Colours.

Note, also, That what has been here said, of white or crystal *Glass*, holds equally of common or green *Glass*; the working being the same in all, and the Difference only in the Salt or *Polverine*.

Note, besides, That so many Masters as there are, so many Pots at least, and so many Bocca's there must be; each Man having his proper Station, where they receive those scorching Heats sallying directly into their Faces, Mouths, and Lungs; whence they are forced to work in their Shirts, like the *Cyclops*, and *Nudi-membra Pyracmones*, with a Straw broad-brimmed Hat on their Heads, to defend their Eyes from the excessive Heat and Light. They sit in large wide wooden Chairs, with two long Elbows, to which their Instruments are hung. They work six Hours at a Time, measured by a single Glass; after which they are relieved by others for the like Time, so that the Furnaces are never idle.

From *Round Glasses* we'll pass to the blowing *Window*, or *Table-Glasses*, for which Operation the Furnace, Melting-Pots, Materials, and Fire, are the same as for *round Glass*, and the Difference only commences after the Operator has dipped his *Blowing-Iron* the fourth Time in the melted Metal: The *Glass* then being in this Condition, they blow it; but instead of rounding, or forming it into a Bunch, the particular Motion the Workmen gives it in the directing and managing the Wind, and the Way of rolling it on the Iron, makes it extend in Length two or three Foot, and form a Cylinder, which at first is but two Inches in Diameter; but which by being recommitted to the Fire, and blown afresh when taken out, becomes of the Extent required for the Table of *Glass* to be formed. With this Circumstance however, that the Side which is fastened to the Iron, goes gradually diminishing, and ends in a kind of Cone or Pyramid. To render the two Ends nearly of the same Diameter, after adding a little *Glass* to that opposite to the Iron, they draw it out with a Pair of Iron Pincers; then they incide or cut off the same End with a little Water; and carrying the Cylinder back to the Bocca, they incide it likewise with Water in two other Places, one eight or ten Inches from the Iron, and the other the whole Length.

The *Glass* Cylinder thus abridged of both its Extremities, is next heated on a kind of earthen Table, somewhat raised in the Middle, in order to promote its opening at the Place incided longitudinally. The Workman here makes use of an Iron, wherewith he alternately lowers and raises the two Sides, or Halves of the Cylinder, which now begin to open and unfold like a Sheet of Paper, and at length grow perfectly flat. The Table of *Glass* is now in its last Perfection, and needs nothing further but to be heated over again: When taken out they lay it on a Table of Copper; when after it has cooled and come to its Consistence, they carry it on Forks to the Tower of the Furnace, where they leave it to anneal for twenty-four Hours.

Note, That the Number of Tables annealed at a Time, which sometimes amount to a hundred, with the perpendicular Situation they are set in, occasioned antiently that those set in first, sustaining in some measure the Pressure of all the last, were bent, and thus rendered inconvenient for Use: But this Inconvenience is now remedied by separating them into Tens with an Iron Shiver; which diminishing the Weight by dividing it, keeps the Tables as flat and even as they were put in.

Note, also, That the Method of making Crown Window *Glass*, now practised in *England*, is borrow'd from the *French*. An *English* Glass-maker went over to work in *France*, on Purpose to get into the Secret; which when he had attained to, he returned, and set up a *Glass* Work.

The last, and most curious Operation perform'd in a *Glass-House*, is that of *Blowing*, and *Casting* LOOKING-GLASS PLATES; which tho' made of much the same Materials as other *Glasses*, viz. of an alkali Salt and Sand; it must, however, be observed, that the *Salt* should not be that extracted from Polverine, or the Ashes of the *Syrian* Kali, but that from *Barillia*, or the Ashes of a Plant of that Name, of the Genus of Kalies, but growing about *Alicant* in *Spain*. This *Barillia* is seldom to be got pure; the *Spaniards*, in burning the Herb, making a Practice of mixing another Herb along with it, which alters its Quality, or of adding Sand to it, to increase the Weight; which is easily discovered, if the Addition be only made after the boiling of the Ashes; but next to impossible, if made in the Boiling: It is from this Adulteration, that those Threads, and other Defects in *Plate-Glass*, arise.

To prepare the *Salt*, it must be well purged of all foreign Matters; pounded, or ground with a Kind of Mill, and sifted pretty fine.

The *Sand* is to be sifted, and washed, till such Time as the Water comes off very clear; and when it is well dried again, it is to be mixed with the Salt, passing the Mixture through another Sieve. This done, they are laid in the annealing Furnace for about two Hours; in which Time, the Matter becomes very light, and white, and in which State they are called *Frit*, or *Fritta*, and are to be laid up in a dry clean Place, to give them Time to incorporate, for at least a Year.

When this *Frit* is to be employed, it must be laid for some Hours in the Furnace; adding to some the Fragments, or Shards, of old and ill-made *Glasses*; taking Care, first, to calcine the Shards, by heating them red-hot in the Furnace, and thus casting them into cold Water: To the Mixture must likewise be added Manganese, to promote the Fusion, and Purification; the Matter thus prepared, is equally fit for *Plate Glass*, to be formed by Blowing, or by Casting.

Note, That the Furnaces for melting the Materials of this Manufacture, are of enormous Size; and those for annealing the *Glasses*, when formed, much more so. Round a melting Furnace there are, at least, twenty-four annealing Furnaces or Ovens, each from twenty to twenty-five Foot long: They are called *Carquasses*, each *Carquasse* has two *Tissarts*, or Apertures, to put in Wood, and two Chimneys. Add, that besides the annealing Furnaces, *&c.* there are others for the making of Frit, and calcining old Pieces of *Glass*. All these Furnaces are covered over with a large Shed, under which are likewise Forges and Workhouses for Smiths, Carpenters, *&c.* continually employed in repairing and keeping up the Machines, Furnaces, *&c.* as also Lodges and Apartments for these and other Workmen employed about the *Glass*; and in keeping up a perpetual Fire in the great Furnace; so that the *Glass-House*, as that in the Castle of *St. Gobin*, in the Forest of *Fere*, in the *Soissonois*, in *France*, appears more like a little City, than a Manufactory.

The Inside of the Furnaces is formed of a Sort of Earth proper to sustain the Action of Fire; and the same Earth for the melting Pots, Cisterns, *&c.* which are Implements of this sort of *Glass-Houses*. The Furnaces seldom last above three Years; after which they are to be rebuilt from Bottom to Top: And to keep them good even for that Time, the Inside must be refitted every six Months.

As *Looking-Glass* PLATES are made in two different Manners, *viz.* by *Blowing*, and by *Casting*; we'll begin with the most easy Manner, which is that of Blowing; and which is performed thus:—The Materials to be blown, are fused in melting Pots, thirty-eight Inches in Diameter, and thirty-five Feet high. After those Materials are vitrified by the Heat of the Fire, and the *Glass* is sufficiently refined, the Master-Workman dips in his blowing Iron once and again, till he has got Matter enough thereon.—This done, he mounts on a Kind of

Block, or Stool five Foot high, to be more at Liberty to ballance it, as it lengthens in the blowing. If the Work be too heavy for the Workman to sustain on his blowing Iron, two or more Attendants assist him, by holding Pieces of Wood under the *Glass*, in Proportion as it stretches, for Fear it should fall off the Iron by its own Weight.

When after several repeated Heatings and Blowings, the *Glass* is at length brought to the Compass proper for its Thickness, and the Quantity of Metal taken out; they cut it off with Forceps, at the Extremity opposite to the Iron, in order to point it with the *Pointil*, which is a long firm Piece of Iron, having a Piece going across one of its Ends in manner of a T. To point the *Glass* they plunge the Head of the T into the melting Pot, and with the liquid *Glass* sticking thereto, they fasten it to the Extremity of the *Glass* before cut off. When it is sufficiently fastened, they separate the other Extremity of the *Glass* from the blowing Iron, and instead thereof make use of the Pointil to carry it to the Furnaces appointed for that End; where by several Heatings they continue to enlarge it, till it be equally thick in every Part.

This done, they cut it open with the Forceps; not only on the Sides, by which it stuck to the blowing Iron, but likewise the whole Length of the Cylinder: After which, giving it a sufficient Heating, it is in a Condition to be entirely open'd, extended, and flatten'd: The Manner of doing which is much the same as for *Table Glass*, and need not be here repeated. Lastly, the *Glass* being sufficiently flatted, is laid to anneal for ten, or fifteen Days, according to the Size and Thickness.

Note, That *Looking-Glasses* thus blown, should never be above forty-five, or at most fifty Inches long, and of a Breadth proportionable. Those exceeding these Dimensions, as we frequently find among the *Venice Glasses*, cannot have the Thickness sufficient to bear the Grinding; and, beside, are subject to warp, which prevent them from regularly reflecting Objects.

The next Operation, the most curious and most valuable, is that of *running*, or *casting* large *Looking-Glass Plates*.

Note, That the Utensils of the *Glass-Houses* for this Operation, consist in *melting Pots* as big as Hogsheads, and capable to contain above two thousand Weight of Metal; in Cisterns, which serve for the Conveyance of the liquid Glass, which is drawn out of the Pots, to the casting Tables; of a Table made of Pot-Metal, about nine Foot long, and broad in Proportion, whereon the *Glass* is to be run, of Iron Rulers or Reins, *&c.*

The first Thing to be done in this Operation, as in all others of this Kind, is to heat the Furnace red-hot, which is done in this Manner: The *Tisor*, or Person employed for that Purpose, quite naked to his Shirt, runs round the Furnace without making the least Stop, with a Speed scarce inferior to that of the lightest Courier: As he goes along he takes two Billets, or Pieces of Wood cut for that Purpose, which he throws into the first *Tissart*; and continuing his Course does the same for the second: This he holds on without Interruption, for six Hours successively; after which he is relieved by another, *&c.* It is surprising that two such small Pieces of Wood, and which are consumed in an instant, should keep the Furnace to the proper Degree of Heat; which is such, that a large Bar of Iron laid at one of the Mouths of the Furnace becomes red-hot in less than half a Minute.

Note, That it is computed that a Furnace, before it be fit to run *Glass*, costs above 3500 *l.* That at least six Months are required for the building it anew, and three Months for the refitting it; and that when a Pot of Matter bursts in the Furnace, the Loss of Matter and Time amounts to above 250 *l.*

When the Furnace is red-hot, the Pots are filled with Materials at three different Times, to facilitate the Fusion. When the Matter is sufficiently vitrified, refined, and settled, which usually happens in twenty-four Hours; the Cisterns are filled, which are in the same Furnace, and which are left there about six Hours longer, till such Time as they appear all white, through the excessive Heat.

To get the Cisterns with the Metal out of the Furnace; they make use of a large Iron Chain, which opens and shuts with Hooks and Eyes; from the Middle whereof, on each Side, arise two massive Iron Pins, whereby, with the Assistance of Pullies, the Cisterns are raised upon a Kind of Carriage of a proper Height, and thus conducted to the Place where the *Glass* is to be run: Here slipping off the Bottom of the Cistern, there rushes out a Torrent of Matter, all on Fire, wherewith the Table, prepared for that Purpose, is presently covered. This Table is supported on a wooden Frame, with Trustles, for the Convenience of removing from one *Carquesse*, or annealing Furnace, to another; in Proportion as they are filled.—To form the Thickness of a *Glass*, there are two Iron Rulers, or Reins, placed around the Edge of the Table; and on these rest the two Extremes of a Kind of Roller, which serves to drive the liquid Matter before it, to the End of the Table, or Mould. The Iron Rulers being moveable, and capable of being set closer, or further apart, at Pleasure, determine the Width of the *Glasses*, and retain the Matter, that it does not run off at the Edges.

As soon as the Matter is arrived at the End of the Table, and the *Glass* is come to a Consistence, which is in about a Minute, they shove it off into the annealing Furnace, where it slides with Ease enough, by reason of the Sand strewed thereon. What is the most surprizing throughout the whole Operation, is the Quickness, and Address, wherewith such massy Cisterns, filled with so flaming a Matter, are taken out of the Furnace, conveyed to the Table, poured therein, the *Glass* spread, *&c.* the whole is inconceivable to such as have not been Eye-Witnesses of that surprising Manufacture.

As fast as the Cisterns are emptied, they carry them back to the Furnace, and take fresh ones, which they empty as before: This they continue to do, as long as there are any full Cisterns; laying as many Plates in each *Carquasse* as it will hold, and stopping them up as soon as they are full; to let them anneal, and cool again, which requires at least ten Days.

The first Running being dispatched, they prepare another, by filling the Cisterns anew, from the Matter in the Pots; and after the second a third, and even a fourth Time, till the melting Pots are quite empty.—The Cisterns, at each Running, should remain, at least, six Hours in the Furnace to whiten; and when the first annealing Furnace is full, the Casting-Table is to be carried to another. It need not here be observed, that the *Carquasses*, or annealing Furnaces, must first have been heated to the Degrees proper for them. When the Pots are emptied, they take them out, as well as the Cisterns, to scrape off what *Glass* remains, which otherwise would grow green by the Continuance of Fire, and spoil the *Glasses*.

The *Glass*, when taken out of the melting Furnace, needs nothing further than to be ground, polished, and foliated.

Note, That this Art of *casting*, or *running* large *Looking-Glass Plates*, is a *French* Invention, and not above fifty-five Years old. It is owing to the Sieur *Abraham Thevart*, who proposed it to the Court of *France* in 1688: That Court applied itself with a laudable Industry, to cultivate and improve that Manufacture. A Company of Glass-men was established by Letters Patent; and it was provided by an Arret, not only that the working in *Glass* should not derogate any Thing from Nobility, but even that none but Nobles should be allowed to work therein. The *French* continued sole Masters of this curious and very advantageous Secret, till four perfidious Men employed to work in the Manufacture, avaricious of Gain, fled into *England*, and proposed to establish a semblable one in that Kingdom. They met at first with the Encouragement they could reasonably expect; but as it was impossible they

they could work without discovering their Secret to those with whom they had associated themselves, in the working Business; those Associates were no sooner Masters of their Secrets, but they informed the others who were to defray the Expences, that they could do without their *French* Masters, who in a very short Time found themselves so entirely neglected, that some of them returned back into *France*, where they met with the Reward due to their Perfidy, for if I am not mistaken, they were both hang'd.

Before the *French* had found this excellent Secret, *Venice* for many Years had excelled all *Europe* in the Fineness of their *Glasses*. The great *Glass* Works were at *Muran*, or *Mouran*, a Village near the City; which furnished all *Europe* with the finest and largest *Glasses*.

Note also, That for the Origin of *Glass* in general, *De Neri* will have *Glass* as antient as *Job*; for that Writer, Chap. 28. Ver. 17. speaking of Wisdom, says, Gold and *Glass* shall not be equall'd to it. This we are to observe in the Reading the Septuagint, Vulgate *Latin*, St. *Jerom*, *Pineda*, &c. for in the *English* Version, instead of *Glass*, we read Crystal; and the same is done in the *Chaldee*, *Arias*, *Montanus*, and the King of *Spain*'s Edition. In other Versions, *&c.* it is read *Stone*; and in others, *Beryl*; in the *Italian*, *Spanish*, *French*, *High* and *Low Dutch*, &c. *Diamond*; in others, *Carbuncle*; and in the *Targum*, *Looking-Glass*.

Most Authors will have *Aristophanes* to be the first Author who mentions *Glass*. That Poet, in his Comedy call'd the *Clouds*, *Scen.* 1. *Act.* 2. uses the Word *Hyalus*, ὑαλος, which is now ordinarily rendered *Glass*. He there introduces *Streptiades*, teaching *Socrates* a new Way to pay old Debts, *viz.* 'by placing a transparent Stone, sold by the Druggists, 'from which the Fire is struck, between the Sun and 'the Writing; and so melting away the Letters there-'of.' This Stone *Socrates* calls ὑαλος; which the Scholiast on *Aristophanes*, derives from ὑετὸν, to rain, from the Likeness it bears to Ice, which is Rain, or Water congeal'd; though it must be own'd the Word ὑαλος is ambiguous, and signifies *Crystal*, as well as *Glass*; and *Gorræus* observes, that the Antients had a Kind of yellow Amber, transparent as *Glass*, called by some ὑαλος.

Aristotle has two Problems upon *Glass*; the first, why we see through it? the second, why it cannot be beaten? If these Problems be *Aristotle*'s, which the Learned doubt very much, this would probably be the earliest Piece of the Antiquity of *Glass*. But the first Author who makes unquestion'd Mention of this Matter, is *Alexander Aphroditæus*, who uses it in a Simile: 'As the Florid-'ness of a Colour is seen through *Glass*, &c.' After him the Word occurs commonly enough; *Lucian* mentions large *Drinking Glasses*; and *Plutarch* in his *Simpo Siacon* says, that the Fire of Tamarish Wood is the fittest for the making of *Glass*. Among the *Latin* Writers, *Lucretius* is the first that takes Notice of *Glass*. *Nisi recta foramina tranant, qualia sunt Vitri.* Dr. *Merret* however, adds, that *Glass* could not be unknown to the Antients, but that it must be as antient as Pottery itself, or the Art of making Bricks; for scarcely can a Kiln of Bricks be burnt, or a Batch of Pottery Ware be made, but some of the Bricks and Ware, will be at least superficially turn'd to *Glass*; and therefore, without doubt it was known at the Building of *Babel*. Hence *Ferrant Imperatus*, *Lib.* 25. *c.* 7. '*Glass*, like the arti-'ficial Kind, is found under Ground, in Places where 'great Fires have been. Other *Glasses* are found in 'round Clods like Firestone, some brittle, others firm, '*&c.* This fossile *Glass* is wrought by the *Americans*, 'and used instead of Iron.' And no doubt but Vitrifactions were more common in antient Bricks than ours; as they tempered their Earth two Years together, and burnt them better.

Pliny relates the Manner of the Discovery of *Glass*. It was found, according to that Author, by Accident in *Syria*, at the Mouth of the River *Belus*, by certain Merchants, driven thither by the Fortune of the Sea; being obliged to live there, and dress their Victuals by making a Fire on the Ground; and there being Store of the Plant *Kali* upon the Spot, this Herb being burnt to Ashes, and the Sand, or Stones of the Place, accidentally mix'd with it, a Vitrification was undesignedly made; from whence the Hint was taken, and easily improv'd.

Indeed, how old soever *Glass* may be, the Art of making and working it appears of no great Antiquity. The first Place mention'd for the making hereof, is *Sidon* in *Syria*, which was famous for *Glass* and *Glass-Houses*, as observed by *Pliny*, *Lib.* 26. *c.* 26. The first Time we know of *Glass* made among the *Romans*, was in the Time of *Tiberius*, when *Pliny* relates that an Artist had his House demolished for making *Glass* malleable, or rather flexible. Though *Petronius Arbiter*, and some others, assure, that the Emperor order'd the Artist to be beheaded for his Invention.

Note, That there is an Operation made upon *Glass*, which I find no proper Place to take Notice of but in this, and which is *Painting upon Glass*, for *Glass Windows* of Churches, Chapels, Colleges, *&c.* This Operation, being likewise perfected in a Furnace, or Oven, where the Colours are baked or annealed; which Colours are very different from those used in Painting in Oil, or Water: For the *Black* is made of two Thirds of Flakes, or Scales of Iron, beaten up and mixed with another Third of Rocaile, or little *Glass* Beads. *White*, with Sand or little white Pebbles, calcin'd, pounded in a Mortar, and afterwards ground on Marble; with one fourth Part of Salt-Petre added thereto, and the Mixts are calcin'd, and pulveriz'd over again; to which, when ready to use it, is added a little Gypsum, or Plaister of *Paris* well ground, *&c.* For *Yellow*, they use Leaf Silver ground, mixed up in a Crucible with Sulphur, or Salt-Petre; then well beaten and ground on a Porphyry Stone; and at length ground over again with nine Times as much red Oker. *Red*, is made of Litharge of Silver, and Scales of Iron, Gum-arabick, Ferreta, *Glass* Beads and Blood Stones, nearly in equal Quantities. This is one of the most difficult Colours, and the Preparation only to be learn'd by Experience. *Green*, is made of *Æs ustum*, one Ounce; as much Black Lead, and four Ounces of white Sand, incorporated by the Fire. After Calcination, they add a fourth Part of Salt-Petre; after a second Calcination, a sixth Part more; after which they make a third Coction before it is used. *Azure*, *Purple*, and *Violet*, are prepar'd like *Green*, only leaving out the *Æs ustum*, and in lieu thereof using Sulphur, for *Azure*; Perigueux, for *Purple*; and both those Drugs for *Violet*. *Carnations* are made of Ferretta and Rocaille. And lastly Colours for the Hair, Trunks of Trees, *&c.* are made of Ferretta, Rocaille, *&c.* though all Painters on *Glass* do not use these Colours, for which we are indebted to M. *Felibien*, who gives this Account of them in his excellent Work *Des Principes d'Architecture*, &c. but most of them invent particular Ones, of which they make great Secrets. Notwithstanding which, these, above described, are sufficient for the best Painting upon *Glass*; provided a Person has but the Skill to manage them.

Note also, That the first Thing to be done, in order to paint on *Glass*, in the modern Way, is to design, and even colour the whole Subject on Paper. Then they make Choice of Pieces of *Glass*, proper to receive the several Parts, and proceed to divide, or distribute the Design itself, or the Paper it is drawn on into Pieces suitable to those of *Glass*; having always a View that the *Glasses* may join in the Contours of the Figures, and Folds of the Draperies; that the Carnations and other finer Parts may not be damaged by the Lead wherewith the Pieces are to be join'd together. The Distribution made, they mark all the *Glasses*, as well as Papers, with Letters or Numbers, that they may be known again. Which done, applying each Part of the Design on a *Glass* intended for it, they copy, or transfer the Design upon this *Glass*, with

with the black Colour, diluted in Gum-Water, by tracing and following all the Lines and Strokes, as they appear through the *Glass* with the Point of a Pencil. When these first Strokes are well dried, which happens in about two Days, the Work being only in Black and White, they give it a slight wash over, with Urine, Gum-arabick, and a little Black; and this several Times repeated, according as the Shades are desir'd to be heightened; with this Precaution never to apply a new Wash, till the former is sufficiently dried. This done, the Lights and Risings are given, by rubbing off the Colour in the respective Places, with a wooden Point, or the Handle of the Pencil. As to the other Colours above-mention'd, they are used with Gum-Water, as much as in Painting in Miniature; taking Care to apply them lightly, for fear of effacing the Out-lines of the Design; or even for the greater Security, to apply them on the other Side, especially yellow, which is very pernicious to the other Colours, by blending them therewith. And here too, as in Pieces of Black and White, particular Regard must be had, not to lay Colour on Colour, or Lay on Lay, till such Time as the former are well dried. It may be added, that the Yellow is the only Colour that penetrates through the *Glass*, and incorporates therewith by the Fire: The rest, and particularly the Blue, which is very difficult to use, remaining on the Surface, or at least penetrating very little.

When the Painting of all the Pieces is finished, they are carried to the Furnace, or Oven, to anneal, or bake the Colours. The Furnace here used, is small, built of Brick, from eighteen to thirty Inches square: At six Inches from the Bottom is an Aperture to put in the Fuel, and maintain the Fire. Over this Aperture is a Grate, made of three square Bars of Iron, which traverse the Furnace, and divide it into two Parts. Two Inches above this Partition is another little Aperture, through which they take out Pieces to examine how the Coction goes forward. On the Grate is placed a square earthen Pan, six or seven Inches deep; and five or six Inches less each Way than the Perimeter of the Furnace. On one Side hereof is a little Aperture, thro' which is made the Trials, placed directly opposite to that of the Furnaces disposed for the same End. In this Pan are the Pieces of *Glass* to be placed in the following Manner: First, the Bottom of the Pan is cover'd with three Strata, or Layers of Quicklime, pulverized; those Strata's being separated by two others of old broken *Glass*; the Design whereof is to secure the painted *Glass* from the too intense Heat of the Fire. This done, the *Glasses* are laid horizontally on the last, or uppermost Layer of Lime. The first Row of *Glass* they cover over with a Layer of the same Powder, an Inch deep; and over this lay another Range of *Glasses*; and thus alternately till the Pan is quite full: Taking Care that the whole Heap always end with a Layer of the Lime Powder.

The Pan thus prepar'd, they cover up the Furnace with Tiles; on a square Table of Earthern Ware, closely luted all round, only having five little Apertures, one at each Corner, and another in the Middle to serve as Chimneys.

Things thus disposed, there remains nothing but to give the Fire to the Work; which Fire, for the two first Hours must be very moderate; and be increased in Proportion as the Coction advances, for the Space of ten or twelve Hours; in which Time it is usually compleated. At last the Fire, which at first was only of Charcoal, is of dry Wood; so that the Flame covers the whole Pan, and even issues out at the Chimneys. During the last Hours they make Essays from Time to Time; by taking out Pieces laid for the Purpose, through the little Aperture of the Furnace and Pan, to see whether the Yellow be perfect, and the other Colours in good Order. When the annealing is thought sufficient, they proceed with great Haste to extinguish the Fire, which otherwise would soon burn the Colours, and break the *Glasses*.

Note besides, That this modern Way of Painting upon *Glass*, is not comparable to that which immediately preceded it; nor the Colours near so beautiful and lively as those we see in the Windows of divers antient Churches, Chapels, Colleges, *&c.* not that the Secret of making those Colours is lost, as vulgarly supposed; but that the Moderns would not go to the Expence of them; nor take all the necessary Pains; by Reason this Sort of Painting is not so much esteemed as formerly.

These beautiful Works, which were made in the *Glass-Houses*, were of two Kinds: In some, the Colour was diffused through the whole Body of *Glass*; in others, which were the more common, the Colour was only on one Side, scarce penetrating within the Substance above one Third of a Line, though more or less, according to the Nature of the Colour, the Yellow being always found to enter the deepest. These last, tho' not so strong and beautiful as the former, were of more Advantage to the Workmen, by Reason, on the same *Glass*, tho' already colour'd, they could shew other Kind of Colours, where there was Occasion to embroider Draperies, enrich them with Foliages, or represent other Ornaments of Gold, Silver, *&c.* In order to this, they made Use of Emery; grinding or wearing down the Surface of the *Glass*, till such Time as they were got through the Colour, to the clear *Glass*: This done, they applied the proper Colours on the other Side of the *Glass*; by this Means the new Colours were prevented from running and mixing among the former, when the *Glasses* came to be exposed to the Fire.

Note again, That this excellent Method of Painting upon *Glass*, was invented by a *French* Painter of *Marseilles*, upon going to *Rome* under the Pontificate of *Julius* II. and was much improv'd afterwards by *Albert Durer*, and *Lucas* of *Leyden*; though the Antients had *had* a Notion of that Art, but their Manner of Painting was very simple; for it consisted in the meer Arrangement of Pieces of *Glass*, of different Colours, in some Sort of Symmetry; and constituted a Kind of what we call *Mosaick Work*. Afterwards when they came to attempt more regular Designs, and even to represent Figures with all their Shades, their whole Address went no farther than to the drawing the Contours of the Figures in Black, with Water Colours, and hatching the Draperies after the same Manner, on *Glasses* of the Colour of the Object intended to be painted. For the Carnations they chose *Glass* of a bright Red; upon which they design'd the principal Lineaments of the Face, *&c.* with Black.

GOD, and His ATTRIBUTES.

GOD is an immaterial, intelligent, and free Being, of a perfect Goodness, Wisdom, and Power, who made the Universe, and continues to support it, as well as to govern and direct it by his Providence.

Note, That the *Divine Essence* being the inexhaustible Source of all the Perfections and Personalities which are in *God*; and essential or absolute *Attributes* in our Manner of conceiving those sublime Things, prior to the personal relative Properties, I design to speak first in this sublime Treatise, which is the Foundation of all Sorts of Religions in general, and of Christianity in particular; 1. Of *God's Existence*, and *Essence*; 2. Of the *Divine Attributes* in general; 3. Of each of those *Attributes* in particular; 4. Of the *Passive Vision of God*; 5. Of the *Supreme Intelligence of God*; 6. Of

the *Will of God*; 7. Of the *Providence of God*; 8. Of the *Omnipotency of God.*

Note alſo, That as I have already proved *God's Exiſtence*, in my Treatiſe of *Atheiſm*, under the Letter *A*, and ſaid there all that could be ſaid on that Subject, capable to cover with Confuſion and Shame, thoſe who have the ſacrilegious Folly to deny that Exiſtence; I think it needleſs to repeat here all the Arguments uſed in that Place: Therefore I'll begin this by enquiring, with all the awful Reſpect becoming a Chriſtian Theologian, into the Eſſence of *God.*

Before any Thing can be defined concerning *God*, we muſt firſt inform ourſelves what he is, *i. e.* what is underſtood by the Name of *God:* For I underſtand a true, not a falſe *God.* Therefore I ſay that *God* is a *Being eſſentially exiſting*, ſince he depends on no other for his actual Being; ſo that the true Idea of the divine Eſſence, or the divine Eſſence himſelf, conſiſts in that eſſential and actual Being, becauſe it denotes an Independence; not that the *divine Eſſence* is thereby formally eſtabliſhed, becauſe this is poſitive, and that admits of a Negation; neither is that *Eſſence* by a Being from himſelf, becauſe that *Being from*, admits of a Relation; but there is no Relation to oneſelf: Add, that the *divine Eſſence* is a *Being* intirely abſolute; therefore it muſt not be eſtabliſhed formally, by a relative Attribute, and not even by *Infinity*, becauſe Infinity imports a Negation, as ſuppoſed to be ſomething adventitious to the divine Eſſence, and to his Attributes; for *God* is infinite becauſe he is *God*; therefore that divine Being is preſuppoſed to Infinity; neither by being the Origin of all Beings, becauſe he is not the Origin of himſelf, and therefore he is not the Origin of all Beings: Add, that to be the Origin admits of a Relation, becauſe if he be the Origin it muſt be of another.

I even go further and ſay, that the *divine Eſſence* is not placed formally in the divine Underſtanding; for this admits likewiſe of a ſort of Relation, ſince it ſuppoſes ſome Subject, or Object of the Underſtanding. And we conceive the Intellective before the Intelligent: Neither is the *divine Eſſence* conſtituted by the Concourſe of all the divine Perfections, becauſe thereby the *Eſſence* is not ſo juſtly diſtinguiſhed from the Attributes; a Collection, beſide, being a ſort of Relation, and what is collected being different from the Collection, and the Collection different from him who collects; but *God* aſſembles within himſelf all Sorts of Perfections; therefore the *Eſſence* of *God* is ſuppoſed previouſly to all Perfections: Therefore the *divine Eſſence* conſiſts in an actual eſſential Being, abſtracted from all Ideas of any other Beings, and conceived as if all others, and all that has the leaſt Relation to them, either created or uncreated, ſpiritual or corporeal, had neither Eſſence nor Exiſtence.

From this Conſideration of the *divine Eſſence*, I'll paſs to that of his divine Attributes in general.

Note, That *God's Attributes*, taken in general, may be conſider'd in two Manners: 1. In a wide Senſe. 2. In a ſtrict Senſe.

God's Attribute, taken in general, and even in a wide Senſe, is all that is affirmed of *God*, as of a Subject, let it be in what Manner it may be affirmed. Thus the *Predicates* conſtitutive of the *divine Eſſence*, ſuch as Deity, Subſtance, Spirit, and the like, may be called *God's Attributes*, as well as the relative Names affirmed of *God*, ſuch as that of Creator, and the like.

Divine Attribute taken in general, but in a ſtrict Senſe, can be defined an eſſential, poſitive, and abſolute Name, belonging to *God* as a Propriety.

1. It is called a *Name*, i. e. *predicate*, becauſe what the modern Theologians call at preſent *God's Attribute*, the antient Fathers uſed to call *divine Name.*

2. It is called *eſſential*, not that it muſt be conſtitutive of the divine Eſſence, preciſely conſidered; but muſt be common to the Eſſence of God, and to the three Perſons. Whence a quidittative Name, *i. e.* a Name conſtitutive of the divine Eſſence, if there was any, ought not to be ranked among the divine Attributes.

3. It is called *Poſitive*, i. e. ſignifying formally ſome real Perfection exiſting in *God*, and not a ſimple Negation of Imperfection.

4. *Abſolute*, i. e. admitting of no real Relation within, as Father, Son, and Holy Ghoſt; or of Reaſon without, as Lord, Creator, Firſt Cauſe, *&c.*

5. *Which belongs to God*, i. e. to the divine Eſſence, and the three Perſons.

6. *Properly belongs*, to exclude a metaphorical Name, as that of Lion, Shepherd, and the like, which are ſometimes attributed to *God.*

7. *As a Propriety*, i. e. as a Perfection flowing from the Eſſence of *God.* From this Definition of *God's Attribute* taken in a ſtrict Senſe, it muſt be inferred, that there are ſeveral Names not to be ranked among thoſe *Attributes*, viz. 1. Thoſe which are perſonal and notional, ſuch as the Names of *Father*, *Son*, *Innaſcible*, and the like. 2. Thoſe which are *Negative*, as *Infinite*, *Increated*, &c. 3. The *relative*, whether they import a Relation *ad intra*, as the Names of *generating*, &c. or *ad extra*, as thoſe of *Lord*, *Creator*, and the like. Whence it is not ſurpriſing if St. *Thomas*, *p.* 1. *Queſt.* 39. *art.* 7. diſtinguiſhes *God's Attributes*, from thoſe which are proper to the divine Perſons. 4. Thoſe which are metaphorical, as the Names of Lion, Huſbandman, and the like. 5. Thoſe which are quidittative, or conſtitutive of the divine Eſſence, ſuch as the Names of Spirit and Subſtance.

Note, That thoſe Names I have excluded from among *God's Attributes*, taken in a ſtrict Senſe, can, notwithſtanding, be ranked among thoſe *Attributes*, taken in a wide Senſe.

Note, alſo, That it is not requiſite that *God's Attributes* ſhould be ſomething common, between him and the Creatures, otherwiſe Eternity, Immenſity, and Immutability, would not be *God's* Attributes; neither is it neceſſary that thoſe Attributes ſhould be demonſtrated; the Reaſon why not, is apparent of itſelf.

God's Attributes, taken in general, can be divided in theſe two Manners: 1. Into *affirmative*, and *negative.* 2. Into *eſſential*, or *abſolute*; and into *notional*, or *relative.*

Firſt, The *divine Attribute* can be divided into *affirmative*, and *negative*, becauſe it ſignifies ſome certain Perfection (expreſſed by Word) exiſting in the divine Eſſence, in the Manner of ſome Form added to it, and thus is *affirmative* or *poſitive*, as *Goodneſs*, *Juſtice*, *Clemency*; or by Word, it denotes ſo great a Diſtance from Imperfection, that in the Intention of thoſe who have given that Name, it marks ſome Perfection exiſting, formally, in *God*, and in that Senſe it is *negative*, as the divine Immenſity, which by a Negation of Ubiquity, denotes a certain Perfection, whereby the divine Eſſence is diffuſed throughout infinite Spaces. This Diviſion is founded on the Doctrine of St. *Denis*, who ſays, *Lib. de divin. Nom. c.* 7. that *God* is known by us in two Manners, *viz.* by Science, and Ignorance; by Science, inaſmuch as we know his *affirmative Attributes*; and by Ignorance, inaſmuch as we know his *negative ones.* The firſt Member of this Diviſion is compared to the Art of Painting, and the other to that of Statuary.

Secondly, The *divine Attribute* is alſo divided into *relative*, or *notional*; or into *abſolute*, or *eſſential*; for the *Attribute* either imports ſome Relation, or not: If the firſt, it is *relative*; if the ſecond, it is *abſolute*, or *eſſential*, and is common to the three Perſons; and affects in ſome Manner the divine Eſſence itſelf; ſuch are *Juſtice* and *Mercy.*

The next Thing we are to conſider is, in what Manner the *divine Attributes* are diſtinguiſhed, either between themſelves, or from the divine Eſſence.

To reſolve that Queſtion, we muſt obſerve, in few Words, that the *divine Attributes* can be conſider'd in two Manners: 1. As they are in themſelves. 2. As they are conceived by us.

Theſe pre-obſerved, I'll ſay that the *divine Attributes*, as they are in *God*, are not really diſtinguiſhed, either

between themselves, or from the Essence. They are not really distinguished between themselves, because that essential Distinction is entirely repugnant to the Simplicity of the divine Essence; it being repugnant to it, to include several essential Predicates, which would be really distinct between themselves; for then the divine Essence would be composed of several Things, really distinct between themselves.

It may be objected to this, that tho' the divine Relations are identified, really, with the divine Essence, they nevertheless admit of a real Distinction between themselves; and therefore, tho' the *divine Attributes* be identified, really, with the Essence, they could be likewise distinguished really between themselves.

I answer, that there is a very great Disparity between the divine Attributes, and the divine Relations; because the divine Relations are the same Thing with the *divine Essence*, in such a Manner, that notwithstanding they are relatively opposed, and consequently are by that Opposition, really distinguished, as I'll observe more at large, in my Treatise of the *Blessed Trinity*; but the *divine Attributes* are not thus opposed between themselves, nor consequently distinguished.

Neither are those *Attributes* really distinguished from the divine Essence; because a Distinction is repugnant to the divine Essence: For, as the divine Essence is infinitely perfect, it must include, and includes in fact, all Sorts of Perfections, all as well created, as increated, tho' by a Reason of Disparity, it includes the Created, virtually, only, and the Increated, formally. Whence St. *Augustin*, *Lib.* 5. *de Trinit. c.* 8. *Non est aliud* Deo *esse, & magnum esse: Sed hoc idem est esse, & magnum esse*, i. e. It is not a Thing different in *God* to be, and to be great: But it is the same in him to be, and to be great.

Neither are *God*'s *Attributes* as they are in himself, distinguished formally from the Essence, nor between themselves. For if they were thus distinct from the Essence, it would follow hence, that the divine Essence were not infinitely perfect, because it would be supposed rendered perfect by the Attributes: And if they were distinguished between themselves, such Distinction would be repugnant to the Simplicity of the divine Essence, since it imports a Composition in *God* of several essential Predicates *formally* distinct between themselves.

But *God*'s *Attributes* are distinguished virtually, as well from the Essence precisely taken, as between themselves; because tho' *God*'s *Attributes*, and his divine Essence, be one simple, and undistinct Entity, the human Understanding cannot precisely conceive it of a single formal Conception, but wants several adequate Conceptions, by one of which he conceives the Essence, and by the other the Attributes; and that with Foundation in the Thing, because all those Things, in *God*, are according to the Idea we form of them; for the Notion we have of the divine Essence, precisely taken, is not the same with that we have of his Attributes, *viz.* his Justice, or Mercy; neither is the Idea we form of an Attribute, *viz.* of his Justice, the same with that we form of another Attribute, *viz.* his Mercy.

Note, That Distinction, in general, is a Negation of Identity; or that whereby one is not another. *Distinction* is divided into *real*, *formal*, and *virtual*; and the *real* is subdivided into *greater*, and *lesser*.—The *greater real Distinction*, is that which happens between two Things, really separated from one another, as between *Peter* and *Paul*; and between those Things which are not actually separated, but can be separated, as between the Soul and Body; and lastly, between those which neither are separated, nor can be separated, but can, notwithstanding, be produced from one another; *v. g.* between the heavenly Father and his Son.

The *lesser real*, is that which happens between those Things, one of which can very well be without the other, but not *vice versâ*; as that between the Finger and its Inflexion.

Formal Distinction, is that happening between those Things which have a distinct Entity, though they be really the same Thing in some individual, and one cannot exist without the other; such is the Distinction between an external Quantity, and the Figure, which are inseparable from one another; which notwithstanding the Entity of the one, is distinct from that of the other.

Virtual Distinction, is that happening between Things, which tho' they have but one simple Entity, that Entity is notwithstanding equivalent to several, because of its Eminency, which offers itself to the Understanding in its entire Perfection, but according to partial and unadequate objective Conceptions; *e. gr.* The human Soul, which though it be one and the same Soul, can notwithstanding be conceived as rational, sensitive, and vegetative.—All this should be known, before any Body can pretend to understand, our different Distinctions of the divine Attributes.

Having thus spoke of the *divine Attributes* in general, Order requires that I should treat of every one of them in particular, beginning by the Simplicity of *God*; in which I'll consider chiefly four Things: 1. If *God* be simple in such a Manner as to admit of no Composition real and actual. 2. If that Simplicity be such in *God* as to exclude even a virtual Composition. 3. If *God* can enter into the Composition of something else. 4. If that Simplicity be a positive divine Perfection, and so well appropriated to *God*, as to be impossible of its being communicated to the Creature.

Note, 1. That by the Name of Simplicity is understood a Negation of Composition and Potentiality; whence, as Unity is opposed to Multitude, so Simplicity is opposed to Composition, and Potentiality; especially in *God*, whose Simplicity is founded on its supreme Actuality. 2. For the Intelligence of the following Articles, we must know what Simplicity be in general, which is commonly defin'd the *Union of several Things* distinct; and know, likewise, how it be divided. 3. *Composition*, in general, is divided into *real* and *rational*; the *real* is that consisting of Parts distinct really between themselves, and meeting in the Entity of a sole Composite; and the *rational Composition*, is that which consists of Parts only distinct by our Manner of conceiving them.—The *real Composition*, is subdivided, besides, into *substantial* and *accidental*: That is *substantial*, whose Extremes are Substances, substantially united between themselves; and that *accidental*, one of the Extremes whereof is an Accident; or if they be both Substances, are not however joined together by a substantial Union; as it appears by the Example of an Angel, and of Heaven: For those two Substances are only united accidentally, *viz.* by Motion, or a local Presence. That Composition which is substantial, can be subdivided, besides, into *physical*, and *metaphysical*; for this consists of Parts purely metaphysical, *viz.* either of the Genus and Difference, or of Essence and Existence, or of Nature and Subsistance. And that results from physical Parts, *viz.* either from Matter and Form, or from entitative integrant Parts: Therefore,

1. *God* is so simple as to admit in himself neither a real, nor actual Composition, either metaphysical or physical: Which can be proved by the Scripture, the Councils, and the Fathers. By the Scripture *Exod.* 3. where *Moses* speaks of *God* in this Manner, *He who is, has sent me to you.* For by that Manner of speaking he gives us to understand, that *God* is a Being very pure, and very simple. By the Councils, particularly that of *Lateran*, under *Innocent* III. *Cap. firmiter de Sancta Trinitate, & fide catholicâ*, where it is said, that there are three Persons, and but one Essence, Substance, or Nature entirely simple. From the holy Fathers, particularly St. *Augustin*, who says, *Lib.* 11. *de civit. c.* 10. *That there is a simple and incommutable Good, which is God himself; and what's generated from that simple Good is likewise simple; and another who is neither Father nor Son; and this is likewise simple, and likewise good, incommutable, and co-eternal; and that Trinity is one God, and the Trinity does not hinder the Simplicity.*

This *Simplicity* of God is alſo proved by Reaſon; becauſe *God* is an Act ſo ſovereignly pure, and ſo ſovereignly perfect, as to exclude from himſelf all ſort of Potentiality, and conſequently all ſort of Imperfection, and all Defect of Perfections; which would not be excluded, if he was to admit in himſelf any real Compoſition, either phyſical or metaphyſical: For every actual and real Compoſition imports the Union of ſeveral Things diſtinct between themſelves, one of which is accounted a Power, and the other an Act, and conſequently imports ſome Imperfections, ſince Potentiality imports a Defect of Perfection, in that it denotes a Regard to an Act which can give it the Perfection it wants.

It may be objected to this, that three Perſons conſtitute one *God*, and that conſequently *God* is not ſo ſimple as to exclude a real Compoſition.

I anſwer, that the three Perſons do not conſtitute one *God* otherwiſe than by being identified to the divine Eſſence, which Identification is not a Compoſition, becauſe a Compoſition is not formed of Things identified to one another, but from Things which are diſtinct.

Note, That from what I have ſaid it may be inferred, 1. That *God* is not a Body, as the Antropomorphites have falſely imagined, witneſs St. *Epiphanius*, *Hæreſ.* 70. For does not the Scripture ſay, *John* 4. *God is a Spirit?* Does not the Council of *Frejus*, aſſembled in the Year 791. in their Confeſſion of Faith, ſay that *God is incorporeal?* Does not St. *Thomas*, p. 1. *Queſt.* 3. *art.* 1. prove, That *God* is the firſt Being, always in the Act, and never in the Power; and that a Body being a Compoſite, has ſomething before itſelf, *viz.* the Parts it is compoſed of. Add to this, that a Body, becauſe compoſed, has in itſelf the Principle of Combat; the Combat, the Principle of Diſunion; and Diſunion, the Principle of Diſſolution; and that Diſſolution is foreign to *God*, as proved by St. *Gregory Nazianz. Orat.* 24. whence it eaſily appears, he is not compoſed of Matter and Form. Notwithſtanding what ſeveral others have believed, among whom they rank *Tertullian*, tho' St. *Auguſtin* endeavours to excuſe him, by inſinuating that he believed that *God* was a Body, inaſmuch as he is oppoſed to nothing, but not as oppoſed to a ſpiritual Being; and notwithſtanding what is objected, that corporeal Parts are attributed to *God* in the Scripture; which is only ſaid metaphorically.— It may be inferr'd, 2. That there is no Compoſition, in *God*, of Eſſence and Exiſtence, becauſe a Compoſition of diſtinct Parts admits of an Union; but Eſſence, and Exiſtence in *God* are not two Things diſtinct, but only one and the ſame Thing; whence God is an Act ſovereignly pure.—3. That in *God* there is no Compoſition, properly ſaid, of ſuppoſite and Eſſence, ſince *God* and Deity is the ſame Thing as proved by St. *Thomas*, *art.* 3. againſt the Abbot *Joachim*, who admitted a *Quaternity* in *God.*— 4. That there is no Compoſition in *God*, of Genus and Difference; becauſe then *God* would be a Specie, under a Genus, which is falſe; becauſe God is the Principal of every Genus.— 5. Neither a Compoſition of Subſtance and Accident; becauſe there is no Accident in *God*, who is a pure Act, and a Being ſovereignly perfect, having no Potentiality in himſelf. Notwithſtanding what St. *Auguſtin* ſays, *Lib.* 5. *de Trinit. c.* 5. That all that's ſaid of *God*, is not ſaid according to his Subſtance; whence ſome have the Temerity to infer, that ſomething is ſaid of him according to the Accident, which is falſe; for the Word *Subſtance* is taken in that Place, not as its being oppoſed to Accident, but as oppoſed to a relative Being. So that the true Senſe of this Paſſage is, that ſomething is ſaid of *God*, in the Manner of a relative Being, and according to the perſonal Property; and all Things ſaid of *God*, are not ſaid according to his Eſſence; for beſides the eſſential and abſolute Attributes, there are in him ſome Relations, and perſonal Properties.

I'll examine next, if the Simplicity which is in *God* be ſuch as to admit, or to exclude from him even a *virtual Compoſition*, either phyſical, or metaphyſical? Which Queſtion I anſwer in the Affirmative; and which I prove, both by the Fathers, and by Reaſon..

Among the antient Fathers, St. *Anſelmus*, *Proſolog. c.* 18. ſays that Things which can be ſeparated, or diſſolved by our Underſtanding, are foreign to *God.*

By Reaſon, becauſe the extremely perfect Simplicity of *God*, does not leſs exclude all Sort of Compoſition whatever, even virtual, than the Being excludes from himſelf Dependance; and Immutability, Mutation even virtual; for thoſe Perfections being infinite, the Simplicity which is in *God* muſt likewiſe be infinite, ſince no greater nor better can be imagined.

To this it may be objected, that a virtual Diſtinction may be in *God*, together with Unity, though oppoſed to it; and conſequently a virtual Compoſition with Simplicity, to which it is oppoſed.

I anſwer, that there is a very great Diſparity between virtual Diſtinction, and virtual Compoſition; ſince a virtual Diſtinction does not ſuppoſe any Imperfection in the Object, ſince that Diſtinction proceeds in Part from the ſupreme Perfection of *God*, and in Part from the Imbecility of our Underſtanding, which cannot conceive, at once, all the Perfections of *God:* But Compoſition, of any Kind whatever, carries always along with it ſome Imperfection.

Another Objection is, that Eternity does not leſs remove Priority and Poſteriority from *God*, than Simplicity removes Compoſition; but Eternity does not remove a virtual Priority, and Poſteriority from *God*, ſince one Perſon is prior to the other, and ſome Attributes prior to others, therefore, *&c.*

To anſwer this Objection, I ſay, that Eternity does not leſs remove from *God* a Priority, and Poſteriority of Duration or of Time; but not a Priority of Origin and Beatitude. That there is no Priority or Poſteriority of Time, is confirmed by the Symbol of St. *Athanaſius*, and by St. *Auguſtin*, *Lib.* 3. *c.* 14. *cont. Maximin.*

It may be aſked next, if *God* can enter into the Compoſition of another? Which I anſwer in the Negative; becauſe it would follow hence, that *God*, then as a Part, would be leſs perfect than the Whole, into whoſe Compoſition he would enter; ſince a Part, conſidered as a Part, is leſs perfect than the Compoſite whereof it is a Part; becauſe it has, beſides the Perfection of that Part, that of the other Compart; and therefore has a ſort of Dependency from that Compart.

It is objected, 1. That St. *Auguſtin*, *Serm.* 38. *de verb. Dan.* ſays, that *God* is ſaid to be a certain Form, not formed, but the incommutable Form of all that's formed; and that therefore he is a Part, properly ſaid, of ſome Compoſite.

I anſwer, that *God* is in fact the exemplary Form of all Things, but not a Form which is a Part, properly ſaid, of any Compoſite.

It is urged further from St. *Denis*, *Lib. de celeſt. Hier. c.* 4. That *God* is ſaid to be *the Being of all*; and is conſequently a Part, properly ſaid, of ſome Compoſite.

I anſwer, that he is exemplarily and efficiently the *Eſſe*, or Being of all Things, not formally.

A ſecond Objection is, that the Divine Word enters into the Compoſition of *Chriſt*; ſince *Chriſt* is compoſed of the Word, and of the human Nature; and therefore *God* can enter into the Compoſition of another.

I anſwer, that he enters into a numerical Compoſition, but not in one made of Parts. I call *numerical Compoſition*, that where the Parts undergo no Mutation in themſelves, and remain always diſtinct from one another, as Units in a Number: And that made with Parts, properly ſo called, *i. e.* of Parts, ordered of themſelves, and by Nature, to compoſe a Whole, and have a mutual Dependency on one another: Though it muſt be obſerved, that *God* can enter into the Compoſition of another, made of Parts improperly ſo called.

If it be aſked, if the Simplicity which is in *God*, be a poſitive Perfection, and ſo proper to *God*, that it cannot be communicated to the Creature? I'll anſwer, 1. That *that* Simplicity by the Strength of the Signification, is not a poſitive Perfection; but it preſuppoſes a *Perfection ſimply ſimple.* It is not a poſitive Perfection, by the Strength of the Signification, becauſe, as ſuch, it

is only the Negation of any true and real Composition. It supposes a *Perfection simply simple*, because it presupposes a supreme and infinite Actuality of the divine Essence, or, which is the same, it presupposes that *God* is an Act extremely pure; and that Actuality is a *Perfection simply simple*.

I answer, 2. That that perfect Simplicity is so proper to *God*, that it cannot be communicated to the Creature; because *God*'s Simplicity, as to his Signification, says, at least fundamentally, an entire Actuality, with the Negation of all Sorts of Compositions; but such Actuality cannot be communicated to the Creature; therefore, *&c.*

From this I'll pass to the Consideration of *God's Perfection.*

Note, That as in the Creatures the best Things are composed of single Individuals, because their Perfection is not found in one alone, but in the Union of several; for that Reason it is ask'd why *God*, who is so pure, and so simple an Act, as to admit of no Composition whatever, *can be perfect?* Which Difficulty I'll endeavour to resolve, observing previously to it, what *Perfection* is, and how many Sorts of *Perfections* there are. *Perfection* in general, is the Complement of Things requir'd for the Integrity of another; whence it is inferr'd, that *that* may be call'd properly perfect, which has all Things requisite for its Complement, and wants nothing to be perfect in its Manner. What's perfect is either so simply, or in Part; for what is perfect, either contains entirely all Sorts of Perfections, so as to want none, and that is simply perfect; or is only perfect in a certain Sort of Good, and this is but perfect in Part: Therefore *Perfection* can be divided into *Perfection simply simple*, and into *Perfection in Part*. Which is also the Division of St. *Anselmus*, *Lib.* 1. *Monolog. c.* 14. but for a greater Elucidation of this Proposition, I must define here the one and the other *Perfection*; therefore, a *Perfection simply simple*, is commonly defin'd that which can agree with an equal, or greater Perfection; such are Wisdom, Justice, and the like. 1. It is called *Perfection*, to assign some Genus. 2. It is said, *which is itself best than not itself*, as well to assign some Difference, as to insinuate thereby, that it is requir'd for it, that it should be better than the Being, individual itself of a Being, and not as such Being. Which to understand, it must be observed that there are some Perfections, which though they be better themselves, than not themselves to some Being, as a Being, *i. e.* as abstracted from such and such Being; are notwithstanding better themselves than not themselves, to a certain particular Being, as a particular Being; for Example, to understand without a Discourse, though it be better to a Being, as a Being, than to understand with Discourse, or Ratiocination; nevertheless, to understand thus without Discourse, or Ratiocination, is not better to Man, or to such particular Being called Man, whose Property is to be a rational Animal. 3. It is said, *than not itself*, i. e. not only better than its Negation, but better than any other positive Perfection, with which it is incompatible. Whence it is inferr'd, that these Particles *not itself*, must be taken not only privatively, or contradictorily, but contrarily; otherwise Rationality Irrationality, would be said a Perfection *simply simple*, because greater than its Negation; but it is not a Perfection *simply simple*, because it is not better than rationally opposite to it, and with which it has an Incompatibility. 4. It is said, which can agree with an equal or greater Perfection, in the same Subject; because for Want of this Condition, it is not a Perfection *simply simple*. The Paternity, for Example, is not a Perfection *simply simple* in the divine Persons, because it cannot agree with Filiation in the same Subject, which Filiation is a Perfection equal to Paternity.

Perfection in Part, is that which has either a mixt Perfection, or has an Opposition, with an equal, or greater Perfection. Thus are corporeal, sensible, and such like created Perfections, which, as created, admit necessarily of a Dependancy and Limitation.

These Things previously observed, I'll proceed to the following Questions.

1. If it be asked if *God* be so perfect as to contain in himself all the Perfection of all the Creatures, and in what Manner? I'll answer, by observing that something can be contain'd in another in different Manners. But the Question is here, if every Perfection of the Creatures be formally in *God*, or *virtually* only, or *eminently?*

A *Perfection* is said to be contain'd formally in another, which is contain'd in him according to its proper and adequate Quiddity; thus Heat is contain'd in Fire, and Understanding in Man. But that Perfection is contain'd eminently in another, which is not contain'd according to its proper Quiddity, but according to the noblest Form whereby the Effects of the Things contain'd are produced; and even in a nobler Manner than they had been produc'd by the Thing contain'd itself. Thus the vegetative Soul is said to be contain'd eminently in Man, for though it be not in him, according to its Quiddity, it is there according to its noblest Form, *viz.* the rational Soul, from which the vegetative Soul is not produced, but only the Effect of the same vegetative Soul, and even without those Imperfections, with which they are produced by the vegetative Soul itself. Lastly, that Perfection is said to be contain'd in another virtually, which though not contain'd in it, according to its proper Quiddity, can nevertheless be produced by it, though the aforesaid Conditions be wanted, *viz.* the noblest Form containing, and the noblest Manner of producing. In that Manner the Body is said to be contain'd in the Seed. These previous Observations being necessary for the Elucidations of the following Questions. I'll answer the first, and say;

That *God* is sovereignly perfect, and contains in himself all the Perfections of all the Creatures, whether *simple* or *simply simple*, but in a different Manner; which I'll prove by the Scripture, the Councils, Fathers, and by Reason. By Scripture, *Matt.* v. *Be perfect as your heavenly Father is perfect.* By the Councils, especially that of *Lateran*, under *Innocent* III. *cap. Damnemus; de sanct. Trinit. Be perfect of a Perfection of Grace, as your heavenly Father is perfect of a Perfection of Nature.* By the Fathers, especially St. *Denis*, *Lib. de Divin. Nom. c.* 13. and St. *Augustin*, *Tract.* 14. *in Joan.* By Reason, because he is actually a supreme Being, free from all passive Power of receiving any Thing which he wants as due to the Perfection of his Nature. He is even a Being so actually supreme, and so necessarily perfect, that he cannot be divested of his Perfections, neither by himself, nor by another. Lastly he is so perfect, that it is impossible he could be render'd more perfect, by the Accession of any other Perfection; at least intensively, since he possesses either formally or virtually, all the Perfections of the Creatures, which last Proposition, that he contains all the Perfections of the Creature, I'll prove, likewise, by the Scripture, the Fathers, and by Reason.

By the Scripture, *Exod.* xxxiii. *I'll shew thee all that is good*, i. e. myself, says *God* to *Moses*, *Psalm* I. *The Fertility of the Field is with me. Psalm* xciv. *He that planted the Ear, shall he not hear? or he that made the Eye, shall he not see? Prov.* viii. *With me are Riches, Glory, and Opulence. John*, i. *What is made in him*, i. e. *God, was Life. Rom.* xi. *In him are all Things.* By the Fathers, particularly St. *Augustin*, in several Places; especially *Lib.* 2. *de gen. ad. Lit. c.* 10. and *Lib.* 4. *de Trinit c.* 6. and *Serm.* 4. *de verb. Dom.* By Reason, because *God* is the Cause of all the Creatures, as mentioned by St. *John*, i. *All Things have been made by him, and nothing has been made without him*; therefore he contains all their Perfections, since nothing is in the Effect, which is not in the Cause. *God*, besides, contains the Ideas of all Things; the Creatures being only Imitations or Participations of those Things which are in *God.*

I have said, in *a different Manner*, to give to understand, that the *Perfections simply simple*, are in a different Manner in *God*, than the Perfections in Part, as I'll shew in the following Propositions.

Perfections

Perfections simply simple, are formally in God. Which I prove, likewise, by the Scripture, the Fathers, and by Reason.—By the Scripture, in that the Perfections *simply simple*, such as Wisdom, Justice, Mercy, and the like, are, there, formal Predicates of God; *v. gr.* Psal. 98. *My God, my Mercy.* The Reason of this may be taken from the second Chapter of the Epistle to the *Colossians*, where it is said, that *in* God *are hidden all the Treasures of Wisdom and Science.*—By the Fathers, especially St. *Anselm*, Menolog. *c.* 14. *It is necessary that the supreme Essence should be living, wise, powerful, and omnipotent, true, just, happy, eternal, and all that is better itself, than not itself.*—By Reason, because all that's a formal Predicate of *God*, are proper to him, and are in him formally, *i. e.* according to his Essence: Notwithstanding what St. *Denis* says, *Lib. de divin. Nom. c.* 1. and 5. *viz.* that the divine Essence is abstracted from those Perfections; because St. *Denis* does not design to deny that those Perfections are absolutely formally in *God*; but wants rather to show, that they are in him without a Mixture of those Imperfections, which they meet with in a created Being; for several of those, as they are in the Creatures, are accidental, but not as they are in God; where they are according to themselves, and abstracted from all created Beings.

My third Proposition is, that the Perfections, which are only Perfections in Part, or *secundum quid*, are not formally in *God*, but only eminently: The first Part thereof, *viz.* that they are not formally in *God*, I prove by the Councils, the Fathers, and by Reason.—By the Councils, particularly that of *Lateran*, *c. Damnamus. de Sanctiss. Trinit.* where such a Thing is defined against *Amalarius*, who was of Opinion, that all the Creatures could be true, and proper Predicates of *God.*—By the Fathers, particularly St. *Augustine*, Lib. 5. *de Genes. ad Lit. c.* 14. Deus *nihil eorum quæ fecit, existens, & omnia primitus habens sicut ipse est.*—By Reason, because what is finite, and imports some Imperfection, or Dependency, is not in *God* formally; and such is that Perfection, which is only a Perfection *secundum quid.* For is not a Stone, *v. gr.* a finite, material, and inanimated Being? Does not Matter involve, essentially, Imperfection? Is not Man himself a finite, and dependent Being? Add, that of those Perfections, which are only Perfections *secundum quid*, some exclude Perfections simply simple; a Brute, *v. gr.* excludes, or denies the Degree of Understanding, *&c.* therefore those Perfections, which are only *secundum quid*, are not formally in *God.*

I prove the second Part, *viz.* that *the Perfections which are only Perfections*, secundum quid, *are eminently in* God; for suppose that they be in him, because he contains all the Perfections of all Creatures, as learned from St. *Gregory Nazianzen*, *Orat.* 42. where he says, that *God* comprehends all that is, as an immense Sea of Essence; they are not in him formally, *i. e.* according to his Essence, and Quiddity; it follows hence, that they are in him eminently, *i. e.* according to the noblest and most eminent Form. It is in this Sense, that the Words of St. *John*, Chap. 1. are to be understood, that in *God* all Creatures are Life. Which is beautifully explained by St. *Augustin*, Lib. 5. *de Genes. ad Litt. c.* 5. where he says, that the Things which have been made are best, where they are truest, where they are eternal, and where they are incommutable.

It may be asked in this Place, if *God*'s Perfection be one of his Attributes, properly so called, and a particular one distinct from all others?

Which Question I answer in the *Negative*, because the Manner of *Being*, in which the divine Perfection consists, is not to be considered as a distinct or particular Form, or as something adjacent to the Essence of *God*, but as included in it, under a precise Consideration.

The next Question is, *If a Creature can be semblable to God in Perfection?*

Which to answer we must observe, 1. That by the Name Similitude is understood the Report of several in the same Form: Thus two white Walls are semblable, because they agree in Whiteness: But however, the Foundation of a strict Similitude is *Quality*, as the Foundation of Equality taken in a strict Sense, is Quantity.—2. That Similitude in general is of two Kinds, one *univocal*, and the other *analogous.*—The *univocal* is found between those Things which agree together in some Form, according to the same Report: Thus a Man is said to have an *univocal Similitude* with another Man, because they both participate of the same Form of Humanity, according to the same Report.—And the *analogous Similitude*, is found between those which likewise agree together in the same Form, but according to a different Report: Thus the Picture of a Man is said to be semblable to him analogically, because the Picture of a Man, and the Man himself participate of the same Form of Humanity, according to different Report.

This previously observed, I say, that *all the Creatures* are in some Manner semblable to *God*, not of an *univocal* but of *analogous Similitude.*

To prove the first Part, that *they are in some Manner* semblable to *God*, I say that all Effects are in some Manner semblable to their Cause. Otherwise how could that Cause impart any Perfection to the Effect, if he was not in some Manner, possessed of it himself? For, are not all Creatures *Beings* by Participation, who are the more semblable to *God*, the more perfect they are? For that Reason, Man, above all other Creatures is said, *Genes.* 1. to have been formed at the Image, and Similitude of *God.* And among Men, those who are possessed of a greater Share of Grace and Glory, approach the nearer to the Similitude of *God*, according to this of *John* 3. *when he'll appear* (*viz.* in the State of Glory) *we'll be semblable to him.*

I prove the 2d Part of the Proposition, *viz.* that *none of the Creatures is semblable to God of an univocal Similitude*, by the Scripture, the Councils, the Fathers, and by Reason.—By the Scripture, *Psalm* 83. *O* God *who is semblable to thee?* And *Psalm* 89. *For who is he among the Clouds, that shall be compared unto the Lord?*—By the Councils, particularly that of *Lateran*, *c. Damnamus. between the Creator* (say they) *and the Creature there can be no such Similitude observed, but a greater Dissimilitude between them should be observed.*—By the Fathers, especially St. *Augustin*, on *Psalm* 84.—By Reason, because no Creature can be participant of that Form with *God*, whereby he is a Being by Essence, a Being entirely necessary, a perfectly pure Act. Add, that the Effect of an equivocal Cause, is not semblable to its Cause of an *univocal Similitude*; but *God* is the equivocal Cause of all the Creatures; therefore, *&c.*

To prove the 3d Part, *viz.* that *the Creatures are only semblable to* God *of an analogous Similitude*; I say, that the Form of the acting Cause, is only participated according to some Analogy, but not according to the same Report of Species, for there is then only an analogical Similitude: But the Form of *God* is not participated by the Creature according to the same Report, but only according to some Analogy consisting in that as there is in *God*, Goodness, or Perfection, *&c.* The like may be in the Creature, but with a Desparity of Report; for in *God* it is primarily, and without the least Imperfection, as in the efficient, exemplary, and final Cause; but in the Creature it is only secondarily, and as an Effect of the said Cause.

It may be asked in this Place, *If as the Creature is said to be semblable to* God; God *can be said, likewise, semblable to the Creature?*

I answer this Question in the Negative. Because there is only a mutual, and reciprocal Similitude, where the Form, which is the Foundation of the Similitude, exists in both Extremes, under the same Report, as *v. gr.* in two Men; but not where such a Form is in one of the Extremes, primarily and principally; and in the other secondarily only. Thus *Alexander* is not said to be semblable to the Statue of *Alexander*, but the Statue of *Alexander* is said to be semblable to *Alexander*; but *God* and the Creature, though they participate of the same Form, which is the Foundation of the Similitude between both, they do not, nevertheless, participate of it, under the same Report; for that Form is principally in *God*, and only secondarily, and analogically in the Creatures;

Creatures; and therefore there is no reciprocal Similitude between *God* and the Creatures.

The next *Attribute* which falls under our Consideration, is the *Goodness of God*, both *absolute* and *relative*; where I'll examine two Things, 1. If *God* be not only Good, but likewise sovereignly Good, and by Essence, as well of an *absolute*, as of a *relative Goodness*. 2. If all that's Good be of God's Goodness.

Let us ask then, *if God be not only simply Good, but sovereignly Good, and by Essence; and of what Goodness he be Good?*

Which to answer pertinently, we must observe, 1. That something may be conceived Good in two Manners, 1. Either in itself absolutely, and without any Relation to the other, to which it can be convenient; in this Manner Good is the same as Perfect. 2. Relatively, *viz.* in as much as that which we call Good, is convenient to another; in this Sense, that Act in Morality can be call'd Good, which is conformable to right Reason; and in this Sense, in Physick, Heat is good to Fire, Health to the Body, and Beatitude to Man himself. 2. If it be asked here, if *God* be not only Good, but sovereignly Good, and by his Essence, of a Goodness both *absolute* and *relative?*

These previously consider'd, I say first, *that God is not only Good of an absolute Goodness, but sovereignly Good, and by Essence, and the only one Good of such Goodness.*

I prove the first Part of this Proposition, *viz.* that *God is Good*, by the Scripture, the Fathers, and by Reason; by the Scripture, *Psalm* lxxiii. *Truly God is Good*; and *Psalm* cvii. *Confess unto God because he is Good.* By the Fathers, particularly St. *Denis, Lib. de Divin. Nom. c.* 4. and St. *Augustin.* By Reason, because the absolute Goodness whereby any Thing is said to be Good in itself, is the very Perfection of that Thing; whence it follows, that a Thing is no farther Good than it is perfect; but *God* is perfect in himself, therefore he is Good in himself, *i. e.* Good of an absolute Goodness.

I prove likewise the second Part of the Proposition, *viz. that God is sovereignly Good*, by the Scripture, the Fathers, and by Reason. By the Scripture, *Matt.* xix. *Quid me interrogas de bono? unus est bonus*, viz. *God.* As if he would say, that *God* is good in a far more excellent Manner, than any Thing else that's called Good; since *God* is very perfect by Essence, and the other Things are only good and perfect by Participation. By the Fathers, particularly St. *Augustin, Lib.* 1. *de Trinit. c.* 2. *the Trinity, God* says he, *is the sovereign Good, which is seen by purified Minds.* By Reason, because *God* is perfectly Perfect in himself, and therefore, sovereignly Good.

The third Part of the Proposition, *viz. that God is sovereignly Good by Essence, and the only one Good in that Manner*, is also prov'd by the Scripture, the Fathers, and by Reason. By the Scripture, *Luke* xviii. *No Body is Good but God alone.* By these Words, *Christ* does not understand, that the Creatures formed by *God* are not Good, since it would be contradicted, *Gen.* i. *Vidit Deus cuncta quæ fecerat, & erant valde bona*; but only that *God* is the only one Good by Essence, as the Creatures are Good by Participation. By the Fathers, particularly St. *Augustin, Lib.* 8. *de Trinit. c.* 3. *Tolle hoc & illud, & vide ipsum bonum si potes, ita Deum videbis non alio bono bonum: sed bonum omnis boni.* By Reason, because as he has his Being, he has likewise his Goodness, not from another, but from himself.

The second Proposition, *viz. that God is not only Good in himself*, i. e. *Good of an absolute Goodness*; but is, likewise, Good of a relative Goodness, is also prov'd by the Scripture, the Fathers, and by Reason. By the Scripture, *Wisd.* 12. *How sweet and good, O Lord, thy Spirit is in all.* By the Fathers, particularly St. *Denis, Lib. de Divin. Nom. c.* 46. *Bonitas Divinitatis quæ supra omnia est, a supremis & proxectissimis Substantiis, usque extrema pervadit.* By Reason, because *God* is very convenient to all Beings, and gives them all their Beings, as the supreme Author of all Things, according to this of the *Psalm* civ. *When thou openest thy Hands, they are filled with Good.* Therefore, how can it be surprizing if all the Creatures desire him, as most convenient to them? The Irrational by an innate Appetite: The Rational by an elicit one, *i. e.* by an Appetite supposing a previous Knowledge.

I prove the third Proposition, *that God is also sovereignly Good, of a moral Goodness*, thus, because that is morally Good, which is agreeable to right Reason, without the least Defect; but *God*, with Regard to his free Acts, is sovereignly conformable with his divine Understanding; which, not only cannot deviate from Righteousness, but is himself the Rule of all moral Truth, without the least Defect; therefore *God* is sovereignly Good of a moral Goodness.

At present we must examine our second Question, *viz. If all that's Good, is good of a divine Goodness?*

Note, That it is asked in this Place, if the Creatures are good of a divine Goodness, in these four Manners, 1. *Efficiently*, 2. *Exemplarily*, 3. *Finally*, 4. *Formally*. What is for the Creatures to be Good in these four Manners, will be easily understood by what I am a going to say in my double Proposition.

Therefore my first Proposition is, *that all good Things are good efficiently, exemplarily, and finally of a divine Goodness.*

To prove the first Part, *viz. That all Things are efficiently Good of a divine Goodness*, I say that what is an Act of the divine Goodness, such as the Creatures are who have been form'd by *God*, is efficiently Good; therefore, *&c.* which is still better elucidated by St. *Fulgentius, Lib. de Fide ad Petrum, c.* 3. *Because God*, says he, *is sovereignly Good, he has given to all Natures which he has formed, to be Good likewise.*

I prove the second Part, *viz. That all Things are exemplary Good of a divine Goodness*; by this Reasoning, that what is formed after the Similitude of some divine Perfections, is good exemplarily; but all Things which God has made have been thus produced, according to St. *Denis. Lib. de Divin, Nom. c.* 5. *In Deo sunt rerum omnium exemplaria*; therefore, *&c.*

To prove the third Part, *viz. that all Things are good finally of a divine Goodness*; I'll say, that all is good finally, whose Production tends towards *God*, as towards its last End, and sovereign Good; such are the Creatures form'd by *God*, who have not only been made by him, according to this of *John* i. *All Things have been made by him*; but they have, likewise, been made by him, for himself, according to this other, *Prov.* vi. *The Lord has operated all Things for himself*; therefore, *&c.*

The second Proposition, *viz. That none of the Creatures is good formally of a divine Goodness*, is proved by the Fathers, and by Reason. By the Fathers, particularly St. *Augustin. Lib. de nat. boni. Cont. Manich. Cætera omnia bona, non nisi ab illo sunt, sed non de illo.* By Reason, because all Things are good, in as much as they are, or exist; but it is certain, that no Creature is, or exists by a divine Being, but only by its own proper Being, which it has received from *God*; therefore, *&c.*

From this I'll pass to another of *God's Attributes*, which is his *Infinity*.

Note, That what we call properly *Infinite*, is that which cannot be circumscribed, by Limits, or Bounds; or that which is extreme in its Genus, and cannot be carried farther, *v. g.* Wisdom and Power, is called *infinite*, because it cannot be increased in itself, nor surpassed by another. Thus a Being is said to be infinitely perfect, whose Perfections are not confin'd within any Limits; or which cannot be perfected farther, or find any Thing more perfect than himself. But however, *infinite* is commonly taken in two Manners in the Schools, *viz. infinite actu*, which properly deserves the Name of *Infinite*; and *infinite potentiâ*, to which the Apellation of *infinite* is but improperly adapted. The first is called *categorematical Infinite*, i. e. predicable; because it imports alone, and without any Addition, its Signification; as in this Proposition, *God is infinite*; the last is called *syncategorematical*, because it cannot be attributed to any Thing without Addition, *v. g.* it can never be said that the Wisdom

of Man is *infinite*, unless these Words be added to it, *according to the Increase*; whereby is expressed, that Man's Wisdom can never be such, but that it may always receive some Increase *in infinitum*; just as a Number cannot be said *infinite*, unless these Words be added, *according to the Increase*; because there is no Number so great, but it may be augmented *in infinitum*.—But to come to our Purpose, I'll say, that:

God is *actu*, and categorematically infinite. Which I prove thus: *God* is a Being sovereignly perfect; and a *Being* sovereignly perfect is *infinite*, or has infinite essential Perfections, otherwise his Nature could receive a greater Complement, and consequently could not be sovereignly perfect, which is repugnant to a Being sovereignly perfect. Whence *Baruch* iii. 25. speaks thus of *God*; *he is great, and has no End.* Therefore *God* is *actu*, or as they say, *categorematically* infinite.

It may be asked, if *God* be so *infinite*, that every one of his Perfections, either attributal or essential, be likewise *infinite* in its Kind?

I answer in the Affirmative; because the Perfections follow the Condition of the Thing whose Perfections they are; and *God* being *infinite*, and his divine Being *infinite*; hence it may be inferr'd, that the divine Understanding is infinite, with regard to the Principle of Knowledge; and *God*'s Will, likewise *infinite*, with regard to the Principle of Appetency.

It may be asked further, if *Infinity* be something positive? To which I answer by a Distinction, *viz.* in the Affirmative, if it be consider'd fundamentally; *i. e.* with regard to itself; for the essential Perfection of *God* is itself consider'd in that Manner, as containing formally, or eminently within itself, all cogitable Perfection: But in the Negative, if it be consider'd formally; for thus it is only a mere Negation of Term, or Limitation.

It may be asked, besides, if *Infinity* be properly an Attribute of *God?* Which I answer in the Negative; either because if it be consider'd formally, it is only a mere Negation of Limitation; or because *Infinity* is with regard to divine Things, as *Finity* is to Things created, which is then only some transcendent Term; therefore, *&c.*

Lastly, it may be asked, if the Infinity of *God* can be known by the natural Light? Which I answer in the Affirmative; since the antient Philosophers attributed *Infinity* to *God*, or to the first Principle.

Note, That *God* is not only *infinite*, but to him alone belongs actually *Infinity*; and to none of the created Substances, to no Quantity, or Quality; because it can never happen, that either a created Substance, or a Quantity, either continued, or discrete, or a Quality could be produced *infinite*, *actu*; which makes me affirm that,

No created Substance can be infinitely perfect; because a Creature *infinitely* perfect would be that whose Perfections could be contained within no Limits or Bounds, or which would have no End; which is not the Condition of any created Being; because the Creature thirsts always after a State of Independency, which it can never gain, otherwise it were not a Creature; and likewise because it cannot be adorned, by *God*, with so many Perfections, but several others may be communicated to it *in infinitum*; since *God* cannot exhaust the Treasure of his Perfections, nor has any Idea of a Creature so perfectly perfect, but that he sees that he can produce others more perfect, *in infinitum*: And therefore no created Substance can be infinitely perfect.

To this it may be objected, 1. That a Cause infinitely perfect, such as *God*, can produce an Effect infinitely perfect.

I answer in the Negative; because a Cause infinitely perfect has an inexhaustible Treasure of Perfections, which consequently cannot be exhausted, as it should be by an Effect infinitely perfect: Besides, if the Effect of an infinite Cause should be infinite, he would not be different from his Cause, *viz.* God: For he would be from himself, independent, omnipotent, eternal, *&c.* Therefore a Cause infinitely perfect, *viz.* God, cannot produce an Effect infinitely perfect.

But say you, the Omnipotence of a Cause infinitely perfect, could not be better known but by his producing an Effect infinitely perfect.

I answer, likewise, this in the Negative; for the Omnipotence, or infinite Power of God, is well enough understood, by his being capable to produce more perfect Creatures *in infinitum*; or to add to the same Creature greater Perfections *in infinitum*: Add to this, that the Omnipotence, or infinite Power of *God*, appears much in his having produced all Things from nothing: For an infinite Being alone, can give an Existence to that which is entirely nothing.

It is urged further, that the second Act, or Effect, must be answerable to the first Act, or effective Power; and therefore, if the Cause be infinite, the Effect must also be infinite.

To this I answer, 1. That the second Act, or Effect, must be answerable to the first Act, or effective Power, if by the second Act is understood the Action, or Operation; but not if by the second Act is understood the Effect only. Therefore when it is said, that the second Act must be answerable, or semblable to the first Act, or effective Cause, that must be understood of the Action, or Operation; for if the Effect should be entirely semblable to the acting Power, *God* being spiritual, and infinite, could never have produced corporeal, and finite Effects. For the Operation of *God*, even when he produces finite Effects, can be said answerable to his *infinite* Power: For it is *infinite*, not with regard to the Term, or Effect, in which it is terminated, but with regard to the Principle, *viz. God* himself.

I answer, 2. That if the Power be *infinite*, the Effect should be *infinite*, *syncategorematically*, or infinite by Power, *i. e.* it can be perfected *in infinitum*; but not *categorematically*, or *infinite*, *actu*, so that no other Perfection could be added to it by an *infinite* Cause; for whatever Effect is produced, it is always unequal to *God*; and may always receive from him several other Perfections, and never arrive to the last.

Another Objection is, that if *God* should act necessarily without, then he should produce an Effect infinitely perfect; which he can also do, tho' he acts freely.

Which I answer, 1. In the Negative; for he could never give it *Independency*, since the Creature is essentially dependent. What is alledged by some, in Defence of this Objection, that the eternal Word is generated by the Father, without a Dependency, is quite wide from the present Question; for the Divine Word is not a Creature, but is God, consubstantial to the Father, coeternal, and not made; but it is a Question, here, of the Creature, which can never arrive to such a State, or Condition, as to equal the divine Perfections.

I answer, 2. That from a supposed Absurdity, it is not surprising if another Absurdity ensues. For it is an Absurdity to suppose *God* as acting necessarily, *i. e.* that he should operate without necessarily; since that destroys his Essence, which being sovereignly perfect, cannot be deprived of the free Power of acting *ad extra*, which is a Perfection: Therefore it must not appear surprising, if from an absurd Hypothesis, whereby *God* is supposed a necessary Agent, another Absurdity follows, *viz.* that a Creature infinitely perfect can proceed from him. Though the more perfect is the Cause, the most perfect must be the Effect produced by it; provided, however, that Effect was possible, and does not involve a Contradiction; for he could have infinite Perfections, and Want, notwithstanding the *Independency*, which is the greatest Perfection: Then he would become equal to *God*, and inequal to him: He would exhaust his Perfections, which are inexhaustible: All which being so many Absurdities, nothing is clearer than that there can be no Creature infinitely perfect.

A third Objection which can be made, is, that in the Collection of all Things possible, *God* sees that which is the most perfect, so as none can be more perfect.

I answer in the Negative; for *God* sees in his Ideas, *i. e.* in his Nature, the Creatures possible, as far as those Creatures can participate from him, according to *some Manner*

Manner of Similitude; but the divine Nature, or Essence, can be participated in infinite Manners, some of which are more perfect than the others, *in infinitum*; therefore God sees that there are infinite Species of Things possible; and that some of them can be more perfect than the others, *in infinitum*; and consequently, never can arrive to that Species, which admit of no other more perfect, and therefore, does not see that which is the most perfect of all.

To this it is objected, that *God* sees all the Creatures possible; and consequently sees that which is the most perfect.

It is true, that *God* sees all the Creatures possible, in his simple Ideas, *i. e.* in his Nature, as far as those Creatures can participate from him, in different Manners, *in infinitum*: But it is not true, that he sees all the Creatures possible, in their Assemblage, so as to see among them some who excel all the others. Therefore *God* sees in his simple Ideas, *i. e.* in his Nature, all the possible Creatures, either with regard to the Species, or to the Individuals.

For, first, he sees the Species, in his divers Ideas, as far as the Creatures can participate from him in different Manners; and since they can participate from him in an infinite Number of different Manners, some of which are more perfect than the other, *in infinitum*, no particular Species can be assigned, which is the most perfect of all.

Secondly, he sees also in the same Ideas, all the possible Individuals, *v. g.* he sees all the Men possible, in the single Idea of Man, which can exhibit an infinite Number of Men; as we see possible Circles in the Idea of a Circle, which represent an infinite Number of Circles; therefore if we understand clearly, that we cannot form so many Circles, according to that Idea, but what we may describe many more, *in infinitum*; certainly we must think, that *God* cannot produce so great a Number of Men, or of any other Creatures, but he can always produce more, *in infinitum*; therefore their whole Assemblage, either according to the Species, or the Individuals, cannot be taken together.

It may be urged, that a Creature more perfect than any other finite possible, would be infinitely perfect; and that *God* knowing that Creature more perfect than any other Finite possible, knows an infinite one; and therefore can produce such a one.

To this I answer, 1. That it is not necessary for something to be more perfect than another finite possible, that it should be infinite, but only the most perfect of all the Finites. 2. That *God* knows a Creature more perfect than any other Creature finite possible, in a *distributive Sense*, but not in a *collective one*. For *God* sees to the Utmost a Creature more perfect than any other finite possible, taken separately, and in a distributive Sense; but not more perfect than any other possible in a collective one, or considered in the whole Collection, or Assemblage of Things possible; either because, let any one be ever so perfect, others can be created still more perfect; or because the whole Collection of Things possible, cannot be taken at once; since *God* cannot produce so many Creatures, but can produce many more, and more perfect, *in infinitum*.

After I have shewed that *God* is infinitely perfect in his Essence, we must examine next if he be infinite according to Extension, or circumscribed in a Place.

Note, That to treat this Subject as it should be, we must consider previously to it, what is *God*'s Immensity; if he be immense, and exists in all Things, not only by his Presence and Power, but likewise by his Essence, and in what Manner.

Note also, 1. That by the Name of Immensity, is understood commonly the unlimitated Diffusion of the divine Substance, and his Aptitude of co-existing in Things, Places, and infinite Spaces, in which, however, he is not contained nor confined. And by the Name of *Ubiquity*, is understood the actual Presence of *God*, in all Things and Places; whence it appears, that *Immensity* is in the Manner of Aptitude, and *Ubiquity* in the Manner of Act. 2. When it is asked, in this Place, if *God* exists in all Things by his Essence; we do not ask yet if the divine Essence or Substance be the *formal Ratio*, whereby *God* is in all Things; but only if the divine Substance be found in all Things? 3. If *God* exists, not only in Things actually existing, but likewise, in Things possible. All which Questions I'll answer in the following Manner.

1. *God is immense and every where*, which I prove by the Scripture, the Fathers, and by Reason. By the Scripture, *Jerem.* xxiii. *I fill the Heavens and the Earth.* By the Fathers, and first by St. *Athanasius*'s Symbol; *The Father is immense, the Son is immense, and the Holy Ghost is immense; yet they are not three Immensities, but one Immensity.* By St. *Ambrose*, *Lib.* 1. *de spiritu sancto. Who dares say that the Holy Ghost is a Creature, who is always in all Things, and every where.* By Reason, because the Ratio of Immensity and Ubiquity belongs to him.

2. *God is in all Things by his Presence, Power, and Essence.* He is in all Things by his Presence; because for *God* to be thus, in Things, is nothing else but for him to have all Things present; but all Things are present to *God*; since it is written in the Epistle to the *Hebrews*, Chap. 4. That *there is no Creature invisible before him, since all is naked, and discover'd to his Eyes*, therefore, *&c.* He is in all Things by his Power; since for *God* to be thus in Things, is nothing else but to have them all subject to his Power, and depending on his Operation, either Production, or Conservation; but all Things are thus subject to *God*, and depend thus of *God*, as prov'd by several Passages of the Scripture, *viz.* from the first to the *Corinthians*, Chap. xii. *God operates all Things in all Things. Heb.* i. *Carrying all Things by the Virtue of his Word.* And *Acts* xiii. *In ipso vivimus, movemur & sumus*, therefore, *&c.* He is in all Things by his Essence; or, which is the same, according to his Substance; which I prove by the Scripture, the Councils, Fathers, and by Reason. By the Scripture, *Psalm* cxxxix. *Whither shall I go then from thy Spirit? or whither shall I go then from thy Presence? If I climb up into Heaven thou art there; if I go down to Hell thou art there also.* By the Councils, especially that of *Lateran*, under *Innocentius* III. *c. firmiter. de sanct. Trinit.* and likewise from the Symbol of St. *Athanasius.* By the Fathers, particularly St. *Augustin*, *Lib.* 7. *de Trinit. c.* 30. *Deus ubique totus implens Cœlum & Terram præsente potentiâ, non absente naturâ.* And St. *Bernard*, *Hom.* 3. *de Adventu. Æqualiter ubique totus est, per suam substantiam.* Even the *Pagan* Philosophers have been of that Opinion, as witnessed by St. *Augustin*, *Lib.* 4. *de civ. Dei. c.* 9. By Reason, either because to be essentially in all Things, is a Perfection simply simple, and therefore to be attributed to *God*; or because the Power of *God* is always, and every where, since he is the immediate Principle of all Things. For *God* is every where his own Virtue, and not only, as the immediate Principle of Operation in all Things, but as immediately operating; therefore, and the Essence of *God* is also every where, because, according to St. *Anselmus*, *lib. de Incarn. verbi*, *c.* 4. *God*'s Being and his Power are the same. Add, an infinite Quantity of Virtue, is no less every where, than a Body having an infinite dimensive Quantity. Notwithstanding what is alledged against it, that Heaven is called the Seat of *God*. *Psalm* cxv. *All the whole Heavens are the Lord's; the Earth has he given to the Children of Men.* Because by these, and semblable Words, is given to understand only, that *God* is there operating in a more particular Manner, than he is in other Places. As witnessed by St. *John Damascenus*, *Lib.* 1. *de fide Orthodox. c.* 26.

It may be asked in this Place, in what Manner *God* exists in Things, either in those which exist actually, or in those which have no actual, but only a possible Existence?

To which I answer, 1. That he exists substantially in the Creatures actually existing, in the same Manner the Cause exists in the Effect. The Reason is, because in all those Things he exercises the Causality of an efficient Cause. 2. That he exists only aptitudinally in the possible Creatures.

If it be asked further, in what Manner *God*, whom we consider

consider *immense*, and consequently existing every where, exists every where? If *circumscriptively*, or *definitively*, or at least *repletively*? I answer, that he is in all Places *repletively*, but not *circumscriptively*, nor *definitively*.

I prove the first Part, *viz.* that he is *repletively* in all Places, *viz.* of a spiritual *Repletion*; because, for *God* to be thus in all Places, is for him to be all on the whole Place, and all in every Part of that Place; and hence, to not exclude a Body, nor be defin'd or circumscrib'd by the Place, but *God* is, in that Manner, in all Places; and is therefore *repletively* in all Places.

I prove the second Part, *viz.* that he is not in a Place *circumscriptively*; because to be thus in a Place, is to be in it so as for the whole located, to answer to the whole Place, and his different Parts to answer, likewise, to the different Parts of the same Place; but *God* cannot be thus in any Place, because his being a spiritual Substance, and consequently indivisible, he has not a quantitative Bulk of Parts, which could answer to the Parts of a Place; and therefore, *&c.*

I prove the third Part, *viz.* that he is not *definitively* in a Place, because to be thus in a Place, is to be present in it of a finite, and limitated Presence, so that the Existence of the Thing placed, does not exceed the Place, tho' it wants Extension of Parts; but God neither is, nor can be thus in a Place, since there is no Place which can terminate, or confine his Presence: Therefore we can justly say with *Boetius*, that every Place is rather present to *God*, than *God* is present to a Place.

All the Parts of this Answer, are confirm'd by the Authority of St. *Augustin*, *Epist.* 112. *c.* 12. *Ubique totus est, & in nullo continetur loco.* And *Lib.* 7. *de Trinit. c.* 1. *Ubique est, sine ullo situ præsens, sine habitu omnia continens, sine loco ubique totus, sine tempore sempiternus.* And by the Authority of St. *Bernard*, *Serm.* 8. *in cant. Omnia continet loca, & quæque suis ordinat locis.* Whence it may be said, that *God* is in a Place, but not properly locally. It may also be said, that he is every where, and no where, in this Sense, that he is no where in the Manner of Bodies, or as circumscrib'd or defin'd by a Place: For this Reason, *Peter Damianus*, *Lib.* 1. *Epist.* calls the Place where *God* is, *illocal.* As if he would say a Place without Place.

Lastly it may be ask'd, if *God* would be in the *Vacuum*, if there was one?

I answer, that he would not be there actually, but only aptitudinally; because he does not operate there.

Our next grand Question is, if the external divine Operation, be the formal Reason why *God* exists in all Creatures; and if it be a sufficient Means to demonstrate, even *a priori*, that he exists in them?

Note, That to understand this Question well, we must observe, that it is not asked, if from *God*'s Operation, his Presence, and Existence, in created Beings, can be inferr'd; but only if his Presence can be demonstrated *a priori*, by his Operation towards Things, so that the transient Operation, whereby he either produces, or preserves them, or whereby he does some other Thing towards them, be a true and formal Reason why *God* is in those Things, and be not only something consequent to his Presence. These previously observ'd, I'll answer,

That the external Operation of *God*, is a formal Reason why *God* is present, and existent in all the created Things; which I prove from the common Manner of Speaking of the Scripture, attributing the Reason why *God* is present, and existent in all Things, to the external divine Operation; as it appears from *Acts* xviii. where, after the Apostle has said that *God is not far from every one of us*, adds the Reason why, *because*, says he, *we live, we move, and exist in him.* I prove it likewise by the Fathers, particularly St. *Damascenus*, *Lib. Orthodox. Fid. c.* 16. *Deus igitur*, says he, *ut qui materiæ, & circumscriptionis expers est, haudquaquam in loco est; ipse enim sibi locus est, omnia implens, ac supra omnia consistens, omniaque in se complectens, & tamen in loco esse dicitur, ibique Deus esse asseritur, ubi perspicua ejus operatio existit*, i. e. therefore *God* as a Being free from Matter and Circumscription, is not in a Place; for himself is his own Place, filling up all Things, standing over all Things, and containing all Things in himself, and notwithstanding is said to be in a Place; but the Place of *God* is affirm'd to be, where his perspicuous Operation exists. *Tertullian* has insinuated the same Thing, *Lib. Cont. Prax. c.* 23. when he says, *Cæterum scimus, Deum etiam intra abyssos esse, & ubique consistere, sed vi, & potestate*, i. e. *by Operation.*

I prove it, likewise, by Reason; for that is a formal Reason why *God* is present substantially in created Beings, by which he is join'd to them, and indistant from them; but he is thus by the external Operation; therefore the external Operation of *God*, is the formal Reason why he is substantially present in the Things created; and there can be no other formal Reason of such Presence. For, not 1. Any modal Form, either because it ought not to be admitted in *God*, or because there is no Necessity of admitting it, even in the Creatures. Nor 2. A continued Quantity; since *God* is a Stranger to such Quantity, for *God is a Spirit.* Nor 3. The Substance of *God* itself, since there is no Conjunction of a Thing with another, but where there is a Contact; but there can be no Contact between *God* and the Creatures, but by Means of the Operation; for as there is no Contact between two Bodies, but by Means of a continued Quantity; likewise there can be no Contact between two spiritual Things, or between a Spirit and a Body, but by Means of the Power, or Operation; for the Contact of Power in spiritual Things, corresponds to the quantitative Contact of the Bodies.

Our next Question is, if *God* who is *Actu* in all Things created, exists likewise beyond the Heavens, and in what Manner? If, *v. g.* he exists there as in some imaginary Spaces?

I answer the first Part of this Question, *viz.* That *God* exists beyond this World, and beyond the Heavens, in the Affirmative, which I prove by the Scripture, and by the Fathers. By the Scripture, because in several Places of it, it is said, that *God is higher than Heaven, and deeper than the Abyss.* Whence it is not surprizing, if it is said in the 2 *Chronicles* ii. *That Heaven cannot contain him.* By the Fathers, particularly *Peter Damianus*, *Opusc.* 36. *Ipse Deus manet super omnia, ipse infra omnia, ipse intra omnia, ipse extra omnia; superior est per potentiam, inferior per substantationem, interior per subtilitatem, exterior per magnitudinem.* St. *Denis* had already said the same Thing, though in different Terms, *Lib.* 2. *de Divin. nom. c.* 9.

I answer the second Part of the same Proposition in the Negative; for *God*, we have said in the first Part, to exist beyond Heaven, does not exist there positively, as in a Space, even imaginary. Because, beyond the World, and beyond the Heavens, there is properly no Space; whence it follows, that *God* exists no where beyond the Heavens actually, but only by Power and Aptitude, in that he can produce, by his infinite Virtue, several other real Spaces, where he would be apt to reside.

But if it be so, it may be ask'd, where can *God* be conceiv'd to exist beyond the World?

I answer, that *God* beyond the World, and beyond the Heavens, is in himself, as he was in himself before he had created the World. It was the Sentiment of the antient Fathers, especially of St. *Augustin*, who on the *Psalm* cxxiii. *Qui habitas in Cœlo*; speaks thus, *Antequam Deus faceret Cœlum, & Terram ubi habitabat? In se habitabat Deus, apud se habitabat, & apud se est Deus.* Which had also been the Sentiment of *Tertullian*, *Lib. cont. Prax. c.* 5. *Ante omnia Deus erat solus*, says he, *ipse sibi mundus, & locus, & omnia solus.* Hence these two common Verses:

Dic ubi tunc esset, cum præter eum nihil esset?
Tunc ubi nunc, in se, quoniam sibi sufficit ipse.

It may be objected against this Part of our Proposition, that St. *Augustin*, disputing against the *Platonicians*, affirms, *Lib.* 11. *de civit. Dei, c.* 5. *That God is in the Spaces which are beyond the World*; but those Spaces are the same which we commonly call *imaginary*; therefore, *&c.*

To answer this Objection, we must observe that St.

Augustin speaks in that Place against some who though they admitted *God* for Creator of this World, were, notwithstanding, of Opinion, that the World had been from all Eternity; induced to it by this single Supposition, that if the World had not been from all Eternity infinite Spaces of Time had passed before the Creation of the World, in which *God* had been idle; but they thought that Sentiment a very gross Absurdity; whence they concluded that the World had been from all Eternity. But St. *Augustin*, disputing here against them, makes use of an Argument *ad hominem*, taken from the infinite Spaces. For if, says he, they imagine infinite Spaces of Time before the Creation of the World, in which it does not seem that *God* could have abstained from Work; let them imagine likewise beyond the World infinite local Places, in which *God* could not have abstained from Work, and the Consequence will be, that they'll admit with *Epicurus* an infinite Number of Worlds.

The next important Question which falls under our Examen, relating to the same Subject, is, if to be every where, is so much the Property of *God*, that it cannot be communicated to the Creature; and if Immensity be a positive Attribute of *God?*

Note, That to resolve this Question we must observe, 1. That something may be said to be every where in two Manners. First, simply; secondly, in Part, or *secundum quid*: To be every where simply, requires two Conditions; the first Condition is, that one should be every where by himself, and not by Accident; the second, that one should be all in all Spaces, and all in every Part of those Spaces: But to be every where *secundum quid*, is when one of these two Conditions is wanted.—2. That one is by himself every where, when his Nature requires he should fill up all Spaces, and there is no Space possible which he would not fill, if that Space was produced: That one is only by Accident every where; when he is there in one of the following Manners, *viz.* when there is nothing there but himself; or if he fills all the Spaces, his not filling them could notwithstanding happen, either because he could be annihilated, or because he could abstain from the Operation, whereby he fills all the Spaces: Thus that Angel whose Operation would be extended to all Spaces, would be said to be every where by Accident. These previously observed;

I say, 1. That to be every where simply, and by himself, belongs properly to *God* alone; which I prove by the Fathers, and by Reason.—By the Fathers, especially St. *Ambrose*, *Lib.* 1. *de spirit. sanct. c.* 7. *Quis*, says he, *audeat creaturam dicere spiritum sanctum, qui in omnibus semper, & ubique semper est, quod utique divinitatis est proprium.* And St. *Anselmus* in *Prolog. c.* 13. *Solus Deus ubique operatur, ubique esse potest.* By Reason, because *God* alone is all in all Spaces, and all in every Part of the Spaces, and thus by his Nature, requires to fill all Spaces, so that there is none possible which he would not fill, if it was produced; his being a necessary Being, from whom all other Beings depend for their Existence and Preservation. Whence St. *Augustin*, *Epist.* 57. *Non parti rerum*, says he, *partem suam presentem præbet, & alteri parti partem alteram, æquales æqualibus, minori verò minorem, majorique majorem: Sed non solum universitati creaturæ, verum cuilibet parti totus adest.*

I say, secondly, that the Creature may be every where *secundum quid* only; either because *God* can annihilate all Places, and preserve only one. In this Case a Body which was in that single Place could be said to be every where; because it could not be supposed that there was any other Place besides that: Or because *God* can produce a Creature, whose external Operation could be extended to all the Spaces which are in the whole World; thus it would happen that that Creature would be every where of the whole World.

It may be asked, if *Immensity* be a special Attribute of *God?*

I answer in the Affirmative; the same as *Quantity* is a special Accident in the Body. If it be asked if that Attribute is a positive one? I'll answer, that it is positive if taken fundamentally, since taken in that Manner, it is the divine Essence itself, infinitely perfect; and by his infinite Perfection, requiring to be in all Spaces. But it is not positive if taken formally, for thus taken it is nothing but the Negation of Mensurability.

From this we must pass to the *Immutability of God*, since *Immutability* proceeds from Immensity, if not entirely, at least in Part, *viz.* with Regard to a Place: And as *Immutability* is the Root of divine Eternity, we must treat of it, after we have treated of *Immensity*, and before we treat of *Eternity*.

Therefore I'll examine first, if *God* be intirely immutable; secondly, if a perfect *Immutability* be so much the Property of *God*, that it cannot be communicated to the Creature.

Note, That the better to resolve these two important Questions, we must observe, 1. That by the Name of *Immutability* is understood here a certain Manner of *God*'s Being, whereby he exists necessarily, and perseveres constantly in all Sorts of Perfections; whence it appears, that this Immutability imports the Negation of all Sorts of Mutations. 2. By the Name of Mutation is understood the Transition of a Being from one Term to the other: Which Transition is made either with Regard to the Term, or with Regard to the Subject. It is made with Regard to the Term, when, either by Creation a Transition is made from a not being simply to a being simply, or by Annihilation from being simply to not being simply. A Mutation is made with Regard to the Subject, when the same Subject remaining, it acquires or loses some Form, either substantial or accidental: By that accidental Form is commonly understood Quantity, or Quality, or Place, or the like. These previously observed;

I say, that *God* is entirely immutable; which I prove by the Scripture, the Councils, Symbols, Fathers, and by Reason. By the Scripture, *Num.* xxiii. God *is not like Man to be measured, nor like the Son of Man that he should change.* Malach. iii. *I am the Lord, and do not change.* Psalm cix. *They'll be changed, but thou art always the same.* Jac. i. *In whom there is no Transmutation, nor a Shadow of Vicissitude.* By the Councils, particularly that of *Nice* against the *Arians*, who said that the Son of *God* was created and convertible. By the Fathers, particularly St. *Augustin*, *Tract.* 23. *in Joan.* and St. *Gregory*, Pope, *Lib.* 12. *moral. c.* 17. *Ipsa*, says he, *mutabilitas umbra est, quæ quasi obscuret lucem, si eam per aliquas vicissitudines permutaret. Sed quia in Deo mutabilitas non venit, nulla ejus lumen umbra vicissitudinis intercidit.* By Reason, because it is impossible to imagine that any Mutation, or Change could happen to *God.*—1. Not that Mutation, which is terminated to a Cessation of Existence, since *God* is always necessarily existent, eternal, and immortal. 2. Not that which regards a Place; since *God*, who is every where, as already proved, cannot be moved from one Place to another. 3. Not that which regards Accidents, since there are no Accidents in *God.* 4. Nor that which regards Cognition, and which consists in that one thinks something true, what he thought false before; and *vice versâ*; since *God*, who is infinitely wise cannot deceive, nor be deceived. 5. Nor that which regards the Decree, or Determination of the Will, and which consists in that one is determined to do what he was before determined not to do.

To the second Question, *viz.* If all Sorts of *Immutabilities* be so much the Property of *God*, as not to be communicable to the Creature? I answer in the Affirmative: For *God*, alone, has within himself the Principle of *Immutability*; since he is, alone, a Being of himself, a Being supreme *actu*, and sovereignly necessary; a Being infinite in all Kind of Perfections, immense, eternal. For that Reason it is said of *God*, 1 Tim. vi. *That he only hath Immortality*; and therefore Immutability; as St. *Augustin* explains it, *Lib.* 1. *de Trinit. c.* 1. *Non diceret* (says he) *solus habet; nisi quia vera immortalitas est, quam nulla potest habere creatura, quandiam solius est Creatoris.*

Whence I conclude, that it does not belong to the Creature,

Creature, to be entirely immutable; becauſe all Creatures, without Diſtinction, have in themſelves ſome Principle of Mutability; becauſe they are either outwardly, or inwardly mutable. That they are outwardly mutable, is eaſily enough proved, from their having been formed, by *God*, from nothing; and therefore can be reduced, by him, to nothing, as proved by St. *Fulgentius*, *Lib. de fide ad Petrum*, c. 3. *Naturæ à Deo factæ ideò proficere poſſunt, quia eſſe acceperunt: ideò deficere quia ex nihilo factæ ſunt. Ad defectum ducit eas conditio originis, ad profectum verò eas prohevit operatio Creatoris.*

That they are alſo all inwardly mutable, if not entirely, at leaſt of one of the different Manners of Mutability, heretofore mentioned, is proved from that there is no Creature but has one of theſe two paſſive Powers, *viz.* either to a ſubſtantial Being, or to an accidental Being.

As the *Eternity of God* proceeds from his Immutability, as from its Origin; after we have treated of the divine Immutability, we muſt treat next of his *Eternity*.

Note, That to underſtand well this Subject, we muſt obſerve, I. That *Eternity* can be taken in different Manners: 1. In a wide Senſe, for any long Duration, tho' it has a Beginning and an End. It is taken in this Senſe, *Geneſ.* xvii. where *God* promiſes *Abraham*, the Land in which he was to dwell to all Eternity; *I'll give thee*, ſays he, *and to thy Seed, the Land of thy Peregrination, and all the Land of Canaan, for an eternal Poſſeſſion.* 2. In a narrower Senſe, for a Duration, having a Beginning, but which is to have no End. Thus, the Beatitude and Damnation of Angels and Men is call'd Eternal, *Matt.* xxv. *They'll go into eternal Torments, and the Juſt into eternal Life*; or, alſo, for a Duration, which has neither Beginning nor End; but which is not entirely free from Mutability: Thus a Creature would be ſaid eternal, which was from all Eternity. 3. In a ſtrict and proper Senſe, for that Duration, which has not only neither Beginning nor End, but is free likewiſe from all Sort of Mutability. It is only a Queſtion here of that Eternity taken in the third Manner. — II. By the Name *Duration*, is underſtood a Thing perſevering in his Being. Of this Sort of ſimple Duration, one is internal, which is nothing but the permanent Exiſtence of a Thing; the other external, which is nothing but the Meaſure of the perſevering Exiſtence of a Thing, by the Motion of the firſt Mobile. Theſe previouſly obſerved,

I ſay, that ETERNITY, properly ſo call'd, is commonly defined, *an entire, and, together, perfect Poſſeſſion of an indeterminable Life*; or, which is the ſame, *an indeterminable, indiviſible, and independent Duration.* Which I prove by the Explication of the Terms of which this Definition conſiſts.

1. It is call'd *Poſſeſſion*, or *Duration*; becauſe it is a perſevering Exiſtence of a Thing, or a perſevering, firm, and tranquil Permanation of a Thing, in its Being.

2. It is ſaid of *Life*, i. e. of a *living Exiſtence*; ſince in eternal Things, to be, and to live, is one and the ſame Thing; according to St. *Anſelmus*, *Menolog. c.* 24. *quoniam idem eſt illis eſſe, & vivere.*

3. *Of an indeterminable Life*; i. e. which cannot be terminated by any Limits; *viz.* neither by a Limit from which, nor a Limit to which; or, which is the ſame Thing, which has neither Beginning nor End.

4. *All together, and indiviſible*; becauſe *Eternity*, properly ſo called, is not ſubſtantially, or accidentally, a ſucceſſive Duration, and has not Parts ſucceeding one another; ſince it has neither preterite, nor future, but only a preſent, co-exiſtent to all the Differences of Time; whence it is not ſurprizing if *God*, who is eternal, is call'd *Rev.* i. *who is, who was, and who is to come.* Therefore that Duration is like an Inſtant fixt and permanent; which exiſting within himſelf indiviſible, is co-extended to all the Durations, even diviſible ones.

5. *It is ſaid, and perfect*; as well to exclude all Dependance, all Mutability, and generally all Imperfection; as to diſtinguiſh it from an inſtantaneous Duration, which though it be altogether, becauſe free from all ſucceſſive Parts; its Being is notwithſtanding imperfect, becauſe it vaniſhes inſtantly.

Note, That from what we have ſaid, it may be inferr'd, that Eternity is an indeterminable Duration, indiviſible, and free from all Succeſſion, and Mutability. If, and in what Manner it differs, not only from Time, but alſo from Age, I'll explain here in few Words. Therefore,

It may be aſked, firſt, If Eternity be diſtinguiſhed both from continued and diſcreet Time? Which I anſwer in the Affirmative, as it appears from the Definition of both: For, 1. A continued Time imports with itſelf a Succeſſion of Parts, which *Eternity* does not import; for a continued Time, according to *Ariſtotle*, is nothing elſe but the numerated Motion of the firſt Mobile, according to its prior or poſterior Parts in the Succeſſion; when as Eternity is the perfect Poſſeſſion of an indeterminable Life. 2. A diſcreet Time, is nothing elſe but a Collection of ſeveral diſcreet Inſtants following one another; ſuch as the Collection of ſeveral Actions of an Angel, for each of them laſt during a diſcreet Inſtant; and ſeveral following one another, compoſe a diſcreet Time. That Time conſiſts in that Duration, appears from its being compoſed as of ſeveral Parts; and that, only, a diſcreet Time conſiſts in that Duration, is evident, in that thoſe Parts are not united together by a common Tye; but ſuch Collection of ſeveral diſcreet Inſtants, following one another, is not found in an eternal Duration; therefore, *&c.*

It may be aſked, ſecondly, If, and in what Manner, Eternity is diſtinguiſhed from Age, and from a diſcreet Inſtant? and I'll anſwer, that it is diſtinguiſhed from both. And, 1. That it is diſtinguiſhed from Age, is eaſily underſtood; becauſe *Eternity*, as already obſerved, imports an indeterminable Duration, *i. e.* a Duration which has neither Beginning nor End: But Age, though it be a Duration of a Thing which is to have no End; it is however of a Thing which has a Beginning. 2. As to the diſcreet Inſtant, it is alſo apparent from the ſole Definition of that Inſtant. Thus, it is commonly defined by Philoſophers, a Duration of a natural ſpiritual Thing; but which is permanent, and has a Beginning and an End; ſuch is the Duration of the immanent, natural Acts of an Angel: For the Action of an Angel is call'd Inſtant; not that it laſts only during an Inſtant of our Time, but becauſe it is the Duration of an Act entitatively indiviſible.

The next Thing we'll aſk is, If *God* be eternal, of an Eternity properly ſo called? To which I anſwer in the Affirmative; and prove my Anſwer by the Scripture, the Councils, Fathers, and by Reaſon. — By Scripture, *Geneſ.* xiii. *He invoked there the Name of the eternal God. Romans*, the laſt Chap. *according to the Precept of the eternal God.* — By the Councils, particularly the third of *Toledo*, *Can.* 6. and of *Lateran*, under *Innocent* III. Likewiſe by the Symbol of St. *Athanaſius*, where it is ſaid, *the Father Eternal, the Son Eternal, the Holy Ghoſt Eternal; and yet they are not Three Eternals, but One Eternal.* — By the Fathers, particularly *Tertullian*, *cont. Hermog. c.* 4. *Quis*, ſays he, *alius Dei cenſus quam Eternitas? quis alius Eternitatis ſtatus, quem ſemper fuiſſe, & futurum eſſe ex prerogativâ nullius initii, & nullius finis?* — By Reaſon, becauſe his living of a Life infinitely perfect, and poſſeſſes his divine Being interminably, indiviſibly, and independently. *Interminably*, becauſe he has no Beginning, and is to have no End: Indiviſibly becauſe he poſſeſſes his divine Being entirely together, without any Succeſſion or Mutation, as taught by *Peter Damianus*, *Opuſcul.* 36. *c.* 13. *omnipotenti Deo*, ſays he, *non eſt heri, vel cras, ſed hodie ſempiternum, cui nihil defluit, nihil accedit.* Whereby it appears, that there is neither preterit, nor future Tenſe in *God* formally, but eminently only, as inſinuated by St. *Auguſtin*, *Tract.* 99. *in Joan.* And independently, he has received his Being neither from himſelf, nor from another: Not from himſelf, becauſe no Body can be the Cauſe of his own Exiſtence. Nor from another, becauſe *God* is the firſt *Being*, and a Being of himſelf.

We'll conclude this Subject of the *Eternity of God*, by aſking,

asking, If Eternity be so entirely proper to *God*, as it can by no Means be appropriated to the Creature?

Note, That to resolve this Question, we must observe, that three Things are asked in this Place, *viz.* 1. If something different in Essence from God, has been of all Eternity. 2. If at least it could have been from all Eternity. 3. If supposed that something different in Essence from God, had been of all Eternity, Eternity would remain proper to him. These previously observ'd, my first Answer is,

That nothing which is supposed different in Essence from God, has been from all Eternity, and therefore with Respect to Things which exist, or have existed, Eternity is proper to God alone. Which I prove by the Scripture, the Councils, the Fathers, and by Reason. By the Scripture, which insinuates that all Things have had a Beginning, especially when it is written, *Gen.* i. *That God created the Heavens and Earth*, whereby is understood an universal Collection of Things. Whence it is not surprizing, that *God* is said alone, 2 *Tim.* vi. to have the Immortality; and consequently the Eternity, since Eternity follows immediately Immutability. By the Councils, particularly that of *Lateran*, *c.* 14. where it is said, that the Church has defined that we are to believe, as an Article of Faith, that God alone is eternal. By the Fathers, particularly St. *Ambrose*, *in Præm. Lib. Hexameron*; and St. *Augustin*, *Lib.* 12. *de civit. c.* 15. in these Words, *Nec aliquam creatore coæternam creaturam esse dicimus, quod fides ratioque sana condemnat.* By Reason, because if something was of all Eternity different in Essence from God, it would be either created, or increated; but neither of it could be eternal of an Eternity properly so called: Not the first, because, as I'll say presently, not only no Creature has been from all Eternity, but could not even have been. Nor the second, because all that is uncreated is God, according to St. *Augustin*, *Lib.* 6. *de Trinit. c.* 6. but nothing different from God can be God; therefore nothing that's different from God can be eternal of an Eternity, properly, and strictly taken.

My Answer to the second Part of the Proposition is, that nothing that is supposed different in Essence from God, has not only never been of all Eternity, but could not even be of all Eternity. Because what is supposed such, must also be supposed created: But nothing created can be co-eternal to God, according to the Sentiment of St. *Fulgentius*, *Lib.* 1. *ad Monim. c.* 12. where he expresses himself in these Terms, *an ne Creatoris opus sine initio non potuit, nec potest fieri*, &c.

I answer to the third Part of the Question, that tho' something different in Essence from God, had been from all Eternity, that same Eternity would not desist, notwithstanding, from being proper to God alone. Because, though that something should have neither Beginning nor End, it would not be free from Mutability; from which all that's eternal must be free; therefore, *&c.*

Note, That the whole Doctrine of the Eternity of God, is included in the following Verses, attributed to St. *Prosper*:

At vero Æternum nihil effugit, omniaque adsunt
Salva Deo, nihil est illi tardumve, citumve,
Nec dilata nunquam, nec festinata putemus.
Quæ veniunt nostris mutantur tempora rebus;
Non quod ubique agitur, quod gestum est, quodque gerendum,
Ante oculos Domini puncto subsistit in uno.
Una dies cui semper adest, cras atque heri nostrum.

From the Eternity I'll pass to the Unity of God, beginning this important Subject, which destroys entirely the whole *Pagan* Theology, by this Question; If God be one, and entirely one, and of what Unity?

Note, That before we can pretend to resolve this Question, we must observe, 1. That by the Name *Unity*, is understood a Negation of Division. Whence that is said one, which is undivided in itself, and divided from all other. Whence it appears, that one, or Unity, adds nothing to a Being, but only a Negation of Division. It appears likewise, that Unity is opposed to Multitude. 2. That something can be said one in two Manners, 1. Affirmatively, which is the same as undivided, and entirely simple in itself, without constitutive Parts, or with Parts, but united really, and undivided from itself: Whence it appears, that affirmative Unity is the Simplicity itself of the Being, or an Entity undivided in itself, and entirely simple. 2. Exclusively, which is the same as one excluding a Plurality of his Semblables. 3. Unity can be considered, either as generical or specifick, or numerical. These previously observed, I answer to the first Part of the Question.

That *God* is *one*, and entirely *one*, of an *affirmative Unity*; because *Boætius* says, that among all Things which pretend to *Unity*, the *Unity* of the divine Trinity must be placed first. And St. *Bernard*, *Lib. de conclid. c.* 7. says the same Thing in different Terms. And we learn from St. *Thomas*, that that is entirely *one* affirmatively, which is an undivided Being by way of Excellence, such as *God* is. For, 1. He is a Being by way of Excellence, because he has the Plenitude of Being, and is his own subsisting Being. 2. He is most undivided, because he is in no Manner divided, neither actually nor potentially; his being entirely simple, an Act perfectly pure, and a Being infinite in all Sorts of Perfections.

My Answer to the second Part of the Question is, that *God* is also one exclusively, which I prove by the Scripture, the Councils, the Fathers, and by Reason. By the Scripture, *Deut.* 32. *See that I am alone, and that there is no other* God *but me.* 1 Cor. 1. *There is but one* God. By the Councils, particularly that of *Lateran*, *cap. firmit. de Sant. Trinit.* and by the Symbol of the Council of *Nice*. By the Fathers, especially St. *Augustin*; who says, *Lib.* 6. *de civit. c.* 10. that the Pagan Philosophers, and particularly *Seneca*, had been of that Opinion, therefore he exclaims against him, because he would not adore him as a sole *God*. By Reason, because what is supremely good, supremely great, and supremely perfect in all Sorts of Perfections, is one; but *God* is such, therefore he is one, even exclusively; which is confirmed by these Words of *Tertullian*, *Lib. cont. Hermog. c.* 4. *Deum autem unum esse oportet, quia quod summum sit, Deus est: Summum autem non erit, nisi quod unicum fuerit.*

If it be asked, If *God* can be said to be *one numerically?* I'll answer, that if one numerically be taken for a singular Being excluding something semblable to himself, as taken by St. *Anselmus*, *Lib. de incarnat. c.* 3. *God* can be said *one* numerically. But if *one numerically* be taken for that which consists of several numerical Parts joined together, he cannot be said one *numerically:* The Reason of this is, that such *Unity* imports a Composition, which is foreign to *God:* Or if it be taken for that which admits of a Plurality, of which he is the first Measure; because there is no Plurality of *God*, of whom the true *God* should be the Measure and Rule.

But, say you, do we not admit of three Persons in *God?* But can we conclude from thence that there are three *Gods*, especially where there is but one numerical Nature, which is communicated to the three divine Persons, without an individual Multiplication of itself?

The next Attribute which falls under our Consideration is, the *Incomprehensibility of God.*

The first Thing which offers on this Subject is, If *God* is *incomprehensible*, and with Respect to what Understanding? To which I answer, 1. That *God* is not *incomprehensible* with Respect to the divine Understanding, because *God* comprehends himself: Which the better to understand we must consider, that these two Conditions are required for a true Comprehension, the first is that it should adequate the extensive Perfection of the Object, *i. e.* know clearly all the Perfections which are in the Object either formally or eminently, and even of one and indivisible Cognition. The second, that it should adequate the intensive Intelligibility of the same Object, *i. e.* know the Object as far as it is cognoscible, and even know the Conditions and Perfections of the same Object,

as far as they are to be known: But the divine Understanding knows the Essence of *God*, and all his Perfections, as clearly and as far as they are to be known; because the active Intellectivity of the divine Understanding, is as great as the passive Intelligibility of the divine Essence, and of all the Perfections which are in *God*: Therefore *God* is not incomprehensible with Respect to the divine Understanding.

2. I say, that *God* is so incomprehensible with Respect to a created Understanding, that he cannot be comprehended of a true Comprehension by such Understanding, let it be even so elevated, and strengthened from above, not even by the absolute Power of *God*; which I prove by the Scripture, the Councils, the Fathers, and by Reason. By the Scripture, *Jerem.* xxxii. *Magnus concilio, & incomprehensibilis cogitatu.* By the Councils, particularly that of *Lateran*, under *Innocentius* III. *c. firmiter*, and *c. Damnamus de summa Trinit.* where it is defined that *God* is *incomprehensible.* By the Fathers, particularly St. *Cyprian*, *in Prolog. de operib. cardin. Nec immensitatis ejus profundum metimur:* And before him, *Tertullian* spoke thus of *God* in *Apolog. c.* 17. *Incomprehensibilis est etiam si per gratiam representetur*, &c. *Numquid manifesta est insania*, says St. *Chrysostom*, *Hom.* 2. *dicere Deum nos posse cognoscere, sicut ipse se novit.* By Reason, because there is no Understanding either created, or to be created, which has, or could have so great an Intellectivity, even by Means of the absolute Power of *God*, as *God* has a passive Intelligibility. And the Reason is, because *God* is an infinite Being in all Kinds of Perfections; but a Creature, or Understanding created, or to be created, let him be ever so elevated by the absolute Power of *God*, has never but a finite Perfection; therefore, *&c.*

Note, That we may learn from what we have said, whence proceeds *God*'s Incomprehensibility; and it appears that it does not proceed, as some will have it, from *God*'s Attributes being infinite in Number; nor, as others imagine, from that the human Understanding cannot see all possible Things; for though he was to see them, it could not be said hence that he comprehends *God*, unless he should comprehend the other Attributes of *God*; but it must proceed from that *God* cannot be known, such as he is cognoscible in himself, and of his Nature intensively: For *God*, with regard to the Object, is infinitely cognoscible, and the Knowledge of the Creature cannot be infinite.

The next *Attribute* we are to consider, is the INVISIBILITY OF GOD; which to do with some Order, we'll examine if *God* be *invisible* to a corporeal Eye, even supernaturally strengthened: And if it be so *invisible*, that he cannot be seen by any Understanding, created, or to be created, which is only attentive, according to his natural Forces, even the most excellent?

To the first Part of the Question, I answer, that *God* can very well be said *invisible*, though not with respect to every cognoscitive Faculty.

I prove the first Part of this Answer, *viz.* that *God* can very well be said invisible; by observing that the Scripture confirms this *Invisibility*, 1 Tim. i. *Regi sæculorum immortali, & invisibili, soli Deo honor & gloria in sæcula sæculorum.*

I prove the second Part, *viz.* that he is not *invisible* with respect to all cognoscitive Faculty; because he is not *invisible* with respect to the divine Understanding, nor even with respect to a created Understanding, strengthened, and elevated, by the Light of Glory, or by some other supernatural Succours, supplying the Deficiency of that Light.

I say to the second Part of the Question, that *God* is so *invisible* to a corporeal Eye, even strengthened supernaturally, that it cannot be seen by it; not even by an absolute Power: Which I prove by the Fathers, and by Reason.—By the Fathers, particularly St. *Cyril* of *Jerusalem*, *Catech.* 9. where he speaks in these Terms: *Carnis quidem oculis contemplare Deum impossibile est: quod enim Corporis est expers in Carnis oculos cadere nequit.* Likewise by St. *Augustine*, Epist. 6. where he discourses on these Words of the first of St. *John*, c. iii. *When he'll appear, we'll be semblable to him, because we are to see him such as he is.—We'll see him then*, says St. *Augustin*, *because we'll be semblable to him; as we do not see him now, because we are not semblable to him; hence, then, we'll see him, whence we'll be semblable to him.* And who would have the Folly to say, that we'll be semblable to *God* in our Body? Therefore, *&c.*—By Reason; for that Object is so far invisible to a corporeal Eye, as to be impossible its being seen by it, even by an absolute Power of *God*, as it is beyond the Latitude and Ambit of an adequate, and specificative Object of the same corporeal Eye, because that Eye is a vital Power, and a vital Power cannot be carried beyond the Latitude of its adequate and specificative Object, since it imports an essential Relation to such an Object, as it may be learned from the Definition of every vital Power; but *God* is beyond the Latitude of the adequate and specificative Object of a corporeal Eye; since a corporeal Eye requires essentially for its specificative Object something sensible and coloured; but *God* is not to be seen clearly and intuitively in that Manner; therefore he is invisible to a corporeal Eye, so that he cannot even be seen by it, by an absolute Power: Notwithstanding that Text of Scripture, where *Job* says, *In my Flesh I'll see God my Saviour*; because this Text is to be understood in one of these two Manners; either that *Job* existing in his Flesh was to see *God*, though otherwise than by the Eyes of the Flesh; or that he was to see *Christ* in the Form of Flesh.

From this I'll pass to the PASSIVE VISION OF GOD; where five Things are to be consider'd. The first, the Possibility of such Vision; the second its Existence; the third its Principle, as well from the Part of the Understanding, as from the Part of the Object; the fourth the Object, as well primary as secondary; and the fifth will explain some Predicates, and Affections of the beatifick Vision.

With regard to the Possibility of the *Beatifick Vision*, we'll consider, 1. If such *Vision* be absolutely possible; and, 2. If that Possibility can be demonstrated, even by some innate Appetite towards it.

Note, 1. That Theologians consider two different Knowledges of *God*, *viz.* one abstractive, and the other intuitive; by that a Thing is known, by a foreign Species; and by this it is known as it is in itself, either by itself immediately, or by its proper Species; this last Cognition is commonly call'd *Vision.*—The abstractive Cognition of *God* can be in four different Manners: 1. By the Creatures; in this Sense the Apostle, *Rom.* i. says, that *invisibilia Dei per ea quæ facta sunt, intellecta concipiuntur.* 2. By some corporeal Species, in whatever Manner it may be supposed to be perceived, either by the external Senses, or by Imagination alone. In this Manner *God* appeared in the *Old Testament* to the Patriarchs and Prophets. 3. By the supernatural Light of Faith. In this Sense the Apostle says, 1 *Cor.* xv. that *videmus nunc per speculum in Ænigmate.* 4. By investing oneself with a created Being: In this Sense the Divine Word has been seen in the Humanity.—2. That it is not a Question here of the abstracted Cognition or Knowledge of *God*, but of the clear Vision of *God*, as he is; which we ask if it be possible. These previously observ'd, I say,

That the *clear* and *intuitive Vision* of *God*, is possible supernaturally. Which I prove by the Scripture, the Councils, Fathers, and by Reason.—By the Scripture, which teaches that *God* is seen, and to be seen actually, whence it is inferred that the clear Vision of *God* is possible. That the Scripture teaches such Doctrine is evident, from *Matt.* 18. *Their Angels see always the Face of my Father which is in Heaven*; we read the same 1 *Cor.* xv. *Videmus nunc per speculum in ænigmate, tunc autem facie ad faciem:* And 1 *Joan.* iii. *Scimus quoniam cum apparuerit, similes ei erimus quoniam videbimus eum sicuti est.* By the Councils, especially that of *Vienna* under *Clement* V. and that of *Florence* in the Decree of *Eugenius.* For these two Councils teach not only that the Vision of *God* is possible, but likewise that such Vision is to be.—

By the Fathers, especially St. *Bernard*, *in fest. omnium Sanct.* *The eternal and perfect Life*, says he, *consists in that we'll know the Father, and the Son, with the Holy Ghost, and see God such as he is*, i. e. *not only as he is within us, or the other Creatures, but as he is in himself.* — By Reason, because the most perfect intellectual Operation of every Creature is possible, since its Impossibility can be deduced from no Chief: But its most perfect Operation is to see *God* in his Essence; since a more noble one cannot be conceiv'd in an intellectual Creature, whose Understanding is her best Faculty; therefore, *&c.*

It may be objected to this, that *God* is said, 1 *Tim.* vi. to inhabit an inaccessible Light. To which I answer, that the Sense of the Scripture is not that, speaking absolutely, *God* cannot be seen clearly, and intuitively; but that he cannot be seen clearly as he is in either of the four following Manners. 1. By Men minding nothing but terrestrial Things. 2. *Comprehensively*, at least by a created Understanding. 3. By Men living yet upon Earth. 4. With corporal Eyes.

But, say you, there is no Proportion between a created and finite Understanding, and *God*, to be seen clearly; because *God* is infinite in all Kinds of Perfections; therefore he cannot be seen clearly as he is by a created Understanding.

I answer that it is very true, that *God* cannot be seen clearly as he is by a finite Understanding, if it be a question of a Proportion of Entity, or of a Proportion to the Cognition purely comprehensive of *God*; but it is not equally true, if it be only a Question of an habitual Proportion to a clear and intuitive Vision of *God*, simply apprehensive.

The next Question on this important Subject is, if there be any innate Appetite in the intellectual Creature towards the *beatifick Vision*; and if the Possibility of the *beatifick Vision* can be demonstrated by such Appetite?

Note, That to answer well this Question, we must observe, 1. That the natural Appetite, generally speaking, is of two Sorts, one *innate*, and the other *elicite*. The *innate*, is the Inclination itself, or natural Penchant towards a convenient Good, without any previous Knowledge. In this Sense, Fire in a red-hot Piece of Iron, is said to have a natural Penchant to tend upwards; though it has no Motion in the Iron. The *Elicite*, is the Act of the aptitive natural Faculty tending towards some convenient Good, either real or apparent, with a previous Knowledge: Whence it appears that it becomes only Beings indued with some Knowledge, and is called *sensitive*, when the Knowledge is sensitive only; and rational when the Knowledge is intellectual. This *elicite Appetite* can also be considered in two Manners, *viz.* as *Efficacious* and *Inefficacious*; that is *Efficacious* which is always inclined towards an Object conceived as possible, and is commonly expressed by these Terms, *I will*; the *Inefficacious* is expressed by these Terms, *I would*; and therefore is rather esteemed as a Velleity than a Will, and is conceived towards an Object as impossible. — 2. That *Beatitude* can be considered in two Manners, *viz.* in *Common*, and in *Particular*. — 3. That it may be asked in particular, if an intellectual Creature has a natural Inclination for the beatifick Vision; and if the Possibility of the beatifick Vision can be demonstrated naturally by such natural Inclination, or Appetite? This previously considered.

I say, 1. That an intellectual Creature has a natural innate Appetite or Inclination for the Beatitude *in common*; but has none, either innate or elicit, at least efficacious, for the Beatitude *in particular*, which consists in the quidditive and intuitive Vision of *God*.

I prove the first Part of this Proposition, *viz.* that an intellectual Creature has a natural, and innate Inclination for the Beatitude in common; by St. *Augustin*, who insinuates, according to this Sentiment, *in Enchird. c.* 25. *That Nature, among all its Imperfections, could not lose its Inclination for the Beatitude.*

I prove the second Part, *viz.* that the intellectual Creature has no natural Appetite, either innate, or elicit, efficacious, or inefficacious, for that Beatitude in particular, which consists in the quidditive, and intuitive Vision of God. Because,

1. As to the innate Appetite there is no Difficulty, because if it could have any Inclination for Beatitude in particular, particularly for that which consists in such Vision of God, a previous Knowledge of such Beatitude would be requir'd; therefore it would not be an innate Appetite, but an elicit one.

2. As to the elicit Appetite, it appears, likewise, clearly enough; since that Appetite proceeds from a previous Knowledge; but no Body can naturally, and without a divine Revelation, know that said Beatitude in particular, since we read, 1 *Cor.* xii. *Quod nec oculus vidit, nec auris audivit, nec in cor hominis ascendit id quod Deus præparavit iis qui diligunt illum, nobis autem revelavit Deus per spiritum sanctum.*

3. As to the efficacious elicit Appetite, the Thing is also very clear; since such Appetite presupposes a known Possibility of the beatifick Vision. For the Will must know that a Thing is possible, before it can desire it efficaciously, then after it has desir'd it, it applies itself to search the Means whereby it can possess the Thing desir'd; but that particular Beatitude mention'd here, cannot be naturally known as possible; therefore, *&c.*

I have said *efficacious* at least; for as to an efficacious Appetite, there is not the least Difficulty; since such Appetite can have an impossible Object.

Note, That it may be inferred from what I have said, 1. That if there be within us, some natural Desire of Beatitude, or natural Appetite towards our End; that Appetite is only to a natural End, or to the Utmost to a supernatural End, under a common Regard, and not under a particular one of Beatitude. 2. That the Desire or Aptitude of seeing God, as the Object of a supernatural Beatitude, Revelation being supposed, is not natural, since it proceeds rather from a supernatural Principle, *viz.* Faith, than from a natural Inclination.

I say, 2. That the Possibility of the beatifick Vision, can in no Manner be directly demonstrated, not even by a natural Appetite to the Beatitude.

I prove the first Part of this Proposition, *viz.* that the Possibility of the beatifick Vision, cannot be directly demonstrated. Because there is no Medium whereby it can be demonstrated, either *a priori*, or *a posteriori*. Not *a priori*, because in such Demonstration, the Medium must be the necessary Cause of the Thing demonstrated: But no necessary Cause of the beatifick Vision, can be found, or assign'd among all the created Beings; otherwise it would follow hence, that the beatifick Vision would be possible by Nature, which is an Absurdity. Nor *a posteriori*, since there is no Effect in Nature, which has a necessary Connection with the beatifick Vision, either actual or possible.

I prove the second Part; *viz.* that not even a natural Inclination for the beatifick Vision, can directly demonstrate the Possibility of that Vision. Because before it could be demonstrated by such Appetite, it should appear what that Appetite is, if innate, or elicit, and even efficacious; but no such a Thing appears, therefore, *&c.* it does not appear of an innate Appetite, because we cannot imagine, with the least Appearance of Foundation, that the Will has a Propensity to any other Good but a natural one, and which can be acquir'd naturally. But the beatifick Vision, can neither be a natural Good, nor be obtain'd naturally, therefore, *&c.* add to this, with Regard to the elicit Appetite, that it cannot be naturally known that our perfect Beatitude consists in the clear Vision of God; whence it follows, that there can be no elicit natural Appetite towards it.

I have said in the second Proposition, directly, or positively; to insinuate thereby, that the Possibility of the beatifick Vision, can be prov'd at least indirectly or negatively, *viz.* by resolving the Objections made against it. But though that Possibility be above our Reason, it is not against it, neither does it involve any Repugnancy; for if there was any, it would either be of the Part of God, who would not be clearly visible, as he is in himself; or of the Part of the Understanding,

 which

which could not be sufficiently rais'd to that Vision; but neither of these two Things can be said; not the first, because as we have already often observ'd, God is a perfect, true, and cognoscible Being. Not the second, because God by the Light of Glory, and a supernatural Influence, can sufficiently strengthen the Imbecility of the Understanding.

From this I'll pass to *the Existence of the beatifick Vision*; and enquire first, if *God is at present, and in fact, seen clearly, and intuitively by the Blessed in the celestial Mansions?* Which Question, I answer in the Affirmative, and prove by the Scripture, the Councils, the Fathers and by Reason. By the Scripture, *Luke* xiii. *Thou shall be this Day with me in Paradise. Eph.* iv. *Christ ascending into Heaven, carried along with him the Captivity captive.* By the Councils, particularly that of *Florence*, in the Decree of *Eugenius*, for the Union of the *Armenians*, where it is defin'd, that *the Souls of those who after Baptism, have been guilty of no Sins, and likewise of those, who after they have sinned, have been purged, are received into Heaven, and see one God in three Persons, such as he is.* By the Fathers, particularly St. *Chrysostom, Hom.* 4. *in Epist. ad Philip.* and St. *Augustin, Lib. med. c.* 12. where he expresses himself in these Terms, *Happy is the Soul, which being divested of her mortal Body, enters Heaven. She is secure and tranquil, she fears neither Enemy nor Death; for she has always present, and sees continually, that divine Lord she has serv'd and lov'd, and to whom she arrives joyful and glorious.* By Reason, because God punishes the Reprobate, as soon as they have departed this Life, as it appears by the Example of *Dives, Luke* xvi. therefore we ought to believe that he rewards the Righteous as soon as they have left the Earth, since he is rather more prone to Mercy, than to Punishment. According to this Passage of the *Psalm* cxlv. *His Mercy is over all his Works.*

To this may be objected, the Passage of *Matt.* xx. where it is said, that the Salary was not given to the Workmen, till towards the Evening; but it cannot be inferr'd hence, that God is not to be seen absolutely, but after the general Resurrection; but rather, that those that are converted in their old Age, will receive a Reward equal to theirs. Or it may be inferr'd, that in that Resurrection understood by the Evening, the Blessed will enjoy a consummate Beatitude, understood by the Reward, *i. e.* both in their Soul and Body.

We must observe, besides, with St. *Chrysostom*, that in all Parables, we are rather to search the End proposed by it, than the rigorous Signification of the Terms. Add to this, that though the aforesaid Passage, and these others semblable to it, which are read, *Rom.* iv. *Heb.* xi. and *Rev.* vi. speak manifestly of the Retribution to be made, at the Day of the universal Judgment, *viz.* of the compleat Retribution; they do not exclude the Retribution made after the Death of every Man, by a private Judgment, which is insinuated by the Apostle, *Heb.* ix. and which can be called uncompleat; notwithstanding the Objection taken from this other Passage of the Scripture, 1 *Pet.* i. *In quem angeli desiderant prospicere.* Because these Words do not signify that the Angels do not see God actually, but insinuate only, that they see him without Perplexity or Fatigue, whence they are said to have always a Desire to see him. Notwithstanding this other Place of the Scripture, where it is said, *Rev.* xx. *That the Just will reign more than a thousand Years with Christ, and that this is the first Resurrection*; since by the first Resurrection is understood (as St. *Augustin* explains it, *Lib.* 10. *de civit. c.* 6, 7.) the Resurrection by Grace, and not the Resurrection of the Bodies. And by thousand Years, in this Place, is understood by the same Father, the perfect Plenitude of Time, or the Eternity; according to this of the *Psal.* cv. *According to the Promise he made to a thousand Generations.* And notwithstanding that some of the antient Fathers have taught otherwise, as nothing had been yet defin'd on that Subject, they could not be accounted Hereticks; according to this of St. *Augustin*, Epist. 172. those only are to be called Hereticks, who do not acquiesce, but resist to the Truth revealed by *God*, and proposed by the Church.

The second Question, on this Subject, is, if *God* can be seen clearly, and intuitively, in this Life by us Mortals; and if *Moses* and St. *Paul*, have actually, and in fact seen him in this Life?

I answer to the first Part of this Proposition, that in the ordinary Way of *God*, a Man, while he is upon Earth, cannot see *God* by Essence, or the Essence of *God* clearly as he is in himself; though he can see him absolutely, according to his extraordinary Way and absolute Power.

The first Part of my Answer, *viz.* that a Man, while upon Earth, cannot see *God*, clearly, and intuitively, as he is, is proved by the Scripture, *Exod.* xxxi. *No Body shall see me and live*; which is thus explained briefly by the Glossa, while he leads here a mortal Life, he can see him by some Images, but not by the Species of his Nature, because the common Manner of knowing of this Life imports a Dependency from the Body; but the beatifick Vision has no Dependency from the Body, nor from sensible Species; therefore, *&c.*

I prove the second Part of my Proposition, *viz.* That a Man, while living, can, absolutely speaking, and in the extraordinary Way of *God*, see him clearly as he is; because our Soul is not so closely chained to our Body, as not to be capable, through the extraordinary Concourse of *God*, to operate independently of the Body; for did not the Soul of Christ, while existing in the Body see God in himself, such as he is? Will not the Soul of the Blessed, after the Resurrection, operate, though reunited, to the Body; independently of Phantasma's.

I answer to the second Part of the Question, that neither *Moses* nor St. *Paul*, nor any other, in this Life, have seen God as he is.

I prove the first Part of this Proposition, *viz.* with Regard to *Moses*, by the Scripture, the Fathers, and by Reason.—By the Scripture, *Exod.* xxxiii. *You could not see my Face, for no Body will see my Face, and live*; and a little lower he adds, *You'll see my Back, but you could not see my Face.*—By the Fathers, especially St. *Augustin, Epistle*, 112. *c.* 8. *Several*, says he, *have seen what the Will has chosen, but not what Nature has formed, for*, says he again a little lower, *he was before in that Form under which he would appear, for he did not appear in his own Nature.*—By Reasons, because those Passages of the Scripture above-quoted cannot be understood otherwise than of the intuitive Vision of *God* in this Life; for several have seen him in this Life, in another Manner, *v. g.* in the Creatures, as the Pagan Philosophers; in Figures and Signs, as the Patriarchs and Prophets; by Faith, as the Elects of the Old and New Testament; and several in his Flesh, as the Apostles.—Notwithstanding what is said in the Scripture, *Exod.* xxxiii. where *God* promises *Moses* to shew him all that's good, *i. e.* himself; since that Promise was not to be accomplished in this Life, but in the Life to come, after *Moses*'s Death; as it may be easily inferred from the other Texts of the Scripture above quoted, and to be quoted hereafter.—And notwithstanding, what *God* says of *Moses, Num.* xii. *If there be among you a Prophet of the Lord, I'll appear in Vision, and speak to him in Dream; but I'll not behave in that Manner towards my Servant* Moses, *who is the most faithful of all my house, for I'll speak to him Mouth to Mouth, and he'll see the Lord present, and not in Enigma's and Figures*; for these Words do not signify that *Moses* has seen *God* as he is, but only the Difference between the Manner *Moses* used to see *God* in, and in that which the Prophets saw him. For *God* used to speak to the Prophets in Dreams, by Images imprinted in their Imagination, and by sensible Figures; but he used to speak to *Moses* in a human or angelical Form, as a Friend to his Friend.

But, say you, do not these Words, *Face to Face*, signify, in the Scripture, an intuitive Vision of *God?* I answer that in some Passages of the Scripture, as *v.g.* this, 1 *Cor.* 13. *Videmus nunc per Spem illum in Ænigmate, tunc autem Facie ad Faciem*; they signify an intuitive Vision; but not in all the Places of the Scripture, and particularly in the Passage of *Exodus*, above quoted: For a little lower in the same Place, we find these Words; and of *Moses* to *God*, and of *God* to *Moses*, *if I have found*

Grace

Grace before thee, shew me thy Face; thou can't see my Face; whence it is inferred that this Manner of speaking, *Face to Face*, is ambiguous, and signifies, sometimes, a clear and intuitive Vision; and sometimes only an external corporal Vision: In the first Manner it is opposed to Faith; and in the last to Vision by Figures and Images, or in Dreams.

I prove the second Part, *viz.* that St. *Paul*, in his Rapture to the third Heaven, never saw *God*, clearly and intuitively, as he is; because that Rapture happened before he had wrote his Epistle to *Timothy*, and before St. *John* had wrote his Gospel, but both write that *God* can never be seen; therefore it is a Sign that St. *Paul* had not seen *God* in his Rapture, otherwise he had excepted himself. Notwithstanding this Passage of the Apostle, whereby speaking of himself, 2 *Cor.* xii. he says, that *he had been ravished into Heaven, and there had heard Secrets or Mysteries, which Men are not permitted to divulge*; for though we confess that he was ravished to the *Empyreum*, which is the Mansion of the Blessed, and had heard there mysterious Words; it does not follow that he had heard them, and learn'd them by the beatifick Vision; but rather by some excellent and singular Revelation, as it may be inferred from some other Words of the same Apostle, in the same Chapter, *Ne magnitudo*, says he, *revelationum extollat me, &c. viz.* the Revelations which he had in his Rapture, which he could very well call great, and even excellent.

We must enquire next into the Principles which concur to the beatifick Vision; and endeavour to know the Term of that Vision.

Note, That to understand very well the State of this Question, we must know that every Cognition is made by the Union of the Person that knows with the Thing known, or with the Species which supplies its Place: Therefore it has two Principles, *viz.* one from the Part of him that knows, and the other from the Part of the Object. The beatifick Vision is some certain Species of Cognition; therefore it has two Principles, which we'll consider separately, *viz.* one from the Part of the Power, or of the Understanding who sees *God*, and the other from the Part of the Object.—We'll consider in the third Place, the Term of the beatifick Vision.

Note also, That before we enter into a strict Examen of the Principle which proceeds from the Power, or Understanding which sees God, we must make the following Observations,— 1. What is the Light of Glory, and how it is defined? To which I answer, as if it could be defined; that it is a supernatural habitual Quality, or an Habit infused by itself, into a created Understanding, in order to render it more capable to see God, intuitively, and even permanently, which I prove by the Explication of the Terms this Definition is composed of— 1. It is called a *Quality*, because it is an Accident which determines its Object, in the manner of a substantial Form. Hence it follows that the Light of Glory is not uncreated, nor the beatifick Vision itself, nor the Concourse of God.——It is called habitual, to give to understand that the Light of Glory pertains to the first Species of Quality, but as every Species of *Quality* is combinated. I say that the Light of Glory is not a Disposition. Because a Disposition is something moveable from the Subject: But that it is an Habit, because it is a Quality, outwardly happening to a created Understanding, (from which it is not easily moveable) to operate simply, *viz.* to procure the beatifick Vision. Whence it appears that the Light of Glory is not properly a natural Power, pertaining to the second Species of Quality; since such Power must flow from Nature; and the Light of Glory does not flow from Nature, but is infused by *God*; whence it appears, likewise, that the Light of Glory is not a transient Act.—It is called *supernatural*, and a *Quality infused by itself*; because it necessarily requires its being infused, since it cannot be obtained by the sole Strength of Nature.——It is said to a *created Understanding*, as well to indicate the Subject thereof, as to insinuate that it cannot become the divine Understanding.—— *It is said to render it capable*, (*viz.* the Understanding) *to see* God *intuitively*; to shew the End and Office of the Light of Glory.——It is said, *and permanently*; as well to give to understand, that whosoever has that Light is never to be deprived of it; as to insinuate that the beatifick Vision is made more *connaturally*, when the Understanding is raised by some permanent Quality, than if it was elevated by a transient one, *v.g.* by a more abundant and supernatural Concourse of *God*.

If I be asked, why that Succour, or Habit, whereby a created Understanding is risen to see *God*, as he is, be called the Light of Glory? I'll answer, 1. That all that has the Faculty of manifesting itself, is called Light, since it is the Property of Light to manifest itself, according to the Passage of the Epistle to the *Ephesians*, v. but the Light of Glory has the Faculty of manifestating itself, according to this of the *Psalm* xxxvi. *They shall be satisfied with the Plenty of thy House, and in thy Light shall we see Light.* 2. That it is called Light, because it serves to the beatifick Vision, which is Glory and eternal Life.

If it be asked, besides, which is the Office of the Light of Glory? I'll answer, that its Office is to comfort, and raise the Understanding, and to concur with it efficaciously, to procure the beatifick Vision. It is inferred from this Answer, 1. That the Light of Glory is like a Cause, with Regard to the beatifick Vision. 2. That this Light does not serve to the Understanding, as of a mere Disposition, to receive that Vision, as some have falsly imagined. 3. Nor to dispose the Understanding to receive the Essence of God, as an imprinted Species. From these Observations on the Light of Glory, I'll pass to the following important Question.

If a created Understanding, in order to see God clearly, as he is in himself, wants an habitual Light of Glory; and if that Light be so absolutely necessary, as to be impossible it should be supplied by a more abundant Concourse of God?

To which I answer, that the Light of Glory is absolutely necessary to every created Understanding, to see God intuitively; and is in fact in all created Understandings, who sees God as he is. Which I prove by the Scripture, the Fathers, and by Reason. By the Scripture, *Psalm* lvi. *In thy Light we'll see Light*; tho' I must confess that the first Sense of these Words is, *that in the Son we'll see the Father, and in Christ we'll see God*, as interpreted by the Council of *Nice*. But this Sense is also receiv'd, that by the Light of Glory we'll see God, who is an increated Light, and the Fountain of all Light, as we learn from the Council of *Vienna*, where the Error of the *Begards* was condemned, who said, that the Soul wanted no such Light to raise it to the Vision of God. By the Fathers, particularly *S. Gregory Nazianzene, Orat.* 10, & 15. *excipit illos*, says he, *lux omni sermone præstantior*. Where he seems to make Allusion to what is said in the Apocalypse, *c.* 21. of the celestial *Jerusalem, that it is a City which wants neither Sun nor Moon, since it is illuminated by God's Light.* By Reason, because all that is exalted to something exceeding its Nature, must be disposed by something supernatural exceeding its Nature; but a created Understanding, is not proportion'd of itself to the beatifick Vision, unless it be exalted, which Exaltation must proceed from the Light of Glory; therefore, *&c.*

The next Thing which falls under our Consideration is, the other Principle of the beatifick Vision, *viz.* that which proceeds from the Object.

Note, That as there is no Cognition, either intellective, or sensitive, but the Object and Power concur to it; the Object, either immediately by itself, or by its Species; and the Power by itself; after we have treated of the Principle proceeding from the Power; we must speak of the other Principle proceeding from the Object, and inquire if God, immediately by himself, concurs with the Understanding towards the beatifick Vision, or only by an imprinted Species, supplying his Place?

The better to understand this important Question, we must resolve previously to it, some Questions on the imprinted Species; then ask, if it be necessary to a created Understanding, to produce the beatifick Vision; and afterwards, if it be not necessary, endeavour to discover if it be even possible by the Power of *God*.

Note, also, That before we pass to the Questions on the imprinted Species, we must observe, 1. That Theologians ask, if *God* is seen, or can be seen, by Similitude or Resemblance; understanding by the Name of Similitude some Image of him, in which, or whereby he can be seen. 2. That there are generally two Sorts of Similitude, *viz.* one intentional, and the other objective; and that it is only a Question here of the *intentional Similitude*, and is that which, without a previous Knowledge of it, carries us to that of the Object; as the Image of a Tree emitted from the Tree, and received in the Eye, is called the intentional Similitude of that Tree. The *objective* is that, which being known first, carries us afterwards to the Knowledge of another Thing: Thus *Cæsar's* Statue is called the *objective Similitude* of *Cæsar*.—I have said, that it is a Question here of the *intentional* Species, or Similitude, and not of the *objective*; because by that *objective* Similitude, the divine Essence could not be seen intuitively; because the Medium, whereby a Thing is seen clearly and intuitively, must contain the whole Entity of that Thing, either formally, or at least eminently; which an objective Similitude, at least a created one, can never do; therefore, *&c.*

2. That an intentional Species is commonly subdivided into *impressed*, and *expressed*. Some Questions are made here on the *impressed*; viz. It is asked, 1. *What an impressed Species is?* To which I answer, that it may be defined in general, a virtual Similitude of the Object. Which Definition will be elucidated by the following Explication of the Terms it consists of.—1. It is call'd a *Similitude*, because it represents the Object, *i. e.* it renders it present to the Power. —2. It is call'd *virtual*, to give to understand, that it does not represent, formally, the Object, *viz.* by rendering the Power formally knowing, as the *expressed Species* does; but only represents it virtually, *viz.* by concurring with the cognoscitive Faculty, from the Part of the Object, to produce the Knowledge.

It is asked, 2. Which are the Offices of the *impressed Species?* I answer, that it has three Offices; the first is that of uniting the Object to the Power, and thus render the Power intentionally semblable to the Object, otherwise that *Species* would not be a Similitude in the Manner it ought to be. The second, is to determinate the Power indifferent of itself, to know one Thing rather than another. The third, which is the principal, is to perfect the Power from the Part of the Object by its Union with it; that, with it, it may produce efficaciously the Cognition; for the *impressed Species* is like the Instrument of the Object; for it does what the Object would do if it was present, and proportionate.

It is asked, 3. If supposed that two Formalities were found in every Cognition (*viz.* that the Representation of the Thing known, was both vital and formal) the whole Entity of the Cognition be produced by the Power, and all together produced by the impressed Species? Which I answer in the Affirmative; because both are the total Cause of the Totality of the Effect; since both concur efficaciously to the Production of the whole Cognition; which, notwithstanding, does not hinder the Cognition, as a vital one, from being entirely attributed to the knowing Faculty; and this, in the same Manner, the Image, and formal Representation of the Thing known, hinders it from being attributed to the Object itself, or to the *impressed Species*, which I have said to supply the Place of the Object. From these Questions, I'll pass to the following very important one, *viz.*

If an *impressed Species* be necessary to see *God* clearly as he is; and if the Blessed see *God* intuitively by na impressed Species?

I answer the first Part of the Question in the Negative, because *God* can as well effect immediately by himself, what the impressed Species could, if there was such a Thing: For, 1. The divine Essence is, by itself, an Object proportional to humane Understanding, especially when elevated by the Light of Glory, if not of a Proportion of Entity, at least of one of Habit. 2. It can be united to a created Understanding as an Object, since nothing created can be so present, and so intimate to a created Understanding than *God* himself.

I answer the second Part likewise in the Negative, and say that there is no impressed Species in the Understanding of the Blessed, whereby he sees *God*; because *God*, by himself, accomplishes what the impressed Species could, if there was such a Thing; for he accomplishes it, not by informing the Understanding in the Manner of an accidental Form inherent to the Understanding; but by an extrinsick special Assistance of the divine Essence as an intelligible Object.

Note, That we can infer from what we have said in this Place, that the divine Essence concurs effectively in two Manners, to the beatifick Vision. 1. By a general Influence, inasmuch as he is the first and universal Cause, which with all the second Causes influences the same Action. 2. By a particular Influence, his being the Object of the Vision.

Our next Question is, suppose that there is no impressed Species, and that it is not necessary in a created Understanding, to see *God*, if at least such Species be possible?

I answer, that the *impressed Species*, whereby *God* would be seen by a blessed Understanding, is absolutely possible, because it is in no manner repugnant to Possibility: For in every *impressed Species* these two Things are found, *viz. Similitude* and *Efficiency*; but the said Possibility is not repugnant to these two Chiefs: Not from the Part of *Similitude*, for an impressed Species is not more repugnant on that Side, than an expressed one, whose Possibility the Theologians have never called in question; nor from the Part of *Efficiency*, since on that Side likewise, an impressed Species is not more repugnant than the Light of Glory, which concurs efficiently to the beatifick Vision.

From the impressed Species, I'll pass to the *expressed Species*, or *Term of the beatifick Vision*; where I'll propose first, some Questions relating to that said Species; and ask, secondly, if the Blessed, in seeing *God*, form an expressed Species of the divine Essence.

I ask first, in general, what's understood by the Name of expressed Species? And in answer to my own Question, I say, that it is commonly defined *the formal Similitude of the Object*.

1. It is called *Similitude*, and an *intentional* one; because it has the Report of an intentional *Similitude*, which is that Similitude whereby the Object is known, tho' the Similitude itself be not known.

2. It is called *formal*, because the expressed Species, which is the Word of the Mind, represents formally the Object, expressing it in very near the same Manner the Picture of *Cæsar*, expresses the Face of *Cæsar*; and therefore differs from the impressed Species, because the impressed Species is not a formal Similitude, but only a virtual one, *viz.* inasmuch as it has the Faculty of expressing the Similitude, in very near the same Manner the Seed of the Father is called his virtual Similitude, in that it has the Faculty of expressing his Similitude.

I ask, 2. Why the *expressed Species* is esteemed the Word of the Mind? And I answer, that it is because by means thereof the Understanding speaks to himself, represents an Object to himself, and renders it present.

Note, That the Blessed, in their Vision of *God*, form an *expressed Species* of him; which is the Sentiment of St. *Augustin*, as it appears in several of his Works, but more particularly *Lib.* 15. *de Trinit. c.* 16. where he plainly shews that there is an expressed Species, when

he ſays that there is a Word which has ſome Similitude with the Word of *God*; and will have a greater in Heaven, though not an equal one.

Our ſecond Conſideration, is to be on the Object, as well primary, as ſecondary of the beatifick Viſion, which follows neceſſarily the Exiſtence, and Principles of that Viſion, of which we have already treated.

Therefore we are to enquire here, what *the Bleſſed ſee in God when they ſee him Face to Face?*

To anſwer this important Queſtion, in a regular Manner (we have already obſerv'd, that there are two Objects of the beatifick Viſion, *viz.* one *primary*, and the other *ſecondary*) we muſt know what is to be conſider'd as the primary Object of the beatifick Viſion, or what the Bleſſed ſee when they ſee God Face to Face.

The *primary Object* of the beatifick Viſion, is *God*, and all that's contain'd in him formally and eminently. Becauſe that is the primary Object of the beatifick Viſion, which is ſeen for itſelf, and not with Regard to another; and thereby a primary Object differs from a ſecondary, which is always ſeen with Regard to another: But *God*, and all that's in God formally and eminently, is ſeen for himſelf; therefore, *&c.*

But what are, ſay you, thoſe Things which are contain'd in God formally, and which thoſe contain'd in him eminently, and are ſeen by the Bleſſed?

I anſwer, 1. That the Eſſence of God, and all his Attributes, abſolute, as well as relative, are contain'd in him formally; becauſe contain'd in him according to their proper Ratio. 2. That all Creatures, and all the Perfections, which are not ſimple, are contain'd in God eminently: Becauſe not contain'd in him according to their proper Ratio, but according to ſomething more noble, *i. e.* according to a nobler Form.

That all thoſe Things which are contain'd in God, either formally or eminently, are ſeen by the Bleſſed, appears, either becauſe they ſee God as he is, from 1 *John* iii. or becauſe the Viſion anſwers to the Faith; *Quod hic crediderunt*, ſays St. *Auguſtin*, *Lib. de diligend. Deo*, *c.* 18. *ibi videbunt*. And *Lib.* 20. *de civit. c.* 21. *Quid videbimus niſi Deum, & omnia quæ nunc non videmus?* Or, becauſe if the Eſſence was ſeen in Heaven, without the Perſons, there would be ſomething left for the Bleſſed to deſire with ſome Sort of Inquietude; and therefore the Beatitude would not be perfect.

I may be aſked, if the Bleſſed ſee all the Things which are in God formally with a ſingle Viſion?

Which I anſwer in the Affirmative, becauſe the Eſſence of God offers itſelf entirely as it is, in the Manner it contains all the Attributes; and the intellective Faculty of the Bleſſed, is carried towards it neceſſarily, and not freely.

Likewiſe, all that's in God formally, and which pertain to the primary Object of the beatifick Viſion, are all ſeen together, in ſuch a Manner, that one cannot be ſeen clearly without the other, even by the abſolute Power of God. Which I prove by the Scripture, the Fathers, and by Reaſon. By the Scripture, becauſe *John* xiv. *Chriſt* giving to the Apoſtle St. *Philip*, the Reaſon why he that ſees the Father, ſees the Son, ſays likewiſe, that it is becauſe the Father is in the Son. Therefore, likewiſe, as all that's in God is God himſelf, and a ſingle, and very ſimple Being, it is impoſſible that whoever ſees one, ſhould not ſee the other. By the Fathers, particularly St. *Auguſtin*, *in Pſalm* lxxxv. *Ubi non ſeparatur unius natura, & ſubſtantia*, ſays he, *viſio ſeparari non poteſt*. By Reaſon, becauſe what is a ſingle Being, and a very ſimple one, cannot be ſeen intuitively, without being ſeen entirely; ſuch as the divine Eſſence, and all that's in God formally, are one, and a very ſimple Being.

The Creatures are the ſecondary Object of the beatifick Viſion, which Creatures, are either poſſible or exiſtent. Which are all ſeen in God, by the Bleſſed, tho' in a different Manner.

The poſſible Creatures are either ſeen in general, or in particular. They are ſeen in general, becauſe the Bleſſed ſee clearly God's Omnipotency, and all that's in him formally; and that Omnipotency could not be ſeen perfectly, as it is ſeen by the Bleſſed, unleſs they were to ſee the poſſible Creatures in general, towards which, the Omnipotency extends itſelf. Some of thoſe Creatures are ſeen in particular, though not neceſſarily; ſome of them, ſay I, are ſeen in particular, becauſe the Bleſſed ſee that they can be reduced to nothing; they ſee that the Reprobates could have been ſaved, and the like. They are not ſeen neceſſarily, for though the Omnipotency cannot be ſeen intuitively, without ſeeing the poſſible Creatures, at leaſt in general, it can be ſeen, notwithſtanding, without ſeeing them in particular; juſt as the Sight cannot be known, unleſs the Thing viſible be known, at leaſt in general; though it can be known without knowing any Thing viſible in particular.

With Regard to the Creatures actually exiſting; if it be aſked if ſome of them are ſeen by the Bleſſed, as actually exiſting, in ſome Difference of Time; and which are thoſe thus ſeen? I'll anſwer the firſt Part of the Queſtion in the Affirmative, *viz.* that the Bleſſed ſee actually ſome Creatures exiſting in ſome Difference of Time; becauſe, 1. They ſee ſeveral Myſteries of our Faith, according to St. *Auguſtin*, *Lib.* 21. *de civit. Dei*, *c.* 21. *Quid videbimus*, ſays he, *niſi Deum, & omnia illa quæ nunc non videmus, credentes?* 2. They ſee, at leaſt, the Genus and Species of the Things which are in the World, as far as it is agreeable to the Faculty of the Mind. I have ſaid, *at leaſt*, to give thereby to underſtand that ſome imagine that the Bleſſed ſee, likewiſe, Individuals. 3. They ſee all that belong to their proper State.

But though the Bleſſed ſee ſome of the Creatures exiſting in a Difference of Time, they, notwithſtanding do not ſee them all. Becauſe, *v. g.* they do not ſee the free Thoughts of the Heart; they do not ſee the Day of the univerſal Judgment, and do not ſee ſeveral Things which do not pertain to their State.

If I be aſk'd further, what we muſt think of *Chriſt*, as Man? I'll anſwer, that he ſees in the Word all the Creatures exiſting in any Difference of Time, becauſe that Knowledge pertains to his State, and they are all ſubject to his Power and Judgment.

The next important Queſtion is, How the Bleſſed ſee the Creatures poſſible, or exiſtent; if in the Word, or without the Word: If according to the eminential, ideal, and intelligible Being they have in God, or according to the proper Being they have, or can have, beſides God: If by ſome Similitude, *i. e.* Species, or without Species.

Note, That to underſtand this Queſtion well, we muſt obſerve, 1. That I do not deſign to ſpeak here of the Manner of ſeeing the primary Object of the beatifick Viſion, ſince I have already treated on that Subject; nor of the Creatures conſider'd according to the eminential Being they have in God; becauſe conſider'd thus, they are God himſelf. But the Queſtion is of the Manner of ſeeing the Creatures, according to the proper, and formal Being, if they be ſeen in the Word or without the Word? 2. That to ſee the Creatures in the Word, is to ſee them in the divine Eſſence; and to ſee them without the Word, is to ſee them otherwiſe than in the Eſſence, *v. g.* by Revelation, or the Infuſion of Species. 3. That the Creatures are taught to be ſeen in the Word, in two Manners, *viz.* cauſally and formally. To ſee them cauſally, is to ſee them of a Viſion, diſtinct from the Viſion of the divine Eſſence; ſo that, notwithſtanding, the Viſion of the divine Eſſence may be preſuppoſed as the Cauſe, at leaſt morally of the Viſion of the Creature. And to ſee the Creatures formally, is to ſee them of the ſame Viſion, whereby the divine Eſſence is ſeen; not entitatively only, as is that whereby an Angel ſees ſeveral Objects repreſented to him, by the ſame Species; but by the ſame Formality, to which theſe two Things are requir'd; 1. That one of thoſe Things which are ſeen by ſuch Viſion, ſhould have a Connection with the other; for Want of this Condition when by one Cognition, and one Species, an Angel ſees a Horſe and a Lion, the

Horse cannot be said to be seen formally in the Lion, or the Lion in the Horse; because neither the Horse has a Connection with the Lion, nor the Lion with the Horse. 2. That one of the Objects known, be a Means to know the other, be the primary Object, and be before known, at least by a Sign of Reason, than that which is known in it. For Want of this Condition, the related cannot be said to be seen in the correlated, because one has not more the Ratio of the primary Object than the other; though there be imagined a Connection between both, and that the one cannot be known without the other. 3. The following Questions may be ask'd, — 1. If the Creatures, as well those which are possible, as those existing, in some Difference of Time, be seen in the Word, according to their proper Being, and if that Knowledge be acquir'd by some Species, or some Similitude? — 2. If there be any Knowledge in the Creature in the Word causally, and that by some Similitude, *i. e.* some Species? Which previously observed, I say,

That not only the possible, but likewise the existent Creatures are known by the Blessed, or are seen formally in the Word, according to their proper Being. Which I prove by the Councils, the Fathers, and by Reason.

By the Councils particularly that of *Sense*, where it is declar'd, *Pervium esse beatis omni formæ divinitatis speculum, in quo quidquid eorum inter est illucescat.* These Particles (*in quo*) shew plainly the Divinity to be the Medium, in which, like in a Looking-Glass, Things relating to the Blessed are seen. By the Fathers, particularly St. *Augustin, Lib.* 11. *de civit. c.* 7. where he distinguishes a double Knowledge of the Creatures, *viz.* one in God, which he call'd the Morning one; and the other in the Creatures themselves, which he calls the Evening one. By Reason, because God sees the Creatures, according to the proper Being, by the same Vision he sees himself, as a Means to know them, and as a primary Object, known by a Sign of Reason, before the Creatures themselves be known in himself. And therefore the Blessed,

Note, That from what we have said already, it is easily inferr'd, 1. That the *beatifick Vision* is a certain, evident, and perfectly scientifick Knowledge. 2. That it is simply speculative; though it may be said, notwithstanding, that it is outwardly practical, because from it proceeds Love, Joy, *&c.* 3. That it is supernatural, as well according to its Substance, as from its Object; because it cannot be obtain'd by the sole Strength of Nature, and is not due to the Creature. 4. That it is immediate, since God is seen by himself, and not by an intermediate Species, nor by any impressed Species. 5. That it is intuitive, since thereby God is seen in himself, as he is.

Note also, That what is left worthy our Consideration on this Subject is, 1. If, and in what Manner, the Visions of the divers Blessed, differ between themselves. 2. If all the Blessed see God equally. 3. If the beatifick Vision be, or can be comprehensive of God, by his absolute Power.

To the first Question I answer, that the beatifick Visions of the created Understanding, do not differ essentially between themselves; and there is no specifick Distinction between them; because an essential and specifick Distinction, proceeds either from the Principle, or from the Object; which is not the Condition of the beatifick Visions of the human, and angelical Understanding, who admit of no essential, nor specifick Distinction, either from the Principle, or from the Object. Not from the Principle, because the Principle of the beatifick Vision, is the Understanding, not consider'd as it is in itself, but as irradiated by the Light of Glory, but the Understanding of Men and Angels, thus consider'd, is the same in Species, since then the Understanding is considered not according to the natural Power, but according to the obedientiall Power, which is the same in the human and angelical Understanding. Therefore there is no essential, nor specifick Distinction from the Part of the Principle. Nor from the Object, because they have all the same primary material Object, *viz.* GOD; and one and the same formal Object, *viz.* GOD, clearly seen; notwithstanding there is so great a Number of secondary Objects of the beatifick Vision, different in Species between themselves, *viz.* different Creatures; because as the Habits are not specified from the material Objects, but from the formal, neither is the Act specified from the material Objects. Therefore as one of the same Habits of Faith is towards several secondary Objects, because there is only one formal Object, *viz.* the *Truth* revealing; thus is one Act of beatifick Vision, whereby several Creatures are seen in God, because there is one clear Manifestation of God, as a formal Object.

Therefore the Difference found in the Vision of the Blessed, is only accidental; because it is only taken from that Part of the Blessed, who see the primary Object, *viz.* the divine Essence, with the Attributes, in a clearer Manner than the others; or that some of the Blessed see more or less Creatures in God, which are the secondary Objects of the beatifick Vision; which Difference is only accidental.

This leads us insensibly to this important Question; *viz.* if the Vision of all the Blessed be equal or inequal, and whence can proceed the Equality or Inequality of the beatifick Vision?

To the first Part of this Question, I answer, that the beatifick Vision is equal in some of the Blessed, but not in all.

I prove the first Part of this Answer, *viz.* that it is equal in some, by observing that it is equal at least in Infants who die after Baptism, and before they have acquir'd the Use of Reason, as having an Equality of Grace and Charity; from which Equality of Charity, St. *Fulgentius* takes the Measure of the beatifick Vision, *Lib. de Trinit. Amplius videbit Deum in illâ vitâ*, says he, *qui dilexit amplius in hâc vitâ*, i. e. *He who loved most in this Life, will see God clearer in the Life to come.* And as Infants receive an equal Grace in Baptism, for their equal Disposition, if not positive, at least negative to it, they have, consequently, the same Measure of Vision in the everlasting Glory.

I prove the second Part of my Answer, *viz.* that the Vision of all the Blessed is not equal, against *Jovinian* and other Hereticks, by the Scripture, the Councils, Fathers, and by Reason. — By the Scripture, *John* xiv. *In the House of my Father are many Mansions.* 1 *Cor.* xv. *Other is the Brightness of the Sun, other the Brightness of the Moon, other the Brightness of the Stars, as one Star differs from another in Brightness, so is the Resurrection of the Dead.* And 2 *Cor.* iii. *He that sows sparingly, will gather sparingly.* — By the Councils, particularly that of *Florence*, in the Decree of *Eugenius*, for the Union of the *Armenians*; where it is defin'd, that the Souls of the Blessed shall see God as he is, but some more perfectly than others, according to the Difference of their Merits. Likewise by the Council of *Trent, Sess.* 6. *Can.* 32.

By the Fathers, particularly St. *Jerom, Lib.* 2. *Cont. Jovinian.* St. *Augustin, Tract.* 67. *in Joan.* St. *Gregory, Lib.* 4. *moral. c.* 42. St. *Ambrose, Lib.* 5. *in luc.* and likewise *Tertullian, in Scorp. cont. Gnostic. c.* 6. *Quomodo*, says he, *multæ mansiones apud Patrem, si non pro varietate meritorum? quomodo stella distabit a stellâ in gloriâ, si non pro varietate radiorum?* i. e. why should several Mansions be in the House of the Father, if it was not for the Difference of Merits? why should a Star be be distanced from another in Glory, if it was not for the Variety of Rays? — By Reason, because God is just, and the Order of Justice distributive of Rewards, and vindictive of Sins, requires that Regard may be had to Merits and Demerits; therefore are the Torments of the damned Souls different, as we learn from *Mat.* x. *Terræ Sodomorum remissius erit, in die judicii, quam tibi*; the Rewards of the Blessed will be likewise different. *Alioquin*, says St. *Jerom, Lib.* 2. *contra Jovinian. Quid perseverant virgines, quid laborant viduæ, quid maritæ se continent? peccemus omnes, & post penitentiam erimus quod Apostoli sunt*, i. e. Otherwise, why should Virgins persevere,

ſevere, why ſhould Widows work, and married Women be continent? Let us all ſin, and after Repentance, we will be what the Apoſtles are.

The Catholicks anſwer to the ſecond Part of the Queſtion, that the Inequality of the beatifick Viſion proceeds from an Inequality of Merits, as from a moral Cauſe; and from an Inequality of the Light of Glory, as from a phyſical Cauſe.

They prove the firſt Part of their Anſwer, *viz.* that the Inequality of Merits is the moral Cauſe of the Inequality of the beatifick Viſion, by the Scripture, the Councils, the Fathers, and by Reaſon.—By the Scripture, *Rom.* ii. *He will give to every one according to his Work.* —By the Fathers, particularly St. *Fulgentius*, who ſays, that the more one has loved *God* in this Life, the better he'll ſee him in the other.—By Reaſon, becauſe *God* gives the Glory, by way of diſtributive Juſtice; according to this Paſſage of the 2d Epiſt. to *Timothy*, c. iv. *Repoſita eſt mihi corona juſtitiæ, quam reddet mihi Dominus juſtus judex.*

They prove the ſecond Part, by ſaying that the Faculty of Seeing *God* does not belong to a created Underſtanding, conſider'd only in its Nature, but as *inveſted* with a certain Conformity with *God*, by the Light of Glory; whence it happens that the Underſtanding, which participates more of the Light of Glory, ſees *God* more perfectly.

From this Subject of the beatifick Viſion, which I have treated as amply as the Limits I have preſcribed to myſelf will permit, I'll paſs to the Conſideration of the *Science of God*, which is alſo one of his Attributes, and which is properly nothing elſe but *God* himſelf, as knowing himſelf, and Things different from himſelf.

God diſcovers Things different from him in two Manners; for he either conſiders their Eſſence, and which Ways they can be made, or looks on their Exiſtence. He underſtands in his Ideas the Eſſence of all poſſible Things, and which Ways they can be made; and ſees in his Decrees, the Exiſtence of all Subſtances, either ſpiritual, ſuch as are the Ideas of our Minds; or corporeal, ſuch as Motion and Reſt in Bodies: For the Things, or Subſtances, and the Modes, or real Qualities, only exiſt, or have exiſted, or will exiſt, becauſe *God* has decreed their Exiſtence.

But if it be a Queſtion of the free Motions of a created Will; if they are conſider'd in the State of Innocency, *God* knew them, in the Determination of the ſaid created Will, to which the created Will wanted a general Promotion, but not a ſpecial one, neither in the Order of Nature, nor in that of Grace. But if the free Acts are conſider'd in the State of Nature fallen by Sin; then they are either good and ſupernatural, and *God* ſees them in his predetermining Decrees; or not exceed the Strength of Nature, or are bad, and *God* knew them in the future Determination of the created Will, which is preſent to him, in the Eternity, and which only wants a general Promotion.

Therefore the Eſſence of all Things poſſible is contained in the divine Idea, as in an Exemplary or Architype; which Idea, or Architype, is the divine Nature itſelf, as participating, in ſome Manner, of the Creatures; and that Idea directs the divine Will in the Production of all Things; but though he can produce, or not produce every Thing, becauſe their Exiſtence, as poſſible only, and contingent, depends of his free Decree; if notwithſtanding he will produce them, he produces them neceſſarily, according to the immutable Idea or Architype he has of them. Whence the Eſſence of Things is immutable and neceſſary; becauſe it depends of the immutable Architype, not of the free Will of *God*, as the *Exiſtence*, which is only contingent. Neither can *God* make a Circle a Square, or order that twice two be five; but can only make a Circle, or not make it; or give, or deny the Exiſtence to the Circle, to the quaternary Number, *&c.*

Theologians call this *Architype Idea*, in which *God* knew the Eſſences of Things poſſible, a *Science of ſimple Intelligence*; and ſay, that it is a practical Science, becauſe it precedes the Decree of their Production, and directs the divine Will in that Production, *viz.* as far as the omnipotent Will of *God* decrees and operates, according to the immutable Idea. Whence this Axiom, in the Schools of Theology, the *Science of God directs, the Will decrees, and the Omnipotency executes.* Or, to ſpeak with more Accuracy, *God* underſtands in his Ideas, a great Number of Things poſſible, of whoſe Number he decrees ſome by the Efficacy of his Will, and accompliſhes them, when he pleaſes, by his Omnipotency.

But, after, of the infinite Things poſſible which *God* underſtands in his Ideas, he has decreed to produce ſome of them; then he ſees them, in his Decree, as preſent, or co-exiſtent to his Eternity; though with regard to us they are future: And that Science, whereby *God* ſees the Exiſtence of Things, is called by the Theologians, *Science of Viſion*; which Science is practical, and ſpeculative. It is practical, in that it has the Decree of the Divine Will for Adjunct, and tends toward the Work, or together with the divine Decree produces Things, or the Modes of Things; *v. gr.* the Science whereby *God* knew the whole Maſs of this viſible World, before it was made; or the good and ſupernatural Acts of the created Wills, operated by a ſpecial Grace. That Science, I ſay, is practical, and accompanies *God*'s Decree; and precedes, in our Manner of conceiving, the Things themſelves, and their Modes; but that Science is ſpeculative, which conſiders Things, or their Modes, as already exiſting; and is a Science, either of *Dilection*, or of *Approbation*, or even of *Improbation*. It is a Science of Approbation, when it has for Object Things which *God* has operated; and of Improbation, when it conſiders Things which *God* has only permitted, not performed: For *God* permits Evil, in that it concurs with the ſecond Cauſes in producing them; but does not predeterminate thoſe Cauſes by a ſpecial Motion. Whence all the Evil that is perpetrated depends from the divine Decree, *viz.* whereby *God* has decreed by Concurrence with the ſecond Cauſes, but not depend of it, as predetermining and premoving, at leaſt of a ſpecial Premotion.

Therefore when it is ſaid, that the Science of *God* is the Cauſe of Things, it muſt be underſtood of the practical Science; *i. e.* either of the Science of ſimple Intelligence, which is not diſtinct from the divine Ideas, and which when it directs the divine Will in the Production of Things, can be ſaid the Cauſe of Things, at leaſt, directing: Or of the Science of Viſion, in that it has the divine Decree for Adjunct; and together with it, operates the Things themſelves, or their Modes: But the ſpeculative Science of *God*, which ſuppoſes the Exiſtence of Things, or of their Modes, cannot be called the Cauſe of thoſe Things, or of their Modes.

For this Reaſon the different Locutions of the Fathers, which, at firſt Sight, ſeem to contradict one another, are eaſily reconciled: For when St. *Auguſtin* ſays, *Lib.* 15. *de Trinit. c.* 13. *That God does not know all the Creatures becauſe they are, but they are becauſe he knew it*; muſt be underſtood of the practical Science, to which the divine Decree is joined, and always produces ſome Good, and no Bad. For when the ſame Doctor, *Tract.* 53. *in Joan. num.* 4. teaches, that *God, knowing Futurity, had foretold by the Prophets the Infidelity of the Jews; not made it.* And when *Origen*, on the 8th Chap. of the Epiſtle to the *Romans*, ſays, that ſomething is not to happen, becauſe *God* knew it; but *God* knew it, becauſe it is to happen: All theſe Things muſt be underſtood of the ſpeculative Science, which, in our Manner of conceiving, is poſterior to the Things which are foreſeen to happen; and which conſiders not only all that's Good, but likewiſe all that's Bad.

Therefore, as *God* is not neceſſitated to produce any Thing, but produces them freely, and as he pleaſes; it follows, that all that has exiſted beſides *God*, or exiſt, have exiſted, or do exiſt, only contingently; and whatever is to happen, is to happen contingently only, and not neceſſarily.

Thoſe *contingent Futures* are of two Sorts; for ſome are abſolute Futures, as the univerſal Judgment, where *God* is to judge the Quick and the Dead; and the others under a Condition only, of which depends entirely that they ſhould happen, or not happen; and that Condition iſſues

issues either from *God* himself, or is taken from the free Determination of a created Will.

It is certain, that those Things which are necessarily to happen, pertain to that Species of the divine Science, commonly call'd *Science of Vision*; but Theologians do not agree among themselves, to what Sort of Science, pertains that of the conditional Futures, which are no less known to *God* than the absolute ones; since for that Sort of Futures, some admit of a third Science in *God*, which they call *middle Science*, and place it between the Science of *simple Intelligence*, and the Science of *Vision*. Others reject that third Species of Science as needless; pretending that the Knowledge of conditional Futures, may be referred either to the Science of simple Intelligence, or to the Science of Vision. But if it be a Question of those conditional Futures, whose Condition is deduced from the divine Will, changing the Order of the natural Causes when he pleases, *God* sees them by the *Science of Vision* in the Laws of Nature, by him decreed, unless by an insusitated Power he changes the usual Order of Things: Thus he saw the future Death of *Hezekiah*, foretold by *Isaiah*, 2 *Kings* xx. 1. in the exhausted Strength of his Body, as in the nearest Cause; and thus had a Prescience of a conditional Future, which was not to happen; which, however, had happened, if he had not resolved, of all Eternity, to change the Course of Nature; he did step then between *Hezekiah*, and Death which threatened him, and granted him 15 Years more to live. *Multa*, says St. *Augustin*, *Lib.* 6. *in Genes. ad litter. c.* 17. *secundum inferiores Causas futura sunt, sed si ita sunt & in præsentiâ Dei, verè futura sunt: si autem ibi aliter sunt, ita potius futura sunt, sicut ibi sunt, ubi qui præscit falli non potest; nam futura dicitur senectus in juvene, sed tamen futura non est, si ante moritarus est: hoc autem ita erit sicut se habent aliæ causæ, sive mundo contextæ sive in Dei prescientiâ reservatæ. Nam secundum quasdam futurorum causas moriturus erat Ezechias, cui Deus addidit quindecim annos ad vitam; id utique faciens, quod ante constitutionem mundi se facturum esse præsciebat. Nec tamen illi anni additi recte dicerentur, nisi aliquid adderetur, quod se aliter in aliis causis habuerat. Secundùm aliquas igitur causas inferiores jam vitam finierat: Secundùm illas autem quæ sunt in voluntate, & præscientiâ Dei, qui ex æternitate noverat quod illo tempore facturus erat (& hoc verè futurum erat) tunc erat finiturus vitam, quando finivit vitam.*

God saw likewise the Subversion of *Nineveh*, pronounced by the Prophet *Jonah*, *Jon.* iii. 4. by the Science of Vision, in the Sins of its Citizens, of which he was to have taken a Revenge, if he had not decreed of all Eternity to excite, by a special and gratuite Grace, their Will to Repentance: Though the Menaces of *Jonas* were rather an Expedient used to deter the *Ninevites* from following their licentious and criminal Course of Life, than a Prophecy. Otherwise, if we believe St. *Augustin*, *Nineveh* was in Fact destroy'd, if we only regard the spiritual Sense. *Ego autem puto*, says he in *Psal.* l. 11. *impletum fuisse quod Propheta prædixerat: respice quæ fuit Ninive, & vide quia eversa est: eversa in malo, edificata in bono.*

But if it be a Question of the conditional Futures, call'd *free*, i. e. whose Condition is placed in the free Determination of the created Will, they are neither foreseen by *God*, nor are they to happen, but remain in a mere possible State, and are to be referr'd to the Science of simple Intelligence: For those Things are not to happen, where there is no Condition to be put, without which they cannot happen; if they are not to happen, there is no Truth of them, nor Science, nor Prescience: For *God* sees by his Prescience all that's to happen, as present, and co-existing to his Eternity, either in his Decrees, or in the Determination of the created Will. It is a Question here, of Futures depending of the Determination of the created Will, which Determination is never to happen, and which *God* never sees as present in his Eternity; where then does he see it? Is it in the Comprehension, or comprehensive Cognition he has of the created Will? But the created Will is indifferent towards that Determination, and never has a Propensity to it; therefore *God* foresees in no Manner, neither that Determination of the created Will, nor the Things which are to happen from it; and consequently the Science they call *Media*, and which is supposed the Exploratrice of those Kinds of Futures, is entirely fictitious.

St. *Augustin* has often, and expresly rejected that Science, *Lib. de præd. sanct.* 14. where expounding against the Errors of the *Semipelagians*, what is said of the Just, *Wisd. c.* iv. *v.* 11. *He is carried off lest Malice should change his Understanding*, takes what is found in the same Chapter, *v.* 7. *If the Just be surpriz'd with Death, he will be at Rest.* And what is read *Ezek. c.* xviii. *v.* 24. *If the Just turns away from his Justice, and commits Iniquity according to all the Abominations committed by the Impious, will he ever live?* From which Words St. *Augustin* reasons thus, *Where's the Christian who has the Temerity to deny that the Just surprised with Death is at Rest? Likewise if he was to say, that if the Just when he recedes from his Justice, in which he has continued a long while, aud died in that Impiety, in which he liv'd, I do not say one Year, but one Day only, the same Punishment will be inflicted on him due to the Reprobates, and his Justice will avail him nothing, he'll maintain a perspicuous Truth; if we be asked, if he had died while he was Just, he had found Pain or Rest, who will refuse to answer, Rest? This is the Cause why it is said, he is carried off lest Malice should change his Understanding. For this is said, according to the Dangers of this Life, not according to God's Prescience, who has foreseen what was to happen, and not what was not to happen.*

Whence the same Doctor, in the same Book, *c.* 12. reprimands the *Semipelagians*, for teaching that Infants were baptized or not baptized, in that State of Infancy, for their future Merits, before they departed this Life. For as those Merits are never to happen, and are never foreseen by God, Regard is to be had, neither to the Reward, nor to the Punishment.

But he had already condemn'd in the *Pelagians*, the Futilities and Cavillations of the Science of Conditionals, as well in the Epistle to Pope *Boniface*, as in the 195 to *Sextus*.

Several Places of the Scripture are quoted in Defence of that Science of Conditional, which are easily resolv'd, if we consider that the sacred Scripture does not deviate much from our common Manner of Speaking, and employs often the same Figure used by profane Authors, to express Things otherwise than the Terms would do it, *v. g.* when *Christ* says, *Luke* xix. 40. *Si hii tacuerunt, lapides clamabunt.* There is there neither Falshood nor Lye, but only a Beauty and Energy of Expression, and not a Prediction of the Stones speaking, if the Apostles were to remain silent.

Therefore some Things are said future, in the sacred Writings, even absolutely, which notwithstanding are not to happen, *viz.* to declare the near Propensity or Disposition of the second Causes; or to shew likewise the imminent Danger, that thereby one may be more ready to implore God's Clemency, and to lead a better Life. *v. g. Lib.* 2. *Reg. c.* 20. It is said to *Hezekiah*, thou shalt die, and notwithstanding fifteen Years more are added to his Life. Likewise *Jonah*, *c.* 3. *v.* 4. we read this Prophecy, *Adhuc quadraginta dies, & Ninive subvertetur.* Which notwithstanding was not destroy'd. Therefore these, and other such Passages, are calculated to awake Sinners from their Lethargy, persuade them to mend their Life, and to implore Succours from Heaven, and likewise to shew the Disposition of the second Causes, rather than to declare what is to happen.

Likewise when *Christ* says, *Matt.* xi. 21. *Væ tibi Corozain, væ tibi Bethsaida, quia si in Tyro & Sidone factæ essent virtutes, quæ factæ sunt in vobis, olim in cilicio & cinere pœnitentiam egissent*; the Design of our Saviour is not to prophetise, but to reproach the *Jews*, who inhabited those Cities, with the Hardness of their Heart. Therefore God, in this Place, prophetises nothing, but only reproaches the *Jews* with their present Incredulity, whom he saw had resisted that Measure of Grace, to which he knew the *Tyrians* had rendered themselves sensible.

If I be asked why the same Miracles had not been

operated among the *Tyrians*, and *Sidonians*, which were operated among the *Jews*, and which could have excited them to Repentance; I'll answer with St. *Augustin*, *because by a higher Judgment they were not separated from the Mass of Perdition, by the Grace of Predestination.*

Therefore when *David* asketh God, 1 *Sam.* xxiii. 12. *If the Men of Keilah will betray him?* and the Lord answers, *They will betray him*; this does not denote the future Prodition of *David*, which did not happen, but the present Will of the Inhabitants of that City, who meditated to betray *David*.

Likewise in 2 *Kings* xiii. 18. and following, *Joash*, by *Elisha's* Command, struck the Earth thrice, and afterwards stopped; and it is recorded, that the Man of *God*, irritated at it, expresses himself thus: *Si percussisses quinquies, aut sexies, sive septies, percussisses Syriam usque ad consumptionem, nunc autem tribus vicibus percuties eam.* In this there is no Futurity intended, nothing was future; but the Prophet gives King *Joash* to understand, that if he had obey'd with more Confidence, and Perseverance, the Command of *God*, he had gained a greater Number, and more compleat Victories over his Enemies.

Therefore by these Passages, and others commonly alledged, the Science of conditional Futures, is not always established; but only a certain Connection between the Causes of Things, *viz.* between Merit and Reward, Punishment and Sin, is demonstrated by Locutions adapted to our common Way of Speaking.

From this I'll pass to the Consideration of GOD'S WILL, who being a very simple Being, his Understanding is nothing else but the divine Essence itself, or God consider'd as intelligent; and *his Will nothing else but the same divine Essence consider'd as willing*; therefore if we speak with Accuracy, and as the Thing is in fact, there is but one Will in God; but by Reason of the Narrowness of our Conceptions, it is commonly divided into several Sorts of *Wills*.

1. Into *general* and *special Will*. *God's general Will* is, that whereby he has established a certain Order in Things, which is always kept, unless opposed, or obstructed by some particular Causes, *v. g.* he has established that the Motion of all Bodies should be in a right Line, as the shortest and most simple; unless obstructed by some neighbouring Bodies, which often happens. Likewise he has created all Men for himself, and is willing that they all should come to him and be happy; but too often their Pravity revolts against his Goodness; therefore this Will is not adapted to some particular Thing only, to the Exclusion of all others, but is common indifferently to all Things in general.

The *special* or *particular Will*, is that whereby God has determined something in particular; and this is again subdivided into *Will of Pleasure*, or *Bene placiti*, and *Will of Sign*, or *Signi*.

The *Will of Pleasure*, is *that whereby God is pleased that something should be*; or is the Act whereby God wills, in fact, some Good because it pleases him, *v. g.* he will, of a *Will of Pleasure*, preserve the World he has created. He would by the same Will chuse the Blessed Virgin to be the Mother of *Christ*; where it must be observ'd, that we can only wish Good to the Thing or Person we love; but God in loving the Creatures, does not only wish them Good, but produces that Good within them.

The *Will of Sign* is not properly in God, but is an external Sign whereby God discovers that he wills something; for the Sign of the *Will* is called Will, as the Effect of Love is called Love.

St. *Thomas*, 1 *part. quæst.* 19. *art.* 12. reckons five of those Signs, *viz. Prohibition*, as *Permission*, with Regard to Evil; *Precept*, *Advice*, and *Operation* with Regard to Good: Whence this small Verse:

Præcipit, ac prohibet, permittit, consulit, implet.

Therefore when *God* commands or advises some Good, he wills something efficaciously, *viz.* a Sign, or a Precept, or an Advice; but he wills not always efficaciously the Thing he commands; *v. gr.* when he commanded *Abraham* to sacrifice his Son, he would command that Thing with an efficacious Will, though he was not willing that the Thing should happen, but only that *Abraham* should obey the divine Command. Likewise *God* permits, and will permit Sin; but he wills not the Sin, since he hates and punishes it.

Likewise he forbids Sin, but notwithstanding concurs with Man to perpetrate it; therefore the *Will of Sign*, includes always the Will of Pleasure with regard to the Sign; but does not always include it with regard to the Thing thereby signified.

Note, That St. *John Damascenus* gives other Names to our first Division of *God's* Will, into general and special, and calls it, *Lib.* 2. *Orthodox. Fid. c.* 29. antecedent and subsequent.

The *Antecedent Will* is call'd by St. *John Damascenus*, *Bene placitum*, and is the Will of the Creator loving the Things he has produced. And the *Consequent Will* is called *Permission*, proceeding from our own depraved Condition; and is the Will of a just Judge, giving to every one what he deserves; as expressed by *Tertullian*, *Lib. de Resurrect. carnis. c.* 14. when he says, that *God* is, *De se optimum*; *de nostro justum.*

This *General* or *Antecedent Will*, is not always accomplished, but is inefficacious, and remains suspended by the Conditions, as I'll explain it hereafter.

But the *Will of Pleasure* is always accomplished. Therefore the *Antecedent Will* is not always a Will of Pleasure, though called *Bene placitum* by St. *John Damascenus*. But the *Consequent Will*, which the same Father calls *Permission*, is a Will, *Bene placiti*, according to St. *Thomas*, or an *Efficacious* and *Special Will*; so that the *Consequent Will*, the *Efficacious Will*, and the Will *Bene placiti*, signifies, in his Opinion, one and the same Thing.

Estius considers, likewise, the *Consequent Will* as efficacious, but not the *Antecedent Will*. Whence, *Lib.* 1. *Magist. Sentent. distinct.* 46. *Paragraph.* 3. he agrees with those, who believes that the *Antecedent Will* is only eminently and improperly in *God*, as are Wrath, Repentance, *&c.* but not properly and formally, because it seems to argue some Defect or Impotency.

The *Antecedent Will* is that whereby *God*, in our Manner of conceiving Things, wills something consider'd in itself only, before its Circumstances are consider'd.

The *Consequent Will* is that whereby *God* wills something consider'd with all its Circumstances.

The *Antecedent Will* is also called by St. *Chrysostom*, *Hom.* 1. *in Epist. ad Ephes.* the first Will, and the *Consequent*, the second Will.

God's Will, is also divided into *absolute* and *conditional*, because the divine Will is either that whereby *God* wills actually by an internal Decree, that such a Thing should be or not be; and in this Manner, that Will is absolute, and supposes no Condition; such was the Will whereby *God*, foreseeing Sin, would have his Son incarnate, or it is that whereby *God* by an internal Act, wills something under certain Conditions; such is the Will whereby he wills all Men to be saved, *viz.* provided they co-operate with him.

If I be asked, if both these Wills are always accomplished? I answer, 1. That the absolute Will is always accomplished, and efficacious, as it appears by the Scripture, *Esther* xiii. *None can resist thy Will.* And *Isaiah* xlvi. *My Counsel shall remain, and all my Will be accomplished.* *Rom.* ix. *Who can resist his Will?* 2. That the Will, called *Conditional*, is not always accomplished. The Reason is, because to be accomplished, it requires a certain Condition; and it sometimes happens, that the Condition is not put; whence it follows, that the *Conditional Will* is not always efficacious, nor always accomplished. For Example, *God* wills the Conversion of Sinners, with this Condition, that they co-operate to the Grace. But it is certain, that some will not co-operate to it; then the Will whereby *God* wills the Conversion of Sinners, is not always accomplished. Therefore it is not surprizing, if *Christ*, *Matt.* xxiii. asked *Jerusalem*, *How often he would assemble her Children*, &c. *and she would not?*

God's Will is divided besides into efficacious, and inefficacious-

inefficacious; becauſe *God*'s *Will* is either that whereby *God* by an internal Act wills in ſuch a Manner that ſomething ſhould happen, that it happens, and thus the Will is efficacious; or is that whereby *God* by an internal Act, wills that ſomething ſhould happen, and it does not happen, and thus the Will is inefficacious. Let an Example of the former Will, be that Will whereby *God* wills the Salvation of thoſe who are ſaved; and that of the latter to be that Will whereby he wills the Salvation of thoſe who are not ſaved.

But, ſay you, is not all *God*'s *Will* efficacious? According to this of the Pſalmiſt, *Pſalm* cxiv. *Omnia quæcumque voluit, fecit.* I anſwer in the Affirmative, if it be a Queſtion of the *Conſequent Will*, and in the Negative, if of all Sorts of *Antecedent Wills* indifferently.

The primary Object of *God*'s *Will* is *God* himſelf, becauſe he is the ſupreme Good, and the Source of all other Goods; and having operated all Things for himſelf.

The ſecondary Object of *God*'s *Will* are the Creatures themſelves; becauſe *God* wills the Creatures not ſo much for themſelves as for himſelf.

The primary formal Object of *God*'s *Will*, is the increated Goodneſs of God; becauſe according to the Scripture, *God* has created all Things for himſelf; and becauſe the Motive of *God* to love himſelf, and all Things without him, muſt be in *God*, and undiſtinct from him; for if the divine Volition, had a Motive diſtinct from itſelf, it would follow hence, that it would be ſpecified by a created Thing, which is an Abſurdity; therefore the ſole divine Goodneſs is the formal Object of the divine Will; and the chief Motive for which *God* wills and loves all Things.

The ſecondary formal Object of the divine Will, is the Goodneſs of the Creatures; becauſe, though it be not the laſt, it is however the neareſt Motive for which he loves them.

A very important Queſtion relating to the divine Will is, if that Will be the Cauſe of Things; and if it impoſes a Neceſſity on created Things?

To the firſt Part of this Queſtion, I anſwer, that the Will of *God* is the Cauſe of Things; which I prove by the Scripture, the Fathers, and by Reaſon. By the Scripture, *Pſal.* cxlviii. *For he did ſpake the Word and they were made, he commanded and they were created.* By the Fathers, eſpecially St. *Auguſtin*, *Lib.* 3. *de Trinit. c.* 4. in theſe Words, *God's Will is the firſt and ſovereign Cauſe of all corporeal Species and Motions.* By Reaſon, becauſe *God* is an intellectual Agent, who acts by Power no otherwiſe than it is applied by the Free-Will: The Reaſon of this is, becauſe if he was neceſſitated to produce the Creatures, he would produce all he could, which however happens otherwiſe; therefore it is a Sign that he has produced, and produces them freely.

To the ſecond Part of the Queſtion, I anſwer, that the divine Will impoſes a Neceſſity to ſome Volitions, but not to all.

I prove the firſt Part of this Anſwer, *viz.* that the divine Will impoſes a Neceſſity to ſome Volitions, by the Scripture, and by Reaſon. By the Scripture, *Pſalm* civ. *Thou haſt ſet them their Bounds which they ſhall not paſs.* By Reaſon, becauſe he impoſes a Neceſſity to thoſe Volitions, at leaſt, to which he has appropriated neceſſary Cauſes, *v. g.* in producing the Summer's Heat, he had adapted the Sun nearer, and to dart his Rays in a more direct Line. To the neceſſary Cauſe muſt be alſo referr'd that Cauſe, which tho' free, acts notwithſtanding in ſome as a natural Cauſe.

I prove the ſecond Part of the Anſwer, *viz.* that *God* does not impoſe a Neceſſity to all Volitions, by the Scripture, the Councils, the Fathers, and by Reaſon. By the Scripture, *Eccleſ.* xv. *Appoſui tibi ignem & aquam, ad quam volueris porrige manum tuam. Ante hominem vita & mors, bonum & malum; quod placuerit ei dabitur illi*, i. e. *I have put before thee, the Fire and Water, that thou might extend thy Hand towards which thou pleaſe. Life and Death, Good and Evil are before Man, he ſhall have which of them he chuſes.* By the Councils, particularly that of *Senſe*, *in Decret. Fidei. Decret.* 15. *de Libero Arbitrio.* By the Fathers, particularly St. *Auguſtin*, in ſeveral Places, but moſt particularly *Tract.* 26. *in Joan.* By Reaſon, becauſe he does not impoſe a Neceſſity on thoſe Wills, to which he has appropriated, free, contingent, and defectible Cauſes, *i. e.* Cauſes which are not to operate always in the ſame Manner. Such are the human Acts, which depend on Mens Wills, which are contingent aud defectible.

The next important Queſtion is, If *God*'s *Will* be immutable? Which I anſwer in the Affirmative, and prove my Anſwer by the Scripture, the Fathers, and by Reaſon. By the Scripture, *Numb.* xxiii. *God is not like Man, that he ſhould lye, nor like the Son of Man that he ſhould change. Prov.* ix. *There are ſeveral Thoughts in the Heart of Man; but the Will of God endures for ever.* And *Malach.* iii. *For I am the Lord, and I do not change.* By the Fathers, particularly St. *Auguſtin*, *Lib.* xii. *de civit. c.* 17. *We are not permitted to believe*, ſays he, *that God is otherwiſe affected when he reſts from his Work, than when he operates; becauſe he is not to be ſaid affected, as if ſomething ſhould happen in his Nature, which was not in it before; for he who is affected ſuffers; and any Thing that ſuffers ſomething is mutable. Therefore we muſt not imagine the leaſt Idleneſs and Indolency, when he reſts; no more than Work, Toil, and Induſtry, when he operates; for he knows how to work when at Reſt, and how to reſt when he works.* By Reaſon, becauſe what is immutable, with Regard to the Diſpoſition of his Subſtance and his Knowledge, is alſo immutable in his Will.

If I be aſked if there is Love in *God?* I'll anſwer in the Affirmative; and prove it by the Scripture, the Fathers, and by Reaſon. By the Scripture, *Wiſd.* xi. *Diligit omnia quæ ſunt. John* xxiii. *God has thus loved the World, as to give him his only Son.* xvi. *For the Father himſelf loves you.* 1 *John* iv. *God is Charity.* By the Fathers, eſpecially St. *Auguſtin*, in ſeveral Places, but more particularly *Tract.* 110. *in Joan. Omnia diligit Deus quæ fecit; & inter ea magis diligit Creaturas rationales & ex illis amplius illas quæ ſunt membra unigeniti, & multo magis ipſum unigenitum*, i. e. *God* loves all the Things he has made; and among thoſe he loves beſt, the rational Creatures; and of theſe more, thoſe who are Members of his only Son; and much more, his only Son himſelf.— By Reaſon, becauſe Love is the firſt Act of the Will.

From this Paſſage of St. *Auguſtin* we can infer, that *God* loves all the Creatures, but in a different Manner.

That he loves all the Creatures, appears from the Paſſages of the Scripture above quoted; and from that all Beings, as they are Beings, are good; but *God* loves all that's good, therefore he loves all the Creatures.

If I be aſked, if he loves Sinners? I'll anſwer, that he loves them as Beings, but not as Sinners; ſince, according to the Doctrine of the Fathers, Sin taken formally is nothing elſe but a Privation of due Righteouſneſs and Goodneſs.

He loves them in a different Manner; becauſe he loves the rational Creatures of a Love of Amity and Benevolency; and the irrational, of a Love of Concupiſcence.

I may be aſked, if *God* loves equally all the rational Creatures? To which I anſwer, that if it be a Queſtion of an affective Love, he loves them all equally, becauſe *God*'s Volition is always the ſame in itſelf, being neither ſubject to Increaſe, nor to Diminution. But if it be a Queſtion of an effective Love, he does not love them all equally, becauſe he does not diſtribute equally among them all the Goods of Nature, or of Grace.

Beſides Love, *God* is ſuſceptible of Joy, Deſire, Sorrow, Fear, and the like, anſwering to our Paſſions.

Note, That it is not a Queſtion here, If *God* be ſubject to Paſſions, for it is certain that he is not; ſince the Paſſions are Motions of the ſenſitive Appetite, of which *God* is not ſuſceptible, ſince he has no Body; but only of the Motions of the intellective Appetite; which Motion *God* is ſuſceptible of, either *properly* or *metaphorically*.

The Motions of the intellective Appetite, of which *God* is ſuſceptible, *properly*, are Love and Joy; for theſe two Motions include no Imperfections in themſelves. I have already proved, that *God* is ſuſceptible of Love; there-

therefore it remains to prove, that he is likewise susceptible of Joy; which I do by the Scripture, *Luke* xv. *There is a great Joy in Heaven at the Conversion of a Sinner*, &c. And also by Reason, because Joy is a certain Quietation of the Will, in the Object of its Volition, as possessed, and present; which Quietation is in *God*, for he reposes in himself, as in the principal Object of his Volition, because he has, in himself, all Sufficiency, as a Being infinitely perfect, and independant.

The other Motions which belong to *God*, but *metaphorically*, are Desire, Flight, Sorrow, Hope, Despair, Fear, Wrath, *&c.* because they are not in him, according to their proper Signification; *Hope* and *Despair*, for Example, regard a difficult, or arduous Good; *Hope*, with the Possibility of obtaining it; and *Despair*, with the Impossibility of obtaining it; but nothing is difficult or impossible to *God:* Therefore, *&c.* and thus of all the rest of these Motions.

The next Attribute of *God*, which falls under our Consideration, is his *Providence*.

PROVIDENCE, *is a certain eternal Disposition, whereby every Thing is directed towards its particular End, and all together to the universal End*, viz. *to* God's *Glory*. Tho' the Bodies and Minds tend in a different Manner to their respective End: For the Minds move themselves by their own Liberty; and want, for acting, but only the ordinary Succours, or Concourse of *God*; but the Bodies, being incapable to move of themselves, must be moved, and determined by *God*, according to the Rules prescribed by him, which they cannot transgress.

These Laws, or Rules, whereby the Bodies are moved, was called *Fate* by the Pagans; and which was consider'd as a certain Declaration, and which some of them, as *Democritus*, *Heraclitus*, *Empedocles*, &c. imagined, to impose an irresistible Necessity on the Mind, as well as on the Bodies; but others attributed that Necessity to the Bodies only.

According to this last, and more reasonable Sentiment, *Fate* is defined by *Bœtius*, *lib.* 4. *de Consol. Philosoph. prof.* 6. *inhærens rebus mobilibus dispositio, per quam providentia habet quæque nectit ordinibus*, *i. e.* a certain very regular Distribution of the Motions of all Bodies, whereby all Bodies are moved towards the Ends ordained for them: But as those Motions cannot force the human Wills, those Wills tend towards their End by their own proper Determination, and free Acts.

Notwithstanding this free Determination of the human Will, Men cannot obtain, by their natural Strength, their last End, or the beatifick Vision of *God*, for which they are created. For a supernatural End, such as is *God*'s Possession, or a most agreeable Union with *God*, seen and beloved, cannot be acquired but by supernatural Means; therefore as *Adam*, while yet in the State of Innocence, wanted a supernatural Succour of *God* his Creator; likewise, after the Fall of human Nature, his Posterity want the Grace of *Christ* their Saviour, which is much more powerful, in order to arrive at the eternal Felicity: Those among them, who arrive at it, are call'd *Predestinates*; and those who are debarr'd from it, *Reprobates*. Therefore, if the *divine Providence* be consider'd, with regard to Man alone, it contains in itself two Parts, viz. *Predestination*, and *Reprobation*.

Predestination, is a certain previous Destination: Whence, under that Denomination, are contained all that *God* has determin'd should happen from all Eternity. Hence St. *Augustin*, *Lib. de Dono Persever. c.* 17. *In suâ*, says he, *quæ falli mutarique non potest præscientiâ, opera sua futura disponere, id omninò, nec aliud quidquam est prædestinare*. In which Manner the Name *Predestination*, is no less referr'd to Damnation and Pain, than to Salvation and Glory. Therefore *God* is said, by the same Doctor, *in Enchirid. ad Laurent. c.* 100. *Bene utens & malis tanquam summè bonus ad eorum damnationem, quos iustè prædestinavit ad pœnam, & ad eorum salutem, quos benignè prædestinavit ad gratiam*, *i. e.* to Glory, or eternal Life; for, according to the Apostle St. *Paul*, *Rom.* vi. 23. *The Grace of God is eternal Life*.

But however, *Predestination* is most commonly opposed to Reprobation, and is only adapted to the *Elect*; whence it is also call'd *Election*.

Therefore Predestination is defined, in this Sense, *a divine Destination of the intelligent Nature to Glory, by Means of the Grace of God*. Which Definition may be understood of the *Predestination* of the Angels, as well as of that of Man, before and after the Fall of human Nature. But as the Distinction of those States, *viz.* of the State of *original Innocence*, and of *fallen Nature*, has appeared of very great Moment to St. *Augustin*; for to explain the Doctrine of Predestination, the said Doctor, *Lib. de dono persever. c.* 14. defines only the Predestination of the fallen Man, and to be delivered from the Servitude of Sin, in these Words: *Hæc est*, says he, *prædestinatio sanctorum nihil aliud: præscientia scilicet, & preparatio beneficiorum Dei, quibus certissimè liberantur, quicumque liberantur*.

It is call'd *Prescience*; by which Term some understand the Science call'd of *simple Intelligence*, whereby *God* knows, in general, all the Ways and Means whereby Men can be saved; before he prepares, or determines to give these, or those, Succours to these or those Men. Whence, say they, Preparation is subjoined, *i. e.* the Act, or Decree of the Divine Will, following the Science of *simple Intelligence*; by which Decree *God* prepares, or gives certain Benefits, or Means conducive to the eternal Felicity.

Others by the Term *Prescience*, understand the *Science of Vision*, which has the divine Decree joined to it. For, say they, it is not a general Prescience of all the Graces which *God* can give to all Men; but it is a special Prescience of the future Benefits, or Graces, whereby he has decreed to deliver those who are delivered; and therefore is joined with the Preparation of the said Benefits; and accompany *God*'s Decree. For which Reason the same Doctor, *Lib. de prædestin. sanct. c.* 10. writes thus: *The Predestination cannot be without the Prescience, but the Prescience can be without the Predestination; for God has provided by the Predestination what he was to do.* And *Lib. de dono persev. c.* 18. *Predestination, is also signified by the Name of Prescience*, &c.

The Divine Prescience, in the holy Scripture, with respect to the Elects, or Predestinates, is a Science of *Dilection*, and *Approbation*, or is the Predestination itself; but with respect to the Wicked, and Reprobates, it is a Science of Improbation; whereby *God* neither approves, nor chuses the Reprobates; whom, therefore, he is said not to know.

Therefore *Predestination* is together, the Prescience and the Preparation of *God*'s Benefits; *i. e.* of all Sorts of Graces; in which consists, particularly, Vocation, Justification, and lastly final Perseverance; whereby all the Elect are delivered from the Servitude of Sin.

But *Predestination*, properly taken, and as defined by St. *Augustin*, regards eternal Life, its being the Preparation of *God*'s Grace, in order to obtain eternal Life; notwithstanding which, it may be said to be to the Grace of a good Life, and to the Grace of eternal Life, according to St. *Fulgentius*, i. e. to the Means and End; or to *Grace* and *Glory:* However, the End is minded first, and in the Order, Intention precedes the Means. For *those whom God has forseen*, says the Apostle, *Rom.* viii. 29. *viz.* by the *Science of Vision*, and of *Approbation*, which has for Adjunct the divine Decree, *i. e.* those he has chosen by a Predilection, before the Creation of the World, or has decreed in his Prescience to make his, *he has predestinated them to be conform to the Image of his Son . . . and has called those he has predestinated, and justified those he has called; and glorified those he has justified*; by which Expressions, the *Predestination* to Glory is indicated to be before the Vocation; and the Vocation before the Justification. But in the *Order of Execution*, the Vocation is first; then follows Justification, and lastly Glorification.

Note, That the Vocation to be understood here, is not all Sorts of Vocation; for *several*, according to the Doctrine of *Christ* himself, *Matt.* xx. 16. *are called, and but very few elected:* But only the Vocation, *secundum propositum*, as the Apostle speaks, *Rom.* viii. 28. *i. e.* according to the eternal Decree of *God*, whereby, of

of his mere Goodness, he has called those he has determined should be Partakers of the eternal Glory: And consequently Justification, final Perseverance, and Glorification itself, follow this Sort of Vocation.

Therefore those who are justified, and do not persevere to the End in the Justice they have received, are called Temporal by St. *Augustin, lib. de Correp. & Grat. num.* 42. and *Lib. de don. persever. num.* 57, & 61; as it had been insinuated before by Christ, *Matt.* xiii. 21. *Mark* iv. 17. and *Luk.* viii. 13.

But as *Adam*'s Descendants are born in Sin, and therefore cannot merit of themselves Grace or Glory, it is evident, that they are not predestinated either to Grace or Glory, for their Merits foreseen, but by the pure gratuite Benignity of *God.* Which Sentiment is confirmed by the Apostle St. *Paul*, in several Places of his Epistles, as in that to *Titus*, Chap. iii. 5. *He has not saved us for the Acts of Justice we have done, but according to his Mercy.* And to the *Romans*, Chap. xi. 5. *What remains is saved, according to the Election of Grace*; i. e. as *God* answered *Elias*, complaining that the Prophets had been put to Death by the impious *Jews*, who had worshipped the Idols, *that he had saved for himself* (for they did not save themselves) *seven thousand Men who had not bowed their Knees before Baal:* Likewise, at that Time, after the Gospel had been preached, few are left of the infinite Multitude of Men that perish, who according to the Election of Grace, are made Partakers of the eternal Life: *For if it be by Grace, it is not by the Works, otherwise Grace were not Grace.* And Chap. ix. of the same Epistle, *ver.* 11, 12, 13. *For since they were not born yet, to act any Thing good or bad (that what God had proposed according to the Election should remain)* not from the Works, *but from him who calls, it is said to him; because the greater shall serve the lesser, as it is written, I have loved Jacob, and hated Esau.* Which Place of the Scripture St. *Augustin, in Enchir. de fide, spe, & charitate, c.* 98. explains in this Manner: *Wherein*, says he, *if God designed we should understand the future Works, either good of this, or bad of that, which Works God foresees likewise, he had not said, not of the Works; but had said, on the contrary, from future Works.* And *Lib.* 2. *contra duas Epist. Pelagian. c.* 7. he reprimands them thus: *Certainly you are mad, when contrary to what the Oracle Truth himself has pronounced, that it is not from the Works, but from him that calls, you say that Jacob was beloved for the future good Works God did foresee he would do; and thus contradict the Apostle, who says not of the Works; as if he could not as well have said, not from the present, but from the future Works; but he says not from the Works, to prize Grace.*

But to take off all Occasion of Doubt, with regard to the Meaning of the Apostle, and to shew clearly that the Dilection mentioned in these Words, *I have loved Jacob*, is entirely gratuite; we must observe what the Apostle answers to the Objection which he makes to himself, *ver.* 19. *for who can resist his Will?*

To solve this Objection, he has not Recourse to the Prevision of future Merits, which Solution would be very easy, if it was a true one; but represents the Mystery of Predestination as incomprehensible to human Nature, by this Answer: *O homo tu quis es qui respondeas Deo? numquid dicit figmentum ei qui se finxit, quid me fecisti sic? an non habet potestatem figulus luti ex eâdem massâ facere aliud quidem vas in honorem, aliud in contumeliam?* And towards the End of the eleventh Chapter he concludes this whole Dispute of the Predestination of Saints, by these Words: *O altitudo divitiarum sapientiæ & scientiæ Dei: quam incomprehensibilia sunt judicia ejus, & investigabiles viæ ejus!* But the Mystery of the *Predestination* would not be impenetrable, if it was from the foreseen Merits.

Pelagius, an *English* Monk, preached this Doctrine towards the Year of *Christ* 1410, That Predestination to Glory was the Effect of our own Merits foreseen of *God*; which Merits were entirely natural, and depending entirely of the good Use we make of our Free-Will; and were not perfected by the Grace of *Christ*: It is true that he admitted the Name of Grace, but he placed it only in the Law, and the Doctrine, and in the Example of *Christ*. Therefore he maintained, and all the *Pelagians* with him, that the Sin of *Adam* had affected him only, and none of his Descendants; and consequently we were free of the original Sin, and capable by our own Strength to merit the eternal Glory.

The *Semipelagians* acknowledged the original Sin, and the Necessity of a Regeneration by Baptism; but they were of Opinion that we could operate the Beginning of our Salvation. This is what St. *Prosper* writes of them in his Epistle to St. *Augustin*: *Their Definition and Profession*, says he, *is, that all Men have sinned in* Adam; *and that no Body is saved by his Works, but by the Grace of* God; *notwithstanding which, a Propitiation, which is in the Sacrament of the Blood of* Christ, *is proposed to all without Exception; that whosoever will profess the Faith of* Christ, *and be baptized, may be saved. And those who believe, and remain in that Faith, which ever after is to be assisted by the Grace of* God, God *had foreseen, and predestinated them to the Inheritance of his Kingdom, as worthy of it.*

When they were asked what were their Sentiment with Regard to Infants, who having not yet the Use of their Liberty, some were called to the Grace of Baptism, and others not? They had Recourse to the Science exploratrice of conditional Futures; which we learn likewise from St. *Prosper. They say, that such are lost, and such are saved, whom the divine Science has foreseen what they had been, if they had arrived to more mature Years.* They thought the same *of those Nations, who in past Ages were permitted to follow their own Ways; or who, at this present Time, perish in their antient Ignorance.*

But this Manner of explaining the Mystery of *Predestination*, cannot be reconciled with that of the Catholick Church. For, 1. The divine Science never foresees Things which are never to happen; which we have already sufficiently proved. Besides, if *God* was to expect the Consent of our Will before he would give us his Grace, the Beginning of our Faith and Salvation would be from us, not from *God*; therefore *God* should not *discern* us, but we should *discern* ourselves, contrary to the Doctrine of the Apostle, 1 *Cor.* iv. 7. *Who maketh thee to differ from another? what hast thou that thou hast not received? If thou hast received it, why should thou glory, as if thou had not received it?* And Epist. to the *Ephesians*, Chap. i. 4. *He has elected us in himself, before the Creation of the World, that we may be holy and immaculate in his Presence, in Charity.* The Apostle don't say, that he has *elected us*, because he has foreseen that we were to be holy, but that we *should be holy*; to shew, that Holiness and Justice are the Effect, not the Cause of our Election. Which Testimony St. *Augustin* employs against the *Pelagians*, *Lib. de prædest. sanct. c.* 18. *Therefore God has elected us in Christ before the Creation of the World, predestinating us in the Adoption of Children; not because we were to be immaculate, and holy of ourselves; but he has chosen and predestinated us that we should be holy, and has acted us according to his own Will, that none should glory of his own Ability, but only of the Will of God.*

The same Doctor, *c.* 12. of the same Book, shews that the Prevision of Merits can have no Place in Infants, because they either die after Baptism, and are made Partakers of the eternal Glory; or before Baptism, and are sent *into external Darkness.* Neither is it to be attributed to the Care or Neglect of Parents, that Infants are not regenerated by Baptism, or die without it; *for*, says he, *Lib. de don. persev. c.* 12. *God wills not, sometimes, that Baptism should be administred to an Infant, though its Parents make all the Haste imaginable to have Ministers ready for that Administration; and he does not keep him alive long enough to receive it.*

Those who say that the Predestination to Grace is gratuite, whereby we deserve the eternal Glory; but that eternal Glory is granted to our Merits, say nothing. For they only consider the Order of Execution, whereby it is certain, that the Works done by the Succours of *God*'s Grace, precede the Glory which is the Reward of good Works; but if we consider the Order of Intention, Grace does not precede the Glory, but follows it.

But

But however, I do not pretend by this Doctrine of gratuite Predestination, to establish or countenance Fate or Despair, or Indolency in acting; for whosoever is predestinated, *gratis*, to eternal Salvation, it is by his good Works, done by the preventing and preparing Grace of our Saviour. Whence by Predestination, they have the Happiness to hear the Gospel preached to them; they have the Occasions of acting well; they obtain by their Prayers, and by those of their Friends, to persevere to the End, in the Love of *Christ*, &c. which Benefits are all compriz'd in the Definition of Predestination.

Therefore, whosoever, says St. *Augustin, Lib. de Correp. & grat. c.* 7. *is saved from Original Damnation, by this divine Grace; no doubt but they are favour'd with hearing the Gospel, and when they hear it, to believe what they hear; and to persevere in the Faith operated by Dilection; and if they sometimes forget themselves, when reprimanded they amend; and some of them, though not reprimanded by Men, return of themselves into the Road they had forsaken; and some are carried off by Death immediately after they have received the Grace, and thereby delivered from the Dangers they had been exposed to in this Life. All this is operated in those by him who has made them Vases of Mercy; and who has chosen them in his Son, before the Creation of the World by the Election of Grace. For if Grace be depending on Works, Grace then is not Grace. For they are not thus called, as not to be elect; for which it is said, several are called but few are elect. But because they are called* secundum Propositum, *they are certainly Elect by the Election of Grace, without any Regard to preceding Merits, for Grace is their whole Merit.*

It is proper to enquire in this Place, which are the Effects and Signs of *Predestination* formally taken?

Note, That that is said the Effect of *Predestination*, formally taken, which is done by that efficacious Will, whereby *God* has decreed to lead Men to eternal Life. Whence it appears, that some certain Conditions are requir'd to such Effect; the first of which is, that such Effect be of *God*, as *Predestination* itself is of *God*. For Want of this first Condition, Sin cannot properly be said the Effect of *Predestination*, though it falls under the Prescience of *God*. The second, that this Effect should proceed from the Merits of *Christ*. The third, that it should actually import Glory, either formally or dispositively, *viz.* by contributing to the actual Acquisition of an eternal Life; these pre-observed,

I say first, that the divine Vocation, Justification, and Glorification, are the principal Effects of Predestination, to which all others are referr'd. Which I prove by the Scripture, the Fathers, and by Reason. By the Scripture, *Rom.* viii. *He has called those he has predestinated, and justified those he has called, and glorified those he has justified.* By the Fathers, particularly St. *Fulgentius, Lib. ad Monim. Where all Things*, says he, *and the Beginning of our Vocation, and the Increase of our Justification, and the Reward of our Glorification, God has always had in the Predestination; because he has always foreseen the future Works of his Grace, in the Vocation, Justification, and Glorification of the Saints.* By Reason, the aforesaid Conditions requisite to such an Effect, are agreeable to Vocation, Justification, and Glorification, as being of *God*, from a special Intention of Salvation, and given by *Christ*, having a Connection with the actual Assecution of Salvation. That Effect is double, *viz.* Grace and Glory; but as that Grace is double, *viz.* one of Vocation, and the other habitual, called Grace of Justification, or sanctifying Grace; it happens, that that first Effect, called Grace, being subdivided, there are three principal Effects of *Predestination*.

I have said that the three aforesaid Effects, are the principal of several others, and that all the rest may be referr'd to them; because it may be said justly, 1. That all the Succours, not only internal, but likewise the external, which concur with the internal to Justification; such as the external Predication of the Gospel, the Birth and Education from Christian Parents, the Removal of the Occasions of Sin, conversing with good and pious People, fraternal Correction, *&c.* are reduced to the Grace of Vocation. 2. That all other supernatural Habits, which are infused with the habitual Grace, *viz.* of Faith, Hope, and Charity, and the Habits of all other supernatural Virtues, are reduced to the Grace of Justification. Likewise the Gifts of the Holy Ghost, sacramental Graces, and the Gift of Perseverance. 3. That to Justification can be reduced all those Gifts of an accidental Glory, which regard either the Soul, or the Body. For those, and the like Gifts proceed from that Benevolence and Charity, whereby *God* loves the Predestinates for their Merits.

Notwithstanding that several of those Goods, which are the less considerable Effects of *Predestination*, are not entitatively supernatural; for it suffices that they are conducive towards eternal Salvation, and are granted by *God*, through the Merits of *Christ*, to that particular End, though they are not the Effects of *Predestination*, as consider'd simply, according to what they are in themselves. Thus the Goods of Fortune can be said, sometimes, to be the Effects of *Predestination*, when they serve to give Alms in View of obtaining an everlasting Kingdom. As we learn from the Scripture, *Matt.* xxv. *Come ye Blessed of my Father, possess the Kingdom which is prepar'd for you, for I was hungry and you gave me Meat*, &c. Let the same be said of Evil, Pain, Poverty, Sickness, Death, Loss of Children, *&c.* since those Things are ordain'd from *God*, through the Merits of *Christ*, for our Salvation; for it is written, *Rom.* viii. That *to those who love God, all Things co-operate in Good*, &c.

From what we have said, it may be inferr'd, that those Things which are not entitatively supernatural, can, notwithstanding, through the Merits of *Christ*, contribute to our Salvation, and are the Effects of *Predestination* only by Accident, *viz.* as far as they help the Predestinates by some Motive of a supernatural Order, to acquire the everlasting Glory.

If I be asked, if Sin, or the Permission of Sin, may be ranked among the Effects of *Predestination?* I'll answer in the Negative; because the Conditions requir'd for an Effect of *Predestination*, properly so called, are in no Manner convenient to Sin; for that which *God* hates is not from him. But *God hates the Impious, and his Impiety*; therefore, *&c.* besides Sin is not by the Merits of *Christ*, since it is opposite and destructive of the Grace of *Christ*; therefore far from contributing to the Acquisition of eternal Life, it is rather an Obstacle to it. Who in his Senses can imagine, that Sin is one of those Benefits prepar'd by *God*, for the Deliverance of those who are deliver'd?

Another important Question is, If *Predestination* be certain, and so certain, as to impose a Necessity on the Predestinates?

Note, That, before I answer this Question, we must observe, 1. That by the Name of Certitude is generally understood the Infallibility of the Assent agreeable to the Thing understood. 2. That the Certitude of *Predestination* may be consider'd in two Manners, 1. With Respect to itself. 2. With Respect to us. These pre-observ'd,

I say, 1. That *Predestination* is certain with Respect to itself, or according to itself; but not with Respect to us, ordinarily speaking, at least of a perfect Certitude.

I prove the first Part of this Answer, *viz.* that it is certain according to itself, by the Scripture, the Fathers, and by Reason. By the Scripture, *Isa.* xlvi. *All my Counsel shall remain, and my Will will be accomplished. John* x. *My Sheep hear my Voice, and I give them eternal Life, and they shall not perish to all Eternity, and no Body shall ravish them from my Hand.* By the Fathers, particularly St. *Augustin, Lib. de corrup. & grat. c.* 7. and 8. where he speaks thus, *If any of the Predestinates perish, God is deceived.* But none of them perish, because *God* is not deceiv'd; whence it is not surprizing, if *Predestination* be defin'd by him, *the Prescience, and Preparation of God's Benefits, whereby those that are deliver'd are certainly deliver'd.* Likewise by St. *Fulgen. Lib. ad Monim. c.* 12. And *Lib. de fide ad Petrum. c.* 31.

Be persuaded, says he, *that none of those can perish, whom God has predestinated to the Kingdom of Heaven.* By Reason, because what *God* has efficaciously decreed, and what he has foreseen, is very certain, since his Prescience, which is very perfect, cannot be deceiv'd, nor his Decree hindred, *God* being omnipotent; but he has decreed that the Predestinates should be eternally happy, and has foreseen that such Happiness should happen; therefore *Predestination* is very certain, since its Object is very certain. Notwithstanding that it is possible for a Predestinate to sin mortally in a divided Sense, for it suffices that it is not possible in a composite Sense.

I prove the second Part of my Answer, *viz.* that *Predestination* is not ordinarily certain with Respect to us, at least of a perfect Certitude, by the Scripture, the Fathers, and by Reason. — By the Scripture, *Rom.* xi. *Tu fide stas, noli altum sapere, sed time.* Here the Apostle treats of the *Predestination* to Grace; but if this is not certain with Respect to us, neither is the *Predestination* to Glory certain. Whence it is not surprizing, if the Apostle, uncertain of his own *Predestination*, was so severe to himself, that he says 1 *Cor.* ix. *I chastise my Body, and reduce it into Servitude, lest, perhaps, after I have preached to others, I may become a Reprobate myself.* By the Fathers, particularly St. *Chrysostom*, *Hom.* 11. *in Epist. ad Philip.* where, on these Words of the Apostle, *Si quomodo occurram*, he says, that the Apostle does not dare to affirm, that he shall occur and comprehend, but only speaks as if he doubted. By Reason, because if there was any Certitude of *Predestination* with Respect to us, that Certitude would either be of the *Predestination* known in itself, or known by something else; but there is no Certitude of *Predestination* considered in these two Manners: Not in the first, for who can penetrate it? Thus consider, *Are not God's Judgments inscrutable?* Nor in the second, because it would be known either by Faith or Science; but not by Faith, since he who is justified, is not obliged to believe, as an Article of Faith, that he is of the Number of the Predestinates; nor by Science, because there is no Means *a priori*, or *posteriori*, whereby a Predestinate can have an evident and certain Knowledge of his *Predestination*. Add, that if we could be certain of it, it would be unconceivable why the Scripture should exhort us so often to fear.

Note, That I have said in the first Proposition, *ordinary*, to give to understand that *Predestination*, even with Respect to us, can be *extraordinarily* certain, by a Revelation from *God*.

I have said *at least of a perfect Certitude*, to insinuate, that it can be certain of a moral Certitude, and that there can be some Signs, whereby our *Predestination* can be probably known; such as those contain'd in the eight Beatitudes of St. *Matt.* v. to which is added an ardent Desire of Hearing, Reading, and Teaching the Word of *God*, the frequent Use of the Sacraments, a true and sudden Conversion, a Zeal for the Honour of *God*, and of the Salvation of Souls, the frequent Thoughts of *God*, the Desire of Suffering for *Christ*, Patience in Afflictions, a Contempt for the World, and Love for celestial Things, a perpetual and constant Will of doing Good, always the same regular Course of Life, accompanied with a great and true Humility; and above all, the Profession of Faith. According to this of *John* i. *He gave them the Power to become the Sons of God*, viz. *to those who believe.* Likewise the Hearing of the Word of *God*, with the firm Resolution of observing it. According to this other of *John* viii. *He who is of God, hears the Words of God; therefore, you do not hear it, because you are not of God.* And Chap. x. *My Sheep hear my Voice. Luke* xi. *Blessed are those who hear the Word of God, and keep it.*

From what we have said it may be inferred, that the Signs of Predestination are some Effects whereby the Elect, as by some certain Marks, can acquire a very probable and almost certain Knowledge of his Election.

My Answer to the second Part of the Question is, that Predestination does not impose a Necessity on the Predestinates; because, whether we consider Vocation, or Justification, or Glorification, none of them deprives us of our Liberty, but it remains still, in some Manner, in our Power, as it will appear by the Induction. For,

1. *As to Vocation*, the Thing is clear, because, tho' the preventing Grace whereby we are called, prevented, and excited, be not in our Power, as defined in the Council of *Orange*, *c.* 3. *and* 4. and it plainly appears from Scripture, *Joan.* 6. *Nemo venit ad me, nisi Pater meus traxerit eum.* And *Rom.* ix. *Non est volentis, neque currentis, sed miserentis Dei*; it is notwithstanding in our Power to consent to our Vocation, and the preventing Grace; for we consent to it, and co-operate with it freely; as it appears by the Scripture, which exhorts us to obey to the Vocation of *God*, and reprimands those who will not obey.

2. As to the *Justification* of Man, at least of an Adult, the Thing is clear; because his Justification depends of *God*, and of the Disposition whereby he disposes himself to the Infusion of the Grace of Justification, and of all the other supernatural Habits joined with it. For, as an Adult, prevented and excited by the Succours of an actual Grace, can freely consent and co-operate with *God* calling and exciting; in the same Manner he can likewise dispose himself by degrees, to become capable of receiving the Grace of Justification.

3. As to *Glorification*, the Thing is likewise evident; because it depends upon our good Works: For it is certain, that he who after he has received from *God* Charity, and the Grace of Justification, exercises himself in the Practice of good Works, and perseveres by the Succours of the Grace of *God*, will have eternal Life for his Reward, and will have Reason to say with the Apostle St. *Paul, I have fought a good Combat, finished my Course, and kept my Integrity; what remains is a Crown of Justice, which God, a just Judge, will give me in that Day, and not only to me, but to all those who love his Appearance.*

Another important Question on this Subject is, How great is the Number of the Predestinates, and if it be lesser than the Number of Reprobates?

To the first Part of this Question I answer, that *God* alone, and he alone to whom *God* will be pleased to reveal it, knows the Number of the Elect; because *God* alone knows those who are his, and who are to die in Grace. Whence it follows, that no Body can know, without a special Revelation from *God*, that he is of the Number of Predestinates, notwithstanding what *Calvin* says, that every Faithful is oblig'd to believe, as an Article of Faith, that he is predestinate. I prove my Illation by the Scripture, the Councils, the Fathers, and by Reason. By the Scripture, *Eccles.* ix. *No Body knows if he be worthy of Love or Hatred. But all Things are kept for Time to come, dubious and uncertain.* Whence the Apostle says 1 *Cor.* x. *He who imagines that he stands, let him take Care lest he should fall.* And to the *Phil.* ii. *Operate your Salvation with Fear and Trembling.* By the Councils, particularly that of *Trent*, *Sess.* 6. *c.* 15. and 16. where Anathema is pronounced against him that says, that without a special Revelation he is of the Number of the Predestinates, or is to have the Gift of Perseverance. By the Fathers, particularly St. *Augustin*, *Lib. de corrup. & grat. c.* 13. *Which of the great Multitude of the Faithful, presumes to say, while in this transitory Life, that he is of the Number of the Predestinates?* By Reason, because *Predestination* depends on the final Perseverance, and of that State in which one will be at his Departure from this Life; and who certainly knows, or can know, what that State will be? Therefore, *&c.*

To the second Part of the Question I answer, that tho' we cannot know without a special Revelation, how great is the Number of the Predestinates, it may be said, notwithstanding, that it is lesser than that of the Reprobates; which I prove by the Scripture, the Fathers, and by Reason. By the Scripture, *How wide and spacious is the Gate which leads to Perdition, and a great Number enter through it: And how narrow and strait is the Way which leads to Life, and but few find it.* *Matt.* xx. and xxii. *A great Number are called, but few are chosen. Luke* xii. *Do not fear little Flock, because it has pleased your*

your Father to give you the Kingdom.—By the Fathers, particularly St. *Chryſoſtom*, *Homily*, 40. *ad popul.* where he obſerves, that of a thouſand Men, ſcarce one is ſaved. —By Reaſon, becauſe before the Birth of *Chriſt* almoſt the whole World was Infidels: After that Birth, the greateſt Part of the World was Infidels; among Chriſtians, ſome are Hereticks, others Schiſmaticks; and among the Faithful themſelves, ſome are bad Livers who die in their Sin. All which *God* has been willing to ſhew, under ſeveral Figures in the *Old Teſtament*, and 1. In the Deluge, but eight Perſons having been ſaved from that great Multitude of Men who periſhed in it. 2. In the Conflagration of *Sodom*, and of the other neighbouring Cities, from which none were ſaved but *Lot* and his Daughters. 3. In the Entrance into the Land of Promiſe; which was granted but to *Caleb* and *Joſhua*, of 300,000 *Hebrews* who thirſted after it.

If I be aſked why all Chriſtians are not ſaved, ſince they are all regenerated, and the Sacraments have been inſtituted for them all? I anſwer, that it is becauſe they will not enter through the narrow Gate, but chuſe rather the wide and ſpacious Way that leads to Perdition.

Note, That it is not improper to take Notice here, of the Things which pertain to the *Book of Life*; which Things are, 1. What is underſtood by the Name of *Book of Life*; and if it be the ſame with Predeſtination? 2. If, as there is a *Book of Life*, there be likewiſe a Book of Death? 3. If any Body can be blotted out of the Book of Life? Theſe pre-obſerved,

I ſay firſt, that the *Book of Life* is commonly defined the Memory of *God*, wherein he remembers all thoſe he has predeſtinated; becauſe it is that Knowledge whereby *God* ſees thoſe he has decreed from all Eternity, to call to the Poſſeſſion of his Kingdom; or as St. *Auguſtin* ſpeaks, *Lib. de Corrup. & Grat. c.* 9. *It is a Memorandum in which they are written, by the unmovable Stability of the Son of God.* This Definition is taken from the Scripture, for 2 *Tim.* ii. *Firmum dicitur fundamentum Dei quod ſtat, habens ſignaculum hoc; cognoſcit Dominus qui ſunt ejus.* This Book is alſo called ſimply *Life*, *Iſa.* iv. *Sanctas vocabitur omnis qui ſcriptus eſt in vitâ, in Hieruſalem*, i. e. The Predeſtinates, whoſe Names are written in the *Book of Life*, in the celeſtial *Jeruſalem*, according to this of *Luc.* x. *Rejoyce becauſe your Names are written in Heaven.*

If I be aſked if, and how the Book of Life is diſtinguiſhed from Predeſtination? I'll anſwer, that they are not diſtinguiſhed really from one another, but only by Reaſon; becauſe Predeſtination, taken formally, and the *Book of Life*, are immanent Acts of *God*; therefore as they are the ſame Thing with the divine Eſſence, they are likewiſe the ſame between themſelves; and therefore they are only diſtinguiſhed by Reaſon, inaſmuch as Predeſtination is preſuppoſed as an Object to the Book of Life.

I anſwer to the ſecond Part of the Queſtion, that as we admit of a Book of Life, we may alſo admit of a Book of Death, where the Reprobates are written; becauſe the Reprobates are written in ſome of the Books of *God*; for we read Pſalm cxxxix. *In thy Book all are written:* But they are not written in the Book of Life; therefore, *&c.*

To the third Part of the Queſtion I anſwer, that no Body is blotted out of the Book of *Life of Glory*; but ſome are blotted out of the Book of *Life of Grace.* No Body is blotted out of the Book of *Life of Glory*, becauſe the Predeſtination to Glory is certain; for we read, *Rev.* iii. *Qui vicerit, hic veſtietur veſtimentis albis, & non delebo nomen ejus de libro vita.* Some are blotted out of the Book of Grace; becauſe it is written *Pſalm* lxviii. *Deleantur de libro viventium*, which muſt be underſtood of the Book of Grace; becauſe ſome of thoſe who by Grace are ordained for the everlaſting Glory, do not obtain it, becauſe they deviate from the State of Grace.

Note, That after we have treated of Predeſtination, we muſt ſay ſomething of *Reprobation.*

REPROBATION, is defined by the Maſter of Sentences, *Lib.* 1. *Sentent. diſtinct.* 4. *The Preſcience of the Impiety of ſome, and the Preparation of their Damnation.*

The Diſciples of St. *Thomas* are of Opinion, that there is no Cauſe in the Creatures deſerving Reprobation; but that *God* without any Proviſion of the good or evil Doings, either of Parents or others, has decreed from all Eternity, that ſome ſhould be choſen, and others not.

They call this Reprobation *Negative*, becauſe they do not believe that *God*, without any Regard to Sin, has poſitively predeſtinated ſome of the Angels, or Men, to eternal Damnation, ſo as to have created them with no other Deſign than to make them Veſſels of Wrath; and that for that Reaſon he has permitted the Fall of *Adam*, and other Sins, that thoſe Men he has deſtined to Death, ſhould be given in Prey to the excruciating and eternal Torments of Hell, as ſome Heterodox of our Time have impiouſly imagined; but they only believe that *God* has not elected ſome by his Grace to Glory, even before the original Sin, becauſe neither Glory nor Grace is due to them.

But notwithſtanding, this Opinion of the *Tomiſts* ſeems very hard to others, as incoherent with the antecedent Will, whereby *God* deſires that all Men ſhould be ſaved, and with the Doctrine of St. *Auguſtin.*

For St. *Auguſtin* diſtinguiſhes two Sorts of Man's States, *viz.* the *State of the original Innocence*, in which *Adam* was created; and the *State of Nature fallen by Sin*; which has been that of all the Poſterity of *Adam*, after his Fall.

In the firſt State, Man wanted the *Grace of the Creator*, which was a Succour, without which he could not obtain the everlaſting Glory. But this Succour which conſiſted in the Illuſtration of the Mind, and the prompting of the Will, was not of ſuch an Efficacy as to determine the human Will to act; ſince this is a Prerogative of the medicinal Grace of *Chriſt.*

Therefore, Man could in that State, and with that Succour act when he pleaſed, as at preſent our Will requires the divine Concourſe to operate in the natural Order; but that Concourſe did not give him the *Will*, or did not determinate the *Will.*

But in the ſecond State, *viz.* after *Adam*'s Fall by Sin, we want the Grace of our Saviour, which is much more powerful, and *which is not only a Succour, without which* we cannot act; but likewiſe a Succour wherewith we are certainly determinated to act; for it operates within us and the *Will*, and the *Accompliſhment.* According to St. *Auguſtin*, *Lib. de Corrupt. & grat. c.* 11. and 12.

If we believe the *Tomiſts*, a previous Determination of an efficacious Grace has always been neceſſary to act well; and that Grace has always been of the ſame Efficacy, either in the State of Innocence, or in that of Nature fallen by Sin; and therefore there is no Difference as to that, according to the *Tomiſts*, between the State of Innocence, and that of Nature fallen by Sin. And therefore, they plainly judge in the ſame Manner of Predeſtination, and Reprobation, in both States.

But, according to St. *Auguſtine*, muſt be conſider'd in a different Manner, according to the different State of human Nature; for in the firſt State of Man, Predeſtination follow'd the Proviſion of Merits; and Reprobation had never been, if *Adam* had never proved refractory to the Orders of his divine Creator; for how could he ever have ſinned, if he had not had *ſufficient Succours*, of which he could have uſed as he pleaſed? This is certainly very difficult to underſtand; for no Body can be ſaid to ſin in thoſe Things which it is not in his Power to avoid. Therefore, whether the *Tomiſts* ſay, that as Succours were refuſed to *Adam*, while yet in the State of Innocence, whereby he could act; or whether they favour him with their phyſical Promotion, to prompt him to his Diſobedience; many Difficulties occur both Ways, from which they cannot eaſily extricate themſelves. For although *God* be not obliged to give Men, either in the State of Innocence, or inquinated by Sin, the ſupernatural Succours neceſſary to act: Notwithſtanding, when a Man is innocent, as *Adam* was when he was firſt formed by *God*; the Almighty does not deſert him, unleſs he be firſt deſerted by him.

As to the ſecond State in which all Men are born, ever ſince the Sin of *Adam*, there ſeems to be no Difference between the *Tomiſts*, and the Diſciples of St. *Auguſtin*; for they all agree with the Apoſtle, that thoſe who

who are deliver'd in *Christ* from the Mass of Perdition, are deliver'd through the Mercy of *God*; and the rest are justly punished, for Sin, at least the original one. Therefore Reprobation, in this State, can be called Negative, because the Reprobates are left by *God*, in the Mass of Corruption; and Positive, when destined to everlasting Punishment for their Sins.

Therefore the first Cause of the Damnation of Men, is original Sin; and though in those who are regenerated by Baptism, this Sin be washed off, as to the Culp or Spot, whereby the rational Soul is soil'd; its Appendix remains yet, *viz.* the Concupiscence, whereby Men are incited, during their whole Life, to Evil or actual Sin, by which they fall from the State of Grace, and deserve Punishment, which they cannot avoid but through the Merits of the Passion of our Saviour *Jesus Christ*.

I'll conclude this Treatise by some Reflections on the *Omnipotency of God*.

The *Omnipotency of God*, is properly the Faculty, or Power of effecting all that's possible. And all that is possible, which is not repugnant to Order, or to the Wisdom, and the divine Ideas. That Power or Faculty of acting in *God*, is not something, or an Entity distinct from his Essence, Wisdom, and Will.

Theologians distinguish two Sorts of Powers in *God*, viz. one *absolute*, and the other *ordinary*, or as St. *Thomas* calls it, *ordinate*.

The *absolute* Power of *God*, is the Faculty or Power of *God*, consider'd in itself, whereby, without having the least Regard to his other Attributes or Decrees, he can do whatever is possible: Though several Things are absolutely possible, which *God* does not effect, nor can effect with an ordinary Power; because they do not agree with his other Attributes, *viz.* his Holiness, Justice, Wisdom; and with the Order, which, with Regard to his other Attributes, he has prescrib'd to himself. But as his Wisdom is infinite, and cannot be confin'd within any Limits, he can establish an infinite Number of other Orders, according to which he knows himself capable to effect, several Things which he does not effect; whence *God* can perform several Things absolutely, which he does not perform.

The *ordinary*, or *ordinate* Power of *God*, is the same Faculty consider'd as executing the Commands of his just Will, in the Course and Order of the Things, he has settled by his Providence; in which Order all that he has foreseen to happen, must infallibly happen.

Note, That though we should not mix the sacred with the profane; the Laws I have prescrib'd to myself to miss nothing of what has any considerable Report to the Subject I treat, require, that I should take notice here, that *God* is also used in speaking of the false Deities of the Heathens; many of which were only Creatures, to which divine Honours and Worship were paid.

Note also, That the *Greeks* and *Latins* did not mean by the Name *God*, an all-perfect Being, whereof Eternity, Infinity, Omnipotence, *&c.* were essential Attributes; with them the Word only implied an excellent and superior Nature; and accordingly they give the Appellation *Gods*, to all Beings of Rank, or Class higher, and more perfect than Men. Thus Men themselves, according to their System, might become *Gods* after Death: Inasmuch as their Souls might attain to a Degree of Excellence superior to what they were capable of in Life.

Father *Bossu* observes, that the first Divines were the Poets: The two Functions, though now separated, were originally combin'd, or rather one and the same Thing. Now the great Variety of Attributes in *God*, that is, the Number of Relations, Capacities, and Circumstances, wherein they had Occasion to consider him, put these Poets, *&c.* under a Necessity of making a Partition, and to separate the divine Attributes into several Persons; by Reason the Weakness of the human Mind, could not conceive so much Power and Action in the Simplicity of one single divine Nature. Thus the Omnipotence of *God* came to be represented under the Person and Apellation of *Jupiter*; the Wisdom of *God* under that of *Minerva*; the Justice of *God* under that of *Juno*, &c.

GOLD-BEATING.

GOLD-BEATING, is the Art or Act of reducing Gold into exceeding thin Leaves.

Before we proceed on this Operation, we must take Care, if we can, to provide ourselves with a pretty good Quantity of pure Gold, and with little Alloy as possible, that of the Ducats of *Holland*, and of the Sequini of *Italy*, being commonly the best for our Purpose; then we must furnish our Workshop with a small Forge, a small Anvil, Crucibles, *&c.* and likewise with three Sorts of Hammers formed like Mallets, of polished Iron. The first, which is to weigh three or four Pounds, will serve to chace, or drive; the second, of eleven or twelve Pounds, to close; and the third, which must weigh fourteen or fifteen Pounds, to stretch and finish. Besides this, we must have a Block of black Marble, about a Foot Square, and which is to be raised three Foot high; and also four Moulds of different Sizes, *viz.* two of Vellum, the smallest whereof must consist of forty or fifty Leaves; and the largest of two hundred; the other two consisting each of five hundred Leaves, made of Bullocks Guts well scoured and prepared.

Thus provided with all our necessary Tools or Implements, we proceed to work, beginning by melting what Quantity we judge proper of our Gold, and forming it into an Ingot; this done, we reduce that Ingot, by forging, into a Plate about the Thickness of a Sheet of Paper; and then cut it into little Pieces, about an Inch square, and lay them in the first, or smallest Mould, to begin to stretch them. After they have been hammer'd here a while with our smallest Hammer, we cut each of them into four; and put them into the second Mould, to be extended further.

Upon taking them hence, we cut them again into four, and put them into the third Mould; out of which they are taken, divided into four as before, and laid in the last or finishing Mould, where we beat them to the Degree of Thinness required: Observing that the Gold is beaten more or less according to the Kind or Quality of the Work it is intended for: That that for the Gold-wire-Drawers to gild their Ingots withal, must be left thicker than that for gilding Frames of Pictures, *&c.* withal.

Note, That it is prodigious to consider the Fineness we shall thus reduce a Body of Gold to; for it is computed that an Ounce may be beaten into sixteen hundred Leaves, each three Inches square; in which State it takes up more than 15,9092 Times its former Space.

The Leaves thus finished are taken out of the Mould, and disposed in little Paper Books prepared with red Bole, for the Gold to stick to: Each Book ordinarily containing twenty-five Gold Leaves. There are two Sizes of these Books; twenty-five Leaves of the smallest only weighs five or six Grains; and the same Number of the largest nine or ten Grains.

Note, That the *Shell-Gold* used by the Illuminers, and wherewithal we write Gold Letters, is made of the Parings of Leaf Gold, and even of the Leaves themselves, reduced into an impalpable Powder, by grinding on a Marble with Honey: And after it has been left to infuse some Time in Aqua-fortis, it is put in Shells where it sticks.

GOLD-WIRE-DRAWING.

GOLD-WIRE-DRAWING, is the Method of managing Gold in order to fit it to be ſpun on Silk, or to be uſed flat as it is, without ſpinning, in certain Stuffs, Laces, Embroideries, *&c.*

The Operation is performed by forging, firſt, an Ingot of Silver of twenty-four Pounds into a Cylinder about an Inch in Diameter: Then drawing it through eight or ten Holes of a large coarſe Wire-drawing Iron, both to finiſh the Roundneſs, and to reduce it to about three Fourths of its former Diameter. This done, it is filed very carefully all over, to take off any Filth remaining of the Forge: Then it is cut in the Middle, making thus two equal Ingots thereof, each about 26 Inches long; which are drawn through ſeveral new Holes, to take off any Inequalities the File may have left, and to render it as ſmooth and equal as poſſible.

The Ingot thus prepared, is heated in a Charcoal-Fire; then taking ſome Gold Leaves, each of about four Inches ſquare, and weighing twelve Grains; four, eight, twelve, or ſixteen of theſe are joined together, as the Wire is intended to be more or leſs gilt; and when they are ſo joined as only to make a ſingle Leaf, the Ingots are rubbed reeking hot with a Burniſher.

Theſe Leaves thus prepar'd, are applied over the whole Surface of the Ingot to the Number of ſix, over each other; burniſhing or rubbing them well down with the Blood-ſtone, to cloſe and ſmoothen them.

When gilt, the Ingots are laid a-new in a Coal Fire; and when raiſed to a certain Degree of Heat, the Artiſt goes over them a ſecond Time with the Blood-ſtone, both to ſolder the Gold more perfectly, and to finiſh the poliſhing.

The Gilding finiſhed, it remains to draw the Ingot into Wire. In order to this, it is paſſed through twenty Holes of a moderate Drawing-Iron, by which it is brought to the Thickneſs of the Tag of a Lace. From this Time, the Ingot loſes its Name, and commences Gold-Wire. Twenty Holes more of a leſſer Iron, leave it ſmall enough for the leaſt Iron; the fineſt Holes of which laſt, ſcarce exceeding the Hair of the Head, finiſh the Work.

Note, That before the Wire be reduced to this exceſſive Fineneſs, it is drawn through above an hundred and forty different Holes; and that each Time they draw it, it is rubbed freſh over with new Wax, both to facilitate its Paſſage, and to prevent the Silver appearing through.

To diſpoſe the Wire to be ſpun on Silk, they paſs it between two Rollers of a little Mill. Theſe Rollers are of poliſhed Steel, and about three Inches in Diameter. They are ſet very cloſe to each other, and turn'd by Means of a Handle faſten'd to one of them, which gives Motion to the other. The Gold Wire in paſſing between the two, is render'd quite flat; but without loſing any Thing of its Gilding; and is render'd ſo exceedingly thin and flexible, that it is eaſily ſpun on Silk-Thread, by Means of a Hand-Wheel, and ſo wound on a Spool or Bobbin.

Note, That the prodigious Ductility, which makes one of the diſtinguiſhing Characters of Gold, is no where more conſpicuous than in this gilt Wire. A Cylinder of 48 Ounces of Silver, cover'd with a Coat of Gold, Dr. *Halley* informs us, is commonly drawn into a Wire, two Yards of which weigh only one Grain: Whence ninety-eight Yards of the Wire weigh only forty-nine Grains. And one ſingle Grain of Gold covers the ſaid ninety-eight Yards. So that the ten thouſandth Part of a Grain, is above half an Inch long. The ſame Author computing the Thickneſs of the Skin of Gold, found it to be only $\frac{1}{1515000}$ Part of an Inch. Yet ſo perfectly does it cover the Silver, that even a Microſcope does not diſcover any Appearance of the Silver underneath. M. *Rohault* obſerves, that a like Cylinder of Silver cover'd with Gold, two Feet eight Inches long, and two Inches nine Lines in Circumference, is drawn into a Wire 307200 Feet long; *i. e.* into 115200 its former Length. M. *Boyle* relates, that eight Grains of Gold, covering a Cylinder of Silver, is commonly drawn into a Wire 30000 Feet long.

GOVERNMENT.

GOVERNMENT, in the Senſe I take it here, is the political Manner of governing a Country, State, *&c.* according to the fundamental Laws of that Country, State, *&c.* calculated for the Security of the Prince, or Governors, and the Welfare and Felicity of the Subjects.

In this Senſe, *Governments* have been divided for a great Number of Ages paſt, into *Monarchies*, *Ariſtocracies*, and *Democracies*.

I ſay that *Governments* have been divided for a great Number of Ages paſt, into *Monarchies*, *Ariſtocracies*, and *Democracies*, i. e. ever ſince Men, tir'd of their Happineſs, and through that dangerous Inconſtancy, which is a neceſſary Conſequence of *Adam*'s Sin, have had the preſumptuous Temerity to ſhake off that eaſy Yoke which God had ſubmitted them to, all the Time he was pleaſed to be himſelf their Governor; with no other View, than to let them know, that they were not entirely independant; and to make them ſenſible, that though by the Irradiation of the Divinity, they ſeem'd to be of a Nature ſuperior to all the other created Beings, there ſtill was ſomething above them, infinitely more perfect, and without whoſe immediate and powerful Protection, and continual Vigilance to their Conſervation, they would immediately return into their former nothing.

This *Government* of God, which I'll call *Theocracy*, was as antient as the World itſelf, for though, *at the Beginning*, Man was created entirely perfect of that Perfection agreeable to the Condition of human Nature, which excluded all Sorts of Imperfections, but would not admit of all Sorts of Perfections, at leaſt thoſe of a ſupernatural Order, God did not judge him capable yet to be entirely Maſter of himſelf; and though he had given him an abſolute Empire over all the ſublunary Things, he was under ſome Reſtraint as to his own Conduct. God uſed to deſcend towards the Evening, ſays the ſacred Text, into the Garden, to ſpeak with *Adam*, and we have all the Reaſon imaginable to believe, that thoſe Viſits were only to remind *Adam* of his Duties to his Creator, and that the whole Converſation ran entirely on the Mannner he was to behave with reſpect to that ſupreme Being, and to himſelf.

Moſes leaves us in the Dark, as to thoſe ſublime Maxims of a divine *Government*, *Adam* was certainly inſtructed in; which if they had been tranſmitted to us, together with all the other Things tranſacted during the ſhort Time of Man's Innocence, had given us ſome Ideas of that inexpreſſible Felicity, his Poſterity had enjoy'd under ſuch a Government, if, by the Example of the rebellious Angels, he had not ſacrilegiouſly attempted to uſurp it; and forged his Chains in endeavouring to break imaginary ones.

We had known then, that God had informed *Adam*, that he was not to remain long the only one of his Species, ſince he had given him a Companion ſemblable to him, with no other View than to propagate that Species, in the

the ſame Manner he ſaw all the other Species of an inferior Order, and ſubmitted to him, propagated. That as he was the firſt in order of Time, he ſhould alſo be the firſt in Dignity; and all his Deſcendants obliged to obey and reſpect him, as a tender Parent to whom they were indebted in Part for their own Being, and as a wiſe Governor who had been inſtructed in the Principles of *Government*, by the ſacred Wiſdom himſelf. That as there would be no other Difference between him and them, ſince they were to be all equally of the ſame Nature, all created for the ſame End, and all to enjoy the ſame Kingdom, without any Diſtinction or Superiority, not even of Time; he ſhould make no other Uſe of his Authority over them than he himſelf their Creator, would make over them all, *i. e.* to contribute all in his Power to their mutual Felicity.

If the Idea *Adam* may have conceived at that Time of his own particular Merit, excluſive of all other human Creatures, affected his Mind ſo far as to render it ſuſceptible of a criminal Ambition, and to make him think of extending his Authority beyond the Limits his Creator had fixed to it; or if this is not the forbidden Fruit, which procured his Fall, is what cannot be eaſily determined; the Truth is, that the ambitious Hope of becoming ſemblable to God, the Serpent flattered *Eve* withal to tempt her, made the greateſt Impreſſion on her Mind, as well as on that of *Adam*; and that ever ſince Ambition has been the favourite Paſſion of his Deſcendants, and has created that Jealouſy which ſubſiſts between them, of rivaling one another in Power, Authority, Grandeur, Glory, *&c.*

If that *Theocracy*, which began with the World, and in the terreſtrial Paradiſe, ceaſed after *Adam* was expelled from it, is what we have no certain Knowledge of; but we may eaſily conjecture, conſidering the Depravity of human Manners, ſoon after that Expulſion, and even in *Adam*'s Children; that all the ſublime Maxims of a divine Politick, were already forgotten or neglected; that *Adam*, inſtead of acquiring a greater Authority, had already loſt, not only all that God had given him over his Deſcendants, but likewiſe that ſovereign one he had acquired from the firſt Inſtant of his Creation, over all the other Creatures. All rebelled againſt him, and that Superiority, which, had he preſerved his Innocence, had contributed to his own Felicity, as well as to that of all other Creatures, became tedious to him, and inſupportable to others: As he had the criminal Folly to expect to be greater, if he could once keep them under a greater Subjection, and govern them with a more abſolute Power; they likewiſe expected to be happier, in ſhaking off even that which God had given him over them; of which he was made ſenſible even in his own Family; for he who vainly thought that he could acquire over his Deſcendants, the ſame Authority God had over him, and which he had reſerved to himſelf, excluſive of all created Beings, could not even govern his own Family, nor hinder the monſtrous Diſorders which happened in it; for he ſaw in *Cain*'s Fratricide what an uſurped Authority, ſuch that himſelf aimed at, is capable of.

There is ſome Reaſon to believe that *Tyranny* or *diſpotick Power*, which began in *Cain*, was the ſole *Government* which prevailed among Mankind from that fatal Epocha to the Deluge, and that it was the Cauſe of Sin, and Iniquity having covered all the Face of the Earth. For in all Appearance the moſt ambitious among them, by the Example of that Fratricide, attempted to uſurp, by the moſt criminal Means, ſome tyrannical Authority over their Fellow-Creatures, and thoſe feeling within themſelves a certain natural Antipathy againſt ſuch an Authority, which aimed at rendering them all Slaves, for which they were not born, uſed the ſame Means to ſhake off the Yoke, and keep themſelves free. The Uſurpers had Recourſe to Violence, Depredation, Rapine, Murder, and Theft, to ſupport their Uſurpation; and the Oppreſſed had alſo Recourſe to all Sorts of Means, even the moſt violent, to oppoſe it. Whence the ſcandalous Names of Tyrants, Oppreſſors, and Uſurpers for the one; and of Seditious, Rebels, *&c.* for the others, took their Origin. In thoſe unhappy Days Men began to be ſacrificed to the Ambition of other Men like themſelves, and ſlaughtered for endeavouring to preſerve the Dignity of their Creation, which laudable Zeal, ſo agreeable to the Intention of the Creator, began then to be called Treaſon.

God, irritated at that monſtrous Form of *Government*, ſo contrary to that he deſigned to eſtabliſh upon Earth, reſolved, not only to aboliſh it entirely, but even to deſtroy all thoſe without Exception, who had been the unjuſt Promoters of it, and with them the Memory of it, by an univerſal Deluge.

But notwithſtanding, the Spirit of Tyranny and Oppreſſion was not drowned, as might have been expected in that monſtrous Heap of Water, the Cataracts of the Heavens, and the frightful Depth of the Abyſs covered the Face of the Earth with; and though none but *Noah*'s Family, whoſe Righteouſneſs had ſelected them from the reſt, were ſaved from the univerſal Inundation, and in all Appearance had not carried along with them into the Ark any Records of the oppreſſive Acts paſſed in thoſe Days of Iniquity, nor preſerved any of the pernicious and oppreſſive Maxims of thoſe firſt *Machiavelians*, in order to have their Poſterity inſtructed therein; that Spirit, and thoſe Maxims were ſaved from the Waters, no Body knows in what Manner, and were found revived in all Parts of the Earth, ſoon after it had been divided between *Noah*'s Children. For then Men, either unacquainted with the Diſorders that happened before the Flood; or little ſenſible of the Happineſs, Freedom and Liberty are always attended with, ſuffered that ſome among them ſhould become inſenſibly Maſters of all the reſt under the ſpecious Pretence of maintaining that regular Œconomy, without which a civil Society cannot long ſubſiſt with any Reputation. Thoſe ambitious Men, perſuaded, perhaps, the others whom they wanted to make Slaves, that an Equality among them could not ſubſiſt long without Jars and Contention, which would ſtill go on increaſing, and be attended at leaſt with dangerous Conſequences, unleſs they could be perſuaded to chuſe from among them a Perſon, who by his Prudence and Wiſdom, could adjuſt their Differences, which otherwiſe would never be effected, as long as every one of them could perſuade himſelf that he was as much in the Right as another. To this they may have added, that there was nothing to fear from ſuch Pre-eminence, which having no other Source, but the free Conſent of every one of the Members which compoſed the Society, it could not ſubſiſt longer than that Conſent; which would neceſſarily ceaſe as ſoon as the Perſon inveſted with that Pre-eminence, though a monſtrous Ingratitude, would preſume to make uſe of it to the Prejudice of the publick Good; that as it was in their Power to give it to whom they pleaſed, it would likewiſe be always in their Power to diveſt him of it whenever they pleaſed.

It is reaſonable to ſuppoſe that Men were thus cozened of their Liberty; but we may ſuppoſe likewiſe, that they were not long before they had Cauſe to repent of their too great Credulity and Complaiſance; but that Repentance came too late; for thoſe ambitious Men, who at firſt they deſigned ſhould be only Arbiters of their Differences, became ſoon their Judges, afterwards their Maſters, then their Governors or Princes, whatever they were pleaſed to ſtile themſelves, and laſtly, their Tyrants; and when their Subjects, to whom that Tyranny rendered their Government inſupportable, would attempt to wreſt from them that Authority, which they deſigned ſhould be only employ'd for the Good of the Society; they ſoon found that it was not in their Power to effect it; that by eſtabliſhing a Pre-eminence among them, they had renounced their natural Right; that in becoming Dependants they became Slaves, and began to forge their Chains that very ſame Inſtant they gave up their Freedom.

It is true, that thoſe Men our firſt Parents were perſuaded to ſet above them, did not arrive all at once to that Pitch of an exorbitant Power, which could not have been effected in ſuch a Manner without revolting the whole human Race, who having but ſo lately ſacrificed their Liberty, and therefore knowing yet the entire

Value of it, had not failed making a bold Stand for it against the Invaders; but they gained Ground by degrees, as a slow Poison which insinuates itself through the Veins, and glides leisurely till it comes to the vital Faculties, which it seizes unawares, after it has vitiated, or rather entirely destroyed all the Passages, through which they could have been succoured. For they persuaded first their Constituents, that for the greater Security of the Common-wealth, and to give a greater Weight to the Authority they had been pleased to honour them with, and the better to encourage Virtue, and discourage Vice, they should also resign to them the whole legislative Power, that thereby they might be capable to reward the Good according to their Deserts; and punish the Wicked according to their Demerit; they season'd this Proposal, to render it more persuasive with the plausible Consideration, that in so doing they would ease themselves of a great Burthen, and live henceforward with less Inquietude. This Prospect of an easy Life, for which all Men have a natural Inclination, had the desired Effect; they swallowed the Bait, without being in the least apprehensive of the Danger hidden under it; and by this new Resignation added a new Length to their Chains.

Ambition carried her Point still further; for as the Law of Nature, on which was founded the first *Government* established upon Earth, was a Bar to her oppressive Designs, those new Governors persuaded their Tools, that though intrusted with the legislative Power, it was impossible they could administer Justice as they thought it should be administred for the publick Good, unless they were allowed to dispense with that Law, which the excessive Propagation of the human Race had rendered too concise; that as the primitive Simplicity was become obsolete, the Laws established in Support or Defence of it, should also be considered as such; and as different Sorts of Manners had been introduced in the civil Society, new Laws should also be established for the Regulation of those Manners.

This Proposal appear'd too plausible, to the Generality of Mankind, to be rejected; and Ambition gain'd also this Point. But as it was the Design of those new Legislators, that those new Laws to be made, should not be all founded on Justice and Equity, nor all agreeable to Reason, and to that natural Tendency all Creatures, without Distinction, have towards their Preservation; but more particularly rational Ones, whose Lives and Fortunes were intended to be affected thereby, it was craftily insinuated, that the single Will of a Governor, was too weak to put those Laws in Force, which being new, and consequently not at all familiar to Mankind, would, in all Appearance, meet with some Opposition; that therefore it was absolutely necessary, he should be invested with a compulsive Authority, and allowed to chuse from among the Generality, those Persons he should judge most proper, to support the Execution of those Laws, and force the Refractory to Compliance; which was likewise approv'd and granted: So ready Men are, when they have once overlook'd a Thing essential, to be entirely blind in all others.

Thus were the Lives and Liberties of Men enslaved, and their Fetters rivetted with their own free Consent; by putting in the Power of a single Man, to dispose of both at his Pleasure; and entirely out of theirs to oppose it, without exposing themselves to the Risque of losing the one, as they had done the other. For it could not have been reasonably supposed, that those Persons selected from all the rest, by the Prince himself to support and strengthen his own Authority, could ever be persuaded to sacrifice it to the publick Good, or to expose themselves to lose the Confidence of their Master, to gain that of the Publick; otherwise they had not accepted such Offices, contrary to the Dictates of their Reason, Honour, and Conscience; since by refusing them, they had not exposed themselves to the Dangers they run, while possessed of them, of disobeying the Orders of their Sovereign.

The better to strengthen those Instruments of their Tyranny, in their own Interest, by Salaries, Presents, and Rewards, Princes, who till then, had left the Fortunes of their Subjects untouch'd, made an Attempt upon them, under that specious Pretence, that a Prince or Governor, and those he had assembled near his Person, to execute his Orders, were the Servants of the Publick; and as such should be paid by the Publick; that therefore every Member of the Common-wealth, should contribute towards making a Fund for their Maintenance, that every one of them should be paid according to the Rank he kept among them, and the Usefulness of his Employments; that for his Part, he desir'd nothing but what the Decency of the Rank they had been pleas'd to raise him to requir'd, and what was indispensably necessary to defray the publick Expences.

This Request appeared likewise so reasonable, that it could meet with no Opposition; and every one contributed freely, all he thought he could without impairing his Fortune. But this publick Contribution, which might have been at first consider'd as a free Gift; was soon changed into a necessary Custom; and in Process of Time, what was at first asked as a Favour, was exacted as a Due, and even rais'd by Compulsion without the least Regard to the Habilities, or Circumstances of Persons; and as their Ambition grew greater, and greater, their Demands grew likewise more exorbitant, so that often all that the Subjects could do, was to answer those Demands; though they saw, at the same Time, the immense Sums rais'd under Pretence of defraying the necessary publick Expences, were most of them employ'd to gratify the Extravagancy and Luxury of a Court, to feed Minions and Sycophants, and to support Tyranny and Oppression.

When Princes had brought their Subjects to this Degree of Complaisance, and reduced them to the Impossibility of opposing their Designs, even the most oppressive and tyrannical; they threw off the Mask, and began to rule with that high Hand, and absolute Power, which has made them so often regret their lost Liberty. They soon made them sensible that they had given up all that they had the most precious in this World, *viz.* their Freedom, Fortune, and even their Life, reserving nothing to themselves but the Shadow of Man; since they could not even promise themselves the free Use of their rational Faculties; since the Will of the Prince could silence them all, or persuade them that they were mistaken, even in the most judicious Things, whenever he pleased, *viz.* that often Pusillanimity was preferable to Courage; Rapine and Oppression, to Justice and Clemency; Confusion, Trouble, and War, to Tranquility and Peace; Distress to Ease, Slavery to Freedom, and Misery to Plenty and Opulence; and that the only Thing left in their Power, was the Faculty of obeying blindly the Orders of their Prince; and consequently were but mere Machines of which he was the Master-Spring.

To convince them of this fictitious Truth, as the Narrowness of the Limits of the States allotted by divine Providence to every Nation, is seldom capable to contain the Ambition of a Prince; every one of them persuaded his Subjects, that to invade those of his Neighbours, was of a national Concern, to which they were all obliged to concur, since thereby they would render themselves formidable to some, and be respected by others. That to make so noble an Enterprise succeed, they were oblig'd to lay at Stake, all they had the most precious in this World, even their Life, which it would be glorious for them to lose in the Attempt.

It is surprising that Men who had been already so often deceiv'd, could be persuaded to swallow the Bait once more; they all flock under the Standards of such a Prince, and the bravest among them, envied each other, the ridiculous Glory of being sacrificed to the Ambition of a Man like them, and were Fools enough to call afterwards dying in the Bed of Honour, the falling a Victim to it. Nay they arriv'd in Process of Time to that Excess of Demency, as to seek to raise from their own Ashes, the Reputation of a pretended Conqueror, who contributed nothing else towards it, but by commanding that his destructive and ambitious Projects should be put in Execution.

This Form of an oppressive *Government*, was invented

vented in *Assyria*, and the Empire of the *Assyrians*, was the first Monarchy in the World, and began under *Nimrod*, *Cham*'s Grandson, who was the Author thereof.

But this was not the Form of *Government* the divine Providence design'd should be established among Men, which in some Measure was to reduce them to a Condition inferior to that of Brutes. For as he had formed them after his own Image, they were to be govern'd, had they submitted themselves to him, and not followed the Inconstancy of their Mind, in a Manner agreeable to that divine Resemblance, *i. e.* they had been led thro' all the most intricate Paths of good Order, Morality, and Virtue, in an easy Manner, and in the full Enjoyment of all they possessed, without being exposed to the least Violence and Oppression. Virtue had been rewarded to its full Value, and Vice punished with so much Justice and Equity, as to deserve the Approbation, even of those on whom the Punishment should have been inflicted. Nothing had ever been concerted but for the publick Good; nor new Laws made, or old ones interpreted, but for the Preservation of that beautiful and just Harmony which should subsist between the different Members of a Republick; and tho' a certain Subordination would have been established between those Members, to avoid an Anarchy, it would have been with so much Wisdom, Discretion, and Prudence, as to leave no Room for any Body to complain of the Indifference of their Condition. Those whom God had judg'd proper to raise above the rest, either to execute his Orders, to administer Justice, or to protect his People against any Insults, could not have forgot themselves in their respective Employments, without Impunity. The Splendor of a Throne, and the Radiancy of a Diadem, had not robb'd the Divinity of the Adoration due to him; nor Flattery or Adulation ravish'd what was due to Merit. Favour, or any other human Consideration, had not been capable to silence the just Complaints of the Oppressed; nor Fortune suffer'd to make the least Difference between the Rich and the Poor, when both to be heard. The very Name of Slavery had been unknown among us, and we had all been free of that Freedom, which is not incompatible with a becoming Obedience and Submission, since nothing had been requir'd from us, for which our Reason had shew'd the least Reluctancy, and but what was in our Power to effect, without putting ourselves to the least Inconveniency; all had been proportion'd to our own Strength. Our Lives and Fortunes had never been sacrificed to Ambition, and never been exposed to any Dangers, but when the Security of the whole Body politick had requir'd it; no unjust Wars prosecuted, no Invasions attempted; no Unjustice suffer'd, nor even the single Appearance of Oppression tolerated. As God had himself made Choice of his own Ministers, the Gates of the Sanctuary had always been kept shut against Ignorance, Indolence, Pride, Prodigality, and Luxury. The divine Worship had flourished, because those whose Office it had been to promote it, had minded nothing else, and had not been obliged to spend in the Temple of *Baal*, Part of the Time which was design'd for the Service of the living God. And the Offerings had not been taken from the Altar, to be lavish'd in Debauchery, worldly Pleasures, and criminal Diversions.

Though this Form of *Government*, which God would have establish'd upon Earth, was rejected by the Generality of Mankind, he notwithstanding preserved it among a certain Number of Persons, whom he had selected from the rest, and design'd to make Chiefs of a Nation, which, by Way of Pre-eminency, he was pleased to call his own People; but that Number was so small, that we know not but by mere Conjectures, or rather Suppositions, how that *Government* was established among them; all that we can learn of it from History is, that *Abraham* was one of them, and that it was confin'd at first to the Œconomy to be observ'd in every Family, the Chief whereof was to be appointed by God to be his Vicegerent, without any other Dependency, but an immediate one from him; and with a legislative Power even of Life and Death, over all the Members of that Family, without being accountable of his Administration, but to God alone.

This was also, in Reality, a Sort of Monarchy, but not an oppressive one, as that heretofore mention'd; for, though the Sovereign knew nothing above him, except the supreme Being, he did not consider himself as independent and absolute, nor thought that he could oblige his Subjects, without an imminent Danger to himself, to the Observance of any Laws, which were not dictated by that same supreme Being, or had his Sanction.

That this Kind of Monarchy was confin'd to every particular Family, without any Dependency from one another, is evident from what the Holy Writ relates of *Abraham*, and *Lot* his Nephew, who each govern'd his own Family, without either of them pretending to a Pre-eminence over the other, not even of Primogeniture.

This Form of *Government* continued among *Abraham*'s Descendants, till *Jacob* with his whole Family was called into *Egypt*, by his Son *Joseph*, whose extraordinary Merit, supported by the unsearchable Decrees of the divine Providence, had raised from a Prison, to the most eminent Post of that Monarchy; for even then, *Egypt* was one of the most flourishing upon Earth, and govern'd by a judicious Prince, whom the Obscurity of a Prison, nor the Quality of a Foreigner, could not deter from reposing himself on *Joseph* the whole *Government* of his Kingdom; and making him what we have been pleased to call since, his first Minister. For in Fact, he was invested with the same Authority as our modern Ministers are, with this Difference, that he made no other Use of that Authority, than to make his Prince sit easy on his Throne, and his People happy; having nothing else in View, but the publick Good, and being always ready to prefer it to his own private Interest. For the Scripture informs us, that during the seven Years of Scarcity, when, had he been actuated by the scandalous, and oppressive Motives of Self-Interest, he could have amassed immense Riches, his whole Care was to relieve the Subjects, and fill up the Coffers of his royal Master. It is true, that he brought his Family into the Kingdom, but we do not read that he even attempted to advance any of them at Court, or that he robb'd his Prince, or plunder'd the *Egyptians* to enrich them. He asks nothing for them, but the King's Protection, and the better to engage him to it, and to give him to understand at the same Time, that it is always the Interest of a Prince, and his Subjects, to invite into his Dominions, and encourage all industrious People, he tells him, that they are Shepherds and Husbandmen, and therefore could cultivate Lands, which till then had remain'd uncultivated, and thereby contribute towards making *Egypt* still more fertile than it was.

If the *Hebrews* preserved among them the antient Form of *Government* of their Ancestors, if they invented a new one, or if they submitted themselves entirely to that of the *Egyptians*, during their Stay in that Country, it is what we do not find in the History of those Times. For my Part, I would be apt to believe, that for the Civil Government, they submitted themselves entirely to that of the *Egyptians*, the more because they could not expect to be better govern'd than by *Joseph*, who, when they came into *Egypt*, and till he died, was at the Helm of the State, and the sole Counsellor of *Pharaoh*, who never used to do any Thing but by his Advice. As to ecclesiastical *Government*, they may have established some particular one among themselves, but I really believe, that though they always ador'd the true God, it was corrupted by many of the *Egyptian* Superstitions. Of which we will be better convinced, when I come to speak of that Theocracy established among them in the Desart, the sublime Maxims whereof were dictated by God himself.

After *Joseph* and *Pharaoh*'s Death, there is no doubt but they were obliged to submit themselves to the *Egyptian* Yoke; till *Moses*, appointed by God for their Chief, came to deliver them from their Captivity. They had already been used so long to a despotick *Government*, and to obey absolute Commands, that they did not shew the least Reluctancy to follow *Moses*; though he could give

give no other Proofs of his extraordinary Miſſion, but the Miracles he had operated, and which had almoſt all been counterfeited by *Pharaoh*'s Prieſts. But what he propoſed to them, had the Appearance of Liberty, and they were Slaves.

At firſt they followed *Moſes* as a General, but when they had croſſed over the *Red-Sea*, and were no longer in Fear of their Enemies; their Liberator, under God, began to think of a Form of *Government*, without which, he ſaw it was impoſſible to govern ſo numerous a Multitude, which he ſoon found too prone to Diſobedience and Mutiny.

Born with an excellent Genius, enrich'd by Heaven with extraordinary Talents, educated at *Pharaoh*'s Court, and if I may uſe the Expreſſion, in the very Boſom of the moſt refin'd Politick of thoſe Times, *Moſes* was certainly the moſt capable of all the *Hebrews*, to frame a Form of *Government*; and had Reſolution and Courage enough to have it obſerv'd, if he had dealt with a leſs turbulent and inconſtant Nation; which he knew, being no longer kept in Subjection by the tyrannical Power of the *Egyptians*, would not ſubmit themſelves eaſily to a Man, whom they conſider'd as their Equal, and had no other Authority to have himſelf obey'd, but what he had borrow'd from them; he ſaw plainly that nothing but what could be digeſted in an extraordinary Manner, and promulgated in the ſame Manner, would make any Impreſſion on their Mind, and over-awe them. In this Perplexity, he was aſſiſted by God himſelf, who having been the Liberator of the *Hebrews*, would alſo be their Legiſlator; notwithſtanding what thoſe who have the Impiety to queſtion the Truth of the Scripture, ſay, that the Promulgation of the Law on Mount *Sinai*, by the Almighty, was nothing elſe but a Turn of *Moſes*'s Policy, to give a greater Sanction to the Maxims of *Government*, himſelf had invented, ſome of which were too oppreſſive, and others too cruel, for to have been dictated by God, whoſe principal Attributes are Mercy and Clemency. That *Moſes* could have as well learn'd in *Egypt* how to counterfeit Thunders and Lightenings, as the Prieſts of *Pharaoh* had learn'd to counterfeit ſeveral of the Miracles he operated at his Court; which they are the more inclin'd to believe, becauſe *Moſes* order'd the *Hebrews* to keep at a certain Diſtance from the Mountain, leſt had they been nearer, they would have diſcover'd what paſſed there.

But this is only the impious Reaſoning of thoſe who queſtion all Sorts of Truths, often the moſt evident. For, according to the Scripture, which muſt be the Rule of our Faith, *Moſes* was called on Mount *Sinai*, by the Almighty himſelf, where he ſpoke to him Face to Face (in the Manner I have explain'd it in my Treatiſe of *God and his Attributes*) on the Form of governing that ſtubborn Nation; and where he received from him the principal Maxims of that *Government*; calculated chiefly to extirpate from among them, the vitiated and ſuperſtitious Ones they had learn'd in *Egypt*. As it appears by the Ten Commandments, where Idolatry, Superſtition, Concupiſcence, Adultery, Theft, and all the other Vices the moſt in Vogue among the *Egyptians*, are condemn'd and abhorr'd.

It is true, that among thoſe Maxims of *Government*, which *Moſes* aſſures us were digeſted in Heaven, and dictated to him on Mount *Sinai*, ſome appear extremely rigorous and violent, and among us, would ſmell much of a deſpotick *Government*, and even very oppreſſive, and tyrannical; but it would be arraigning God's Wiſdom and Juſtice to conſider them as ſuch with Regard to the *Hebrews*, who were not always to be treated with too much Meekneſs and Indulgency; otherwiſe the whole Body politick had not ſubſiſted long in that flouriſhing State, *Moſes* kept it by his judicious, though exceſſive Severity; and they had been as ready to change their Chief, as often as other Nations have done; ſince God knew what Riſques *Moſes* run, in Undertaking the Conduct of that Nation, if he had not been ſupported by his Authority, and if he had not taken the neceſſary Meaſures to puniſh exemplary the ſmalleſt Faults, in order to deter the *Hebrews* from committing greater. Beſides, *Moſes* who was but God's Lieutenant, did nothing on thoſe Occaſions, but execute the Orders of the King of Kings, who had an unqueſtionable Power of Life and Death over his Subjects.

This Form of *Government* was particular to the *Hebrews*, for they found Monarchy eſtabliſhed among the different Nations they met with in their Journey to the Land of *Promiſe*; or at leaſt Chiefs, whom the Scripture calls Kings.

Moſes was ſucceeded in the Conduct of the *Iſraelites*, by *Joſhua*; not by Right of Inheritance or Succeſſion, but by a divine Election, or God's Appointment, even when *Moſes* was yet living. We do not read that he treated the *Hebrews* with the ſame Severity his Predeceſſor had done, nor that he was ſo exact to put all the penal Laws in Execution; perhaps the new Generation under his Conduct, was more tractable, and leſs refractory to God's Orders, than the old one, which had cauſed ſo much Trouble and Fatigue to *Moſes*, and of which there was none left then, but him and *Caleb*.

This Theocracy continued, till the *Iſraelites* tir'd of it, without Cauſe, though they had ſuffer'd ſeveral very great Calamities under ſome of their Judges, and thro' their natural Inconſtancy, ſeeing that all the other Nations they were inviron'd with, had each their King, aſked alſo for one, under the Government of *Samuel* their laſt Judge. God took this Occaſion to reproach them by his Prophet with their Ingratitude, and to convince them of it, made an exact Recapitulation of all the ſignal Favours, they and their Fathers had received from him, ever ſince their Deliverance from the Captivity of *Egypt* to that Time. He alſo ſet before them all the Hardſhips they were to ſuffer under a monarchical Government, as if Tyranny and Oppreſſion were inſeparable from it; but however, as he was determin'd to grant their Requeſt, and would give them this laſt Mark of the particular Care he had taken of their Conduct, he was pleaſed to mark himſelf the firſt King who was to govern them, to whom he gave for Counſel the Prophet *Samuel*.

Though the Theocracy ceaſed at *Saul*'s Elevation to the Throne, there happen'd no very ſenſible Alteration in the *Government*; for the ſame Laws, contain'd in the Pentateuch, relating to the *Government* of Church and State, continued to be obſerv'd; all the viſible Difference between both, conſiſted in the pompous Name of King, and in the Creation of ſome Offices, neceſſary to ſupport the royal Dignity. The *Iſraelites* appear'd to be very well pleas'd at that Change, which themſelves had deſir'd, and *Saul* found no Oppoſition from the Part of his Subjects to his Elevation, though he had been preferr'd to a great Number of others, who, for their Power, Birth, Wealth, and for the ſingular Services their Anceſtors had render'd to the Nation, could have aſpir'd to the Throne before him. But the *Jews*, like ſeveral other Nations, lov'd Novelty; and it was enough that a King was ſomething new, to be approv'd by them, at leaſt for a Time.

The firſt conſiderable Change which happen'd in that *Government*, and the firſt Time it appear'd really a Monarchy, was under *David*'s Reign, who took the legiſlative Power entirely in his own Hands, and govern'd with an abſolute one, making them ſenſible that they were really his Subjects, by advancing to the moſt eminent Poſts in the Church and State, thoſe he knew to be beſt affected to his Perſon and Government, puniſhing or diſplacing the Diſaffected, appointing Miniſters and other Officers for the Execution of his Orders, ſettling the Revenue of the Crown, and obliging the Subjects to contribute towards maintaining the Splendor and Majeſty of it. He was even the firſt (tho' a Man according to God's Heart) who practiſed thoſe Violences God had told the *Iſraelites* they would be expoſed to under a monarchical *Government*; for he took and debauched *Uriah*'s Wife, and ſacrificed her Huſband to his Luſt. Nay even the whole Kingdom ſuffer'd ſeveral Calamities, in Puniſhment for his own private Crimes. Perhaps it was alſo the firſt Time the *Hebrews* were ſenſible of the Change which had happen'd in their Affairs, and repented that they had aſk'd for a King. But that Repentance was vain, for it was no longer in their Power to

vented in *Assyria*, and the Empire of the *Assyrians*, was the first Monarchy in the World, and began under *Nimrod*, *Cham*'s Grandson, who was the Author thereof.

But this was not the Form of *Government* the divine Providence design'd should be established among Men, which in some Measure was to reduce them to a Condition inferior to that of Brutes. For as he had formed them after his own Image, they were to be govern'd, had they submitted themselves to him, and not followed the Inconstancy of their Mind, in a Manner agreeable to that divine Resemblance, *i. e.* they had been led thro' all the most intricate Paths of good Order, Morality, and Virtue, in an easy Manner, and in the full Enjoyment of all they possessed, without being exposed to the least Violence and Oppression. Virtue had been rewarded to its full Value, and Vice punished with so much Justice and Equity, as to deserve the Approbation, even of those on whom the Punishment should have been inflicted. Nothing had ever been concerted but for the publick Good; nor new Laws made, or old ones interpreted, but for the Preservation of that beautiful and just Harmony which should subsist between the different Members of a Republick; and tho' a certain Subordination would have been established between those Members, to avoid an Anarchy, it would have been with so much Wisdom, Discretion, and Prudence, as to leave no Room for any Body to complain of the Indifference of their Condition. Those whom God had judg'd proper to raise above the rest, either to execute his Orders, to administer Justice, or to protect his People against any Insults, could not have forgot themselves in their respective Employments, without Impunity. The Splendor of a Throne, and the Radiancy of a Diadem, had not robb'd the Divinity of the Adoration due to him; nor Flattery or Adulation ravish'd what was due to Merit. Favour, or any other human Consideration, had not been capable to silence the just Complaints of the Oppressed; nor Fortune suffer'd to make the least Difference between the Rich and the Poor, when both to be heard. The very Name of Slavery had been unknown among us, and we had all been free of that Freedom, which is not incompatible with a becoming Obedience and Submission, since nothing had been requir'd from us, for which our Reason had shew'd the least Reluctancy, and but what was in our Power to effect, without putting ourselves to the least Inconveniency; all had been proportion'd to our own Strength. Our Lives and Fortunes had never been sacrificed to Ambition, and never been exposed to any Dangers, but when the Security of the whole Body politick had requir'd it; no unjust Wars prosecuted, no Invasions attempted; no Unjustice suffer'd, nor even the single Appearance of Oppression tolerated. As God had himself made Choice of his own Ministers, the Gates of the Sanctuary had always been kept shut against Ignorance, Indolence, Pride, Prodigality, and Luxury. The divine Worship had flourished, because those whose Office it had been to promote it, had minded nothing else, and had not been obliged to spend in the Temple of *Baal*, Part of the Time which was design'd for the Service of the living God. And the Offerings had not been taken from the Altar, to be lavish'd in Debauchery, worldly Pleasures, and criminal Diversions.

Though this Form of *Government*, which God would have establish'd upon Earth, was rejected by the Generality of Mankind, he notwithstanding preserved it among a certain Number of Persons, whom he had selected from the rest, and design'd to make Chiefs of a Nation, which, by Way of Pre-eminency, he was pleased to call his own People; but that Number was so small, that we know not but by mere Conjectures, or rather Suppositions, how that *Government* was established among them; all that we can learn of it from History is, that *Abraham* was one of them, and that it was confin'd at first to the Œconomy to be observ'd in every Family, the Chief whereof was to be appointed by God to be his Vicegerent, without any other Dependency, but an immediate one from him; and with a legislative Power even of Life and Death, over all the Members of that Family, without being accountable of his Administration, but to God alone.

This was also, in Reality, a Sort of Monarchy, but not an oppressive one, as that heretofore mention'd; for, though the Sovereign knew nothing above him, except the supreme Being, he did not consider himself as independent and absolute, nor thought that he could oblige his Subjects, without an imminent Danger to himself, to the Observance of any Laws, which were not dictated by that same supreme Being, or had his Sanction.

That this Kind of Monarchy was confin'd to every particular Family, without any Dependency from one another, is evident from what the Holy Writ relates of *Abraham*, and *Lot* his Nephew, who each govern'd his own Family, without either of them pretending to a Pre-eminence over the other, not even of Primogeniture.

This Form of *Government* continued among *Abraham*'s Descendants, till *Jacob* with his whole Family was called into *Egypt*, by his Son *Joseph*, whose extraordinary Merit, supported by the unsearchable Decrees of the divine Providence, had raised from a Prison, to the most eminent Post of that Monarchy; for even then, *Egypt* was one of the most flourishing upon Earth, and govern'd by a judicious Prince, whom the Obscurity of a Prison, nor the Quality of a Foreigner, could not deter from reposing himself on *Joseph* the whole *Government* of his Kingdom; and making him what we have been pleased to call since, his first Minister. For in Fact, he was invested with the same Authority as our modern Ministers are, with this Difference, that he made no other Use of that Authority, than to make his Prince sit easy on his Throne, and his People happy; having nothing else in View, but the publick Good, and being always ready to prefer it to his own private Interest. For the Scripture informs us, that during the seven Years of Scarcity, when, had he been actuated by the scandalous, and oppressive Motives of Self-Interest, he could have amassed immense Riches, his whole Care was to relieve the Subjects, and fill up the Coffers of his royal Master. It is true, that he brought his Family into the Kingdom, but we do not read that he even attempted to advance any of them at Court, or that he robb'd his Prince, or plunder'd the *Egyptians* to enrich them. He asks nothing for them, but the King's Protection, and the better to engage him to it, and to give him to understand at the same Time, that it is always the Interest of a Prince, and his Subjects, to invite into his Dominions, and encourage all industrious People, he tells him, that they are Shepherds and Husbandmen, and therefore could cultivate Lands, which till then had remain'd uncultivated, and thereby contribute towards making *Egypt* still more fertile than it was.

If the *Hebrews* preserved among them the antient Form of *Government* of their Ancestors, if they invented a new one, or if they submitted themselves entirely to that of the *Egyptians*, during their Stay in that Country, it is what we do not find in the History of those Times. For my Part, I would be apt to believe, that for the Civil Government, they submitted themselves entirely to that of the *Egyptians*, the more because they could not expect to be better govern'd than by *Joseph*, who, when they came into *Egypt*, and till he died, was at the Helm of the State, and the sole Counsellor of *Pharaoh*, who never used to do any Thing but by his Advice. As to ecclesiastical *Government*, they may have established some particular one among themselves, but I really believe, that though they always ador'd the true God, it was corrupted by many of the *Egyptian* Superstitions. Of which we will be better convinced, when I come to speak of that Theocracy established among them in the Desart, the sublime Maxims whereof were dictated by God himself.

After *Joseph* and *Pharaoh*'s Death, there is no doubt but they were obliged to submit themselves to the *Egyptian* Yoke; till *Moses*, appointed by God for their Chief, came to deliver them from their Captivity. They had already been used so long to a despotick *Government*, and to obey absolute Commands, that they did not shew the least Reluctancy to follow *Moses*; though he could give

give no other Proofs of his extraordinary Miſſion, but the Miracles he had operated, and which had almoſt all been counterfeited by *Pharaoh*'s Prieſts. But what he propoſed to them, had the Appearance of Liberty, and they were Slaves.

At firſt they followed *Moſes* as a General, but when they had croſſed over the *Red-Sea*, and were no longer in Fear of their Enemies; their Liberator, under God, began to think of a Form of *Government*, without which, he ſaw it was impoſſible to govern ſo numerous a Multitude, which he ſoon found too prone to Diſobedience and Mutiny.

Born with an excellent Genius, enrich'd by Heaven with extraordinary Talents, educated at *Pharaoh*'s Court, and if I may uſe the Expreſſion, in the very Boſom of the moſt refin'd Politick of thoſe Times, *Moſes* was certainly the moſt capable of all the *Hebrews*, to frame a Form of *Government*; and had Reſolution and Courage enough to have it obſerv'd, if he had dealt with a leſs turbulent and inconſtant Nation; which he knew, being no longer kept in Subjection by the tyrannical Power of the *Egyptians*, would not ſubmit themſelves eaſily to a Man, whom they conſider'd as their Equal, and had no other Authority to have himſelf obey'd, but what he had borrow'd from them; he ſaw plainly that nothing but what could be digeſted in an extraordinary Manner, and promulgated in the ſame Manner, would make any Impreſſion on their Mind, and over-awe them. In this Perplexity, he was aſſiſted by God himſelf, who having been the Liberator of the *Hebrews*, would alſo be their Legiſlator; notwithſtanding what thoſe who have the Impiety to queſtion the Truth of the Scripture, ſay, that the Promulgation of the Law on Mount *Sinai*, by the Almighty, was nothing elſe but a Turn of *Moſes*'s Policy, to give a greater Sanction to the Maxims of *Government*, himſelf had invented, ſome of which were too oppreſſive, and others too cruel, for to have been dictated by God, whoſe principal Attributes are Mercy and Clemency. That *Moſes* could have as well learn'd in *Egypt* how to counterfeit Thunders and Lightenings, as the Prieſts of *Pharaoh* had learn'd to counterfeit ſeveral of the Miracles he operated at his Court; which they are the more inclin'd to believe, becauſe *Moſes* order'd the *Hebrews* to keep at a certain Diſtance from the Mountain, leſt had they been nearer, they would have diſcover'd what paſſed there.

But this is only the impious Reaſoning of thoſe who queſtion all Sorts of Truths, often the moſt evident. For, according to the Scripture, which muſt be the Rule of our Faith, *Moſes* was called on Mount *Sinai*, by the Almighty himſelf, where he ſpoke to him Face to Face (in the Manner I have explain'd it in my Treatiſe of *God and his Attributes*) on the Form of governing that ſtubborn Nation; and where he received from him the principal Maxims of that *Government*; calculated chiefly to extirpate from among them, the vitiated and ſuperſtitious Ones they had learn'd in *Egypt*. As it appears by the Ten Commandments, where Idolatry, Superſtition, Concupiſcence, Adultery, Theft, and all the other Vices the moſt in Vogue among the *Egyptians*, are condemn'd and abhorr'd.

It is true, that among thoſe Maxims of *Government*, which *Moſes* aſſures us were digeſted in Heaven, and dictated to him on Mount *Sinai*, ſome appear extremely rigorous and violent, and among us, would ſmell much of a deſpotick *Government*, and even very oppreſſive, and tyrannical; but it would be arraigning God's Wiſdom and Juſtice to conſider them as ſuch with Regard to the *Hebrews*, who were not always to be treated with too much Meekneſs and Indulgency; otherwiſe the whole Body politick had not ſubſiſted long in that flouriſhing State, *Moſes* kept it by his judicious, though exceſſive Severity; and they had been as ready to change their Chief, as often as other Nations have done; ſince God knew what Riſques *Moſes* run, in Undertaking the Conduct of that Nation, if he had not been ſupported by his Authority, and if he had not taken the neceſſary Meaſures to puniſh exemplary the ſmalleſt Faults, in order to deter the *Hebrews* from committing greater. Beſides, *Moſes* who was but God's Lieutenant, did nothing on thoſe Occaſions, but execute the Orders of the King of Kings, who had an unqueſtionable Power of Life and Death over his Subjects.

This Form of *Government* was particular to the *Hebrews*, for they found Monarchy eſtabliſhed among the different Nations they met with in their Journey to the Land of *Promiſe*; or at leaſt Chiefs, whom the Scripture calls Kings.

Moſes was ſucceeded in the Conduct of the *Iſraelites*, by *Joſhua*; not by Right of Inheritance or Succeſſion, but by a divine Election, or God's Appointment, even when *Moſes* was yet living. We do not read that he treated the *Hebrews* with the ſame Severity his Predeceſſor had done, nor that he was ſo exact to put all the penal Laws in Execution; perhaps the new Generation under his Conduct, was more tractable, and leſs refractory to God's Orders, than the old one, which had cauſed ſo much Trouble and Fatigue to *Moſes*, and of which there was none left then, but him and *Caleb*.

This Theocracy continued, till the *Iſraelites* tir'd of it, without Cauſe, though they had ſuffer'd ſeveral very great Calamities under ſome of their Judges, and thro' their natural Inconſtancy, ſeeing that all the other Nations they were inviron'd with, had each their King, aſked alſo for one, under the Government of *Samuel* their laſt Judge. God took this Occaſion to reproach them by his Prophet with their Ingratitude, and to convince them of it, made an exact Recapitulation of all the ſignal Favours, they and their Fathers had received from him, ever ſince their Deliverance from the Captivity of *Egypt* to that Time. He alſo ſet before them all the Hardſhips they were to ſuffer under a monarchical Government, as if Tyranny and Oppreſſion were inſeparable from it; but however, as he was determin'd to grant their Requeſt, and would give them this laſt Mark of the particular Care he had taken of their Conduct, he was pleaſed to mark himſelf the firſt King who was to govern them, to whom he gave for Counſel the Prophet *Samuel*.

Though the Theocracy ceaſed at *Saul*'s Elevation to the Throne, there happen'd no very ſenſible Alteration in the *Government*; for the ſame Laws, contain'd in the Pentateuch, relating to the *Government* of Church and State, continued to be obſerv'd; all the viſible Difference between both, conſiſted in the pompous Name of King, and in the Creation of ſome Offices, neceſſary to ſupport the royal Dignity. The *Iſraelites* appear'd to be very well pleas'd at that Change, which themſelves had deſir'd, and *Saul* found no Oppoſition from the Part of his Subjects to his Elevation, though he had been preferr'd to a great Number of others, who, for their Power, Birth, Wealth, and for the ſingular Services their Anceſtors had render'd to the Nation, could have aſpir'd to the Throne before him. But the *Jews*, like ſeveral other Nations, lov'd Novelty; and it was enough that a King was ſomething new, to be approv'd by them, at leaſt for a Time.

The firſt conſiderable Change which happen'd in that *Government*, and the firſt Time it appear'd really a Monarchy, was under *David*'s Reign, who took the legiſlative Power entirely in his own Hands, and govern'd with an abſolute one, making them ſenſible that they were really his Subjects, by advancing to the moſt eminent Poſts in the Church and State, thoſe he knew to be beſt affected to his Perſon and Government, puniſhing or diſplacing the Diſaffected, appointing Miniſters and other Officers for the Execution of his Orders, ſettling the Revenue of the Crown, and obliging the Subjects to contribute towards maintaining the Splendor and Majeſty of it. He was even the firſt (tho' a Man according to God's Heart) who practiſed thoſe Violences God had told the *Iſraelites* they would be expoſed to under a monarchical *Government*; for he took and debauched *Uriah*'s Wife, and ſacrificed her Huſband to his Luſt. Nay even the whole Kingdom ſuffer'd ſeveral Calamities, in Puniſhment for his own private Crimes. Perhaps it was alſo the firſt Time the *Hebrews* were ſenſible of the Change which had happen'd in their Affairs, and repented that they had aſk'd for a King. But that Repentance was vain, for it was no longer in their Power

to extricate themſelves from the Embaraſs, their Inconſtancy and Imprudence had engaged them in; and it had been a raſh Enterpriſe to have attempted to dethrone *David*, who, beſides his own perſonal Bravery, which had gained him a very great Reputation among his Allies, and kept all his Enemies in Fear of him, had always a very good Army at Hand, commanded by experienced Generals, all at his Devotion (though he treated ſome of them, eſpecially *Joab*, with a great deal of Ingratitude) to bring the Rebels to Reaſon.

David's Succeſſors rendered Monarchy ſtill more odious to the *Jews*; *Solomon* by his Idolatry, Debauchery, Vanity, and Extravagance; and *Solomon*'s Children by their Want of Capacity to govern a powerful Nation, and Tyranny, whereby they oblig'd the greateſt Part of the Kingdom to revolt againſt them. The blind and ſcandalous Complaiſance for Minions and Favourites, who were ſuffer'd to oppreſs and plunder the Subjects, to enrich themſelves and Families, was the Cauſe of the entire Ruin of the Houſe of *David*. Thoſe evil Counſellors, contrary to the wiſe Maxims of that truly political King, who had never dar'd to give the leaſt Offence, at leaſt openly, to the fundamental Laws of the State, of which the *Jews* had always appear'd very jealous, had the Temerity to perſuade their weak Maſters, to new modelize the *Jewiſh Government*, without any Regard to thoſe Laws: This was enough to awaken the *Hebrews*, who were no longer kept in Reſpect by *David*'s extraordinary Merit, which had not paſſed with his Crown to his Poſterity, to appear in Defence of them, and the falſe Politicks of thoſe Princes, in attempting to gain a greater Extent of Power, made them loſe that they were poſſeſs'd of already. From that fatal Epocha, the *Jewiſh Government* began to loſe a great deal of its Luſtre and Reputation, till, through ſeveral Revolutions, it was at laſt entirely extinguiſh'd, ſo that nothing remains of it at preſent, but the Memory of its unhappy Cataſtrophe.

After the Extinction of a monarchical *Government* among the *Jews*, they often attempted to modelize it anew, and gave it ſometimes the Form of an elective, and ſometimes that of an hereditary Sovereignty, but it could never recover its priſtine Splendor; for, notwithſtanding their frequent Struggles for it, and the frequent ſignal Victories they gain'd over their Enemies, they could not help at laſt becoming Tributaries to ſome of them; but oftener to the Kings of *Babylon*, as the moſt formidable.

All the greateſt Monarchies which flouriſh'd in thoſe Days, ſome of which had preceded the *Jewiſh* Monarchy, and ſome had been coeval to it, have experienced the ſame Fate; as well as the Republicks of *Athens*, *Sparta*, *Carthage*, and the moſt famous one of *Rome*, which, after ſhe had render'd herſelf Miſtreſs of the moſt conſiderable Parts of the then known World, periſh'd through the Corruption of her own Members; who ſacrificed to their own private Intereſt and Ambition, that precious Liberty, which their Anceſtors had acquir'd at the Price of a Million of Lives, and maintain'd afterwards in that Luſtre and Splendor, which during ſeveral Ages ſucceſſively, was the Admiration of the whole Earth.

No *Government* (the Theocracy excepted) had ever been better calculated for the Felicity of the Subjects; the Preſervation of their Rights and Properties, having been made the Foundation thereof; which once invaded, the whole Edifice muſt neceſſarily have fallen to Ruin. As all the different Orders of the State were intereſted in the Preſervation of thoſe Rights and Properties, they were alſo all called to all the Conſultations relating to them; at leaſt their Repreſentatives. No Enterprize of any Conſequence was undertaken, without the Approbation of the People, who could put a Negative to it whenever they pleaſed, and had render'd themſelves ſo formidable as to make the Senate tremble; which was often obliged to expoſtulate with them in Publick, in the moſt ſubmiſſive Manner, on her Determinations, which had but the leaſt Appearance of touching the publick Liberty, for fear of the dangerous Conſequences, their Suſpicions on that great Point ſhould be attended with; for the Senate was more over-aw'd by the People, than the People was by the Senate. While both acted in Concert, while the Senate executed no Project, without the Concurrence of the People, and the People took no raſh Reſolutions againſt the Determinations or Decrees of the Senate; while there was no other Gate to enter that auguſt Aſſembly, than a ſincere and diſintereſted Love for one's Country, and no other Motive to deſire being admitted a Member, than that of maintaining the publick Liberty; while the People could not be brib'd to ſacrifice that Liberty to their own private Intereſt, and continued in the noble Sentiments of loſing their Lives, and what elſe they had the moſt dear in this World, rather than to loſe it; the Republick flouriſh'd, ſucceeded with Glory in all her Enterprizes, and was either courted or dreaded by the moſt formidable Powers of the Earth; Victory and Conqueſt attended every where the *Roman* Eagles; which were a Symbol of Peace and Security to the Allies of the Republick, and Birds of ill Omen to her Enemies. In thoſe fortunate Days, *Rome* was honour'd with more Triumphs than there were Spectators to ſee them; or rather they were ſo frequent, that the *Romans* minded them no otherwiſe than the common Spectacles they were uſed to ſee every Day. But when Avarice began to conquer in them that laudible Love for their Country, ſo far as to make it give Place in their Heart to that of Money; when they began to ſet the Price of the Blood of their Anceſtors to Auction; as ſoon as Bribery and Corruption found Means to be introduced in the Senate, and have Merit ſupplanted by Wealth and Favour, then began the Eclipſe of the Glory of the Republick, which ever ſince went on always increaſing, till it became at laſt total; and could never afterwards recover the leaſt Glimpſe of its former Radiancy.

On the Ruins of this celebrated Republick, was built the monſtrous Coloſſus of the *Roman* Empire, which had alſo a periodical Courſe, and vaniſhed, at laſt, like all the others, into Smoak; for what we ſtile, at preſent the Empire, is nothing but a Shadow of it.

On the Model of thoſe antient Monarchies and Republicks, have been formed our modern ones.

Of modern Monarchies, ſome are abſolute and deſpotick, where the Will of the Monarch is uncontrolable; and others limited, where the Prince's Authority is reſtrained by Laws, and part of the ſupreme Power lodged in other Hands.

Some Monarchies are again hereditary, where the Succeſſion devolves immediately from Father to Son; and others elective, where on the Death of the Monarch, his Succeſſor is appointed by Election.

The moſt abſolute and deſpotick Monarchy in the World, at leaſt of thoſe which make the greateſt Figure in it, is that of the *Turks*; ſince the Pleaſure, or Will of the Sovereign is the moſt ſacred Law thereof. Their Emperor condemns to Death, of his own Authority, and without any other Formalities, not only the meaneſt of his Subjects, but likewiſe Perſons of the firſt Rank, and even the Princes of his Blood; and there is no Law in the Empire, which can call him to an Account, or even reprove him for it; and no Appeal from the Sentence to any other Tribunal, not even to that of the Judge himſelf; ſince the Sentence is no ſooner pronounced, than it is executed, without allowing the leaſt Reſpite to the Perſon condemn'd to plead in his own Defence; nay, they very ſeldom aſk for ſuch a Reſpite, or offer to ſay any Thing to delay the Execution, thro' that blind, or ignorant Notion, which is one of the Corner Stones on which that tyrannical Power has been erected, that a Muſſulman who dies by the Orders of his Sovereign, dies a Martyr, and is received immediately into *Mahomet*'s Paradiſe. This deſtructive Doctrine is ſo generally receiv'd among the *Turks*, and the Grand Seignor is ſo conſcious of it, that he employs in his unjuſt Executions, but two or three deſpicable Mutes, who often could eaſily paſs through the Windows of thoſe to whom they are ſent, with the ſilken String. I am ſurprized that even Perſons of the greateſt Merit among them, are ſuſceptible of that ridiculous Infatuation, particularly ſuch as have had the Com-

mand of Armies, and have frequented other Nations; especially when reading the frequent Revolutions happened in that vast Empire, that the *Turks*, when they please, are as sensible of Oppression, as any other Nation; and that they want neither Courage nor Resolution to have their Grievances redressed, when they touch them to the Quick, without even sparing the Throne, on those Occasions, or having Recourse to fruitless Remonstrances. The People of *Constantinople* alone, has often proscrib'd of their own Authority, a Grand Vizier, and the other great Officers of the Empire; and when the Emperor has refused to condescend to their Proscriptions, they have some Times proscribed even himself. And that Proscription has been immediately follow'd by the Execution of his own Person. So that his Power, despotick as it is, is notwithstanding very precarious; and unless it be supported by a great deal of Courage and Resolution, is seldom of a long Duration. Thus the most Seditious among the Subjects, when countenanced by a powerful Faction, or by the *Janissaries*, who are the best Forces of the *Ottoman* Empire, and of which there is always a great Number at *Constantinople*, where they bear a great Sway, take in their Hands the Reins of the *Government*, till having obtain'd all they desire, they resign it to a new Ministry of their own chusing, or a new Emperor of their own Promotion, though they never carry their Injustice or Rebellion so far, as to place on the Throne a Prince who is not of the illustrious House of the *Ottomans*. Their Laws being defective in several Particulars, is the Cause of those sudden Revolutions; and their Legislator *Mahomet*, in pretending to give an unlimited Power to the Prince, and make his Will the fundamental Law of the Empire, has exposed him to those great Inconveniencies. He had acted with more Prudence, if he had confin'd that Power within narrower Limits, and by putting it under the Direction of wholsome Laws, secur'd it against any Attempt of that Kind. For he could not reasonably suppose, that reasonable Creatures, let them be ever so stupid and ignorant as he would have them, could ever suffer to be govern'd like Brutes with the Whip, or to see their Fellow Creatures slaughter'd before their Eyes, and without Cause, and not resent it, when the very Brutes, and even the most stupid, nauseate when they see the Blood of their semblable spilt. To leave the Power of a Sovereign uncontroll'd, is to leave a full Career to the Inconstancy, Extravagance, and impetuous Humour of the Subjects, who think they have as much Right to oppose Tyranny, as Tyranny has to oppress them, since they run no greater Risque in opposing it, than they do in suffering it with a pusillanimous Meekness, very little becoming the Condition of a rational Man.

But however, I would not be misunderstood in this Place, and supposed an Advocate of Anarchy, Sedition, and Revolt; but I would have a just Subordination established between the Prince and his Subjects, since an Excess of Power on one Side, and a too extensive Freedom or Liberty on the other, are equally subject to very great Inconveniencies. The Power of the Prince should always be under the Direction of Laws equally founded on the Security of his Throne, and the Liberty of his Subjects, that he could not invade the one without endangering the other. Rewards and Punishments should be trusted in his Hands, but in such a Manner, that he should not bestow those, nor inflict these, but according to a certain Order established in the State, with the unanimous Consent of the different Parts it is compos'd of, to take off all Subject of Complaints.

The Grand Seignor is also absolute Master of the Fortunes of his Subjects, and can be both Judge and Party, when he has a Mind to possess himself of them, under any Pretence, real or specious; and the Injustice of some of the *Ottoman* Emperors, has often gone, even so far, as to make it a Crime punishable with Death, to be immensely rich; though most of his Subjects are nothing else but his Tenants, who are pretty well off, if he allows them out of the Fruits of their Labour and Industry, the smallest Part; so that Husbandmen, throughout the whole Empire, are most of them wretchedly poor; and those who are consider'd as Proprietors of the Land, hold them from the Crown, under such oppressive Conditions, that they are seldom themselves a little above a State of Indigency. These are called *Timariots*, and in that Quality, are obliged themselves to take the Field, or to send so many Men and Horses into the Field, more or less, according to the Extent of their Possessions, when ever the Emperor commands it.

Besides this Service, they likewise pay an Acknowledgment of one Tenth of their Revenue. If they have any Children of Age to bear Arms, and fit for the Service after their Decease, or in Defect thereof, if they have any Relations that have the least Interest, the *Timar*, or Portion of Land, is continued to them on the same Conditions; otherwise it is transferred to others, for those *Timars* are only granted for Life.

If the Revenue thus held of the Grand Seignor, exceeds 15000 Aspres, or 36 Pounds Sterling, they who hold it are not called *Timariots*, but *Subassi* or *Zaeins*, and have the Administration of Justice in the Place, under the Sangiack of the Province.

Unless the *Timar* exceeds 6000 Aspres, the *Timariots* are not obliged to march, except when the Grand Seignor goes to the Army in Person, on which Occasion none are exempted.

Note, That the Origin of *Timariots* is referr'd to the first Sultans, who being Masters of the Fiefs, or Lands of the Empire, erected them into Baronies or Commanderies, to reward the Services of their bravest Soldiers; and especially to raise and keep on Foot a Number [of Troops, without disbursing any Money. But it was *Solyman* II. that first established the Order and Discipline among these Barons, or Knights of the Empire; and by his Orders it was, that the Number of Horsemen each should maintain, was regulated. Notwithstanding this, Liberty is not entirely banish'd from the *Ottoman* Empire, and the despotick Power of the Grand Seignor, does not extend indifferently to all the Orders of the State; for the Clergy there, as well as every where else, have guarded themselves against it as well as they could, and the *Mufti*, who is their Chief, has usurp'd the Authority of issuing out *Fetfa's*, or Orders, even for the Deposition of the Grand Seignor himself; and as those holy Impostors, help to keep the People in that blind Ignorance, which renders them Slaves, rather than Subjects, the Emperors have had the mean Complaisance, to tolerate that Usurpation, which is a Scandal to the Throne; and renders the Subjects seditious, and Rebels by a Principle of Religion. The Alcoran there, as the Gospel among *Christians*, is often interpreted according to the different Passions of the Clergy, or of those whom they want to favour most.

Persia is also a Monarchy, and its *Government* absolute and despotick; but as the *Persians* are better civiliz'd than the *Turks*, and not quite so ignorant, they are better treated by their Prince, and they are not so willing to resign their Lives and Fortunes to his Will, nor himself so ready to lay Claim to either, for fear of meeting with Opposition. For though the *Persians* follow, like the *Turks*, *Mahomet*'s Dreams, they take the Liberty to interpret those Dreams, as it suits best their own Interest and Preservation, and none of them would make any Scruple to resist an Executioner sent to him by the Sophy; who as he seldom attempts on the Lives of his Subjects, and leaves them to enjoy peaceably, what Fortune is pleased to favour them withal, seldom, also, becomes the Victim of a Sedition. It is true, that like in *Turky*, he can take away the Life of any Subjects, without any other Formality than that of his own Will; but it is likewise as true, that he does not often make Use of that tyrannical Privilege; neither does he pretend to be the sole Proprietor of all the Lands of the Monarchy, leaving every one of his Subjects to enjoy his own patrimonial State, in which the Son succeeds his Father to the latest Generation; and contenting himself with the Taxes rais'd on those Estates, according to the Revenue they bring to the Proprietor; which is the Cause that *Persia* is far better cultivated than *Turky*, and produces a greater

greater Quantity of very useful Commodities, and beautiful Manufactures, which are exported throughout the whole World: For no Body being deprived there of the Fruits of his Labour and Industry, and all Sorts of Arts meeting with a due Encouragement, every one exerts himself in his own Profession, and few languish in that Indolence or Idleness, which seems natural to the *Turks*.

The *Persian* Monarchy is also hereditary, and had continued long in the same Family, till by a sudden Revolution, happened in our Days, *Mereweis* usurped the Throne, which is now possessed by another Usurper, *Kouli Kan*; who after he himself had helped to restore the Son of the Sophy dethroned by *Mereweis*, rendered himself guilty of the same Crime, and usurped in his Turn, the Throne to which he had not the least Right.

There are several hereditary and absolute Monarchies in *Europe*, but no despotick ones; *i. e.* none where the Will of the Sovereign is uncontrollable, so far as to dispose of the Lives and Fortunes of his Subjects, at his Pleasure, and without any other Formalities. The *French* Government, which is represented as such by the Enemies of that Crown, is very far from being despotick, and without the least Partiality, I may venture to say, that, *considering the great Difference which should be* between an absolute Monarchy, and an Aristocracy or Democracy, tyrannical and oppressive Acts are less frequent in that Country than in some others, which boast of their great Freedom and Liberty.

Some will certainly laugh at this Assertion, which will seem a Paradox to those who know nothing of the *French* Government but by Hearsay, and are persuaded that all the *French* in general are very little better than voluntary Slaves; and that, contrary to the fundamental Laws of the State, their Princes have insensibly, and by Degrees, forged their Chains, by usurping the Privileges and Liberties of the Subjects: Which Supposition is entirely false in all its Parts. For, 1. The *French* Monarchy, from its first Institution, has always been an absolute one; and their first Kings, if we believe all the Historians and Chronologers who have wrote on that Subject, have always governed absolutely by themselves, or their Ministers; without ever consulting their Subjects on State Affairs, or the Subjects ever pretending that they were obliged to do it, according to the fundamental Laws of their Monarchy. It is true, that at first they followed the Example of the *Romans*, and elected their Kings; but they soon renounced that Privilege, and suffered without Opposition, or even the least Murmur, that the Right of Succession should be introduced among them. They never pretended, even while that of Election subsisted, which was but for a very short Time, to enter into the King's Council, otherwise than by their chief Officers, who were assembled as in a Council of War, when some military Expedition was on the Carpet; minding, then, very little else but to extend their Frontiers, and to make head against the most formidable of their Enemies, by whom they were continually alarmed in their new Conquests: And we do not read, that they attempted to new modelize their Government; or that ever after they claimed their first Right of Election. It is true, that they have sometimes since placed on the Throne, Persons who were not legitimate Heirs to it; being forced to do it, to please the Ambition of the *Maires du Palais*, who during the Imbecillity of their *fainéant Kings* had usurped the whole Royal Authority, which in them was not to be resisted, can be called an Election. But even those Revolutions, instead of enlarging their Freedom, or calling them to the Management of publick Affairs, kept them, on the contrary, at a greater Distance from them. For those *Maires du Palais* had been so well used to exert an arbitrary Power, and to govern absolutely by themselves, during the Stupidity of their Masters, to whom they used to leave only the bare Name of King, and a certain Shadow of Authority, indispensibly necessary to give a Sanction to their Conduct in the Government of the Kingdom: That it was not to be expected they would relinquish Part of that Authority, after they had ascended the Throne, and when they had a more plausible Pretence to claim a greater, if such a Thing could have been found.

If some of the Kings of the third Race (conscious that their Subjects were as much interested as themselves in the Welfare of the Kingdom, and that to call them in Consultation, when something considerable was on the Tapis relating to it, was to act with more Wisdom, Prudence, and Discretion, than to rely entirely on their own Judgment or Capacity, or that of their Ministers or Favourites) have relinquish'd Part of that absolute Power, and given Leave to assemble, what was call'd afterwards *les Estats generaux*; i. e. the Nobility, Clergy, and the Commons by their Deputies; it cannot be said that such Assembly was a Right of the Subjects founded on the fundamental Laws of the *French* Monarchy; but only a Privilege granted by the Prince, which he could revoke when he thought it suited his own Security, and the Glory of his Throne, so to do.

I know perfectly well, that the *French* have claimed it as their Right, and as most agreeable to that natural Freedom Men are born with, and to that Difference which should always subsist between them and the Brutes, of chusing themselves their own Yoak, and be permitted (if for the Good of the Society they must necessarily be under one) to make it as easy as it is convenient it should; but their Kings have been of a different Sentiment, and that Sentiment has prevailed so far, notwithstanding the strong Opposition it has met with, as to procure the Revocation of that Privilege, and the entire Abolition of those Assemblies, under *Henry* III.

Of this the *French* Nation has complained for a very considerable Time, as of a great Injustice; though, in my Opinion, with very little Reason. For those Assemblies, which at first had nothing in View but the Publick Good, and were composed of Members, who consulted nothing else but the Interest of their own Country, always ready to prefer it to their own private one, were soon after composed of Parasites, Minions, and Sycophants, ready to set to Auction not only their Country, but even their Honour, and the Reputation of their illustrious Ancestors. For the Successors of those Kings, who had first called those Assemblies, having not the same disinterested Views; and perceiving, that in them were often concerted Measures, tending towards limiting their Authority, which was supposed of too great Extent for the Good of the Subjects, attempted to debauch by Presents, Promises, and Preferments, those among the Members whom they found to have the most Credit, and most ready to oppose the oppressive Schemes of the Court; and often succeeded therein. The Clergy was the first to desert the common Cause; for as the King of *France* has the Nomination to all the Bishopricks, Abbeys, and other considerable Benefices of the Kingdom, and the Tribe of *Levi* in all Countries, and in all Sects, has always preferr'd its own Interest to any other Consideration whatever, the Court found little or no Difficulty, in Hopes of an Increase of Revenue, or for Fear of losing what they possessed already, to gain them on her Side, to make them approve all her Measures, right or wrong, and exclaim against all others as sacrilegious, and contrary to the true Principles of Religion; pushing even their Complaisance so far, as to search in the Scripture for Passages in Defence of arbitrary Power, and Oppression.

The most difficult Point was to gain the Nobility; an Attempt which the King himself dreaded, for Fear of being disappointed: For as the *French* Noblemen, at least those who were admitted into that august Assembly, were almost all educated in the Principles of the strictest Honour and Probity, it was not a very easy Task to attack both with the least Appearance of Success. In Fact, though Luxury, Ambition, and Avarice, united their Forces to assail them at once, and gave them several frequent and rude Assaults, they found themselves every Time repulsed with Shame. Therefore another Artifice was used, which succeeded even beyond Expectation; and that was, to give the Exclusion from that Assembly to all those illustrious Members, whom neither the Hope of Recompence, nor the Fear of Disgrace, could persuade to renounce those Principles of Magnanimity, Integrity, and Honour, they had received with their Life, and in which they had been strengthen-

ed

ed by the excellent Lessons of those who gave them Birth; and to have them supplanted by others of a new Creation, who were known for Scoundrels, capable to sacrifice, not their Honour, for they had none, but their Soul, Country, and even God himself, to favour Self-Interest.

This new Nobility (if I be not ashamed to give that Title to the despicable Agiotors of the *French* Liberties) had soon changed the Face of that Assembly, and made it the Echo of the Court; where, ever after, all that was proposed from that Side, passed *Nemine Contradicente*; or, as the *French* call it, *a volée de Bonets*; and the few honest Members, who persisted in their Integrity, were despised and laugh'd at, as impotent, or despicable Enemies: So that what was, at first, so justly called the Assembly of the States of the Kingdom, became at last a Farce of the *French* Liberties, where the Nation was obliged to pay the Actors; for as those Mercenaries did not expect to do the Drudgery of the Court without being handsomely paid for it, or rather did it with no other View; a considerable Increase of Taxes was made over and above what was necessary to defray the Expences of the Crown, to quench the insatiable Thirst for Money of those Spunges.

To stop the Course of those destructive Evils, Measures were concerted within and without Doors, which had sometimes very fatal Consequences, the last of those Assemblies, which was that of *Blois*, under *Henry* III. having been dishonoured by one of the most horrid Crimes, not only a crown'd Head, but even a Man of Honour could be guilty of, *viz.* the Murder of the Duke of *Guise*, perpetrated by *Henry*'s Orders, to which that King himself was accessary, and which was the Cause of his being himself assassinated afterwards at St. *Cloud*, by *James Clement*.

Therefore I ask, if the *French* have the least Cause to repine at the Revocation of that Privilege, which was rather become oppressive to them at last, than advantageous? And if Tyranny is not more frightful, and more dangerous, when with several hundred Heads, than when it has but one? A Leach must let go its Hold when it is gorged with Blood; but what Risk does not a Man run of losing to the last Drop of his, when stung at once with a vast Number of them?

The most sensible Part of the *French* Nation, is so persuaded of that Truth (notwithstanding what is said to the contrary in foreign Parts where the *French* are often represented, as ready to shake off their Yoke if they could find a favourable Opportunity of doing it with any Appearance of Success) that they would not change their present Condition with that of their Ancestors, nor even with that of their Neighbours, who boast more of the Enjoyments of their Liberties and Properties.

In what can the *French Government* be found more tyrannical than any other? Is the King of *France* more addicted to Avarice and Luxury than any other; or less inclined to Justice, Equity, Liberality, Compassion and Clemency? Are his Favourites more parcimonious, and his Ministers less disinterested, and less inclinable to promote the Welfare of the Country, and procure the Felicity of the Subjects? Are the Impositions, or Taxes less frequent, numerous, and heavy? Are those appointed to gather those Taxes, more void of Compassion in one Country than in another? Or rather, is not Inhumanity inseparable from their Profession every where? Yes; but the Taxes in *France* are laid by the absolute Will of the King without consulting his Subjects: This would certainly make a very great Difference, if in those Countries where the Subjects are consulted, Regard was had to the Circumstances and Abilities of the Subjects, before the Impositions were laid; but if not, and their Advice is only asked for Form-sake, and never followed but when it is agreeable to the Measures concerted by the Crown; of what Signification can it be to them, their being consulted; of what Advantage is it to a Man who meets with another who asks for his Purse, and takes it with Thanks if he gives it freely, but forces him to deliver if he refuses? And what is the Difference between that Man, and one who with a Pistol to one's Breast, obliges to deliver immediately. The Comparison, I must confess, is not very becoming, but notwithstanding it is not entirely void of Similitude; though I do not pretend to say that Taxes or Impositions are not very oppressive in *France*, especially in Time of War; but only that they are not more so there than any where else; for Taxes are Taxes every where: And in my Travels thro' the different Parts of *Europe*, I have found that they are as heavy, and in some Parts much more numerous than in *France*, and far more oppressive. For in *France* an Artizan, or handicraft Man, who has no Estate, pays no other Taxes but his Capitation, and that according to his Circumstances, and which does not amount perhaps above twenty Sols a Year; and when there is a Tax upon the *Arts* and *Metiers*, as in the late long War under *Louis* XIV. that same Artisan was, perhaps, obliged to pay ten Sols more a Year. Houses pay neither for their Windows nor for their Chimneys, nor even Ground-Rent; and in some Provinces, as in ours, the Tax laid on Land, which the *French* call *La Taille*, is very moderate. The most oppressive Taxes of all, and which brings a greater Revenue to the King, is that laid on Salt, called the *Gabelle*, for it raises the Salt to an exorbitant Price; and every House-keeper is obliged to take such a Quantity of it according to the Number they are in Family. There is also a very heavy Tax on Tobacco; but then no Body is obliged to use Tobacco, and as it is not a Commodity necessary for the Support of Life, that Tax is not at all oppressive; we pay this last Tax, but we don't pay the other; for when the Season has been favourable for the making of Salt, which is made on our Coasts, we may have a Bushel of Salt weighing sixty Pounds, eighteen Ounces to the Pound, for eight Sols, and for ten when it is dearest. There are also small Taxes upon Liquors, as Wine, Brandy, Cyder, Perry, *&c.* but none upon any other Commodities whatever.

Besides this, every one of the Subjects enjoys his own Properties undisturbed; and if it was ever so true that this Doctrine is received among us, that the King is absolute Master of our Lives and Fortune, it is only a speculative one, and no King has ever attempted to reduce it into Practice; on the contrary, we have as many wholsome Laws to restrain him from it, as any other Country in the World; and as much Resolution as any other Nation, to make use of those Laws; as we often do, when the Crown encroaches on our Properties, for then we sue the King himself, and may expect, if we have Right on our Side, to cast him; Nay, if the Case is dubious, it is always given in favour of the Subjects, and the late King often declared, that he would, if the Thing was possible, that his Subjects should always get their Cause against him.

As for the Nobility, there is no Country in the whole World where they are less oppressed, more favoured and more respected than in *France*; and in Gratitude to the Crown, for their Exemptions from several Impositions which the Commonality pay, there are but few among them, who are not pleased to spend their Fortunes, and expose their Life in the King's Service freely, and without the least Compulsion.

If during a long and destructive War, the King is forced to raise the Militia, and every Parish is obliged to furnish so many Men, Fate decides of it; no married Man is taken, and among those who have no Family, an idle Fellow is always taken before one who is industrious; besides, in some other Countries they have far more oppressive Ways, and which smell much more of Slavery, to press Men into the Service: For they seldom make any Distinction between a Man that has a Family to maintain, and one that has none. Every one they lay their Hands upon must march, according to the Humours of a Squab of Tarpaulins, who haunt Men, armed with Clubs and Bludgeons, *&c.* as they do wild Beasts in other Countries; and whose Will, on those Occasions, is a Law from which there is no Appeal; whenas, in *France* they draw their Fate, as at a Lottery, before the Magistrates of the Place.

Another Instance, which Foreigners are pleased to give of the oppressive Government of *France*, is the Restraint put on the Subjects Conscience, to hinder them from professing what Religion they please, and obliging them

them to be of that of the Prince. If the Thing was in Reality, as represented by the natural Enemies of *France*, whose Interest is to render that *Government* as odious as possible, and by perfidious *Frenchmen* who thirst after nothing more than the Devastation of their Country; it would certainly be an Oppression as criminal, and as much to be exclaimed against, as the Persecution of the Pagan Emperors in Christianity's Infancy; and I would be as ready to condemn it, as those who would make us believe that they are unjustly oppressed thereby; since no rational Man can approve the inslaving of Consciences; but when I consider that those pretended Persecutions proceed rather from a Maxim of State, than from a Principle of Religion; that from the first Instant Men began to form themselves into a civil Society, Difference in Matter of Belief has always caused some Division among them, and a certain Jealousy, Hatred, and Antipathy against one another, which in Process of Time becomes natural; I am not so easily imposed upon.

To be convinced of this Truth with regard to *France*, we may only read, with an unprejudiced Mind, the Annals of that Monarchy, and we'll find, that before Calvinism had gain'd Ground in *France*, unfortunately, for the domestick Peace and Tranquility, the *French* had always been entire Strangers to civil Divisions, and the best affected to their Prince and his *Government* of any Nation on the whole Earth. *Francis* I. under whose Reign this new Doctrine appeared for the first Time, was not at all allarmed at it; and the Pretext of the Novaters, of undertaking the Reformation of the Sanctuary, where in fact several gross Abuses had been introduced, through the Ignorance of the Clergy, was even specious enough to engage the King, who was a great Admirer of Learning, and of the Learned, to approve their laudible Zeal, and even support it with his Royal Authority; and I should be apt enough to believe, that the Fear the Clergy was in at first of being obliged to reform their licentious Life, and qualify themselves for their Employment by Study, was the Cause that they persuaded the King to suffer that some violent Means should be used, to root out that growing Evil; perhaps also, that the Disorders which the new Opinions had already caused in *Germany*, were the Occasion thereof, lest the Kingdom of *France* should be exposed to the same Inconveniency as it unfortunately happened at last; for those new Doctors, instead of preaching a Christian Resignation to the Will of the divine Providence, a Submission to legitimate Superiors, Patience in Persecution, according to the Doctrine of the Gospel, of which they stiled themselves Ministers, preached on the contrary, Sedition, Rebellion, Disobedience, and Revenge. And when they saw that their seditious Discourses had made the Impression they desired, on the Mind of their Proselites, they had the sacrilegious Temerity to call to Arms, and to appear themselves in Steel against their legitimate Sovereign, committing Sacrileges, Rapes, Murders, and all Sorts of other Enormities, through a Principle of Religion, and even a Christian Religion; which Disorders continued under four Reigns successively, with the greatest Rage and Fury, *viz.* of *Henry* II. *Francis* II. *Charles* IX. and *Henry* III. and were renewed, but with less Violence, because opposed by the Courage of the Cardinals *Richelieu* and *Mazarin*, under *Louis* XIII. and the Minority of his Son and Successor *Louis* XIV.

But they were forced in their Belief; they should rather say, that they would have forced others, and even the Prince himself into their Belief; and when they saw that they could not effect either by their Discourses, or Writings, they had Recourse to the most violent Means, and changed soon, to colour their Rebellion, the first Pretext of reforming the Church into that of reforming the State, by the entire Subversion of the fundamental Laws of the *French* Monarchy, on the Ruins whereof they wanted to establish a monstrous Anarchy of their own Invention. Is that the true Spirit of the Gospel? Did *Christ* use the same Means to establish his Religion, or his Apostles to propagate it? Let us suppose for once that they were constrained in their Belief; were not the first Christians constrained likewise in their Belief even in the most violent Manner? Were they not condemned by their Persecutors, to the most excruciating Torments which Hell itself could invent? And did they ever use any other Arms against them, than their Patience, entire Resignation, Tears and Prayers; if we will not believe it, let us read the Apologies written by *Justin* the Martyr, *Tertullian*, and others, where they are represented as the best and most loyal Subjects of the whole *Roman* Empire, always ready to appear in its Defence, as they did in several Encounters, the Difference of Belief never hindering them from fighting under the Standards of their Emperors, though they were at the same Time their most cruel Persecutors.

Who, after this, will have the unjust Partiality to excuse the *French* Rebels, or condemn the *French* Government, for endeavouring to extirpate a Religion whose Maxims were so contrary to those of Christianity, and to the Security of the Prince and the publick Tranquility? Must a Prince, and his Subjects, be obliged to renounce the antient Religion of the Kingdom, to espouse the new Opinions of Enthusiasts and Vagrants; or one be dethroned, and the others have their Throats cut, in case of Refusal? What had become of the late King, if while at War with all *Europe*, he had kept in his Bosom, Rebels who had been glad of the Opportunity to side with his Enemies to dethrone him; and what Judgment could we have formed of the Loyalty of the Generality of them, if the Few left in the *Sevennes*, appear'd then in Arms, in that Intention? No; the *French* Government does not condemn so much their religious Principles, if they have any, as it is afraid of their seditious Maxims; and if they have been persecuted, it is not because they professed a new Doctrine, but because they had lacerated, in the most cruel Manner, the very Bosom of their Mother Country; and had they professed the Gospel in its greatest Purity, as they pretended was their Design, without meddling with State Affairs, or attempting to extort from the King a greater Extent of Privileges, than was agreeable to the publick Security, and to the religious Worship established in the Kingdom, ever since the Conversion of the great *Clovis*, it is not reasonable to suppose, that the Government would have molested them, or deprived the Kingdom of so vast a Number of useful Subjects; which I am the more inclinable to believe, because those left, at present, in the Kingdom of *France*, who are yet in very great Numbers, are treated with as much Clemency as the rest of the Subjects, provided they do not assemble together to hear their Ministers, because those Assemblies have always been the Schools of Rebellion: Neither are their Estates more taxed than those of the *Roman Catholicks*.

But I will even suppose, for a Moment, which Supposition is certainly false, that they have really been more maltreated by the *French* Government, than they deserved, must the whole Nation be answerable for it, and be exposed to all Sorts of Devastations, and Cruelties, for the Crimes of few Particulars; and can those Crimes smother within us that natural Inclination, which all, but Canibals, and wild and ferocious Beasts, have for their native Country? What Idea can an *Englishman*, for Example, form of a *Frenchman*, whom he sees elevated at the least Disgrace which happens to the Kingdom, and that the greater is the Disgrace, the greater is his Joy? He will perhaps join with him publickly, while at the same Time he despises him in his Heart as the greatest of all Scoundrels; for let it be said to the immortal Honour of the *English* Nation, that if they hate a *Government*, by whom they imagine to have been maltreated, they love still their Country; nay, they often hate a *Government* but by a Principle of Love for their Country.

But however, I must do this Justice to the *French* Calvinists, that this unnatural Hatred proceeds rather from the Prejudices of Infancy strengthened within them, by the injurious Reflections of their Ministers on the *French* Government, than from a natural Inclination to Evil; for most of them, this excepted, have very good Principles of Morality, are just, charitable, laborious, courageous, and have proved very serviceable to the Countries where they have took Sanctuary, either in the Armies,

where they have always behaved like gallant Men, or in the Commerce or Manufactures which they have made flourish, having establish'd several in those Countries, to which the Natives were perfect Strangers; so that they have rather been an Ease to the State than a Burthen, as some Nations have falsly imagin'd; and deserve rather to be encouraged, than hated or despised, since besides they are very grateful to the Nations who have taken them under their Protection; and have transferred to them that Love they should have for their own Country; for if they were bad Subjects there, they are very good ones under a foreign *Government*; and without Exaggeration, I may venture to say, that a foreign Prince can have no better.

The Clergy has no Part in the *French* Government, except the King be pleased to chuse one among them for his Prime Minister; though every Bishop takes the Title of the King's Counsellor, which is *Titulus sine re*, for he seldom consults any of them on State-Affairs. In fact, those whose Employment is to conduct Souls to Heaven, should not be disturb'd from that serious Occupation, on which depends their own Salvation, by worldly Affairs; since they are both incompatible.

The *Spanish* Monarchy is also absolute, and hereditary to the Exclusion of the Females, like that of *France*, and the *Government* very near the same; the sole Difference I find between them is, that the Catholick King seldom determines himself on any important Affair, before he has communicated it to the Council of *Castille*, for their Approbation, which Council is compos'd of Grandees, and other Persons of Distinction and Merit; and is always very tedious in its Deliberations.

The *English* Government is a Mixture of Monarchy, Aristocracy, and Democracy. The Monarchy is hereditary, the Females not excluded, but not absolute, though the King enjoys several great Privileges, as of making War and Peace of his own Royal Authority; of creating as many Lords as he pleases, and of what Dignity he pleases, from a Duke to a Baron, who have all their Seats in what is called the *House of Lords*, of which he is the Chief. Of issuing Writs for the Election of Members, to serve in the other House, called *House of Commons*: Of convoking the Parliament, and proroguing it when he pleases, and dissolving it if he pleases: Of signing all the Acts of that august Assembly, without which they can be of no Force in the Kingdom: Of pricking Sheriffs for the several Counties of the Kingdom, which contributes much to strengthen the Interest of the Court at an Election; to appoint Officers, both military and civil, and several others of less Consequence, too long to be enumerated here.

The Aristocracy and Democracy, form what is called the *Parliament of* England, and which is an Assembly, representing both the Nobility and Commonality of the Kingdom, where all the Affairs of the *English* Nation, both foreign and domestick (I mean those which come under their Cognizance) are transacted, and where every Member has a deliberative Vote. The King opens every Session by a Speech from the Throne, where he exposes to both Houses (that of the Commons being called then by a Message from his Majesty to the Bar of the House of Lords, where they stand bare-headed, their Speaker or Orator at their Head) the present Situation of the foreign Affairs of the *English* Nation, and desires their Concurrence, to have them terminated to the Glory and Security of his Throne, and the Welfare of his Subjects; exhorting them to Unanimity and Peace in their Deliberations, and to find with all possible Expedition the necessary Supplies to defray the Expences of the Crown for the current Year; for it is one of the greatest Privileges the *English* Nation enjoys (ever since the Institution of the Parliament by *Henry* I) that the King cannot tax his Subjects, or raise any Sum of Money, without the Concurrence of both Houses, who have the Privilege to grant, or refuse Supplies ask'd for from the Throne, according as they think it suits best the Interest of the Nation; though when the House of Commons is divided into Parties, those Supplies have been sometimes refused when they were most wanted, and granted without any apparent Necessity.

Every Thing is transacted first in the House of Commons, which is the most formidable, and in some Measure the most powerful of the two; for under several Reigns, the Lords have been nothing else but the Eccho's of that House; and in difficult Times, Acts have been receiv'd, and put in Force throughout the whole Kingdom (through a Spirit of Cabal, which reign'd then in the House of Commons, and a Disaffection to a monarchical *Government*) without the Approbation of the Lords, who were then consider'd by the Factious, as Cyphers, because they were supposed to be, as in fact all Noblemen should, the strongest Supports of the Throne. The King takes Care to have always one of the Secretaries of State, if not two, Members of this House, as well to strengthen his Interest in it, as to refute the bad Construction often given to the Measures concerted by him, or by his Ministers, with his Approbation: For the House of Commons claims the Privilege of arraigning the Conduct of the King's Ministers, and of calling them to an Account for their Malversations; and have in fact impeach'd some of them of High Treason, and brought them on a Scaffold, for having been too well affected to their Royal Master, and too punctually executed his Orders. So dangerous it is to the Security of the Prince, to have a Majority in that House disaffected to his sacred Person and Government; and who can blame him for using all his best Endeavours to prevent it? For the Disaffected are not always actuated by a Motive of disinterested Love for their Country; nor their Opposition always supported by the sole Desire of contributing all in their Power to its Welfare, though it is always the specious Pretext of it; since several of them, under that Cloak, which always dazzles the Eyes of the Vulgar, act by no other Principles than those of a disappointed Ambition, Self Interest, *&c.* which is plainly seen, when a *Government*, through a Maxim of the most refined Policy, pulls off the Disguise, by gratifying some of the favourite Passions of those in the Opposition, who have then appear'd such as they were in Reality, *viz.* as false Patriots, as bad Subjects; to be trusted neither by their King nor their Country. Though there are some among them who are not to be biassed by any Consideration whatever; who are not in the Opposition, for the Sake of Opposition only, nor condemn the Measures of the Court, because they are the Measures of the Court (which would be acting contrary to Sense and Justice) but only condemn them when contrary to the fundamental Laws of the Kingdom, or the Honour of the *English* Nation; and approve them when they are agreeable to both. For it is ridiculous even to suppose that a *Government* cannot concert any other Measures than destructive ones; and that one can be esteem'd a Patriot no longer than he opposes the Conduct of the *Government*. Prejudices in those Affairs are always very dangerous; for a Pique between private Persons, seldom proves prejudicial to any Body else but to those private Persons, between whom the Pique subsists; but to make of those private Piques a national Concern, far from consulting the Interest of one's Country, is to accelerate its Ruin; and to condemn a *Government* let it act in whatever Manner it pleases, for no other Reason, but because we hate it, or have been disappointed or maltreated by it, is renouncing all Sentiments of Honour; since according to those Sentiments, Equity, Wisdom, Dexterity and Prudence, are to be admir'd and approv'd, even in our most mortal Enemies. Can a Nation be so far imposed upon, or be so blind in her own Cause, as not to discover by the different Steps taken by a *Government*, to procure the domestick Peace, that it is impossible for it to please those in the Opposition; especially when that Nation could see plainly, that the Measures which had been proposed by them as the most agreeable to the publick Good, become oppressive when pursued by the *Government*? As if those Measures, good in themselves, or at least represented such, could change Nature in such Hands.

These unjust Prejudices, and the publick Means used

to infuſe them in the Minds of the Subjects, prove more diſadvantageous to the true Intereſt of the Nation, than thoſe Meaſures could, were they even ſo bad as repreſented, if they were kept ſecret: For thereby the Weakneſs of the Country is expoſed naked to the whole World in general, and to the Enemies of the *Engliſh* Name in particular, who form their Enterpriſes, and proſecute them accordingly. For who would be afraid of a State, the Chief whereof, and its Members, are always at Variance? Since the Strength of a Nation conſiſts in the Unanimity and juſt Harmony which ſhould ſubſiſt between both. Who would mind their Menaces? when they themſelves declare publickly, that they are not in a Capacity to put them in Execution; their Finances, without which nothing can be undertaken of any Conſequence, having been exhauſted by the ill Management, Ignorance, and Blunders of bad Miniſters. What can be imagined of their Projects, when, after themſelves have formed them, they are always in queſt of ſome Pretext, real or plauſible, to deprive the Crown of the Means neceſſary to execute them?

Beſides, what Meaſures can pleaſe thoſe Perſons, who ſeem fully determin'd to approve none, taken by any Adminiſtration whatever, was it even compoſed of Miniſters of their own chuſing, and modelized on the very Plan themſelves have formed? For, are the Miniſters enterpriſing, and warlike? a War, ſay they, is contrary to the real Intereſt of a trading People, and attended beſides with too vaſt Expences, which render it oppreſſive, even when attended with the greateſt Succeſs. Are they pacifick? their Inaction renders the Body-Politick languiſhing, gives Time to the Enemy to purſue their Conqueſts, and extend their Frontiers, whereby they may be invited, afterwards, to lay a Bridge over the Sea to invade *England*, when they'll find it impoſſible to do it otherwiſe. Are they for cultivating a Friendſhip with the Court of *France*, (which coſts the Nation nothing) to divert the Storm which could threaten on that Side? they are Penſioners of that Crown, to which they ſacrifice; what? they do not know it very well themſelves; not the Intereſt of the *Engliſh* Nation, for it is not at all her Intereſt to quarrel with that Crown; ſince for one ſucceſsful War, which, in Conjunction with all *Europe*, ſhe has carried on againſt it, and wherein ſhe has not ſo much as gain'd one ſingle Foot of Land on the Continent, but on the contrary has ſpent immenſe Sums; all her other Enterpriſes, under the ſame King's Reign, though join'd with the ſame Allies, have proved very unfortunate to her, as well as to thoſe Allies: Not her Honour, ſince the preſent King, *Louis* XV. has never attempted any Thing againſt it, and in all Appearance never will, as long as the auguſt Houſe of *Hanover* poſſeſſes the *Britiſh* Throne, and continues to cultivate the Friendſhip which has ſo long ſubſiſted between the two Courts of *Verſailles* and *London*.

If thoſe ſuppoſed *frenchify'd* Miniſters are diſmiſſed, and others appointed in their Place, who appear more diſpoſed to break that Friendſhip, in order to eſpouſe the Intereſt of a Houſe, which has always been a Burthen to the *Engliſh* Nation, and coſt her ſeveral Millions of Money, and ſeveral thouſand Lives, without any apparent Advantage to herſelf, but the Honour of having aggrandiſed others at her Expence, and the Sorrow of having ſometime miſcarried in the Attempt; they declare openly againſt ſuch a Rupture, which they had before repreſented as abſolutely neceſſary; ſo difficult it is to pleaſe thoſe who will never be pleaſed, whatever Meaſures be taken to pleaſe them.

But, notwithſtanding, I would not have the Preſumption to condemn, without Diſtinction, the Conduct of all thoſe who have been in the Oppoſition, under ſeveral different Reigns: For as it would be unjuſt, and even unreaſonable, to controvert the juſt Right the Nation has to inquire, by her Repreſentatives, into the Conduct of the Government, with regard to national Affairs; (for to cenſure the private one of a King, or of his Miniſters, or to lampoon them for ſome Frailties they have in common with the reſt of Mankind, is the meaneſt and moſt ſcandalous of all Behaviours) it is not likewiſe to be ſuppoſed, that all Princes have the ſame Diſcernment in the Choice of their Miniſters; ſince Hiſtory informs us, that ſome very bad ones have been ſeen at the Helm, who made every Thing ſubſervient to their own Intereſt, and to the Advancement of their Family, to the Prejudice of the true Intereſt of the Prince, who had honour'd them in a moſt particular Manner with his Confidence, and of that of his Subjects; who appropriated the publick Money, deſign'd for national Services, to their own private Uſe, and the Support of their uſurped Authority; and who, to foment a dangerous Jealouſy between the King and his Subjects, and hinder him from hearing their juſt Complaints, and redreſs their real Grievances, repreſented them to him as turbulent and factious, never to be eaſy, even under the moſt mild Adminiſtration; but all Miniſters are not of thoſe bad Characters; and Hiſtory informs us, likewiſe, that there have been ſeveral very good ones; who, ſenſible of the great Truſt repoſed in them by their Royal Maſter, and conſcious that their Malverſations, or Ignorance, would be a tacit Reproach to his Wiſdom, and Diſcernment, have taken all the Precautions imaginable, to render their Conduct, in that high Employment, regular and irreproachable; preferring the publick Eſteem, and Applauſe, to a vain Ambition, and ſordid Avarice, which commonly are the two favourite Paſſions of Miniſters, in other Countries as well as this.

This long Digreſſion muſt not make us forget, that the Commons have the Privilege to ſupplicate and propoſe Laws, provided they be not contradictory to the fundamental Laws of the Kingdom; to impeach publick Delinquents, even the greateſt Lords of the Kingdom, both Spiritual and Temporal; as they have often done, particularly in the troubleſome Times of the Reign of King *Charles* I. when they brought Archbiſhop *Laud*, and Lord *Strafford* on the Scaffold; when they had alſo, few Years afterwards, the ſacrilegious Preſumption to uſurp the Power, againſt all Laws divine and human, of impeaching, and even condemning their lawful Sovereign, whoſe royal Predeceſſors had made them what they were, and opened to them the very Gates of that Houſe where they ſat to condemn him.

Antiently all the People had their Votes in the Elections for Members of the Houſe of Commons, and moſt Votes carried it; but to avoid Tumults and Trouble, it was enacted by *Henry* VI. that none ſhould have any Suffrage in the Election of Knights of the Shire but ſuch as were Freeholders, did reſide in the County, and had a yearly Revenue of 40*s.* (which till the Diſcovery of the Gold and Silver Mines of *America*, was as much as 30, or 40*l.* now) whence it came to paſs, that the Lay-Commons were then elected as the Clergy-Commons, the *Procuratores Cleri*, were, and ever have been, *viz. Sine Prece, ſine Pretio, ſine Poculo, &c.*

The Perſons elected for each County are to be *Milites notabiles*, or at leaſt Eſquires, or Gentlemen fit to be made Knights, as it is in the Statutes of *Henry* VI. they ought to be *de diſcretioribus Militibus*, and *ad Laborandum potentioribus*, as the Words in ſome Writs have been: They ought not to be too young, nor lazy Epicures, but Men of Years, vigorous, active, and abſtemious; always ready to give their conſtant Attendance in Parliament, or elſe to enjoy neither of the Privileges of the Houſe. They ought to be native *Engliſhmen*, or at leaſt ſuch as have been naturalized by Act of Parliament. No Alien, or Denizen, none of the twelve Judges, no Sheriff of a County, no eccleſiaſtical Perſon that has Cure of Souls, may be choſen to be a Parliament Man, to ſerve for any County, City, or Borough.

Two Things are ſaid to be requiſite to the Legality of ſitting in Parliament; firſt, that a Man ſhould be of full Age, that is, 21 Years old at leaſt; for if no Man under that Age can diſpoſe of his Eſtate, nor make one legal Act to that Purpoſe, then much leſs may he have any Authority in the ſupreme Council of the Nation, to judge, vote, or diſpoſe of the Eſtate of the whole Realm: Yet the Practice in the Houſe of Commons (though very rarely in the Houſe of Lords) has often been otherwiſe.

The Lords Houſe has a Power, not only in making and repealing Laws, but alſo, *in tractando & conſilium impen-*

impendendo, as the Words of the Writ are; also in judging of Controversies, judging in the Arraignment of any Peer of the Realm, putting Men to their Oaths, especially in Matters of Importance, as the Corruption of Judges and Magistrates, in Error, illegal Proceedings in other Courts, in Appeals from Decrees in Chancery, *&c.*

The Lords who, in their Religion, conform not to the Church of *England*, have been excluded ever since the Reformation from sitting in the House.

All the Lords Spiritual and Temporal have this Privilege, that if by Reason of Sickness, or other Business, they cannot appear, they may make their Proxies to vote in their Stead, after Licence obtain'd by a Letter under the King's Signet, to be excused for their Absence: So that in every Parliament, every Person in *England*, either by himself, Proxy, or Representative, is said to be there, and to have his Suffrage for making or repealing any Law.

Note, That the Parliament of *England* has also considered as a Privilege common to both Houses, the passing of Acts relating to the Succession to the Throne; and to settle it in what Branch of the royal House, they judged most proper for the Security of their Liberties and Religion, to the Exclusion of those whom they did not suppose inclinable to maintain both; which is one of the greatest Privileges a Nation has ever enjoy'd, in an hereditary Monarchy; and which should engage them to support with all their Interest, as they do, the Prince in whose Favour they have declar'd themselves, since acting otherwise, would be arraigning their Wisdom and Discernment, or rendering themselves guilty of Inconstancy; since if a private Man, who pretends to those two great Perfections, is inexcusable, and even laugh'd at, when after the most mature Deliberation, he pretends to have been mistaken in his Choice, how much more those, who for their extraordinary Merit and Capacity, are chosen to represent a whole Nation, and be her Legislators. The same may be said of those, who chuse those Representatives, if they were susceptible of Bribery or Corruption in that Choice, since the oppressive Measures concerted by Members thus elected, could not with the least Appearance of Reason and Justice, be laid to the Charge of those Members; but to that of those Mercenaries, who have suffer'd themselves to be bribed or corrupted, and should consequently remain Mutes, when they feel the Effects of their Perfidy; since there would be no Corruption, if there were none to be corrupted. Notwithstanding which it often happens otherwise, and that those who have been the most ready to receive the Bribe, are the first to exclaim loudly against Bribery.

The Place of Meeting for this august Assembly, is in whatever City, Town, or House the King pleases; but of latter Times, it has been usually held at the King's antient Palace, and usual Residence at *Westminster*, all the Lords in a fair Room by themselves; and the Commons not far from them in another fair Room, which was heretofore the antient Chapel of St. *Stephen*. The Manner of Sitting in the Lords House is thus:

The King as often as he comes (which is, as we have already observ'd, at the Opening of the Parliament, or at the passing of Bills, or at some solemn Debates) is placed at the upper End of the Room, in a Chair, and under a Cloth of State, under which, on either Hand, sits none but the King's Children.

On the King's Right-Hand is a Seat, antiently for the King of *Scotland*, when he was summon'd to Parliament, as he sometimes was, *Fide & Legiantia*; but now it is for the Prince of *Wales*. On the King's Left-Hand is a Seat for the Duke of *York*.

On the King's Right-Hand, and next the Wall, are placed on a Form the two Archbishops; next below, on another Form, the Bishops of *London*, *Durham*, and *Winchester*; then upon other Forms, on the same Side, all the rest of the Bishops sit, according to the Priority of their Consecration.

On the King's Left-Hand upon Forms, are placed the Lords Chancellor, Treasurer, President of the King's Council, and Lord Privy-Seal, if they are Barons, above all Dukes, except those of the Royal Family; if they are not Barons, then they sit uppermost on the Wool-Sacks. On the same Side sit the Dukes, Marquisses, and Earls, according to their Creations.

Upon the first Form, a cross the House, below the Wool-Sacks, sit the Viscounts, and upon the next Form the Barons, all in Order.

The Lord Chancellor, or Keeper (if the King be present) stands behind the Cloth of State, otherwise sits on the first Wool-Sack, thwart the Chair of State, his great Seal, and Mace by him; he is Lord Speaker of the Lords House. Upon other Wool-Sacks sit the Judges, the Privy-Counsellors, and Secretaries of State, the King's Council at Law, and the Masters in Chancery. These not being Barons, have no Suffrage in Parliament, only sit to give their Advice when it is required.

On the lowermost Wool-Sack are placed the Clerks of the Crown, and Clerk of the Parliament, whereof the former is concern'd in all Writs and Pardons in Parliament; the other records all Things done in Parliament, and keeps the Records of the same. This Clerk has also two Clerks under him, who kneel behind the same Wool-Sack, and write thereon. Without the Bar of the Lords House, sits the King's first Gentleman-Usher, called Usher of the Black-Rod, from a Black Staff he carries in his Hand, under whom is a Yeoman-Usher, who waits at the Door within, a Cryer without, and a Serjeant at Mace, always attending the Lord Chancellor.

When the King is present with his Crown on his Head, none of the Lords are cover'd. The Judges stand till the King gives them leave to sit.

When the King is absent, the Lords at their Entrance do Reverence to the Chair of State (which if it was done to the Image of *Christ*, would be look'd upon as a superstitious Worship) The Judges then may sit, but may not be cover'd till the Chancellor or Keeper signifies unto them the Leave of the Lords. The King's Council, and Masters in Chancery, sit also, but are not to be cover'd at all.

The Commons in their House sit promiscuously, only the Speaker has a Chair placed in the Middle, and the Clerk of that House near him at the Table.

The Time of Sitting in Parliament, is on any Day in the Morning or before Dinner.

As to the Manner of Debating, and passing Bills in Parliament, any Member may move to have a Bill brought in for any Thing, which upon a Question put, being agreed to by the Majority, the Person with others are order'd to prepare and bring in the same. When ready, a Time is appointed for Reading; after Reading it by the Clerk, the Speaker reads the Abstract thereof, and puts the Question, whether or no it shall have a second Reading? After a second Reading, the Question is, whether it shall be committed? which is either to a Committee of the whole House, if it be of Importance, or to a private Committee, any Member naming the Persons.

The Committee appointed, and a Chairman chosen, the Chairman reads the Bill, Paragraph by Paragraph, puts every Clause to the Question, fills up the Blanks, and makes Amendments, according to the Opinion of the Majority. The Bill thus gone through, the Chairman makes his Report at the Side-Bar of the House, reads all the Additions, Amendments, *&c.* and moves for Leave to bring up the Report to the Table; which granted, he delivers it to the Clerk, who reads the Amendments, *&c.*

The Speaker then puts the Question, whether they shall be read a second Time? and if agreed he reads them himself. To so many as the House acquiesces in, the Question is now put, whether the Bill thus amended, shall be engrossed and wrote fair in Parchment, and read a third Time? The Bill engrossed, the Speaker holds it in his Hand, and asks, if it shall pass? If the Majority be for it, the Clerk writes on it, *Soit Baillée aux Seigneurs*,

Seigneurs. Or in the House of Lords, *Soit Baillée aux Communes.* If a Bill be rejected, it cannot be any more proposed, during that Session.

Upon the passing of Bills of any Importance, there arises almost always very warm Debates, especially if the House be divided into two formidable Parties, which have sometimes been distinguish'd by the Names of *Whigs* and *Tories*, *Court* and *Country*, &c. for then, the Chiefs of those Parties, which are commonly Men of Merit, or of a vast Interest, either at Court, or in the Kingdom among the Subjects, assemble, each, as many as they can of the Members they know to be in their respective Interest, the one to countenance the passing of the Bill, and the others to oppose it. It is on those Occasions, that the greatest Orators of both Parties, display their Eloquence in florid Speeches, either for or against the Bill. Those Debates when the Bill is of a national Concern, and supposed to aim at the Liberty of the Subjects, or to favour too much the Prerogative of the Crown, last long, and are even sometimes season'd with bitter Expressions on both Sides, which the Speaker, tho' the Moderator of the whole House, finds difficult to appease.

It was in those warm Debates, that *Cromwell*'s Usurpation, like the Salamander in a continual violent Heat of Fire, was hatch'd and fed; the false Supposition, that the best of Kings aimed at the entire Subversion of the Liberties of the People, and had in fact already encroach'd on several of those Liberties; or rather, the Ambition of some of the greatest Sticklers in the House of Commons, who had built it on the entire Ruin of a monarchical Government, divided the House for a considerable Time, *i. e.* till they had gain'd their sacrilegious End, into two very formidable Factions, that of the Court, which should have been the prevailing one, as supported by a royal Authority, losing Ground daily, through the too great Meekness of the King, who granted so much at first, that they would at last ask more than it was in his Power to grant; since a noble Resolution is indispensably necessary in a King of *England*; as well to maintain himself secure on the Throne, as to disconcert all the destructive Measures taken by the declar'd, and hidden Enemies of the domestick Peace; since a too great Condescension in those national Ferments, instead of appeasing them, serves only to increase them, and render the Factious or Disaffected more bold and enterprising.

The *English* ought, certainly, to enjoy in their full Extent, all the Privileges granted from Time to Time by their Kings; but in their Turn, they ought not by a Principle of Ingratitude, to make use of those same Privileges, to destroy the Source from whence they flow. A just Subordination between the King and his Subjects, as between a Chief and his Members, will always render the *English* Nation respectful to her Friends and Allies, and formidable to her Enemies. That Chief should influence these Members, but not compel them; and the Members follow the Motion of the Chief, when agreeable to the just Harmony which should subsist between them, and not force him to follow theirs, contrary to the Order of Things; since Violence on either Side is always dangerous, and threatens the whole Body-Politick with its Dissolution. When the Voice of the King is silenced in Parliament, that of Reason and Justice is seldom heard, of which we have an Example in what happen'd under *Charles* I. for could even the Factious agree among themselves on the Form they were to give to their new Government? Could they find in the Annals of the Nation, any other Form than a monarchical One? And though they had all the while infatuated the People, with the false Notion that the *British* Government was first modelized into a Republick, where could they find that Model, which had serv'd for a Foundation for that they were going to establish? And after they had established it, on the entire Ruin of the Throne, the Devastation of their Country, the Pollution of the Sanctuary, and in Rivers of Blood of their Countrymen and Fellow-Citizens; what Advantages did the Nation reap from it? Would any Body have the scandalous Presumption to say, that she recover'd then her lost Liberty; or must we not be convinced on the contrary by what happen'd in those Days, that she rather lost it entirely; and that the new Government was more arbitrary, despotick, and tyrannical, than even that of *Turky*? For if in *Turky* the Will of the Prince is absolute, and not to be controll'd by Laws, it is a Custom, which though very oppressive, has been tolerated from the first Establishment of that Empire, of which we see several Precedents in the History of that first Establishment; but could the rebellious Regecides, find in the History of the *English* Monarchy, any Precedent, that Laws had been made to condemn to Death the most loyal and faithful Subjects to their legitimate Sovereign, because they had espoused his Cause, and to force others to swear Allegiance to Rebels and Factious? It is true, that they could find in the *Turkish* History, that some Sultans have been deposed, and even murder'd during popular Emotions; but could they find one, who has been arraign'd by his Subjects of High-Treason, judg'd, condemn'd, and executed by them as a Malefactor? No, but this was perhaps a Privilege peculiar to the *English* Nation. But why is not that Privilege ranked among all the others she enjoys? On what could that Privilege be founded? On the Law of Nature? But does not the Law of Nature condemn Murder? On the written Law? But that Law condemns to Death, even those who murmur'd against *Moses*, and forbids to touch the Lord's Anointed? On that of Grace, when St. *Paul* commands us to obey our Superiors, *etiam discolis?*

But however, if the Foundation of that Government was against all Laws divine and human; it notwithstanding procured to the Nation the most signal Advantages proposed thereby, *viz.* the Recovery of the *British* Freedom and Liberty; in what? In the Elections? But were ever the Elections less free, and more influenced than they were at that Time by *Cromwell?* For would he suffer any Body to be elected, but those he knew to be entirely in his Interest? In the Freedom of Speech in his mock Parliament? But where was the Member who would even have dar'd to oppose what came from the Protector, without being sure to be severely punish'd for it? the least he could have expected was to be expelled from the House, as it happen'd to several, without any other Formalities than the Protector's absolute Will, who came often himself to the House to see his Orders, in such Occasions, punctually executed, and sometimes executed them himself.

Was even the Law more tortured than in those Days, to find a specious Pretence to punish severely, or rather dispatch the Disaffected to the Protector or his Protectorship? But then, says our modern Republicans, the Nation was respected and dreaded abroad; yes, but how could it be otherwise, when all the neigbouring Princes had so much Employment at Home, that they had not Time to interfere in the *English* Affairs; besides, they were pleased to see the *English* turn their own Arms against themselves, in hopes that they were in a fair Way to destroy entirely their happy Constitution, and become thereby an insignificant Nation.

From these Reflexions, I'll return to the House of Commons, which may be constituted by forty Members, and a Committee by Eight. A Member of the Commons, to speak, stands up uncovered, and directs his Speech to the Speaker only. If what he says be answered by another, he is not to reply the same Day, unless personally reflected on; nor may any Person speak more than once to the same Bill, in the same Day.

In the House of Lords they vote, beginning at the puisne, or lowest Baron, and so up orderly to the highest, every one answering apart, Content, or Not Content. —In the House of Commons, they vote by Yea's and Nay's; and if it be dubious which is the greater Number, the House divides: If the Question be about bringing any Thing into the House, the Aye's go out; if it be about any Thing the House has already brought in, the No's go out. In all Divisions the Speaker appoints four Tellers, two of each Opinion. In a Committee of the

whole House, they divide by changing Sides, the Ay's taking the Right, the No's the Left of the Chair, and then there are but two Tellers.

If a Bill pass one House, and the other demur to it, a Conference is demanded in the Painted Chamber, where certain Members are deputed from each House; and here the Lords sitting cover'd, the Commons standing bare, the Case is debated. If they disagree, the Affair is null, if they agree, this, with the other Bills that have passed both Houses, is brought down to the King in the House of Lords, who comes thither cloath'd in the royal Robes, and with the Crown on, before whom the Clerk of the Parliament reads the Title of each Bill, and as he reads the Clerk of the Crown pronounces the royal Assent or Dissent.

If it be a publick Bill, the royal Assent is given in these Words, *Le Roy le veut:* If a private one, *Soit fait Comme il est desiré.* If the King refuses the Bill, the Answet is, *Le Roy S'avisera.* If it be a Money-Bill, the Answer is, *Le Roy remercie ses loyaux Sujets, accept leur Benevolence, & aussi le veut.* The Bill for the King's general Pardon has but one Reading.

The Number of Members in the House of Lords is uncertain, as increasing at the King's Pleasure. The Members of the House of Commons, when full, are 553, *viz.* 92 Knights of Shires, 52 Deputies for the 25 Cities, *London* having 4; 16 for the 8 Cinque Ports; 2 for each University; and finally 332 for 180 Boroughs; besides 12 Boroughs for *Wales*, and 45 Members for *Scotland.*

The *English* Government is certainly the most judicious and prudent now existing, and the best calculated for the Security and Glory of the Prince, and the Felicity of the Subjects, when they are sensible of it; and do not endeavour by Cabals or Factions, to clog the Wheels thereof. For by its fundamental Laws, the Power of a King is confin'd within very reasonable Limits, beyond which it cannot be extended, without shaking, more or less, the whole Frame of that noble Edifice; and transgressing the Laws which his august Predecessors themselves have judged necessary to secure the Subjects against Tyranny and Oppression; and the Liberties of the Subjects so well regulated, that they cannot transgress those Regulations, without becoming Rebels; the whole being concerted to make a King of *England* really a King, not the Shadow of a King, nor a Tyrant; and his People really Subjects, not Slaves. For in fact, tho' the Authority of the Crown be in some Measure under a Restraint, and in some Cases under the Direction of the Laws; its Radiancy, far from suffering thereby the least Eclipse, is rather heighten'd, and appears with a still greater Lustre and Splendor; for nothing exposes more the Diadem to Changes, than an unlimited Power, whereby a Prince is but too often tempted to forget that he is the Father of his People, and by his Unkindness and ill Usage, prompt them to Disobedience; for it is against our Nature to suffer long unjustly, especially when we have the Laws of the Land on our Side, and can call to them for a Redress of our Grievances. For every just and unprejudiced Mind which is not infatuated with his own Merit, nor led with the false Notion of an Independancy without Bounds, though jealous of their Liberty, with the rest, considers, notwithstanding, that Liberty, when not directed by Prudence and Reason, is the most dangerous Libertinism, and the most prejudicial to good Order of a civil Society.

The *Government* next in Dignity to *Monarchy*, is *Aristocracy*, which is a Form of *Government* where the supreme Power is lodg'd in the Hands of the Optimates, *i. e.* of a Council or Senate, composed of the principal Persons of State, either in Respect of Nobility, Capacity, or Probity. The *Government* of the Republick of *Venice* is of this Kind; and the only one since the Creation, which has maintain'd itself so long in the flourishing State we see it at present, considering that it is environ'd on all Sides with very formidable Neighbours; who, notwithstanding all their strongest Efforts, could never deprive it of its Freedom, or render it Tributary.

The *Venetians* have often defy'd the whole *Ottoman* Empire, and have even some Times, by their Resolution and Courage, found the Secret to curb it. It is true, that the Unanimity which reigns in the Senate, the Members whereof being Persons of the first Rank, Capacity, and Merit, contributes much to the publick Security, which is the sole Object of their Deliberations; otherwise the *Venetian* Government is very oppressive, for the Commons are never admitted into the Senate, not even to make Remonstrances of their Grievances, which are very heavy and very numerous; for it is a Crime there, sometimes punishable with Death, to censure the Conduct of the Senate, or to complain of the Measures they take let them be ever so oppressive. Not that the Laws of the State condemns them as such, but a Ruffian is hir'd, when the Complaints are too clamorous, and especially when they are so justly grounded, as to be capable to open the Eyes of the rest, and make the Murmur general, to dispatch secretly those who have been the Authors thereof; either by causing them to be assassinated in the Night Time, or to be thrown into the Sea. I did not hear, while at *Venice*, that those Executions are so frequent as they have been; because, perhaps, the *Venetians*, conscious that their Complaints will avail nothing, otherwise than to cause them to be severely punished for it, judge it more proper to be silent, and to wear patiently a Yoke, which it is not in their Power to render less burthensome; neither would it be consistent with the Security of the State; for if the *Venetians* were allow'd the same Freedom of Speech, which some other Nations claim as a natural Right, that Freedom would have occasion'd Riots, Tumults, and Seditions, as it has really done in *Venice* itself; and those Seditions, meeting with little or no Obstacle, had degenerated into open Revolts, which had been follow'd at last by the entire Subversion of the State.

All the noble *Venetians* are not admitted into the State, but a certain Number of them, distinguished from the rest, by a more illustrious Birth, their rare Merit, great Capacity, and Dexterity in the Management of publick Affairs.

The chief Magistrate of this Republick is called *Doge*, which Word properly signifies *Duke*; his Office or Dignity is elective, and he holds it *durante vitâ*, for Life. He is addressed under the Title of *Serenity*, which among the *Venetians* is superior to that of *Highness*.

The *Doge* is Chief of the Council, and the Mouth of the Republick, he being always to answer for her; yet the *Venetians* do not go into Mourning at his Death, as not being their Sovereign, but only their first Minister. In Effect, the *Doge* of *Venice* is no more than the Phantom or Shadow of the Majesty of a Prince, all the Authority thereof being reserv'd to the Republick, he only lends his Name to the Senate. The Power is diffused throughout the whole Body, though the Answers are all made in the Name of the *Doge*. If he gives any Answer on his own Bottom, it must be very cautiously expressed, and in general Terms, otherwise he is sure to meet with a Reprimand; so that it is absolutely necessary he be of an easy, pliable Disposition.

Antiently the *Doges* were Sovereigns, but Things are much alter'd, and at present all the Prerogatives reserv'd to the Quality of *Doge*, are these which follow. He gives Audience to Ambassadors, but does not give them any Answer on his own Head, in Matters of any Importance; only he is allow'd to answer as he judges good, to the Compliments they make to the Signory; such Answers being of no Consequence. The *Doge*, as being first Magistrate, is Head of all the Councils; and the Credentials which the Senate furnishes its Ministers with in foreign Courts are wrote in his Name; and yet he does not sign them, but a Secretary of State signs them, and seals them with the Arms of the Republick. The Ambassadors direct their Dispatches to the *Doge*, and yet he may not open them but in Presence of the Counsellors. The Money is struck with the *Doge*'s Name, but not with his Stamp, or Arms. All the Magi-

Magiſtrates riſe, and ſalute the *Doge*, when he comes into the Council; and the *Doge* riſes to none but foreign Ambaſſadors.

The *Doge* nominates to all the Benefices in the Church of St *Mark*; he is Protector of the Monaſtery *Delle Virgine*; and beſtows certain petty Offices of Uſhers of the Houſhold, called *Commanders of the Palace*. His Family is not under the Juriſdiction of the Maſter of the Ceremonies; and his Children may have Staff-Officers, and Gondoliers in Livery.

His Grandeur, at the ſame Time, is temper'd with Abundance of Things which render it burthenſome. He muſt not go out of *Venice* without Leave of the Council, and if he goes out he is liable to receive Affronts, without being entitled to demand Satisfaction, and if any Diſorder ſhould happen where he was, it belongs not to him, but to the Podeſta, as being inveſted with the publick Authority to compoſe it.

The Children and Brothers of the *Doge*, are excluded from all the chief Offices of State. They may not receive any Benefice from the Court of *Rome*; but are allow'd to accept of the Cardinalate, as being no Benefice, nor including any Juriſdiction. The *Doge* may not diveſt himſelf of his Dignity, for his Eaſe; and after his Death his Conduct is examined by three Inquiſitors, and five Correctors, who ſift it with a deal of Severity.

The *Government* of the Republick of *Genoa*, is alſo *Ariſtocratical*, but the *Doge* is elected only for two Years.

The *Government* of the *United Provinces*, is *Democratical*, which is a Form of *Government* wherein the Sovereignty or ſupreme Authority, is lodg'd in the People, who exerciſe the ſame by Perſons of their own Order, deputed for that Purpoſe.

The *Spaniſh* Oppreſſion and Tyranny was the Foundation of this Republick; and the Protection and Aſſiſtance of the Kings of *France*, has much contributed towards rendering it a moſt ſumptuous and magnificent Edifice.

Holland, ſays *Grotius*, *is a Republick made by Chance, which maintains itſelf thro' Fear of the* Spaniards; but Times are very much changed ſince *Grotius*; for the *Dutch* have not been in Fear of the *Spaniards* for a great many Years paſt.

The Aſſembly of the Deputies of the ſeven *United Provinces*, is what we call *States General*. In this Aſſembly the Deputies of each Province, what Number ſoever they be, have only one Voice, and are eſteemed as but one Perſon; the Votes being given by the Provinces, each Province preſides at the Aſſembly in its Turn, according to the Order ſettled among them. *Guelderland* preſides firſt, then *Holland*, &c.

This Aſſembly is the Repreſentative of the Sovereignty of the Union, which reſides properly in the general Aſſemby of the States themſelves of all the Provinces: But as that Aſſembly ordinarily conſiſts of ſeven or eight hundred Perſons, it was reſolved after the Departure of the Earl of *Leiceſter*, in order to avoid Expence, and the Confuſion of ſo numerous a Body; that the provincial Eſtates ſhould for the future be ordinarily repreſented by their Deputies, under the Name of the *States General*, who were always to reſide at the *Hague*, and who alone are now called *States General*.

Since that new Regulation, there have been but two general Aſſemblies of the States of the Provinces; the former held in 1600, at *Berg-op-zoom*, to confirm the Truce agreed on with the Archduke *Albert*, with a greater Solemnity; and the latter in 1651.

Each Province has beſides its particular Aſſembly, conſiſting of the Deputies of the Councils, or Colleges of each City, wherein reſides the Sovereignty of that Province. That of the Province of *Holland*, is called the *States of Holland*; in which, originally, none but the Nobility and ſix principal Cities had Seats and Voices. At preſent there are the Deputies of eighteen Cities; and the Nobility have the firſt Voice.

The firſt Miniſter of the States of the Province of *Holland*, is called *Penſionary*. He is Chairman in Aſſemblies of the States of the Province; he propoſes the Matters to be conſulted on; collects the Votes; forms and pronounces the Reſolutions of the States, opens Letters, confers with foreign Miniſters, *&c.*

He is charged with inſpecting the Finances, preſerving the Rights of the Province, maintaining the Authority of the States, and ſeeing to the Obſervation of the Laws, *&c.* for the Good of the State. He aſſiſts in the College of Deputy-Counſellors of the Province, who repreſent the Sovereignty in the Abſence of the States; and is perpetual Deputy of the States General of the *United Provinces*. His Commiſſion is only given for five Years; after which it is deliberated whether or no it ſhall be renew'd. Death only puts a Period to the Functions of this important Miniſter. Formerly he was called the *Advocate of the Province*: The Title of *Penſionary* was only given at the Time *Barnevelt* had the Office. *Orotius* calls him in *Latin*, *Adſeſſor Juriſperitus*; *Merula*, *Advocatus Generalis*; *Matthæus*, Profeſſor at *Leyden*, *Conſiliarius Penſionarius*, which is the Title the States give him in their Inſtruments.

Penſionary, is alſo the firſt Miniſter of the Regency of each City, in the ſame Province; whoſe Office is to give his Advice in Matters relating to the Government, either of the City in particular, or of the State in general; and in Aſſemblies of the States of the Province is Speaker in Behalf of his City. Yet the Functions of theſe Penſionaries is not alike every where. In ſome Cities they only give their Advice, and are never found in Aſſemblies of the Magiſtrates, except when expreſly called thither: In others they attend conſtantly, and in others they only make the Propoſitions on the Part of the Burgher-Maſters, draw up their Concluſions, *&c.* They are called Penſionaries, becauſe they receive an Appointment or Penſion.

Note, That there was once in this Province of *Holland*, a *Statholder*, or firſt Member of the Republick, who was Chief of all the Courts of Juſtice, and could preſide therein when he pleaſed. All Sentences, Judgments, *&c.* were diſpatched in his Name. When an Office became vacant, in any of the Courts, the States uſed to propoſe three Perſons to the Statholder, who was to chuſe one of them. He could even pardon Criminals, which is a ſovereign Prerogative; and had the Choice of Scabines or chief Magiſtrates of each City; to which End the Council of the City preſented him two Perſons, one of which he appointed. In ſeveral Cities he had the ſame Right of nominating the Burgher-Maſters and Counſellors; as had *Rotterdam*, *Dort*, &c. He had alſo a Power to caſhier the Magiſtrates, and put others in their Room, when he found it agreeable to his Intereſts, or neceſſary; upon giving ſome Reaſons real or plauſible for the ſame. By Article VI. of the Union of *Utrecht*, the States conſtitute him Arbiter of all the Differences that may ariſe between the States of the ſeveral Provinces; or between the Cities, and the Members of the States of the Province. To the Dignity of Statholder, was inſeparably annexed, that of Captain, and Admiral-General of the Province; in which Quality he named all the Officers, and diſpoſed of all the military Poſts. It was he who took Care of the Execution of the Ordinances of the States; and his Authority gave him a Right to receive and give Audience to Ambaſſadors from foreign Princes, and even to ſend Ambaſſadors on his own private Affairs.

The Office of *Statholder* was very antient; the Counts not being able to reſide in *Holland*, appointed Statholders to command in their Abſence, in the ſeveral Provinces; beſides a Governor General of all the ſeventeen Provinces of the *Netherlands*. *William* I. Prince of *Orange*, was Statholder of *Holland* and *Zeland*, at the Time when the *Dutch* ſhook off the *Spaniſh* Yoke; which contributed greatly to that great Event, which proved afterwards very advantageous to ſome of his Deſcendants. In 1567, the States thought fit to ſuppreſs the Office of Statholder,

holder by Edict; and resolved it should never be conferred on any Person for the future: But in 1672, *William* III. Prince of *Orange*, afterwards King of *England*, being elected Captain, and Admiral-General by the States; some Months afterwards he made them revoke the Edict of Suppression in his Favour, and declare him hereditary Stadtholder. But some imagine that he then held, in fact, the State so tight, that the *Dutch* will have no more mind for a Stadtholder, who was a little less arbitrary than an absolute Prince; unless they meet with a Prince of the same enterprising Genius; but as, notwithstanding his great Capacity and Courage, he could never have arrived to that Pitch of Power, if the States themselves had not led him to it, through the other most eminent Posts of the Republick; some of which they have suppressed since King *William*'s Death, conferring the others on Persons, whom they know to be very well satisfied with the Honour, without aspiring higher.

The *Government* of the *Dutch* is very mild, encourages in a particular Manner, Commerce and Industry, and tolerates all Sorts of Religions; though the Catholick is under more Restraint than any other, not that they reckon it worse than any other, but because they are yet afraid of a *Government* like that of the *Spaniards*, if they were to admit in their Assemblies any Member professing that Religion; though at the same Time they are fully convinced that they have no better Subjects, therefore they do not exclude them from any military Employment; wherein they have always seen the *Roman Catholicks* behave as gallantly, and with as much Zeal for the Service of the Republick, as those who professed the Religion of the Country; even in Enterprizes where their Zeal should have been more suspected, such as that of King *William*, whose Army when he landed in *England* was half composed of *Roman Catholick* Officers, and Soldiers; and it is unheard yet, that those who professed that Belief have ever revolted against their Sovereign by a Principle of Religion: And I dare say, that in *England* they may be ranked among the best Subjects the King has, and would be more ready to draw their Swords in Defence of his sacred Person and *Government*, though represented otherwise by the Enemies of both. I do not speak thus as prejudiced in their Favour, or to gain theirs; for in a Country where all Sorts of Sects are tolerated, there should be no other Difference made between them by a *Government*, but according to their different Behaviour to that *Government*; and never under false and malicious Suppositions, that one can't be a loyal Subject while he professes such and such Religion, but more particularly the *Roman*, which is represented by the declared Enemies of that Church as diametrically opposite to Loyalty, when the Prince on the Throne is of a different Belief; when on the contrary, the Catholicks have been seen here in *England*, while all the other Sects were armed against their legitimate Sovereign, both to dethrone and murder him, by a Principle of Religion, stand by him, and die in his Defence, by a *Principle* of Religion, because he was their lawful King, though a Protestant.

Government is also used for the Manner or Form of governing Cities, Corporations, Boroughs, *&c.* which in *England* are usually governed by Mayors, with Aldermen and Common-council-men.

The City of *London*, as the Metropolis of the Kingdom, is distinguished from all others, as well for the Excellency of its Government, as by the other signal Advantages it has over them all.

The chief Magistrate of this great Metropolis is called *Lord Mayor*, and is chosen from among the Aldermen, by the Liverymen of the several Companies of Artificers, and Traders of the City of *London* at *Guild-Hall*, on the 29th of *September*, being Michaelmas-Day. Sometimes that Election has been made according to the Seniority among the Aldermen, and sometimes it has been left entirely to the Liverymen, to chuse of the two Persons proposed to them by the Court of Aldermen, which they pleased, as it is practised at present. For the Citizens of *London*, who most of them are Persons of Merit and Penetration, imagining that Seniority alone is not capable to give the Qualities requisite to be their chief Magistrate, and that thereby they were exposed to the Inconveniency of having now and then one imposed on them, not at all qualified for that great Trust, have thought fit to claim the antient Right of Election; that if they should chance to be mistaken in their Choice, they should have no room left to reproach any Body else but themselves with the Mistake; and should likewise have the Liberty to give the Exclusion to all those, whom they could suspect of being not entirely in the Interest of their Country in general, and of the City of *London* in particular.

This great Magistrate upon the King's Death, is said to be first the Person in the Kingdom; and therefore when King *James* was invited to come and take the Crown of *England*, *Robert Lee*, then Lord Mayor of *London*, subscribed in the first Place, before all the great Officers of the Crown, and all the Nobility.

The Lord Mayor on the Day of the King's Coronation claims to be chief Butler of the Kingdom.

His Authority reaches not only all over the City of *London*, and a Part of the Suburbs, but also on the famous River of *Thames* Eastward, as far as *Yendal* or *Yonlect*, and the Mouth of the River *Medway*; and Westward as far as *Colony Ditch*, above *Staines Bridge*. He has Power to punish all that shall annoy the Stream, Banks, or Fish; and for that End he keeps during his Mayoralty, several Courts called of Conservacy, in the Counties adjacent to the *Thames*.

The two Magistrates of the City of *London*, next the Lord Mayor, for the executive Power, are the Sheriffs, annually chosen by the Citizens from among themselves, at *Guild-Hall* upon *Midsummer-Day*; but they are not sworn till the 28th of *September*, and then are also presented to the Exchequer to be allowed by the Barons and sworn; after which they enter upon their Office. If the Persons so elected refuse to hold, they incur a Penalty, unless they will take a solemn Oath, that they are not worth 15,000 *l.*

The twenty-six Aldermen preside over the twenty-six Wards of the City. When any of these die the Lord Mayor and Aldermen chuse another out of the most substantial Men of the City; which Election has always been attended with Party-Cabals more or less, according to the Difficulties of the Times; for most of the worthy Citizens of *London*, the most judicious, and most prudent of the whole Earth, being very jealous of their Privileges and Liberties, endeavour to have Aldermen entirely in the Interest of the City, and not to be biassed under any Consideration of Self-interest, Ambition, *&c.* and the Court sometimes would, if possible, promote the Election of her Partisans; which occasions sometimes very great Struggles. If any Alderman when elected, refuses to hold, he is usually fined 500 *l.* but this happens very seldom.

All the Aldermen that have been Lord Mayors, and the three eldest who have not yet been invested with that Dignity, which is the *Fastidium honorum* for a Citizen, are by their Charter Justices of the Peace for the City.

To the Lord Mayor of the City of *London*, belong several Courts of Judicature, the most ancient, and most considerable of which is the *Hustings*, for the Maintenance of the Laws, Rights, Franchises, and Customs of the City. Then the Court of *Requests*, or *Conscience*; the *Court of the Lord Mayor and Aldermen*, where the Recorder and Sheriffs sit. Two *Courts of the Sheriffs*, one for each Compter. The Court of the City Orphans, who are under the Guardianship of the Lord Mayor and Aldermen. The Court of *Common-Council*, consisting (like the Parliament of *England*) of two Houses; one for the Lord Mayor and Aldermen, and the other for the Commoners; in which Court all By-laws, which bind all the Citizens of *London*, are made; for every Citizen either by himself, or his Representative gives his Assent thereunto. The *Court of the Chamberlain of London*, to whom belongs the Receipts of the Revenues of the City, and the Business of Apprentices, over whom he has a great Authority. To the Lord Mayor also belongs the

Courts of Coroner and of Echeator, and another Court for the Conservacy of the River *Thames*. Lastly the *Court of Gaol-Delivery*, held usually eight Times a Year at the *Old-Baily*, both for the City and County of *Middlesex*, for the Trial of Criminals, whereof the Lord-Mayor is the chief Judge; and has the Power of reprieving condemn'd Persons.

There are other Courts called *Wardmotes*, or the Meeting of Wards, whereof there are 26 in the City; in which Court Enquiry is made into all Things conducive towards well regulating and governing the City. Also the *Court of Hallmote*, or Assembly of every Guild or Fraternity; for regulating what belongs to each Company in particular.

The Traders of *London* are divided into Companies or Corporations, and are so many Bodies politick; of these twelve are called the chief Companies, and he who is chosen Lord-Mayor must be free of one of them. These twelve Companies, are those of the *Mercers*, *Grocers*, *Drapers*, *Fishmongers*, *Goldsmiths*, *Skinners*, *Merchant-Taylors*, *Haberdashers*, *Salters*, *Ironmongers*, *Vintners*, *Clothworkers*. And if it happens that the Lord-Mayor elect is of any other Company, he presently removes to one of the twelve. It has been the Custom of some of the Kings of *England*, to honour some of these Companies, by taking their Freedom thereof, King *Charles* II. was made free of the *Grocers* Company; K. *William* III. while yet Prince of *Orange*, was free of the Company of *Drapers*. And that truly good Prince, who could reasonably be stiled the *Titus* of the Age, his present Royal Highness *Frederick* Prince of *Wales*, is free of the *Sadlers* Company.

Each Company or Mystery, has a Master annually chosen from among themselves, and has other subordinate Governors, called Wardens, or Assistants; these exactly correspond to the general Government of the City, by a Lord Mayor, Aldermen, and Common-Council; who are selected out of these several Companies.

There are besides near sixty other Companies or Corporations, all enjoying large Privileges, and Immunities granted them by several Kings; though the Citizens of *London* complain that they have lost some of those Privileges, and even the most considerable of them; which if true, would be (according to the small Knowledge I have acquir'd of the *English* Affairs) a very unpolitical Step, taken by those whose Interest it is, and who should have made it one of their principal Cares to manage the Citizens of *London*, as the most powerful Body-Politick of the whole Kingdom; and whose Example influences all the other Corporations; which Sentiment could be supported by several undeniable Facts, whereby it is plainly seen, that the City of *London* is not so insignificant, as those who are unacquainted with the *English* History would imagine. That when well used, they can be by their Wealth and Courage, the strongest Support of the Throne; and when maltreated, or they think themselves so, can likewise employ both otherwise. There should always be a good Intelligence subsisting between a King of *England* and this Metropolis; since in the most difficult Times he can find there always an immediate Relief; and as far as I can judge from Precedents in History, the City of *London* have often repaid a thousand Fold, the least Favour they have receiv'd from their King, who has never wanted any Thing, when they could persuade themselves, that they were ranked by him among the most faithful of his Subjects; for they not only can assist their Prince with their Purse, which is almost inexhaustible, but likewise with their Counsel, if he should want it, since there are some among them so well versed in foreign, as well as domestick Affairs, and so well acquainted with the true Interest of the *English* Nation in both, as it appears by their eloquent, florid, and pathetick Speeches in the grand Council of the Nation, that they are capable, not to govern a single City only, but even a whole Kingdom; besides their profound Capacity, they have all the other Qualities requisite to make them fine and accomplish'd Gentlemen; for they are really very polite, without Affectation, liberal, affable, compassionate, Friends to Learning, and to the Learned, and most of them very good Judges of that real Merit of which themselves are possessed. This is no Flattery, since nothing can induce me on that Side to be an Adulator, but my real Sentiments, which must be those of every unprejudiced Mind.

The *Government* of the City of *Paris* is very different from that of the City of *London*, and the Magistrates all different. For the chief Magistrate of that great Metropolis of the Kingdom of *France*, is the *Provost of the Merchants*, which is an Office for Life, and who presides at the City-Courts, and together with the Sheriffs and Bailiffs, decide all Differences relating to Trade and Merchandize; takes Cognizance of the Affairs of Officers of Policy of the City with Regard to their Functions; of the Delinquencies of Merchants, Commissioners and Factors; inspects the Ports, Rivers, Duties, Imposts, *&c.*

Authors attribute the Institution of *Provost of the Merchants* of *Paris*, to *Philip Auguste*. *Du Haillan* refers its Epocha to the Year 1190.

The next great Magistrate to this is, the *Lieutenant of the Policy*, whose Office is very little different from that of the Lord-Mayor of *London*; except that he appoints of his own Authority, Officers in every Quarter of the City, and of its Suburbs, called Commissaries, to maintain a good Order, appease Riots, Tumults, terminate Differences between House-keepers, *&c.* seize Vagrants, commit them or banish them from the City, *&c.* The *Lieutenant of the Policy* can also commit Prisoners of State, when directed by the Ministers; make as many new Ordinances as he judges proper for the Security, and good Order of the City, is to take Care that the Streets be well lighted in the Night, and kept clean in the Day-time, *&c.*

GRAMMAR.

GRAMMAR is the Art of Speaking properly, and Writing correctly; according to the best Method, and greatest Ease and Accuracy of those whose Language we learn.

I say, 1, that *Grammar* is an Art, not a Science, because it has no infallible Rules. 2. Of *Speaking properly, and Writing correctly*, to distinguish it from the common Manner of learning a Language, by Conversation or Reading; whereby, tho' we may make very great Progresses in a Language, even so far as to speak it as properly as the Natives themselves, we notwithstanding are often guilty of many Faults, of which those who have learn'd by the Rules of *Grammar* are very sensible; some of whom are such scrupulously Observers of those Rules, that they would sooner deviate from Sense and Reason, than to neglect the least of them. 3. *According to the best Method, and greatest Ease and Accuracy of those whose Language we learn*; without which it is absolutely impossible we could ever reckon ourselves perfect in a Language. For if we follow first a bad or even indifferent Method, we contract an ill Habit, which being vitiated in its Principle, degenerates afterwards into a certain *Modus Loquendi*, which is rather a *Jargon* or *Patois*, than a Language; and which it is almost impossible afterwards to reform. This last Method, does not consist entirely in making Choice of the best and most modern Grammar that can be found, but likewise in the Master who is expected to teach according to the Rules of that Grammar; in which People are daily mistaken. For I would give to understand, that a Person can never be perfect in a Language, while he searches his Words, or is uncertain which is the best to signify what he wants to express

expreſs or takes one Word for another, or pronounces them improperly, or has no Regard to Genders, nor to Declenſions, of Names, nor to Conjugation of Verbs, Conſtruction, *&c.*

Grammar is divided by ſome Authors into four Parts, *Orthography*, *Proſody*, *Etymology*, and *Syntax*.

Others chuſe to divide *Grammar* ſomewhat more obviouſly, into the Doctrine of *Letters* or *Sounds*, which coincides with *Orthography*, and *Orthopy*; that of *Syllables*, their Accent, Time, *&c.* which falls in with *Proſody*; that of *Words*, their Kinds, Derivations, Changes, Analogy, *&c.* which amounts to *Etymology*; and that of *Sentences*, which conſiders the placing or joining of Words together, called *Syntax*.

Note, That *Grammar* is the ſame in all Languages, as to its general Principles and Notions which it borrows from Philoſophy, to explain the Order and Manner wherein we expreſs our Ideas by Words; but as each Language has its particular Turns, its ſeveral Characters, and Genius different, from the Genius and Character of other Languages, hence ariſe as many Grammars as Languages; and to give a true Notion of thoſe ſeveral different Languages, I muſt take Notice in this Treatiſe of the moſt eſſential Rules peculiar to each different *Grammar*; and as the Doctrine of Letters is the firſt Part of our Diviſion of *Grammar*, we'll learn firſt that Doctrine, beginning, as all Grammarians do, by the Alphabet, which is the ſeveral Letters of a Language, diſpos'd in their natural or accuſtom'd Order; and as there are as many Sorts of Alphabets, as there are Languages, I'll give here ſome of thoſe different Sorts, *viz.* the *Engliſh*, *French*, *Latin*, *Hebrew*, and *Greek* Alphabets.

ALPHABETS.

English.	French.		Latin.		Hebrew.					Greek.		
26 *Letters*	24 *Letters*	*Pronunciation.*	22 *Letters*	*Pronounc'd like* French	*Names*	*Figures*	*Similitudes*	*Powers*		*Figures*	*Names*	*Powers*
a	a	aw	a					*ſpiritus*		A α	Alpha	a
b	b	bé	b		Aleph	א	ע	*lenis*	1	B β ϐ	Beta	v
c	c	cé	c		Bheth	ב	כ	bh	2	Γ γ ſ	Gamma	g
d	d	dé	d		Ghimel	ג	נ	gh	3	Δ δ	Delta	d
e	e	eé	e		Dhaleth	ד		dh	4	E ε	Epſilon	e, *breve*
f	f	ef	f		He	ה		h	5	Z ζ ς	Zeta	z
g	g	gé	g		Vau	ו		v, *Con.*	6	H η	Eta	e, *longum*
h	h	aſhe	h		Zajin	ז		z	7	Θ ϑ θ	Theta	th
i	i		i		Cheth	ח		hh	8	I ι	Iota	i
j	l	ell	l		Teth	ט	מ	t	9	K κ	Kappa	k, c
k	m	m	m		Jodh	י		j, *Con.*	10	Λ λ	Lambda	l
l	n	n	n		Chaph	כ ך		ch, x	20	M μ	Mu	m
m	o	o	o		Lamed	ל		l	30	N ν	Nu	n
n	p	pé	p		Mem	מ ם		m	40	Ξ ξ	Xi	x
o	q	kûu	q		Nun	נ ן		n	50	O ο	Omicron	o, *parvum*
p	r	r	r		Samech	ס		ſ, *acutum*	60	Π π ϖ	Pi	p
q	ſ	ſ	ſ		Ghnajin	ע		ghn, ngh	70	P ρ ϱ	Rho	r
r	t	té	t		Phe	פ ף		ph	80	Σ ϛ σ ς	Sigma	ſ
ſ	u	ue	u		Tzade	צ ץ		tſ	90	T τ ϒ	Tau	t
t	w		x		Koph	ק		k	100	Υ υ	Upſilon	u
u	x		y		Reſch	ר		r	200	Φ φ	Phi	ph
v	y	e *Greek*	z		Schin	ש		ſch, ſh	300	X χ	Chi	ch
w	z	zede			Sin	ש		ſ		Ψ ψ	Pſi	pſ
x					Thau	ת		th	400	Ω ω	Omega	o, *magnum*
y												
z												

Note, That the *Chaldee*, *Syriack*, and *Samaritan* Alphabets, have, like the *Hebrew*, each 22 Letters; the *Arabick* 28; the *Perſian* 31; the *Turkiſh* 33; the *Georgian* 36; the *Coptick* 32; the *Muſcovite* 43; the *Sclavonian* 27; the *Dutch* 26; the *Spaniſh* 27; the *Italians* of *Bengal* 21; the *Baramas* 19; and the *Ethiopick* no leſs than 202; there being 7 Vowels, which they combine with each of their 26 Conſonants; to which they add 20 other aſpirated Syllables. The like is ſaid of the *Tartarian*, each of their Letters is a Syllable, having one of the Vowels join'd to its Conſonant, as *la*, *le*, *li*, &c. The *Chineſe* have no Alphabet, properly ſpeaking, except we call their whole Language their Alphabet; their Letters are Words, or rather Hieroglyphicks, and are in Number about 80,000.

Note alſo, That Alphabets were not contrived with Deſign, according to the juſt Rules of Reaſon, and Analogy; but ſucceſſively framed and altered, *&c.* as Occaſion offered. And hence many grievous Complaints as to their Deficiencies, and divers Attempts to eſtabliſh new and more adequate ones in their Place. Biſhop *Wilkins* charges the Alphabets extant with great Irregularities, with Reſpect both to the Order, Number, Power, Figure, *&c.* As to the Order it appears inartificial, precarious, and confuſed; in that the Vowels and Conſonants are not reduced into Claſſes, with ſuch Order of Precedence and Subſequence as their Nature will bear. Even the *Hebrew* Order is not free from this Imperfection.

As to the Number they are both redundant and deficient; redundant either by allotting ſeveral Letters to the ſame Power and Sound, as in the *Hebrew* ב and *w* and the ordinary *Latin c* and *k*, *ſ* and *ph*; or by reckoning double Letters among the ſimple Elements of Speech, as in the *Hebrew* ש the *Greek* ξ and ψ, and the *Latin q cu*, *x c i*, and the *j* conſonant, or jod. Deficient in divers Reſpects, eſpecially in regard of Vowels, of which there are ſeven or eight Kinds commonly uſed; though the *Latin* Alphabet only takes Notice of five, whereof two, *viz.* *i* and *u*, according to the *Engliſh* Pronounciation, are not properly Vowels, but Dipthongs. Add, that the Difference among Vowels in reſpect of long and ſhort, is not ſufficiently provided for: The Antients we know, uſed to expreſs a long Vowel by doubling its Character; as *Amaabam*, *Naata*, *Ree*, *Seedes*, *Sanctiſſimiis*; though the Vowel *i*, inſtead of being doubled, was frequently prolonged, as ÆDILIS, PISO, VIUS. The Ways uſed in *Engliſh* for lengthening and abreviating Vowels, *viz.* by adding *e* quieſcent to the End of a Word, for prolonging a Syllable; and doubling the following Conſonants, for the ſhortening of a Vowel, as *wane wann*, *ware*, *warr*, &c. or elſe inſerting ſome other Vowel for the lengthening of it, as

as *meet met*, *read red*, &c. are all improper, in that that the Sign ought ever to be where the Sound is.

As to their Powers again, those are not always fixed to the same Signification: The Vowels, for instance, are generally acknowledged to have each of them several Sounds: *Vocales omnes plurisonæ*, says *Lipsius*; and *Vossius* assures us, the Antients used their Vowels very different Ways, *Aliquando tenuius exiliusque, nunc crassius, nunc intermedio sono.* Thus the Power of the Vowel *e*, is expressed in Writing no less than six several Ways, *viz.* by *e*, as in *he*, *me*, *she*, *ye*: By *ee*, in *thee*, *free*:—By *ie*, in *Field*, *yield*, *shield*, *chief*:—By *ea*, in *near*, *dear*, *heat*:—By *eo*, in *People*; by *i*, in *Privilege*. So is the Power of the Vowel *a*, as in *all*, *aul*, *aw*, *fault*, *caught*, *brought*: Which are all only various Ways of writing the same long Vowel; besides the other distinct Ways of expressing the same Vowel when used short: Again, the Power of the Vowel *o* is written five Ways; *o*, as in *to*, *who*, *move*;—*oe*, as in *doe*;—*oo*, in *Shoe*, *Moon*, *Noon*;—*ou*, in *could*, *would*;—*wo*, in *two*; and so of the rest. Nor are the Consonants of more determinate Power; witness the different Pronounciation of the same Letter *(c)* in the same Word *Circo*; and of *g*, in Negligence. To say no more, the Letters *c*, *f*, *t*, are used alike to denote the same Power; and the Letter *ſ* is commonly used for *z*; and which is yet worse, some Letters of the same Name and Shape, are used at one Time for Vowels, and at another for Consonants, as *j*, *v*, *w*, *y*; which yet differ from one another, says Bishop *Wilkins*, *sicut corpus*, *& anima*.

From this Confusion in the Power of Letters, there arise divers Irregularities; as that some Words are distinguished in Writing, which are the same in Pronunciation, *e. gr. Cessio*, and *Sessio*, *&c.* and others are distinguished in Pronunciation, which are the same in Writing; as give, *dare*, and give, *vinculum*, *&c.* Hence also the Latin *malé* is a Dissyllable, and the English *Male* a Monosyllable.

The Names, also, in most Alphabets, are very improperly expressed by Words of divers Syllables, as *Alpha*, *Beta*, &c. in which respect, the *Roman* and *English* Alphabets, which only name the Letters by their Powers, are pretended to have a great Advantage over the rest.

Lastly, Their Figures are not well concerted; there being nothing in the Characters of the Vowels answerable to the different Degrees of Operation: Nor in the Consonants, analogous to the Agreements, or Disagreements thereof.

Note again, That it is no Wonder that the Number of Letters in most Languages should be so small, and that of the Words so great; since from a Calculation made by M. *Prestet*, it appears that, allowing only 24 Letters to an Alphabet, the different Words, or Combinations that may be made out of those 24 Letters, taking them first one by one, then two by two, three by three, *&c.* would amount to the following Number: 1391,724288,887252,999425,128493,402200. —Every Combination may make a Word, even tho' that Combination have not any Vowel in it; because the *e* mute, or quiescent, insinuates itself imperceptibly between the Consonants, or after the Consonants, where there are but two, the latter of which would not be heard without it.—The Use of this silent *e*, is very remarkable in the *Armenian*, *Welsh*, and *Dutch* Languages; wherein the Generality of Words have several Consonants together.

Nor must it be omitted, that every single Letter may make a Word: Which is very apparent, where that Letter is a Vowel. Words of that Kind being found in most Languages; thus α, and ω, make Words in the *Greek*; *a*, *o*, in the *Latin*; *a*, *i*, *o*, in *English*; *a*, *o*, *y*, in *French*; *a*, *e*, *i*, *o*, in *Italian*; *a*, *y*, in *Spanish*; *a*, *o*, in the *Portuguese*; *o*, in most Languages, and even in the *Dutch* and *Swedish*: Any Consonant, also, becomes a Word, by adding an *e* mute to it, in Pronunciation.

In fine, though a considerable Number of the possible Combinations of 24 Letters were retrenched, yet the Number remaining would still be immense, and vastly superior to that of the Words in any Language known.

Note besides, that to avoid all the aforesaid, and several other Inconveniencies, which the Diversity of Characters, used in the different Sorts of Alphabets, occasion, several Authors have proposed Plans of Characters that should be universal, and which each People should read in their own Language. The Characters here should not be nominal Characters, or Letters, but real ones, *i. e.* such as should, instead of Names, express the Things themselves, and Ideas: Yet to be mute like Letters and arbitrary; not emblematical like Hieroglyphicks.—Thus every one should retain their own Language, yet every one understand that of each other, without learning it; only by seeing a real or universal Character, which should signify the same Thing to all People; by what Sound soever each express it in his particular Idiom. For Instance, by seeing the Character destined to signify to drink, an Englishman should read *to drink*; a Frenchman, *boire*; a Latin, *bibere*; a Greek, πινειν; a Jew, שמה; a German, *Trincken*; and so of the rest: In the same Manner, as seeing a Horse, each People expresses it after their own Manner; but all mean the same Animal. This real Character is no Chimera; the *Chinese* and *Japanese* have already something like it; they have a common Character, which each of those Nations understand alike in their several Languages; though they pronounce them with such different Sounds, that they do not understand a Tittle of one another in Speaking.—The first, and most considerable Attempts for a real Character, or philosophical Language in *Europe*, are those of Bishop *Wilkins*, and *Dalgarme*: But these, with how much Art soever they were contrived, have yet proved ineffectual. M. *Leibnitz* had some Thoughts the same Way; he thinks those great Men did not hit the right Method. It was probable indeed that by their Means, People who do not understand one another might easily have a Commerce together; but they have not hit on true real Characters. According to him the Characters should resemble those used in Algebra; which in effect are very simple, yet very expressive, without any Thing superfluous or equivocal, and contain all the Varieties required. The real Character of Bishop *Wilkins* has its just Applause; Dr. *Hook* recommends it on his own Knowledge and Experience, as a most excellent Scheme; and to engage the World to the Study thereof, publishes some fine Inventions of his own therein. M. *Leibnitz* tells us, he had under Consideration an Alphabet of *Human Thoughts*; in order to a new philosophical Language on his own Scheme; but his Death prevented its being brought to Maturity. M. *Lodwic*, in his philosophical Transactions, gives us a Plan of an universal Alphabet, or Character of another Kind: This was to contain an Enumeration of all single Sounds or Letters, as are used in any Language, by means whereof People should be enabled to pronounce truly and readily any Language; to describe the Pronunciation of any Language that shall be pronounced in their Hearing; so, as others accustomed to this Language, though they never had heard the Language pronounced, shall at first be able truly to pronounce it: And lastly, this Character to serve as a Standard to perpetuate the Sounds of any Language.

In the *Journal Literaire*, *Anno* 1720, we have a very ingenious Project for an universal Character: The Author, after obviating the Objections that might be made against the Feasiblenes of such Schemes in general, proposes his own: His Characters are to be the common Arabick, or numeral Figures. The Combinations of these nine are sufficient to express distinctly an incredible Quantity of Numbers; much more than we shall need Terms to signify our Actions, Good, Evil, Duties, Passions, *&c.* Thus is all the Trouble of framing, and learning any new Cha-

racter at once ſaved: The Arabick Figures having already all the Univerſality required. The Advantages are immenſe; for, 1. We have here a ſtable faithful Interpreter, never to be corrupted or changed, as the popular Languages continually are. 2. Whereof the Difficulty of pronouncing a foreign Language, is ſuch as uſually gives the Learner the greateſt Trouble, and there are even ſome Sounds which Foreigners never attain to; in the Character here propoſed, this Difficulty has no Place: Every Nation is to pronounce them according to the particular Pronunciation that already obtains among them. All the Difficulty is the accuſtoming the Pen, and the Eye to affix certain Notions to Characters, that do not at firſt Sight exhibit them; but this Trouble is no more than we find in the Study of any Language whatever. The Inflexions of Words are to be expreſſed by the common Letters: For inſtance, the ſame Character ſhall expreſs a *Filly*, or a *Colt*, a *Horſe* or a *Mare*, an *old Horſe* or an *old Mare*, as accompanied with this or that diſtinct Letter, which ſhall ſhew the Sex, Youth, Maturity, or old Age; a Letter alſo to expreſs the Bigneſs or Size of Things; thus, *v. g.* a Man with this or that Letter, to ſignify a *great Man*, or a *little Man*, &c.

The Uſe of theſe Letters belong to the *Grammar*, which once well underſtood, would abridge the Vocabulary exceedingly. An Advantage of this *Grammar* is, that it would have only one Declenſion, and one Conjugation: Thoſe numerous Anomalies of Grammarians are exceeding troubleſome, and ariſe hence, that the common Languages are governed by the Populace, who never reaſon on what is beſt; but in the Character here propoſed, Men of Senſe having the Introduction of it, would have a new Ground whereon to build regularly. But the Difficulty is not in inventing the moſt ſimple, eaſy and commodious Character, but in engaging the ſeveral Nations to uſe it; there being nothing they agree leſs, in than the underſtanding and purſuing their common Intereſt.

The *Characters* all Alphabets are compoſed of, are called *Literal*; which may be divided with regard to their Uſe, into *Particular* and *General*.

Particular Characters are thoſe peculiar to this, or that Nation; or that have been ſo: Such are the *Roman*, *Italick*, *Greek*, *Hebrew*, *Arabick*, *Gothick*, *Chineſe*, &c.

Univerſal Characters, are thoſe above-mentioned; which have not been received yet by the Generality of Mankind.

The *Characters* now uſed in all the Alphabets of modern Languages, throughout all *Europe*, are the *Latin* Characters of the Antients.

Theſe *Characters* are divided, by us *Grammarians*, into Vowels and Conſonants; into Mutes, Dipthongs, Liquids, and Characteriſticks; and are commonly called *Letters*.

A *Vowel*, is a Letter which affords a compleat Sound of itſelf; or a Letter ſo ſimple, as only to need a bare Opening of the Mouth to make it heard, and to form a diſtinct Voice. Such are *a*, *e*, *i*, *o*, *u*; which are called *Vocales*, *Vowels*, in Contradiſtinction to certain other Letters, which depending on a particular Application of ſome Part of the Mouth, as the Teeth, Lips, or Palate, can make no perfect Sound without an Opening of the Mouth, that is, without the Addition of a Vowel; and are therefore called Conſonants.

Though we ordinarily only reckon five Vowels, yet, beſides, that each of theſe may be either long, or ſhort, which occaſions a conſiderable Variety in the Sound; to conſider only their Differences reſulting from the different Aperture of the Mouth in the *Engliſh* Pronunciation, one might add four or five more Vowels to the Number. —For the *e* open, and the *e* cloſe, are different enough to make two Vowels, as in *Sea* and *Depth*; ſo alſo the *o* open, and *o* cloſe, in *Hoſt* and *Organ*. Add, that the *u* pronounced *ou*, as the *Latins* did, and as *Italians* ſtill do, has a very different Sound from the *u*, as pronounced by the *Greeks*, and as at this Day by the *French* and *Engliſh*.——Again *eo*, in *People*, make but one ſingle Sound, though written with two Vowels.

Laſtly, the *e* mute is, originally, no more than a Surd joined to a Conſonant, when that is to be pronounced without a Vowel, as when it is immediately followed by other Conſonants, as in the Word *Scamnum*. This is what the *Hebrews* call *Sheva*, eſpecially when it begins the Syllable: And this *Sheva* is found in all Languages, though over-looked in many of them, particularly the *Latin*, *Engliſh*, &c. by Reaſon it has no proper Character to denote it; though in ſome of the vulgar Tongues, particularly *French* and *High-Dutch*, it is expreſſed by the Vowel *e* adding its Sound to the reſt. Thus, without regarding the Differences of the ſame Sound, or Vowel, as to Length or Shortneſs, one may diſtinguiſh ten ſeveral Vowels, expreſſed by the following Characters, *a*, *ê*, *i*, *o*, *ô*, *eu*, *ou*, *u*, *e*, mute.

The *Conſonant*, is a Letter which produces no Sound alone, or without ſome other Letter, either Vowel or Conſonant joined along with it.

A *Conſonant*, conſidering it philoſophically, is nothing elſe but the Modification of a Sound, produced by Means of the Organ of the Voice, not a Production of Sound itſelf: Thus, *v. gr.* the Sounds ſignified by the Characters, *a*, *e*, *i*, *o*, *u*, are differently modified, when we ſay *ab* than when we ſay *ac*, or *ca*, *ad*, or *da*; and thoſe Modifications are called *Conſonants*.

Conſonants are divided into ſingle, as *b*, *h*, *m*, *q*, &c. and double, as *Ax*, in *Axillary*; correſponding to the ξ of the *Greeks*.

Conſonants, again, are divided into Liquid, as *l*, *r*, *m*, *n*; and Mute, as *b*, *d*, and the reſt, which make no Sound at all without a Vowel.

But the moſt natural Diviſion of Conſonants is that of the *Hebrew* Grammarians, who have been imitated therein by the Grammarians of other oriental Languages: Theſe divide the Conſonants into five Claſſes, with Regard to the five principal Organs of the Voice; which has contributed, it is true, but one more notably than the reſt, to certain Modifications, which make five general Kinds of Conſonants. Each Kind, or Claſs, comprehends ſeveral Conſonants, which reſult from the different Degrees of the ſame Modification, or from the different Motions of the ſame Organs.

Theſe Organs are the *Throat*, *Palate*, *Tongue*, *Teeth*, and *Lips*; whence the five Claſſes of Conſonants are denominated *Guttural*, *Palatale*, *Lingual*, *Dental*, and *Labial*.

We account ſixteen Conſonants in the *Engliſh* Alphabet, *viz.* *b*, *c*, *d*, *f*, *g*, *k*, *l*, *m*, *n*, *p*, *q*, *r*, *s*, *t*, *x*, *z*; to which there are three others to be added, *viz.* the *h*, the *j*, Conſonant, and *v* Conſonant, which makes the whole Number of Conſonants nineteen; one whereof is *Guttural*, viz. the Aſpirate *h*; five *Palatal*, viz. *c*, as when pronounced before *a*, *o*, and *u*, as in *Cavern*, *Corn*, *Curioſity*; *g*, as in *Geneva*; *j* Conſonant in *Julep*; *k*, in *Kernel*; and *q*, in *Query*.—The four *lingual Conſonants* are *d*, *l*, *n*, *t*; the four dental are, *r*, *s*, *x*, *z*; the three laſt whereof are Hiſſers; and five labial, *b*, *f*, *m*, *p*, and *v*, Conſonant.

With Regard to which Diviſion, it may be obſerved, that though the *g* be modified in three different Manners, as it comes before an *a*, an *o*, or an *u*; yet it is ſtill a Conſonant of the Palate; that the *j* Conſonant differs in nothing but its Figure, from the *g* before *e*, or *i*; that *k* has the ſame Pronunciation with the *c*; that *x* comprehends the Sound of two Letters in its Sound, *viz.* *c*, or *k*, and *ſ*, or another *c*, as in *Alexander*, and in *Alexis*, which we pronounce as if wrote *Alecſander*, and *Aleccis*, or *Alecſis*; and that the *c* before an *e* or *i* is no Conſonant of the Palate, becauſe in that Caſe it loſes its proper Sound, and aſſumes the hiſſing Sound of the *ſ*.

The Abbot *Dangeau* thinks the Nature of the Diviſion of the *Hebrew* Grammarians very reaſonable; but does not acquieſce in the Diſtribution they have made of them; to find a natural and juſt Diviſion of the Conſonants, he obſerves, no Regard muſt be had to the Characters that repreſent them; nor any Thing be conſidered but their Sound, or the Modification they give the Sound.

On this Principle, the ſame Author finds in the *French* five

five labial Consonants, *b*, *p*, *v*, *f*, and *m*; five palatal ones, *d*, *f*, *g*, *k*, and *n*; four Hissers, *i*, *z*, *j*, *ch*; two Liquids, *l* and *r*; two that run into and mix with each other, as *ll*, and *gn*; which last however is peculiar to the *French* Language and the *h* Aspirate.

He adds, 1. That *m* and *n* are properly two nasal Consonants; the *m* a *b* passed the Nose; and the *n* a *d*, in like Manner, pronounced through the Nose; and, in Effect, People, in a Cold, pronounce *Barket* for *Market*, *deed* for *need*, &c.——2. That among the Consonants some are weak, others strong; their Difference consisting in this, that the former are preceded with a small Omission of the Voice, which softens them, which the latter have not. The weak are *b*, *c*, *d*, *g*, *z*, *i*; the strong, *p*, *f*, *t*, *k*, *s*, *ch*.

It may be here observed, that when we speak of a Person's talking through the Nose, it must be understood in a Sense quite different from what the Words seem naturally to import: Since the Nose in this Case concurs less to the Pronunciation, than when we do not speak through the Nose; is returned into the Mouth, where it forms a dull, obtuse Sound, called *Nasal*.

From the whole we may conclude, that the Excess of Consonants, in one Language above another, only consists in this, that there are more Modifications of Sound received, and established in the one than the other; for all Men, having the same Organs, may form the same Modifications; so that it is entirely owing to Custom, nothing to Nature, that the *English* have not the ϑ of the *Greeks*, the *Ain* and *Heth* of the *Hebrews*, the *ch* of the *Germans*, the *gn* of the *French*, the *gl* of the *Italians*, the *ll* of the *Welch*, &c.

Also that the *Chinese* have no *r*, the *Iroquois* no labial Consonants, the *Hurons* Abundance of Aspirates; and the *Arabs* and *Georgians* Abundance of double Consonants; which last is owing to this, that they make several Organs concur strongly, and equally to the Modification of a Sound; whereas, in the rest, only one Organ is moved very strongly and sensibly, and the rest weakly.

It is hence, also, visible, that, in all Languages, the Aspirates, or Guttural Letters, are real Consonants, since the Throat modifies the Sound as much as the Palate, Tongue, or Lips.

Lastly, To find all the Consonants that may be formed in any Language, there needs nothing but to observe all the Modifications that the Sounds of Speech will admit of, by which we shall have all the Consonants practicable.

Note, That an *Aspirate* is also a *Modificative*, or *Consonant*, as having all the Properties of a *Consonant*; for, 1. It results from a Motion of the Organ, which of itself produces no Sound; thus the *Spiritus* of the *Greeks*, the *French*, and *English h* Aspirate, has no more Sound of itself than *b*, *c*, *d*, &c. and the same Thing may be observed of the *Aleph*, *Bheth*, and *Caph*, of the Eastern Languages. 2. On the contrary the *English h*, the *Spiritus* of the *Greeks*, and the other Aspirates just mentioned, are pronounced with all the Vowels, in the same Manner as *Consonants* are. They modify those Vowels, and are Effects of a Motion of the Organ superadded to the Motion necessary to form the Vowel. Thus to pronounce *ba*, two Motions of the Organ are required as well as for *ba* or *ca*, &c. one for *a*, which itself is a Sound; the other for *b*, which yields no Sound no more than *b*, but adds something to *a*, which modifies it, and makes that *ba* in not mere *a*, nor *ba*, nor *ca*, &c. and this must hold still more sensibly in the stronger Aspirates of the oriental Tongues; in all which there are evidently two Motions, the one for the Vowel, and the other to modify it: Now this being the Nature and Effence of a Consonant, it follows, that let them be denoted in what Manner they will, whether as the *English h*, as the Oriental *do*, i. e. by proper Characters in the Course of the Words themselves; or, as the *Greeks* do some of theirs, by a Sign of Aspiration placed over the Vowel, it matters not. The Aspirate is no less a Consonant in ἀέρω than in χαίρω; in εω, than in χεω; in ὁλη, than in χολη; and so of others. The third and last Reason is, that the Eastern Languages, which do not express the Vowels, do yet express the Aspirates. Add, that the Aspirate is frequently changed into a Consonant, and expressed by a Consonant: Thus if ἕξ is made *Sex*; of ἑπτα, *Septem*, of ἑσπερος, *Vesperus*, &c. of the *Hebrew* יין, οἶνος, and thence *Vinum*, &c. nay even in the same Language, *Hesiod* speaking of *Hercules*'s Buckler, uses Ἡρσυν for Θηρσυν; making no Difference between a Θ and an Aspirate. Hence it evidently follows, that Aspirates are real Consonants; and that it must be an Error to rank κ, π, γ, of Eastern Languages among the Vowels; and to exclude the *h* in *English* out of the Number of Letters.

Mute Letters, are those which are not sounded, or heard in the Pronunciation, or Letters which yield no Sound of themselves, and without a Vowel.

The *Mutes* in the *English* Alphabet are eleven, *viz.* *B*, *C*, *D*, *F*, *G*, *I*, *K*, *P*, *Q*, *T*, *V*. They are called *Mutes*, because a Liquid cannot be sounded in the same Syllable before them, as *repo*; but a *Mute* may be pronounced in the same Syllable before a Liquid, as *pro*.

Liquids, are certain Consonants opposed to Mutes; *l*, *m*, *n*, and *p*, are *Liquids*.

Dipthong, is a double Vowel, or the Union, or Mixture of two Vowels pronounced together, so as only to make one Syllable; as the *Latin a e*, *æ*, *o e*, or *œ*; the *Greek* αι, ει; the *English ai*, *au*, &c.

Ae answers to *ai*, the proper, and α the improper Dipthong of the *Greeks*, *e. g.* Αινειας, *Aneas*; σφαιρα, *Sphaerae*, &c. And on the contrary, the *Romans* when they had Occasion to divide their *ae*, changed it into the *Greek ai*, *e. g. Aulai* for *Aulae*, &c.

Ai by some is made a *Latin* Dipthong, as in *aio*, *caius*, &c. But in *ais* and *ait*, *i* manifestly belongs to the latter Syllable; and the *Greeks* write not Γαῖος, but Γαΐος; whence it seems plain that *ai* in the *Latin* Tongue is not a Dipthong as in the *Greek*.

The *Latins* pronounced the two Vowels in their *Dipthongs* much as we do, with this Exception, that the two were not heard equally, but the one was somewhat weaker than the other, though the Division was made with all the Delicacy imaginable. Among the *English* most of the *Latin* Dipthongs are lost in the Pronunciation; their *æ* and *œ* are only spoke as *e's*, so as also the *English ea*, *oa*, &c. though wrote with two Characters, are pronunced as simple Sounds.

In *French*, *English*, and divers other Languages, one may distinguish *Dipthongs* with regard to the Eye, from *Dipthongs* with regard to the Ear.

A *Dipthong* with regard to the Eye, is formed of two Vowels meeting in the same Syllable, whether the particular Sound of each of them be heard in the Pronunciation, or whether the Sound of one of them be drowned; or lastly, whether a new Sound different from either of them result from both. In the two latter Cases it is with some Impropriety, that we call them *Dipthongs*. The first only are real *Dipthongs*, as being such both to the Eye and Ear.

Dipthongs with regard to the Ear, are either formed of two Vowels meeting in the same Syllable, whose Sounds are severally heard; or of three Vowels in the same Syllable, which only afford two Sounds in the Pronunciation. In this last Occasion, *Dipthongs* with regard to the Ear, are *Triphthongs* with regard to the Eye.

English *Dipthongs*, with regard both to the Eye and Ear, called *proper Diphthongs*, are *ai*, as in *fair*; *au*, in *laud*; *ee*, in *bleed*; *oi*, in *void*; *oo*, in *Food*; and *ou*, in *House*.

English *improper Diphthongs*, or Diphthongs with regard to the Eye, are *aa*, pronounced only like *a*, as in *Aaron*; *ea*, like *a*, as in *swear*, *heart*; or like *e*, as *already*; or like *ee*, as *Veal*: *eo*, like *e*, in *feoffe*; or like *o*, in *George*: *eu*, or *eew*, like *u*, as *Deuteronomy*; *ie*, like *e*, as *Cieling*, *Field*: *ei*, like *a*, in *feign*; or like *e*, in *Deceit*: *oa*, as in *Cloak*, *Doat*: *oe*, as *Doe*, *Œconomy*: *ue*, as in *Guess*: and *ui*, as in *Guile*, *Recruit*.

From these different Divisions of Letters, I'll pass to the

the Examen of every Letter of our Alphabet in particular, beginning with the first.

A, is a Vowel, and the first Letter of the *French*, *English*, and most other Alphabets. The Grammarians will needs have *A*, the first Letter of all Languages; and some of them assign a natural Reason for it, *viz.* that it is the most simple, and the easiest pronounced of all articulated Sounds. To confirm this, *Julius Scaliger* observes that *A*, is the first Sound Nature puts forth at the Crying, or Smiling of Infants, and that it needs no other Motion to form it, but a bare Opening of the Lips.

But it is in vain that Authors compare the *A* of the *Latin*, *French*, *English*, &c. with the *Aleph* of the *Hebrews*, or the *Eliph* of the *Arabs*. Those two Letters have no Conformity with our *A*, except in this, that they are the first of their several Alphabets: What sets them far asunder, is, that these oriental *A*'s are not Vowels.

Some Criticks take the Hebrew *Aleph*, to be neither Vowel, nor Consonant, but an Aspirate, or pneumatick Letter, like the *H* in the *Latin*; adding, that St. *Jerom* appears to have had the same Thought, who probably learn'd it from the *Jews* of the School of *Tiberias*. But later Writers give the Thing another Turn; having shewn that the Hebrew *Aleph*, Arabick *Eliph*, and Syriack *Olaph*, are real Consonants; and that the same holds of all other Aspirates. This is a Paradox in *Grammar*; but it is not the less true for being a Paradox.

Of all the Letters, *A* is observed to be that which dumb Persons are soonest taught to pronounce. The Reason is, that it does not depend on the Muscles, and other Organs of the Mouth and Tongue, which are generally wanting in Mutes; but on those of the Throat, and Nose, which they commonly have.

This first simplest Sound serves us to express most of the Vehemence of the Soul. It is so much the Language of Nature, that upon all sudden and extraordinary Occasions we are necessarily led to it, as the Instrument readiest at Hand. With this we speak our Admiration, Joy, Anguish, Aversion, Apprehension of Danger, *&c.* where the Passion is very strong, we frequently enforce the *A*, by adding an Aspirate, as *Ah*.

It is observed of the *English* Pronunciation, that they speak the *A* with a slenderer and more puny Sound than any of their Neighbours: Ordinarily it is scarce broad enough for a *French* E neuter; and comes far short of the gross *A* of the *Germans*, which would make their *au*, or *aw*, or *o*.—In some Words, however, as *Talk*, *Wall*, *Stall*, &c. the *A* is broad, and deep enough; but this, it is observed, may not be the mere Sound of *A*, but the Effect of the antient Orthography, which, as low as Queen *Elizabeth*, frequently added an *u* to the *A*, and wrote *Taulk*, &c.

The *Romans* laid a mighty Stress on their *A*; and distinguished exactly, both in Writing and Speaking, when it was long, and when short. To denote it long, they first wrote it double, *Aala* for *Ala*; which not being enough, they inserted an *h* between them, *Ahala*: At length they fell to the common long Accent *Ala*.

B, the second Letter of most Alphabets (except in the antient *Irish* Alphabet, where *B* is the first, and A the seventeenth; and in the *Abyssinian*, where A is the thirteenth) is the first Consonant, and first mute, and in its Pronunciation is supposed to resemble the Bleating of a Sheep; upon which Account *Pierius* tells us in his Hierogliphicks, that the *Egyptians* represented the Sound of this Letter by the Figure of that Animal.

B is also one of those Letters which the Eastern Grammarians call *Labial*, because the principal Organs employed in its Pronunciation are the Lips. It has a near Affinity with the other *Labials* P and V, and is often used for *P*, both by the *Armenians*, and other Orientals; as in *Betrus* for *Petrus*, *Apsens* for *Absens*, &c. and by the *Romans* for *V*, as in *Amabit* for *Amavit*, *Berna* for *Verna*, &c. Whence arose that Jest of *Aurelian* on the Emperor *Bonosus*, *Non ut vivat natus est, sed ut bibat.*

B requires an entire Closure and Pressure of the Lips to pronounce it, and therefore can scarce ever end the Sound of a Word: But when you endeavour to pronounce it there, you are obliged to add an *E* to open the Lips again; as in *Job*, which is sounded *Jobe*.

This Letter also, if it pass through the Nose, becomes an *M*, as appears in those who have the Nostrils stopt by a Cold, or otherwise when they endeavour to pronounce the Letter *M*; for instance, *many Men*, is by such a one sounded, *bany Ben*.

C, is the third Letter, or second Consonant of the Alphabet, and is formed according to *Scaliger*, from the κ of the *Greeks*, by retrenching the Stem, or upright Line; though others derive it from the ג of the *Hebrews*, which has in effect the same Form; allowing only for this, that the *Hebrews* reading backwards, and the *Latins*, &c. forwards, each have turned the Letter their own Way. However the *c*, not being the same as to sound with the *Hebrew* Caph; and it being certain the *Romans* did not borrow their Letters immediately from the *Hebrews*, or other Orientals, but from the *Greeks*; the Derivation from the *Greek* K is the most probable. Add, that F. *Monfaucon* in his *Palaographia*, gives us some Forms of the *Greek* K, which come very near that of our *C*; this, for instance, and that *Suidas* calls the *C* the *Roman* Kappa.

All the Grammarians agree that the *Romans* pronounce their *q* like our *c*, and their *c* like our *k*: F. *Mabillon* adds, that *Charlemagne* was the first who wrote his Name with a *C*; whereas all his Predecessors of the same Name wrote it with a *K*, and the same Difference is observed in their Coins.

D, is the fourth Letter of the Alphabet, and the third Consonant; and is generally ranked by the Grammarians among the lingual Letters, as supposing the Tongue to have the principal Share in the Pronunciation thereof. Though the Abbot *Dangeau* seems to have Reason in making it a palatal Letter. The Letter *D* is the fourth in the *Hebrew*, *Chaldee*, *Samaritan*, *Syriack*, *Greek*, and *Latin* Alphabets; in the five first of which Languages it has the same Name, though somewhat differently spoke, *e. gr.* in Hebrew and Chaldee *Daleth*, in Syriack *Dolath*, and in Greek *Delta*.

The *Arabians* have three *D's* in their Language, the first called *Dal*, which is the eighth of the 28 Letters; the second called *Dhsal*, is only distinguished from the former by having a Point added over it; though its Sound is much the same with that of the *Z*: The third, which is their seventeenth Letter, is called *Da*, and pronounced like our *D*, though in Form it resembles the Arabick *Ta*, all it differs in being a Point added a-top. The Form of our *D* is the same with that of the *Latins*, and the Latin *D* is no other than the *Greek* Δ, rounded a little by making it quicker, and at two Strokes the Δ of the *Greeks* again is borrowed from the antient Character of the Hebrew *Daleth*; which Form it still retains on the *Samaritan* Medals. All the Alteration the *Greeks* have made in it, is the making it stoop a little, and taking away a little Line: Nor would it be difficult to shew that the Syriack *Dolath*, and the Arabick *Dal*, are both borrowed from the antient *Hebrew*, as well as the ד *Daleth* of the modern, or *Chaldee Hebrew*.

Some indeed will have it, that the *Greek* Δ, *Delta*, is borrowed from the *Egyptians*, who made their *D* of three Stars disposed in a Triangle; which was a *Hierogliphick* that among them denoted God the sovereign Being, as if they had had some Notion of a Trinity: But this Surmise is but weakly supported.

E, is the fifth Letter of the Alphabet, and the second Vowel, and admits of some Variety in the Pronunciation in most Languages; whence Grammarians usually distinguish several *E's*, or Kinds of *E*. The *Greeks*, *e. gr.* have their short and long, *viz.* ε and η, *Epsilon* and *Eta*. The *Latins* have an opener *e*, called *vastius*, such was the second *e* in the Word *here*, Master; and another closer, as that in the Adverb, *here*, yesterday. This later *e* they frequently used promiscuously with *i*; thus for *here* they wrote *heri*, and in divers Places we meet with *sibe*, *quase*, &c. for *sibi*, *quasi*, &c.

The Roman *e*, was likewise sometimes wrote by Corruption *æ*; for which Reason F. *Hardouin* takes that Medal of *Galienus*, GALLIENÆ AUGUSTÆ, not to be a fatу-

†

a ſatyrical one, as others have imagined; nor to be a Dative Feminine, but a Vocative Maſculine, *Galliene Auguſte* wrote with an *æ*.

In *Engliſh* they eaſily diſtinguiſh three *E*'s, or Sounds of *E*; the firſt Mute, and not heard at all, as in *Amſterdam*, *Senſe*, *Blue*, &c. the ſecond cloſe, or ſhort, pronounced with the Lips nearly ſhut; as in *Equity*, *Nettle*, &c. the third open or long, as in *Fear*, *Eaſe*, &c.

The *French* have, at leaſt, ſix Kinds of *E*; the firſt pronounced like *A*, as in *Emporter*, *Orient*, &c. the ſecond a final Mute, in the laſt Syllable of diverſe Words not pronounced at all; as in *bonne*, *donne*, &c. the third an imperfect Mute, pronounced much like the Dipthong *ea*, as *je*, *de*, *te*; the fourth *e ferme*, or *e* Maſculine, mark'd at the End of Words with an *é*, as in *Jugé*, *Chaſtié*, &c. the fifth is *e ouvert*, or *long*, having the ſame Sound with *ai*, as in *Mere*, *Feſte*, &c. in the Middle of Words it is ſometimes marked with a Circumflex, and in the End with an Accent *é*; the ſixth is an intermediate *e*, between the *ouvert* and *ferme*, as in *Cabaret*, *Lettre*, &c. Some add a ſeventh Kind of *e*, not reducible to any of the former, as that in *Grammarien*, *Hiſtorien*, &c. and others admit of only three Kinds, *viz.* the mute, open, and ſhut; but they make Variations therein, which amounts to the ſame Thing.

As to the Figure of the Letter *E*, we borrow it from the *Latins*, who had it from the *Greeks*, and they from the *Phænicians*, by *Cadmus*, who firſt brought it them. Now the *Phænicians* had the ſame Character with the *Hebrews*. Accordingly the Form of the antient *Hebrew He*, was the ſame with that of our *E*, as may be ſeen in the *Hebrew* Medals, and *F. Souciet*'s Diſſertation thereon, *p.* 143; all the Difference between them conſiſts in this, that the *Hebrew* reading from right to left, turn their Letters that Way; whereas the Moderns, reading from left to right, write their Letters accordingly.

The little *e* was formed of the great one, by writing it faſt, and making the croſs Strokes at Top and Bottom without taking the Pen off the Paper, and then adding the Stroke in the Middle.

The *Greek* η, H, *Eta*, or *Ita*, was no original Letter; but added to the Alphabet in After-times. Of this we have Proofs ſtill extant in the antient Monuments; particularly the *Farneſe* Columns brought to *Rome* from the *Via Appia*, where the *Epſilon* E is uſed in Lieu of the H, *v. gr.* ΔΕΜΕΤΡΟΣΚΟΡΕΣ, or ΔΗΜΗΤΡΟΣΚΟΡΗΣ. It is ſaid to have been added by *Simonides*.

The Pronunciation of the η ſeems to have been varied; having been, ſometimes, the ſame with the *Latin e*, ſometimes with *i*. *Terentianus* aſſures us of the former; and the *Greeks* themſelves for many Ages have only uſed the latter.

It has been much diſputed how the *Latins* rendered the η, in their Language; the common Opinion is, that they rendered it by an *e*, as in Δημητριος, Βητα, Θησευς, Θησαυρος, &c. which they rendered *Demetrius*, *Beta*, *Theſeus*, *Theſaurus*, &c. though there are Perſons exceedingly well verſed in Antiquity, who hold that they pronounced it like an *i*. *Lud. de Dieu*, one of the moſt learned Grammarians of his Age, obſerves as much on his Animadverſions on *Geneſis* vi. 24. adding that it is for this Reaſon, that the *Hebrews*, *e. gr.* the Paraphraſt *Jonathan*, expreſs it by a *Hbirick*, ιησωρ, מסטרר.

J. Rod. Weſtien proves the ſame in his learned Oration on the true Pronunciation of the *Greek* Tongue, from an Infinity of Inſtances.

F is the ſixth Letter of the Alphabet, and the fourth Conſonant; and may be conſidered abſolutely, and in itſelf, or with Regard to the particular Languages where it is found. In the firſt View *f* is generally placed by ſome Grammarians among the Mutes, like the Φ among the *Greek* Grammarians; though others give it the Quality of a Semi-vowel.

This Letter is derived to us from the *Romans*, who borrowed it from the *Æolians*; among whom it is called *Digamma*, or *double Gamma*, as reſembling two Γ's one over the other. Add, that the *Digamma* ſeems in its Origin to have been no other than the *Greek* Φ, which being made at three Strokes degenerated at length into the Figure *f*; for the Letter Φ being compounded of an *Omicron*, with a perpendicular drawn through it, if that Perpendicular be made firſt, and the *O* at two Strokes afterwards, *viz.* firſt, the upper, then the under Part; it may happen, eſpecially, in writing faſt, that the two Parts ſhall not join; and even, inſtead of two Arches of Circles, Haſte and Conveniency may naturally enough make two ſtrait Lines.

Such appears to be the Origin of the Letter *f*, which, of Conſequence, is no other than a Corruption of the *Greek* Φ: And, accordingly, on the Medals of the *Faliſci*, the *f* is ordinarily put in lieu of the *Greek* Φ; but it muſt be added, that though the *Greek* and *Latin* Letter were thus the ſame Thing, yet the Sound was much ſofter among the *Latins* than among the *Greeks*; as was long ago obſerved by *Terentianus*.

The *Romans*, for ſome Time, uſed an inverted *f*, Ⅎ, in Lieu of an V Conſonant, which had no peculiar Figure in their Alphabet: Thus in Inſcriptions we meet with TERMINAⅎIT, DIⅎI, *&c.*

It may be added that the Pronunciation of the *f* is almoſt the ſame with that of the V; as will be evident by attending to the Manner of pronouncing the following Words, *Favour*, *Vanity*, *Felicity*, *Vice*, *Foment*, *Vogue*, &c. We *French*, particularly, in borrowing Words from other Languages, uſually turn the final *v* into an *f*, as *Chetif*, of the *Italian Cattivo*; *Neuf*, of the *Latin Novus*; *Nef* of the *Latin Navis*, &c.

In the latter *Roman* Writers we find the *Latin f* and *Greek* Φ, *ph*, frequently confounded; as in *Falanx*, for *Phalanx*; *Filoſophia*, for *Philoſophia*, &c. which is ſtill retained by many *French* Writers, who write *Filoſophie*, *Filippe*, *Epifane*, &c. and by the *Engliſh*, as in *Fantaſy*, *Filtre*, &c.

G is the ſeventh Letter of our Alphabet, and the fifth Conſonant; though in the Alphabets of all the oriental Languages, the *Hebrew*, *Phænician*, *Chaldee*, *Syriac*, *Samaritan*, *Arabick*, and even *Greek*, *G* is the third Letter.

The *Hebrews* call it *Ghimel*, or *Gimel*, *q. d. Camel*, by Reaſon it reſembles the Neck of that Animal; and the ſame Appellation it bears in the *Samaritan*, *Phænician*, and *Chaldee*: In the *Syriack* it is called *Gomel*, in the *Arabick*, *Giim*, and in *Greek*, *Gamma*.

The Letter *G* is of the mute Kind, and cannot be any Way ſounded without the Help of a Vowel: It is formed by the Reflection of the Air againſt the Palate, made by the Tongue, as the Air paſſes out of the Throat. So that *G* is a palatal Letter.

The *Latins* took the Liberty to drop the Letter *G* at the Beginning of Words before an *n*; as in *Gnatus*, *Gnoſco*, *Gnobilis*, *Gnarrat*, &c. which they ordinarily wrote *Natus*, *Noſco*, *Nobilis*, *Narrat*, &c. they alſo frequently changed it into *C*, as *Gamelus* into *Camelus*; *Gragulus* into *Graculus*, &c. ſometimes it was put inſtead of *N* before a *C*, and another *G*; as *Agchiſes*, *Agora*, *Agguilla*, &c. for *Anchiſes*, *Anchora*, *Anguilla*, &c.

The Northern People frequently change the *G* into *V* or *W*; as in *Gallus*, *Wallus*; *Gallia*, *Wallia*, *Vallia*, &c. for in this Inſtance it muſt not be ſaid that the *French* have changed the *W* into *G*, by reaſon they wrote *Gallus* long before *Wallus*, or *Wallia* were known, as appears from all the antient *Roman* and *Greek* Writers.

Diomed. lib. II. *c. de Litera*, calls *G* a new Letter: His Reaſon is, that the *Romans* had not introduced it before the Punick War, as appears from the roſtral Column, erected by *C. Dulcius*, in which we every where find a *C* in Lieu of *G*: It was *Sp. Carvilius*, who firſt diſtinguiſhed between thoſe two Letters; and invented the Figure of the *G*, as we are aſſured by *Terentius Scaurus*; the *C* ſerved very well for *G*, it being the third Letter of the *Latin* Alphabet, as the *G* or γ was of the *Greeks*.

The *G* is found inſtead of *C* on ſeveral Medals, *Vaillant*, *Num. imp. t. i. p.* 39. M. *Beger* produces a Medal of the *Familia Oguhnia*, where GAR is read inſtead of CAR, which is on thoſe of M. *Patin*. But the *C* is more frequently ſeen on Medals, in lieu of *G*; as AUCUSTALIS, CALLACCIA, CARTACINENSES, *&c.* for AUGUSTALIS, *&c.* not that the Pronunciation of thoſe

of those Words was alter'd, but only that the *G* was unartfully, and negligently cut by the Workmen, as is the Case in divers Inscriptions of the Eastern Empire; where AUC, ACUC, ACUCC, are frequently found for AUG, *&c.*

The Form of our G is taken from that of the *Latins*, who borrow'd it from the *Greek*; the *Latin* G being certainly a Corruption of the *Greek* Gamma Γ, as might easily be shewn, had our Printers all the Characters and Forms of this Letter, which we meet withal in the *Greek* and *Latin* MSS. through which the Letters passed for Γ to G.

As to the *Gamma* of the *Greeks*, it is manifestly the ג *Ghimel* of the *Hebrews* or *Samaritans*. All the Difference between the *Gamma* and *Ghimel* consists in this, that the one is turned to the Right, and the other to the Left, according to the different Manner of Writing and Reading, which obtain'd among those different Nations: So that all the Pains *Salmasius* has taken on *Solinus*, to prove that the G was derived from the *Greek* Kappa are lost.

H is the eighth Letter of the Alphabet, and the sixth Consonant. *Varro, de re rusticâ, Lib.* 3. *c.* 1. calls it *Afflatus*; and *Martianus Capella* says it is pronounced by only a gentle Contraction of the *Trachea*. Hence it has been disputed, whether or no the *h* be a real Letter. Some will only have it an Aspiration or Spirit, in Regard its Sound is so weak. And accordingly the *Greeks*, of latter Ages at least, do not place it in the Lines with the other Letters, but put it over the Head of the following Letter; though it should seem they antiently wrote it in the same Line with the rest.

The *Latin* Grammarians, as they were strict Imitators of the *Greeks*, have, on their Authority, generally rejected the *h*, and the Moderns have herein followed the *Latins*. But we have already shewn that the *h*, like all the other Aspirates, from the Time it is aspirated, and for this very Reason that it is aspirated, is not only a Letter, but a real Consonant; it being a Motion, or Effort of the *Larynx*, to modify the Sound of the Vowel that follows; as is evident in the Words *Heaven*, *Health*, *Hero*, &c. where the Vowel *e* is differently modified from what it is in the Words *Endive*, *Eating*, *Elect*, &c. and such Modification is all that is essential to a Consonant.

Upon the whole, the *h* is either a Letter, or *s* and *z* are none, those being no more than hissing Aspirations; and they who exclude the *h* from among the Letters, as conceiving it only a Mark of Aspiration, might as well exclude the labial Consonants *b p*, and say they are only Marks of certain Motions of the Lips, *&c.*

The *h* then is a Letter, and a Consonant of the guttural Kind, *i. e.* a Consonant, to the Pronunciation whereof, the Throat concurs in a particular Manner, more than any other of the Organs of Voice. It is true, in many Words beginning with *h*, the Aspiration is very weak and almost insensible; the *h* in those Cases not doing its Office: But it does not cease to be a Consonant on that Score, more than various other Consonants, which we write, but do not pronounce; as the *k* in *quick*, &c. and several other Letters, particularly in the *Hebrew*, *French*, &c. nor does it cease to be a Consonant, because it does not hinder the Elision of the foregoing Vowel, when another Vowel follows in the subsequent Word; for then *m* would undergo the same Disqualification.

M. *Menage* distinguishes two Kinds of *h*, the one an Aspirate, which he allows a Consonant, the other a Mute, which he considers as a Vowel. Now it is certain the aspirated *h* is a Consonant, but the Mute *h* is no Vowel, as having no peculiar or proper Sound, distinct from that of the Vowel or Diphthong immediately following it.

When the *h* is preceded by *a c*, the two Letters together have frequently the Sound of the *Hebrew* ש, with a Point over the right Horn, as in *Charity*, *Clyle*, &c.

The Aspirate, or sharp Accent of the *Greeks*, which is the same with our *h*, is frequently changed for an *s*, as ἅλς, *Sal*, ἑπτὰ, *Septem*, &c.

Antiently the *h* was put for *ch*; thus of *Chlodovicus*, was formed *Hludovicus*, as it is read in all the Coins of the 9th and 10th Centuries; and it was on this Account, that they wrote *Hludovicus* with an *h*. In Course of Time the Sound of the *h* being much weaken'd, or entirely suppressed, the *h* was dropt, and the Word was wrote *Ludovicus*.

F. *Lobineau* will have this Difference to have arose from the Differences in Pronunciation. Such, says he, as could not pronounce the guttural, wherewith those two Words begin, substituted *a c* for it; and they who pronounced it so, wrote it after the same Manner: But such as were accustom'd to pronounce the guttural, wrote it likewise.

I, is the ninth Letter of the *English* Alphabet, and is both a Vowel and a Consonant, agreeable to which two different Powers, it has two different Forms.

The *Hebrews* called the *j* Consonant *Jod*, יוד, from יד, *Hand* and *Space*; in Regard it is supposed to represent the Hand clenched, so as to leave the Space underneath void. With them it was pronounced as the Consonant *y*, as it still is among the *Germans*, and some other People. The *Greeks* had no *j* Consonant, and for that Reason used their Vowel *i* instead of it, as coming the nearest in Sound. The *French* and *English* have two Kinds of *j* Consonants, the first has a snuffling Kind of Sound, and serves to modify that of the Vowels, pretty much like *g*; as in *Jew*, *Just*, *Jovial*; the latter is pronounced like the *Hebrew* Jod; Instances of which we have in some of our Words, which are indifferently wrote with a *y* or an *i* before a Vowel, as *Voiage*, *Voyage*, *Loial*, *Loyal*, &c. in which Cases the *i* is apparently a Consonant, as being a Motion of the Palate, which gives a Modification to the following Vowel.

The Vowel *i*, according to *Plato*, is proper for expressing fine and delicate, but humble Things, on which Account that Verse in *Virgil*,

Accipiunt inimicum imbrem, rimisque fatiscunt,

which abounds in *i*'s, is generally admired,

The Vowel *i* was the only Vowel the *Romans* did not mark with a Dash of the Pen, to shew when it was long; instead of which to denote it long, they used to make it bigger than ordinarily; as in PIso, VIVUS, *&c.* According to *Lipsius* they repeated it when it was to be long, as in *Dii*. They sometimes also denoted the Length of this Letter, by adding *e* to it, and turning it into a Diphthong, as *Divei* for *Divi*, *Omneis* for *Omnis*, &c.

K, is a double Consonant, and the tenth Letter of the Alphabet. It is borrow'd from the *Greek* Kappa, and was but little used among the *Latins*. *Prescian* look'd on it as a superfluous Letter, and says it was never to be used except in Words, borrow'd from the *Greek*. *Dausquius*, after *Salust*, observes, that it was unknown to the antient *Romans*. Indeed we seldom find it in any *Latin* Author, except in the Word *Kalendæ*, where it sometimes stands in lieu of a *c*. *Carthage*, however, is frequently spelt on Medals with a *K*: SALVIS AUG. ET CAES. FEL. KART. and sometimes the Letter K alone, stood for *Carthage*. M. *Beger* has observed, that a Capital K, on the Reverse of Medals of the Emperors of *Constantinople*, signified KONSTANTINUS; and on the *Greek* Medals, he will have it to signify ΚΟΙΛΗ ΣΥΡΙΑ, *Cœle-Syria*.

Quintilian tells us, that in his Time some People had gotten a mistaken Notion, that wherever the Letter *c* and *a* occurred at the Beginning of a Word, *k* ought to be used instead of the *c*. *Lipsius* observes, that K was a Stigma, antiently mark'd on the Foreheads of Criminals with a red-hot Iron.

The Letter K, has various Significations in old Characters, and Diploma's; for Instance, K R stood for *Chorus*; K R. C. for *Cara Civitas*; K R M for *Carmen*; K R. A M. N. *Carus Amicus Noster*; K S, *Chaos*; K T. *Capite Tonsus*, &c.

The *French* never used the Letter K, except in a few Terms of Art, and proper Names borrow'd from other Countries. *Ablancourt*, in his Dialogue of the Letters, brings in K, complaining that it has been often in a fair Way to be banished out of the *French* Alphabet, and confined to the Countries of the North.

In the *English* the *k* is used much more than need be, particularly at the Ends of Words, after *c*, as in *Publick*, *Physick*, where it is of no Manner of Service.

L, is a Semi-Vowel, or Liquid; making the eleventh Letter of the Alphabet. It has a sweet Sound, and is pronounced by applying the Tongue to the Palate.

Passerat observes, that *l* was frequently used among the Antients for *b*, as in *Cillibæ* for *Cibillæ*; for *d*, as *Alipe* for *Adipe*, &c, and for almost all the other Letters.

The double *ll* is a modern Contrivance, and was never used among antient *Roman* Authors: They wrote *Alium*, not *Allium*; *Macelum*, not *Macellum*; *Polucere*, not *Pollucere*.

The double *ll* of the *Greeks* was sometimes changed by the *Romans* into *li*, as in αλλομαι, *salio*, &c. *r* has also been turn'd into two *ll*'s, as *Hira*, *Hilla*, &c. and *l* into *x*, or *xill*; as *Ala*, *Axilla*; *Mala*, *Maxilla*; *Velum*, *Vexillum*, &c.

The *Spaniards* and *Welch* usually double the *l* at the Beginning of a Word, which sounds nearly the same with the *English hl*, or *fl*.

The Figure of our *l* we borrow from the *Latins*, they from the *Greeks*, and they again from the *Hebrews*, whose *Lamed* is much like our *l*, excepting that the Angle is somewhat more acute.

M, is a liquid Consonant, and the twelfth Letter in the Alphabet. It is pronouced by striking the upper Lip against the lower; in which the Pronunciation of this Letter agrees with that of *b*; the only Difference between the two, consisting of a little Motion made in the Nose, in pronouncing *m*, and not in *b*; whence it happens, that those who have taken cold, for *m* ordinarily pronounce *b*.

Quintilian observes, that the *m* sometimes ends *Latin* Words, but never *Greek*; the *Greeks* always changing it, in that Case, into *n*, for the Sake of the better Sound.

N, is a liquid Consonant, and the thirteenth Letter of the *Greek*, *Latin*, *French*, *English*, &c. Alphabets. Its Sound is that of a *d*, passed through the Nose. The Abbot *Dangeau* observes, that in the *French* the *n* is frequently a mere nasal Vowel, without any Thing of the Sound of a Consonant in it; he calls it the sclavonick Vowel. The *Hebrews* call their *n* Nun, which signifies *Child*, as being supposed the Off-spring of *m*; partly on Account of the Resemblance of Sound, and partly on that of the Figure. Thus from the *m*, by omitting the last Column, is formed *n*; and thus from the Capital N, by omitting the first Column, is form'd the *Greek* Minuscule ν.

N before *p*, *b*, and *m*, the *Latins* change into *m*, and frequently into *l* and *r*, as *in-ludo*, *illudo*; *in-rigo*, *irrigo*, &c. in which they agree with the *Hebrews*, who in lieu of *Nun*, frequently double the following Consonant; and the *Greeks* do the same, as when for *Manlius*, they write Μαλλιος, &c. the *Greeks* also, before κ, γ, χ, ν, changed the ν into γ; in which they were followed by the antient *Romans*; who for *Angulus*, wrote *Agulus*, &c.

The *Latins* retrench the *n*, from *Greek* Nouns ending in ων; as λεων, *Leo*, δρακων, *draco*, &c. On the contrary, the *Greeks* add it to those ending in *o*; as Κατων, Νερων, for *Cato*, *Nero*.

O, is the fourteenth Letter of the Alphabet, and the fourth Vowel. The Grammarians call it a close Vowel, because pronounced with the Mouth shut.

Among the *Latins*, the *o* bore so great an Affinity with the *u*, that they frequently confounded them; writing *Consol*, and pronouncing *Consul*.

The *Greeks* had two *o*'s, *viz.* Omicron, ο, and Omega, ω; the first pronounced on the Tip of the Lips with a sharp Sound, the second in the Middle of the Mouth with a full Sound, equal to *oo* in *English*. The long and short Pronunciation of the *English o*, are an Equivalent to the two *Greek* ones; the first as in *suppose*, the second as in *obey*.

P, is a Consonant, and the fifteenth Letter in the *English* Alphabet. When the *P* is followed with an *h*, in the same Word, it has the Sound of an *F*; thus *Philosophy* is pronounced *Filosophy*.

P and R are so like each other, that *Quintilian* declares that in the Word *obtinuit*, his Reason requir'd him to put a *b*, but that his Ears could bear nothing but a *p*, *optinuit*: Hence in antient Inscriptions, and old Glossaries, it appears these two Letters have been often confounded. Several Nations still pronounce one for the other, the *Germans* particularly, who say *ponum vinum*, for *bonum vinum*. *Plutarch* observes, it was usual for those of *Delphos* to say βολειν, for πολειν; and among the *Latins*, as often as an *s* followed, the *b* was changed into a *p*, as *scribo*, *scripsi*.

Q, is a Consonant, and the sixteenth Letter of the Alphabet, and has this particular to it, that it is always followed by an *u*.

The Q is formed from the *Hebrew* ק, *Chaph*; which most other Languages have borrow'd, though some of them have rejected it again, particularly the *Greeks*, who now only retain it as a numeral Character, called κοππα επισημον.

In Effect, there is that Resemblance between the Q and C in some Languages, and K in others, that many Grammarians, in Imitation of the *Greeks*, banish the Q as a superfluous Letter. *Papias* even affirms, that all the *Latin* Words now wrote with a Q, were wrote among the antient *Romans* with a C, but we want better Authorities. For though that may hold in many Cases, insomuch that we still write indifferently *quur* or *cur*, *cum*, or *quum*, *quotidié*, or *cotidié*, &c. yet does it not thence follow, that they wrote *cis*, *cæ*, *cid*, for *quis*, *quæ*, *quid?* What Inscriptions authorize such Reading? Far from this, the Antients sometimes substituted *q* for *c*; and wrote *quojus*, *quos*, for *cujus*, *cus*, &c.

Varro however, and some other Grammarians, as we are told by *Censorinus*, &c. would never use the *q*. The Truth is, its Use or Disuse seems to have been so little settled and agreed on, that the Poets used the *q* or *c* indifferently, as best suited their Measures; it being a Rule, that the *q* join'd the two following Vowels into one Syllable; and that the *c* imported them to be divided. Hence it is, that *Lucretius* uses *cuiret*, for three Syllables in lieu of *quiret*; *acua* for *aqua*; and that *Plautus* uses *relicuum* for *reliquum*; as *in quod dedi datum non vellem relicuum non*; where the *cuum* must be two Syllables, otherwise the *Trochaick* Verse will be lame of a Foot.

In the *French*, the Sound of the *q* and *k* are so near akin, that some of their nicest Authors think the former might be spared. *Ramus* adds, that till the Establishment of Royal Professors in the University of *Paris*, under *Francis* I. they always used *k* in the *Latin*, the same as in the *French*, pronouncing *kis*, *kalis*, *kantus*, &c. for *quis*, *qualis*, *quantus*.

Some very learn'd Men make *q* a double Letter, as well as *k* and *x*. According to them, *q* is evidently a *c* and *u* joined together. It is not enough that the Sound is the same; but they see the Traces of *c u* in the Figure of Q; the V being only laid obliquely, so as to come within the Cavity of the C, as C<. To confirm this, they say the Antients wrote *qi*, *qæ*, *qid*; tho' *Jos. Scaliger*, *Littleton*, &c. think this no Proof of the Point; for in *Gruter*'s Inscriptions, we find not only the *q*, but also the *c* put for *q u*; as *cintus* for *quintus*, *sicis* for *siquis*, &c. yet no Body ever imagined the *c* a double Letter.

R, is a liquid Consonant, and the seventeenth Letter of the Alphabet. The Grammarians hold it a Semi-Vowel; especially in the *Greek*, where, in common with the other Vowels, it admits an Aspirate, &c. tho' whether the Aspirate should be founded before, or after it, is some doubt. We find Instances of each, thus ρεδη, the *Latins* wrote *rheda*; and ροδιον, the *Æolians* wrote βροδον. The antient *Goths* and *Teutons*, *Littleton* observes prefixed *h* to *r*.

The *Hebrews* allow the *r* the Privilege of a Guttural, that is, they never double it, which yet is done by the *Arabs*, *Greeks*, and *Latins*, &c.

Persius calls the *r litera canina*, because the Dogs seem to pronounce it in Snarling; yet it should seem to have had a softer Sound among the *Romans*, than among us, by its being frequently interposed to prevent the Clashing

of Vowels; as in *rarus*, from ἀραιός, &c. and this Softness was such as frequently occasioned its being dropt as useless in Writing. Thus for *Hetrusci*, they frequently wrote *Thusci*, and even *Tusci*; and for *Sursum*, *Rursus*, *prorsus*; *Susum*, *Rusus*, *Prosus*.

In Effect, there was that Agreement between the Sound of the *s* and *r*, that as the *Romans* avoided the doubling of their Consonants, it was no Wonder they here dropped the *r*; the *s* supplying the Place of both. Hence too it came to pass, that what they at first pronounced *Asa*, *Asena*, *Casmen*, was afterwards *Ara*, *Arena*, *Carmen*; and those first named *Fusii*, and *Valesii*, were afterwards called *Furii*, and *Valerii*. *Cicero* tells us, the *Papirii* were first called *Papisii*; and even fixes the Time when the Change was made, *viz.* in the Year of *Rome*, 415.

From the same Softness of the Sound of the *r*, it came to be used indifferently with the *l*, in many Words, *e. gr. Latiaris*, and *Latialis*, *Palilia*, and *Parilia*, &c.

Tho' the *r* more frequently degenerated into *l*; thus *Remures* became changed into *Lemures*, *Interlego*, *Perluceo* into *Intelligo*, and *Pelluceo*, &c.

In the *French* the *r* is never pronounced at the End of a Word, unless it be immediately before a Vowel, *e. gr. Aimer son Roy*, that *r* in *Aimer* is not sounded, and the Word is pronounced as if there was none, and as if it was wrote *Aimé son Roy*; on the contrary, in *Aimer a boire*, the *r* is pronounced, because immediately before a Vowel; but then the Pronunciation of the *r* must be very soft; as if the Tongue should pass slightly over it, to lay the whole Stress on the *a*.

S, is a Consonant, and the eighteenth Letter of the Alphabet; and is accounted one of the three hissing Consonants; the other two being *z* and *i*. It is also held a Semi-Vowel, as forming a Kind of imperfect Sound, without the Assistance of any Vowels.

Some of the Antients avoided all Use of the *s*, very studiously, particularly *Pindar*, who has whole Poems without once mentioning it. And hence also in *Plautus*, and some other of the *Latin* Poets, we find it cut abruptly off, as in *Dignú*, *Omnibú*, &c. Others on the contrary, affected the Use of it every where, inserting it where 'twas not wanted; as *Casmenæ*, for *Camenæ*, *Cæsna*, for *Cæna*, &c.

Of all the others, the *s* is nearest a-kin to the *r*; hence it was frequently changed, by Reason of its disagreeable Sound into *r*.

In the Inflections of Nouns, *s* is variously changed; sometimes into *rs*, as *flos*, *floris*; sometimes into *n*, as *sanguis*, *sanguinis*; sometimes into *d*, as *pes*, *pedis*; sometimes into *t*, as *nepos*, *nepotis*. On the contrary, in Verbs it is frequently put for other Letters; for *b*, as in *jubeo*, *jussi*; for *c*, as in *parco*, *parsi*; for *d*, as in *ludo*, *lusi*; for *g*, as in *spargo*, *sparsi*, &c.

The *Latins* also frequently changed the *Greek s* into *l*, as Ἀννιβας, *Annibal*; into *d*, as μεσον, *medicum*, &c. The double *ss* was frequently changed into *x*, as πισσα, *pix*; and sometimes even the single one, as Αἴας, *Ajax*.

The old and the new Orthography of the *French*, differ chiefly on the Use of the *s*; the latter omitting it in Writing, where it is not heard in the Pronunciation, and the former retaining it. Thus the Followers of the one, particularly the Academy, in their Dictionary, write *Tempeste*, *Huistre*, *Fluste*; those of the other, *Tempête*, *Huître*, *Flûte*, &c. In the same Language, *s* is never pronounced, or sounded at the End of a Word, unless, like the *r* it be immediately before a Vowel, *e. gr. Javois Chanté*, *s* in *Javois*, is not sounded before *Chanté*, and the Word is pronounced as if there was no *s*, viz. *Javoi Chanté*; but it is not the same in *Javois Aimé*, where the *s* is pronounced as if it was wrote *Javoi Saimé*.

T, is a Consonant, and the nineteenth Letter in the Alphabet. In Sound it bears a Resemblance to the *d*, for which Reason they are often put for each other; and *Quintilian* even rallies those who made any Scruple of writing the one for the other; as *at* for *had*, *set* for *sed*, *haut* for *haud*, &c.

The *t* is one of the five Consonants, which the Abbot *Dangeau* calls palatal, and which are *d*, *t*, *g*, *k*, and *n*; the four first whereof have the same Relation to each other, as the labial *b*, *p*, and *v*, *f*, have. *D*, for Instance, having the same Relation to *t*, that *b* has to *p*, or *v* to *f*.

The *t*, the same Author observes, is a Letter of a strong Sound; so that a feeble one cannot be heard before it. Hence to form the Supine of *rego*, the *t* of *tum* changes the *g*, and strengthens it to the Sound of a *c*; so that we say *rectum*, as in the Preterperfect Tense *rexi*, which we pronounce *reksi*.

U, is the fifth Vowel, and the twentieth Letter in the Alphabet. Besides the Vowel *u*, there is a Consonant of the same Denomination, wrote *v*, or V.

The Pronunciation of the *u*, as now used among the *English*, *French*, &c. is borrow'd from the antient *Gaulish*; for all the other western People, with the *Romans*, pronounce it *ou*.

W, is a Letter particular to the northern Languages and People, as the *English*, *Dutch*, *Polish*, and others of *Teutonick* and *Sclavonick* Original.

The *w* is also sometimes admitted into the *French*, *Italian*, &c. in proper Names, and other Terms, borrowed from the Languages where it is used.

In *English*, the *w* is usually a Consonant, and as such may go before all the Vowels, except in *u*; as in *Want*, *Weapon*, *Winter*, *World*, &c.

It is sometimes also a Vowel, and as such follows any of the Vowels, *a*, *e*, *o*, and unites with them into a Kind of double Vowel, or Diphthong; as in *Law*, *Ewe*, *Sow*, &c.

The *English* w is sounded as in *Latin*, u, in *quantum*, *suadeo*, *lingua*, its Sound is also commonly like the gross or full *u*, rapidly pronounced. In *French*, the Sound of the *w* does not differ from that of the single *v*.

X, is a double Consonant, and the twenty-second Letter of the *English* Alphabet.

The *x* of the *Latins*, and ξ of the *Greeks*, are composed of *c s*, and κ σ; whence to this Day the Letter *x*, in the *English* and *French*, has the same Sound with *c s*, or *k s*. Thus we pronounce *Alexander*, as if wrote *Alecsander*, or *Aleksander*.

The *Italians* have no *x* at all in their Language, but both speak and write *Alessandro*. The *Spaniards* pronounce the *x* like the *English c* before *a*; viz. *Alexandro*, as if it were *Alecandro*. The *Portuguese* pronounce it like *sh*.

In foreign Words used in *English*, they sometimes soften the *x* into a double *ss*; as *Brussels*, for *Bruxelles*, &c.

The Letter is not known in the *Hebrew*, or other oriental Languages; but in lieu of it, they write the two simple Letters whereof it is compounded; and the like do the modern *Germans*.

Y, is the twenty-third Letter, in the *English* Alphabet, borrowed originally from the *Greek* υ.

It is occasionally both Vowel and Consonant. As a Vowel, some Authors have judged it unnecessary in *English*, in Regard its Sound is precisely the same with that of the *i*. Accordingly it is but little used, except in Words borrow'd from the *Greek*, to denote their Origin, by representing the *Greek* ψιλον.

The Vowel *y* has a Place in some Words purely in *English*; and that both in the Middle thereof, as in *dying*, *frying*, &c. and at the End as in *lay*, &c.

Some ascribe the Use of the *y* in pure *English* and *French* Words, and those that have no *y* in *Latin* or *Greek*, to this, that antiently each of those Words were pronounced with a double *ii*, which having something awkward in it, the *y* was substituted in lieu thereof.

Others say that those Words being antiently wrote, as well as pronounced with a double *ii*, which they still are in the Walloon, as *paiing*, *pailsan*, &c. to avoid their being mistaken for an *ii* with two Dots over it, they made the second *ij* longer than the first, and so formed the *y* without designing it. Some give a parcular Reason why Words ending in *i*, came to be wrote with *y*, viz. that the Copists found the Tail of the *y* very commodious to adorn the Margins and Bottoms of Pages withal.

When it follows a Consonant, it is a Vowel; and when

when it precedes a Vowel, it is a Consonant, and should be called *ye*, and not *wy*.

The *Romans* used the *y* for the Vowel *u*, which they had no Characters for, distinct from the *v* Consonant: Their Way being to pronounce the common *u*, as we do the Diphthong *æ*, and the *Greek* υψιλον, as the *English* and *French* u.

In *English*, and some other modern Tongues, Authors begin to dispense more and more with the precise Orthography, which requires all Words that have an *Upsilon* in the *Greek*, to be wrote with a *y*; and with Reason, since the *English Greek* y, has lost the Sound it had, in the Language whence they borrow it. But is certainly ridiculous to use it as many do, in Words which indeed have a *Greek* Origin, but have no *u* in the *Greek*, as in *Eclipse*.

Z, is the last Letter in the Alphabet, and one of the double Consonants, both among the *Latins* and *Greeks*. Its Pronunciation is much more soft and obtuse than the *x*, which makes *Quintilian* call it *Jucundissima*, and *Dulcissima*. Nevertheless the Sound was not always the same as it is now, which is but as it were half that of an S.

It had something also in it of the *d*, but only what sounded very smoothly. Thus *Mezentius* was pronounced, as if it had been *Medsentius*, &c.

The Z had also an Affinity with the 9: Thus *Capella*, *Z à Græcis venit, licet etiam ipsi primo 9 Græcâ utebantur.*

Note, That all the *Letters* of the Alphabet, heretofore mentioned, were also numeral Characters among the Antients, *viz.*

A, signified 500, with a Dash a-top $\overline{A}$ it stood for 5000, but we shall here observe, once for all, that it was not strictly observ'd among the Antients, that this Use of numeral Letters had Place, as is commonly supposed. *Isidore Hispalensis*, an Author of the seventh Century, affirms it expressly; *Latini autem numeros ad literas non computant.* The Usage was really introduced in the Days of Barbarism. M. *du Cange* explaining what that Usage was, at the Beginning of each Letter of his Glossary, the Generality of Dictionary-Writers who take it from him, mistake him. The Account, they all say, is found in *Valerius Probus*; whereas *du Cange* says no such Thing, but only that it is found in a Collection of Grammarians, among whom are *Valerius Probus*, and *Petrus Diaconus*.

B, stood for 300, as appears by this Verse,

Et B trecentum per se retinere videtur.

When a Line was drawn above the $\overline{B}$ it stood for 3000; with a kind of Accent below it for 200; but among the *Greeks* as well as *Hebrews*, this Letter signified only two.

C, among the *Romans* signified 100, according to the Verse,

Non plus quam centum C litera fertur habere.

Some add, that a Dash over it made it signify a hundred Thousand; but it would be hard to find an Instance hereof among the Antients.

D, signified 500; which arises hence, that in the *Gothick* Character the D is half the M, which signifies a Thousand. Hence the Verse,

Litera D velut A, quingentos significabit.

A Dash added a-top $\overline{D}$, denotes it to stand for 5000.

E, signified 250, according to the Verse,

E quoque ducentos, & quinquaginta tenebit.

F, signified 40; according to the Verse,

Sexta quaterdenos gerit, quæ distat ab Alpha.

G, signified 400; according to the Verse,

G, quadringentos demonstrativa tenebit.

When a Dash was added a-top $\overline{G}$, it signified 40,000.

H, signified 200; according to the Verse,

H quoque ducentos, per se designat habendos.

When a Dash was added a-top $\overline{H}$, it signified 200,000.

I, signified 100; according to the Verse,

I. c. compar erit, & centum significabit.

I, in the ordinary *Roman* Way of Numbering, signifies One; and when repeated, signifies as many Units as it is repeated Times.

K, signified 250; according to the Verse,

K, quoque ducentos, & quinquaginta tenebit.

When it had a Stroke a-top, $\overline{K}$, it stood for 250,000.

L, among the Antients, and still in the *Roman* Cyphering signifies 50; according to the Verse,

Quinquies L denos numero designat habendos.

When a Dash was added a-top of $\overline{L}$, it stood for 50,000; L was used for 50, as being half a C, which signified 100, and was formerly written thus Ↄ, which, according to *Pasquier*, makes two LL, the one upright and the other inverted.

M, signified 1000, according to the Verse,

M, *Caput est numeri, quem scimus mille tenere.*

When a Dash is added a-top of it, as $\overline{M}$, it signified a thousand times thousand.

N, signified 900, according to the Verse in *Baronius*.

N, Quoque nongentos numero designat habendos.

And when a Line or Stroke over $\overline{N}$ it stood for 9000.

O, signified eleven, as in the Verse,

O, Numerum gestat, qui nunc undecimus extat.

When a Dash a-top, as $\overline{O}$, it signified 11,000.

P, signified the same with G, *viz.* 100, according to the Verse of *Ugutio*.

P, Similem cum G numerum monstratur habere.

Though *Baronius* thinks it rather stood for seven. When a Dash was added a-top of $\overline{P}$, it stood for 400,000.

Q signified 500, as in the Verse,

Q Velut A cum D quingentos vult numerare.

A Dash over it, as $\overline{Q}$, denoted it to signify 500,000.

R, signified 80, according to the Verse,

Octoginta dabit tibi R, siquis numerabit.

With a Dash a-top, as $\overline{R}$, it signified 80,000.— The *Greek* r, P, signified 100.

S, signified seven, according to the Verse,

S, Vero septenos, numeratos significabit.

T, signified 160, according to the Verse,

T, Quoque centenos, & sexaginta tenebit.

With a Dash a-top of $\overline{T}$, it signified 160,000.

V, signified five, according to the Verse,

V, Vero quinque dabit tibi, si rectè numerabis.

With a Dash a-top of $\overline{V}$, it signified 5000.

Y, signified 150, or according to *Baronius* 159, as in the Verse,

Y, Dat centenos, & quinquaginta novenos.

With a Dash a-top of $\overline{Y}$, signified 150,000.

Z, signified 2000, according to the Verse,

Ultima Z tenens, finem bis mille tenebit.

With a Dash a-top of $\overline{Z}$, it signified two thousand times two thousand.

Note, also, That the numeral Characters, now chiefly in Use, are the common and the *Roman*; to which may be added the *Greek*, and another called the *French* Character; as also the Letters of other Alphabets, which have been made use of to express Numbers.

Common

Common Characters, are those ordinarily called the Arabick, as supposed to have been invented by the Arabick Astronomers; though the *Arabs* themselves call them the *Indian* Characters, as if they had borrowed them from the People of *India*. The Arabick Characters are ten, *viz.* 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, the last called Cypher.

The *Roman Character*, consists of the Majuscule Letter of the *Roman* Alphabet; whence probably its Name, or perhaps from its being used by the antient *Romans* on their Coins; and in the Inscriptions of their publick Monuments erected in honour of their Gods, and great Men, on their Sepulchres, *&c.*

The numeral Letters that compose the *Roman Characters*, are in Number seven, *viz.* I, V, X, L, C, D, M. The I denotes one, V five, X ten, L fifty, C hundred, D five hundred, M a thousand. The I repeated twice makes two, II; thrice, three III; four is expressed thus, IV. I before V or X taking an Unit from the Number expressed by each of those Letters. To express six, an I is added to a V, VI; for seven, two, VII; and for eight, three, VIII; nine is expressed by an I before X, IX, agreeable to the preceding Remark. The like Remark may be made of the X before L or C, except that the Diminution is by Tens, not Units, thus XL signifies forty, and XC ninety; and L followed with an X sixty, LX, *&c.* the C before D or M, diminishes each by a hundred. Besides the Letter D which expresses five hundred, that Number may also be expressed, by an I before a C inverted, thus IↃ, and thus in lieu of the M, which signifies a thousand, is sometimes used an I between two C's, the one erect, the other inverted, thus CIↃ: Agreeable to this six hundred may be expressed IↃC, and seven hundred IↃCC, *&c.*

The *Greeks* had three Ways of expressing Numbers: The most simple was for every single Leter, according to its Place in the Alphabet, to denote a Number from α 1, to ω 24; in which Manner the Books of *Homer*'s *Ilias* are distinguished. Another Way was by dividing the Alphabet into 8 Units; α 1, β 2, &c. Tens; ι 12, κ 20, &c. Hundreds; ρ 100, σ 200. Thousands they expressed by a Point, or Accent under a Letter. *e. gr.* α 1000, ϵ 2000, &c. A third Way was by six capital Letters, thus I (ία for μία) 1, Π (πεντε) 5, Δ (δεκα) 10, H (Hεκατον) 100, X (χιλια) 1000, M (μυρια) 10000.

The *Hebrew* Alphabet was divided into 9 Units: א 1, ב 2, &c. —9 Tens; י 10, כ 20, &c. 9 Hundreds; ק 100, ר 200, &c. ך 500, מ 600, ן 700, ף 800, ץ 900. —Thousands were sometimes expressed by Units prefix'd to Hundreds, as, ארלר, 1534, &c.

French Character so called, because invented, and chiefly used by the *French*, consists of six Figures; Part taken from the Letters of the usual current Hand, and partly invented by the Contriver. —The six Characters are j, b, x, L, C, γ, the j Consonant standing for one, b for five, the x for ten, the L for fifty, the C for an Hundred, and the last Character γ for a Thousand.—This Character is only an Imitation of the *Roman* Character; and its Use is in most Respects the same, particularly in what relates to the Combination of certain Letters, which placed before, or after others, diminish or increase their Value: Indeed it has these Things peculiar to it, that when several Units occur successively, only the last is expressed. 2dly, That ninety, and the following Numbers to one hundred, are expressed thus, jjjjxxx, ninety; jjjjxxxj, ninety-one; jjjjxxxjj, ninety-two, *&c.*— It is principally used in the Chamber of Accompts, in the Accompts given in by Treasurers, Receivers, Farmers, and other Persons concerned in the Management of the Revenue.

According to *Crinitus*, *Moses* invented the *Hebrew* Letters, *Abraham* the *Syriack* and *Chaldee*; the *Phœnicians* those of *Attica*, brought into *Greece* by *Cadmus*, and thence by the *Pelasgians* into *Italy*, *Nicostrata* the *Latin*, *Isis* the *Egyptian*, and *Vulfilas* those of the *Goths*.

As to the first Letters, what they were who first invented them, and among what People they were first in Use, there is still room to doubt; however setting aside Conjectures, and Prejudice, the Business of Antiquity seems to lie between the *Egyptians* and *Chinese*. *Philo* attributes the first Invention of Letters to *Abraham*; *Josephus*, St. *Irenæus*, and others to *Enoch*; *Bibliander* to *Adam*; *Eusebius*, *Clemens Alexandrinus*, *Cornelius Agrippa*, to *Moses*; *Pomponius Mela*, *Herodian*, *Festus*, *Pliny*, *Lucan*, &c. to the *Phœnicians*; St. *Cyprian*, to *Saturn*; *Tacitus* to the *Egyptians*; and some to the *Ethiopians*.

The *Egyptian* Mummies, and *Obelisks*, prove a great Antiquity on the Side of the *Hieroglyphicks*; but if the *Chinese* Chronology may be credited, their Characters are vastly more antient than those of the *Egyptians*. The *Chinese* make *Fohi*, the first of their Kings, the Inventor of their *Letters*, and compute him to have lived 2950 Years before Christ. During all which Time, they pretend to have certain and written Accounts in their Books. If this hold true, their Characters must be older than *Moses* by 1400 Years, and even before *Menes*, the first King of *Egypt*, by 500 Years; so that the *Chinese* Letters appear to be the most antient of that Kind; and the Book *Yekim*, said to be written by *Fohi*, the most antient Book.

But as *China* is so remote, and had so little Communication with these Parts of the World; we may reasonably make another Enquiry into the Original of *Letters*, in the hither Parts of *Asia*, *Egypt*, and *Europe*. Here indeed the *Egyptians* seem to have the best Title. It is more than probable from the *Obelisks*, &c. That the *Hieroglyphicks* was the first Manner of writing, and the original Characters in these Parts, as being Prior to *Moses*; and made, at least in great measure, while the *Israelites* were Slaves among them, and consequently not well qualified for Inventions so very curious.

Whether *Cadmus*, and the *Phœnicians* learnt Letters from the *Egyptians*, or from their nearer Neighbours of *Judea* and *Samaria*, is a Question; since some of the Books of the *Old Testament*, being written in *Letters*, is more likely to have given them the Hint, than the *Hieroglyphicks* of *Egypt*. But when, or wheresoever the *Phœnicians* learn'd this Art, it is generally agreed that *Cadmus*, the Son of *Agenor*, first brought Letters to *Greece*; whence, in the following Ages, they spread over the rest of *Europe*.

Rudbecks, who in his *Atlantica* claims the Glory of all Inventions from all other Nations; for the *Swedes*, maintains, that the *Ionians* had *Letters* before *Cadmus*; that at the Time of the Siege of *Troy*, the *Greeks* had but 16 *Letters*, whereas the *Phœnicians* had 22: Whence he concludes, that it was not either *Cadmus* or the *Phœnicians*, who taught this Art to the *Greeks*. But, in regard the other northern Nations had just 16 *Letters*, like the *Greeks*, he concludes the *Greeks* must either have taught them the People of the North, or have learn'd 'em of them: But because the Form and Make of the *Runic Letters* is more artless and coarse than that of the *Greek Letters*, he concludes that those last must be derived from the former.

There are few Things on which there has been so much written, as on the original *Hebrew Letters*; since *Origen*, *Eusebius Cæsariensis*, St. *Jerom*, &c. have made it the Subject of their Enquiry. If they do not always go back to the Beginning of the World, and the Origin of Letters, it is at least enquired, what were the Letters made use of by *Moses* to transmit the Law to Posterity, or those used by the other Historians and Prophets of the *Old Testament*, or even those used by the *Hebrews* before the *Babylonian* Captivity? With regard to which, there are three principal Opinions: Some imagine, the antient *Hebrew Letter* the same with that now in Use; of this Opinion are several Doctors of the *Talmud*, *Postellus*, *Buxtorf*, &c. The second Opinion is, of those who believe the *Samaritan* Letter more antient; which is now a more common Opinion, as without doubt it is the elder: Several *Mischnick* and *Gemarick* Doctors, many of the *Rabbins*, and Fathers, *Origen*, St. *Jerom*, *Eusebius*, *Beda*, *Genebrard*, *Ramban*, *Bellarmine*, *Scaliger*, *Drusius*, &c. are of this Opinion.

The

The third is that from the Beginning there were two *Hebrew* Characters, the one sacred the other prophane; which is the Opinion of *Azuras*, R. *de Ratenora*, *Postel*, *Buxtorf*, *Conringius*, &c. But this Distinction of two *Hebrew* Characters seems a mere Chimera, for Father *Souciet* on the *Samaritan* Medals proves, that the Letters in the Inscriptions of those Medals, are the genuine original *Hebrew* Characters.

Having thus examined all the different Letters of ours, and several other Alphabets, we'll attempt next to join them together, which is the Doctrine of *Syllables*; a Syllable being part of a Word, consisting of one or more Letters, which are pronounced together; or a compleat Sound, uttered in one Breath, consisting either of a Vowel alone, or of a Vowel, and one or more Consonants, not exceeding seven: Or according to *Scaliger*, a *Syllable* is an Element under one Tone or Accent, that is, which can be pronounced at once: Or, according to *Priscian*, a Comprehension of several Letters falling under one Accent, and produced at one Motion of the Breath: Or a literal or articulate Voice, of an individual Sound.

In every Word therefore, there are as many *Syllables* as there are vocal Sounds, and as many vocal Sounds as there are simple, or compound Vowels; each whereof requires a distinct Motion of the pectoral Muscles. Thus *a*, *a*, *a*, make three *Syllables*, formed by so many Motions, distinguished by small Stops between each Expiration.

In the *Hebrew* all the *Syllables* begin with Consonants, allowing *Aleph* to be one; nor has any *Syllable* more than a single Vowel.

From the Number of *Syllables* in Words they become denominated *Monosyllables*, *Bisyllables*, *Trisyllables*, *Polisyllables*, q. d. Words of *one Syllable*, *two Syllables*, *three Syllables*, and many Syllables.

This leads us insensibly into the Doctrine of *Words*.

Words, are defined by Mess. of *Port Royal*, distinct articulate Sounds agreed on by Mankind, to convey their Thoughts and Sentiments by.

Words, as we have already observed, are divided into *Monosyllables*, *Bisyllables*, &c.

Monosyllables, are Words of a single Syllable, or which consist of one or more Letters pronounced together.

The *French* Language abounds in *Monosyllables*, more than any other. This renders it the more perplexing to Foreigners, and yet the Beauty of the Language seems to consist in it. One of the best and smoothest Lines in *Malherbe* consists of twelve *Monosyllables*; speaking of *Calista*, he says,

Et moy je ne voy rien quand je ne la voy pas.

In this the Genius of the *English* Tongue differs very much from the *French*, an uninterrupted Series of *Monosyllables* in the former having always an ill Effect. This Mr. *Pope* intimates and exemplifies in the same Verse,

And ten low Words oft creep in one dull Line.

Pasquier cites an Elegy of forty-two Verses, consisting wholly of *Monosyllables*.

Words, again, are divided into *primitives* and *derivatives*, *simple* and *compound*, *synonymous* and *equivocal*.

Primitive, is a *Root*, or a Word in a Language, which is neither derived from any other Language, nor compounded from any other Word of the same.—Thus *God* is a *Primitive*, *godly* a *Derivative*, *God-like* a *Compound*. —In French *gloire* is a *Primitive*, *glorieux* a *Derivative*, *glorifié* a *Compound*.

Derivative is a Word which takes its Origin from another Word, called its *primitive*. Such is the Word *Derivative*, which takes its Origin from its primitive *Rivus*, a Rivulet or Channel, out of which lesser Streams are drawn; and thus *Manhood*, *Deity*, *Lawyer*, &c. are derived from *Man*, *Deus*, *Law*, &c.

Equivocal, is a Word or Expression that is dubious, and ambiguous, or that may have several Senses, one true, and another false. Equivocal Terms answer to what are otherwise called *homonymu*, or *homonymous Terms*. —Such is the Word *Emperor*, which is both the Name of a Dignity, the proper Name of a Person, and the Name of a Plant.—So also the Latin *Gallus*, which stands indifferently for a Cock, and a *Frenchman*.

In these Cases one Word denotes divers Conceptions, one Word divers Things: Whence that common Definition of *Equivocals* in the Schools, *Quorum nomen est commune, ratio vero essentialis secundum illud nomen diversa.*

Synonymous, is a Word that has the same Import, or Signification with another.

Some severe Criticks condemn all Use of synonymous Words in the same Period, but this is to condemn all Antiquity: So far is the Use thereof from being vicious, that it is frequently necessary; as Synonyma's contribute both to the Force, and Clearness of the Expression. If the first Word sketch out the Resemblance of the Thing it represents, the Synonym that follows, is, as it were, a second Touch of the Pencil, and finishes the Image. Indeed they must be used with a deal of Discretion and Œconomy. The Stile must be raised and brightened, not stuffed, or loaded with synonymous Terms. They must be used as Ornaments, and to render the Expression more forcible, without making a Shew of the Riches thereof, or heaping Synonyma's on Synonyma's.

But though *synonymous Words* be laudible, *synonymous* Phrases are inexcusable: The Reason is, that two synonymous Phrases keep the Mind at rest, and let it flag and languish.

Note, That *simple*, and *primitive Words* have no natural Connection with the Thing they signify; whence there is no Rational to be given of them: It is by a mere arbitrary Institution and Agreement of Men, that they come to signify any Thing.—Certain Words have no natural Propriety or Aptitude to express certain Thoughts, more than others: Were that the Case there could have been but one Language. But in *derivative* and *compound Words*, the Case is somewhat different; in the forming of these, we see a Regard is had to Agreement, Relation, and Analogy; thus most Words that have the same Ending, have one common and general Way of denoting and signifying Things; and those compounded with the same Propositions, have a similar Manner of expressing, and signifying similar Ideas in all the learned Languages where they occur.

For the Perfection of Language it is enough, Mr. *Locke* observes, that Sounds can be made Signs of Ideas; unless these can be made use of, so as to comprehend several particular Things; for the Multiplication of Words would have perplexed their Use, had every particular Thing needed a distinct Name to be signified by.

To remedy this Inconvenience, Language had a further Improvement in the Use of general Terms, whereby one Word was made to mark a Multitude of particular Existences; which advantageous Use of Sounds was obtained only by the Difference of the Ideas, they were made Signs of; those Names becoming general, which are made to stand for general Ideas; and those remaining particular, where the Ideas they are used for, are particular.

It is observable, that the Words which stand for Actions and Notions quite removed from Sense, are borrowed from sensible Ideas; as *to imagine*, *apprehend*, *comprehend*, *understand*, *adhere*, *conceive*, *instil*, *disgust*, *Disturbance*, *Tranquility*, &c. which are all taken from Operations of Things sensible, and applied to Modes of Thinking.—*Spirit*, in its primary Signification, is no more than Breath; *Angel*, is a Messenger. By which we may guess what Kind of Notions they were, and whence derived, which filled the Minds of the first Beginners of Languages; and how Nature, even in the naming of Things, unawares suggested to Men the Original of all their Knowledge; whilst, to give Names that might make known to others any Operations they felt in themselves, or any other Ideas that came not under their Senses, they were forced to borrow Words from the ordinary and known Ideas of Sensation.

The Ends of Language in our Discourse with others, are chiefly three: First, to make our Thoughts, or Ideas

Ideas known one to another. This we fail in, 1. When we use Names without clear and distinct Ideas in our Minds. 2. When we apply received Names to Ideas, to which the common Use of that Language doth not apply them. 3. When we apply them unsteadily, making them stand now for one, and anon for another Idea.

Secondly, to make known our Thoughts with as much Ease and Quickness as is possible. This Men fail in, when they have complex Ideas, without having distinct Names for them; which may happen, either through the Defect of a Language which has none, or the Fault of the Man which has not yet learn'd them.

Thirdly, to convey the Knowledge of Things. This cannot be done but when our Ideas agree to the Reality of Things.— He that has Names without Ideas, wants Meaning in his Words, and speaks only empty Sounds. — He that has complex Ideas, without Names for them, wants Dispatch in his Expression. — He that uses his Words loosely and unsteadily, will either not be minded, or not understood. — He that applies Names to his Ideas, different from the common Use, wants Propriety in his Language, and speaks Gibberish; and he that has Ideas of Substances, disagreeing with the real Existence of Things, so far wants the Materials of true Knowledge.

But the most celebrated Division the Grammarians make of Words, is into eight Classes, called *Parts of Speech*; which are *Noun*, *Pronoun*, *Verb*, *Participle*, *Adverb*, *Conjunction*, *Preposition*, and *Interjection*; to one or other of which, all the Words, and Turns in all Languages, which have, or may be invented to express our Ideas, are reducible.

Noun, is a Name or Word, which expresses the Subject spoke of; or expresses a Subject, whereof something is, or may be affirm'd; as *Man*, *Food*, *Whiteness*, *Henry*, &c. A *Noun*, therefore, in Language, answers to an Idea in Logick.

The Generality of Subjects spoke of, have particular Names; yet there are others, which, without being attached to the same particular Subject, are yet real Nouns. Thus besides the particular Name which each Person bears, and whereby others denote him, he gives himself another when he speaks of himself; as *I*, or *myself*.

It is only the more particular Names, that in *Grammar* have retain'd the Quality of Nouns; the more general ones are called *Pronouns*.

Nouns again, are to be view'd in another Light, *viz.* as divided into *Nouns Substantive*, or *Nouns Adjective*.

They are called *Substantives*, when the Objects they design, are consider'd simply in themselves, and without any Regard to their Qualities.

They are called *Adjectives*, when their Objects are considered as cloath'd with any Qualities. Thus, when I say simply, the *Heart*, in *English*, or *Cœur*, in *French*, the Word *Heart*, or *Cœur*, is called a *Noun Substantive*, inasmuch as it does not express any of its Qualities; but if I say in *English*, *the generous Heart*, or in *French*, *le Cœur genereux* (for in *French*, the Substantive is always put before the Adjective, and in *English*, the Adjective almost always before the Substantive) I then consider the *Heart* or *Cœur*, accompanied with the Quality of *generous*. For this Reason, the Word *generous* is called *Noun Adjective*, because it adds a Quality to the Object.

But in Effect, the Object is alone design'd by the Nouns Substantive, which in this View, are alone the proper Nouns.

Adjectives at Bottom, are only Modificatives of Nouns, though in one View they may be consider'd as Nouns, *viz.* as they do not so much represent a Quality or Circumstance of the Object, as the Object itself, cloath'd with that Quality or Circumstance. Nor must it be omitted, that a Noun Adjective frequently becomes a Substantive; for as its Nature is to express the Quality of an Object, if that Quality happens to be the Object itself spoke of, then, according to our first Definition, it becomes a Substantive. Thus if I say *a good Intention*, the Word *good* is here an Adjective, representing the Intention as cloath'd with the Quality of Goodness; but if I say *the Good is to be chosen*, or in *French*, *le Bon est preferable*, it is evident, that *Good* or *Bon* is the Subject here spoke of, and of Consequence is a Noun Substantive, nor are there Cases wanting, wherein Nouns Substantives become Adjectives.

It is true, in the common Use of *Grammar*, Nouns that are really Adjectives are not reckon'd as such; none being esteem'd Adjectives but those which without any, or at least any considerable Change in their Inflection and Termination, are join'd indifferently to Nouns Substantives of different Genders.

Nouns are again divided into proper and appellative. Nouns proper, are those which express a particular Thing or Person, so as to distinguish it from all other Things of the same Kind, as *Socrates*, *Peter*, *Paul*, *James*, &c. Nouns appellative are those common to several Individuals, of the same Kind, as *Man*, *Angel*, &c.

There are also heterogeneous Nouns, which are such as are of one Gender in the singular Number, and of another in the plural. These Nouns are also called *Heteroclite*, of which we have various Sorts, *viz.* *defective* and *redundant Heteroclites*, &c. Under the Class of *Heteroclites* come *Aptotes*, *Diptotes*, *Monaptotes*, *Triptotes*, *Tetraptotes*, *Pentaptotes*, &c.

Aptote, is a Noun indeclinable, or which is without any Variation of Case; such are the Words *fas*, *nefas*, &c.

Diptote, is a Kind of irregular Noun, having only two Cases; as *fors*, *forte*.

Triptotes, are defective Nouns, which have only three Cases; such is *fors*, *fortis*, *forte*; or *dica*, *dicas*, *dicam*.

Tetraptote, is a Name given to such defective Nouns as have only four Cases, as are, *Astas*, *Repetundæ*, &c.

Pentaptote, is a Noun which has only five Cases.

Pronoun, is a Part of Speech, used in lieu of Noun, or Name; whence the Denomination from *Pro* and *Nomen*, q. d. for *Noun* or *Name*.

As it would have been disagreeable to have been always repeating the same Name, there are Words invented in all Languages, called *Pronouns*, to save the Necessity thereof, and to stand in the Place of Names; as in *English*, I, thou, he; in *French*, moy, toy, or *vous*, *luy*, &c.

As *Nouns* are the Marks or Signs of Things, *Pronouns* are the Signs of *Nouns*. Father *Buffier*, however, shews that *Pronouns* are real *Nouns* or Names; and that all the Difference between what the Grammarians call *Nouns* and *Pronouns*, is, that the former are more particular, and the latter more general.

They are called *Pronouns*, because used in the Place of particular *Nouns*. Indeed sometimes they do not fill the Place of *Nouns* entirely, but need other Words to assist them, to express the Object spoken of; such, *e. gr.* are *who*, *whoever*, or in *French*, *qui*, *qui que ce soit*, which do not express any determinate Object, whereof a Thing may be affirm'd, unless accompanied with another Word, especially a Verb, as whoever labours deserves a Reward; or in *French*, *quique ce soit qui travaille merite destre recompensé*.

These Father *Buffier* calls *incomplete Pronouns*, to distinguish them from those which express an Object completely; as *I*, *thou*, *he*; in *French*, *moy*, *toy*, or *vous*, *luy*, &c.

The Grammarians ordinarily distinguish *Pronouns* into four Classes, with Regard to their different Signification, Formation, &c. viz. *Pronouns personal*, *relative*, *possessive*, and *demonstrative*, to which may be added, *indeterminate Pronouns*.

Personal Pronouns, are those used in lieu of Names of particular Persons; such are *I*, *thou*, *he*, *we*, *ye*, *they*; or in *French*, *moy*, *toy*, *luy*, *nous*, *vous*, *eux*.

Pronouns relative, which *Buffier* calls *modificative*, or *determinative*, are those placed after *Nouns*, with which they

they have ſuch Affinity, that without them they ſignify nothing, ſuch are *who*, *that*; or in *French*, *qui*, *cela*, &c.

Pronouns poſſeſſive, are thoſe which expreſs what each poſſeſſes, or what belongs to him, as *mine*, *thine*, *his*; or in *French*, *mien*, *tien*, *ſien*, &c. Theſe are pure Adjectives, and only differ from the reſt by the Relation they bear to *Pronouns*, whence they are derived, and by ſome particular Inflections, which they have in ſome Languages.

Pronouns demonſtrative, are thoſe which ſerve to indicate or point out the Subject ſpoken of; as *this*, *thoſe*; or in *French*, *cecy*, *cela*, *ceuxla*, or *celles la*, &c.

Pronouns indefinite, are thoſe which expreſs their Subject indeterminately; as *however*, *any*, &c. theſe coincide with what Father *Buffier* calls *incomplete Pronouns*.

Pronouns are likewiſe divided into *Subſtantive* and *Adjective*. To the firſt belong *I*, *thou*, *he*; to the ſecond, *my*, *mine*, *who*, *what*, &c.

Pronouns may alſo be conſider'd in two States; the firſt or foregoing State, as *I*, *we*; the ſecond or following one, as *me*, *us*.

Note, That it has been thought proper, in order to render Diſcourſe more expreſs and diſtinct, as alſo to embelliſh it by a Variety of Terminations, to contrive certain Diverſities in Adjectives, accommodated to the Subſtantives they are applied to: Whence from a Regard to that notable Difference there is between the two Sexes, all Nouns Subſtantive have been diſtinguiſhed, into *Maſculine* and *Feminine Genders*; and the Nouns Adjective alſo varied to correſpond therewith.

But as there was an Infinity of Words, which had no proper Relation, either to the one Sex or the other, they had *Genders* aſſign'd them, rather out of Caprice than Reaſon; and hence it is that the *Gender* of a Noun, is frequently dubious and fluctuating.

Note alſo, That this Inſtitution of *Genders*, was not made with Deſign and Deliberation by the Maſters of Language, but was introduced by Cuſtom and Uſage. At firſt there was only a Difference between the Names of Animals, when ſpoke of Males and Females; by Degrees the ſame Regulation was extended to other Things: The Grammarians have only noted and allow'd what Uſage had eſtabliſh'd.

Note again, That the oriental Languages frequently neglect the Uſe of *Genders*; and the *Perſian* Language has none at all, which ſome imagine, is no Diſadvantage; pretending that the Diſtinction of *Genders* is in ſome Meaſure uſeleſs. The *Latins*, *Greeks*, &c. generally content themſelves to expreſs the different *Genders* by different Terminations; as *bonus Equus*, a good Horſe; *bona Equa*, a good Mare; but in *Engliſh* they go farther, and expreſs the Difference of Sex, by different Words; as Boar, Sow; Boy, Girl; Buck, Doe; Bull, Cow; Cock, Hen; Dog, Bitch, *&c.* The *French* follow in ſome Things the Practice of the *Latins*, and in others that of the *Engliſh*. For they ſometimes expreſs the Difference of Genders, by different Terminations; as *Aſne*, *Aſneſſe*; *Chien*, *Chiene*; *Chat*, *Chatte*, &c. and ſometimes by different Words; as *Garçon*, *Fille*; *Toreau*, *Vache*; *Cerf*, *Biche*, &c.

The *Engliſh* have only about twenty-four Feminines, diſtinguiſhed from the Males, by the Variation of the Termination of the Male into *eſs*; of which Number are Abbot, Abbeſs; Count, Counteſs; Actor, Actreſs; Heir, Heireſs; Prince, Princeſs, *&c.* which is all the *Engliſh* know of any Thing like *Genders*.

The eaſtern Languages, as well as the vulgar ones of the Weſt, have only two *Genders*; the Maſculine and Feminine. The *Greeks* and *Latins* have likewiſe the Neuter, Common, and the Doubtful *Gender*; and beſides theſe, they have the *Epicene* or Promiſcuous, which under one ſingle *Gender* or Termination, includes both the Kinds.

The *Maſculine* GENDER, is that which belongs to the Male Kind, or ſomething analogous to it.

Moſt Subſtantives are ranged under the Heads of Maſculine or Feminine. This in ſome Caſes, is done with a Shew of Reaſon, but in others is merely arbitrary; and for that Reaſon is found to vary, according to the Languages, and even according to the Words introduced from one Language into another. Thus the Names of Trees are generally Feminine in *Latin*, and Maſculine in *French*. Further, the Genders of the ſame Word, are ſometimes varied in the ſame Language; thus *Alvus*, according to *Priſcian*, was antiently Maſculine, but it is now become Feminine. And *Navire*, a Ship, in *French*, was antiently Feminine, but is now Maſculine.

The *Feminine* GENDER, is that which denotes the Noun or Name to belong to a Female. In the *Latin*, the Feminine *Gender* is formed of the Maſculine, by altering its Termination; particularly by changing *us* into *a*. Thus of the Maſculine *bonus Equus*, a good Horſe, is formed the Feminine *bona Equa*, a good Mare; ſo of *parvus Homo*, a little Man, is formed *parva Fæmina*, a little Woman; in *French*, the Feminine *Gender* is expreſſed either by a different Termination, or different Words, as we have already obſerved, and likewiſe by a different Article; thus *le* is join'd to a Male, and *la* to a Female.

The *Neuter* is a Sort of Gender of Nouns, which are neither Maſculine nor Feminine. In *Engliſh*, and other modern Languages, there is no ſuch Thing as Neuter Nouns.

Epicœne, is a Term applied to Nouns, which under the ſame *Gender* and Termination, mark indifferently two Kinds or Sexes; ſuch in *Latin* is *Aquila*, *Veſpertilio*, &c. which ſignify equally a Male or Female Eagle, or Bat.

Grammarians diſtinguiſh between *Epicœne* and *Common*.— A Noun is ſaid to be common of two Kinds, when it may be joined either with a Maſculine or a Feminine Article; and *Epicœne*, when it is always joined to ſome one of the two Articles, and yet ſignifies both *Genders*.

The Inflection of a Noun, according to its different Caſes, is called *Declenſion*, which is a different Thing in the modern Languages, which have not properly any Caſes, from what it is in the antient *Greek* and *Latins* which have.

Declenſion in Languages, wherein the Nouns admit of Changes, whether in the Beginning, Middle, or End, is properly the expreſſing or reciting of all thoſe Changes in a certain Order, and by certain Degrees, called *Caſes*.

In Languages wherein the Nouns do not admit of Changes, *Declenſion* is the expreſſing of the different States or Habitudes a Noun is in, and the different Relations it has; which Difference of Relations is mark'd by Particles, called *Articles*, as *a*, *the*, *to*, *from*, &c. and in *French* (in the ſingular Number) *le*, *la*, *du*, *ó*, *au*, or *á*, *le*; and in the plural Number, *les*, *des*, *aux*, *les*, &c.

Every Declenſion has commonly two Numbers, *viz.* the ſingular and the plural; which Numbers are a Modification of Nouns, *&c.* to accommodate them to the Varieties in their Objects, conſider'd with Regard to Number.

When a Noun indicates an Object, conſider'd as ſingle or alone, or a Number of them conſider'd as united together, it is ſaid to be of the ſingular Number; as a *Tree*, a *Troop*, a *Temple*, &c. or in *French*, *un Homme*, *un Fille*, *un Temple*, &c.

When it indicates ſeveral Objects, and thoſe as diſtinct, it is of the plural Number; as *Trees*, *Temples*, &c. or in *French*, *Hommes*, *Filles*, &c. Thus when I ſpeak of myſelf, as making Part of ſeveral others, inſtead of *I*, I ſay *we*, in *French*, *nous*, &c.

The *Greeks* have a third Number, which they call the *dual Number*, as ſignifying two. The *Hebrews* have ſomething like it, but then it only takes Place when the Words ſignify a Thing double by Nature, as the Hands, the Eyes, *&c.* or by Art, as Sciſſars, Tongs, *&c.*

As to common and appellative Names, they ſeem all naturally

naturally to require a plural Number; yet there are several which have none, as the Names of *Gold*, *Steel*, &c.

The Difference of Numbers in Nouns, is expreſs'd by a Difference of Termination or Ending.

In *Engliſh* and *French*, the ſingular is uſually converted into plural, by adding *s*; as *Tree*, *Trees*, *Hand*, *Hands*; and in *French*, *Arbre*, *Arbres*, *Main*, *Mains*, &c. where the Pronunciation requires it, in *Engliſh*, as when the ſingular ends in *s* or *x*, *ſh* or *ch*, it is uſually done by the Addition of *es*, inſtead of *s*.

The Plurals of Adjectives, though varied from the Singulars in moſt other Languages, yet in *Engliſh* are generally the ſame.

Every Number has commonly ſix Caſes, or different Inflections, or Terminations of Nouns; ſerving to expreſs the different States or Relations they bear to each other, and to the Things they repreſent.

There is a great Diverſity among Grammarians, with Regard to the Nature and Number of Caſes. They generally, as already obſerv'd, find ſix, even in moſt of the modern Languages, which they call the *Nominative*, *Genitive*, *Dative*, *Accuſative*, *Vocative*, and *Ablative*: But this ſeems only in Compliance with their own Ideas, which are form'd on the *Greek* or *Latin*, and which they transfer to other Languages. The Truth is, if by Caſe be only meant an occaſional Change in the Termination of a Noun or Name, which ſeems to be the juſt Idea of Caſe (Regard being had, either to the Reaſon of the Thing, or the Sound of the Word *Caſus*, from *Cadere*, to fall) there will, in this Senſe, be juſt as many Caſes as there are different Terminations of Nouns in the ſame Number, *i. e.* in ſome Languages more, in others leſs, and in others none at all.

Indeed the Generality of Authors, either have not any preciſe Notion of Caſes at all, or they wander ſtrangely from that Notion; for they always reckon five Caſes of Nouns in the *Greek*, and ſix in the *Latin*: Though ſeveral of theſe Caſes be frequently alike, as the Genitive and Dative ſingular, of the firſt Declenſion of the *Latin*; the Dative and Ablative plural of the ſecond, *&c.* the Genitive and Dative dual of the *Greek*, &c. ſo that the Termination is not the ſole Criterion of the Caſe.

It ſeems, however, much more agreeable to the Principles of *Grammar*, which only conſider Words materially, to make as many different Caſes, as there are Changes in the Termination of a Name; which would free the *Engliſh*, and other modern Tongues, from the Embaraſs of Caſes; moſt of them expreſſing the various Relations, not by Changes in Termination, as the Antients, but by the Oppoſition of Articles and Propoſitions. On this Footing, it is certainly wrong to ſay, *v. gr.* that *of a Father*, is the Genitive Caſe of Father; and *to a Father*, the Dative; for *of* and *to* are no Part of the Name *Father*: They are no Caſes nor Terminations, but Articles or Modificatives, which ſhew the different Relations of the Word *Father*. And the ſame may be ſaid of the Caſes of Nouns, in the *French*, *Italian*, *Spaniſh*, *Portugueſe* Tongues, *&c.*

But the Caſe is otherwiſe in the *Greek* Name πατηρ, or the *Latin Patris*; which are real Caſes of the Word πατηρ, and *Pater*, and different from them; and ſomewhat like this may be ſaid of the *Hebrew*, *Arabick*, *Armenian*, *Poliſh*, and *German* Languages, which in the ſame Number admit of Changes in the Termination of Words; and yet in theſe Languages, Caſes are pretty different from what they are in the *Greek* and *Latin*. The *Hebrew* Names, for Inſtance, are not properly declin'd by Caſes: The Relation expreſſed by the Genitive Caſe, it is true, occaſions an Alteration in them; but then this Alteration, inſtead of being in the Noun govern'd, as in the *Latin*, in the *Hebrew* is in that which governs; as דבר שקר, *verbum falſitatis*; where the Change is not in שקר, *falſitas*, but in דבר for דבר, *verbum*.

F. *Galanus* makes ten Caſes in the *Armenian*; obſerving, that beſides the ſix ordinary Caſes, there is one which ſerves to expreſs the Inſtrument wherewith any Thing is done; another for Narration to expreſs the Subject; a third to ſhew that one Thing is in another; and a fourth to ſhew a Relation, between one Thing and another. Authors make but three Caſes in the *Arabick*, as having only three Terminations, *on*, *in*, and *an*.

It muſt be obſerv'd however, that though many of the Languages have not properly any Caſes of Nouns; yet moſt, if not all of them, have a Kind of Caſes in their Pronouns, without which it would be hard to conceive the Connection, or Syntax of a Diſcourſe; and which therefore make a neceſſary Part of *Grammar*.

But to give a more particular Account of Caſes, we muſt inform the Reader, that the ſimple Poſition, or laying down of a Noun or Name, which is declinable, is called the *Nominative Caſe*, yet it is not ſo properly a Caſe, as the Matter, or Ground whence the other Caſes are to be form'd, by the ſeveral Changes and Inflections given to this firſt Termination. Its chief Uſe is to be placed in Diſcourſe before all Verbs, as the Subject of the Propoſition or Affirmation, as *Dominus regit me*, the Lord governs me; *Deus exaudit me*, God hears me.

The Relation of one Thing, conſider'd as belonging in ſome Manner to another, has occaſioned a peculiar Termination of Nouns, called the *Genitive Caſe*.

In *Engliſh*, the *Genitive Caſe* is made by prefixing the Particle *of*; in *French*, *de*, or *du*, &c. though in Strictneſs there are no Caſes at all in either of thoſe Languages, inaſmuch as they do not expreſs the different Relations of Things, by different Terminations, but by additional Propoſitions.

In the *Latin*, this Relation is expreſſed in divers Manners; thus we ſay *Caput hominis*, the Head of a Man; *Color roſæ*, the Colour of a Roſe; *Opus Dei*, the Work of God, *&c.*

As the *Genitive Caſe* ſerves to expreſs very different, and even oppoſite Relations, there ſometimes ariſes an Ambiguity therefrom: Thus in the Phraſe, *vulnus Achillis*, the Wound of *Achilles*, the *Genitive Achillis*, may either ſignify the Relation of Subject, in which Senſe it is taken paſſively for the Wound *Achilles* has received, or the Relation of a Cauſe, in which Senſe it is taken actively for the Wound *Achilles* has given: Thus in that Paſſage of St. *Paul*, *Certus ſum quod neque mors, neque vita*, &c. *Nos poterit ſeparare a Charitate Dei in Chriſto*, &c. The *Genitive Dei*, has been taken by Interpreters in two different Senſes; ſome giving it the Relation of Object, and underſtanding the Paſſage of the Love which the Elect bear to God, in *Jeſus Chriſt*, whereas others give it the Relation of Subject, and explain it of the Love which God bears the Elect in *Jeſus Chriſt*.

In the *Hebrew* Tongue, the *Genitive Caſe* is mark'd after a Manner very different from that of the *Greek* and *Latin*, for whereas in thoſe Languages the Noun governed is varied, in the *Hebrew* the Noun governing undergoes the Alteration.

The third Caſe in the Declenſion of Nouns, is the *Dative*, which expreſſes the State or Relation of a Thing to whoſe Profit or Loſs ſome other Thing is referr'd. It is called *Dative*, becauſe uſually govern'd by a Verb implying ſomething to be given to ſome Perſon; as *commodare Socrati*, to lend to *Socrates*; *utilis Republicæ*, uſeful to the Commonwealth.

In *Engliſh*, where they have properly no Caſes, this Relation is expreſſed by the Sign *to* or *for*; and in *French*, by the Sign *a*, or *au*.

The *Accuſative* is the fourth Caſe of Nouns that are declin'd. Its Uſe may be conceived from this, that all Verbs which expreſs Actions that paſs from the Agent, as to beat, *&c.* muſt have Subjects to receive thoſe Actions; for if I beat, I muſt beat ſomething; ſo that ſuch Verb, evidently requires after it a Noun or Name, to be the Object of the Action expreſſed. Hence in all Languages which have Caſes, the Nouns have a Termination, which they call *Accuſative*, as *Amo Deum*, I love God; *Cæſar vicit Pompeium*, *Cæſar* overcame *Pompey*.

In *Engliſh* and *French*, they have nothing to diſtinguiſh this Caſe from the *Nominative*; but as they ordinarily place Words in their natural Order, it is eaſily diſcovered; the *Nominative* conſtantly preceding, and the *Accuſative* following the Verb. Thus when we ſay the Prince loves

loves the Princeſs, and the Princeſs loves the Prince; the Prince is the *Nominative* in the firſt, and the *Accuſative* in the laſt; and the Princeſs the *Accuſative* in the firſt, and the *Nominative* in the laſt.

The *Vocative* is the fifth Caſe, or State of Nouns. When we name the Perſon we are ſpeaking to, or addreſs ourſelves to the Thing we are ſpeaking of, as if it were a Perſon, the Noun or Name acquires a new Relation, which the *Latins* and *Greeks* expreſs by a new Termination, called *Vocative*. Thus of *Dominus*, Lord, in the *Nominative*, the *Latins* have made *Domine*, O Lord, in the *Vocative*; of *Antonius*, *Antonii*, &c. But as this was a Thing not abſolutely neceſſary, and as the *Nominative Caſe* might ſerve on ſuch Occaſions, this new Caſe or Termination, was not univerſal in the plural; for Inſtance, it was the ſame with the *Nominative*, even in the ſingular, it was only practiſed in the ſecond Declenſion among the *Latins*; and in *Greek*, where it is the moſt common, it is frequently neglected, and the *Nominative* uſed inſtead of it; as in that Paſſage in the *Greek* Pſalms, quoted by St. *Paul*, to prove the Divinity of *Jeſus Chriſt*, θρονος σου ὁ Θεος, thy Throne O God!

In *Engliſh*, and moſt of the modern Tongues, this Caſe is ordinarily expreſſed in Nouns, that have an Article in the *Nominative*, by ſuppreſſing that Article; as *The Lord is my Hope. Lord, thou art my Hope!* Though on many Occaſions we uſe an Interjection.

The *Ablative* is the ſixth Caſe of *Latin* Nouns. The *Ablative* is oppoſite to the *Dative*; the firſt expreſſing the Action of taking away, and the latter that of giving.

The *Ablative* ſcarce anſwers to the juſt Idea of a Caſe, at leaſt it is the leaſt in Vogue of all others: Even in the antient Languages, from which the Notion of Caſes is borrow'd, it is ſuggeſted the *Ablative* is only a Sort of ſupernumerary, or Supplement to the reſt. The five proper Caſes not being found ſufficient to expreſs all the Relations of Things to each other, Recourſe was had to an Expedient, *viz.* the putting a Propoſition before ſome of the other Caſes, and this made the *Ablative*. It may be added, that in the plural Number, the *Ablative* is ſtill more obſcure, as being only the *Dative* repeated.

In *Engliſh*, *French*, &c. there is no preciſe Mark, whereby to diſtinguiſh the *Ablative* from other Caſes; and we only uſe the Term in Analogy to the *Latin*. Thus in the two Phraſes, *the Magnitude of the City*, *and he ſpoke much of the City*; we ſay, that *of the City*, in the firſt is *Genitive*, and in the latter *Ablative*; by Reaſon it would be ſo, if the two Phraſes were expreſſed in *Latin*.

From the Nouns, Pronouns, *&c.* I'll paſs to the VERBS, thus called of the *Latin*, *verbum*, Word, by Way of Eminence; the Verb being the principal Word of a Sentence.

The common Definition given by Grammarians, is, that a Verb is a Word that betokens *being*, *doing*, or *ſuffering*.

To conceive the Origin and Office of Verbs, it may be obſerved, that the Judgment we make of any Thing, as when I ſay, *the Earth is round*, neceſſarily includes three Terms. The firſt call'd the *Subject*, is the Thing we affirm of, *e. gr. Earth*. The ſecond call'd *Attribute*, is the Thing affirmed, *e. gr. round*. The third, *is*, connects thoſe two Terms together, and expreſſes the Action of the Mind, *affirming* the Attribute of the Subject.

This laſt is what we properly call *Verb*; and which ſome of our later Grammarians, particularly thoſe of *Port-Royal*, at *Paris*, choſe to call by a more ſignificant Word, *Affirmation*; the Reaſon is, that its principal Uſe is to ſignify *Affirmation*; that is, to ſhew the Diſcourſe wherein that Word is uſed, is the Diſcourſe of a Man, who does not only conceive Things, but judges and affirms ſomewhat of them.

By this Circumſtance a Verb is diſtinguiſhed from Nouns, which alſo ſignify an Affirmation, as *affirmans*, *affirmatio*; thoſe only ſignify an Affirmation, as that, by a Reflection of the Mind, is render'd an Object of Thought; ſo that they do not ſhew that the Perſon who uſes them affirms, but only that he conceives an *Affirmation*.

Though the principal Uſe of Verbs be to ſignify *Affirmation*, they alſo ſerve to expreſs the other Motions of the Soul; as *to deſire*, *pray*, *command*, &c. but this they only do, by changing the Mood, or Inflection.

Here we only conſider the Verb in its primary Signification, which is, that it has in the Indicative Mood. On this Footing the *Verb* ſhould have no other Uſe, but to mark the Connection which we make in the Mind, between the two Terms of a Propoſition: But the *Verb*, *eſſe*, to be, is the only one that has retained this Simplicity: Nor, in Strictneſs, has this retained it, but in the third Perſon, as *eſt*, is.

In Effect, Men being naturally inclined to ſhorten their Expreſſions, to the Affirmation they have almoſt always added other Significations, in the ſame Word: Thus, *v. gr.* they add that of ſome Attribute, ſo as that two Words make a Propoſition; as in *Petrus vivit*, *Peter* lives; where *vivit* includes both the Attribute, and Affirmation; it being the ſame Thing to ſay, *Peter* lives, as *Peter* is living. And hence the great Variety of *Verbs* in every Language: For had People been contented to give the *Verb* its general Signification, without any additional Attribute, each Language would have only needed one *Verb*, *viz.* the *Verb* Subſtantive *eſt*, is.

Again, on ſome Occaſions, they alſo ſuperadd the Subject of the Propoſition, as *ſum homo*, I am a Man; or *vivo*, I live: And hence the Diverſity of Perſons in *Verbs*.

Again, we alſo add to the *Verb*, a Relation to the Time, with regard to which we affirm; ſo that one ſingle Word, *Cœnaſti*, ſignifies, that I attribute to the Perſon I ſpeak, the Action of Supping, not for the preſent Time, but for the paſt: And hence the great Diverſity of *Tenſes* in moſt *Verbs*.

The Diverſity of theſe Significations, or Additions in the ſame Word, has perplexed, and deceived many of our beſt Authors in the Nature of a *Verb*; and led them to conſider it, not according to what is eſſential to it, which is to affirm; but according to ſome of its accidental Relations.

Thus *Ariſtotle*, taking up with the third of thoſe additional Significations, defines *Verb* to be *Vox ſignificans cum tempore*, a Word ſignifying ſomething with Time.

Others, as *Buxtorf*, adding the ſecond Relation, defines it, *Vox flexilis cum tempore & perſonâ*; a Word admitting of divers Inflections, with Time and Perſon.

Others taking up with the firſt of the additional Significations, which is that of the Attribute, and conſidering that the Attributes Men ordinarily add to the Affirmation were Actions, and Paſſions, have ſuppoſed the Eſſence of a *Verb* to conſiſt in ſignifying *Actions*, or *Paſſions*.

Laſtly, *Scaliger* imagined he had made a great Diſcovery in his Book of *the Principles of the Latin Tongue*, in ſaying that the Diſtinction of Things into *Permanentes*, and *Fluentes*, into what remain, and what paſs away, is the proper Source of the Diſtinction between *Nouns* and *Verbs*; the firſt being to ſignify what remains, and the ſecond what paſſes.

But from what we have ſaid it is eaſy to perceive, that theſe Definitions are all falſe; and that the only true Definition is, *Vox ſignificans affirmationem:* This Definition includes all that is eſſential to the *Verb*; but if one would likewiſe include its principal Accidents, one might define it, *Vox ſignificans affirmationem, cum deſignatione perſonæ, numeri & temporis*; a Word which ſignifies an Affirmation with a Deſignation of Perſon, Number and Tenſe: Which is what properly agrees to the *Verb* Subſtantive *eſt*.

For as to other *Verbs*, conſidered as becoming diſferent by the Union of certain Attributes, one may define them thus; *Vox ſignificans affirmationem alicujus attributi, cum deſignatione perſonæ, numeri & temporis*; a Word which expreſſes the Affirmation of ſome Attribute, with a Deſignation of Perſon, Number and Time.

Verbs

Verbs are variouſly divided; with reſpect to the Subject they are divided into, *active*, *paſſive*, *neuter*, &c. With reſpect to their Inflections, into *regular*, and *irregular*; *perſonal*, and *imperſonal*, *auxiliary*, *ſubſtantive*, &c.

Verb *active*, is a *Verb* which expreſſes an Action that falls on another Subject, or Object. Such are *I love*, *I work*, &c. which ſignify the Action of *loving*, *working*, &c.—Of theſe, Grammarians make three Kinds; the one called *Tranſitive*, where the Action paſſes on a Subject different from the Agent;—*Reflected*, where the Action returns upon the Agent.—*Reciprocal*, where the Action returns mutually upon the two Agents that produce it.

Verb *paſſive*, is that which expreſſes a Paſſion, or which receives the Action of ſome Agent, and which is conjugated in the modern Tongues with the *auxiliary Verb*, *I am*, *je ſuis*, *jo ſono*, &c.—Some do not allow of any *Verbs paſſive* in the modern Languages: The Reaſon is, what we call *paſſive*, is nothing but the Participle of the *Verb*, joined with the *auxiliary Verb*, *to be*; whereas the *Verbs paſſive* of the *Latin*, &c. have their particular Terminations.

Verb neuter, is that which ſignifies an Action that has no particular Object whereon to fall; but which, of itſelf, takes up the whole Idea of the Action.—As, *I ſleep*, thou *yawneſt*, *he ſnores*, *we walk*, *you run*, *they ſtand*.—The *Latins* call them *Neuters*, by reaſon they are neither *active* nor *paſſive*; though they have the Force and Signification of both: As *I languiſh*, ſignifies as much as *I am languiſhing*; *I obey*, as much as *I exerciſe Obedience*, &c. only that they have no Regimen to particularize this Signification.

Of theſe *Verbs* there are ſome which form their Tenſes by the *auxiliary Verb*, *to have*; as *I have ſlept*, *you have run*.—Theſe Grammarians call *Neuters active*.

Others there are, which form their compound Parts by the auxiliary, *to be*; as *to come*, *to arrive*, &c. for we ſay *I am come*, not *I have come*; in French *Je ſuis venû*, not *Jai vennû*, &c. Theſe are called *Neuters paſſive*.

Verb *ſubſtantive*, is that which expreſſes the Being, or Subſtance which the Mind forms to itſelf, or ſuppoſes in the Object; whether it be there or not; a *I am*, *thou art*, in French *Je ſuis*, *tu es*.

Auxiliary, or *helping Verbs*, are thoſe which ſerve in conjugating *active* and *paſſive Verbs*; ſuch are *I am*, *I have*, &c.

The Abbot *Dangeau* diſtinguiſhes all *Verbs* into two general Kinds, *viz. auxiliary Verbs*, and thoſe which make uſe of Auxiliaries. This Diſtinction ſome may take as not very juſt; in regard, *auxiliary Verbs* ſometimes make uſe of Auxiliaries themſelves; but this does not deſtroy the Diviſion, it only ſhews that the *auxiliary Verb* has two Formalities, or two different Qualities to be conſidered under; in virtue whereof, it conſtitutes as it were, two Sorts of *Verbs*.

The *Verbs* which make uſe of Auxiliaries, he divides into *active*, *neuter*, and *pronominal*.—*Verbs neuter* he further diſtinguiſhes into *neuters active*, and *neuters paſſive*.—*Pronominals* he diſtinguiſhes into *identic*, *reciprocal*, *neutriſed*, and *paſſived*.—But ſeveral of theſe are peculiar to the *French* Language.

Verbs in the *Engliſh*, and moſt modern Tongues, do not change their Endings, as in *Latin*, to denote the ſeveral Times, Modes, *&c.* of their Being, Doing, or Suffering; but in lieu thereof, make uſe of Auxiliaries: as *have*, *am*, *be*, *do*, *will*, *ſhall*, *may*, *can*, &c.

Regular Verbs, are thoſe which are conjugated after ſome one Manner, Rule, or Analogy.

Irregular, or *Anamolous* Verbs, are thoſe which have ſomething ſingular in the Terminations, or Formation of their Tenſes.

The Irregularity in *Engliſh* Verbs, lies wholly in the Formation of the preter Tenſe, and paſſive Participle.—The firſt, and moſt general Irregularity, took its Riſe from the Quickneſs of our Pronunciation, by changing the Conſonant *d* into *t*; the Vowel *e*, in the regular Ending *ed*, being cut off, that the Pronunciation might be more ready: Thus for *dwelled*, *keeped*, *ſended*, we ſay *dwelt*, *kept*, *ſent*.

Verbs *impersonal*, are thoſe which have only the third Perſon, as it behoves, *&c.*

As the Nouns are declined, the *Verbs* are conjugated; and what is called *Declenſion* with regard to Nouns, *&c.* is called *Conjugation* with regard to *Verbs*.

Conjugation, is an orderly Diſtribution of the ſeveral Parts or Inflexions of *Verbs*, in their different Moods and Tenſes, to diſtinguiſh them from each other.

The *Latins* have four *Conjugations*, diſtinguiſhed by the Terminations of their Infinitive, *are*, *ere*, *ere*, *ire*; and moſt of the *French* Grammarians reduce the *Conjugations* of our Language to the ſame Number, ending in *er*, *re*, *ir*, and *oir*.

In *Engliſh*, where the Verbs have ſcarce any natural Inflections, but derive all their Variations from additional Particles, Pronouns, *&c.* they have hardly any ſuch Things as ſtrict *Conjugations*.

Conjugations conſiſt of Moods, Tenſes, Perſons, and Numbers.

Mood, or Mode, is uſed to ſignify the different Manners of conjugating Verbs, agreeably to the different Actions, or Affections to be expreſſed; as *ſhewing*, *commanding*, *wiſhing*, &c.

Hence ariſe five *Moods*, viz. the *Indicative*, *Imperative*, *Optative*, *Subjunctive*, and *Infinitive*.

Some Grammarians reckon but four *Moods*, confounding the *Optative* with the *Subjunctive*; and ſome make ſix, dividing the *Optative* into *Potential*, and *Optative*.

The *Greeks* have five *Moods* of Verbs differing in Termination; but the *Latins* have but four.—In *Engliſh*, the Terminations are the ſame in all the *Moods*.

The *Indicative*, is the firſt *Mood*, or Manner of Conjugating Verbs, ſhewing either the Time preſent, paſt, or future.

The *Imperative*, is the *Mood*, or Manner of Conjugating a Verb, ſerving to expreſs a Commandment, as *go*, *come*; or in French *alles*, *venes*, &c.

The *Optative*, is the third *Mood*, in the Conjugation of Verbs, ſerving to expreſs an ardent Deſire, or Wiſh for any Thing.

Inſtead of a particular *Mood*, or a particular Set of Inflections to expreſs this Deſire, the *Engliſh*, *Latins*, &c. expreſs it by an Adverb of wiſhing prefixed to it. The *Latins* by *utinam*; the *French* by *plut à Dieu*; and the *Engliſh* by *would to God*, &c.

In theſe Languages, ſetting aſide the Adverb, the *Optative* is the ſame with the *Subjunctive*; the Inflexions of the Verb which make what we call *Moods*, being the ſame in both.

Indeed, in the *Greek*, the Wiſh is expreſſed by a particular Inflexion, thence call'd *Optative*; and in the *French*, *Spaniſh*, and *Italian*, there is ſomething like it; their triple Tenſes ſerving the ſame Purpoſe.—But the *optative Mood* may be ſafely retrenched from the *Latin*, and *Engliſh*.

The *Subjunctive* is the fourth *Mood*, or Manner of conjugating Verbs; thus called, becauſe uſually ſubjoined to ſome other Verbs, or at leaſt to ſome other Particle, as *if I love*; *though this were true*, &c.

The *Greek* is almoſt the only Language, that properly has any *ſubjunctive Mood*; though the *French*, *Spaniſh*, and *Italian* have ſome Shew thereof.—In all other Languages the ſame Inflections ſerve for the optative, and the *ſubjunctive Moods*: For which Reaſon the *ſubjunctive Mood* might be retrenched from the *Latin*, and thoſe other *Grammars*; it not being the different Ways of ſignifying, which may be very much multiplied, but the different Inflexions that conſtitute the different *Moods*.

The *Infinitive* is the fifth *Mood*, or Manner of conjugating of Verbs.

The *Infinitive*, does not denote any preciſe Time, nor does it determine the Number, or Perſons, but expreſſes Things in a looſe indefinite Manner, as *to teach*, &c.

In moſt Languages both antient and modern, the *Infinitive* is diſtinguiſhed by a Termination peculiar to it, as τυπτειν in the *Greek*, *ſcribere* in the Latin, *ecrire* in the French, *ſcrivere* in the Italian, *&c.* but the *Engliſh* is defective in this Point; ſo that to denote the *Infinitive*,

they are obliged to have Recourse to the Article *to*, except sometimes when two or more *Infinitives* follow each other.

The Practice of using a Number of *Infinitives* successively, is a great, but a common Fault in Language; as *he offered to go to teach to write English*. Indeed where *Infinitives* have no Dependance on each other, they may be used elegantly enough; as *to mourn, to sigh, to sink, to swoon, to die*.

For the Origin of *Moods*, it may be observed, that Verbs are of that kind of Words, which signify the Manner and Form of our Thoughts, whereof the Principal is Affirmation. Verbs are also formed to receive several Inflections, as the Affirmation regards different Persons, and different Times; whence arise the Persons and Tenses of Verbs.

But besides these, Men have thought fit to invent other Inflections, to express what passes in their Mind still more distinctly: For, in the first Place they considered, that besides the simple Affirmations, as *he loves, he loved*; there were others modified, and conditional, as *if he loved, though he should love*: And the better to distinguish these Affirmations from the others, they doubled the Inflections of those Tenses, or Times; making some serve for simple Affirmations, as *I love, he loved*; and reserving the rest for Affirmations that were modified; as *if he should love, might he have loved*. Yet they kept not steadily to their Rules, but sometimes made use of simple Inflections, to express Affirmations that were modified, as *& si vereor*, for *& si verear*. And it is from this last kind of Inflection, that Grammarians have formed their *Subjunctive*.

But further, besides the Affirmation, the Action of our Will may be taken for a *Mood*, or Manner of our Thoughts; and Men have found themselves under a Necessity of expressing what they will, as well as what they think. Now we may will a Thing in several Manners, whereof there are three which may be considered as the Principal. First then, we sometimes will Things which do not depend on ourselves, and in that Case, we only will them by a bare Wish, which the *Latins* express by the Particle *utinam*; and the *English* by *please God*. Some Languages, for instance, the *Greeks* have invented particular Inflections for this End; whence the Grammarians have taken Occasion to call it the optative Mood; and there seems something like both in the *French, Italian*, and *Spanish* Tongues, in regard those have a kind of triple Tenses; but in *Latin, English*, &c. the same Inflections serve for the Subjunctive, and for the Optative. For this Reason one may very well retrench this Word from the *Latin* Conjugations; it being the different Inflections that make *Moods*, not the different Manner of signifying, which may be varied to Infinity.

We sometimes will in another Manner; as when we are content a Thing should come to pass, though we do not absolutely desire it; as when *Terence* says, *profundat, perdat, pereat*, let him spend, sink, perish. Men might have invented a particular Inflection to express this Movement, as in the *Greek* they have done to express a simple Desire; but they have not done it, and in lieu thereof make use of the Subjunctive: In *English* they add the Particle *let him spend*, &c. Authors call this the *potential*, or *concessive Mood*.

The third Manner of willing, is, when what we desire, depending on another Person, of whom we can obtain it, we signify our Will that we do it. This is the Motion we use, when we command or pray; and to express this Motion was the imperative Mood invented, which has no first Person in the singular, because a Man, properly speaking, cannot command himself: In some Languages it has no third Person, because, in Strictness, a Man cannot command any Person, but him to whom he speaks or addresses himself. And in regard the Command or Prayer always relates to what is to come, it happens that the imperative Mood, and the future Tense are frequently used for each other (especially in the *Hebrew*) as *non occides, thou shalt not kill*, for *do not kill*. Hence some Grammarians place the Imperatives among the Number of Futures.

Of all the *Moods* we have mentioned, the oriental Languages have none but the last, which is the Imperative. The Method taken for it in *English* is either to omit the Pronoun, or transpose it; thus, *I love*, is a simple Affirmation; *love we*, an Imperative.

Tense, *Time* (the next Thing I consider in the Conjugation of Verbs) is one Inflection of Verbs, whereby they are made to signify, or distinguish the Circumstance of Time, of the Thing they affirm or attribute.

The Affirmatives made by Verbs, are different as to Point of Time; since we may affirm a Thing *is, was*, or *will be*; hence a Necessity of a Set of Inflections, to denote those several Times; which Inflections the *English* Grammarians call by a barbarous Word *Tenses*, from the *French Temps*, Time; and most other Languages call them simply *Times*.

There are but three simple *Tenses*; the *Present*, as *I love, amo*, in *Latin, j'aime*, in *French*; the *Preter, preterit*, or *past, I have loved, amavi*, in *Latin, j'ai aimé*, in *French*; and the *Future*, as *I will love, amabo*, in *Latin, j'aimerai*, in *French*.

But in Regard, in the *Preter Tense*, one may either express the Thing as just done or past, or indefinitely, and barely that it was done, hence in most Languages, arise two Kinds of *Preterits*, the one *definite*, marking the Thing to be precisely done; as *I have written, I have said, j'ai escrit, j'ai dit*, in *French*; and the other *indefinite*, or *aorist*, denoting a Thing done indeterminately; as *I wrote, I went, j'escrivis, j'allai*, in *French*.

The *Future Tense* admits of the same Variety.

Besides the three *simple Tenses*, others have been invented, called *compound Tenses*; expressing the Relation of the simple ones to each other. The first expresses the Relation of the *Past* to the *Present*, and is called the *Preterimperfect Tense*, because it does not mark the Thing simply, and properly as done, but as imperfect and present with respect to another Thing past; as *I was at Supper when he entered, Cum intravit cœnabam*, in the *Latin*; *j'etois a Soupper quand il entra*, in the *French*.

The second *Compound Tense* marks the Time past doubly; and is therefore called *Plusquamperfect Tense*, as *I had supped, Cœnaveram*, in the *Latin*; *javois Souppe*, in the *French*.

The third *compound Tense* denotes the *future* with respect to the *past*, as I shall have supped; *cœnavero* in the Latin; *Jáurai soupé* in the French.

Note, That the several *Tenses* or *Times*, are properly denoted in the *Greek* and *Latin* by particular Inflections: In the *English, French*, and other modern Tongues, the auxiliary Verbs *to be*, and *to have, etre* and *avoir* are called in.

As to the Oriental Languages, they have only two *simple Tenses*, the *past*, and *future*, without any Distinctions of *imperfect*, more than *perfect*, &c. which renders those Languages subject to Abundance of Ambiguities which others are free from.

Verbs when conjugated, are applicable to three different *Persons, e. gr.—I love, Jáime*, is a Verb used in the *first Person, thou loveſt, tu aime*, designs the *second Person*; *he loveth, il aime*, marks the *third*, and thus in the plural Number: For Verbs in their Conjugations, like Nouns in their Declensions admit of two Numbers, *viz.* the *singular*, and the *plural Number*.

From the Verbs I'll pass to the Participle, which is an Adjective formed of a Verb; so called, because it still participates of some of the Properties of the Verb, retaining the Regimen and Signification thereof; whence most Authors confound it with Verbs.

There are two Kinds of *Participles*, the one called *active*, because expressing the Subject which makes the Action of the Verb; as *legens, audiens, reading, hearing*. The other called *passive*, because expressing the Subject that receives the Action of the Verb, as *lectum, auditum, read, heard*.

As the *English* Adjectives are not declined, the *Participles* being real Adjectives, are not declined neither; in the *Latin*, &c. where the Adjectives are declined,

the *Participles active*, are declin'd likewise. Thus they say, *Audiens*, *Audientis*, *Audienti*, &c. and in the *French*; the *Participles passive* are declinable as their Adjectives, as *j'ai leu*, *il a leu*, *nous avous lus*, &c.

In the *English*, the *Participles* and *Gerunds* are not at all distinguishable.

GERUND, is a Sort of Tense or Time of the Infinitive Mood, like to the Participle, but indeclinable.

The *Gerund* expresses not only the Time, but also the Manner of an Action, as *he fell in running Post*, *Il tomba en courant la poste*, in the *French*.

It differs from the Participle, in that it expresses the Time, which the Participle does not. And from the Tense, properly so called, in that it expresses the Manner, which the Tense does not.

Grammarians are much embarassed to settle the Nature and Character of *Gerunds*: It is certain they are no Verbs, nor distinct Moods of Verbs, in regard they do not mark any Judgment or Affirmation of the Mind, which is the Essence of a Verb. And besides they have Cases, which Verbs have not. Some, therefore, will have them to be Adjectives passive, whose Substantive is the Infinitive of the Verb: On this Footing, they denominate them *verbal Nouns*, or Names formed of Verbs, and retaining the ordinary Regimen thereof; thus say they, *Tempus est legendi libros*, or *librorum*, is as much as to say, *Tempus est τȣ legere libros*, *vel librorum*; but others stand up against this Decision.

Now for the ADVERB, which is a Particle join'd to a Verb, Adjective, or Participle, to express their Manner of acting or suffering; or to mark some Circumstance or Quality signified by them.

The Word is formed from the Proposition *ad*, to, and *verbum*, a Verb, and signifies literally a Word joined to a Verb, to shew how, or when, or where one is, does, or suffers; as the Boy paints *neatly*, writes *ill*; the House stands *there*, &c.

Not that the *Adverb* is confin'd purely to the Verb, but because that it is most ordinarily in Use, whence it becomes so denominated, κατ εξοχην. We frequently find it join'd to Adjectives, and sometimes even to Substantives, particularly where those Substantives signify an Attribute, or Quality of the Thing spoken of; *v. gr.* he is *very* sick, he acts *prudently*, he is *truly* King.

An *Adverb* is likewise join'd sometimes to another *Adverb*, to modify its Meaning, *v. g. very devoutly*, in *French*, *fort devotement*, whence some Grammarians chuse rather to call Adverbs, *Modificatives*; comprizing under this one general Term, both *Adverbs*, *Conjunctions*, *Prepositions*, and even *Adjectives*.

Adverbs are very numerous, but may be reduced under the general Classes of *Adverbs* of *Time*, of *Place*, of *Order*, of *Quantity*, of *Quality*, of *Manner*, of *Affirmation*, of *Doubting*, and of *Comparison*.

From *Adverbs* I'll pass to CONJUNCTION, which is a Particle which expresses a Relation, or Dependance between Words and Phrases; thus called, because serving to join or connect the Parts, or Members of a Discourse.

The *Conjunction* is the sixth of the eight vulgar Parts of Speech. *Conjunctions* render the Discourse more smooth, and fluent; and serve very good Purposes in the argumentative and narrative Style, but must ever be omitted where a Person speaks with Emotion, as only serving to weaken and enervate it. *Boileau* observes, that nothing gives more Warmth and Life to a Discourse, than to drop the *Conjunctions* or Copulatives: A Passion, adds he, embarrassed with *Conjunctions*, and useless Particles, loses all the Fire and Vehemence it would get in its Progress.

Conjunctions are of various Kinds. — *Copulative*, or *Conjunctive Conjunctions*, are those which express a Relation of Union, or Comparison between Things, as and, *&*; only, *tantum*; as much as, *tantum quantum*; in the same Manner as, *quemadmodum*; neither more nor less, *tantumdem*; inasmuch as, *quippe*; not only, *non modo*; but also, *sed etiam*, &c.

CONJUNCTIONS *Adversative*, are those which express a Restriction, or Contrariety; as but, *sed*; nevertheless, *tamen*; although, *etiamsi*; far from, *adeo non*.

CONJUNCTIONS *Causal*, are those that shew that the Reason of something is brought; as for, *nam*; because, *quia*; seeing, *quippe*; the rather since, *eo magis quo*; inasmuch as, *quatenus*.

CONJUNCTIONS *Conclusive*, are those which denote a Consequence drawn; as, for which Reason, *qua propter*; but then, *atqui*; of Consequence, *ideoque*; so that, *ita ut*, &c.

CONJUNCTIONS *Conditional*, are those which import a Condition; as, if, *si*; if not, *si minus*; on Condition that, *eâ lege ut*; provided that, *dummodo ut*; in Case of, *si vero*.

CONJUNCTIONS *Continuative*, are those which express a Succession, or Continuation of the Discourse; as, in Effect, *reipsa*; even, *etiam*; whatever it be, *quicquid sit*.

CONJUNCTIONS *Disjunctive*, are those which express a Relation of Separation or Division; as, neither, *nec*; whether, *sive* or *vel*.

CONJUNCTIONS *Dubitative*, are those which express some Doubt or Suspension of Opinion; as, if, *that is to say*; if, *&c.*

CONJUNCTION *Exceptive* are, if it be not, *nisi si*; unless that, *nisi*, &c.

Next comes PREPOSITION, which is an indeclinable Particle, which yet serves to govern the Nouns that follow it; such are *per*, *pro*, *propter*, *in*, with, through, from, by, *&c.*

They are called *Prepositions*, because *prepositæ*, placed before the Nouns they govern.

F. *Buffier* does not allow the *Preposition* to be a Part of Speech, but merely a Modificative of a Part of Speech, *viz.* of the Noun, serving only to modify, or circumstantiate it.

From this we'll pass to INTERJECTION, which is an Expression used to denote some sudden Motion, or Passion of the Mind, as *oh! he!* &c.

As the greatest Part of the Expressions used on those Occasions are taken from Nature alone, the real *Interjections* in most Languages are Monosyllables. And as all Nations agree in those natural Passions, so do they agree in the Signs and Indications of them, as of Love, Mirth, *&c.*

Some deny the *Interjections* to be Words, or any Part of Speech, and make them mere natural Signs of the Motions or Passions of the Mind, expressed by these inarticulated Sounds, several whereof Brutes have in common with us. But as these are Passions, and must be represented in Discourse, the *Interjection* has a good Foundation in Nature, and is a necessary Part of Speech.

The *Greeks* confound their *Interjections* with Adverbs; and the *Hebrews* confound them with their Adverbs and Prepositions, calling them all by the general Name *Particle*.

Note, That the last Part of our Division of *Grammar*, is the *Doctrine of Sentences*, which considers the placing or joining Words together, called *Syntax*; therefore we must endeavour to learn this last Part, as we have done all the three others.

The SYNTAX, ΣΥΝΤΑΞΙΣ, is the Construction, or Connection of the Words of a Language into Sentences, or Phrases.

F. *Buffier* more accurately defines *Syntax*, the Manner of constructing one Word with another, with Regard to the different Terminations thereof, prescribed by the Rules of Grammar.

Some Authors, as M. *Vauglas*, confounds *Syntax* with Style; but there is a real Difference.

The Office of *Syntax*, is to consider the natural Suitableness of Words with Respect to one another; in order to make them agree in the Gender, Number, Person, Mood, *&c.*

To offend in any of these Points, is called to offend against *Syntax*; and such Kind of Offence, when gross, is called a *Solecism*; and when more slight, a *Barbarism*.

The several Parts of Speech are, with Regard to Language, what Materials are with Regard to a Building.

How well prepar'd ſoever they may be, they will never make a Houſe, unleſs they be placed conformable to the Rules of Architecture. It is properly the *Syntax* that gives the Forms to Language, and it is that on which turn the moſt eſſential Parts of *Grammar*.

There are two Kinds of *Syntax*; the one of Concord, wherein the Words are to agree in Gender, Number, Caſe, and Perſon.

The other of Regimen or Government, wherein one Word governs another, and occaſions ſome Variation therein.

The firſt, generally ſpeaking, is the ſame in all Languages, as being the natural Series of what is uſed almoſt every where; the latter to diſtinguiſh Diſcourſe. Thus the Diſtinction of two Numbers, ſingular and plural, has rendered it neceſſary to make the Adjective agree with the Subſtantive in Number; that is, to make the one ſingular or plural, when the other is ſo; for as the Subſtantive is the Subject confuſedly, though directly marked by the Adjective; if the Subſtantive expreſſes ſeveral, there muſt be ſeveral Subjects expreſſed in that Form by the Adjective; and by Conſequence it ought to be in the plural; as *homines docti*, learned Men; but there being no Variety of Termination in the Adjective, in *Engliſh*, to diſtinguiſh the Number, it is only implied.

The Diſtinction of Maſculine and Feminine Gender, obliges the Languages which have diſtinct Terminations to have a Concordance, or Agreement between the Subſtantive and Adjective, in Gender, as well as Number; and for the ſame Reaſon, the Verbs are to agree with the Nouns and Pronouns in Number and Perſon. If at any Time we meet with any Thing that ſeems to contradict theſe Rules, it is by a Figure of Speech, *i. e.* by having ſome Word underſtood, or by conſidering the Thoughts rather than the Words themſelves.

The *Syntax of Government* on the contrary, is generally arbitrary, and on that Account differs in moſt Languages. One Language, for Inſtance, forms their Regimen by Caſes, as the *Latin* and *Greek*: Others uſe Particles in lieu thereof, as the *French*, *Engliſh*, *Italian*, *Spaniſh*, &c.

One or two general Rules, however, may be here noted, which obtain in all Languages. 1. That there is no Nominative Caſe, but has a Relation to ſome Verb, either expreſſed or underſtood; ſince we do not only ſpeak to expreſs what we perceive, but to expreſs what we think of what we perceive, which is done by the Verb.

2. That there is no Verb, but has its Nominative Caſe, either expreſſed or underſtood; for the Office of the Verb being to affirm, there muſt be ſomething to affirm of, which is the Subject, or Nominative Caſe of the Verb, except before an Infinitive, where it is an Accuſative, as *Scio Petrum eſſe doctum*, I know *Peter* to be learned.

3. There is no Adjective but has a Relation to ſome Subſtantive, in Regard the Adjective marks confuſedly the Subſtantive; which is the Subject of the Form or Quality, marked by the Adjective.

4. That there never comes any Genitive Caſe, but what is govern'd by ſome other Noun.

5. The Government of Verbs is frequently taken from various Sorts of References, included in the Caſes, according to the Practice of Cuſtom or Age; which yet does not change the ſpecifick Relation of each Caſe, but only ſhews that Cuſtom has made Choice of this or that. Thus the *Latins* ſay, *Juvare aliquem, & opitulari, alicui:* The *French*, *Servir quelquun, & ſervir a quelque choſe*; and in the *Spaniſh*, the Generality of Verbs govern indifferently a Dative and an Accuſative Caſe.

It is eaſy to underſtand, that theſe general Rules are the Foundation of the Doctrine of *Sentences*; ſince a *Sentence* denotes a Period; or a Set of Words comprehending ſome perfect Senſe, or Sentiment of the Mind.

Every *Sentence* comprehends at leaſt three Words.

The Buſineſs of Pointing, is to diſtinguiſh ſeveral Parts or Members of *Sentences*, ſo as to render the Senſe thereof the cleareſt, apteſt, and fulleſt poſſible.

In every *Sentence* there are two Parts neceſſarily requir'd; a Noun for the Subject, and a definite Verb: Whatever is found more than theſe two, affects one of them, either immediately or by the Intervention of ſome other, whereby the firſt is affected.

Again, every *Sentence* is either *Simple* or *Conjunct*: A *Simple Sentence* is that conſiſting of one ſingle Subject, and one finite Verb. — A *Conjunct Sentence* contains ſeveral Subjects, and finite Verbs, either expreſſy or implicitly.

A *Simple Sentence* needs no Point or Diſtinction, only a Period to cloſe it; as *a good Man loves Virtue for itſelf*. In ſuch a *Sentence*, the ſeveral Adjuncts affect either the Subject or the Verb in a different Manner; thus the Word *good*, expreſſes the Quality of the Subject; *Virtue*, the Object of the Action; and, *for itſelf*, the End thereof. Now none of theſe Adjuncts can be ſeparated from the reſt of the *Sentence*; for if one be, why ſhould not all the reſt? and if all be, the *Sentence* will be minced into almoſt as many Parts as there are Words.

But if ſeveral Adjuncts be attributed in the ſame Manner, either to the Subject or to the Verb, the *Sentence* becomes *Conjunct*, and is to be divided into Parts.

In every *Conjunct Sentence*, as many Subjects, or as many finite Verbs as there are, either expreſſy, or implied, ſo many Diſtinctions may there be; thus, *my Hopes, Fears, Joys, Pains, all center in you*; and thus *Cicero, Catilina abiit, exceſſit, evaſit, erupit*. The Reaſon of which Pointing is obvious; for as many Subjects or finite Verbs as there are in a *Sentence*, ſo many Members does it really contain. Whenever, therefore, there occur more Nouns than Verbs, or contrariwiſe, they are to be conceived as equal; ſince, as every Subject requires its Verb, ſo every Verb requires its Subject, wherewith it may agree; excepting perhaps in ſome figurative Expreſſions.

Indeed there are ſome other Kinds of *Sentences*, which may be ranked among the *Conjunct* Kind, particularly the *abſolute Ablative*, as it is called, *thus Phyſicians, the Diſeaſe once diſcover'd, think the Cure half wrought*. Where the Words, *Diſeaſe once diſcover'd*, are equivalent to, *when the Cauſe of the Diſeaſe is diſcovered*. So alſo in Nouns, added by Appoſition; as, *the* Scots, *a hardy People, endured it all*; ſo alſo in Vocative Caſes, and Interjections; as, *this, my Friend, you muſt allow me*; and, *what, for Heaven Sake, would he be at?*

The Caſe is much the ſame when ſeveral Adjuncts affect either the Subject of the *Sentence*, in the Verb, in the ſame Manner; or at leaſt ſomething whereby one of them is affected; as, *a good, wiſe, learn'd Man, is an Ornament to the Commonwealth*; where the ſeveral Adjectives denoting ſo many Qualities of the Subject, are to be ſeparated from one another. Again, when I ſay, *your Voice, Countenance, Geſture terrified him*. The ſeveral Nominative Caſes denote ſo many Modes of the Verb, which are likewiſe to be diſtinguiſhed from each other. The Caſe is the ſame in Adverbs; as, *he behaved himſelf modeſtly, prudently, virtuouſly*. In the firſt Example, the Adjuncts immediately affect the Subject; in the third, the Verb; in the following one, another Adjunct; as, *I ſaw a Man loaden with Age, Sickneſs, Wounds*.

Now as many ſuch Adjuncts as there are, ſo many ſeveral Members does the *Sentence* contain, which are to be diſtinguiſhed from each other, as much as ſeveral Subjects, or finite Verbs; and that this is the Caſe in all *Conjunct Sentences*, appears hence, that all thoſe Adjuncts, whether they be Verbs or Nouns, *&c.* will admit of a *Conjunction copulative*, whereby they may be joined together. But wherever there is a Copulative, or Room for it, there a new Member of a *Sentence* begins.

A Period, according to *De Colonia*, is a ſhort, but perfect *Sentence*, conſiſting of certain Parts of Members, depending one on another, and connected together by ſome common *Vinculum*.

The celebrated Diviſion of *Ariſtotle* is, a Period is a Diſcourſe which has a Beginning, a Middle, and an End, all viſible at one View.

The Periods allow'd in Oratory are three; a Period of two Members, called by the *Greeks*, *Dicolos*, and

the *Latins*, *Bimembris*; a Period of three Members, *Tricolos*, *Trimembris*; and a Period of four Members, *Quadrimembris*, *Tetracolos*.

A ſtrict oratorial Period, does not allow of either more or fewer than theſe: It is poſſible indeed to introduce a Period of one Member, called by *Ariſtotle*, *Monocolos*, or ſimple Period; but it will be reputed a Flaw, and is a Thing never practiſed by the Maſters.

The Period may be likewiſe prolonged to five or ſix Members, but then it changes its Name, and inſtead of Period, commences what they call a *Periodical Diſcourſe*.

The Laws and Meaſures of Periods, are pretty ſtrictly regarded by Orators, at leaſt by the antient ones: In ordinary Diſcourſe, and in the modern Tongues, Authors are much leſs ſevere.

In Oratory, the Members of Periods are to be equal, or nearly equal; that the Pauſes or Reſts of the Voice at the Cloſe of each Member, may be nearly equal: But in Writing, no Ways intended for Rehearſal, this is diſregarded.

Common Diſcourſe allows of Periods, both longer and ſhorter than Oratory; which admits of none leſs than two Members, nor greater than four. Short mutilated Periods break the Stream, and check the Courſe of the ſublime; and long ones embaraſs, and keep the Mind too long in Suſpenſe; and even ſtrain the Voice, which is never to ſtop but at the Ends of Periods.

Periods are ſaid to be either round or ſquare, according to their different Œconomy and Cadences.

Square Period, is that conſiſting of three or four equal Members, formally diſtinguiſhed from each other.

Round Period, is that whoſe Members or Parts are ſo connected, and fitted into each other, as that the Junctures or Commiſſures are ſcarce ſeen; but the whole ſlides equally round, without any notable Stops or Inequalities.

Period is alſo uſed for the Character (.) wherewith the Periods of Diſcourſe are terminated and expreſſed, popularly called a *Full-ſtop* or *Point*.

F. *Buffier* obſerves two Difficulties in the Uſe of the Period, or Point, *i. e.* in diſtinguiſhing it from the Colon, or double Point; and in determining juſtly the End of a Period, or perfect Sentence.

It is obſerved, that the ſupernumerary Members of a Period, ſeparated from the reſt by Colons and Semi-colons, uſually commence with a Conjunction. Yet it is certain, theſe ſame Conjunctions, ſometimes rather begin new Periods, than ſupernumerary Members of old ones. It is the Senſe of Things, and the Author's own Diſcretion, that muſt make the proper Diſtinction which of the two in Effect it is. No Rules will here be of any Service, unleſs this be admitted as one, that when what follows the Conjunction is of as much Extent as what precedes it, it is uſually a new Period, otherwiſe not.

The ſecond Difficulty ariſes hence, that the Senſe appears perfect in ſeveral ſhort detached Phraſes, wherein it does not ſeem there ſhould be Periods; a Thing frequent in free Diſcourſe; as, *We are all in Suſpenſe: Make your Propoſal immediately: You will be to blame for detaining us longer.* Where it is evident, that ſimple Phraſes have perfect Senſes like Periods, and ought to be marked accordingly; but that the Shortneſs of the Diſcourſe making them eaſily comprehended, the Pointing is neglected.

A Phrase is a ſhort Sentence, or ſmall Set or Circuit of Words conſtructed together. In this Senſe, F. *Buffier* divides Phraſes into compleat and incompleat.

Phrases are *compleat*, where there is a Noun and a Verb, each in its proper Function, *i. e.* where the Noun expreſſes a Subject, and the Verb the Thing affirm'd of it.

Incompleat Phrases, are thoſe where the Noun, and the Verb together only do the Office of a Noun; conſiſting of ſeveral Words without affirming any Thing, and which might be expreſſed in a ſingle Word. Thus, *that which is true*, is an *incompleat Phraſe*, which might be expreſſed in one Word *Truth*; as, *that which is true ſatisfies the Mind*, i. e. *Truth ſatisfies the Mind.*

Note, That the *Points* uſed to divide a Diſcourſe into Periods, and Members of Periods (to expreſs the Pauſes to be made in the Reading thereof) are four, *viz.* the *Period* or *Point*, already mention'd, *Colon*, *Semicolon*, and *Comma*.

A *Colon* is a Point or Character, form'd thus (:) ſerving to mark a Pauſe, and to divide the Members of a Period. Grammarians generally aſſign the Uſe of a *Colon*, to mark the Middle of a Period, or to conclude a Senſe leſs perfect than the Dot or Period. Others ſay a *Colon* is to be uſed when the Senſe is perfect, but the Sentence not concluded. F. *Buffier* attempts to fix the Uſe of the *Colon*; but does not much diſtinguiſh it from the *Semicolon:* He preſcribes the Uſe of either indifferently; and calls them by a common Name, *intermediate Pointings*; as being Mediums between the *Comma*, and *Full-point* or *Period*. Their Uſe, according to this Author, is to diſtinguiſh the ſupernumerary Members of a Period: The moſt obvious and ſenſible Uſe of the *Colon*, he adds, is when the ſupernumerary Member is diſtinguiſhed by ſome Conjunction. Some, indeed, uſe the *Colon* in the Middle of long Periods, without any Regard to ſupernumerary Members; which Cuſtom was probably introduced, to mark that the Breath is here to be taken almoſt as much as in a common Period, in the Place where the ſupernumerary Period commences. But this, at beſt is arbitrary, and the intermediate Pointings may be always omitted in a Period, if there be no ſupernumerary Member, *i. e.* if there be no ſubſequent Member, but what is expected from the Precedent.

A later Author, in an ingenious Diſcourſe, *De ratione Interpungendi*, marks the Office of the *Colon*, and wherein it differs from the *Semicolon*, &c. more preciſely: A *Colon*, on his Principles, ſerves to diſtinguiſh thoſe conjunct Members of a Sentence, which are capable of being divided into other Members, whereof one at leaſt is conjunct.

The *Semicolon*, is one of the Points or Stops uſed to diſtinguiſh the ſeveral Members of Sentences from each other. The Mark or Character of the *Semicolon* is (;) It has its Name, as having a ſomewhat leſs Effect than a *Colon*, or as demanding a ſhorter Pauſe. The Uſe of the *Semicolon*, the Grammarians generally ſay, is to mark a Senſe leſs compleat than the *Colon*, and more compleat than the *Comma*; but this only conveys a very obſcure Idea. In Effect, the preciſe Office of the *Semicolon*, or what Office it is diſtinguiſhes it from the *Colon*, is a Thing very little known in the World: Our beſt Authors ſeem to uſe them promiſcuouſly. M. *Ward*, Profeſſor at *Greſham*, we believe is the firſt who ſettled the juſt Uſe of the *Semicolon*. His Poſition is, that the *Semicolon* is properly uſed to diſtinguiſh the conjunct Members of Sentences. Now by a conjunct Member of a Sentence, he means, ſuch a one as contains at leaſt two ſimple Members. Whenever then a Sentence can be divided into ſeveral Members of the ſame Degree, which are again diviſible into other ſimple Members, the former are to be ſeparated by a *Semicolon*.

A *Comma*, is a Point or Character form'd thus (,) ſerving to mark a ſhort Stop or Pauſe; and to divide the Members of a Period. It is very difficult to fix the preciſe Uſe of the *Comma*, different Authors define, and uſe it differently: The ordinary Doctrine is, that the *Comma* ſerves to diſtinguiſh Nouns, Verbs, Adverbs, and the ſeveral Parts of a Period that are not neceſſarily join'd together. But this conveys no clear preciſe Idea; for what is it to diſtinguiſh the Parts of a Period not neceſſarily join'd together? F. *Buffier* has carried the Doctrine of a *Comma* farther: According to him, the *Comma* ſerves to diſtinguiſh thoſe Members of a Period, in each whereof is a Verb, and the Nominative Caſe of the Verb. Beſides this, the *Comma* is uſed to diſtinguiſh in the ſame Member of a Period, ſeveral Nouns Subſtantive, or Nouns Adjective, or Verbs not united by a Conjunction; for if they be united by a Conjunction, the

Comma

Comma is omitted: It may alſo be omitted between two Phraſes that are very ſhort, eſpecially if they depend on the ſame Regimen, and are united by a Conjunction.

Note alſo, That beſides theſe above-mention'd, the *Grammar* admits of other Punctuations, *viz.* the *Parentheſis* mark'd thus ( ) and which includes ſome Words, which, if left out, would not break, or alter the Senſe, or Smoothneſs of the Style. The *Interrogation* mark'd thus (?) and which is made at aſking a Queſtion. *Note of Admiration* or *Exclamation* thus (!) *Hyphen* thus (-) which couples together two Words, as *Well-Spring*, and is uſed when a Word is parted into Syllables, at the End of a Line. The *Section* thus (§) which divides a large Diſcourſe into ſeveral Parts; very little uſed at preſent. *Aſteriſm* thus (*) which refers to the Margin. *Obeliſk* thus (†) notes from the Matter to the Margin. *Note of Citation* thus (") when Authors are cited Word for Word. *Apoſtrophe* thus (') when a Letter is purpoſely left out, as *'tis*, for *it is*; *'twas*, for *it was*. *Induction* thus (ʌ) is made to bring in ſomething omitted. *Dialyſis* or *Diaireleos* thus (¨) is uſed to Part a Diphthong, and is made over the Vowels *Aër*, *Poëta*, that it may not be pronounced *Ær*, *Pœta*. *Grave Accent* thus (`) uſed over a Vowel, when the Voice is depreſſed. *Acute Accent* thus (´) when the Voice is to be rais'd higher. *Croſis* thus (ˆ) uſed over Circumflex Syllables, long by Nature, as *Dî* for *Dij*, *Amârunt* for *Amaverunt*.

Note again, That *Grammar* admits of Figures, which occaſion Changes in the Form, *&c.* of Words, thereof are *Syncope*, *Apocope*, *Apoſtrophe*, *Diæreſis*, *Aphæreſis*, *Proſtheſis*, *Epentheſis*, *Paragoge*, *Metatheſis*, &c.

SYNCOPE denotes an Eliſion or Retrenchment of one or more Letters, or Syllables from a Word: As when we ſay *virum*, for *virorum*, and *manet alta repoſtum*, for *repoſitum*.

APOCOPE, is a Figure wherein Part of the End of a Word is cut off; as in *dic* for *dice*, *fac* for *face*, *nil* for *nihil*, *hyp* or *hyppo*, for *hyppochondriacal*.

APOSTROPHE, denotes a Note or Character, placed over a Letter, in lieu of a Vowel, to denote that the Vowel is cut off, and not to be pronounced: As *ev'n* for *even*; *th' angelick Hoſt*, for *the angelick*, &c.—The Affectation of frequent *Apoſtrophes*, ſo uſual among late *Engliſh* Writers, is a great Abuſe.

APHÆRESIS, is a Figure, whereby ſomething is taken away from the Beginning of a Word.—Thus *Ciconia*, by *Aphæreſis*, is wrote *conia*, *contemnere*, *temnere*, *omittere*, *mittere*, *&c.*

PROSTHESIS, is a Species of Metaplaſm; being the prefixing of ſome Letter, or Syllable at the Beginning of a Word:—As, in *gnavus*, for *navus*.

EPENTHESIS, is the Addition, or Inſertion of a Letter, or Syllable, in the Middle of a Word.—As *Relligio* for *Religio*, *Mavers* for *Mars*.

PARAGOGE, is a Figure, whereby a Word is lengthened out, by adding a Syllable at the End thereof: As in *dicier* for *dici*.

METATHESIS, is a Figure, whereby Letters or Syllables of a Word are tranſpoſed, or ſhifted out of the natural Situation: As *Evandre* for *Evander*, *Iprœ* for *præi*.

Having thus learned the different Rules of *Grammar*, as well general as particular, I muſt treat next of the different Languages; ſince they all, more or leſs, depend of thoſe Rules: A LANGUAGE being a Set of Words which any People have agreed upon, whereby to communicate their Thoughts to each other.

The firſt Principles of all *Languages*, Father *Buffier* obſerves, may be reduced to Expreſſions, ſignifying firſt the Subject ſpoke of; ſecondly, the Thing affirmed of it; thirdly, the Circumſtances of the one and the other. But as each Language has its particular Way of denoting each of theſe, a *Language* is only to be look'd on, as an Aſſemblage of Expreſſions, which Chance or Caprice has eſtabliſhed among a certain People; juſt as we look on the Mode of Dreſſing, *&c.* It is Uſage and Cuſtom is the Uſe of a *Language*, and theſe hold their Empire independant of Reaſon, or any other Cauſe: Nor has Reaſon any Thing to do in *Language*, unleſs to ſtudy or teach it, ſuch as it is: Here then commences *Grammar*, a juſt Plan of which ſuppoſes a *Language* already introduced by Uſe; and without pretending to alter or amend a Tittle, only furniſhes Reflections, called *Rules*, to which the Manners of Speaking in that *Language* may be reduced; which Aſſemblage of Reflections, is what we call the *Grammar of that Language*. This Remark may obviate an Abuſe introduced among Grammarians, who are ever crying out, 'Uſage is, in 'this Point, oppoſite to *Grammar*; or the *Language* 'here frees itſelf from the Rules of *Grammar*, &c.'

It is Chance, then, to which we owe Uſage, and Uſage that makes the Rules and Meaſures of a *Language*. Uſage, indeed, is ſomewhat dubious, and may be divided into *good* and *bad*: If it be aſked, wherein the Difference between theſe lies? it is in this; that the one is better eſtabliſhed, and authoriſed than the other: And if it be aſked, wherein the Difference of Authority conſiſts? it is anſwered, that in dead *Languages*, that which makes the good Uſage is the Writing of the beſt Authors in that *Language*: And if it be further queſtioned, which are the beſt? thoſe are allowed ſuch, who wrote when that State was in its greateſt Glory. Thus the Age of *Auguſtus*, being the moſt diſtinguiſhed by great Men, who then flouriſhed; we call that *good Latin*, which is conformable to the Manner of Speaking uſed by Authors who wrote fifty Years before, and fifty Years after the Reign of that Emperor.—As to living *Languages*, the good Uſage, or Mode, is that which obtains among the moſt eminent Perſons, whether as to Quality and Authority, or as to Learning, and the Reputation of writing well.

With this View M. *Vaugelas* defines Uſage of a *Language*, the Manner of Speaking uſed by the ſoundeſt or beſt Part of the Court, conformable to the Manner of Writing among the beſt Part of the Authors of the Times.—But this Definition, how judicious ſoever, may occaſion infinite Doubt; for which is to be deemed the beſt Part of the Court, and of the Writers? each Party doubtleſs thinks itſelf the beſt.—Father *Buffier*, therefore, inſtead of the beſt Part, ſubſtitutes the greateſt Part, which brings the Matter nearer to a Certainty; the moſt numerous Part being ſomething fixed, and palpable, whereas the moſt ſound Part may be inſenſible, or arbitrary: There is found a conſtant Reſemblance between the Genius, or natural Complexion of each People, and the Language they ſpeak.—Thus the *Greeks*, a polite, but voluptuous Nation, had a *Language* perfectly ſuitable, full of Delicacy and Sweetneſs.—The *Romans*, who ſeem'd only born to command, had a *Language* noble, nervous, and auguſt; and their Deſcendants, the *Italians*, are deſcended into Softneſs and Effeminacy; which ſome ſay, is as viſible in their *Language*, as in their Manners.—The *Language* of the *Spaniards*, is full of that Gravity, and Haughtineſs of Air, which makes the diſtinguiſhing Character of that People.—The *French*, who have a World of Vivacity, have a *Language* that runs extremely briſk and lively.—And the *Engliſh*, who are naturally blunt, thoughtful, and of few Words, have a *Language* exceeding ſhort, conciſe, and ſententious.

The Diverſity of *Languages* is generally allowed to have taken its Riſe from the Confuſion of *Babel*, both by *Jews*, *Chriſtians*, and *Mahometans*: But the Manner in which this Diverſity was effected, is ſtill in Diſpute among the Learned. The Queſtion is, if God only expunged the Remembrance of the Signification of Terms in thoſe who built the Tower? or whether he immediately inſpired them with new Words? *Scaliger* holds, that they only forgot the Meaning of the Words, and named one Thing inſtead of another; though all indifferently ſpoke the *Hebrew* Tongue. Nor does *Caſaubon* allow, that they immediately ſpoke different *Languages*: the Confuſion of Tongues, he thinks, might be very well effected, without introducing a Multiplicity of *Languages*.

As

As to the Point of Antiquity, and Priority among *Languages*, that too has been extremely controverted. *Herodotus* tells us, that in the Dispute between the *Egyptians* and *Phrygians*, about the Antiquity of their Language, *Psammeticus* King of *Egypt*, ordered two Children to be brought up, with express Prohibition not to have one Word pronounced before them, but to leave Nature to speak of herself; and the first Word they spoke happened to be *Beccos*, which in the *Phrygian* Language signifies Bread: The *Egyptians* however were not convinced with this Proof. The *Arabs* dispute the Point of Antiquity with the *Hebrews*: But the *Jews*, jealous even to Excess of the Honour of their Nation, positively insist on it, that the *Hebrew* Tongue, such as it is found in the Holy Scripture, is the primitive *Language*, and that spoken by the first Man.

Others maintain, that the *Language* spoken by *Adam* is lost, and that the *Hebrew*, *Chaldee*, and *Arabick*, are only Dialects of that Original Tongue. So far are they from giving the Priority to the *Hebrew*, that they maintain *Abraham* spoke *Chaldee* before he passed the *Euphrates*; and that he first learned the *Hebrew* in the Land of *Canaan*; so that this was not a special *Language*, consecrated to the People of God, but was originally the *Language* of the *Canaanites*.

M. *Le Clerc* is of Opinion, the *Hebrew* is far inferior to the *Greek*, both in Copiousness, Elegancy, and Perspicuity; it is dry and destitute of Ornaments, insomuch that wanting Expressions to vary the Phrase, the same Periods are perpetually returning. The Rabbins say it is so pure and chaste, that it has no proper Names for the Parts of Generation; nor for those by which the Excrements are discharged.

The *Arabick* is held the most copious of all *Languages*, being said to have 300 different Words to express a *Lion*, and no less than 1200 for a *Sword*.

LANGUAGES are divided into *Original*, or *Mother Tongues*; as the *Hebrew* and *Arabick* in the East, the *Teutonick* and *Sclavonick* in the West.

Secundary or *Derivative* LANGUAGES, which are those formed of a Mixture of several others, as *Latin*, *French*, &c.

Note, That *Kircher* will have the *Cophtick* a Mother Tongue, independant of all others. *Du John* maintains the *Gothick*, a primitive *Language*, and the Mother of all the *Teutonick* Tongues; that is, of all those spoke in the North. Some add the *Basque* or *Biscayan*, and *Bas Briton*, to the Number of Mother Tongues, imagining them to have been those of the antient *Celtæ* or *Gauls*.

Languages are also divided into *Learned*, or *Dead Languages*, and *Living Languages*.

Learned, or *Dead Languages*, are those which only subsist in Books, and which must be learned by the Rules of *Grammar*, as the *Hebrew*, *Arabick*, *Syriack*, *Chaldee*, *Greek*, and *Latin*.

HEBREW, is the *Language* spoke by the *Hebrews*, and wherein all the Books of the Old Testament are wrote. Whence it is also called the *Holy* and *Sacred Language*.

There is no Piece in all Antiquity wrote in pure *Hebrew*, besides the Books of the Old Testament; and even some Parts of those are in *Chaldee*.

The *Hebrew* then appears to be the most antient of all the *Languages* in the World, at least it is so with Regard to us, who know no older. Some learned Men will have it the *Language* spoke by *Adam* in Paradise; and that the Saints will speak it in Heaven.

Alberti, in his *Hebrew Dictionary*, endeavours to find in each Word, in its Root, in its Letters, and the Manner of pronouncing it, some natural Reason of the Signification of that Word; but he has carried Matters too far; and it has been shewn in the *Memoirs de Trevoux*, that on his Principles, Words which signify quite different Things, should signify the same.

Neuman and *Loescher*, have prosecuted *Alberti*'s Scheme farther, and with more Address than he has done: The first in his *Genesis linguæ sanctæ*, and *Exodus linguæ sanctæ*; and the latter in his Treatise *De Causis linguæ Hebraæ*.

Be this as it will, the *Hebrew*, such as we have it in the Holy Scripture, is a very regular, analogical *Language*; and particularly so in its Conjugations. Properly speaking, there is but one simple Conjugation, but this is varied in each Verb, seven or eight Ways, which has the Effect of so many different Conjugations, and affords a great Number of Expressions, whereby to represent under one single Word, all the different Modifications of a Verb; and several Ideas at once; which in the Modern, and most of the antient and learned Languages, are to be expressed only by Phrases.

The original and primitive Words in this *Language*, which they call *Radices*, Roots, rarely consist of more than three Letters, or two Syllables, which are expressed by two Sounds, or by the same Sound redoubled, which is indicated by a Point.

We have already observed that there are twenty-two Letters in the *Hebrew Language*, which Grammarians divide into *Guttural*, *Palatal*, *Dental*, *Labial*, and *Lingual*. This Division is taken from the several Organs of Speech; some whereof contribute more than others, to the Pronunciation of certain Letters.

Usually they only reckon five Vowels in the *Hebrew*, which are the same with ours, *viz.* a, e, i, o, u; but then each Vowel is divided into two, a, *long*, and a, *breve*, or *short*: The Sound of the former is somewhat graver and longer; and that of the latter shorter, and more acute. It must be added that the two last Vowels have quite different Sounds; different we mean in other Respects besides Quantity and Degrees of Elevation.

To these ten or twelve Vowels must be added some others, called *Semi-Vowels*, which are only slight Motions serving to connect the Consonants, and make the easier Transitions from one to another.

The Number of Accents is prodigious in the *Hebrew*; there are near forty different ones; and of these there are several whose Use is not well ascertained, notwithstanding all the Inquiries of the Learned into that Matter.

In the general, we know these three Things, 1. That they serve to distinguish the Sentences, and the Members thereof, like the Points, and Comma's, *&c.* in *English*. 2. To determine the Quantity of the Syllables: And 3. To mark the Tone wherewith they are to be spoke or sung. It is no Wonder then, there should be more Accents in the *Hebrew* than in other Language; as they do the Office of three different Things, which in other Languages are called by different Names.

As we have no *Hebrew*, but what is contain'd in the Scriptures, that Language wants a World of Words; not only, by Reason in those primitive Times the Languages were not so copious as at present, but also on this Account, that the inspir'd Writers had no Occasion to mention many of the Terms that might be in the Language.

The Language used by the *Rabbins* in the Writings they have composed, is called *Rabbinical*, or *Modern Hebrew*. The Basis or Body hereof is the *Hebrew* and *Chaldee*, with divers Alterations in the Words of those two Languages; the Meaning whereof they have considerably enlarged and extended. Abundance of Things they have borrowed from the *Arabick*. The rest is composed of Words and Expressions chiefly from the *Greek*, some from the *Latin*, and others from the other modern Tongues; particularly that spoken in the Place where each *Rabbin* lived, or wrote.

The *Rabbinical Hebrew*, must be allowed a very copious Language. M. *Simon* observes, that there is scarce any Art or Science, but the *Rabbins* have treated thereof in it. They have translated most of the antient Philosophers, Mathematicians, Astronomers, and Physicians; and have wrote themselves on most Subjects: They do not want even Orators and Poets. Add, that this Language, notwithstanding it is so provided with foreign Words, has its Beauty visible enough in the Works of those who have wrote well.

M. *Simon* says, it is impossible to reduce it into an Art, or System of Rules; though several learned Men are of another Sentiment, and it not only appears possible,

ble, but has actually been performed.

The ARABICK, is a Branch or Dialect of the *Hebrew*. Father *Angelo de St. Joseph*, speaks much of the Beauty and Copiousness of the *Arabick*.

The Learned are of Opinion, that the *Arabick* Figures (which are the numeral Characters commonly made use of in Arithmetick Computations) were first taught us by the *Saracens*, who borrowed them from the *Indians*. *Scaliger* was so satisfied of their Novelty, that he immediately pronounced a Silver Medallion, he was consulted about, modern; upon his being told of the numeral Figures 234, 235, being on it. The common Opinion is, that *Planudes*, who lived towards the Close of the 13th Century, was the first Christian who made use of them. Father *Mabillon* even assures us, in his Work *de re Diplanaticâ*, that he has not found them any where earlier than the 14th Century; yet Dr. *Wallis* insists on their being of a much older Standing; and concludes they must have been used in *England*, at least as long ago as *Hermanus Contractus*, who lived about the Year 1050, if not in ordinary Affairs, yet at least in mathematical Ones, and particularly astronomical Tables.

M. *Huet* is even of Opinion, that these Characters were not borrowed from the *Arabs*, but from the *Greeks*; and that they were originally no other than the *Greek* Letters, which we all know, that People made use of, to express their Numbers by.

The SYRIACK, and CHALDEE, are also Dialects of the *Hebrew*.—*Chaldee* Paraphrase in the *Rabinical* Stile, is called *Targum*.

The GREEK, absolutely so called, is the Language spoken by the antient *Grecians*, and still preserved in the Works of their Authors, as *Plato*, *Aristotle*, *Isocrates*, *Demostthenes*, *Thucydides*, *Xenophon*, *Homer*, *Hesiod*, *Sophocles*, *Euripides*, &c.

The *Greek* has been preserved entire longer than any other Language known, maugre all the Revolutions that have happened in the Country where it was spoke. Yet from the Removal of the Seat of the Empire to *Constantinople*, in the fourth Century, it has been gradually altering: The Alterations at first did not affect the Analogy of the Tongue, the Constructions, Inflections, *&c.* There were only new Words, new Riches acquired, by taking in the Names of new Dignities, and Offices, and the Terms of Art, it was before unacquainted with: But at length the Incursions of the *Barbarians*, and especially the Invasion of the *Turks*, wrought much more considerable Alterations.

The *Greek* has a great Copia, or Stock of Words: Its Inflections are as remarkable for their Variety as those of most of the other *European* Tongues, for their Simplicity.

It has three Numbers, Singular, Dual, and Plural; and Abundance of Tenses in its Verbs, which make a Variety, in Discourse, prevents a certain Dryness which always accompanies a too great Uniformity, and renders the Language peculiarly fit for all Kinds of Verse.

The Use of the Participles of the Aoristus and Preterit, together with the compound Words, wherein it abounds, give it a peculiar Force and Brevity, without taking any Thing from its Perspicuity.

The proper Names in the *Greek* Language are significative, as in the oriental, as well as in most of the modern Languages, where the Learned still find some, though remote Character, of their Origin.

The *Greek* was the Language of a polite People, who had a Taste for Arts and Sciences, which they cultivated with Success. In the living Tongues are still preserved a great Number of *Greek* Terms of Art; some descended to us from the *Grecians*, and others formed a-new. When a new Invention, Machine, Rite, Order, Instrument, *&c.* has been discovered, Recourse has commonly been had to the *Greek* for a Name; the Facility wherewith Words are there compounded, readily affording us Names expressive of the Use, Effect, *&c.* of such Instruments.

Modern, or *Vulgar Greek*, is the Language now spoke in *Greece*. There have been few Books writ in this Language, from the taking of *Constantinople* by the *Turks*; scarce any Thing but some Catechisms, and the like Pieces composed, or translated into the vulgar *Greek*, by the *Latin* Missionaries. The native *Greeks* are contented to speak the Language without cultivating it. The Misery they are reduced to under the Dominion of the *Turks*, renders them ignorant of Necessity; the *Turkish* Politicks not allowing any of the Subjects of their Estates to apply themselves to the Arts and Sciences. Whether it be out of a Principle of Religion, or Politicks, or Babarism, they have entirely destroyed all the Monuments of antient *Rome*, despising the Study of a Language which might have rendered them polite, their Empire happy, and flourishing, and have made the People forget their former Masters, and their antient Liberty. In this widely differing from the *Romans*, those antient Conquerors of *Greece*, who, after they had subdued the Country, applied themselves to learn the Language; in order to imbibe their Politeness, Delicacy, and Taste for Arts and Sciences.

It is not easy to assign the precise Difference between the *vulgar* and the *antient Greek*. It consists in the Terminations of Nouns, Pronouns, Verbs, and other Parts of Speech, which make a Difference between those two Languages, much like that observed between some of the Dialects of the *Italian*, or *Spanish*: We instance those Languages, as being the most known; but we might have said the same of the *Hebrew*, *Sclavonick*, &c. Dialects. Besides, the *modern Greek* has divers new Words not in the antient; particularly several Particles which appear as Expletives, and which were introduced to characterise certain Tenses of Verbs, and other Expressions, which would have had the same Meaning without such Particles, had Custom dispensed with them; divers Names of Dignities and Offices, unknown to the antient *Greeks*, and Abundance of Words borrowed from vulgar Tongues of the neighbouring Nations.

Accordingly one may distinguish three Ages of the *Greek* Tongue; the first ended at the Time when *Constantinople* became the Capital of the *Roman* Empire; not but there were several Books, particularly of the Fathers of the Church, wrote with great Purity after that Time; but as Religion, Law, and Policy, both civil and military, began then to introduce new Words into the Language, it seems necessary to begin the second Age of the *Greek* Tongue from that Epocha; which lasted to the taking of *Constantinople* by the *Turks*, where the last Age commences.

The LATIN was first spoken in *Latium*, and afterwards at *Rome*; and still used in the *Roman* Church, and amongst Men of Letters.

Some Authors rank the *Latin*, among the Number of original Languages, but by Mistake; it is formed principally from the *Greek*, and particularly the *Æolick* Dialect of that Tongue; tho' it has a great Number of Words which it borrowed from the Languages of the *Etrusci*, *Osci*, and other antient People of *Italy*, and foreign Commerce and Wars, in Course of Time added a great many more.

The *Latin*, is a strong robust Language, perfectly suitable to the Character of the People who spoke it. We have still Works of every Kind, and admirably well written in *Latin*, though there are an infinite Number lost. The *Latin* is more figurative than the *English*, less pliant than the *French*, less copious than the *Greek*, less pompous than the *Spanish*, less delicate than the *Italian*, but closer and more nervous than any of them.

For a while the *Latin* Tongue was confin'd almost wholly within the Walls of *Rome*, nor would the *Romans* allow the common Use of it to their Neighbours, or to the Nations they had subdued. *Cicero* observ'd, that even in his Time, *Greek* was used almost among every People, but the *Latin* only confin'd to a very narrow Compass. By Degrees, they were brought to grant the Use of it as a Favour; and in Time became sensible of the Necessity there was of its being generally understood, for the Conveniency of Commerce; and accordingly used their utmost Endeavours, that all the Nations subject to their Empire, should be united by one common Language; so that at length they imposed that as a Law, which they had before granted as a Favour.

After the Translation of the Seat of the Empire from *Rome*

Rome to *Constantinople*, the Emperors of the East being always desirous of retaining the Title of *Roman* Emperors, appointed the *Latin* to be still retain'd in Use, both in their Rescripts and Edicts, as appears by the Constitutions of those Emperors, collected in the *Theodosian* Code: But at length the Emperors neglecting the Empire of the West, abandon'd all Care of the *Latin* Tongue, and allowed their Judges to pass Sentence in *Greek*; and accordingly we find the Emperor *Justinian*'s Novels composed in *Greek*.

Charlemagne coming to the Empire of the West, appointed the Law Proceedings in sovereign Courts to be in *Latin*, and the Notaries were to draw their Acts and Instruments in the same Tongue: This Practice continued a long Time through a great Part of *Europe*, but at length it gave way, and the *French* took Place of the *Latin*, not only in *France*, but in some measure, in *England* too; and the Reason given for it was, that Abundance of Difficulties arose about understanding of *Latin* Terms.

The *Latin* however, was prodigiously degenerated and corrupted ere it came to be laid aside. The Incursions of the *Goths* and *Vandals* into *Italy*, brought an Inundation of foreign Words and Phrases into it, insomuch that *Valla* and *Naud* call *Boethius* the last *Latin* Author. But that was not all; when it once got into the Courts of Justice, it was still worse handled, till at last being introduced among the Monks, and become the common Language of *Missals* and *Breviaries*, it was debauched to that degree, that it was almost become scandalous to use it; if Protestant Writers are to be credited, and which the *Roman* Catholicks would call a malicious Reflection; since the *Missals* and *Breviaries*, are nothing else but a Compilation out of the Scripture, and antient Fathers of the Church; therefore if the *Latin* is bad, the Monks cannot be reproached with it, who have inserted in those Books nothing of their own, but the Translators of the Scripture, and the antient Fathers; and I may venture to say, that few of those who pretend to criticise the *Latin* of the *Breviaries* and *Missals*, can imitate its Elegance and Beauty.

Note, That the COPHTIC is the antient Language of the *Egyptians*, mixed with a great deal of *Greek*; the Character it is written in being all *Greek*.—Father *Kircher* is the first who published a Grammar and Vocabulary of the *Cophtic*. There is not known any Book extant in the *Cophtic*, except Translations of the holy Scriptures, or of ecclesiastick Offices, or others that have Relations thereto, as Dictionaries, *&c.*

The antient *Cophtic* is now no longer found but in Books: The Language now used through the Country is *Arabick*.—The whole *Cophtic*, which *Kircher* maintains to be a Mother-Tongue, and independent of all others, has been much altered by the *Greeks*: For besides that it has borrowed all its Characters from the *Greek*, with a very little Variation, a great Number of the Words are pure *Greek*.

Vossius indeed, asserts, that there was no *Cophtic* Language till *Egypt* became subject to the *Arabs*. The Language, according to him, is a Mixture of *Greek* and *Arabick*; the very Name thereof not being in the World till after the *Arabs* were Masters of the Country. But this, M. *Simon* observes, proves nothing; except that what was antiently call'd *Egyptian*, has since by the *Arabs* been call'd *Cophtic*; by a Corruption of Speech there are it is true, *Arabick* Words in the *Cophtic*; yet this, by no Means, proves but that there was a Language before that Time, either *Cophtic* or *Egyptian*. *Pietro de la Valla* observes, that the *Cophtics* have entirely lost their antient Tongue; that it is now no longer understood among them, that they have nothing extant therein but some sacred Books; that they still say Mass in it: *Solo hanno in essa alcuni libri sacri, dicendo ancora la massa in quella lingua.*

All their other Books have been translated into *Arabick*, which is their vulgar Tongue; and this has occasioned the Originals to be lost: It is added that they rehearse the Epistles and Gospels in the Mass twice; once in *Arabick*, and once in *Cophtic*.

Indeed if we believe Father *Vansleb*, the *Cophts* say the Mass in *Arabick*, all but the Epistles and Gospels, which they rehearse both in that and *Cophtic*: *La Massa celebrano in lingua Arabica, eccetto l'Evangelio; & alcune altre cose che sogliano leggere nella lingua Copta, & Araba.*

Living LANGUAGES, are those still spoke in some Country or other, and which may be learned by Conversation. The most popular among these are the *French*, *Italian*, *Spanish*, *English*, *German*, &c.

The *French*, as it now stands, is no Original, or Mother Language; but a Medley of several: Scarce any *Language*, but it has borrowed Words, or perhaps Phrases from.

The *Languages* that prevail most, and that are, as it were, the Basis thereof, are, 1. The *Celtic*; whether that were a particular *Language* itself, or whether it were only a Dialect of the *Gothic*, as spoke in the West, and North. 2. The *Latin*, which the *Romans* carried with them into *Gaul*, when they made the Conquest thereof. And, 3. The *Teutonic*, or the Dialect of the *Teutonic*, spoke by the *Franks*, when they passed the *Rhine*, and established themselves with the *Gauls*.

Of these three *Languages*, in the Space of about 1300 Years, was the *French* formed; such as it is now found: Its Progress was very slow; and both the *Italian*, and *Spanish*, were regular *Languages* long before the *French*.

Pasquier observes, it was under *Philip de Valois*, that the *French Tongue* first began to be polished; and that in the Registers of the Chambers of Accounts of that Time, there is a Purity seen almost equal to that of the present Age.

However, the *French* was still a very imperfect *Language*, till the Reign of *Francis* I. The Custom of speaking *Latin* at the Bar, and of Writing the publick Acts, and Instruments of the Courts of Justice in that *Language*, had made them overlook the *French*, their own *Language*. Add, that the preceding Ages had been remarkable for their Ignorance; owing in great Measure to the long and calamitous Wars, which *France* had been engaged in: Whence the *French* Nobility deem'd it a Kind of Merit not to know any Thing; and the Generals regarded little, whether or no they wrote, or talk'd politely, provided they could fight well.

But *Francis* I. who was the Restorer of Learning, and the Father of the Learned, (a noble Title, very much despised or disregarded by the Princes of this Age) changed the Face of Things; and after his Time *Henry Stevens* printed his Book, *De la Precellence du Language François.*

The Change was become very conspicuous at the End of the 16th Century; and under *Henry* IV. *Amyot*, *Coeffeteau*, and *Malherbe*, contributed towards bringing it to Perfection: Which Cardinal *Richelieu* compleated, by the Establishment of the *French* Academy; an Assembly wherein the most distinguished Persons of the Church, the Sword, and the Gown, have been Members.

Nor did the long Reign of *Louis* XIV. contribute a little to the Improvement of the *Language*. The excellent personal Qualities of that truly great Prince, and his Taste for the polite Arts, and that of the Princes of the Blood, rendered his Court the politest in *Europe*. Wit and Magnificence seem'd to vie; and his Ministers might have disputed with the *Greeks*, *Romans*, &c. the Glory of Writing well.—From Court the Elegance and Purity of the *Language* spread itself into the Provinces; and now there is no Body but writes and speaks good *French*.

One of the Characters of the *French* Language is to be natural and easy. The Words are ranged in it much in the same Order, as the Ideas in our Minds; in which it differs exceedingly from the *Greek* and *Latin*, where the Inversion of the natural Order of Words is reputed a Beauty.—Indeed the *Hebrew* surpasses even the *French* in this Point; but then it comes short of it in Copiousness and Variety.

It

It muſt be added, however, that as to the Analogy of *Grammar*, and the Simplicity wherewith the Moods of Verbs are formed; the *Engliſh* has the Advantage, not only over the *French*, but over all the known Languages of the World: But then the Turns, the Expreſſions, and the Idioms of the *Engliſh* are ſometimes ſo quaint, and extraordinary, that it loſes a great deal of the Advantage, which its *grammatical* Simplicity gives it over the reſt.

The *French* have but few compound Words, wherein it differs widely from the *Greek*, *High Dutch*, and *Engliſh*. This the *French* Authors own a great Diſadvantage in their Language; the *Greek* and *Dutch* deriving a great Part of their Force and Energy, from the Compoſition of Words; and frequently expreſſing that in one ſounding Word, which the *French* cannot expreſs but by a Periphraſis. And the Diminutives in the *French* are as few as the Compounds; the greateſt Part of thoſe remaining in Uſe, having loſt their diminutive Signification. But what diſtinguiſhes the *French* moſt, is its Juſtneſs, Purity, Accuracy, and Flexibility.

French is the moſt univerſal and extenſive Language in *Europe*; the Policy of States and Courts, has render'd it neceſſary for the Miniſters of Princes and their Officers, *&c.* and the Taſte of Arts and Sciences has had the ſame Effect with Regard to the Learned.

In *Germany*, and elſewhere, the Princes, Princeſſes, and Perſons of Diſtinction, value themſelves on underſtanding *French*; and almoſt in all the Courts of *Europe*, *French* is as much known as the Language of the Country: Tho' the Court of *Vienna* has been a long while an Exception from this Rule. *French* is there very little us'd: The Emperor *Leopold* could not bear to hear it ſpoke in his Court; for fear, perhaps, the Sound of the *French* Language, had *had* the ſame Effect on him, as the *French* Cannon; being, perhaps, as much afraid of the one as he was of the other; he having a far better Taſte for a Fiddle from *Cremona*.

The Extenſiveneſs from the *French* Language, is no modern Advantage: *William the Conqueror* gave Laws to *England* in the *French* Language; and the antient Cuſtoms of moſt of the Provinces of the *Netherlands* are wrote in the ſame.

Laſtly, the *French* is the ſame Language every where, not only in all the Provinces of *France*, but in all the Places where it is ſpoke out of *France*.

The ſeveral Nations who ſpeak *Sclavonick*, do not ſo much ſpeak the ſame Language, as different Dialects of the ſame Language. In ſeveral Parts or *Europe*, there are as many different Languages as there are States; and in *Italy* there are reckon'd no fewer than ten or twelve Dialects, ſome of which differ as much from the common *Italian*, as from the *French* or *Spaniſh*. In *Holland*, the Seamen of *Rotterdam*, and the Banks of the *Meuſe*, do not underſtand thoſe of *Amſterdam*, and the Coaſts of the *Zuyder Zee*. They who underſtand *Caſtilian*, don't underſtand the Language of *Catalonia* and *Cerdane*. The *High Dutch* is not the ſame in *Sweden*, as in *Jutland*: In the *Low Countries* as at *Lubeck*. *Bohemia*, *Hungary*, *Croatia*, &c. are Countries belonging to the Emperor, yet ſpeak a Language different from that ſpoke at *Vienna*. The King of *Sweden*, when he ſpeaks the Language of his Country, is not underſtoood by his Subjects in *Pomerania*, *Lapland*, &c. and the like may be obſerved of the King of *Denmark*, with Regard to his Subjects of *Norway* and *Iceland*; whereas at *Quebec*, the *Louiſinia*, *Martinico*, *St. Domingo*, *Pondicheri*, &c. they ſpeak the ſame Language as at *Paris*, and throughout the reſt of *France*.

The *Italian* is derived principally from the *Latin*, and of all the Languages form'd from the *Latin*, there is none which carries with it more viſible Marks of its Original, than the *Italian*. It is accounted one of the moſt perfect among the modern Tongues, containing Words, and Phraſes to repreſent all Ideas, to expreſs all Sentiments, to deliver one's ſelf on all Subjects, to name all the Inſtruments and Parts of Arts, *&c.* It is complain'd, indeed, that it has too many Diminutives, and Superlatives, or rather Augmentatives, but without any great Reaſon: For if thoſe Words convey nothing further to the Mind, than the juſt Ideas of Things, they are no more faulty than our Pleonaſms and Hyperboles.

The Character of the *Italian* Tongue, it muſt be owned, is very different from that of the *Engliſh*, which is the Reaſon, perhaps, why they are ſo ready to find Fault with it; for though the *Italian* be proper for all Kinds of Writing, for all Styles, and for all Subjects; yet there are many of their celebrated Authors, that do not ſucceed when tranſlated into *Engliſh*, and which an *Engliſhman* cannot read with Pleaſure, even in their Original. The Language correſponds to the Genius of the People; they are ſlow, and thoughtful, and accordingly their Language runs heavily, though ſmoothly, and many of their Words are lengthen'd out to a great Degree. They have a good Taſte of Muſick; and to gratify their Paſſion this Way, have alter'd Abundance of their primitive Words: Leaving out Conſonants, taking in Vowels, ſoftening, and lengthening out their Terminations, for the Sake of the Cadence.

Hence the Language is rendered extremely muſical, and ſucceeds better than any other in Opera's, and ſome Parts of Poetry; but it fails in Strength and Nerves: Hence, alſo, a great Part of its Words, borrow'd from the *Latin*, become ſo far diſguiſed, that they are not eaſily known again.

The Multitude of foreign States, into which *Italy* is divided, has given Occaſion to a great Number of different Dialects in that Language; which however are all good in the Place where they are uſed. The *Tuſcan* is uſually preferred to the other Dialects, and the *Roman* Pronunciation to that of the other Cities; whence the *Italian* Proverb, *Lingua Toſcana, in Bocca Romana.*

The *Italian* is generally pretty well underſtood throughout all *Europe*; and is frequently ſpoken in *Germany*, *Poland*, and *Hungary*. At *Conſtantinople*, in *Greece*, and in the Ports of the *Levant*, the *Italian* is uſed as commonly as the Language of the Country; and in thoſe Places, it is not ſpoke ſo pure as in *Tuſcany*, but is corrupted with many of the proper Words and Idioms of the Place, whence it takes a new Name, and is called *Frank Italian*.

The *Spaniards* ſeem to place the Nobleneſs and Gravity of their Language, in the Number of Syllables, and the Swelling of Words, and ſpeak leſs to be underſtood than to be admir'd. Their Terms are big and ſonorous, their Expreſſions haughty and boiſterous, and Pomp and Oſtentation run through all they ſay: Their Language cannot paint a Thought to the Life; it always magnifies it, frequently diſtorts it, and does nothing if it do not exceed Nature.

The *Engliſh*, or *Engliſh* Tongue, is of *Gothick* or *Teutonick* Extraction: This was the Root or Stock upon which ſeveral other Dialects have been ſince grafted.

The Language antiently ſpoke in this Iſland, was the *Britiſh*, or *Welch*, which is pretended was common to the *Britons* and *Gauls*; and which ſtill ſubſiſts in more or leſs Purity in the Principality of *Wales*, the County of *Cornwal*, the Iſlands, and Highlands of *Scotland*, *Ireland*, and the Province of *Bretagne* in *France*.

As the *Roman* Empire, extending itſelf towards the weſtern Parts of *Europe*, came to take in *Gaul* and *Britain*, the *Roman* Tongue became propagated therewith; all the Edicts, *&c.* relating to publick Affairs, being deſignedly wrote in that Language.

The *Latin*, however, it is certain, never got ſo much Ground, or prevail'd ſo far in *England*, as in *Lombardy*, *Spain*, and the *Gauls*; partly, on Account of its great Diſtance from *Rome*, and the ſmall Reſort of *Romans* hither; and partly for that the entire Reduction of the Kingdom was not effected till ſo late as the Emperor *Claudius*, when the Empire was on the declining Hand, and the new Province was forced to be ſoon deſerted by its Conquerors, called to defend their Territories nearer Home. *Britain* thus left naked, became an eaſy Prey to the *Angli*, or *Anglo-Saxons*, a ſtrolling Nation from *Jutland* and *Norway*, who took an eaſy Poſſeſſion thereof; much about the Time that the *Franks*, another *German* Nation, enter'd *Gaul*. The *Gauls* and *Franks*, it ſeems, at length came to Terms, and found Means to unite it into one Nation: Thus the antient *Gauliſh*, with

its Mixture of *Latin*, continued the prevailing Tongue, only further intermix'd with the *Francic*, or *Lingua Franca*, of their new Inmates: But the *Britons* were more constant, and determin'd absolutely to refuse any such Coalition; they had embraced Christianity, and their Competitors were Heathens; rather than admit of such an Union, therefore, they chose to be shut up, with their Language, in the mountainous Parts of *Cambria*, or *Wales*.

The *English* Saxons thus left absolute Lords, changed every Thing; their own Language was now fully established, and the very Name of the Country was henceforth to be *Anglo-Saxon*.

The new Language remained in good measure, pure and unmixed till the *Norman* Invasion: The Attempts of the *Danes*, and the Neighbourhood of the *Britons*, indeed wrought some lesser Innovations therein; but, in the main, it preserved itself: For as to the *Danes* their Language was not much different therefrom. *Edward the Confessor* however, who had lived long in *France*, might possibly bring in a little Mixture of the Dialect of that Country: But *William* I. and his *Normans*, having got Possession of *England*, an Alteration was soon attempted: The Conquest was not compleat, unless the Conqueror's Language, the *French* or *Franco-Gallic*, were introduced; and accordingly all his Acts, Diploma's, Edicts, Pleadings, and other judicial Matters were written, *&c.* in that Tongue. But his Attempts proved unsuccessful; the Number of *Normans* he brought over being very small in Comparison of the *English*, with whom they were incorporated, they lost, or forgot their own Language sooner than they could make any Change in the *English*. This however, did not hinder, but by the Endeavours of the Conqueror, Abundance of *French* Words, though many of them of *Latin* Original, crept into the *English*; and many *English* Words by degrees grew out of Use.

Hence, as to the Origin and Etymology of many Words, Dr. *Wallis* lays it down, that such Words of *Roman* Original, as the *English* have in common with the *French*, are to be reckoned as their own, rather than borrowed from them; and that the old Gaulish Words common to them and the *Welch*, have been likewise taken from the *Welch* rather than the *French*. Hence also, the same Author accounts, why the Names of divers Sorts of Cattle are *Saxon*, as *Ox*, *Cow*, *Calf*, *Sheep*, *Hog*, *Boar*, *Deer*, &c. and yet that their Flesh, when prepared for Food is *French*, as Beef, Veal, Mutton, Pork, Brawn, Venison, *&c.* The *Norman* Soldiers, not concerning themselves with Pastures, Parks, and the like Places, where such Creatures are fed and kept; so much as with Markets, Kitchens, Feasts, and Entertainments, where the Food was either prepared, sold, or eaten.

Under *Henry* II. Dr. *Swift* observes, the *French* made a still greater Progress, by reason of the large Territories he possessed on that Continent, both from his Father and his Wife, which occasioned frequent Journeys thither, with numerous Retinues, *&c.* and for some Centuries after there was a frequent Intercourse between *France* and *England*, by the Dominions the *English* possessed there, so that the Language two or three hundred Years ago, seems to have had more *French* than at present.

Besides this Alteration from the Conquerors, the Language in Process of Time, underwent divers others; and came to have numerous Words and Phrases of foreign Dialects, ingrafted into it, in lieu whereof the antient *Saxon* ones gave Way; particularly by Means of Negotiations, and Commerce with other Nations; by the Marriages of Royal Families; by the Affectation of many Writers in most Ages, who are fond of coining new Words, and altering the usual Forms of Speech, for the greater Delicacy; and by the Necessity of framing or borrowing new Words, according as new Things and Inventions turn up. And by such Means was the old *Anglo-Saxon* converted into the present *English* Tongue.

Having traced the Rise and Progress of the *English* Language, historically, we think it may be no incurious Amusement to represent, by actual Examples, the several successive Changes and Stages it has passed through, to arrive at its present Perfection: In order to which, we'll make Use of the Collections of the ingenious Mr. *Greenwood*.

From the *Saxon* Invasion, in 440, we have no Memorial extant of the Language, for 250 Years: The oldest *Saxon* Writing in Being, is a Gloss on the Evangelists, written in the Year 700, by *Eadfrid*, Bishop of *Holy Island*; in which the three first Articles of the Lord's Prayer run thus,

'Uven Fader thic arth in Heofnas, sic gehalgud
Our Father who art in Heaven, be hallowed
'thin Noma, so cymeth thin ric, sic thin Willa
thy Name, come thy Kingdom, by thy Will
'sue is Heofnas, and in Eortho, *&c.*
so as in Heaven, and in Earth, &c.

Two hundred Years after, in the Year 900 the same was render'd thus,

'Thu ure Fader the eart on Heofenum, si thin Nama
'gehalgod; cume thin Rice, si thin Willa on
'Earthan swa, swa on Heofenum.

In the following Age it was turn'd thus in the *Saxon* Homilies, said to be translated by King *Alfred*,

'Fader ure thu the Earth on Heofenum, si thin,
'Nama gehalgod, to be cume thin Rice, gew urthe
'in Willa on Earthan swa swa on Heofenum, *&c.*

About the Year 1160, under *Henry* II. it was thus render'd by Pope *Adrian*, an *Englishman*, in Rhyme.

'Ure Fadyr in Heaven rich,
'thy Name be halyed ever liche
'thou bring us thy michell blesse:
'alls hit in Heaven y-doe
'evar in Yearth beene it also, *&c.*

About 100 Years after, in the Time of *Henry* III. it was turn'd thus:

'Fadir that art in Heaven blisse
'thin helge Nam in warth the bliss
'cumen et mot thy Kingdom,
'thin holy Will be it all don
'in Heaven and in Erdh also, *&c.*

Two hundred Years after, under *Henry* IV. it was rendered,

'Our Fadir that art in Hevenes halewid be thi Name
'thy Kingdom come to thee, by thi Will don in
'Earthe, as in Hevene. ——

An extraordinary Specimen of the *English*, as spoke the Year 1385, Dr. *Hicks* furnishes us withal, in his *Thesaur. Liter. Sypten.* which we shall the rather entertain the Reader withal, as it is on this very Subject the *English* Tongue, and contains not only the History, but the Reasons of the Changes and Differences therein.

'As it is knowe how meny maner Peple beeth in
'this Lond, there beeth also so meny dyvers Lon-
'gages and Tonges. Nothelefs *Walschemen* and *Scots*
'that beeth nought medled with other Nations, hold
'wel nyh hir firste Longage and Specha; but yif the
'*Scottes* that were sometime confederat and woned
'with the Pictes drawe somewhat after hir Speche;
'but the *Flemynges* that woneth in the Weste Side of
'*Wales*, haveth left hir strange Speche, and spekth Sex-
'onliche now, *&c.*

How the *English* stood about the Year 1400, may be seen in *Chaucer*, who refined and improved it very considerably; though he is charged with the Affectation of mixing too many *French* and *Latin* Words with the *English*, and by that Means altering and corrupting the primitive Language.

In the Year 1537, the Lord's Prayer was printed according to the following Version:

'O oure Father which arte in Heven, halowed be
'thy Name: Let thy Kingdome come, thy Will be
'fulfiled as well in Erth as it is in Heven, *&c.*

Where the Reader will obſerve the Diction almoſt brought to the preſent Standard; the Variations being principally in the Orthography.

Spencer, who lived in the ſame Age, contributed not a little to the Improvement and refining of the Tongue: He threw aſide Abundance of foreign Ornaments, and wrote a purer *Engliſh*, yet with more Elegance and Variety than had been known before. He was ſucceeded in Order by *Shakeſpear*, *Ben Johnſon*, Lord *Bacon*, *Milton*, *Cowley*, *Waller*, *Tillotſon*, and *Dryden*, whoſe Works are in every Body's Hands; by whom the Language has been tranſmitted to us under all its preſent Advantages.

The Perfections aſcribed to the *Engliſh*, and that in a Degree ſuperior to any of the other modern Tongues, are, — 1. That it is ſtrong and ſignificant; to which the finely compounded Words, formed on the Model of the *Greeks*, do not a little contribute.

2. Copious; of which Mr. *Greenwood* gives us Inſtances in the Word ſtriking: Which the *Engliſh* have about 30 ſynonymous Expreſſions for; as to *ſmite*, *bang*, *beat*, *baſte*, *buffet*, *cuff*, *hit*, *thump*, *thwack*, *ſlap*, *rap*, *tap*, *kick*, *ſpurn*, *box*, *yerke*, *pummel*, *punch*, &c. and the Word Anger, for which he enumerates above 40.

3. Muſical and harmonious; in which Reſpect Mr. *Dennis* makes no ſcruple to aſſert it ſuperior even to the *French*. This, which is ſtrange indeed, he proves hence that the *Engliſh* have blank Verſe, which is harmonious by mere Force of Numbers and Quantity; whereas the *French* have long ago deſiſted from all Pretenſions to all poetical Numbers, without the Aſſiſtance of Rhime. It may be added on this laſt Head, from Mr. *Welſted*, that the *Engliſh* has many Meaſures, the Iambick and Trochee for inſtance, in common with the *Greek* and *Latin*; an Advantage ariſing from the Variation of the Accent; and that Rhime is peculiarly natural to it, varying itſelf to the Ear with exceſſive Sweetneſs, not to mention the Cæſuras, Pauſes, Tranſpoſitions, and numberleſs other Graces, which the *Engliſh* Verſification is capable of, beyond any other living Language.

Some object to the *Engliſh*, that it conſiſts too much of Monoſyllables, which others make a Piece of Merit, as it argues the greater Antiquity. But the *Engliſh* pretend to have a further Advantage from their Monoſyllables, *viz. Conciſeneſs*; they being thereby enabled to expreſs more Matter in the ſame Compaſs of Letters, than any other modern Tongue. The only Thing they ſuffer by it, ſay they, is ſomething in point of Softneſs and Numbers; and yet they have Verſes compoſed wholly of Monoſyllables, that do not want Harmony; as that of *Creech*:

Nor could the World have borne ſo fierce a Flame.

Others object to the *Engliſh* Language, that it does not come up to the Softneſs, the Delicacy of the more Southern Languages, *France*, *Spain*, and *Italy*. It ſeems it retains ſomewhat of *Gothick* Roughneſs of the People who framed and introduced it; the Soil and the Climate it was planted in, not tending much to mellow and refine it.

To this Purpoſe does Dr. *Swift* ſpeak, who accounts for the Effect hence, that the *Latin* Tongue was never in its Purity in the Iſland; and beſides, ſuch as it was, it was called away ere it could have Time to incorporate with the Language of the Country, and ſubdue and ſoften it; as it did in the other Provinces of *France*, *Spain*, &c.

The ſame Author ventures further, and affirms, that the *Engliſh* Language is very imperfect, and in many Inſtances offends againſt every Part of *Grammar*, which diſpleaſes very much ſeveral *Engliſh* Authors.

M. *Welſted* is of Opinion, that the *Engliſh* Language is not capable of a much greater Perfection than it has already attained: The *Engliſh*, he obſerves, have trafficked with every Country for the enriching it: The Antients and Moderns have both contributed to the giving it Splendor and Magnificence; the faireſt Cyons that could be had from the Gardens of *France* and *Italy* have been grafted on their old Stocks, to refine the Savageneſs of the Breed; they have laid aſide moſt of their harſh antique Words, and retained but few of thoſe of good Sound and Energy: The moſt beautiful Poliſh is at length given the *Engliſh* Tongue; that it will bear, without deſtroying and altering the very Baſis and Ground-work of it; its Teutonick Ruſt is worn away, and little or nothing is wanting either of Copiouſneſs or Harmony. — He goes on to argue the Maturity and Perfection of the *Engliſh* from another extrenſick Principle, *viz.* by comparing the Time, and Circumſtances of the Improvements, made ſince the firſt Refiners of it, with thoſe of the *Greek*, *Latin*, *French*, and other Tongues that confeſſedly have riſen to their Height.

Every civilized Nation, the Author thinks, has its claſſical Age; and he ſuggeſts that the *Engliſh* are not far from it: So that what remains to be done for the *Engliſh* Tongue ſhould not be to advance, but to fix it where it is, and prevent its declining. There is in effect, a Point of Perfection, which when a Language has once arrived at, it cannot exceed, though it may degenerate from it; and thus it happened to the two fineſt Languages the World has known.

It may ſeem odd to talk of fixing ſo unſtable a Thing as Language: The *Greek* Liturgies of St. *Baſil*, and St. *Chryſoſtom*, ſtill uſed in that Church, the one for ſolemn, and the other for common Days, have been a long Time unintelligible to the People: So much is the vulgar *Greek* degenerated from its original Purity! *Polybius* teſtifies, that the Articles of Truce between the *Romans* and *Carthaginians*, could ſcarce be underſtood by the moſt learned Antiquaries, 350 Years after the Time of their making. In effect, from the Days of *Romulus*, to thoſe of *Julius Cæſar*, the *Latin* was perpetually changing; and what was wrote 300 Years before *Tully*, was as unintelligible in his Time, as the *Engliſh* and *French* of the ſame Period are now: And theſe two have changed as much from *William the Conqueror* in about 700 Years, as the *Latin* appears to have done in the like Time.

Whether the *Engliſh* Language will decline as faſt as the *Roman* did, may admit of ſome Doubt; there being many Circumſtances in the Affairs of the Nation which contributed to that Corruption that may not, in all Probality, find Place among us.

The *Teutonic* Language is the antient Language of *Germany*, which is ranked among the Mother-Tongues.

The *Teutonic*, now called the *German* or *High-Dutch*, is diſtinguiſhed into *Upper* and *Lower*.

The *Upper* has two notable Dialects, *viz.* 1. the *Setlidian*, *Daniſh*, or perhaps *Gothic*; to which belong the Languages ſpoke in *Denmark*, *Norway*, *Sweden*, and *Iceland*. 2. The *Saxon*, to which belong the ſeveral Languages of the *Engliſh*, *Scots*, *Friſian*, and thoſe on the North of the *Elbe*.

To the *Lower* belong the *Low Dutch*, *Flemiſh*, &c. ſpoke through the *Netherlands*, &c.

The SCLAVONIC, is the Language of the *Sclavi*, an antient People of *Scythia Europea*; who about the Year 518, quitting their native Country, ravaged *Greece*, and eſtabliſhed the Kingdom of *Poland* and *Moravia*, and at laſt ſettled in *Illyria*; which thence took the Name of *Sclavonia*.

The *Sclavonic*, is held after the *Arabick*, the moſt extenſive Language in the World: It is ſpoke from the *Adriatick* to the *North Sea*, and from the *Caſpian* to *Saxony*, by a great Variety of People, all the Deſcendants of the antient *Sclavi*, *viz.* the *Poles*, *Muſcovites*, *Bulgarians*, *Carinthians*, *Bohemians*, *Hungarians*, *Pruſſians*, *Suabians*, &c. each of whom however, have their particular Dialect; only the *Sclavonic* is the common Mother of their ſeveral Languages, *viz.* the *Poliſh*, *Ruſſian*, *Hungarian*, &c.

By a *Latin* Chronicle of the *Sclavi*, compoſed by *Helmold*, a Prieſt of *Boſow*, and *Arnold*, Abbot of *Lubec*, and corrected by *Leibnitz*, it appears, that the *Sclavi* antiently inhabited the Coaſt of the *Baltick* Sea, and were divided into Eaſtern and Weſtern; in the latter whereof were the *Ruſſians*, *Poles*, *Bohemians*, &c. and in the former the *Vandals*.

Dan. Maur. Orbini Rauſer, Abbot of the Order of *Malta*, in an *Italian* Hiſtory of the *Sclavi*, intitled, *Il regno de gli Slavi*, printed in 1601. will have them to be

be originally of *Finland* in *Scandinavia*. *Laur. Pribevo*, a *Dalmatian*, in an expreſs Diſcourſe of the Origin of the *Sclavi*, maintains them to be originally of *Thrace*, and the ſame with the *Thracians*, the Poſterity of *Thiras* ſeventh Son of *Japhet*. *Theod. Polycarpowitz*, in a *Greek*, *Latin*, and *Sclavonick* Dictionary, printed at *Moſcow* in 1704, obſerves that the Word *Sclave*, whence *Sclavonick* is formed, ſignifies in their Language *Glory*.

The BAS-BRETON, which is the Language of Part of the Province where I was born, is called by the Natives a Mother-Tongue, becauſe, perhaps, it is ſpoke by no other Nation in the World, and has no Affinity with any other *Languages* but the *Welſh*, of which it has retain'd few Words, and fewer it has borrowed from the *French*, by their Neighbourhood with the other Parts of the Province, whoſe Inhabitants ſpeak nothing but *French*, and do not underſtand one Word of *Bas-Breton*, though ſo near Neighbours; ſo that one born in the Dioceſe of *St. Malo*, does not underſtand one born in that of *Vannes*, when he ſpeaks *Bas-Breton*, no more than he would underſtand a *Japaneſe*, who ſhould ſpeak his native *Language*: For Example, I would aſk, with what Language this Phraſe has any Affinity, *Trougaré autrou*, which ſignifies, *I thank you Sir?* or this other, *Ario ataho*, i. e. ſtrike immediately?

The JAPANESE *Language* is very curious, wherein they have ſeveral Words to expreſs one Thing, ſome in Deriſion, others in Honour; ſome for the Prince, others for the People; as alſo for the Quality, Age, and Sex of the Speaker, and Perſon ſpoke to.

The ETHIOPIAN, or *Abyſſinian Tongue*, ſeems to have ſome Affinity with the *Hebrew*, and *Chaldee*; and is thus ſingular, that the *Abyſſines* reckon our firſt Letter A, their thirteenth.

The *Languages* of other Countries in *Africa*, and *America* are but mere Jargons, wholly rude, and harſh to themſelves, and unknown, as well as unintelligible to us.

The Difference and Affinity of ſeveral *Languages*, may be ſeen from that famous Sentence of *Habbakuk*, ii. 4. *But the Juſt ſhall live by his Faith*, expreſſed in thirty-three *Languages*, or ſeveral Tongues, which I have ſet down in our common Printing Letters.

Hebrew] Ve-tzaddig, Be emunatho jichjch.
Chaldee] Vetzaddikaia al kuſhethon jith kaigemun.
Syriack] Decana min Himenuta Nacha.
Arabick] Vaadili Minalaj Manj Jaccaij.
Greek] Ho de Dikaios ec ſteoos mec Zeſetaij.
Latin] Juſtus autem ex fide ſuâ vivet.
Spaniſh] El Juſto en ſu ſe bivira.
Italian] Il Giuſto vivera per la ſua fede.
Portugal] Oa Juſta em ſua ſei vivara.
French] Mais le Juſt vivera de ſa foy.
Armenian] Shedeck Mart eer ſerdoven kapree.
Perſian] Raſt Adem eis fiſk hodmigzeratt.
Georgian] Martalee Katſeca tavis ſumartlitta darchebis.
Javan, Moollay] Ozany Betool Deah-pooniah emaun ollough cubbool.
Eaſt-Indian, Surat] Neek Zaut Oousſkah ema un coodawtah haut.
Weſt-Indian, New-England] Sampivenſſeanuta piſh pomantum kiſke wunnamptamoouke.
Hungarian] Azigar Ember pedig hit altellel.
Tranſilvanian] Aſſigas Emberpedig itt altel el.
Moldavian] Wom Kudireptate kulege alui trayeſti.
Tartarian, Coſſackian] Ho Dikaios Athropos metin biſte too Zee.
High-German] Dun der Gerechte bebet ſines Glaubens.
Bohemian] Geſt ſprawedliwy Ziw Budzwiſry.
Sclavonian] Pravedne oot vearea Zeove Boudet.
Muſcovian, Ruſſian] Prawidliwy Zejut prze wiare.
Turkiſh] Sadick Adam onung ich tikat eila decillet.
Lattoiſh] Taiſus per wiera ſawo Girens.
Poliſh] Spraviedliwij Z. wiarij ſwey bendzie zil.
Daniſh] Den Retferdige ſeal leſſ ve aff ſin tro.
Swediſh] Then Retferdiga ſcall leſſ va aff ſine tro.
Netherlandiſh] De Rechtverdige ſal uyt den Geloove leven.
Iriſh] Dee-yow een ſeerian ſlawhaunus le creddiſſ.
Welſh] Y Cyſiawn a ſydd byw trwy ſydd.
Engliſh] But the Juſt ſhall live by his Faith.

Note, That the People of *Biſcay* in *Spain* uſe a Language different from the reſt of *Spain*, and are reported to have continued without great Alteration ſince the Confuſion of *Babel*: In like Manner, the *Arabick* continues uncorrupted in the hilly Parts of *Granada*.

Note, alſo, That thoſe who are well verſed in *Grammar*, or who teach *Grammar*, are called *Grammarians*.—The *Grammarian* is conceived as a Perſon wholly attentive to the *Minutiæ* of Language; induſtriouſly employed about Words and Phraſes; incapable of perceiving the Beauties, Delicacy, Extent, *&c.* of a Sentiment. *Scaliger*, however, conſidered *Grammarians* in another Light; *utinam eſſem*, ſays he, *bonus* Grammaticus: *ſufficit enim ei, qui omnes authores vult intelligere, eſſe* Grammaticum.—The Title *Grammarian*, it is certain, was antiently a Title of Honour; being given, not only to ſuch as applied themſelves to *Grammar*, or excelled in Philology; but to all who were reputed learned in any Art, or Faculty whatever; as is ſhewn by *Ger. Voſſius*, in his Book of *Grammar*. The Word was properly a Title of Literature and Erudition, and frequently given to Perſons who excelled in all, or many Arts, call'd alſo *Polyhiſtores*. Thus *Philoponus*, a famous Philoſopher in *Juſtinian*'s Time, remarkable for the Extent and Variety of his Knowledge, was ſurnamed *Grammaticus*. So *Saxo*, the *Daniſh* Hiſtorian, in the 13th Century, got the Appellation *Grammaticus*: And as late as the Year 1580, *Thomas d'Averſa*, the famous *Neapolitan* Lawyer, was ſurnamed the *Grammarian*.—The Title *Grammarian* was antiently beſtow'd on thoſe we now call *Criticks*, Men of Learning, Erudition, Letters, *&c.* and particularly ſuch as wrote well, and politely in every Kind. It is in this Senſe that *Suetonius* entitles his Book, which he wrote on the beſt *Latin* Authors, *Of the celebrated Grammarians*; and that *Cornelius Nepos* calls the Commentators on the Orators, and Poets, *Grammarians*: And laſtly, it is in this Senſe the Appellation is attributed, by the Antients to *Apion*, *Philopemus*, and *Solinus*.—The moſt celebrated *Grammarians* of the ſecond Century, were *Aper*, *Pollio*, *Eutychius*, *Proculus*, *Athæneus*, *Julius Pollux*, *Macrobius*, and *Aulus Gellius*: The Works of theſe laſt Authors are an Aſſemblage of Abundance of very different Things and Subjects, relating to the Criticiſms of the antient Writers, and polite Literature.—If the Name have loſt its antient Honour, it is through the Fault of thoſe who have aſſumed it; by treating of *Grammar* in a low, pedantick, and dogmatick Manner; reducing it to Words and Syllables; and dwelling altogether on trifling, puerile Remarks and Cenſures: Whereas its antient Office was to make an accurate, and thorough Examen of an Author; to enter into all his Views, to point out the Beauties and the Defects thereof; to diſtinguiſh the true Beauties from the falſe; and the genuine Productions of an Author from the ſuppoſitions: That is, a *Grammarian* was then, what we call a *Critick* now.—Thoſe who only taught to read, underſtand, and explain Authors, were call'd *Grammaticks*, *Grammatiſtæ*; in Contradiſtinction from *Grammatici*: Though, in Courſe of Time, the *Grammatiſtæ* have roſe into the Place of *Grammatici*; who are preferr'd to that of *Critici*.

Diogenes Laertius relates, after one *Hermippus*, that *Epicurus* was the firſt who gave the Rules of *Grammar* for the *Greek* Tongue; but that *Plato* was the firſt who had taken the Thing into Conſideration, and even made ſome Diſcoveries on that Subject.—At *Rome*, *Crates*, ſurnamed *Mallotes*, contemporary with *Ariſtarchus*, gave the firſt Lectures thereon to the *Romans*, during the Time of his being Embaſſador for King *Attalus*, to the Common-wealth, between the ſecond and third *Punick* Wars, ſoon after *Ennius*'s Death. Before him it was not known at *Rome* what *Grammar* meant.

Note, That *Grammar* is alſo uſed for a Book containing the Rules of *Grammar* which obtain in any Language.—The beſt of the modern *Grammars* are, 1. For the *Hebrew*, that of *Pagninus*, the Edition of *Henry Stephens*,

vens, or *le Preux*, at *Geneva*, in 1592; that of *Petrus Martinius*, at *Rochel* 1592; that of *Buxtorff*; that of *Ludovicus Deus*, in three Languages; that of *Sixtinus Amama*, which is a Collection from *Martinius* and *Buxtorff*; that of *Bellarmine*, with the Notes of *Muis*; that of Father *Sylauter* is useful for Beginners.—For *Chaldee*, the best are those of *Martinius*, *Buxtorff*, and *Lud. Deus*, in three Languages.—3. For the *Syriack*, those of *Amira*, *Myricæus*, *Waserus*, and *Beveridge*; with the *Chaldee* and *Syriack* ones of *Buxtorff*, of *Lud. Deus*, in three Languages, and that of *Lembden*.—4. For the *Coptic*, the *Podromus Coptus*, and *Lingua Ægyptiaca Restituta* of *Kircher's*.—5. The *Arabick*, that of *Erpenius*, and that of *Golius*, which is only *Erpenius's* a little augmented.—6. For the *Ethiopick*, that of *J. Ludolphus*.—7. For the *Persian*, that of *Ludovius Deus*.—8. For the *Armenian*, those of *Shroder* and *Galanus*.—9. For the *Greek*, those of *Mart. Rulandus*, *Sylburgus*, F. *Mocquet*, *Vossius*, *Port Royal*, and *Busby*.—10. For the *Latin*, those of *Despauter*, the *Minerva* of *Sanctius*, those of *Vossius* and *Sprat*, that of *Port Royal*, which is only a Collection from the rest, and that of *Lowe*, the most exact of all.—11. For the *Italian*, those of *Berger*, *Lanfredini*, *Port Royal*, and *Veneroni*.—12. For the *Spanish*, those of *Salazar*, *Port Royal*, the Abbot *de Veirac*, &c.—13. For the *Portuguese*, that of *Pereira*.—14. For the *French*, those of the Abbot *Regnier*, and F. *Buffier*.—15. For the *High Dutch*, those of *Claius*, *Hertsburgensis*, *Schottelius*, *Boedicher*, and *Steinbach*.—16. For the *English*, that of *Wallis*, *Brightland*, and *Greenwood*.

GUNNERY.

GUNNERY, is the Art of charging, directing, and exploding Fire-Arms, as Cannons, Mortars, Muskets, *&c.* to the best Advantage.

To the Art of *Gunnery* belongs the Knowledge of the Force and Effect of Gunpowder, the Dimensions of Pieces, and the Proportion of the Powder and Ball they carry, with the Method of *Managing*, *Charging*, *Pointing*, *Spunging*, &c. and notwithstanding that I mention here Gunpowder first, I'll begin this Treatise by the Dimensions of the different Pieces of Cannon and Mortars, both antient and modern; their different Caliber; the best Method to find that Caliber; their different Carriages, *&c.* Then proceed to the Preparation of Gunpowder, instructing my Pupil Gunner how to chuse the best, *&c.* From thence I'll pass to the Proportions of the Powder and Ball each different Piece carries, making some Observations on the different Sorts of Bullets, Bombs, *&c.* And lastly, give the Method of Managing, Charging, Pointing, Spunging them, *&c.* with a previous Description of all the different Utensils used in those Operations. Concluding the Treatise with some particular Rules of the *Military Art*, which I have omitted in my Treatise of Fortification.

To begin with the different Dimensions of the *Pieces of Artillery*, we must observe, 1. That of those Pieces, some are of antient, and others of modern Invention; meaning only in this Place, *Cannons* and *Mortars*.

Note, That a *Cannon* is a Military Engine, or Fire-Arm, for throwing Iron, Lead, or Stone-Bullets, by Force of Gunpowder, to a Place exactly opposite to the Axis of the Cylender whereof it consists.

Cannons are made cylindrical, that the Motion of the Ball might not be retarded in its Passage; and that the Powder, when on Fire, might not slip between the Ball and the Surface of the *Cannon*, which would hinder its Effect. *Wolfius* would have the *Cannon* always decrease towards the Mouth or Orifice: In Regard the Force of the Powder always decreases, in Proportion to the Space through which it is expanded.

The Names of the Brass *Cannons*, antiently cast, their Weight, Length, and the Weight of the Ball, or their *Caliber*, were as follows:

NAMES.	Caliber, *or Wt. of the Iron Ball.*	*Wt. of the Cannon.*	*Length.*
	lb.	*lb.*	*Feet.*
The *Basilick*,	48	7200	10
The *Dragon*,	40	7000	16½
The *Flying Dragon*,	32	7200	22
The *Serpentine*,	24	4300	13
The *Culverine*,	20	7000	16
The *Half-Culverine*,	10	4250	11
The *Saker*,	5	2850	13
The *Sacret*,	4	2500	12½
The *Falcon*,	3	2300	8
The *Falconet*,	2	1350	10½
The *Ribadequin*,	1	750	8
The *Emerillon*,	¼	400	4 *or* 5

Note, That *Cannons* were made formerly much longer than at present; till some made by Chance, 2½ Foot shorter, taught us that the Ball moves with a greater Impetuosity through a less Space than a larger. This *Gustavus* the great King of *Sweden* proved by Experience, in 1624, when an Iron Ball, 48 Pounds Weight, was found to go farther from a new short *Cannon*, than another Ball of 96 Pounds, out of an old longer Piece; whereas in other Respects, it is certain, the larger the Bore and Ball, the greater the Range.

The Names of the several *Cannons*, their Length, Weight, and that of their Balls, as they obtain in *England*, are as follows:

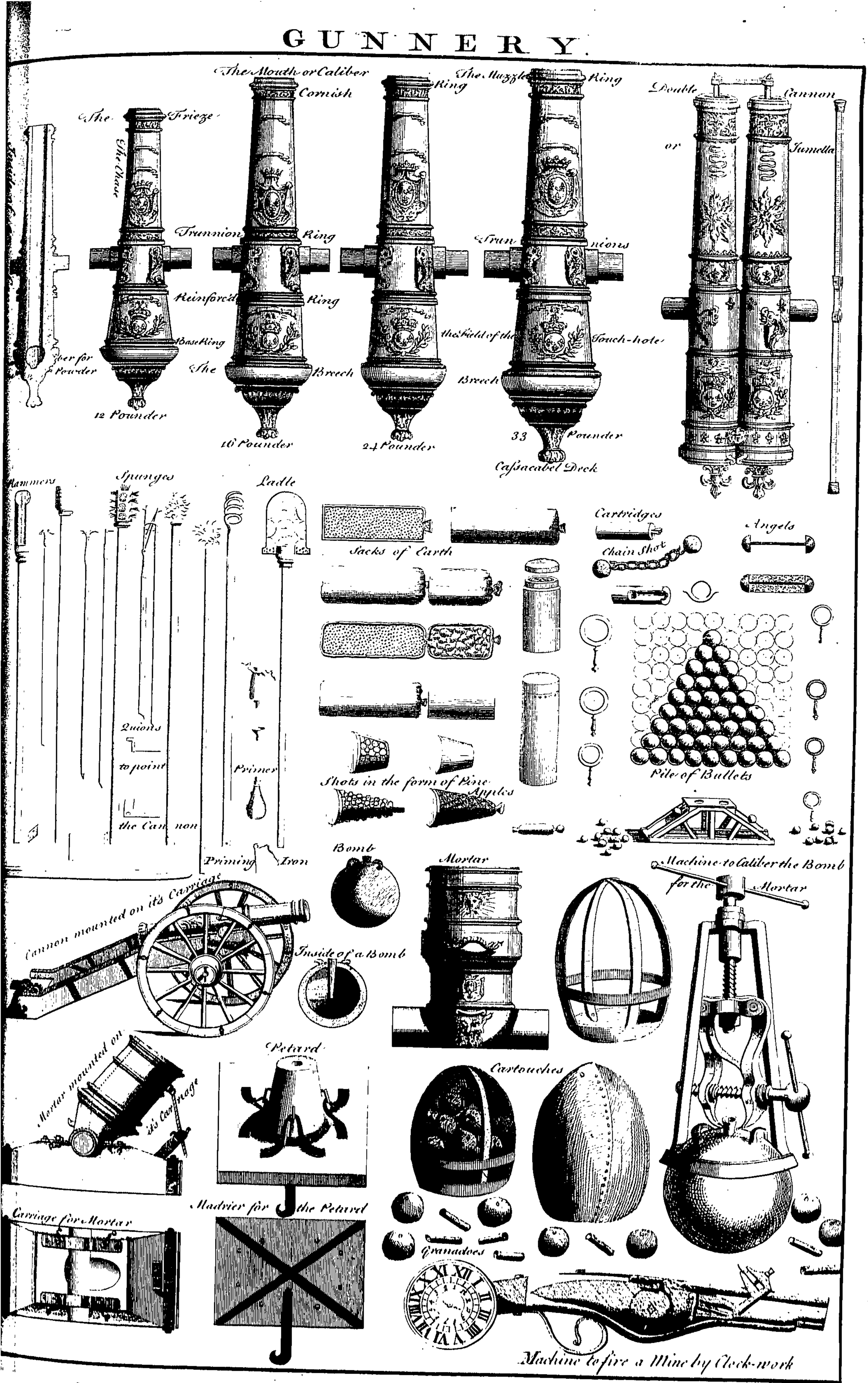
Names of Cannon.	*Weight of an Iron Ball.*		*Wt. of the Cannon.*	*Length of the Cannon*
	lb.	*Oz.*	*lb.*	*Feet.*
Cannon Royal,	48		8000	12
Demi-Cannon large,	36		6000	12
Demi-Cannon ordinary,	32		5600	12
Demi-Cannon least,	30		5400	11
Culverine largest,	20		4800	12
Culverine ordinary,	17	5	4500	12
Culverine least,	15		4000	11
Demi-Culverine ordinary,	10	11	2700	11
Demi-Culverine least,	9		2000	10
Saker ordinary,	6		1500	10
Saker least,	46	12	1400	8
Minion largest,	36	12	1000	8
Minion ordinary,	3	4	800	7
Falcon,	2	8	750	7
Falconet,	1	5	400	6
Rabinet,	0	8	300	5 6 *dig*
Base,	0	5	200	4 6 *dig*

All these are called in *English*, *Pieces of Ordnance*, and each of them is composed of several Parts, which have all different Names, the principal thereof are as follows:

The Outside, round about the Piece, is called the *Superficies* of her Metal; the Substance, or whole Mass, the *Body*; the Hollowness, or Concavity, the *Bore*; so much of her Hollowness as contains the Powder and Shot, the *Chamber*; the Remainder, her *vacant Cylinder*; the Spindels or Ears, the *Trunnions*; the Pummel at her Coyle, the *Cassacabel Deck*; the little Hole, the *Touch-Hole*; all the Part behind the Touch-Hole, her *Breech*, or *Coyle*; the greatest Ring at her Touch-Hole, her *Base Ring*; the next Ring above the Touch-Hole, her *reinforced Ring*; the next, her *Trunnion Ring*; the Ring next her Mouth, the *Muzzle Ring*; the Ring between the Trunnion Ring and Muzzle Ring, her *Cornish Ring*, all the Rings, and Circles above the Muzzle, the *Frieze*; and the whole Length, the *Chase*.

Note, That a Founder of *Lyons*, called *Emery*, invented in

GUNNERY.


The Mouth or Caliber
Cornish
Ring
The Muzzle
Ring
Double
Cannon
or
Jumella
The
Frieze
The Chase
Trunnion
Ring
Trun
nions
Reinforc'd
Ring
Base Ring
the Field of the
Touch-hole
ber for
Powder
The
Breech
Breech
12 Pounder
16 Pounder
24 Pounder
33
Pounder
Cassacabel Deck
Hammers
Spunges
Ladle
Sacks of Earth
Cartridges
Chain Shot
Angels
Quions
to point
the Cannon
Priming
Iron
Primer
Shots in the form of Pine
Apples
Pile of Bullets
Bomb
Mortar
Machine to Caliber the Bomb
for the
Mortar
Cannon mounted on it's Carriage
Inside of a Bomb
Mortar mounted on
it's Carriage
Petard
Cartouches
Carriage for Mortar
Madrier for the Petard
Grenadoes
Machine to fire a Mine by Clock-work
B. Cole, sculp.

in the laſt Century, a Piece of Ordinance, called *Jumelle*, or double *Cannon*, the Figure whereof is in our Plate. — The two *Cannons* carry a Ball or Bullet 4 Pounds Weight: They are caſt together, with a ſingle Touch-Hole for both, and they are charged with two Iron Bars tied together, of 12 Foot Extent, and 65 Pounds Weight.

Each Sort of *Ordinance* is more or leſs fortified, which Fortification is reckon'd by the Thickneſs of the Metal at the Touch-Hole, at the Trunnions, and at the Muzzle, in Proportion to the Diameter of the Bore.

There are three Degrees uſed in fortifying each Sort of Ordinance, both *Cannons* and Culverines. Firſt, ſuch as are ordinarily fortified, which are called *legitimate Pieces*. Secondly, ſuch whoſe Fortifications are leſſen'd, which are called *Baſtards Pieces:* Thirdly, double fortified Pieces, or extraordinary Pieces.

The *Cannons* double fortified, have full one Diameter of their Bore in Thickneſs of Metal, at their Touch-Hole, and $\frac{11}{16}$ at their Trunnions, and $\frac{7}{16}$ at their Muzzle. The *leſſened Cannons*, have at their Touch-Hole, but $\frac{3}{4}$ or $\frac{12}{16}$ of the Diameter of their Bore in Thickneſs of Metal, and $\frac{9}{16}$ at their Trunnions, and $\frac{5}{16}$ at their Muzzle. The *ordinary fortified Cannons*, have $\frac{7}{8}$ at the Touch-Hole, $\frac{5}{8}$ at the Trunnions, and $\frac{3}{8}$ at the Muzzle. All the *double fortified Culverines*, and all leſſer Pieces of that Kind, have one Diameter and $\frac{1}{8}$ at the Touch-Hole, $\frac{15}{16}$ at the Trunnions, and $\frac{9}{16}$ at the Muzzle. And all the *ordinary fortified Culverines*, are fortified every Way as the double fortified *Cannons*; and the *leſſen'd Culverines*, as the ordinary *Cannons* in all Points.

Having thus given an exact Deſcription of the different Sorts of Pieces of *Cannons*, I muſt next provide myſelf with the Powder neceſſary to charge them with; which is properly the Soul of *Gunnery*, ſince without it, all Pieces of Ordinance would prove uſeleſs.

Gun-Powder, is a Compoſition of Salt-petre, Sulphur, and Charcoal mix'd together, and uſually granulated, which eaſily takes Fire, and rarifies or expands with great Vehemence, by Means of its elaſtick Force.

There are divers Compoſitions of *Gun-Powder*, with Reſpect to the Proportion of the three Ingredients, to be met withal in Pyrotechnical Writers: But the Effect is much the ſame in all.

The Sulphur and Saltpetre being purified, and reduced to Powder, are put with the Charcoal-Duſt in a Mortar, moiſten'd with Water or Spirit of Wine, or the like, and pounded 24 Hours together; taking Care to wet the Maſs from Time to Time, to prevent its taking Fire: Laſtly, ſqueezing it through a Sieve, it is formed into little Grains or Globules; which being dried the Powder is compleat.

There are three Kinds of *Powder*, viz. *Cannon-Powder*, *Muſket-Powder*, and *Piſtol-Powder*; of each of theſe again, there are two Sorts, a *ſtronger* and a *weaker*, all which Differences ariſe only from the different Proportions.

The Proportions are thus; in the *ſtronger Cannon Powder*, to every hundred Pounds of Salt-petre, twenty-five Pounds of Sulphur, are generally allowed, with the ſame Quantity of Charcoal; and in the *weaker Cannon Powder*, to every hundred Pounds of Salt-peter, twenty Pounds of Sulphur, and twenty-four of Charcoal.

Other Authors preſcribe other Proportions; *Semienowitz*, for Mortars, directs an hundred Pounds of Salt-petre, twenty-five of Sulphur, and as many of Charcoal; for great Guns an hundred Pounds of Salt-petre, fifteen of Sulphur, and eighteen of Charcoal.

Miethus extols the Proportion of one Pound of Salt-petre to three Ounces of Charcoal; and two, or two and a Quarter of Sulphur. He adds, that the uſual Practice of making the *Gun-Powder* weaker for Mortars than *Cannons*, as in the Example above, is without any Foundation, and renders the Expence needleſly much greater: For, whereas, to load a large Mortar twenty-four Pounds of common Powder is requir'd; and conſequently to load it ten Times, two hundred and forty Pounds; he ſhews, by Calculation, that the ſame Effect would be had by one hundred and eighty Pounds of the ſtrong Powder.

Note, That to make a great Quantity of *Gun-Powder*, Mills are uſually provided, by Means of which, more Work may be perform'd in one Day, than a Man can do in an hundred.

There are three Ways to prove the Goodneſs of *Gun-Powder*. 1. By Sight; for if it be too black, it is too moiſt, or has too much Charcoal in it; ſo alſo if rubbed upon white Paper, it blackens it more than good Powder does: But if it be a Kind of azure Colour, ſomewhat inclining to red, it is a Sign of good Powder. 2. By touching; for if in cruſhing it with your Fingers Ends, the Grains break eaſily and turn into Duſt, without feeling hard, it has too much Coal in it; or if, in preſſing under your Fingers upon a ſmooth, hard Board, ſome Grains feel harder than the reſt, or, as it were, dent your Fingers Ends, the Sulphur is not well mix'd with Nitre, and the Powder is naught. 3. By Burning; wherein Heaps of Powder are laid upon white Paper, three Inches or more aſunder, and one of them fired; which, if it only fires all away, and that ſuddenly, and almoſt imperceptibly, without firing the reſt, and make a ſmall thundering Noiſe, and a white Smoak riſes in the Air, almoſt like a Circle, the Powder is good; if it leaves black Marks, it has too much Coal, or is not well burnt: If it leaves a Greaſineſs, the Sulphur or Nitre is not well cleanſed or order'd. Again, if two or three Corns are laid on Paper an Inch diſtant, and Fire be put to one of them, and they all fire at once, leaving no Sign behind but a white ſmoaky Colour in the Place, and the Paper not touch'd, the Powder is good.

To recover damag'd Powder, the Method of the Powder-Merchants is, to put Part of the Powder on a Sail-Cloth, to which they add an equal Weight of what is really good; and with a Shovel mingle it well together, dry it in the Sun, and barrel it up, keeping it in a dry and proper Place.

Others again, if it be very bad, reſtore it by moiſtening it with Vinegar, Water, Urine, or Brandy; then they beat it fine, ſierce it, and to every Pound of Powder, add an Ounce, an Ounce and a half, or two Ounces (according as it is decay'd) of melted Salt-petre; afterwards theſe Ingredients are to be moiſten'd and mixed well, ſo that nothing can be diſcern'd in the Compoſition; which may be known by cutting the Maſs, and then they grannulate as aforeſaid.

In Caſe the Powder be in a Manner quite ſpoil'd, the only Way is to extract the Salt-petre with Water, according to the uſual Manner, by boiling, filtrating, evaporating, and cryſtallizing; and then with freſh Sulphur and Charcoal, to make it up a-new again.

The Powder, without Balls or Bullets, would do no Execution; therefore we muſt next provide ourſelves with a ſufficient Quantity of them.

A *Bullet*, is an Iron Ball, wherewith *Cannons* are loaded. A *Bullet* ſhould be very round, well ſhaved, and without Vacuities.

Very round and well ſhaved, that they make their Way ſtreight into the Piece without ſcratching it.

Without Vacuities, that they may not turn round in the Air, nor take in Wind.

They are not to be of a brittle Iron, otherwiſe they break eaſily when moved.

There are *Bullets* of various Kind, *viz. red Bullets*, intended to ſet fire to Places, where combuſtible Matters are found. The *Bullet* is made red-hot, by digging a Place in the Earth, and lighting in it a great Quantity of Charcoal, or Sea-Coal; and placing over it a ſtrong Iron Grate. When the Fire is well lighted, the *Bullets* are placed on the Grate, where, in a very ſhort Time, they grow red-hot; then they are taken out with Tongs, or Iron Ladles for the Purpoſe, and carried into the Piece, which muſt not be very far diſtant from the Place where they have been heated; having before put ſome Clay, if poſſible, over the Powder the *Cannon* is loaded with, leſt it ſhould be ſet on Fire by the *red Bullet*. Then the

Piece is fired; and wherever the *Bullet* passes, and meets with combustible Matters, it sets them on Fire.

Note, That when a Trench is before the Battery of *red Bullets*, Hay is rammed over the Powder, because if it was Clay, the Pieces of it could wound, and kill the Workmen.

Note also, That *Red-Bullets* are never fir'd but with eight or four Pounders. For if they were of a stronger Caliber, the *Bullets* could not be serv'd easily.

Hollow Bullets, which are Shells made cylindrical, with an Aperture and Fusee at one End, which giving Fire to the Inside, when in the Ground, it bursts, and has the same Effect with a Mine.

Chain Bullets, consist of two Balls joined by a Chain, three or four Foot apart.

Branch Bullets, which are two Balls joined by a Bar of Iron, five or six Inches a-part.

Two-headed-Bullets, called also *Angels*, being two Halves of a Bullet, joined by a Bar or Chain: These are chiefly used at Sea, for cutting of Cords, Cables, Sails, *&c.*

But as *Bullets*, as well as the Pieces of Ordinance, are of different *Caliber*, which *Caliber*, in a Piece of Ordinance, is the Diameter of the Mouth thereof; and in a *Bullet*, its Circumference; there are Means found to Proportion these two *Calibers* to one another, *viz.* with an Instrument called *Caliber-Rule*, wherein a right Line is so divided, as that the first Part being equal to the Diameter of an Iron or Leaden Ball, of one Pound Weight, the other Parts are to the first, as the Diameters of Balls of two, three, four, *&c.* Pounds, are to the Diameter of one Ball of one Pound.

The *Caliber* consists of two thin Pieces of Brass, six Inches long, join'd by a Rivet, so as to move quite round each other: The Head, or one End of the Piece, is cut circular, and one Half of its Circumference divided into every second Degree. On the other Half are Divisions from one to ten; each again subdivided into four: The Use of which Divisions and Subdivisions, is when the Diameter of a *Bullet*, &c. not exceeding ten Inches, is taken, the Diameter of the Semi-circle will, among the Divisions, give the Length of the Diameter, taken between the Points of the *Calibers*, in Inches, and fourth Parts.

The Degrees on the Head, serve to take the Quantity of an Angle, the Method of which is obvious. If the Angle be inward, apply the outward Edges to the Planes that form the Angle; the Degree cut by the Diameter of the Semi-circle, shews the Quantity of the Angle sought. For an outward Angle, open the Branches till the Points be outward, and applying the streight Edges to the Planes that form the Angle, the Degrees cut by the Diameter of the Semi-circle, shew the Angle requir'd; reckoning from 180, towards the right Hand.

On one Branch of the *Calbiers*, on the same Side, are, first six Inches; and each of these subdivided into ten Parts. Secondly, a Scale of unequal Divisions, beginning at two, and ending at ten, each subdivided into four Parts. Thirdly, two other Scales of Lines, shewing when the Diameter of the Bore of a Piece, is taken with the Points of the *Calibers* outwards, the Name of the Piece, whether of the Iron or Brass, *i. e.* the Weight of the Bullet it carries, or that it is such or such a Pounder, from one to forty-two Pounds.

On the other Branch of the *Calibers*, on the same Side, is a Line of Cords to about three Inches Radius; and a Line of Lines on both Branches, as on the Sector; with a Table of the Names of the several Pieces of Ordinance. On the same Face is a Hand graved, and a right Line drawn from the Finger towards the Center of the Rivet, shewing by its cutting certain Divisions made on the Circle, the Weight of an Iron Shot, when the Diameter is taken by the Points of the *Calibers*. Lastly, on the Circle or Head, on the same Side, are graved several geometrical Figures, inscribed in each other, with Numbers; as a Cube, whose Side is supposed one Foot; a Pyramid on the same Base or Altitude, and the Proportions of their Weight, *&c.* a Sphere inscribed in a Cube; a Cylinder, Cone, Circle, Square, *&c.*

The Outside of the *Caliber*, serves to take the Diameter of the Mouth of the Piece; and the Inside, called the *Heel*, that of the *Bullet*.

There is another Method of taking the *Caliber* of the Pieces, which is to have a Rule very well divided, on which are graved the *Calibers*, both of the Pieces and Bullets. That Rule must be applied on the Mouth of the Piece, and the *Caliber* is presently found.

But to be more particular on this important Subject, here follows the different *Calibers* of the Pieces of Ordinance.

A Piece which receives a *Bullet* an Ounce Weight (twelve such Ounces to the Pound) has of Aperture at its Mouth, 9 Lines and $\frac{5}{16}$ of a Line.

That which receives a *Bullet* two Ounces Weight, has of Aperture at its Mouth, 11 Lines and $\frac{3}{4}$ of a Line. I'll continue according to the same Order.

Weight of the Bullet.	*Aperture of the* Caliber.		
Ounces.	*Inches.*	*Lines.*	*Fractions.*
1	0	9	$\frac{5}{16}$
2	0	11	$\frac{3}{4}$
3	1	1	$\frac{7}{16}$
4	1	2	$\frac{3}{4}$
5	1	4	
6	1	4	$\frac{7}{8}$
7	1	5	$\frac{10}{12}$
8	1	6	$\frac{5}{8}$
10	1	8	$\frac{1}{12}$
12	1	9	$\frac{1}{3}$
14	1	10	$\frac{7}{16}$

The Peice that receives the *Bullet* one Pound Weight, which makes sixteen Ounces, has of Aperture at its Mouth, 1 Inch, 11 Lines, and $\frac{1}{2}$ of a Line.

Weight of the Bullet.	*Aperture of the* Caliber.		
Pounds.	*Inches.*	*Lines.*	*Fractions.*
1	1	11	$\frac{1}{2}$
2	2	5	$\frac{19}{32}$
3	3	9	$\frac{13}{16}$
4	3	1	$\frac{5}{16}$
5	3	4	$\frac{1}{8}$
6	3	6	$\frac{2}{3}$
7	3	8	$\frac{7}{8}$
8	3	11	
9	4	0	$\frac{7}{8}$
10	4	2	$\frac{9}{16}$
11	4	4	$\frac{1}{4}$
12	4	5	$\frac{3}{4}$
13	4	7	$\frac{1}{16}$
14	4	8	$\frac{9}{16}$
15	4	9	$\frac{7}{8}$
16	4	11	$\frac{7}{32}$
17	5	0	$\frac{7}{16}$
18	5	1	$\frac{9}{16}$
19	5	2	$\frac{19}{32}$
20	5	3	$\frac{23}{24}$
21	5	4	$\frac{3}{4}$
22	5	5	$\frac{25}{32}$
23	5	6	$\frac{13}{16}$
24	5	7	$\frac{5}{8}$
25	5	8	$\frac{2}{3}$
26	5	9	$\frac{1}{2}$
27	5	10	$\frac{1}{2}$
28	5	11	$\frac{1}{2}$
29	6	0	$\frac{1}{2}$
30	6	1	$\frac{31}{32}$
31	6	1	$\frac{25}{32}$
32	6	2	$\frac{5}{8}$
33	6	3	$\frac{13}{32}$
34	6	4	$\frac{1}{8}$
35	6	4	$\frac{7}{8}$
36	6	5	$\frac{17}{32}$
37	6	6	$\frac{9}{32}$

Pounds.

Pounds.	Inches.	Lines.	Fractions.
38	6	6	$\frac{15}{16}$
39	6	7	$\frac{19}{32}$
40	6	8	$\frac{12}{32}$
41	6	9	
42	6	9	$\frac{2}{3}$
43	6	10	$\frac{1}{3}$
44	6	10	$\frac{29}{32}$
45	6	11	$\frac{9}{16}$
46	7	0	$\frac{1}{4}$
47	7	0	$\frac{25}{32}$
48	7	1	$\frac{1}{3}$
49	7	1	$\frac{29}{32}$
50	7	2	$\frac{9}{16}$
55	7	5	$\frac{1}{2}$
60	7	7	$\frac{28}{32}$
64	7	10	

Note, That I have omitted ſome Numbers, becauſe there are but few or none of thoſe broken *Calibers* found.

Note alſo, That if you are in a Place where there is neither a Rule nor a Compaſs, you muſt ſee if there are Bullets for the Pieces, the *Caliber* whereof you will know; and preſent thoſe Bullets at the Mouth of the Piece; if they enter the Piece as it ſhould be, thoſe Bullets are to be weighed, and their Weight will make the *Caliber* of the Piece, or thereabout; for the Bullet is always a little leſs ſtrong, becauſe it muſt have Wind to run commodiouſly into the Piece, and to come out without ſcratching it.

Sometimes, in lieu of Bullets, the Pieces are charged with *Cartouches*, which are Caſes loaden with Muſket Balls, Nails, Chains, and Pieces of old Iron; ſometimes, alſo, with ſmall Cannon Balls.

There are *Cartouches* made in Form of Grapes, which are Muſket Balls join'd together with Pitch, and diſpoſed on a ſmall Board, in a pyramidal Form, round a wooden Stick, which ariſes from the Middle of the Board.

The *Cartouches* made of Tin are the beſt, becauſe they carry further.

There are alſo *Cartouches* made in Form of Pine-Apples, whoſe Figure is pyramidal. Their Baſe is equal to the *Caliber* of a Bullet, propos'd for the Piece they are to be fired with; their Height is of a *Caliber* and a half; they are dipped in Tar, and afterwards rolled on Muſket Balls, and when well covered with thoſe Balls, dipped again in the ſame Tar, after which they may be uſed, thruſting the biggeſt foremoſt into the Piece. Theſe Pine-Apples are very good at Sea, becauſe, beſides that the Muſket Balls flying about wound a great Number of People, the Bullet which is at the Bottom of the Cartouch, does alſo much Execution.

The next we'll do, is to mount our Piece on its *Carriage*, ſince, otherwiſe, it is almoſt impoſſible to uſe it to any Purpoſe; or with much Advantage, *i. e.* to point, or direct it for ſhooting, and convey it from Place to Place.

There are ſeveral Sorts of *Carriages*, viz. thoſe of Places, called *Baſtard Carriages*, with low Wheels; and the ſame with high Wheels. *Sea Carriages*, made in Imitation of thoſe for Ship Guns: And *Carriages for Field Pieces*, of which there are two Kinds; the one in the antient Manner, and the other of a new Invention.

The *Carriage of a Field Piece*, conſiſts of two Wheels, which carry long and ſtrong wooden Beams or Cheeks, between which, the Cannon is as it were framed, moving on its Trunnions, as on a Center: When it is required to move them, they add a Vantrain, compoſed of two ſmaller Wheels.

The *Carriages for Pieces of Places*, have but two Wheels, and no Vantrain.

Thoſe *of Ship Guns*, conſiſt of two Wheels, without Spokes.

The *Carriages* muſt be proportion'd to the Pieces mounted on them. — The ordinary Proportion is, for the *Carriage* to have $1\frac{1}{4}$ of the Length of the Gun; the Wheels to be half the Length of the Piece in eight; four Times the Diameter or Caliber, gives the Depth of the Planks at the fore End, in the Middle $3\frac{1}{2}$.

The Piece thus mounted on its Carriage, we'll proceed to charge it; in which Operation, ſeveral Inſtruments are employed, ſome to prepare the Piece to be loaded, ſome to load it, others to point it, and others to cleanſe it, *&c.* Thoſe Inſtruments have each their proper Name, which are as follows:

The *Lantern* or Ladle, which ſerves to carry the Powder into the Piece, and which conſiſts of two Parts, *viz.* of a wooden Box, appropriated to the Caliber of the Piece for which it is intended, and of a Caliber and a half in Length with its Vent; and of a Piece of Copper nailed to the Box, at the Height of a half Caliber.

This *Lantern* muſt have three Calibers and a half in Length, and two Calibers in Breadth, being rounded at the End to load the ordinary Pieces.

The *Rammer*, which is a round Piece of Wood, commonly called a *Box*, faſtened to a Stick twelve Foot long, for the Pieces from twelve to thirty-three Pounders; and ten for the eight and four Pounders; which ſerve to drive Home the Powder and Ball to the Breech.

The *Spunge*, which is a long Staff or Rammer, with a Piece of Sheep or Lamb-Skin wound about its End, to ſerve for ſcouring the Cannon when diſcharg'd, before it be charged with freſh Powder; to prevent any Spark of Fire from remaining in her, which would endanger the Life of him who ſhould load her again.

Wad-Skrew, which are two Points of Iron turn'd ſerpent-wiſe, to extract the Wad out of the Pieces, when one wants to unload them, or the Dirt which had chanced to enter into it.

The *Boutefeux*, which are Sticks two or three Foot long, and an Inch thick, ſplit at one End, to hold an End of the Match twiſted round it, to fire the Cannon.

The *Priming-Iron*, which is a pointed Iron Rod, to clear the Touch-Hole of the Pieces of Powder or Dirt; and alſo to pierce the Cartridge that it may ſooner take Fire.

The *Primer*, which muſt contain a Pound of Powder at leaſt, to prime the Pieces.

The *Quoin of Mire*, which are Pieces of Wood with a Notch on the Side to put the Fingers on, to draw them back or puſh them forward, when the Gunner points his Piece. They are placed on the Sole of the Carriage.

Leaden Plates, which are uſed to cover the Touch-Hole, when the Piece is charged, leſt ſome Dirt ſhould enter it and ſtop it.

Being thus provided with all the Implements belonging to a Piece of Ordinance; we'll proceed to charge or load the Piece.

The firſt Thing we'll do, is to ſpunge it well, to clean it of all Filth and Dirt within Side; then we'll take the Weight of Gunpowder, in a ſubduple Proportion to that of the Bullet it carries, or the two Thirds of the Weight of the Bullet for Pieces caſt in the antient Manner; and one Third, or a Half, for the Pieces of new Invention, which Powder we'll drive in and ram down; taking Care, however, that the Powder be not bruiſed in ramming, which weakens its Effect; running over it a little Quantity of Paper, Hay, or the like, and laſtly, introducing the Ball.

As a Piece thus charged is deſign'd for Execution, it muſt be *pointed*, i. e. levelled or directed, ſo as to play againſt any certain Point, which is done by Means of a Quadrant with a Plummet; which Quadrant conſiſts of two Branches made of Braſs or Wood; one about a Foot long, eight Lines broad, and one Line in Thickneſs; the other four Inches long, and the ſame Thickneſs and Breadth as the former. Between theſe Branches is a Quadrant, divided into 90 Degrees, beginning from the ſhorter Branch, and furniſhed with Thread and Plummet.

To point, or level our Cannon, we'll place the longeſt Branch of this Inſtrument in its Mouth, and elevate or lower it till the Thread cuts the Degree neceſſary to hit the propoſed Object. Which done we'll prime

our Cannon (if we have not done it before) and then set Fire to it.

But it is impossible to point our Cannon well, so as to do the Execution proposed, if we do not know the Path of a Bullet, or the Line it describes, from the Mouth of the Peice to the Point where it lodges, which Path is commonly called *Range*.

If the Piece be laid in a Line parallel to the Horizon, it is called the right or level *Range*; and if it be mounted to 45 Degrees, the Ball is said to have the utmost Range, and so proportionably; all others between 00 Degrees and 45, being called intermediate *Ranges*.

A Shot made when the Muzzle of a Cannon is raised above the horizontal Line, and is not design'd to shoot directly or Point-blank, is called *Random-Shot*.

The utmost *Random* of any Piece is about ten Times as far as the Bullet will go Point-blank; and the Bullet will go furthest when the Piece is mounted to about 45 Degrees above the level *Range*.

According to old Memoirs, it is found that antiently the Pieces carried, *viz.*

The Piece.	*Common Paces Point blank.*	*Common Paces to the Utmost Random.*
Of *Thirty-three*,	600	6000
Of *Twenty-four*,	800	6000
Of *Sixteen*, Culverine,	800	8000
Of *Twelve*,	450	5000
Of *Four*,	300	3000
Of *Two*,	150	1500

M. *Du Metz*, Lieutenant General of the King of *France*'s Armies, and also Lieutenant of Artillery in *Flanders*, caused to be recorded in his Time a Proof of the Randoms of the Pieces, by which he found that the *French* Pieces, charged with Powder two Thirds of the Weight of the Bullet, and those of new Invention, charged with a Third, and all pointed at 45 Degrees of Elevation, carried their Bullets to the same Distance, *viz.*

The Piece of *Twenty-four*, to	2250	*Fathoms.*
——— of *Sixteen*, to	2020	
——— of *Twelve*, to	1870	
——— of *Eight*, to	1660	
——— of *Four*, to	1520	

Mr. *Norton* observes, that

		PACES. *Level.*	PACES. *Utmost Random.*
A *Base* shoots	——	60	600
A *Rabinet*,	——	70	700
A *Falconet*,	——	90	900
A *Falcon*,	——	130	1300
Minion ordinary,	——	120	1200
Minion largest,	——	125	1250
Saker least,	——	150	1500
Saker ordinary,	——	160	1600
Saker old Sort,	——	163	1630
Demi-Culverine least,		174	1740
Demi-Culverine ordinary,		175	1750
Demi-Culverine old Sort,		178	1780
Culverine least,	——	180	1800
Culverine ordinary,		181	1810
Culverine largest,		183	1830
Demi-Cannon least,		156	1560
Demi-Cannon ordinary,		162	1620
Demi-Cannon large,		180	1800
Cannon Royal,	——	185	1850

A 24 Pounder may very well fire 90 or 100 Shots, every Day in Summer; and 60 or 75 in Winter. In Case of Necessity it may fire more. And some *French* Officers of Artillery assured, that they have caused such a Piece to fire every Day 150 Shots in a Siege.

A 16 and a 12 Pounder fire a little more, because they are easier serv'd. There have even been some Occasions, where 200 Shots have been fired from those Pieces, in the Space of nine Hours, and 138 in the Space of five.

If we want to range our Pieces in a Battery, we must take Care to reconnoitre well the Ground where it is to be placed, and the Road to convey to it, in the Night-time, the Cannon and the Munitions.

The best is to begin to make the Fascines and Piquets, in Day-time. The Fascines must be from 8 to 9 Foot long, tied in three Places, and from 8 to 9 Inches Diameter. The Length of the Picquets must be from 3 to 5 Foot; and the Head of each, from 2 Inches to 3. Three Picquets are wanted for each Fascine. It is also very proper to cause Fascines to be made 12 Foot long, tied in four Places, which must be join'd to the others above-mentioned for the Embrasures, and fastened each with four strong Picquets.

The Thickness or Breadth of the Battery to be Cannon-Proof, must be from 18 to 22 Foot, according to the Ground, and the Pieces they are opposed to. The Height of the Embrasures from $2\frac{1}{2}$ Feet to 3; and the Height of the Merlons over it will be determined according to the Ground where the Battery is situated.

If the Battery be found level with the Place, it is erected against, or if the Place has but a small Command over it, the Merlons must be from 5 to 6 Foot above the Knee.

If the Command be much superior on the Side of the Enemy, they must be raised, so that the Soldiers who serve the Pieces, may not be discover'd behind the Recoyle of those Pieces.

The Embrasures ought to be open in the Inside of the Battery, of 2 Foot, and on the Outside of 7 or 9 Foot. The Battery must always be parallel, as much as possible, to the Works they are erected against. The Distance of the Middle of an Embrasure to the other, must be no less than 8 Foot, nor more than 20.

The Sides of the Battery or Epaulment, must have 10 or 12 Foot in length.

The Madriers for the Platforms must be 2 or $3\frac{1}{2}$ Inches thick, and a Foot or more broad. The Length of those behind ought to be from 12 to 15 Foot, reduced to 8 or 9 before.

All the Platforms must have from 15 to 18 Foot in length; and 4 or 6 Inches of Declivity before, that the Pieces may easily return into Battery after they have been charged.

A Space of Ground of 12 or 15 Foot is left behind the Platforms for the Recoyle of the Pieces. On the hind Part of the Battery, small Magazines are dug in the Earth, 2 or 3 Foot deep, 15 or 20 Paces distant from the Platforms, cover'd with Boards or Fascines, with Earth over it, for fear of Fire; and a Boyack of Communication to go to it under Shelter. There must be but a Tun or two of Powder at once in those Magazines, with a Centry placed over it to prevent Accidents.

The grand Magazine, which is to supply the Battery in Day-time, must be twenty Paces distant from the small ones. There must be a Cart Load of Straw for the Wad of six or seven Pieces, and two Bundles of Match.

The Pieces must be arm'd, each with two Lanterns or Ladles, a Rammer, a Spunge, and two Priming-Irons. The Battery must also be provided with Carriages, and other Implements, necessary to remount the Pieces which the Enemy should chance to dismount.

To serve expeditiously and safely a Piece in Battery, it is necessary to have to each a Sack of Leather, large enough to contain about 20 Pounds of Powder to charge the Lanterns or Ladles, without carrying them to the Magazine; and to avoid thereby making those Trains of Powder in bringing back the Lantern from the Magazine, and the Accidents which frequently happen thereby.

It is necessary to hinder, as much as possible, the Soldiers from making a Passage of the Battery, because that's troublesome to those who serve the Pieces, and draw the Fire of the Enemy on that Side.

When one is obliged to make a Battery on a marshy Ground, he must make Use of Gabions, made of strong

Branches of Oak, which ſhould have ſix or ſeven Foot of Diameter, and be at leaſt eight Foot high for each Merlon. There muſt be ſeven of them, *viz.* three of ſix Foot of Diameter, before; two of ſeven Foot of Diameter, in the Middle; and two of five Foot on the Outſide of the Battery.

A *Battery* of 3 Pieces, muſt have 30 Gabions, becauſe ſix are employ'd on each of the two Sides or Epaulments, which make twelve, and nine for each of the two Merlons.

The Gabions being placed, they muſt be filled with Earth, or with Horſe-Dung mix'd with Sand.

There ought to be two Gunners, and ſix Soldiers to each Piece, and four Officers of Artillery.

The Gunner poſted on the Right of the Piece, muſt take Care to have always a Pouch full of Powder, and two Priming-Irons; his Office is to prime the Piece, and load it with Powder. That on the left, fetches the Powder from the little Magazine, and fills the Lantern or Ladle which his Comrade holds; after which he minds that the Match be very well lighted, and ready to ſet Fire to the Piece at the firſt Command of the Officer.

There muſt be three Soldiers on the Right, and three on the Left of the Piece. The two firſt to take Care to ram, and ſpunge the Piece, each on his Side. The Rammer and Spunge muſt be placed on the Left, and the Lantern or Ladle on the Right. After having rammed well the Wad put over the Powder, and that put over the Bullet, they then take each a Handſpike, which they paſs between the foremoſt Spokes of the Wheel, the Ends whereof will paſs under the Head of the Carriage, to make the Wheel turn round, leaning on the other End of the Handſpike, towards the Embraſure.

It is the Office of the ſecond Soldier on the Right, to provide Wad, and to put it into the Piece, as well over the Powder as over the Bullet; and that of his Comrade on the Left, to provide 50 Bullets, and every Time the Piece is to be charged, to fetch one of them, and put it into the Piece, after the Powder has been rammed. Then they both take each an Handſpike, which they paſs under the hind Part of the Wheel, to puſh it in *Battery*.

The Gunners and Soldiers having each their Orders and their Poſt, the Officer of Artillery muſt take Care to have the Piece diligently ſerved.

In the Night he muſt employ the Gunners and Soldiers who ſhall relieve thoſe who have ſerved 24 Hours, to repair the Embraſures.

If there be no Water near the *Battery*, Care muſt be taken to have a Caſk filled with it, to dip the Spunges in it, and cool the Pieces, every ten or twelve Rounds.

From the Cannon I'll paſs to the MORTAR, which is a ſhort Piece of Ordinance, thick and wide, proper for throwing Bombs, Carcaſſes, Shells, Stones, *&c.*

There are chiefly two Kinds of *Mortars:* The one hung or mounted on a Carriage with low Wheels, after the Manner of Guns, called *Pendent* or *Hanging Mortars*, the other fix'd on an immoveable Baſe, called *Standing Mortars*.

At the Head of the Bore, or Chaſe of the *Mortar*, is the Chamber for the Charge of Powder. This is uſually made cylindrical, all but the Baſe which they make hemiſpherical: Though ſome of the later Engineers prefer hemiſpherical Chambers; as the Surface of thoſe being leſs, under equal Capacities, make leſs Reſiſtance to the Gun-powder.

The Thickneſs of the *Mortar* about the Chamber, is to be much greater than about the Chaſe, by Reaſon the Gun-powder makes a much greater Effort about the Chamber than elſewhere. The Diameter of the Chamber to be much leſs than that of the Bore; by Reaſon Bombs, Shells, *&c.* are much lighter than the Bullets of equal Diameters, and conſequently leſs Powder ſuffices.

The firſt *Mortar-Piece* we'll uſe, ſhall be that for throwing Stones, which weigh commonly 1000 *lb.* and whoſe utmoſt Random is 150 Fathoms, loaded with two Pounds of Powder, it has 15 Inches of Diameter at its Mouth, and 2 Foot 7 Inches in Height.

The Depth of its Bore or Chaſe is 1 Foot 7 Inches; and the Depth of its Chamber, without including the Entrance where the Tampion is placed, 8 Inches. The Tourillons have 5 Inches of Diameter.

The Chamber muſt enter an Inch into the Tourillons. The Thickneſs of the Metal about the Chamber, 3 Inches; the Thickneſs of the Belly, 2 Inches; and the Length of the Chaſe, 1 Inch and $\frac{1}{4}$; about each Ring, 1 Inch and $\frac{3}{4}$.

Its Carriage is a Piece of Wood 6 Foot long, 18 or 20 Inches broad, and 12 or 14 Inches thick.

Mortars, for throwing Bombs, are of ſeveral Kinds.

There are ſome in the antient Manner, of 6, 7, 8, 9, 10, 11, 12, and 18 Inches Diameter at their Mouth; and which contain in their Chambers, 3, 4, 5, 6, and 12 Pounds of Powder.

The Chamber where the Powder is put, is cylindrical, *i. e.* of the ſame Breadth every where, and a little rounded at Bottom.

Thoſe of new Invention, have a concave Chamber. And of theſe there are ſome which have 12 Inches and $\frac{1}{2}$ at the Mouth, and contain in their Chambers 18 Pounds of Powder; others 12, and others 8.

The Proportions of *Mortars* are as follow. The *Mortar* which throws a Bomb of 17 Inches 10 Lines of Diameter, has the Bore $27\frac{1}{2}$ Inches long, and 18 Inches 4 Lines of Diameter: It has in Thickneſs between the Bourrellet, and its ſmall reinforced Ring, $3\frac{1}{2}$ Inches; Its ſmall reinforced Ring, is $3\frac{3}{4}$ Inches thick; its great one, 4 Inches; the Entrance of its Chamber, has $5\frac{1}{2}$ Inches of Diameter; the Chamber, in Form of a Pear, is 13 Inches long, and $7\frac{1}{2}$ Inches of Diameter at its greateſt Breadth; and alſo $7\frac{1}{2}$ thick, and contains 12 Pounds of Powder.

The Tourillons of the *Mortar*, have 32 Inches in Length from one End to the other, and 9 of Diameter. The *Mortar* has in Height 4 Foot 4 Inches.

The *Bomb* has 17 Inches, 10 Lines of Diameter, is 2 Inches thick every where, except the Bottom, which has 2 Inches 10 Lines. The Aperture of the Touch-Hole is of 20 Lines within and without.

The *Bomb* contains 48 *lb.* of Powder, and weighs 490 *lb.* and a little more.

The Bore of the *Concave Mortar*, whoſe Chamber contains 18 Pounds of Powder, has $12\frac{1}{2}$ Inches of Diameter, and is $18\frac{1}{2}$ Inches long. It has in Thickneſs, between the Bourrelet, and its reinforced Ring, $3\frac{1}{2}$ Inches; and its reinforced Ring is $4\frac{1}{2}$ Inches thick. Its Chamber has 9 Inches 7 Lines of Diameter at its greateſt Width: The higher Part thereof has 6 Inches of Diameter, and 4 Inches in Height; and its lower Part $2\frac{1}{4}$ Inches. The Thickneſs of the Metal round the Chamber is of 26 Inches 9 Lines. The Tourillons have from one End to the other 8 Inches of Diameter. The Mortar has in Height 3 Foot 5 Inches 4 Lines. It throws a Bomb of 11 Inches 8 Lines Diameter, which is 1 Inch 4 Lines thick every where, except at its *Cullot*, which has 1 Inch 8 Lines. The Aperture of its Touch-Hole is 16 Lines Inſide and Outſide. The Bomb contains 15 Pounds of Powder, and weighs 130 Pounds, or thereabout.

The Bore or Chaſe of the *Concave Mortar*, whoſe Chamber contains 12 Pounds of Powder, has 12 Inches 6 Lines of Diameter, and 17 Inches 6 Lines in Length. Its Thickneſs between the Bourrelet and its reinforced Ring, is of $2\frac{1}{2}$ Inches. Its reinforced Ring is 3 Inches thick. Its Chamber has of Diameter at its greateſt Width, 9 Inches 6 Lines. The Portion of that Chamber a-top has 5 Inches 4 Lines of Diameter, and 2 Inches at Bottom. The Thickneſs of the Metal round the Chamber is 6 Inches. The Tourillons are from one End to the other, 30 Inches long, and 7 Inches of Diameter; and the Mortar is in all 3 Foot 2 Inches high.

It throws a Bomb, 11 Inches 8 Lines of Diameter, which is 1 Inch 4 Lines thick every where, except at its Cullot, which has 1 Inch 8 Lines.

The Aperture of its Touch-Hole, Outſide and Inſide, is 16 Lines.

The Bomb contains 15 *lb.* of Powder, and weighs 130.

The *Mortar*, which has a Concave Chamber containing 8 Pounds of Powder, muſt throw a Bomb of 11 Inches 8 Lines.—Its Diameter is of 12 ½ Inches; its Bore 18 Inches long; its Thickneſs at the Chaſe 2 ½ Inches; its reinforced Ring 6 Inches long, and 3 Inches thick; its Concave Chamber 8 Inches 8 Lines long, and 7 Inches in Diameter; the Thickneſs of the Metal round it 5 Inches; its Tourillons 3 Inches long from one End to the other, and 7 Inches in Diameter.—The Concave Chamber contains 8 Pounds of Powder, and throws a Bomb as above.

The *Ordinary Mortar*, which throws a Bomb of 11 Inches 8 Lines, has a Bore of 12 Inches Diameter, and 18 long; its Thickneſs at the Neck 2 Inches; at its reinforced Ring 2 ½ Inches, its Chamber 9 ½ Inches in Length, its Diameter of 5 ½ Inches, the Thickneſs of the Metal round the Chamber 7 Inches, which Chamber contains 6 Pounds of Powder; the Tourillons have in Length from one End to the other 28 Inches, and 8 Inches of Diameter.

The *Mortar*, which throws a Bomb of 8 Inches, has the Bore 12 Inches long, and 8 Inches 4 Lines in Diameter; its Thickneſs 1 Inch 4 Lines at the Chaſe; its reinforc'd Ring 4 Inches 8 Lines long, and 1 Inch 8 Lines thick; its Chamber 6 Inches long, and 2 Inches 8 Lines of Diameter; its Tourillons 18 Inches 8 Lines in Length, and 4 Inches 8 Lines of Diameter.—The Bomb of 8 Inches of Diameter is 10 Lines thick every where, except at the Culot, which is 13, and its Touch-Hole 1 Inch of Diameter inſide and outſide. The Chamber contains 4 Pounds of Powder, and the Bomb weighs 40 lb.

The Bore of the Mortar, which is to throw a Bomb of 6 Inches, is of 6 ½ Inches of Diameter, and 9 Inches long; its Thickneſs at the Chaſe 1 Inch; its reinforced Ring 1 ½ Inch thick, and 3 ½ Inches long; its Chamber 4 ½ Inches long, and 2 Inches of Diameter; the Thickneſs of the Metal 2 Inches, and from the Bottom of the Chamber to behind the Recoyl of the Mortar 4 Inches thick.

Note, That common *Mortars* are very good for the Bombardment of a Place, when they can be carried near the Place; throwing the Bomb to 45 Degrees of Elevation, and to 700 Fathoms Diſtance: The Chamber charged with 5 or 6 Pounds of Powder, which is the greateſt Charge, and carries further: The nearer a Place a Mortar is mounted, the leſs Powder is wanted for its Charge. The *Mortars* with a Concave Chamber of the ſame Diameter, *i. e.* of 12 and 12 ½ Inches pointed at 45 Degrees, are proper to bombard Places afar off; they carry their Bombs from 1200 to 1800 Fathoms. Thoſe whoſe Chamber contains 8 Pounds of Powder throw the Bomb to 1200 Fathoms, and weigh 2000 *lb.* Thoſe of 12 Pounds of Powder will carry their Bombs to 1400 Fathoms, and weigh 2500 *lb.* Thoſe of 18 Pounds of Powder will carry to 1800 Fathoms, and weigh 5000 *lb.*

But as *Mortars* can be of no Uſe, unleſs they be mounted on their Carriage; and as the Carriage muſt be proportion'd to the *Mortar* to be mounted upon it, we muſt carefully examine the Difference of thoſe *Carriages*.

The *Carriage* for a Mortar of 12 Inches of Diameter, muſt be 6 Foot long, the Flaſks 12 Inches long, and 10 thick. The Trunnions are placed in the Middle of the *Carriage*.

The *Carriage* of 18 muſt be 4 Foot long; and the Flaſks 11 Inches high, and 6 thick.

To mount the *Mortars* of new Invention, they uſe *Carriages* of caſt Iron.

In *Germany*, to mount *Mortars* from 8 to 9 Inches, and carry them into the Field, and execute them horizontally as a Piece of Cannon, they make uſe of a Piece of Wood 8 Foot 2 Inches long, with a Hole in the Middle to lodge the Body of the *Mortar* and its Trunnions as far as their half Diameter, and mounted on two Wheels four Foot high, to which they join a Vantrain proportioned to it, and made like thoſe which ſerve to the Carriages of Cannons.

The Marquis *de la Frezeliere*, a *French* Officer of the Artillery, made Proof of this Carriage with Wheels, on which was mounted a Mortar of 8 Inches 3 Lines Diameter, and found that this *Mortar*, charged with a Pound of Powder, and pointed at 45 Degrees, carried the firſt Bomb of 8 Inches to 400 Fathoms: The ſecond, the Mortar being charged with half a Pound of Powder, pointed as above to 200 Fathoms:—The third, the Mortar pointed at 70 Degrees, and charged with a Pound of Powder, to 300, *i. e.* 200 of Random and 100 Rolling:—The fourth, the *Mortar* pointed as above and charged with half a Pound of Powder to 150 Fathoms, *viz.* 100 of Random, and 50 Rolling:—The fifth, the *Mortar* charged with a Pound of Powder, and pointed at 90 Degrees, level with the Horizon to 300 Fathoms, of which 250 Rolling, and 50 of firſt Random:—The ſixth, the *Mortar* pointed as above, and charged with half a Pound of Powder, has rolled its Bomb 150 Fathoms, and carried it of Random but 15 Fathoms.

Note, That this *Mortar* mounted on its Carriage only, has not quite two Foot of Recoyl; and on its Carriage and Vantrain together has four, though it makes no ſenſible Effort.

Note, alſo, That the Impetuoſity with which thoſe Bombs roll, does not hinder them from producing their Effect, when the Fuſee is at an End.

Having mounted our *Mortar* on its Carriage, the next Thing we do we'll *calliber* our Bomb, by means of a great *Caliper*, the two Branches whereof embrace the whole Circumference of the Bomb: Theſe two Branches are brought on a Rule where the different Calibers are marked, among which that of the Bomb is found.

Note, That a *Bomb* is a hollow Iron Ball, or Shell filled with Gunpowder, and furniſhed with a Vent for a Fuſee or wooden Tube filled with combuſtible Matter to be thrown out from a Mortar. The Method of preparing a Bomb is as follows: A hollow Iron Globe is caſt pretty thick, having a round Aperture by which it may be filled and lighted; and circular Anſæ for the commodious putting it in into the Mortar. To prove whether it be ſtaunch, after heating it red-hot on the Coals, it is expoſed to the Air, ſo as it may cool gently; for ſince Fire dilates Iron, if there be any hidden Chinks or Perforations, they will thus be opened and enlarged; and the rather becauſe of the Spring of the included Air continually acting from within. This done, the Cavity of the Globe is filled with hot Water, and the Aperture well ſtopped, and the outer Surface waſhed with cold Water and Soap; ſo that if there be the ſmalleſt Leak, the Air, rarified by the Heat, will now perſpire and form Bubbles on the Surface.

If no Defect be found in the Bomb, its Cavity is filled, by means of a Funnel, with whole Gunpowder; a little Space or Liberty is left, that when a Fuſee or wooden Tube, of the Figure of a truncated Cone, is driven through the Aperture (with a wooden Mallet not an iron one, for Fear of Accident) and faſtened with a Cement made of quick Lime, Aſhes, Brick-Duſt, and Steel-Filings worked together in a glutinous Water, or of four Parts of Pitch, two of Colophony, one of Turpentine, and one of Wax; the Powder may not be bruiſed. This Tube is filled with a combuſtible Matter, made of two Ounces of Nitre, one of Sulphur, and three of Gunpowder-Duſt well rammed.

This Fuſee ſet on fire, burns ſlowly till it reaches the Gunpowder, which goes off at once, burſting the Shell to Pieces with incredible Violence. Special Care however muſt be taken, that the Fuſee be ſo proportioned, as that the Gunpowder do not take Fire ere the Shell arrives at the deſtined Place; to prevent which, the Fuſee is frequently wound round with a wet clammy Thread.

Our *Mortar* mounted on its Carriage, and the Bomb ready, we'll place our Piece in Battery, which Battery muſt conſiſt;—1. Of an Epaulment to ſhelter the *Mortars* from the Fire of the Enemy. 2. Of Platforms on which the *Mortars* are placed. 3. Of ſmall Magazines of Powder. 4. Of a Boyau which leads to the great Magazine. 5. Of Ways which lead from the

Battery to the Magazine of Bombs. 6. Of a great Ditch before the Epaulment. 7. Of a Berm or Retraite.

Note, That the Platforms for Mortars of 12 Inches must have 9 Foot in Length, and 6 in Breadth.—The *Lambourds* for common Mortars must be 4 Inches thick; those of a Concave Chamber of 8 *lb.* of Powder, 5 Inches; those of 12 *lb.* 6 Inches; those of 18 *lb.* 7 Inches, or thereabouts. Their Length is at Discretion, provided there be enough to make the Platforms 9 Foot long.—The fore-part of the Platform will be situated at two Foot Distance of the Epaulment of the Battery.—The Bombardiers, to shelter themselves in their Battery, and not be seen from the Town besieged, raise an Epaulment of 7 Foot or more high, which Epaulment has no Embrasures.

To serve expeditiously a Mortar in Battery are required,—Five strong *Handspikes*, a *Dame* or *Rammer*, of the Caliber of the Conick Chamber, to ram the Wadd and the Earth, a wooden Knife a Foot long to place the Earth round the Bomb, an iron Scraper two Foot long, one End whereof must be 4 Inches broad and roundwise, to clean the Bore, and the Chamber of a Mortar, and the other End made in Form of a Spoon to clean the little Chamber, a kind of *Brancard* to carry the Bomb, a Shovel, and Pick-Ax.

The Officer who is to mind the Service of the Mortar must have a Quadrant to give the Degrees of Elevation.

Five *Bombardiers*, or others are employed in that Service; the first must take Care to fetch the Powder to charge the Chamber of the Mortar, putting his Priming-Iron in the Touch-Hole before he charges the Chamber; and never going to fetch the Powder before he has asked his Officer at what Quantity of Powder he designs to charge, because more or less Powder is wanted according to the Distance where it is fired; the same will take Care to ram the Wadd and Earth which another Soldier shall put in the Chamber.

That on the Right we'll put again two Shovels full of Earth in the Bottom of the Bore, which should be likewise very well rammed down.

This done, the Rammer or Dame shall be returned into its Place against the Epaulment on the Right of the Mortar: He'll take an Handspike in the same Place to post himself behind the Carriage of the Mortar, in order to help to push it into Battery; having laid down his Handspike, he'll take out his Priming-Iron, and prime the Touch-Hole with fine Powder.

The second Soldiers, on the Right and Left, will have by that Time brought the Bomb ready loaded, to be placed in the Mortar, which must be received in the Mortar by the first Soldier, and placed very strait in the Bore or Chase of the Mortar.

The first, on the Right, shall furnish him with Earth to put round the Bomb, which he must take Care to ram close with the Knife given him by the second on the Left.

This done, each shall take a Handspike, which the two first, on the Right and Left, shall put under the Peggs of Retreat of the fore-part, and the two behind, under those of the hind-part; and they together shall push the Mortar in Battery.

Afterwards the Officer shall point the Mortar.

During that Time the first Soldier shall take Care to prime the Touch-Hole of the Mortar, without ramming the Powder; and the last on the Right, shall have the Match ready to set Fire to the Fusee of the Bomb on the Right, while the first shall be ready with his on the Left, to set Fire to the Touch-Hole of the Mortar; which he ought not to do till he sees the Fusee well lighted.

The foremost Soldiers will have their Handspikes ready to raise the Mortar upright as soon as it has fired; while the hindmost on the Left shall clean with the Scraper, the Bore and Chamber of the Mortar.

The Magazine of Powder for the Service of the Battery, shall be situated 15 or 20 Paces behind, and covered with Boards, and Earth over it.—The loaded Bombs are on the Side of the said Magazine, at 5 or 6 Paces Distance.

The Officer who commands the Service of the Mortar, must take Care to discover, as much as possible with the Eye, the Distance of the Place where he intends to throw his Bomb, giving the Mortar the Degrees of Elevation, according to the Judgment he has formed of the Distance. He'll throw his first Bomb, and according to the Place where it shall chance to fall, he'll diminish or increase the Degrees of Elevation.

Most *Bombardiers* have no other Rules to throw Bombs than those above-mentioned; notwithstanding which, several make use of Tables to discover the different Distances according to the Differences of the Elevations of the Mortar, especially the Degrees of the Quadrant from 1 to 45.

This Method, though founded on an Infinity of Experiments which have proved very serviceable to those who have practised, has notwithstanding been exposed to Censure. M. *Blondel* has wrote a large Treatise on that Subject, where he pretends to give a Demonstration to throw Bombs with a greater Exactness, than had done those who had practised it without the Assistance of such a Demonstration.

To teach my Pupils this Method of M. *Blondel*, I have copied here Word by Word what I have found in his Treatise relating to that Subject.

They say then (says M. *Blondel*, speaking of *Bombardiers*) that the Mortar Chase more or less, according as it is more or less charged with Powder; and that a Mortar, for Example, of 12 Inches Calliber, charged in its Chamber with 2 *lb.* of Powder, gives every Degree 48 Foot Difference in the Random, and for the greatest Extent under the Elevation of 45 Degrees, 2160 Foot.

The same Mortar will give every Degree 50 Foot Difference, if it be charged with 2 ½ of the same Goodness, and 2700 Foot for the greatest Random.

Lastly, it will give 72 Foot Difference every Degree, if the Charge be of 3 *lb.* of the same Powder, and at the Elevation of 45 Degrees, which, they say, is the greatest Random, it will throw the Bomb at the Distance of 3240 Foot.

On this Foundation they have made the following Tables.

TABLES *for* Mortars *of* 12 *Inches of* Caliber.

First Table at 2 *Pounds* of *Powder*.

Degrees	*Randoms*	*Degrees*	*Randoms*
5	240 *Feet.*	28	1344 *Feet.*
10	480	29	1392
11	528	30	1440
12	576	31	1488
13	624	32	1536
14	672	33	1584
15	720	34	1632
16	768	35	1680
17	816	36	1728
18	864	37	1776
19	912	38	1824
20	960	39	1872
21	1008	40	1920
22	1056	41	1968
23	1104	42	2016
24	1152	43	2064
25	1200	44	2112
26	1248	45	2160
27	1296		

Note, That the Difference is of 48 Feet every Degree.

Second Table at *Two Pounds* and *half* of *Powder*.

Degrees	*Randoms*	*Degrees*	*Randoms*
36	2160 *Feet.*	41	2460 *Feet.*
37	2200	42	2520
38	2280	43	2580
39	2340	44	2640
40	2400	45	2700

Note, That the Difference is of 60.

Third

Third Table at *Three Pounds* of *Powder*.

Degrees	Randoms	Degrees	Randoms
37	2664 *Feet.*	42	3024 *Feet.*
38	2736	43	3096
39	2808	44	3168
40	2880	45	3240
41	2952		

The Difference is of 72.

The first supposes that the Chamber of the Mortar is charged with 2 *lb.* of Powder, and is from 5 Degrees to 45. The Numbers of Feet of the Randoms are found, by adding every Degree 48 Feet to the preceding One; thus adding 48 to 480, answering to 10 Degrees, you'll have 528 for 11 Degrees, and 576 for 12, adding 48 to 528; and 624 for 13 Degrees, adding 48 to 576, and thus of all the rest.

The second at 2½ *lb.* Charge, begins but at 36 Degrees to 45 Degrees, because the Mortar with that Charge gives as much chase to the Bomb at 36 Degrees, as at 45, when there is but 2 *lb.* of Powder; for the Extent of the Random is in both of 2160 Feet, the Numbers of Feet of the Randoms surpassing one another of 60 Feet each Degree; therefore 2220 of the 37th Degree come from 216 of the 36, and of 60 added together; and 2280 of the 38th, adding 2220 with 60, and thus of the rest.

The third at 3 *lb.* of Powder don't begin, for the same Reason, but at 37 Degrees to 45, because with that Charge it chases almost as far under the Angle of 37 Degrees, as under that of 45 with 2½ *lb.* of Powder, the Number of Feet of each Random, follow one another every Degree, by 72 Feet; therefore adding 72 to 2664 of the 37th Degree, you'll have 2736 for the 38; and adding 72 to 2736, one has 2808 for the 39th; and 2880 for the 40, adding 72 to 2808, and thus of the others.

They say that a Mortar of 8 Inches Caliber, charged with Half a Pound of Powder, gives for each Degree of Elevation 42 Feet of Difference of Random; and for its greatest Random, under 45 Degrees, gives 1890 Feet.

The same charged with three Quarters of a Pound of Powder, gives at each Degree of Elevation, 62 Feet of Difference of Random, and for the greatest, which is at 45 Degrees, 2790.

And lastly, with a Pound of Powder, it gives at each Degree of Elevation, 82 Feet of Difference of Random; and 3690 Feet for its greatest Extent, under the Angle of 45 Degrees.

These are the other Tables.

The first at Half a Pound of Powder, begins at 5 Degrees to 45, and the Numbers of Randoms follow one another, increasing of 42 Feet every Degree.

The second at three Quarters of a Pound of Powder, does not begin till 31 Degrees; because at that Elevation, with that Charge, the Random is greater than that at 45 Degrees with Half a Pound of Powder: The Numbers of Randoms follow there one another, increasing of 62 Feet each Degree.

The third at a Pound of Powder, as at 35 Degrees, where the Random is greater than at 45 Degrees with three Quarters of a Pound; the Number of Randoms follow there one another, increasing of 82 Feet every Degree.

TABLES *for* Mortars *of Eight Inches* Caliber.

First Table at *Half Pound* of *Powder*.

Degrees	Randoms	Degrees	Randoms
5	210 *Feet.*	19	798
10	420	20	840
11	460	21	882
12	504	22	924
13	546	23	966
14	588	24	1008
15	630	25	1050
16	672	26	1092
17	714	27	1134
18	756	28	1176
29	1218 *Feet.*	38	1596 *Feet.*
30	1260	39	1638
31	1302	40	1680
32	1344	41	1722
33	1386	42	1764
34	1428	43	1806
35	1470	44	1848
36	1512	45	1890
37	1554		

Note, That the Difference is of 42 Feet every Degree.

Second Table at *Three Quarters* of a *Pound* of *Powder*.

Degrees	Randoms	Degrees	Randoms
31	1922 *Feet.*	39	2418 *Feet.*
32	1984	40	2480
33	2046	41	2542
34	2108	42	2604
35	2170	43	2666
36	2232	44	2728
37	2294	45	2790
38	2356		

The Difference is of 62.

Third Table at *One Pound* of *Powder*.

Degrees	Randoms	Degrees	Randoms
35	2870 *Feet.*	41	3362 *Feet.*
36	2952	42	3444
37	3034	43	3526
38	3116	44	3608
39	3198	45	3690
40	3280		

Note, That at the Battle of *Nervinde*, where the King of *France*'s Army, commanded by the Duke of *Luxembourg*, defeated entirely that of the Allies; besides the 77 Pieces of Brass Cannon, which they left behind them in their Flight, there were 8 Mortars, called *Obus* or *Obits*, which were serv'd in the same Manner as the Cannon. The *English* have the Caliber smaller, have more Metal than the others by very near 600 *lb.* and weigh 1500 *lb.* the *Dutch* ones weighing but 900 or thereabout.

Note also, That as the *Granadoes* are charged like the *Bombs*, and are very much like them, except that they have no *Ansæ*, we'll speak next of them.

A GRANADO, is a hollow Ball, or Shell of Iron, Brass, or even Glass, or Potters Earth, filled with Gun-Powder, and fitted with a Fusee to give it Fire.

Of these there are several Kinds, the one large for Ditches, or Fossees, called sometimes Bombs, whose Caliber is the same with that of the Bullets of 33 *lb.* and which weigh 16 *lb.* of 24, and which weigh 12 *lb.* of 16, which weigh 8 *lb.*

Those *Granadoes* are rolled from the Ramparts, or other Works into the Ditch, or on a Breach, and do much Execution.

The other are *Hand-Granadoes*, of the Bigness or Caliber of a Bullet of 4 *lb.* and weigh only 2 *lb.* containing 4 or 5 Ounces of Powder, or thereabout.

These serve to throw with the Hand into the Trenches, or Retrenchments, in the Middle of a Troop or Company, and they infallibly lame or kill.

Care is taken, as much as possible, that they be well emptied, shaved, and of a brittle Iron. Their Aperture or Orifice, must have six Lines, or thereabout.

Small Lanterns or Ladles of Copper, and small Rammers are used to charge the *Granadoes*.

As to the Proportions of *Granadoes*, those of the Caliber of a Bullet of 33, have 6 Inches of Diameter, and something more, they are 8 Lines thick, and weigh 16 *lb.*

Those of the Caliber of 24, have 5 Inches 5 Lines Diameter; are 6 Lines thick, and weigh 12 *lb.*

Those of the Caliber of 16, have 4 Inches 9 Lines of Diameter, are 5 Lines thick, and weigh 8 *lb.*

Those which weigh 6 *lb.* have 3 Inches 5 Lines Diameter, and 5 Lines in Thickness.

Those

Those of 5 *lb.* Weight, have 3 Inches $2\frac{3}{4}$ Lines Diameter, and 5 Lines in Thickness.

Those which weigh 3 *lb.* have 2 Inches 8 Lines Diameter, and are $4\frac{1}{2}$ Lines thick.

Those of 2 *lb.* Weight, have 2 Inches 4 Lines Diameter, and 4 Lines in Thickness.

Those of 1 *lb.* Weight, have 1 Inch 10 Lines Diameter, and are 3 Lines thick.

Those of $\frac{3}{4}$, have 1 Inch 8 Lines Diameter, and are 3 Lines thick.

Those of $\frac{1}{2}$, have 1 Inch 6 Lines Diameter, and are 3 Lines thick.

Those of a $\frac{1}{4}$, have 1 Inch 2 Lines Diameter, and are $2\frac{1}{2}$ Lines thick.

All these *Granadoes* must be thicker at Bottom than any where else.

These different Sorts of *Granadoes* have also different Sorts of Fusees.

Those of the Caliber of,	33	24	16	12	8	4
are, at the biggest End, of	12 *lin.*	11	$10\frac{1}{2}$	10	$9\frac{1}{2}$	$8\frac{1}{2}$
The Diameter of the Orifices,	4	4	3	3	3	2
The Fusees are in length, in all, of	$5\frac{1}{2}$ *Inch.*	5	4	4	$3\frac{1}{2}$	$2\frac{1}{2}$

And as the large *Granadoes* which are made to throw into the *Fossees*, or Ditches, or with small Mortars, they must have Fusees of different Lengths, these are for small Mortars; those for Ditches must be shorter.

The *Germans coeff*, or cover over the Fusee with Paper or Parchment, tied with a Thread round the Fusee.

In *France*, they use a Composition of black Pitch, mixed with a little Tallow, with which they rub over the Fusee, when fixed to the *Granado*.

The Fusee must burn so long, and no longer, as is the Time of the Motion of the Bomb or *Granado*, from the Mouth of the Mortar, *&c.* to the Place where it is to fall, which Time is about 27 Seconds; so that the Fusee must be contrived, either from the Nature of the Composition, or the Length of the Pipe which contains it, to burn just that Time.

At *Paris*, they charge the Fusees for the Bombs and Granadoes, with a Composition made with Powder-Dust and Charcoal, very well pounded, and sifted very fine, putting two Ounces of Charcoal on each Pound of Powder, and make several Proofs, to know if the Composition be not too quick.

There are several other Compositions to charge the Fusees for Bombs or Granadoes.

The first is of 4 *lb.* of Powder, 2 *lb.* of Salt-petre, and 1 *lb.* of Sulphur.

The second is of 5 *lb.* of Powder, 2 *lb.* of Salt-petre, and 1 *lb.* of Sulphur.

The third, which is the best, is of 3 *lb.* of Powder, 2 *lb.* of Salt-petre, and 1 *lb.* of Sulphur.

The fourth is of 3 *lb.* of Powder, 2 *lb.* of Salt-petre, and $\frac{1}{2}$ *lb.* of Sulphur.

The Fusees must be charged even, *i. e.* they must burn without spitting.

The Fusee of the Hand-Granado, which is of the Caliber of 4, must be 2 Inches 2 Lines long, 9 Lines of Diameter, and 6 Lines at the small End: The Orifice of the Fusee $2\frac{1}{2}$ Lines.

As soon as the Fusee is placed to the Granado, the Head thereof must be sauced in melted Pitch, and afterwards dipped in Water, which hinders the Composition from spoiling, and the Wood from rotting.

The PETARD, is the next Piece of Artillery which deserves our Attention, and is a Kind of Engine of Metal, somewhat in Shape of a high-crown'd Hat, serving to break down Gates, Barricades, Draw-bridges, or the like Works which are intended to be surprized. It is very short, narrow at the Breech, and wide at the Muzzle, made of Copper mix'd with a little Brass, or of Lead with Tin.

The *Petards* are not always of the same Height and Bigness: They are commonly 10 Inches high, 7 Inches of Diameter a-top, and 10 Inches at Bottom. They weigh commonly 40, 45, and 50 Pounds.

The Madrier on which the *Petard* is placed, and where it is tied with Iron Circles. is of two Feet for its greatest Width, and of 18 Inches on the Sides, and no thicker than a common Madrier. Under the Madrier are two Iron Bars passed cross-wise, with a Hook which serves to fix the *Petard*. (*See our Tables*).

There is no other Secret to fix the *Petard*, than at the Beginning of the Night, to approach the Place with a Detachment as near as possible, to go down into the Ditch when dry, or to find some other Expedient which Occasion offers, when full of Water (which is not without very great Difficulty) when the Officer is come as far as under the Draw-Bridge, he causes himself to be hoisted up to the Height over-against the Draw-Bridge, and there with the Assistance of a Sergeant, or Soldier, he fixes a Nail in one of the Boards of the Bridge, or of the Gate, and at the same Time sets Fire to the Fusee, which must be of a slow Composition, that they may have Time to withdraw, and the Fire communicating to the *Petard*, bursts the Board on which it is placed, and by that Means gives Entrance to those who are appointed for the Expedition intended.

We must confess however, that few Officers return from those Expeditions, and that there are none more exposed; for either from the Works which are over the Gate, or from those on the Right and Left, if the Besiegers perceive them at Work, they chuse the Petarder and seldom miss him. So that an Officer must be indued with great Intrepidity to accept of such Commission.

To charge a *Petard* 15 Inches high, and 6 or 7 Inches of Caliber or Diameter at the Bore, it must be first very well cleaned inside, and heated, so that the Hand may bear the Heat; then take the best Powder that may be found, throw over it some Spirit of Wine, and expose it to the Sun, or put it in a Frying-Pan, and when it is well dried, 5 or 6 *lb.* of this Powder is put into the Petard, which reaches within three Fingers of the Mouth: The Vacancy is filled with Tow, and stopped with a wooden Tampion; the Mouth being strongly bound up with Cloth tied very tight with Ropes; then it is fixed on the Madrier, that has a Cavity cut in it to receive the Mouth of the *Petard*, and fastened down with Ropes.

Some, instead of Gunpowder for the Charge, use one of the following Compositions, *viz.* Gunpowder seven Pounds, Mercury Sublimate one Ounce, Camphor eight Ounces; or Gunpowder six Pounds, Mercury Sublimate three Ounces, and Sulphur three; or Gunpowder six, beaten Glass $\frac{1}{4}$ an Ounce, and Camphor $\frac{3}{4}$.

From the Petard, I'll pass to the ORGUES, which is a Machine composed of several Arquebuss, or Musquet-Barrels bound together; by means whereof several Explosions are made at the same Time, used to defend Breaches and other Places attacked.

Note, That as several of my Subscribers have complained that I have not enlarged enough, on several Subjects in my Treatise of Fortification, particularly on those which have a Report to Sieges, *&c.* which Subjects belong properly to this of *Gunnery*; I take this favourable Opportunity of gratifying their Curiosity; and begin by an ample Description of a Park of *Artillery*.

A *Park of* ARTILLERY, is a Post in a Camp out of Cannon-Shot, where are kept all the Ordinance, Munitions, *&c.* which are to serve in a Siege. There are several Kinds of these *Parks*; and their Disposition depends entirely on the Will of the Master of the Ordinance.

The Rangement, or Order of the Pieces and Munitions in a Park before a besieged Town, is different in something from that formed in a Field.

The *Park* is commonly formed in the Center of the Line, three under Paces distant for the Forces which form that Line, and foremost.

When the Equipage is large, the *Park* is always square.

On the Line which faces the Enemy are placed the Pieces of Cannon, the biggest always on the Right, the Mortars, Carriages, the composed Cart, and the Crane.

On one of the Lines of the Sides of the Square, are placed the Lead, Matches, Sacks of Earth, Ropes, Granado's, and the Fusees in Casks, *&c.* — On the other the Bombs and Bullets; and on that which closes the

Square, the Tools to move the Earth with, and the hind-part upwards. It is this laſt Line which muſt be 300 Paces diſtant from that of the Army. All the Vantrains, Waggons, and Carts muſt be within the Square, equally diſtant from one another, and the Axle-trees over-againſt one another.

In the Square near the laſt Line is placed the Powder, in as narrow a Space as poſſible.

About 20 Paces before the firſt Line, in the Middle, muſt be placed four ſmall Pieces charged, attended by two Commiſſaries, and four Gunners of Guard.

There muſt be an advanced Corps de Guard commanded by a Captain, out of which are drawn the Centries for the Powder, for the Cannon, and for all the Entrances of the *Park*.

The Commiſſaries, and the Keeper of the Park, muſt encamp within the Park, as alſo thoſe who unload the Baggage.

The other Officers, the Captain of the Workmen, and his People, muſt encamp on the Sides of the *Park*.— The Captains of the Carriages, their Equipages, on the Wings, and along the neareſt Hedges.

The Pontoons muſt be on the Left, ſquare or round-wiſe, according to their Quantity.

Some Carts are allowed to each Brigade, to carry the Officers Baggage.

Next we'll have a View of the March of an Equipage of Artillery.

There muſt march at the Head of a whole Equipage of Artillery, a Cart compoſed of Tools, as Shovels, Pick-axes, Hatchets, *&c.* with four Pioneers, and a Wage-maſter to lead the Way, and render the Roads practicable. — After this Cart follow four ſmall four Pounders, mounted on their Carriages, and loaded with Bullets, attended by Gunners with a lighted Match in their Hands; and after them a compoſed Cart of Artillery, loaded with a Barrel of Powder, one of Lead, a Bundle of Matches of 50 *lb.* fifty Bullets of the Caliber of the Pieces, *&c.*

The Treaſure, and the King's Baggage, when there is but one Column, march moſt commonly after this ſmall Equipage. The Pontoons and their Appurtenances muſt march afterwards; then follow the large Pieces on their Carts; next the Pieces mounted on their Carriages, every one according to its Caliber; and next the Carriages of the large Pieces, followed by the Mortars.

After this muſt march the Boxes or Trunks of the Keeper of the Park, the ſtrong Boxes of the Treaſure, and of the Captain of the Workmen, where are contained all the Tools for them, and the Miners, and likewiſe the Forges. Then follow the Baggage of the General of the Artillery, and of all the other Officers of the Equipage, each according to his Rank, thoſe of the Fuzileers, Bombardiers, and all the Suttlers of the Equipage.

In their Turn march the Powder, Match, Sacks of Earth, Ropes, Fuſees for Bombs and Granado's, Lead, Granado's, Carriages for Mortars, Bombs, Bullets, each according to its Caliber, the Tools for Pioneers, and the Carts.

To hinder the Interruption of this March, the General of Artillery divides his Officers in five Brigades, who divide between them the whole Equipage, and each brings to the *Park* the Part committed to his Care, taking by Turns the Head and the Tail.

Note, That we ſhould inform a Commiſſary of what he ſhould do, if he was ordered to form a ſmall Equipage for ſome Detachments of which this is a Project.

For Ten Pieces.

Horſes.	*Pieces.*	*Carriages, Vantrains, and Arms.*
24	on	4 Pieces of 8 mounted on their Carriages, with their Vantrains, and other Utenſils.
24	on	6 Pieces of 4 mounted on their Carriages, with their Vantrains, *&c.*
24	on	2 Supernumeraries Carriages, with two Pair of Utenſils on the ſaid Carriages.
56		10.

Horſes.		*Carts.*	
8	—	2	Loaded with 500 Bullets, of which 200 of 8 and 300 of 4, to fire 50 Shot with each Piece.
32	—	8	Loaded each with 1250 *lb.* of Powder, the whole amounting to 10,000 *lb.* i. e. as many thouſand Pounds of Powder as there are Pieces, as well for the Pieces as for the Forces of the Detachment.
28	—	7	Loaded each with 1140 *lb.* of Lead, the whole amounting to 8000 *lb.*
32	—	8	Loaded each with 1238 *lb.* of Match, the whole amounting to 9900 *lb.*
8	—	2	Loaded with 1000 Granado's charged, and 1200 Fuſees alſo charged, thoſe Carts carrying each 1150 *lb.*
			500 Pick-axes, 500 Shovels, 150 Hatchets, *&c.* — 250 Tools on each Cart, each Tool weighing 5 *lb.*
4	—	1	Loaded with a compleat Forge.
4	—	1	Loaded with Carpenters and Cartwrights Tools.
4	—	1	Loaded with a Tun of Ropes.
4	—	1	Loaded with a compleat Crane.
212	—	39	

The Officers: A Lieutenant, two Provincials, two Ordinaries, five Extraordinaries, two Officers Pointers, a Captain of the Carriages, a Conductor, a Carpenter, a Cart-wright, and a Smith.

But as this Sketch is not capable to ſatisfy the Reader, here followeth a more ample Project of the Formation and March of the Equipage.

We ſuppoſe that an Equipage of Artillery is wanted for an Army of 50,000 Men, who are to march into *Flanders*.

For 50 Pieces.

Horſes.	*Pieces.*	*Carriages. Vantrains, and Arms.*
32	4	Pieces of 24 of the new Invention mounted, *&c.*
4	0	1 Carriage, and one Pair of Utenſils.
36	6	Pieces of 12 of new Invention mounted.
4	0	1 Carriage, and a Pair of Utenſils.
120	20	Pieces of 8, mounted and armed.
8	0	2 Carriages, and 2 Pair of Utenſils.
80	20	Pieces mounted and armed.
292	50	

Horſes.	*Carts.*	
32	8	400 Bullets of 24, at 50 *per* Cart, and weighing 1200.
24	6	600 Bullets of 12, at 100 *per* Cart, and weighing 1200.
52	13	2000 Bullets of 8, at 154 *per* Cart, and weighing 1232.
28	7	2000 Bullets of 4, at 286 *per* Cart, and weighing 1144.
136	34	

Horſes.	*Carts.*			
320	80 Carts loaded each of 400 *lb.* of Powder, 400 *lb.* of Lead, 300 *lb.* of Match,	making 88000		60000 of Powder
16	48 Carts charged each of 800 *lb.* of Lead, and 300 *lb.* of Match,	making 4400		35200 of Lead
112	28 Carts charged each of 1000 *lb.* of Powder,	making 28000		25200 of Match
			120400	
96	24 Carts charged each of 250 Tools, making 6000, and weighing about	30000.		6000 Tools for Pioneers.
544	136			

Horſes

Horses,	*Carts,*	*Waggons, Caissons, Pontoons.*
15	—	3 Carts to carry 1000 Hatchets.
16	—	4 Carts for 2000 Serpes.
20	—	5 Carts for 2000 Granado's charged.
5	—	1 Waggon to carry several Utensils.
5	—	1 Waggon for 200 Tools for Miners.
15	—	3 Waggons for Ropes of all Sorts.
5	—	1 Waggon to carry 3000 Sacks of Earth.
12	—	3 Carts for 3 compleat Forges.
4	—	1 Cart loaded with Coal.
16	—	4 Caissons. (those Caissons are for the Captain of the Workmen, the Major of the Artillery, the Artificers, the Surgeon Major, and the Almoner.)
113		

Horses,	*Carts, &c.*	
120	—	20 Copper Boats mounted on their Haquets.
12	—	2 Haquets of Rechange.
8	—	2 Caissons full of Ropes and Tools to to build Bridges.

TOTAL *of*

Horses.	*Carts.*	*Waggons.*	*Caissons.*	*Haquets.*	*Boats mounted.*
292	34	3	4	2	20.
136	136	1	2		
544	4	1	—		
113	5	3	6		
140	3	1			
	1	—			
		9			
1225	183				

Note, That as soon as the Forces begin to assemble, the Lieutenant commanding the Artillery must wait on the General of the Army, to concert Measures with him for the Transport of the Munitions, as Powder, Lead, Match, and Tools, which are distributed among them, that each Soldier may have wherewithal to fire ten or twelve Shot, before they advance towards the Enemy. After this Distribution the Horses and Carts must return to join the Equipage of the Artillery, that they may all march in good Order to the Army. The Lieutenant reviews all the Horses of his Equipage of Artillery; and sends to Court, and to the grand Master, a Detale of those he has taken into the Service, and of those he has rejected.

All the Munition being charged, they are commanded to march for the Army by Brigades, in the following Order.

First BRIGADE.—A Provincial Commissary, two ordinary Commissaries, two extraordinary, an Officer Pointer, a Captain of the Carriages, a Guide, three Workmen, 20 Carts.

Munitions.—A Cart, loaded with all the Tools necessary for the Workmen of that Brigade; 10 Pieces mounted; a Carriage of Rechange; 6 Carts loaded with Bullets of 8, each Cart loaded with 150 of them; 3 Carts of Powder, each with 1000 *lb.* Weight; 6 Carts, each with 400 *lb.* of Powder, 400 *lb.* of Lead, 300 *lb.* of Match; 3 Carts loaded with Tools, carrying each 250.

There will be three other Brigades composed in the same Manner excepting the Difference of their Pieces. That of the Park which is the strongest, is composed of 4 Pieces of 24, and of 6 of 12. It has also the Munitions left by the other Brigades, with the Forges, 20 Pontoons, Haquets, and Caissons. This Brigade marches always in the Center, having two Brigades before and behind, that's to say, the first with the third, and the second with the fourth.

The Captains and Guides are divided between the Brigades, to go and reconnoitre the Passes, and the most easy Places; they are to stand at the Defiles, and most dangerous Passages, with one of the Officers of the Brigade, till it be entirely passed; whereby the Carters are more on their Guard, and succoured if wanted.

The Commander is to march at the Head of that Equipage, or allow ten Workmen to each Brigade, besides the twenty who march with him, to make the Road practicable.

The Commissary, upon Duty, may march first with his Brigade, and only the Pace of the Horses, stopping from Time to Time, that the other Brigades may easily follow him.

When the Head is obliged to halt, it must double in the most commodious and nearest Ground they can find.

After a considerable Detachment of Fuziliers has been left to march at the Head of the Equipage, and another for the Rear; small Detachments besides are allowed for each Brigade, that Platoons may be left in the Places where it may be cut by the Baggages left in the same Place, till the following Brigade be arrived, where then the Detachment she has along with her takes the same Post, which contributes entirely to the good Order of the March of that great Body.

The Major of the Artillery must go before with two Officers, and a Guide appointed by the Commander, that they may meet together at the Encampment of the Army, to see the Place marked by the General Officers. One of those Officers of Artillery having seen the Place of the Park, returns back to meet the Equipage, with the Guide, who minds the best Road which conducts thither; taking Care always that it should not traverse the Lines, because of the Embarras, and Inconveniency which could happen.

The Horses of the Artillery must always be 300 Paces distant from the Park, where they are incamped in several Lines on the Right and Left. Avoiding to place them before the Batallions, because of the Parties of the Enemies.

To form a *Park of Artillery* where the Pieces of Ordinance are at the Head; all the Distances and Incampments having been modelized on that of the Army, one of the Commissaries of the Park, causes the Cart, loaded with Tools, which is at the Head, to advance, which he places first on the Alinement of the Cannon, which must be marked with a Chord or Picquet; then he has all the Pieces of that Brigade turned towards the Enemy, leaving an Interval of two large Paces between the Cart and the first Piece, and thus of all the others which follow, which must give four Paces, the Body of the Cart, the Distances, and the Carriage included; therefore for the 10 Pieces of the Brigade, with the Carriage, and the Cart of Tools which marches at the Head, there must be 48 Paces; increasing 5 Paces more to leave a reasonable Distance between each Brigade, which would make for the five Brigades 260 Paces of Front.

While an Officer of the *Park* makes all these Dispositions, others place the first Line of the Munitions of that first Brigade 40 Paces behind that of the Cannon, and by means of the Intervals they must give between each Cart, and of the Distance they must leave between these two first Brigades, they must occupy as much Front as the whole Cannon; and though the Number of the Carts be not equal to that of the Pieces, that Line notwithstanding, ought to be equal to that of the Cannon.

The Brigade of the *Park* which follows, having alined her Pieces with the others, a second Line is formed of all the Munitions, distant 30 Paces only, of the two other Brigades which form the first Line of Munitions; and as that Brigade is very large, and has a great Number of Carts, Care is taken that it should notwithstanding make but one Line, by giving a little less Interval between the Carts: It is even more proper to make of it two Brigades of the *Park*, by placing the four Pieces of 24 for the first Brigade, and six of 12 for the other Brigades of the *Park*, and distributing among them the Munitions left in the Equipage, *i. e.* those that are not in the light Brigades.

The Forges which march immediately after that Brigade, leave her near the Park, and go commonly to incamp on the Right between the Pieces and the Batallions, where the Captain-General of the Workmen forms his Yard, for mending the Pieces, and other necessary Things.

The two other Brigades conduct likewise their Cannon to the same Alinement of the other Pieces, and make a third Line of Munitions of the same Front of the others

behind thoſe of the *Park*, and of the Diſtance of 30 Paces, and making two Brigades of the *Park* inſtead of the third Line, they'll make the fourth.

The Pontoons, which follow in the March the Brigade of the *Park*, form a fourth and laſt Line, and ſhut up the *Park* on the Side of the Army.

This done, the Commiſſary of the *Park* orders that Centries ſhould be poſted, to hinder any Body from approaching the Munitions; three are placed at the firſt Line of the Pieces, one at each End, and two in the Center; ſix others to the ſix Extremities of the Lines of Munitions; and three at the laſt Line, poſted as at the firſt.

A ſmall Body of Fuſiliers is poſted 50 Paces diſtant from the Cannon before the Center, for Fear of any Surpriſe.

The two Pieces of Allarm are advanced at 10 Paces diſtant from the Cannon, near which there is a Centry, and a Gunner with a lighted Match.

As ſoon as the Commiſſary has thus diſpoſed his Park, he ſends Word to the Captain-General of the Carriages to ſend him 2, 3, 4 Teams of Horſes for the Picquet, which are placed in the Rear of the Park, that a whole Brigade may always be ready to march at the firſt Notice given.

From theſe Diſpoſitions to form a *Park of Artillery*, I'll paſs to thoſe which are to be made of the ſaid Artillery, on the Day of a Battle.

As ſoon as the Enemy begins to form itſelf in Order of Battle, the Artillery takes her Poſts at the Head of the Infantry. The firſt Brigade taking the Right, and the other the Left; and if there be a third Brigade, it muſt be poſted in the Center of the ſaid Infantry.

The Artillery muſt fire as ſoon as the Cannon is at a proper Diſtance, and Orders have been given for it; and that without Diſcontinuation till the Battle begins, for then the Artillery muſt join the Squadrons of Cavalry and Dragoons, to march in the Intervals or Diſtances, to the Enemy, approaching as near as poſſible the two Wings of the Squadrons; ſo that the Officers of the Artillery on Horſeback, marching at the Head, may make the ſame Front of the Squadron to cover the Pieces; and all the Gunners on Foot, to ſerve thoſe Pieces, till they come near the Enemy, whence they may be ordered to fire ſome Shot, if the Squadrons makes a Halt, keeping always the greateſt Quantity of Cannon ready to fire, if the Enemy come to their Encounter.

But if the Enemy remain in their Poſts, the Artillery ſhall go to them, keeping the Pieces ready charged with Bullets and Cartouches, without diſcovering them till they are half Muſket-Shot from the Enemy, where they'll appear ready pointed to fire as ſoon as the Cavalry ſhall depart to charge them.

Afterwards both Armies being mixed together, and come to handy Blows, it is the Buſineſs of the Cavalry to end the reſt, and that of the Artillery to return to her former Poſts at the Head of the Infantry, and to march in good Order to the entire Defeat of the Enemy, and in caſe of a bad Event to favour a Retreat, or give Time to the Troops to rally behind the Army, and hinder the Enemy from purſuing them.

The ſame Motions muſt be made at the Head of the ſecond Line, if the firſt has been beaten; taking Care to return always to the former Poſts at the Head of the Infantry; ſince thoſe two Bodies muſt be inſeparable, being almoſt invincible when well united.

Two Matches lighted at both Ends ſuffice for each Piece, and there muſt be 12 Soldiers commanded to ſerve each Piece, though there be but four of them employ'd in the ordinary Actions, and for cannonading.

To ſucceed on thoſe Occaſions, it ſuffices to make a continual Fire on the Forces, and on the Batteries, which are on the Right and Left of the Poſts which one occupy, directing ſome Shot to the oppoſite ones, to keep them in Reſpect; and the Bullet does more Execution when it enters a Squadron or Batallion, through the Wings, or takes the Battery in Rouage, than when he takes them in Front.

But when the Artillery is to advance to occupy ſome Poſts which incommode the Enemy, to take them in Flank, or to favour the Forces which march to them, eight Men muſt be employ'd to conduct each Piece, without any Embaraſs of Horſes or Vantrain, and four others are to carry the Utenſils belonging to it, as Powder, Cartridges, Bullets, *&c.* that the Gunners may thereby be in a Condition to redouble the Shot when they draw near the Enemy.

On all theſe Occaſions the Commiſſaries of Artillery muſt uſe the Gunners to fire juſt, and without Embaraſs. the Means to ſucceed therein, is to aſſign to each his Functions. The Gunner muſt keep himſelf ready, as ſoon as the Piece has fired, to ſpunge it, which done, the ſecond Gunner ſhall load the Piece, the next to put the Wadd on the Powder and Bullet, and the other to ram both the Powder and Bullet.

The fourth Gunner ſhall hold the Match lighted, while others ſhall, with their Handſpikes, puſh it in Battery.

The Commiſſary who is at the Head of the Brigade muſt take Care to have a Quantity of Munition neceſſary to maintain a great Fire on the Enemy, and to have Horſes and Men ready to go to them if Occaſion offers: He muſt alſo have other Horſes to carry off the Cannon, and Nails of Steel to nail it, if it cannot be carried off.

But we want perhaps to furniſh with Artillery a fortified Place, which we imagine will be beſieged; for which there are but few particular Rules, ſince the Ravitallement depends on the Extent of the Place, on its Situation, on the Manner it is fortified, and on its Garriſon; but however, as there are ſome general ones to be obſerved in ſuch an Enterprize, as well with Regard to the Number of Men, as of Pieces of Ordinance required for the Defence and Security of a Place; here follow a few of them.

For a Place of conſiderable Strength in Caſe of a Siege.

Infantry	4000 Men
Cavalry	600 Horſe
Officers of Artillery	20
Gunners	50
Miners	20
Carpenters and Wheel-rights	30
For Fire-Works	2 Men
Engineers	3

Pieces of Cannon.

Twenty-four Pounders	10
Sixteen Pounders	10
Twelve Pounders	10
Eight Pounders	18
Four Pounders	24
Mortars	12
Mortars to throw Stones, *&c.*	12
Carriages for each Piece	84
Muſkets of Reſerve	6000
Fuſils	1000
Muſquetoons	400
Girl'd Piſtols	400
Pikes	2000
Halberts	200
Swords of Reſerve	600
Broad Swords	600
Bombs for Mortars	1500
Bombs for Ditches thrown with the Hand	600
Hand-Granado's	50,000
Pitch, Tar, Sulphur, Saltpetre, *&c.* in Proportion.	

Powder.

Note, That to know the Quantity of Powder which may be conſumed during the Siege of a conſiderable Place, the Eſtimate of the Duration of that Siege muſt be made, ſuppoſing the Place weakly attacked on its ſtrongeſt Side, the Garriſon ſtrong and brave, well provided with all Things neceſſary for a vigorous Defence, and the Governor, and other commanding Officers brave likewiſe, and well verſed in the Art of defending Places; and without entring into the Detale of all the Attacks, which would be tedious; we ſuppoſe that the Place may hold out two Months, *viz.* 10 Days

of Inveſtiture, and 50 of open Trench; which preſuppoſed, we'll reckon for the 10 Days of Inveſtiture 10000 *lb.*

For the Remainder we'll reckon as follows,

	Men.
Of the 4000 Men of Infantry, the Garriſon is compoſed of, we muſt retrench for the Sick and Wounded	300
For the common Work —	300
For the Service of the Cannon —	200
For to carry the Munitions to the Poſts, Tools, Materials, and Wounded	140
For the Mines — —	60
Which makes up	1000

Therefore we muſt have but 3000 Men left, which we'll divide into three, *viz.*

For the ordinary Guard — —	1000
For the Biovac — —	1000
For to take their Reſt — —	1000

Out of the 1000 Men appointed for the ordinary Guard, we'll take a third Part for the Guard of the Poſts which are not attacked, amounting to 333, diſtributing to each of them daily a Quarter of a Pound of

	lb.
Powder — —	83½
For the 1000 Men of the Biovac ¼ each, which makes daily	250
To the 600 Horſe ¼ each, every Day	150
To the 667 Men oppoſed to the Attacks at 1 *lb.* ½ each daily	1667½
For 150 Shot of Cannon, at 5 *lb.* each	750
Total *per Diem*	2901

And for the 50 Days —	145050 *lb.*
For the extraordinary Actions —	20000
To charge and fire the 1500 Bombs at 16 *lb.* each	24000
For the 50,000 Granado's at 5 *oz.* ½ each becauſe ſome Powder is waſted	17187½ *lb.*
For the Mines and Fougaſſes —	1250
Waſte — —	10000
Fire-Works — —	1263
Remain at the Reddition of the Place	10000
Total —	240000½ *lb.*
To which adding the 10000 *lb.* conſumed in the Inveſtiture, the whole amounts to	250000 *lb.* ½

Note, That ſome are of Opinion that the Engineer, who makes this Detail, aſks for too many Pieces of 8 and 4, and obmits thoſe of 2 and 1 *lb.* which notwithſtanding are very uſeful; that he aſks ten Commiſſaries of Artillery, and 50 Gunners, and will not have more than 150 Cannon-Shot fired daily, which is too little for an obſtinate Reſiſtance; ſince 30 Pieces of Cannon at leaſt, muſt be continually oppoſed to the Fire of the Enemy; and that each of them fire at leaſt 10 Shot every Day, which make up 300 Shot inſtead of 150, ſuppoſing that there are 10 Cavaliers in the Place.—He only allows 5 *lb.* of Powder for each Shot, which wants 6 *lb.* at leaſt, ſince among the 80 Pieces of Ordinance, there are 10 Pieces of 24, ten of 16, and ten of 12.—He aſks but 1500 Bombs, which is too little for 12 Mortars; and there ſhould be 3000 Bombs, which is but 60 every Day.—He allows but 16 *lb.* of Powder to charge, and throw the Bombs, which contain 18 *lb.* each, and the Mortar 5 *lb.* making up 23 *lb.* for each Bomb.—He has omitted the Powder for the *Hand-Bombs*, called alſo Bombs of Rampart, each of them containing 10 *lb.* of Powder. 1263 *lb.* of Powder is too little for the Fire-Works in a conſiderable Place, for which no leſs than 2500 *lb.* can be allowed.—The Glacis of the Place being mined, 12500 *lb.* of Powder are not ſufficient, and no leſs than 20,000 will do. Therefore the following Quantity of Powder is wanted.

Powder.

For the Cannon during 50 Days of Siege	90000 *lb.*
For the Bombs and Mortars	69000
For the Hand-Bombs —	6000
	165000
For the Mortars to throw Stones	2400
To charge 50,000 Granado's	17187½
For the Fire-Works —	2500
For the Mines and Fougaſſes —	20000
For the ten Days of Inveſtiture	10000
For extraordinary Actions —	20000
For the Poſts which are not attacked	4175
For the Biovac —	12500
For the Cavalry —	7500
For the Attacks —	83375
For Waſte — —	10000
For the Reddition —	10000
Total —	363365

Lead.

There are wanted for the Cavalry and Infantry	137550 *lb.*
For the Cartridges —	9600

Perhaps alſo, there is a Siege to be formed, on which we want ſeveral Inſtructions with Regard to the Ordinance.

It is impoſſible to fix the Plan for the Formation of the Siege of a Place; for though it happens ſometimes, that the Place to be beſieged is of little Extent, and has but few Baſtions, its Situation notwithſtanding may occaſion a greater Slaughter of Men, than one which is more crowded with Works; and therefore more Artillery, more Munitions, and more Time will be employ'd in the Siege; which is the Reaſon why thoſe Sorts of Projects depend on a great Experience, and on the Prudence of the General; but however, if we cannot give juſtly the Number of Munitions neceſſary for the Siege of a Place, we can give the Detail of what had been projected for a very conſiderable Siege, under the late King of *France Louis* XIV. where the Reader will find what has been done, and what may be done on ſuch Occaſions.

Munitions aſſembled to form the Siege of——

Bread of Munition.

Suppoſing that there are 32,000 Foot, and 18,000 Horſe, two Regiments of Bombardiers, Fuziliers, General Officers, Miners, Gunners, Hoſpitals, and 10,000 Peaſants; there is no leſs wanted for the ten firſt Days, than 90000 Rations of Bread every Day; and for the 30 Days of the Siege, 80,000 every Day till the Departure of the Forces.

Forage.

At the Rate of 18,000 Rations *per Diem*, ſuppoſing the Cavalry without the Camp, and the Lines, the Ration valued at 20 *lb.* of Hay, 6 *lb.* of Straw, and 3 Meaſures of Oats; the whole making for the 40 Days — — 420000 Rations.

Powder.

To fire 40000 Shots of Cannon, of 24 *lb.* each Shot eſtimated at 12 *lb.* of Powder	480000 *lb.*
To fire 16000 Cannon Shot of 16, 12, 8, 4 *lb.* each Shot, eſtimated at 6 *lb.* one with another	96000
To throw 9000 Bombs during the Siege, which is 300 every Day, and for 30 Days it laſts, perhaps at 16 *lb.* each, including the Charge of the Mortar, and of the Bomb	144000
For 40000 Granadoes, at the Rate of 2000 of Conſumption daily, during twenty Guards of open Trench, the Charge of each eſtimated at 4½ Ounces	11250

For the Musketry, estimated at 30000 Shot every Guard of the Trench during 30 Days, and each Pound of Powder at 24 Shots, making for the whole	37500*lb.*
Extraordinary Distribution before the Opening of the Trench	12000
Waste — —	12000
Total — —	792750*lb.*

Artillery.

Large Cannons of 33, and 24, with their Carriages, Vantrains, and Utensils	50 Pieces.
Carriages of Rechange —	25
Cannons of sixteen, with their Carriages, Vantrains, &c.	10
— of twelve,	10
— of eight,	20
— of four,	20
Again, Carriages of Rechange of sixteen	6
— of twelve —	6
— of eight — —	4
— of four —	6
Mortars — —	40

Bullets.

Of thirty-three —	48000
Of twenty-four — —	19000

Lead.

According to the Quantity of Powder designed for the Musketry, estimated at the Rate of 24 Balls in the Pound, the Waste included	55000

Match.

The Consumption of the Match, estimated at the Rate of 12000 Yards continually lighted, during 30 Days of Siege	72000

Wood.

Sixty Platforms, each carrying 7000 Foot of Giftes.
50000 Boards of Oak.
100000 Foot of Deal-Boards.
400000 Foot of Giftes in Pieces.

Tools.

Hatchets — —	800
Pick-axes, &c. —	4000
Wheel-barrows —	300
Horses — —	1000
Rancasses — —	60
Fishermen's Boots, Pairs —	60
Hampers, Baskets, &c. —	4000
Pumps — —	40
Large wooden Rammers —	40
Forges — —	4
Pullies — —	50
Tuns of Nails —	11
Dark Lanthorns —	40
Sheets of Tin — —	800
Sledges — —	12
Small Sledges — —	12

Workmen carried to a Siege.

100 Carpenters.
12 Sawyers.
12 Smiths.

Boats.

Boats are not useful but when the Town besieged is on a River.

As for the Order to be observed in the Artillery, for the Siege of a considerable Place; before any Thing of the Design can be discovered, the necessary Munitions for that Enterprize must be lodged in Places the nearest to that which is to be besieged. The Lieutenant of the Artillery who commands in that District, receives Orders to prepare Carriages for the Pieces of Ordinance, Pontoons, Haquets, Carts, Waggons, and assembles the Madriers and Wood, he thinks he shall want, that on the first Order he be n a Condition to send the most useful Things to begin to form the Park, and the Yard of the Workmen.

After he has passed in Review, the Horses sent him for the Carriage of the Pieces and Munitions, he commands Officers, according to the Direction he has received from the Grand Master of the Artillery, to go and see the Munitions loaded, which are marked on a Memorandum given to the Officer who is to command that Detachment, where is marked the Number of Horses he is to have under his Command, and even the Day and Place where they are to meet, that all Things may arrive in Time.

As it is almost impossible to make so considerable, and so quick a Transport, without foreign Succours, the Lieutenant of the Artillery informs the Intendant of the Number of Carts he may want, and of the Place and Day they are to meet.

The Lieutenant-Commander of the Artillery, after he has put all in Motion, goes before to advise with the General of the Army, who has caused the Place to be invested; and goes with him to reconnoitre the Ground where the Park of Artillery is to be formed. The Lieutenant shews the Place to the Officer he has appointed Commissary-General of the Park, who takes all the necessary Precautions to dispose it in a Manner, that the Munitions, as soon as they arrive, may be unloaded in proper Places, according to their Kinds. Part of the Horses are immediately sent back to fetch the Cannon, Mortars, and Carriages, while the other Part remains in the Park, to help towards placing the Munitions in Order, and to transport those which are to be distributed to the Army.

During these Motions, the Captain of the Workmen of the Artillery, sends one of his chief Workmen with some Travellers, to pull down the Wood he judges necessary for his Yard; and the Commissary-General of the Park, orders a Number of Carts sufficient to bring it to the Park.

The General of the Army gives Orders to bring to the Trench the Fascines and Picquets, wanted for the Batteries, that the Officers of the Artillery be only employ'd in causing the Cannon and Munitions to advance as fast as possible.

The Commander of the Artillery disposes his Park in such a Manner, that it may not be seen from either Place of the Town besieged, not even from the Steeples, unless it be very far from them, because of the Accidents which could happen from the Bullets, and Bombs of the Place, which could set the Magazines of Powder on Fire. If, notwithstanding, the Situation of the Place should discover all the Places round it; on that Occasion, the Park must be placed far from the Fire of the Place, and high and thick Epaulments made to shelter the Workmen from the Cannon.

The Commissary of the Park forms it, by marking the Ground for the Battalions, appointed for the Guard and Service of the Artillery. If there be four Battalions, he must place two of them on the Right, 100 Paces distant from the Alinement of the Pieces and Munitions; and the two others on the Left, at the same Distance. He begins by marking the Ground wanted for the Yard of the Smiths, Cartwrights, and Carpenters. The Captain-General of the Workmen, settles himself first, and causes all his Workmen to encamp near him, on the same Line, that he may call them when he wants them.

He also marks with the Captain-General of the Carriages, the Places where the Horses are to encamp, which must be, if possible, 100 Paces behind the Munitions, or on the Side, according to the Situation of the Ground, where the Captain-General of the Carriages is to encamp, with the Guides of that Equipage under his Command.

The Pieces of Cannon with their Carriages, are placed as near as possible the Road which leads to the Attacks, as well as the Mortars and their Carriages; taking the dryest, and most spacious Ground round it to unload the Bullets

Bullets and Bombs, which are separated and placed according to their different Caliber; on the Side are unloaded the Tuns of Match, and the Casks of Lead; and near it the Shovels, Pickaxes, Hatchets, &c. which are disposed in Order according to their Kinds. Round about are placed the Waggons, Ropes, Sacks of Earth, &c. The Commissary of the Park, and the Officers who are along with him, encamp in this Place, that he may be ready at Hand to communicate to them the Orders he receives from the Commander of the Artillery, or in his Absence from the General of the Army, for the Distribution of the Munitions, and the Reception of others.

The Commissary of the Park, chuses a Place a little distant from this little Park, to fix his Laboratory; and the uncharg'd Granadoes may be placed 40 Paces distant from it, to be charged when they are wanted.

All the Commissaries and Officers of the Artillery, encamp on the most commodious Ground, and the nearest the Park, so that they may be notwithstanding 100 Paces distant from the Munitions. The Pontoons, with their Haquets, are placed on a Line, to shut up one of the Sides of the Park. The Pieces of 24, 16, 12, 8, and 4, of the new Invention, with all others of 8 and 4, and their Carriages, shut up the other Side of the Park, which Line covers the hind-part of all the Munitions.

As it is of the utmost Consequence to place well the Powder, the Commissary of the Park, with the Commander of the Artillery, examine the Place where it may be put safe. Which to effect, he causes to be made, if the Ground allows it, five Magazines, *viz.* four 300 Paces distant, square-wise, from one another; but drawing near the Park. All these Magazines must have good Ditches, very deep outside, with rais'd Epaulments inside. There is but one Entrance for the four furthermost. Each Magazine must be spacious enough, to contain 60 or 80,000 Pounds of Powder. That which is nearest the small Park, must have a going in, and coming out, because all the Powder necessary for the Batteries, and the Army, is drawn from it. The other Magazines serving only for Store-Houses, to supply this.

The Park thus disposed in Order, a Corps de Guard is placed before, whence Centries are drawn to be posted for the first Time, where the Commissary of the Park judges proper. He causes a small Corps de Guard to be placed towards the five Magazines of Powder, and places a Centry at the Entrance of each Magazine for greater Safety.

The Commander of the Artillery, endeavours to find at the Tail of the Trench, the most commodious Place for a small Park of Munitions, for the Conveniency of the Troops. If there were two Attacks distant from one another, Munitions must also be carried thither, and a Park made.

Every Thing being in the Order above-mention'd, the Captain-General of the Workmen, causes the Platforms to be prepar'd, for the Batteries of Cannon and Bombs; and sends Workmen to mount the large Pieces on their Carriages.

As soon as the Commander of the Artillery, and the General of the Army, have took a View of the Ground, where the first Batteries are to be erected, he must name for one of 20 Pieces, a Provincial Commissary, four Ordinary, and six Extraordinary; if there be no Subalterns; committing but two Pieces to the Care of one Officer.

The Provincial Commissary, after he has examined the Place where he is to erect his Battery, and the Work he is to beat, with the Help of his Officers, he places there before Night, the Picquets of his Alinement, taking seven large Paces in length for each Piece; and commands soon after the Travellers he has took to advance: After Sun-set, he divides them along the Ground he has fixed upon, and makes them open the Earth at the Alinement of his Picquets. The Officers who are divided on the Right, Left, and in the Center of that Work, cause the Earth to be thrown at an equal Height, behind the Ditch, inside, lest it should sink in the Place where the Batteries are erected. I know that the Soldier is uneasy while he works, without Shelter; but I know, likewise, that a Battery work'd in that Manner is much more solid, and fewer Men are lost during the Siege, than in that where the Earth is thrown forward; and where one is indispensably obliged to go openly and fetch Earth behind the Battery, to reimplace that which has been taken out, in order to raise the Ground of the Platforms, which is found too deep to place the Pieces, and gives Way for Want of Solidity in the Ground which is under them, which obliges the Officers to have them often repair'd.

The Earth of this first Battery being thrown out all Night, and rais'd equally Inside the Ditch, the Officers cause all the Travellers to retire within the Battery at Break of Day, who are then shelter'd from the Fire of the Place. Afterwards they raise the Inside of the Battery 7, 8, 9 Foot high, according to the Situation and Places whence one can be beat. The Fascinage is made a little sloping on the Outside, that the Earth of the Battery may be well supported, and which must be 18 or 20 Foot thick, as far as the Ditch, according to the Quality of the Earth, which may be more or less sandy. A Berm of 2 Foot is left along the Ditch to support the Earth, lest the Wind of the Piece, or the Cannon of the Enemy, should make it fall into the Ditch. In that Manner one sees what he can do, and one works quickly and *a propos*, since the Plarforms can be placed in that Battery in Day-time, where the Captain-General of the Workmen sends a Detachment of them with Madriers, and other necessary Implements. The Embrasures of this Battery are open'd, and put in a Condition to resist the Fire of the Enemies in the Night.

Note, That it is impossible to give 18 or 20 Foot of Thickness to a Battery, to raise it to about 9 Foot, to render the Platforms level, open the Embrasures, put the Pieces in Battery, and finish all the other Works necessary to put it in a Condition of firing, in a lesser Time than one Day and one Night.

The Pieces of a Battery being made ready to fire, six Soldiers, accustom'd to that Occupation, are commanded for the Service of each Piece. Before one begins to fire, he must observe if the Piece beats the Place design'd. There is always a Soldier on each Side the Piece, with an Handspike to stop the Piece at its Recoyle. When the Pieces are a little heated, the Powder they are charg'd with, must be only half the Weight of the Bullet, and ought not to be augmented while the Piece continues hot.

One may also raise Cavaliers and Batteries, to discover the Inside of the Place and of the Work; which are made with Fascines and Earth, by the Favour of the Cannon, and of the Fire from the Trenches on that Side.

The Batteries for Bombs, or Fire-Balls, have no Embrasures, and have the same Thickness of those of the Cannon.

If the General of the Army commands to fire with red Bullets, and the Battery be compos'd of 20 Pieces of 8, a Furnace must be made 10 Paces distant from the Piece on the Right; and another 10 Paces distant from the first Piece on the Left, in which the Grates are placed, and the Bullets upon them. The Earth of each Furnace is thrown on the Side of the Place, to serve for Epaulment for those who heat the Bullets, and carry them with Ladles or Tongs, to the Mouth of the Pieces. When they are red, the Officers take Care that the Pieces be but little charg'd, because they are much heated by the Heat of the Bullet; and that one fires only, that the Bullet falling on the Roof of the Houses, may lodge there, and set them on fire. The Piece is always pointed at full Randoms, therefore it suffices that the Mouth of the Piece be rais'd in such a Manner, that the Bullet in going out, may not touch the Epaulment of the Battery, which is easily done, by placing the Platform a Foot distant from the Epaulment.

Very often, the General of the Army orders at the Beginning of the Siege, Batteries to destroy the Defences and Cavaliers of the Place, which incommode most the Besiegers, and by that Means the Trench is less exposed, the

the Work are more forwarded, and the Besieged are very much embarassed.

The 33 Pounders serve to destroy in a short Time, the Face of a Bastion, and to beat in a Breach: But the Difficulty of transporting them, obliges often the Commanders of the Artillery, to bring but a small Number of them before a Place; when as that of the 24 is greater, because there is less Difficulty to move them from one Battery to another, and do much Execution when they are but a hundred Fathoms distant from the Place they beat in Breach.

I suppose that we beat in Breach the Face of a Bastion, or Courtin, with 10 or 12 Pieces of 24; firing every Day 100 Shots from each Piece; the Breach will not be practicable in less than 15 Days; when as if that Battery was increased to 24 Pieces, the Face of the Work would be ruinated in 5 or 6 Days.

To beat in Breach, three or four Batteries are made in different Places, which notwithstanding are all pointed towards the same Face of the Work, with this Difference, that one of them beats it in a right Line, and the two others obliquely, which causes that each Shot fired in that Manner, destroys and demolishes sooner the whole Mass of the Work.

The Pieces of 16 and 12, are necessary to fire at the cover'd Way, Cavaliers, and other Works, where it is wanted to destroy the Defences and Epaulments of their Batteries, and dismount their Pieces.

Mortars are of great Service, since they throw Bombs into the Places of the Town besieged, which the Cannon can't reach.

The Sacks of Earth are very useful to shelter the Soldiers who are on the Banquettees along the Trench; they place them a-top of the Parapet of the Trench, and put their Muskets between two Sacks of Earth, whence they discover the Works or cover'd Ways of the Enemy, and those who are there for their Defence, that shelters the Soldier against a Musket-shot, and renders him more secure to fire his.

Here follows a Detail of the Artillery which was employ'd in a very famous Siege; and of the Munitions consumed in it.

Detail of the Pieces and Munitions carried to the Siege of ——		*Munitions consumed in that Siege.*
Brass Pieces.		
Of 33	7	
— 24	33	
— 8	8	
— 4	12	
	60	
Carriages with their Vantrains.		
Of 33	12	
— 24	46	
— 8	8	
— 4	14	
Pairs of Arms	19	
Ladles of Rechange	20	
Carts to carry the Cannon	19	
Other Carts	125	
Bullets.		
Of 33	10620	6792
— 24	55274	30100
— 8	3800	
— 4	5000	618
Mortars.		
Carriages of cast Iron for Mortars	16	
Carts to carry the Carriages of Mortars	16	2
Bombs ——	7092	5501
Fusees for Bombs	7300	5600

Vantrains		5
Carriages		4
		2
Ladles		16
Rammers		18
Spunges		20
		10

Detail of the Pieces and Munitions, &c.		*Munitions consum'd, &c*
Mortars to throw Stones mounted	6	0
Granadoes ——	40304	20660
Fusees for Granadoes	57000	40000
Powder ——	953000	835300
Lead ——	90800	59820
Match ——	133600	67900
Sacks of Earth	199049	109019
Muskets ——	2400	618
Fusils ——	100	100
Halberts ——	200	90
Salt-petre ——	534	384
Sulphur ——	240	104
A Tun of yellow Pitch		
A Tun of black Pitch		
Two Tuns of Tar		
Mortars with their Pestles	2	
Iron Kettles ——	2	
Tools for Pioneers	38809	18795
Hatchets ——	2310	1076
Hottes ——	510	500
Wheelbarrows	260	110
Miners Tools	184	
Carpenters and Wheelwrights Tools	210	74
Three compleat Forges		
Crosses		
Three hundred Tuns of Rope		26
Madriers ——	750	567
Sheets of Tin ——	340	340
Axle-Trees ——	22	22
Sheep-Skins ——	115	115
Nails ——	6430	6430
Copper-Nails ——	16	16
Iron-Bars ——	945	845
Iron-Axle Trees	4	4
Lanthorns to light withal	4	4
Boxes for Lanthorns	24	24
Caissons ——	6	0
Carts to carry Kettle Drums	1	0

Note, That I'll conclude this Treatise by some necessary Rules and Instructions for the Fabrick of Fire-Arms, beginning by the Method of casting Cannons, Mortars, *&c.*

To proceed with some Order in this important Subject, which has been the Foundation of the whole military Art, ever since the Invention of our modern Artillery, we must speak first of the different Proportions given to Pieces of Ordinance; and next to the Manner of forming the Mold, and mixing the Metals.

An experienc'd Officer, who has very well studied the Art of casting Cannons, Mortars, *&c.* gives the following Proportions to Pieces of Cannon.

The Weight of the Pieces, according to the following Proportions, must be of about 6200 for Pieces of 33; 5100 for Pieces of 24; 4100 for Pieces of 16; 3400 for Pieces of 12; 1950 for Pieces of 8; 1300 for Pieces of 4.

The Length of the Pieces from behind the Base Ring to the Mouth, 10 Feet for Pieces of 33; 10 Feet for Pieces of 24; 10 Feet for Pieces of 16; 10 Feet for 12; 8 Feet for Pieces of 8; 8 Feet for Pieces of 4.

The Length of the Bore, from the Mouth to the Breech, must be of 9 Feet 5 Inches $\frac{1}{4}$ for Pieces of 33; 9 Feet 6 Inches $\frac{1}{4}$ for Pieces of 24; 9 Feet 7 Inches 1 Line for Pieces of 16; 9 Feet 7 Inches $\frac{1}{4}$ for Pieces of 12; 7 Feet 8 Inches 1 Line for Pieces of 8; 7 Feet 8 Inches 11 Lines $\frac{1}{4}$ for Pieces of 4.

The Breech must have in Length from behind the Bottom of the Bore to behind the Base Ring, one Caliber of the Piece.

The hind-part of the Breech 1 $\frac{1}{2}$ Caliber to the Cassacabel Deck.

The Diameter of the Pieces at the Breech, without including

cluding the Mouldings, must be of 19 Inches for Pieces of 33; 17 Inches for Pieces of 24; 15 Inches for Pieces of 16; 14 Inches for Pieces of 12; 12 Inches for Pieces of 8; 10 Inches for Pieces of 4.

The Mouldings from behind the Base Ring, must have a Caliber in Length, and another Caliber from before the Moulding to before the Astragal of the double reinforc'd Ring.

The Astragal must be more than an Inch long for the large Pieces, and something less for the small ones: The Thickness the same.

The Moulding of the Breech must very near end on the reinforc'd Ring.

The Diameter of the Base Ring must be of 22 Inches for Pieces of 33; 20 Inches for Pieces of 24; 18 Inches for Pieces of 16; 16 Inches for Pieces of 12; 14 Inches for Pieces of 8; 12 Inches for Pieces of 4.

The Length of the first reinforc'd Ring, from behind the Base Ring of the Breech, to before the foremost Moulding before the reinforc'd Ring must be of 3 Feet 2 Inches for Pieces of 33; 3 Feet 2 Inches for Pieces of 24; 3 Feet 2 Inches for Pieces of 16; 3 Feet 2 Inches for Pieces of 12; 2 Feet 6 Inches for Pieces of 8; 2 Feet 6 Inches for Pieces of 4.

The Diameter of the fore-part of the reinforc'd Ring, near the Base Ring, must be of 18 Inches for the Pieces of 33; 16 Inches for the Pieces of 24; 14 Inches for the Pieces of 16; 13 Inches for the Pieces of 12; 11 Inches for the Pieces of 8; 9 Inches for the Pieces of 4.

The Length of the second reinforc'd Ring, from the Moulding of the first reinforc'd Ring, to before that of the second, is of 20 Inches for Pieces of 33; 20 Inches for Pieces of 24; 20 Inches for Pieces of 16; 20 Inches for Pieces of 12; 14 Inches for Pieces of 8; 14 Inches for Pieces of 4.

The Diameter of the hindmost reinforc'd Ring, is of 18 Inches for Pieces of 33; 15 Inches for Pieces of 24; 13 Inches for Pieces of 16; 12 Inches for Pieces of 12; $10\frac{1}{2}$ Inches for Pieces of 8; $8\frac{1}{2}$ for Pieces of 4.

The Diameter of the foremost reinforc'd Ring, is of $16\frac{1}{2}$ Inches for Pieces of 33; $14\frac{1}{2}$ Inches for Pieces of 24; $12\frac{1}{2}$ Inches for Pieces of 16; $11\frac{1}{2}$ Inches for Pieces of 12; $9\frac{3}{4}$ Inches for Pieces of 8; 8 Inches for Pieces of 4.

The Moulding of the fore-part of the first reinforc'd Ring, must have a Caliber in Length from behind the Base Ring, to before the Astragal of the second Renfort.

The foremost Moulding of the second reinforc'd Ring, is equal to the first.

The Ansæ must be placed on the second reinforc'd Ring.

The Trunnions must be placed on the Sides of the reinforc'd Ring, near the Base Ring; underneath the Trunnions is equal to the Belly of the Piece, and their Length and Diameter must be of the Caliber of the Piece.

The Length of the Chase of the Pieces, from before the Moulding of the second reinforc'd Ring to the Mouth, must be of 5 Feet 2 Inches for Pieces of 33; 5 Feet 2 Inches for Pieces of 24; 5 Feet 2 Inches for Pieces of 16; 5 Feet 2 Inches for Pieces of 12; 4 Feet 4 Inches for Pieces of 8; 4 Feet 4 Inches for Pieces of 4.

The Diameter of the Chase, near the fore-part of the Moulding of the second reinforc'd Ring, must be in that Place of $15\frac{1}{2}$ Inches for Pieces of 33; $13\frac{1}{2}$ Inches for Pieces of 24; 12 Inches for Pieces of 16; 11 Inches for Pieces of 12; 9 Inches for Pieces of 8; $7\frac{1}{2}$ Inches for Pieces of 4.

The Diameter of the Cornish Ring, near the Astragal of the fore-part of the Chase, $11\frac{1}{2}$ Inches for Pieces of 33; 10 Inches 4 Lines for Pieces of 24; 9 Inches for Pieces of 16; 8 Inches for Pieces of 12; $6\frac{1}{2}$ Inches for Pieces of 8; 5 Inches 8 Lines for Pieces of 4.

The Frieze 15 Inches for Pieces of 33; 13 Inches for Pieces of 24; 12 Inches for Pieces of 16; 11 Inches for Pieces of 12; 9 Inches for Pieces of 8; $7\frac{1}{2}$ Inches for Pieces of 4.

We must remember to make small Chambers at the Bottom of the Bore of the Pieces of 33, 24, and 16, overagainst the Touch-Hole, these Chambers have in Length and Diameter $\frac{1}{3}$ of the Caliber of the Piece. The Pieces of 12, 8, 4, *&c.* have none.

It is pretended that these small Chambers are made to render the Touch-Hole thicker, and to hinder the too great Violence of the Powder from making it wider. Some of our antient and most experienc'd Officers, esteem those Touch-Holes best that are pierc'd obliquely, and which answer to the Place where the Bore of the Piece joins the little Chamber, than those pierc'd perpendicularly thro', answering likewise to the same Chamber; giving this for Reason, that when the Pieces are charg'd with Cartridges, the Priming-Iron introduced into the Touch-Hole, must pierce the Cartridge behind, that the Fire of the Prime may be communicated to it; and when the Touch-Hole falls perpendicularly into the little Chamber, the Priming-Iron does not touch the Cartridge; and that it would be even uncertain if it would touch it, was the Touch-Hole to meet at the Junction of the little Chamber with the Bore.

But to be certain of the true Proportions which must be given to Pieces of Ordinance, we must have Recourse to the following ones of M. *Balthazard Keller.*

Length of the Piece.

The Length of the Piece, which is of 10 Foot, shall be divided into 7 Parts; giving two of them to the Base Ring; one to the reinforc'd Ring; and four to the Chase.

Its Bigness.

The Caliber of the Piece must be divided into 12 equal Parts; the Breech will have 12 Parts; the Base Ring 11 Parts; the reinforc'd Ring 16 Parts; the Trunnion Ring 9 Parts; the Muzzle Ring 8 Parts.

From the Proportions of the Pieces of Ordinance, I'll pass to the Composition or Mixture of the Metal they are made of.

Note, That there are Mines of Brass called *Rozetta*, found in *Hungary*, *Sweden*, *Norway*, *Italy*, and *Lorrain:* Those of *Hungary* and *Sweden* are the best; those of *Italy* and *Lorrain* the worst; and those of *Norway* between both; but the best for the Artillery, because the hardest.

To make the Mixture for Pieces of Ordinance; there must be Tin, Rozetta, and Brass. The best Tin is that from *England*, as being the softest; 6, 7, or 8 *lb.* of this best Tin, are requir'd for 100 *lb.* of Rozetta, according to its Quality; for that from *Norway*, *Lorrain*, and *Italy*, requires a greater Quantity of Tin.

Some Founders mix the Metal thus; 100 *lb.* of Rozetta; 10 *lb.* and even as far as 20 *lb.* of Tin; and 20 *lb.* of Brass.

The following are the Proportions which M. *Keller* us'd to observe in the Mixture of the Metal.

Of Rozetta, 10000 *lb.*
—— Tin, 900 *lb.*
—— Brass, 600 *lb.*

The Tin is added to make the Metal more dense and compact; so that the better or heavier the Rozetta is, the less Tin is requir'd.

When a Founder is oblig'd to use old Pieces of Brass Metal; he must add 25 *lb.* of good Copper, and 5 *lb.* of Tin, to 100 *lb.* of old Metal; and that Quantity forms together 130 *lb.*

Another Composition for the Pieces of Artillery is as follows:

One Part of Brass; $\frac{1}{3}$ of Rozetta; $\frac{1}{4}$ of old Metal; $\frac{1}{17}$ of Tin.

In each Casting, 10 *lb.* of old Grease are added to 5000 *lb.* of Metal.

The Metal must be purified with the following Powder: Take an Ounce of Cinnabar, 4 Ounces of black Pitch, $1\frac{1}{2}$ Ounce of Raddishes dried, 16 Ounces of Antimony, 4 Ounces of Mercury sublimate, 20 Ounces of Salt-petre, and 6 Ounces of *Armenian* Glue. Which Drugs must all be pounded separately, then mixed together, throwing upon the Mixture 2 *lb.* of Aqua-fortis.

To mix this Powder with the Metal, 97 *lb.* of Rozetta muſt be melted, and 66 *lb.* of old Metal in Laminæ, thrown into it, ſtirring the Mixture, and leaving it afterwards in Fuſion to incorporate; then the ſame Thing is done with 6 *lb.* of the beſt Tin; and when the whole is in Fuſion, the Metal muſt be ſtirred with a Stick lined with Iron at the End, and Rags dipped in old Greaſe, tied at that End; leaving it afterwards in Fuſion at a large Fire, for a Quarter of an Hour.

Then to the melted Matter of 109 *lb.* muſt be added 2 Ounces of the Powder, encloſed in a Box, nail'd with two Nails at an Iron Rod, to thruſt it in the Metal to the Bottom; ſtirring it till no more white Smoak ariſes, then it muſt be left in Fuſion for half an Hour, and thrown afterwards into the Mould.

The Powder purifies the inferior Metals, and particularly Copper, which it renders pure and ſoft like Gold: And the Pieces made of that Metal, are as tenſe and compact, as if they had been forged.

The Metals thus mix'd and prepar'd, we muſt next form the Mould; the Proceſs whereof is as follows:

They take a Deal Board very ſtrait and even, and longer than the Piece is to be, that's to ſay, of 12 Foot and more; this Deal Board is called in *French Trouſſeau.* This Board is laid all along, and the Ends thereof ſupported by two wooden Stools: The *Trouſſeau* is greaſed all over with old Greaſe, and a Mat of the ſame Length rolled over it to a certain Thickneſs, and nailed all along.

On this Mat are applied ſeveral Couches, or Lays of a fat Clay, mixed with Brick Duſt, then they begin to form the Model of a Cannon.

Afterwards they lay another Bed of an Earth well beaten and mixed with Burre and Horſe-Dung, with which the Model is garniſh'd, till it be of the Thickneſs the Piece is deſign'd to be.

In applying theſe Strata of Earth, a Fire of Wood is all the while kept under the Board, or *Trouſſeau*, that the Earth may dry ſooner.

Afterwards all the Parts of the Piece muſt be made, *viz.* the Frieze, Corniſh, Rings, Mouldings, *&c.* which is done in a very ſimple Manner, though very ingenious; for while the Earth which is applied laſt is yet ſoft, a Board 12 Foot long, called the *Sample*, and where all the different Mouldings are cut, is approached near that rough Mould, and being made faſt on the two wooden Stools or Truſſels, the Mould is turn'd round it, by Means of two Wheels fixed at its Extremities; and that Mould rubbing againſt the Mouldings of the Board, takes the Impreſſion thereof, and reſembles entirely a Piece of Cannon finiſh'd in all its Parts.

On this Mould are placed the Coats of Arms, Anſæ, Motto's, Name, Ornament of the Chaſe, *&c.* which is done with Wax and Turpentine mix'd, and which have been melted in Moulds of Plaiſter, where thoſe Ornaments have been moulded.

The Trunnions are made afterwards; they are two Pieces of Wood of the Form or Figure the Trunnions muſt have, faſten'd in the Mould with two Nails.

The Fire being taken from under the Mould, it is rubbed all over with Tallow, to prevent the Shell, which muſt be work'd over it, to cover it, from ſticking to it; and then the Mould is paſſed thro' the Sample or Echantillon, to cauſe that the Tallow may be ſpread equally every where.

The Shell is begun by a Layer, or Skirt of fat Clay, but very fine, called *Potaſſe*; this Potaſſe is an Earth ſifted, with Horſe-dung, Clay, and Burre.

This firſt Stratum, is left to dry without Fire.—When dry, another fatter Earth, and mixed likewiſe with Burre and Horſe-Dung, is laid over it.

When the Shell is four Inches thick, and has been well dried at the Fire, the Nails which faſtened the Anſæ and Trunnions are drawn, and the Cavities filled with Earth; then the Mould, thus well covered with Earth, is made tight, and faſtened with Iron Bandages, or Hoops placed lengthwiſe, and croſſwiſe, and very well faſtened; and over theſe Bandages more Earth is laid.

The Shell of the big Mould is commonly five or ſix Inches thick.

The Mould well dried, the Matt is unnailed; and ſtriking twice or thrice the Extremities of the Board or *Trouſſeau* on which it was nailed, which is narrower at one End than at the other (which is called undreſſing) it quits inſenſibly the Middle of the Mould, which he traverſed from one End to the other, and in drawing it, the Matt comes along with it.

The Mould thus emptied inſide, is carried immediately into the Hole dug near the Furnace where the Cannon is to be melted.

Several large Pieces of lighted Wood are thrown into that Mould, till it be perfectly dry.—The Violence of the Fire produces two Effects; for it melts the Tallow which parts the Shell from the Mould, and at the ſame Time dries the Earth of the Mould, ſo that it may be eaſily broke with Hammers, that the Shell may remain alone, which has took the Impreſſion inſide, of the Ornaments made on the Mould. In the Place of that Mould which is deſtroyed, is put a long Piece of Iron called the Core, and which is placed juſt in the Middle of the Shell, that the Metal may ſpread equally on all Sides.

This Piece of Iron, or Core, is covered with a Paſte of Aſhes, very well baked like the Mould, and faſtened round three Times over, with Iron-Wire, Bed over Bed, to the Bigneſs of the Caliber the Bore of the Piece is to be; ſo that it remains a void Space between the Kernel and the Hollowneſs of the Shell, which muſt be filled of Metal, which makes the Thickneſs of the Piece. And this Precaution of covering the Core, is taken leſt the Metal ſhould ſtick; and that it may be eaſier drawn out of the Middle of the Piece, as in Fact it is, after the Piece is caſt. To keep this Core ſteady, and very ſtreight, it is ſupported on the Side of the Breech with Bars of Steel placed croſſwiſe, which is what is called the Chapelet; and on the Side of the Mouth with a Compoſition of Plaiſter and Bricks, made in the Shape of a Millſtone.

Afterwards, and eſpecially when the Piece is to be caſt, the Chaſe downwards, is placed the Breech, (made apart of the ſame Compoſition, and in the ſame Manner of the Mould of the Body of the Piece) at the End of the Iron, and faſtened with an Iron Wire, to the Knees of the *Maſſelote*, and Hooks of the Shell; but when the Piece is run the Breech downwards, and the Chaſe upwards, the Breech is all of a Piece with the Mould; and in this Caſe, the Caſſacabel Deck is always adorned with Figures; and when it is without Ornaments, it muſt be conjectured, that the Piece has been caſt the Chaſe downwards.

Suppoſing that one would caſt ſeveral Pieces at once, a-top of the Mould are diſpoſed ſeveral Tubes of Earth, anſwering to the Inſide of the Body of the Mould thro' which the Metal muſt run; and other Tubes, beſides, are left for Vents. When all is well prepared, the Hole is fixed with dried Earth, beaten, with Care, Strata upon Strata, as far as the Top. The Tubes and Vents ſurpaſs by ſome Inches the Superficies above the Hole; and round it are formed, with Clay very well dried, ſmall Canals to convey the Metal to it.

When the Metal is in perfect Fuſion, which happens commonly in 24 or 30 Hours, or thereabouts, all the Jets are ſtopped with a Kind of Plug, which are kept cloſe, that upon opening the Furnace, the Braſs, which guſhes out like a Torrent of Fire, may fall equally on all the Jets, and be equally hot in running into all the Parts of the Mould. The Hole of the Furnace is opened, with a long Piece of Iron fixed at the End of each Pole, and the Mould is filled in an inſtant, and the Piece is formed.

Then the Piece is taken out of the Hole where it has been caſt, and the Clay of the Mould which ſticks round the Piece broke with a Hammer, which diſcovers the Piece, but rough in ſome Places, therefore very ſharp Chizels are uſed to cut the Superfluities and Jets of the Metal.

When the Piece is a little ſurbiſhed, that the Bore is alleared, cleanſed, and brought to its Caliber; which is done by ſuſpending it in a wooden Frame for the Purpoſe, by means of Pullies, the Mouth downwards; in this

this Condition a Box of Brass armed with a very sharp Knife, is disposed in a manner, that while a Horse turns a Wheel placed horizontally under that Machine, this Knife cuts, and renders smooth the Inside of the Piece, to a Proportion regulated by him who governs the Work. Eighty-eight different Boxes are wanted for one Piece, and the Piece is two Hours coming down.

The Piece thus finished is tried or proved.—To make a Proof of the Piece, a proper Place is chosen, which is to be terminated by a Mount of Earth very thick to receive the Bullets fired against it, that none of them may run through it. The Piece is laid on the Ground, supported only in the Middle by a Block of Wood. It is fired three Times: The first with Powder of the Weight of the Bullet, and the two others with $\frac{3}{4}$ of the Weight; after which a little more Powder is put in to singe the Piece; and after this Water, which is impressed with a Spunge, putting the Finger on the Touch-Hole, to discover if there be any Cracks; which done they are examined with the Cat, which is a Piece of Iron with three Grasps, disposed in the Form of a Triangle, and of the Caliber of the Piece; then it is visited with a Wax Candle, but it is of very little Service in the small Pieces, because if they be a little long, the Smoak extinguishes it immediately.

The Proof of Mortars is made in this Manner:—Where there are Carriages of cast Iron, the Mortar is placed on one of those Carriages. Under that Carriage is made a Platform of Madriers 5 or 6 Inches thick, the Mortar is charged with the best Powder, and with as much of it as its Chamber can contain, observing to leave no Vacuity at the Neck of the Mortar, but what is necessary to put a little Wadd over the Powder, and which is rammed with the End of an Handspike, to keep the Powder together as much as possible. A large green Turf, with Earth two Fingers deep is put over the Wadd, which must have Width enough to fill up the Bottom of the Mortar. This Turf and Earth are very well rammed down, then the Bomb is placed over it as upright as possible, leaving a small Space round it, which is to be filled with Clay as tight as possible, pressing it between the Mortar and the Bomb with a pointed Stick; and as it is not necessary to spend much Powder in these sort of Proofs, the Bomb must be filled with as much Earth as it would contain Powder.

For want of Carriages of cast Iron, Holes are dug in the Earth, where the Mortars are buried as far as the Touch-Hole; and in order that the Mortars thus buried may find more Resistance, and make a greater Effort, large Pieces of Wood in form of Joists are put under the Mortar, chusing always the hardest Ground, to resist better the Recoyle of the Mortar.

If the Ability of the Founder be suspected, a Fusee for Granado's is put on the Touch-Hole of each Mortar, that the Gunner may have Time to retire, in case the Mortar was to burst in the Proof; which is also practised in the Proof of the Pieces.

This Proof is made three Times, without increasing or diminishing any Thing.

After each Salve, the Mortars are to be visited, that if there be any of them defectuous, or out of Service, they may not be charged anew, not to burn Powder idly.

After the last Salve, the Mortars are taken out of the Earth, the Touch-Hole stopt, and they are all filled with Water, without wetting the Outside; for if there were some Vents or Apertures in the Mortar, the Water running through would discover them.

When there appear no Faults this Way, they must be well washed, and afterwards visited with the Scraper.

Note, That after we have seen all that is done in the Founderies, for Brass Pieces of Ordinance, we must examine next the Proportion given to the Iron Pieces.

Proportions for an Iron Piece of 36, for Land Service.

The Length from the Base-Ring to the Mouth of the Piece is of 10 Feet.

From the Border of the Base Ring to the End of the Cassacabel Deck, 13 Inches in Length.

The Diameter of the Cassacabel Deck, 8 Inches.

The Diameter of the Base Ring, 25 Inches.

From the Bottom of the Bore to the End of the Base Ring, the Metal is 8 Inches thick.

The Diameter at the Touch Hole, 23 Inches.

From the Border of the Base Ring to the reinforced Ring, 2 Feet 11 Inches, 9 $\frac{1}{2}$ Lines in Length.

The Diameter of the reinforced Ring, 21 Inches 4 Lines.

From the Base Ring to the Trunnions 4 Feet 5 Inches 4 Lines in Length: The Trunnions must be placed in 4 Feet 5 Inches 4 Lines.

The Diameter of the big End of the Trunnion, 6 Inches 5 Lines $\frac{2}{3}$, which is the Diameter of the Caliber of the Piece.

The Diameter of the small End of the Trunnion, 6 Inches 3 Lines, which is the Diameter of the Bullet.

The Length of the Trunnion 6 Inches 5 Lines $\frac{2}{3}$, which is the Caliber of the Piece.

From the Base Ring to the second reinforc'd Ring, 4 Feet 7 Inches, 9 Lines in Length.

The Diameter of the second reinforc'd Ring, or Trunnion Ring, 18 Inches 4 Lines.

From the Base Ring to the Astragal, or Cornish Ring 9 Foot in Length, the Diameter of the Astragal, 12 Inches 8 Lines.

From the Astragal to the Muzzle Ring, 12 Inches in Length. The Diameter of the Piece, 6 Inches 5 Lines $\frac{2}{3}$.

The Piece has in Length, from the Muzzle to the End of the Cassacabel Deck, 11 Feet 3 Inches, which is the Length of a Brass Piece of the same Caliber.

Proportions for an Iron Piece of 24, for Land Service; which is to weigh 5700 lb. or thereabout.

The Length from the Border of the Base Ring to the Mouth of the Piece, 10 Feet.

From the Border of the Base Ring to the End of the Cassacabel Deck, 12 Inches in Length.

The Diameter of the Cassacable Deck, 7 Inches 6 Lines.

The Diameter of the Base Ring, 19 Inches 8 Lines.

From the Bottom of the Bore of the Piece to the End of the Base Ring, the Thickness of the Metal is 7 Inches 6 Lines.

The Diameter at the Touch-Hole, 18 Inches 11 $\frac{1}{2}$ Lines.

From the Border of the Base Ring to the reinforc'd Ring, 2 Feet, 11 Inches 9 $\frac{1}{2}$ Lines in Length.

The Diameter of the reinforc'd Ring, 17 Inches 8 $\frac{1}{2}$ Lines.

From the Base Ring to the Trunnion, 4 Feet 5 Inches 4 Lines in Length, the Trunnions placed in the 4 Feet 5 Inches 4 Lines.

The Diameter of the big End of the Trunnion, 5 Inches 7 Lines $\frac{3}{4}$ of a Line, which is the Diameter of the Piece.

The Diameter of the small End of the Trunnion, 5 Inches 6 Lines $\frac{1}{3}$ of a Line, which is the Diameter of the Bullet.

The Length of the Trunnion, 5 Inches 7 Lines $\frac{3}{4}$ which is the Diameter of the Piece.

From the Border of the Base Ring to the Trunnion Ring, 7 Feet 7 Inches, 9 Lines in Length.

The Diameter of the Trunnion Ring, 16 Inches 4 Lines.

From the Border of the Base Ring to the Cornish Ring, 9 Feet in Length.

The Diameter of the Cornish Ring, 11 Inches.

From the Cornish Ring to the Mouth of the Piece, 12 Inches in Length, the Diameter of the Piece, 5 Inches 7 Lines $\frac{3}{4}$.

The Piece has in Length from the Mouth to the End of the Cassacable Deck 11 Feet, which is the Length of a brass Piece of the same Caliber.

Proportions for an Iron Piece of 18, for Land Service; which must weigh 4700 lb. or thereabouts.

The Length from the Border, or Edge of the Base-Ring to the Mouth of the Piece, 10 Feet.

From the Edge of the Base Ring to the End of the

the Caſſacabel Deck 11 ½ Inches in Length.

The Diameter of the Caſſacable Deck 7 Inches.

The Diameter of the Baſe Ring 17 Inches 11 Lines.

From the Bottom of the Bore to the Border or Edge of the Baſe Ring, the Thickneſs of the Metal is 7 Inches.

The Diameter at the Touch-Hole 17 Inches 3 Lines.

From the Edge of the Baſe Ring to the reinforc'd Ring, 2 Feet 11 Inches, 9 ½ Lines in Length.

The Diameter of the reinforc'd Ring, 16 Inches 2 Lines.

From the Edge of the Baſe Ring to the Trunnions, 4 Feet 5 Inches, 4 Lines in Length. The Trunnions muſt be placed within the 4 Feet 5 Inches and 4 Lines.

The Diameter of the big End of the Trunnion, 15 Inches 1 ½ Line which is the Diameter of the Piece.

The Diameter of the ſmall End of the Trunnion, 4 Inches 11 Lines and ¾, which is the Caliber of the Bullet of the Piece.

The Length of the Trunnion, 5 Inches 1 ½ Line, which is the Caliber of the Piece.

From the Edge of the Baſe Ring to the Trunnion Ring, 4 Feet 7 Inches, 9 Lines in Length.

The Diameter of the Trunnion Ring, 14 Inches 9 ½ Lines.

From the Edge of the Baſe Ring to the Corniſh Ring, 9 Feet in Length.

The Diameter of the Corniſh Ring, 10 Inches.

From the Corniſh Ring to the Mouth, 12 Inches in Length.

The Diameter of the Piece, 4 Inches 5 Lines ¾.

The Piece has from the Mouth to the End of the Caſſacabel Deck, 10 Feet 10 Inches 6 Lines in Length, which is the Length of a Braſs Piece of the ſame Caliber.

Proportions for an Iron Piece of 8 for Land Service, which muſt weigh 2700 lb. or thereabouts.

The Length from the Baſe Ring to the Mouth of the Piece, 9 Feet.

From the Edge of the Baſe Ring to the End of the Caſſacabel Deck, 10 Inches in Length.

The Diameter of the Caſſacabel Deck, 5 Inches 6 Lines.

The Diameter of the Baſe Ring, 14 Inches 3 Lines.

From the Bottom of the Bore to the Baſe Ring, the Thickneſs of the Metal is five Inches 6 Lines.

The Diameter at the Touch Hole, 13 Inches 3 ½ Lines.

From the Edge of the Baſe Ring to the reinforc'd Ring, 2 Feet 9 Inches in Length.

The Diameter of the reinforc'd Ring, 12 Inches 9 Lines.

From the Edge of the Baſe Ring to the Trunnions, 4 Feet in Length, the Trunnions muſt be placed in the 4 Feet.

The Diameter of the large End of the Trunnion, 3 Inches 11 Lines, which is the Diameter of the Piece.

The Diameter of the ſmall End of the Trunnion, 3 Inches 2 ½ Lines, which is the Caliber of the Bullet.

The Length of the Trunnion, 3 Inches 11 Lines, which is the Diameter of the Piece.

From the Edge of the Baſe Ring to the Trunnion Ring, 4 Feet 3 Inches in Length.

The Diameter of the Trunnion Ring, 11 Inches 10 Lines.

From the Edge of the Baſe Ring to the Corniſh Ring, 8 Feet 1 Inch 6 Lines in Length.

The Diameter of the Corniſh Ring, 9 Inches 10 Lines.

From the Corniſh Ring to the Mouth, 10 Inches 6 Lines in Length.

The Diameter of the Piece, 3 Inches 11 Lines.

From the Mouth of the Piece to the End of the Caſſacabel Deck, has in Length 9 Feet 10 Inches, which is the Length of a Braſs Piece of the ſame Caliber.

Proportions for an Iron Piece of 8, for Land Service, which muſt weigh 2000 lb. or thereabout.

The Length from the Edge of the Baſe Ring to the Mouth of the Piece, is 8 Feet.

From the Edge of the Baſe Ring to the End of the Caſſacabel Deck, 6 Lines in Length.

The Diameter of the Caſſacabel Deck, 5 Inches.

The Diameter of the Baſe Ring, 12 Inches 11 Lines.

From the Bottom of the Bore to the End of the Baſe Ring, the Thickneſs of the Metal is 5 Inches.

The Diameter at the Touch Hole, 11 Inches 11 Lines.

From the Edge of the Baſe Ring to the reinforc'd Ring, 2 Feet 5 Inches in Length.

The Diameter of the reinforc'd Ring, 11 Inches 4 Lines.

From the Edge of the Baſe Ring to the Trunnions, 3 Feet 6 Inches 8 Lines in Length; the Trunnions are placed in the 3 Feet 6 Inches 8 Lines.

The Diameter of the large End of the Trunnion, 3 Inches 6 ¾ Lines which is the Caliber of the Piece.

The Diameter of the ſmall End of the Trunnion, 5 Inches 5 ⅓ Lines, which is the Caliber of the Bullet.

The Length of the Trunnion, 3 Inches 6 ¾ Lines, which is the Diameter of the Piece.

From the Edge of the Baſe Ring to the Trunnion Ring, 3 Feet 8 Inches long.

The Diameter of the Trunnion Ring, 10 Inches 9 Lines.

From the Edge of the Baſe Ring to the Corniſh Ring, 7 Feet 2 Inches 6 Lines in Length.

The Diameter of the Corniſh Ring, 7 Inches 2 Lines.

From the Corniſh Ring to the Mouth, 9 Inches 6 Lines in Length.

The Diameter of the Piece, 3 Inches 6 ¾ Lines.

From the Mouth to the End of the Caſſacabel Deck, the Piece has in Length 8 Feet 9 Inches 6 Lines; which is the Length of a Braſs Piece of the ſame Caliber.

Proportions of an Iron Piece of 4, for Land Service, which muſt weigh 1500 lb. or thereabout.

The Length from the Baſe Ring to the Mouth of the Piece, 7 Feet.

From the Baſe Ring to the End of the Caſſacabel Deck, 9 Inches in Length.

The Diameter of the Caſſacabel Deck, 4 ½ Inches.

The Diameter of the Baſe Ring 11 Inches 2 Lines.

From the Bottom of the Bore to the End of the Baſe Ring, the Thickneſs of the Metal, 7 Inches 6 Lines.

The Diameter at the Touch Hole, 10 Inches 5 Lines.

From the Edge of the Baſe Ring to the reinforc'd Ring, 2 Feet 1 Inch 6 Lines in Length.

The Diameter of the reinforc'd Ring, 9 Inches 9 Lines.

From the Edge of the Baſe Ring to the Trunnions, 3 Feet 1 Inch 4 Lines in Length; the Trunnions placed in the 3 Feet 1 Inch 4 Lines.

The Diameter of the large End of the Trunnion, 3 Inches 1 Line ⅓, which is the Caliber of the Piece.

The Diameter of the ſmall End of the Trunnion, 3 Inches, which is the Caliber of the Bullet.

The Length of the Trunnion, 3 Inches 1 Line ⅓, which is the Caliber of the Piece.

From the Edge of the Baſe Ring to the Trunnion Ring, 3 Feet 3 Inches long.

The Diameter of the Trunnion Ring, 9 Inches 2 Lines.

From the Edge of the Baſe Ring to the Corniſh Ring, 6 Feet 4 Inches in Length.

The Diameter of the Corniſh Ring, 6 Inches 2 Lines.

From the Corniſh Ring to the Mouth of the Piece, 8 Inches in Length.

From the Mouth to the End of the Caſſacabel Deck, the Piece has in Length 7 Feet 9 Inches, which is the Length of a Braſs Piece of the ſame Caliber.

The Diameter of the Caliber of the Piece, 3 Inches 1 Line ⅓.

The Furnace to caſt theſe above-mention'd Iron Pieces, muſt be 24 Feet high, more or leſs, and its Sides muſt be equal with two arch'd Roofs, one on one Side for the Bellows, and the other to work at the Furnace, on which Side is built the Work, in the Middle of

of the Furnace, 18 or 20 Inches broad, and 36 or 40 Inches long.

Above the Furnace there is an Augmentation of Masonry, 4 Feet or thereabout high, and 25 or 30 Inches of Diameter inside, called the *Guider*.

To melt the Metal in this Furnace, they begin to fill it with Charcoal, over which they throw a certain Quantity of Iron Mine; and when the Coal has lowered 5 or 6 Feet, they throw in more Coal, and over it more Mine, always increasing the Quantity of the Mine, till the Workmen find that the Fire of the Furnace can bear no more.

A single Furnace can't contain more Iron in the Work, than what is necessary to cast a Piece of 8.

Two Furnaces to cast a Piece of 12, 16, or 18.
Three Furnaces to cast a Piece of 24.
Four Furnaces to cast a Piece of 36, or of 48.

Besides the large Pieces mention'd throughout this Treatise, invented for the Destruction of Mankind, there are others called small Guns, *viz. Muskets of Rampart, Common Muskets, Fusils, Carabines, Musketoons*, and *Pistols*.

A *Musket*, or *Musquet*, is a Fire-Arm borne on the Shoulder, and used in War, formerly fir'd by the Application of a lighted Match, but at present with a Flint and Lock.

The *Common Muskets* are of the Caliber of 20 Leaden Balls to the Pound, and receive Balls from 22 to 24: Its Length is fix'd to 3 Feet 8 Inches from the Muzzle to the Touch-Pan.

Muskets were antiently borne in the Field by the Infantry; at present they are little used save in the Defence of Places.

A *Fusil*, or *Fire-lock*, has the same Length and Caliber; and serves at present instead of a Musket.

A *Carabine*, is a small Sort of Fire-Arm, shorter than a Fusil, and carrying a Ball of 24 in the Pound; borne by the Light-Horse, hanging at a Belt over the left Shoulder.

The *Carabine* is a Kind of Medium between the Pistol and the Musket; and bears a near Affinity to the Arquebuss, only that its Bore is smaller. It was formerly made with a Match Lock, bnt of late only with a Flint Lock.

The Barrel is two Foot and a half long, and is sometimes furrow'd spirally within, which is said to add to the Range of the Piece.

The *Musquetoon* is of the same Length of the Carabine, the Barrel polished and clean within.

Those of the Life-Guards of the King of *France*, are very fine damaskeen'd with Gold, *&c.*

The *Musquetoon* carries five Ounces of Iron, or seven and a half of Lead, with an equal Quantity of Powder.

The Barrel of a Pistol is of 14 Inches long.

Note, That *Larry* makes Brass Cannon the Invention of *J. Owen*, and says, the first known in *England* were in 1533. Cannons, however, he owns were known before; and observes, that at the Battle of *Cressi* in 1346, there were five Pieces of Cannon in the *English* Army, which were the first that had been seen in *France*: *Mezeray* adds, that King *Edward* struck Terror in the *French* Army, by five or six Pieces of Cannon; it being the first Time they had seen such thundering Machines.

Note, also, That the Invention of Gunpowder, is ascribed by *Polidore Virgil* to a Chymist, who having accidentally put some of this Composition in a Mortar, and covered it with a Stone, it happened to take Fire and blew up the Stone. *Thevet* says, the Person here spoke of, was a Monk of *Fribourg*, named *Constantine Anelzui*, but *Bellforet* and other Authors, with more Probability hold it to be *Bartholdus Shwartz*, or the Black: At least it is affirmed he first taught the Use of it to the *Venetians* in the Year 1380, during the War with the *Genoese*; and that it was first employ'd in a Place called *Fossa Clodia*, now *Chioggia*, against *Laurence de Medicis*; and that all *Italy* made Complaints against it, as a manifest Contravention of a fair Warfare. But what contradicts this Account, and shews Gunpowder of an older Æra is, that *Peter Mexia* in his *Various Readings*, mentions, that the *Moors* being besieged in 1343, by *Alphonsus* XI. King of *Castille*, discharged a sort of Iron Mortars upon them, which made a Noise like Thunder; which is seconded by what *Don Pedro* Bishop of *Leon*, relates in his Chronicle of King *Alphonsus*, who reduced *Toledo*, *viz.* that in a Sea Combat between the King of *Tunis* and a *Moorish* King of *Seville*, above 400 Years ago, those of *Tunis* had certain Iron Tuns or Barrels wherewith they threw Thunderbolts of Fire.—*Du Cange* adds, that there is mention made of *Gunpowder* in the Registers of the Chamber of Accounts in *France*, as early as the Year 1338.

The antient Instruments of War were the *Aries*, *Catapultæ*, &c.

Aries, or *Battering Ram*, was an Engine with an Iron Head, much in Use among the Antients to batter and beat down the Walls of Places besieged.

Of this there were three Kinds; the first, rude and plain, the others artificial and compound.

The first seems to have been no more than a great Beam, which the Soldiers bore in their Arms, and with an End of it, by main Force assailed the Walls. This required a great Force to work it, yet produced but a a small Effect.

The second, or *Compound Ram*, is described by *Josephus* (*de excid. Hierosol.* 3.) thus; 'The Ram is a vast 'long Beam like the Mast of a Ship, strengthned at one 'End with a Head of Iron, something resembling that 'of a Ram, whence it took its Name. This is hung 'by the Middle with Ropes to another Beam, which 'lies across a couple of Posts; and hanging thus equally 'ballanced, is by a great Number of Men violently 'thrust forwards, and recoiled backwards, and so shake 'the Wall with its Iron Head, nor is there any Tower 'or Wall so thick or strong, as to resist the repeated 'Assaults of this forcible Machine.'

The third only differed from the former in that it was covered with a χελωνη, or Skreen to guard the Soldiers, whence it is also called *Testudo Arietaria*.

M. *Fellibien* describes a fourth Sort of *Battering Ram*, which runs on Wheels, and was the most perfect and effectual of them all.—*Vitruvius* affirms, that the Battering Ram was first invented by the *Carthaginians*, while they laid Siege to *Cadiz*; there was the simple Kind above-mentioned, *Pephasmenos* a *Tyrian*, contrived to suspend it with Ropes; and *Polydus* the *Thessalian*, to mount it on Wheels at the Siege of *Byzantium*, under *Philip* of *Macedon*. Yet *Pliny* assures us the Ram was invented at the Siege of *Troy*; and it was this gave Occasion to the Fable of a wooden Horse.

The Engine opposed to the *Ram* was called *Lupus*, the Wolf.—*Plutarch* tells us, that *Mark Antony*, in the *Parthian* War, used a Ram of 80 Feet long; and *Vitruvius* assures us they were sometimes made 106, and sometimes 120 Feet long, to which perhaps, the Force of the Engine was in a great measure owing.

The *Ram* was managed at once by a whole Century of Soldiers, so that it played continually, and without intermission; being usually covered with a Vinea to protect it from the Attempts of the Enemy.

The Vinea was a kind of Mantelet, or moveable Parapet, built slighter, and yet larger than ours, being eight or nine Feet high, as many broad, and sixteen long: They were defended by a double Covering, the one of Boards, the other of Faggots, with the Ribs of Osiers, and cased without with Skins steeped in Water, to prevent Fire; for in Process of Time a certain Composition of Combustibles was invented, called *Greek Fire*, or *Feu Gregois*, because first used by the *Greeks*, to burn those Machines.

The Composition was made of Sulphur, Naphtha, Pitch, Gum, and Bitumen; and was only extinguishable by Vinegar mixed with Sand and Urine, or with raw Hides.

Its Motion of Tendency is said to be contrary to that of

of natural Fire, and always follows the Direction in which it is thrown; whether it be downwards, sideways, or otherwise.

The Jesuit *Patavius* ascribes the Invention of it to an Engineer of *Heliopolis* in *Syria*, named *Callinicus*, who first applied it in the Sea Fight, commanded by *Constantine Pogonates* against the *Saracens*, near *Cyzicus* in the *Hellespont*; and with such Effect, that he burnt the whole Fleet therewith, wherein were 30,000 Men.

But others will have it of a much older Date, and hold *Marcus Gracchus* the Inventor; which Opinion is supported by several Passages, both in the *Greek* and *Roman* Writers, which shew it to have been antiently used by both those Nations in the Wars.

Constantine's Successors used it on divers Occasions, with equal Advantage as himself; and what is remarkable is, that they were so happy as to keep the Secret of the Composition to themselves, so that no other Nation knew it in the Year 960.

Hugh King of *Burgundy*, demanding Ships of the Emperor *Leo* for the Siege of *Fresne*, desired likewise the *Greek Fire*.

F. *Daniel* gives us a good Description of the *Greek Fire*, in his Account of the Siege of *Diametta* under St. *Louis*.—Every Body, says that Author, was astonished with the *Greek Fire*, which the *Turks* then prepared; and the Secret whereof is now lost: They threw it out of a kind of Mortar; and sometimes shot it with an odd sort of Cross-Bow, which was strongly bent by means of a Handle or Winch, of much greater Force than the bare Arms. That thrown with the Mortar, sometimes appeared in the Air of the Size of a Tun, with a long Tail, and a Noise like that of Thunder. The *French* by degrees got the Secret of extinguishing it, in which they succeeded several Times.

The CATAPULTA, was a Machine us'd for throwing huge Stones, and sometimes large Darts, and Javelins 12 or 15 Feet long on the Enemy.

The *Catapulta* is said to be the Invention of the *Syrians*. Some Authors make it the same with the *Ballista*, others different.

Marcellinus describes the BALLISTA thus: A round Iron Cylinder is fastened between two Planks, from which reaches a hollow square Beam placed cross-ways, fastened with Cords, to which are added Screws; at one End of this stands the Engineer, who puts a wooden Shaft with a big Head into the Cavity of the Beam; this done, two Men bend the Engine by drawing some Wheels: When the Top of the Head is drawn to the utmost End of the Cords, the Shaft is driven out of the *Ballista*, &c.

The SCORPION was also a military Machine of the Antients, used chiefly in the Defence of Walls, &c.

Marcellinus describes the *Scorpion*, as consisting of two Beams bound together by Ropes: From the Middle of the two rose a third Beam, so disposed as to be pulled up and let down at Pleasure; and on the Top of this were fastened Iron Hooks, where was hung a Sling, either of Iron or Hemp. Under the third Beam lay a Piece of Hair-Cloth full of Chaff tied with Cords.

To use the Engine, a round Stone was put into the Sling, and four Persons on each Side, loosening the Beams bound by the Ropes, drew back the erect Beam to the Hook; when the Engineer standing on an Eminence, giving a Stroke with a Hammer, on the Cord to which the Beam was fastened with its Hook, set it at Liberty; so that hitting again the soft Hair-Cloth, it struck out the Stone with a great Force.

It has its Name *Scorpion*, because when the long Beam or Tillar was erected, it had a sharp Top in manner of a Sting—More modern Times have given it the Name of *Onager*, wild Ass, because that Animal when hunted flings back Stones.

The TESTUDO, *Tortoise*, was a kind of Cover, or Skreen, which the Soldiers, *e.gr.* a whole Company made themselves of their Bucklers, by holding them up over their Heads, and standing close to each other, this Expedient served to shelter them from Darts, Stones, &c. thrown upon them, especially those thrown from above, when they went to the Assault.

Testudo was also a kind of large wooden Tower which moved on several Wheels, and was covered with Bullocks Hides flead, serving to shelter the Soldiers when they approached the Walls to mine them, or to batter them with Rams. It was called *Testudo* from the Strength of its Roof, which covered the Workmen as the Shell does the Tortoise.

There were also movable *Towers of Wood* mounted on Wheels, to set the Besiegers on a level with the Walls, and drive the Besieged from under the same. These *Towers* were sometimes 20 Stories, and 30 Fathom high; they were covered with raw Skins, and 100 Men employ'd to move them.

HAT-MAKING.

HAT-MAKING, is the Art of preparing, mixing, and working together, either Wool, or Hair of divers Animals, particularly the Castor, Hare, Coney, Camel, &c. in order to make of it a Covering and Ornament for the Head.

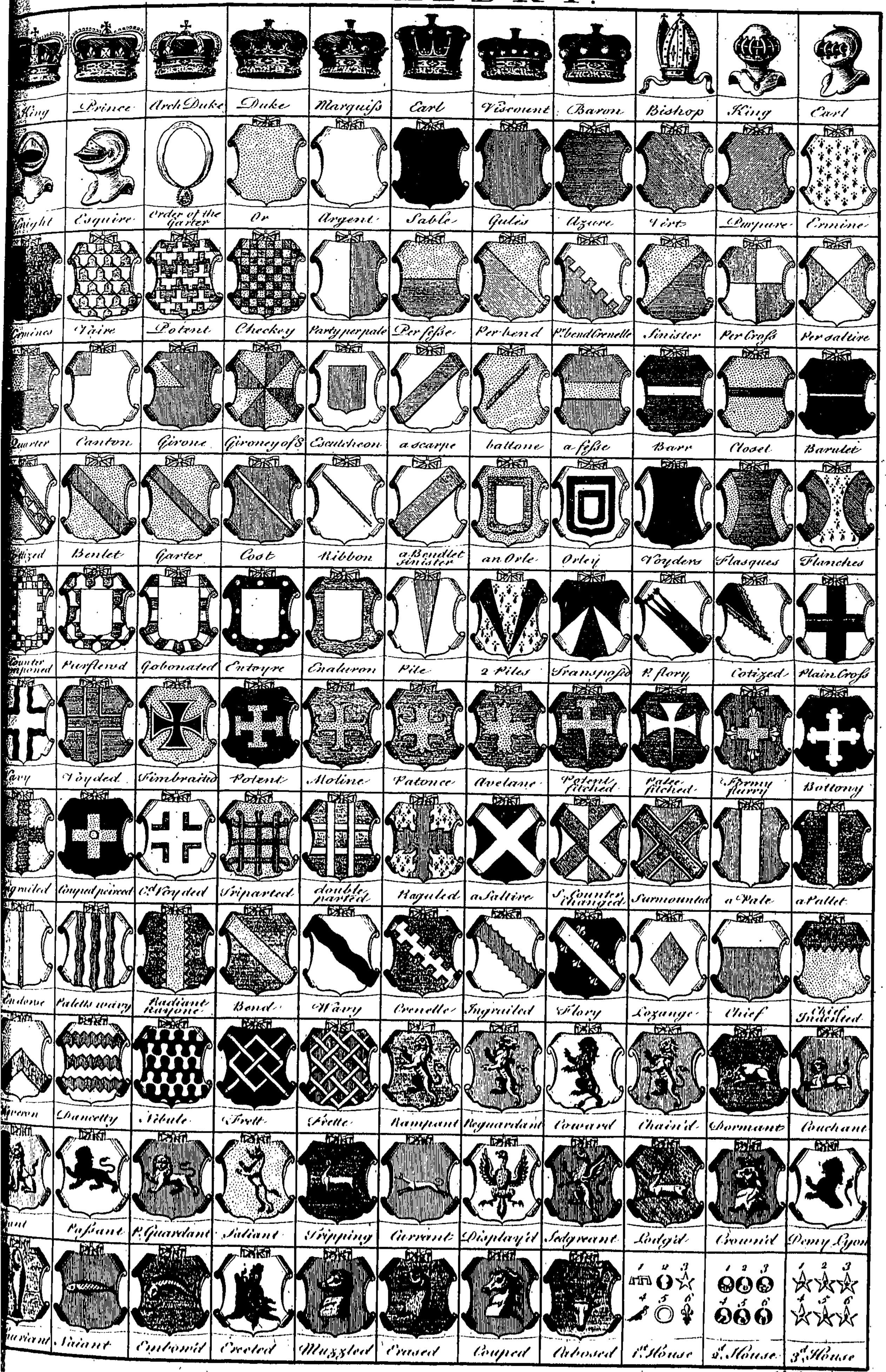
Note, That before we can proceed in this Undertaking, we must fit our Shop with all the Tools, &c. proper for the Business, *viz.* with *two Sorts of Knives*, large ones in the Shape of a Shoemaker's Knife, to cut the long Hairs; and smaller, not unlike a Vine-knife, to shave or shape off the shorter Hair.—*Cards*, like those used in the Woollen Manufactury, only finer, to card the Hair withal.—A *Hurdle*, which is a square Table parallel to the Horizon, having longitudinal Chinks cut through it.—A *Bow*, resembling that of a Violin, but larger; whose String is worked with a little Bow-stick, or a *Sieve*, or Searce of Hair, which some *Hatters* make use of in lieu of a *Bow*, and through which they pass the Stuff.—A *hardening Skin*.—A *Bason*, which is a sort of Bench, with an Iron Pan fitted therein.—*Moulds* of different Sizes.—A *Receiver* or Trough, resembling a Mill-hopper, going sloping or narrowing down from the Edge or Rim to the Bottom, which is a Copper Kettle filled with Water, and Grounds kept hot; a wooden Roller.—A *Commander*, which is a Piece of Packthread to tie the Crown of the *Hat* round the wooden Block,—A *Stamper*, which is a Piece of Iron or Copper, bent.—*Pumice*,—*Seal-Skin*.—An *Oven* or *Stove*, where the *Hats* are dried.—A *Steaming-Bason*, which is a little Hearth or Fire-place, raised three Feet high, with an Iron Plate laid over it, exactly covering the Earth.—A *Stall-Board*.—*Irons* like those used in ironing Linnen.—*Brushes*, *Scissars*, &c.—Besides these a *Hatter* must have a good Provision of Wool and Castor, Hare, Coney, Camels, &c. Hair; *old Coats*, &c.

Provided with all these Implements, we'll go to work to *make Hats*; and as the Process is much the same in all, we shall content ourselves, for Instance, with making *Castors*, as the finest. Observing previously to it, that the Skin of this Animal is set with two Kinds of Hair, the one long, stiff, glossy, and pretty scarce, and the other, short, thick, and soft, which alone is used in *Hats*.

We'll begin by setting the Women we employ to work, with the Knives above-mentioned, using the largest to tear the long Hair off the Skin; and the smaller to shave and scrape off the shorter Sort.

The Hair being off we'll mix the Stuff, to one Third of dry Castor, putting two Thirds of *old Coat*, i. e. Hair which have been wore some Time by the Savages;

HERALDRY.



B Cole sculp

vages; and cause the whole to be well carded.

This done, we'll weigh it, and take more or less, according to the Size or Thickness of the *Hat* intended. The Stuff is now laid on the Hurdle, where it is flayed and mixed together with the Bow, the Dust and Filth, at the same Time passing through the Chinks. This is reckoned by *Hatters*, one of the most difficult Operations of the whole; by Reason of the Justness requir'd in the Hand, to make the Stuff fall precisely together, and that it may be every where of the same Thickness.

After this Manner we'll form *Gores*, or two *Capades*, of an oval Form, ending in an acute Angle a-top; and with what Stuff remains, we'll supply and strengthen them in Places where they happen to be slenderer than ordinary. Though we must remember, that they are to be made thicker in the Brim, near the Crown, than towards the Circumference, or in the Crown itself.

The *Capades* thus finished, we go on to harden them into closer, more consistent Flakes, by pressing down our hardening Skin, or Leather thereon. This done, we'll carry them to the Bason, upon which we'll lay one of the harden'd *Capades*, sprinkling it over with Water, and applying a Mould thereon. The Heat of the Fire with the Water and pressing, unbody the Stuff into a slight hairy Sort of Stuff or Felt: After which, turning up the Edges all around over the Mould, we'll lay it by, and thus proceed to the other.

This finished, we'll next join the two together, so as to meet in an Angle a-top, and only form one conical Cap, after the Manner of a *Manica Hypocrates*.

The *Hat* thus bason'd, we'll remove it to our Receiver or Trough, laying it on the Descent or sloping Side of the Trough, called the *Plank*, having first dipped it in it. And here we'll proceed to work it, by rolling and unrolling it again and again, one Part after another, first with the Hand, and then with a little wooden Roller; taking Care to dip it from Time to Time; till at length by thus fulling and thickening it, four or five Hours, it is reduced to the Extent or Dimensions of the *Hat* intended. To secure the Hands from being injured by this frequent rolling, *&c.* we'll guard them with a Sort of thick Glove.

The *Hat* thus wrought, we'll proceed to give it the proper Form, by laying the conical Cap on a wooden Block of the intended Size of the Crown of the *Hat*; and thus tie it round with the *Commander*, which we'll beat and gradually drive down all around with the Stamper, till it has reached the Bottom of the Block; and thus will the Crown be formed, what remains at the Bottom, below the String, being the Brim.

The *Hat* being now set to dry, we'll proceed to singe it, by holding it over a Flair of Straw, or the like; then pounce or rub it over with Pumice, to take off the coarser Nap; then rub it over afresh with Seal-Skin, to lay the Nap still finer; and lastly, card it with a fine Card, to raise the fine Cotton, with which the *Hat* is afterwards to appear.

Things thus far advanced, the *Hat* will be sent upon its Block, and tied about with Packthread, as before, to be dyed.

The Dyer's Copper is usually very large, holding 10 or 12 Dozen *Hats*. The Dye or Tincture is made of Logwood, Verdigrease, Copperas, and Alder-Bark, to which some add Galls and Sumack. Here the *Hat* is kept boiling for about three Quarters of an Hour; then taken out and set to cool, and then return'd to the Dye, and this for 10 or 12 Times successively.

The Dye being compleat, the *Hat* will be return'd to us *Hatters*; and then we'll proceed to dry it, by hanging it in the Top or Roof of our Stove or Oven; at the Bottom of which is a Charcoal Fire.

When dry, we'll stiffen it with melted Glue, or Gum Seneca, which we'll apply thereon by smearing it, and beating it over with a Brush, and then rubbing it with the Hand. Next we'll steam it, on the steaming Bason, by first spreading Cloths upon it, sprinkled over with Water to keep the *Hat* from burning, then placing the *Hat* Brim downwards thereon.

When moderately hot, we'll strike it gently on the Brim with the Flat of our Hand to make the Jointings incorporate and bind; turning it from Time to Time, this Way and that Way, and at last overturning and setting it on the Crown.

When steamed sufficiently and dried, we'll put it again off the Block, brush it, and iron it on our Stall-board; rubbing each Part of the *Hat* over and over with the Iron, which with the Assistance of the Brush, smoothens and gives it a Gloss, and which is the last Operation; nothing now remaining but to clip the Edges even with Scissars, and sew a Lining into the Crown.

Hats are said to have been first seen about the Year 1400; at which Time they became of Use for Country-wear, Riding, *&c.* F. *Daniel* relates, that when *Charles* II. made his publick Entry into *Rouen*, in 1449, he had on a *Hat* lin'd with red Velvet, and surmounted with a Plume, or Tuft of Feathers. He adds, that it is from this Entry, at least under this Reign, that the Use of *Hats* and Caps is to be dated, which henceforward began to take Place of the Chaperoons and Hoods, that had been wore before.

In Process of Time, from the Laity, the Clergy likewise took the Habit. But it was look'd upon as a crying Abuse, and several Regulations were published, forbidding any Priest, or religious Person, to appear abroad with a *Hat*, without Cornets; and enjoining them to keep to the Use of Chaperoons, made of black Cloth, with decent Cornets: If they were poor, they were at least to have Cornets fasten'd to their *Hats*, and this upon Penalty of Suspension and Excommunication. Indeed the Use of *Hats* is said to have been of a longer Standing among the Ecclesiasticks of *Britanny*, by 200 Years, and especially among the Canons; but these were no other than a Kind of Caps; and it was from hence arose the square Caps wore in Colleges, *&c.*

Lobineau observes, that a Bishop of *Dol*, in the twelfth Century, zealous for good Order, allowed the Canons alone to wear such *Hats*, enjoining, that if any other Person should come with them to Church, divine Service should immediately stand still.

Formerly, none but the *French* knew very well how to make *Hats*, and it is but of late Years that the *English* come near to them in that Manufacture; for within these few Years they were rather a Burden to the Head than a Covering; and had not that Softness, fine Gloss they have at present; there was as much Stuff in one as could have made two, and were too much loaded with Stiffning; which when the *Hat* had been wore a little while, appear'd on the *Hat* as if it had been dipped in Tar; at present they have none of those Faults, for they are light, flexible, gloffy, and have a very smooth and fine Nap.

HERALDRY.

HERALDRY, is the Art of Armoury and Blazoning; or the Knowledge of what relates to the bearing of Arms, and the Laws and Regulations thereof.

Arms or *Armories*, are Marks of Dignity and Honour, regularly composed of certain Figures and Colours, given or authorized by Sovereigns, and bore in Banners, Shields, Coats, *&c.* for the Distinction of Persons, Families, and States, and passing by Descent to Posterity.

They are called *Arms*, in Regard they are bore principally on the Buckler, Cuirasse, Banners, and other Apparatus of War; and by the English *Coats of Arms*, *Coat Armour*, &c. because antiently embroider'd on a Cloak

Cloak or Habit, worn by the antient Knights over their Arms, both in War and at Tournaments; and ſtill borne by the Heralds at Arms.

It was a Kind of Surcoat, reaching only as low as the Navel, open at the Sides, with ſhort Sleeves; ſometimes furred with Ermins and Vair, wherein were applied the Armories of the Knight, embroidered with Gold and Silver, and enamelled with beaten Tin, colour'd black, green, red, and blue; whence the Rule never to apply Colour on Colour, nor Metal on Metal.

The *Coats of Arms* were frequently open, and diverſified with Bands and Fillets of ſeveral Colours, alternately placed, as we ſtill ſee Cloths ſcarleted, watered, *&c.* Hence they were alſo called *Divices* or *Diviſes*, and being divided, or compoſed of ſeveral Pieces, ſewed togegether, whence the Words *Feſſe*, *Pale*, *Chevron*, *Bend*, *Croſs*, *Salter*, *Lozenge*, &c. which have ſince become honourable Pieces, or Ordinaries of the Shield.

The Surcoat being embroider'd with Gold and Silver, was the Occaſion that thoſe two Metals have been ſince placed in the Coats of Arms, under their *French* Name of *Or* and *Argent*; and there being colour'd *black*, *green*, *red*, and *blue*; that thoſe different Colours have alſo been introduced in them: Therefore,

There are two Metals in *Heraldry*, viz. *Or* and *Argent*; and ſeven Colours, which are *Gules*, *Azure*, *Sable*, *Vert*, *Purpure*, *Tenne*, and *Sanguine*.

Or, in the Coats of Arms is painted Yellow, and repreſented in Engraving by ſmall Points or Dots, all over the Field, or Bearing, as in our Table of *Heraldry*.

In the Coats of Nobles it is called *Topaz*; and in thoſe of ſovereign Princes *Sol*; but this Diſtinction is only made by the *Engliſh* Heralds; for the *French*, who are accounted the beſt ſkilled in this Art, give it no other Name, than its own proper one, *viz. Or*.

Without this, or *Argent*, there can be no good Armory; and it is accounted the Symbol of Wiſdom, Temperance, Faith, Force, Conſtancy, *&c.*

Argent, a *French* Word, likewiſe, from the *Latin Argentum*, Silver; is painted White in the Eſcutcheons, and expreſſed in Engraving, by the Parts being left plain, without any Strokes from the Graver, as in our Table.

The *French* when they blazon an Eſcutcheon, give it no other Name; but the *Engliſh* obſerve the ſame Diſtinction in this, as in *Or*, and call for Barons and all Nobles, the white Colour *Pearl*; and for ſovereign Princes, *Luna*.

In the Doubling of Mantles, where the White is ſuppoſed to repreſent a Fur, and not a Metal, it may be blazon'd White.

Gules (which among Colours I place the firſt, as the moſt honourable) is painted Red; and in Engraving expreſſed by perpendicular Strokes, drawn from the Top of the Eſcutcheon to the Bottom.

Note, That the Word is alſo in *French Gueule*, which F. *Monet* derives from the *Hebrew Gulud*, and *Guludit*, a reddiſh Pellicle or Skin appearing on a Wound when it begins to heal; but F. *Meneſtrier* reproaches him, that there are no ſuch Words in the *Hebrew* Tongue. This however is not ſtrictly true: All the Eaſtern Languages, the *Hebrew*, *Chaldee*, *Syriack*, and *Arabs* ſay גלד, for *Cutis*, *Pellis*; whence the *Arabick Gulud*. And in the general, the Word *Gules* ſignifies Red among moſt of the oriental Nations: The *Arabs* and *Perſians* give the Name to the Roſe. Others, with *Nicod*, derive the Name *Gules* from *Gula*, the Throats of Animals being generally Red; or from the *Latin Cuſculicem*, which is the κοκκος of the *Greeks*.

Gules is reputed a Symbol of Charity, Valour, Hardineſs, Generoſity, and repreſents Blood Colour, Cinnabar, and true Scarlet. Antiently it was prohibited any Perſon to wear *Gules* in his Coat Armour, unleſs he was a Prince, or had Permiſſion from the Prince.

Spelman, in his *Aſpologia*, ſays this Colour was particularly honoured by the *Romans*, as it had been before by the *Trojans*, and that they painted the Bodies of their Gods, and of their Generals that triumphed, with Vermillion. Under the Conſuls, the *Roman* Soldiers wore Red, whence they were denominated *Ruſſati*. *Joan. de Bado Aureo* adds, that the red Dye, which the *Greeks* called *Phœnician*, and we *Scarlet*, was firſt uſed by the *Romans*, to prevent the Blood being ſeen to iſſue from Wounds in Fight.

In Effect, *Gules* has always been eſteem'd an imperial Colour; the Emperors were cloathed, ſhod, and had their Apartments furniſhed with Red: Their Edicts, Diſpatches, Signatures, and Seals, were of red Ink, and red Wax; whence the Name *Rubricks*. The *Engliſh* ſpeak thus in Praiſe of *Gules*, it being the Field of the Arms of *England*.

Azure, the ſecond Colour, is painted Blue; and in Engraving is repreſented by Strokes or Hatches drawn horizontally, as in our Table.

The *French* prefer this Colour to all others, by Reaſon the Field of the Arms of their Kings is *Azure*; though I cannot imagine why there ſhould be any Diſputes on that Subject; ſince it is the illuſtrious Blood of the Perſon which renders his Arms noble, and not the Arms which add any Thing to the Quality of the Perſon; ſince the Art of Blazoning had no other Rules at firſt, but the Imagination or Fancy of its Inventors.

Sable, the third Colour, is painted black; and expreſſed in Engraving by perpendicular and horizontal Hatches drawn a croſs each other, as repreſented in our Table.

Vert, the fourth Colour, is painted green; and in Engraving is expreſſed by Diagonals, or Lines drawn athwart from Right to Left, from the dexter chief Corner to the ſiniſter Baſe; as in our Table.

In lieu of *Vert* the *French* Heralds uſe *Sinople* or *Synople*; which is expreſſed in the ſame Manner, both in Painting and Engraving as the Engliſh *Vert*, which *Vert* is alſo a *French* Word ſignifying *Green*.

Note, That *Vert* or *Synople*, is ſuppoſed to ſignify Love, Youth, Beauty, Rejoycing and Liberty; whence it is that Letters of Grace, Abolition, Legitimation, *&c.* are uſed to be ſealed with green Wax.

Purpure, or Purple, the fifth Colour, is a Compound of *Gules* and *Azure*, bordering on Violet, it is painted in its natural Colour, and repreſented in Engraving by diagonal Lines drawn from the ſiniſter Chief to the dexter baſe Point, as in our Table.

Purple, is ſuppoſed a Symbol of Temperance, Liberality, Dignity, Authority, Faith, and Piety.—Moſt Authors in *Heraldry*, as *Faven*, *Geliot*, *Monet*, and *Meneſtrier*, do not allow Purple for a Colour, in regard it is not ſimple, but compoſed of an equal Mixture of four other Colours.—They rather eſteem it a kind of intermediate Tincture, ſometimes Metal, and ſometimes Colour: Hence the *Spaniards* call it *una miſtion*; ſo that one cannot lay it on Metal and Colour without falſifying the Arms.

Add, that many take the *Purple*, as it is accounted on many antient Bearings, by which ſome of the Moderns would evince the Regularity and Legitimacy of this Colour in Armory, to be no other than Silver tarniſhed.

Spelman however, in his *Aſpilogia*, allows Purple the Preference before all other Colours, as having been an Enſign of Royalty for many Ages; yet he allows it to have been excluded by the antient Heralds as only an imperfect Colour.

Tenne, Tenny, or Tawny, is a bright Colour made of red and yellow mixed, ſometimes alſo called Bruſk, and expreſſed in Engraving by thwart or diagonal Strokes or Hatches, beginning from the ſiniſter Chief, like Purpure.

This Colour is not known in the *French Blazon*; neither can it be properly ranked among the genuine Colours.

Sanguine, is the Colour uſually called *Murrey*; being made of red Lake, tinged with a little *Spaniſh* Brown.

It is repreſented in Engraving by tranſverſe Hatches like Purpure, and is moſtly uſed in the Coats of Knights of the Bath.

This Colour is not better known in the French *Blazon* than

than the Tenne; and the *French* Heralds reject them both as no Colour at all.

Having thus given a true Description of the *Metals* and *Colours* used in *Heraldry*, I'll put some of them in an Escutcheon for the Field of a Coat of Arms.

But what do I call an ESCUTCHEON? An *Escutcheon* is a Shield or Coat, wherein the Bearing or Arms of any Person is represented, and is of a square Figure, excepting the bottom Part, which is usually a little rounded, ending in a Point in the Middle.

Note, That the Word *Escutcheon* is formed of the French *Ecusson*, and that from the Latin *scutum*, Shield; which was the Place, Arms were originally bore on, before ever they came in Banners; and still wherever they are placed, it is on something representing the Form of a Shield.—The Latin *scutum*, no doubt, came originally from the Greek Σκῦτος *Leather*, wherewith the Shields were usually covered.

Till within a few hundred Years the *Escutcheons* of the *French* and *English* were triangular: Those of the *Spaniards* are still quite round at Bottom without any Point: Those of the *Italians* are oval; and those of the *Germans* in Form of Cartoozes.

The antient *Escutcheons* were generally couched or inclin'd; and they only began to place them upright, when Crowns, *&c.* were put over them by Way of Crest.

In *France*, *Ecusson*, *Escutcheon*, was formerly restrained to a Shield, or Coat pointed at Bottom; by which it was distinguished from the *Ecu*, which was quite square, and was only allowed to be bore by the Counts and Viscounts. Those of inferior Quality were confin'd to the Escussion, or pointed Escu.

The several Parts or Points of the *Escutcheon* have their several Names, *viz.* the *Dexter Chief Point*; the *middle Chief*; and the *Sinister Chief Point*; the *Honour Point*; the *Fesse Point*; the *Nombril Point*; the *Dexter Base*; the *Middle*, and the *Sinister Base* Point.

The *Escutcheon* is diversly denominated, according to its Divisions. It is called *Dextered*, when the perpendicular Line that divides it, is to the Right of a third Part of the *Escutcheon*; *Sinistered*, when on the Left; *tierced in pale*, when this Line is double, and divides the *Escutcheon* into three equal Parts; *Paled*, when increased to the Number of six, eight, or ten. A horizontal Line makes the Chief, when at a third Part from the Top; the *Plein*, when at a third Part from the Bottom; and when double, in the Middle, at an equal Distance from both Extremes, it makes the *Fess*, and the *Tierced in Fess*; when it is multiplied, it denominates it *fessed*; when there are 8 or 10 equal Spaces, *Burelle*; a Diagonal from the dexter Point of the Chief, to the sinister of the Base, makes it *Tranché*; the contrary, *double*. If it be double at equal Distances, the first makes *Bandé*, and the *Tierce in bende*, and the other *Barré*, or *Tierce in Bar*; increasing the Number of the first makes *Bandé* and *Cotticé*; and increasing that of the second, *Barré* and *Traversé*.

There is also *Escutcheon of Pretence*, which is an *Inescutcheon*, or little *Escutcheon*, which a Man who has married an Heiress, and has Issue by her, may bear over his own Coat of Arms; and in it the Arms of his Wife; and the surviving Issue will bear both Coats quarterly.

The Surface, or Face of the *Escutcheon*, is called the FIELD, because it contains the Atchievements antiently acquir'd in the Field of Battle, *e. gr.* the Field in the Coat of Arms of *England*, is *Gules*; in that of *France*, *Azure*, &c. which Field is always named in Blazoning, before any other Part of the *Escutcheon*, *viz.* in Blazoning the Kings of *France* Coat of Arms, we say Azure with three Flower de luces, or two in Chief and one in Point: The most modern Heralds, two and one.

The Field being laid, we'll charge it with some Pieces, observing that all common Charges, or Bearings, are born *in*, *upon*, *within*, or *between*, *Chief*, *Pale*, *Saltier*, *Chevron*, *Cross*, *Canton*, *Fess*, *Gyron*, *Pile*, *Escutcheon*, *Bordure*, or *Orle*.

Counter-Charges of Colour or Metal, is when a Field is divided by a single Line, and the Charge exchanges Colour as it goes over both.

There are different Lines in the *Escutcheon*, as *right*, *crooked*, *engrailed*, *invecked*, *waived*, *crenelled*, or *embattled*, *nebulee*, or *cloudy*, *indented*, and *dancetee*.

A *right Line* is carried equally throughout the *Escutcheon* without rising or falling.

A *crooked Line* is either *bunched* or *corner'd*, which crooked Line is the Origin of all the following ones, *viz.*

ENGRAILED, or INGRAILED (from the *French Grefle*, Hail) is when a Thing is represented with its Edges ragged, or notched circularly, as if broke by something falling on it.

It differs from *indented*, in that the Breaches there are all in strait Lines, but here semi-circular; and from *invected*, in that the Points of the little Arches are turn'd inwards towards the Middle of the Field; which is invected are turn'd outwards. *Spelman* expresses it in *Latin*, by *Imbricatus*, others by *Ingrediatus*, and others by *Striatus*.

INVECTED, denotes a Thing flatted or furrowed, and is the just Reverse of Engrailed, because the Points of *invected* are turn'd inward to the ordinary.

WAVED, is when a Bordure, or any ordinary Charge, has its outer Lines indented, in Manner of the rising or falling of Waves. This is also called *undy*, *undé*, or *ondé*.

CRENELLED, or EMBATTLED, is when any honourable Ordinary is dented, after the Manner of Battlements of a Wall; the Origin hereof is, doubtless from the Figures of such Walls being given to Warriors, either for having been the first at mounting, or the Chief in defending them.

Note, The *French* Word *Crenellé* comes from *Cran*, a Notch, or Interval; the *English* from its being a Place of Fighting or Battle. *Upton*, in *Latin*, calls this *Imbatallatum*, a Word forged from the *English*; but most others term it *Pinnatum*, from *Pinna*, a Battlement.

NEBULED, is when a Coat is charged with several little Figures in Form of Clouds, running within one another, or, when the Outline of a Bordure, Ordinary, *&c.* is indented or waved.

INDENTED, INDENTEE, is when the Outline of a Bordure, Ordinary, *&c.* is notched in Form of the Teeth of a Saw.

DANCETTE, is when the Outline of any Bordure, or Ordinary, is indented very largely; the Largeness of the Indentures being the only Thing that distinguishes it from the indented.

There is also a Bearing of a Bend, called double *Dancetté*; thus he beareth Azure, a bend double *Dancetté* Argent.

We may conclude, hence, that of these different Lines are composed all Bordures, and honourable Ordinaries, an *Escutcheon* is charged with.

A BORDURE, is a Kind of Addition on the Limb of an *Escutcheon*, in Form of a Hem, or Girdle, encompassing it all around. The *Bordure* must be about one sixth Part of the Breadth of the Shield.

Simple Bordure, is that which is of the same Colour or Metal throughout; and is the first Addition of younger Brothers.

There are others *componed*, *countered*, *ingrailed*, *indented*, and *charged* with other Pieces; which make different Additions for younger Brothers, in several Degrees.

If the Line which constitutes the *Bordure* be streight, and the *Bordure* plain, the Colour of the *Bordure* alone is named: As *he beareth Gules, a Bordure Or*. If a Bordure be charged with any Parts of Plants or Flowers; they say, *Verdoy of Trefoils*. If it consist of Ermins, Vairy, or any of the Furs, the Term is, *Verflew of Ermins*. If the *Bordure* be charged with Martlets, the Word is, *charged with an Enaluron of Martlets*, &c.

The HONOURABLE, or *honourable Ordinaries*, are the principal *Ordinaries* or Bearings, which, when in their full Extent, may possess one Third of the Field.

These are ten in Number, *viz.* the *Cross*, *Chief*, *Pale*, *Bend*, *Fesse*, *Bar*, *Saltier*, *Chevron*, *Bordure*, and *Orle*.

The Cross is defined by *Guillim*, an Ordinary composed of four-fold Lines; whereof two are perpendicular, and the other two transverse; for so we must conceive of them, though they be not drawn throughout, but meet by Couples, in four right Angles, near the Fess-point in the *Escutcheon*.

The Content of a *Cross* is not always the same: For when it is not charged, canton'd, nor accompanied, it has only the fifth Part of the Field; but if it be charged it must contain the third Part thereof.

This Bearing was first bestow'd on such as had perform'd, or at least undertaken, some Service for *Christ*, and the *Christian* Profession; and is held by divers the most honourable Charge in *Heraldry*. What brought it into such frequent Use, was the antient Expeditions into the *Holy Land*; and the Holy War Pilgrims, after their Pilgrimage, taking the *Cross* for their Cognizance, and the Ensign of that War being the *Cross*; whence its Name *Croisade*.

In those Wars, says *Mackenzy*, the *Scots* carried St. *Andrew*'s *Cross*; the *French* a *Cross Argent*; the *English* a *Cross Or*; the *German*, *Sable*; the *Italians*, *Azure*; the *Spaniards*, *Gules*. Thus the illustrious Family of *Montmorancy* in *France*, carry the *Cross*, because they are the first *Christian* Barons; and the Dukes of *Savoy*, because they assisted *Rhodes* against the *Turks*.

St. *George*'s *Cross*, or the *Red Cross*, in a Field Argent, is now the Standard of *England*; that Saint being the reputed Patron of the *English* Nation.

Guillim enumerates thirty-nine different Sorts of *Crosses* used in *Heraldry*, viz. a *Cross* voided, a *Cross* wavy-voided, a *Cross* patee fimbriated, a *Cross* patee fitched on the Foot, a *Cross* patee on three Parts, and fitched on the fourth, a *Cross* engrail'd, a *Cross* potance, a *Cross* flory, a *Cross* potance voided, a *Cross* avelane, a *Cross* patee lambeaux, a *Cross* furchee, a *Cross* croslet, a *Cross* croslet fitchee at the Point, a *Cross* bottonee, a *Cross* pommee, a *Cross* urdee, a *Cross* degraded fitchee, a *Cross* potent, a *Cross* potent fitched, a *Cross* calvary, a *Cross* croslet set in degrees, a *Cross* patriarchal, a *Cross* anchored, a *Cross* molinee, a *Cross* clechee, a *Cross* flory or fleurdelisee, a *Cross* double fitchee, a *Cross* a seeze Points, a *Cross* miltinee, a *Cross* raguled, a *Cross* pointed voided, a *Cross* pall, a Tau, or S. *Anthony*'s *Cross*, a *Cross* wided and couped, a *Cross* couped pierced, a *Cross* molinee pierced lozange-woup, a *Cross* molinee quarter-pierced, a Saltier or St. *Andrew*'s *Cross*, &c.

A Cross *voided*, differs from the *Cross fimbriated*, in that this latter does not shew the Field through it, as the other does. And the same obtains in other Ordinaries.

A Cross *wavy-voided*, is a *Cross* which has its Outlines indented, in Manner of the rising and falling of Waves.

A Cross *patee* is a *Cross* small in the Centre, and widening towards the Extremes; this is called in *Latin*, *Crux patula ad Scopos*, *seu Crux patens*.

A Cross *patee fitched* on the Foot, is a *Cross* whose Foot is made sharp, that it may be more apt to be fasten'd any where. *Mackenzy* says, it is called *fitched*, from the *French* Word *fichée*, and that Writing it *fitchee*, with a *t*, is an Error. The same Author is of Opinion, that the Reason of *Crosses fitchée*, being borne in Arms was, that the primitive Christians did always carry *Crosses* with them as Marks of Devotion, and when they settled themselves in their Journey at any Place for Devotion, they fixed their portable *Crosses* in the Ground.

A Cross *patee* on three Parts, and *fitched* on the fourth, is a *Cross* which has the whole fourth Part *figetive*.

A Cross *engrailed*, is a *Cross* which has the Edges ragged, or notched circularly.

A Cross *patonee*, is a *Cross* formed of bunched Lines; extending and stretching to a certain *patee* Form. *Colomb* calls it *Croix enhendee*, and not *patonee*.

Cross *fleury*, is a *Cross*, which turns down its Extremities like a *Fleur de lys*. In *Latin* this is termed *Crux Florida*.

A Cross *velane*, in *Latin*, *Crux Avelana*, is a *Cross* whose Quarters resemble the Filberd Nuts.

A Cross *crosselet*, is a *Cross* which terminates in *Crosselets*, or little *Crosses*.

A Cross *botone*, is a *Cross* which the *French* Heralds call *Trefflee*, from *Treffle*, a Trefoil, or three-leaved Grass, which the Ends of this *Cross* imitate.

A Cross *pomel*, is a *Cross* whose Extremities are in the Form of round Balls, like the End of the Guard and Grasp of a Sword, whence it borrows the Name *Pomel*, that End of the Guard of a Sword being called in *French Le Pomeau*, Pomel.

A Cross *urde*, seems to be the same with what we otherwise call *Clechée*.

A Cross *degraded fichée*, is a *Cross* with Degrees or Sort of Steps at each Extream.

A Cross *potent*, by the *French* called *Potencée*, in *Latin*, *Crux patibularia*, is a *Cross* which has its Extreams in the Form of a Crutch, used for the Support of feeble and aged Persons.

A Cross *calvary*, is a *Cross* long in the Pale, and short in the Arms, resembling the *Cross* of our Redemption fixed on Mount *Calvary*.

Patriarchal Cross, is that where the Shaft is twice crossed, the lower Arms or Traverse being longer, and the upper shorter; it is also called a *Cross of Lorrain*.

An *anchored* Cross, is a *Cross* whose Points thereof are made sharp like those of an Anchor.

A Cross *moline*, is that which turns round both Ways at all its Extremities, though not so wide or sharp as that said to be anchored. In *Upton* the Points are all cut off, which makes it very different from the *Cross* anchored. This is called by the *French* Heralds, *Fer de Moulin*, q. d. Iron of the Mill, supposed to represent the Iron Ink, or Ink of a Mill, which sustains the moving Mill Stone.

Cross *clechee*, is a *Cross* open to the Light, or pierc'd through with another inner one of the same Figure, *e. gr.* when a *Cross* appears as if charged with another *Cross* of the same Colour with the Field, or as if the Field appear'd through the Apertures thereof.

Note, That the Word is *French*, supposed to be formed of *Clef Key*; the Ends of the *Cross* being thought to bear some Resemblance to the Bowls of the antient Keys.

But *Colombiere*, and some other Writers, will have this piercing to be only a Circumstance of the *Cross Cleche*, and call it by the Name *Vuide*, voided. The Thing that determines its *Cleche*, is its spreading from the Centre towards the Extremities, which are very wide, and ending in an Angle in the Middle.

Cross *flory*, or *Fleur de lisee*, is a *Cross*, the Extremities whereof are in the Form of Flowers, Lillies, Flower de luces.

A Cross *double fiche*, or *double fichy*, is a *Cross* whose Extremities are pointed at each Angle; that is, each Extremity has two Points: In Contradistinction to *fiche*, where the Extremity is sharpened away to one Point.

Leigh calls it *double pitchy*, which seems to be a Mistake. *Gibbon* expresses it by an octagonal *Cross*, the two Points whereof at each Extremity are parted inward by a small Space of a Line; by which it is distinguished from the *Cross* of *Malta*; the two Points whereof proceed from a third Point, or acute Angle between them.

Cross *á seize Pointes*, is a *Cross*, each Extremity whereof has four Points.

Cross *milrine*, is a *Cross*, the Extremities whereof are hooked.

A *raguled* Cross, is a *Cross* whose Outlines are jagged or knotted. — *Raguled* differs from indented, in that the latter is regular and the former not.

A Cross

A Cross *Pall*, is a Kind of *Cross* representing the *Pallium*, or archiepiscopal Ornament sent from *Rome* to Metropolitans.

A Tau, or Cross *of S. Anthony*, is a *Cross* in the Form of a T.—*Morgan* says, that in antient Times it was the Hieroglyphick of Security.

A Cross *pierced*, is a *Cross* perforated, or struck through, shewing as it were a Hole in it.

This *Piercing* is to be expressed in Blazon, as to its Shape: Thus if a *Cross* has a square Hole or Perforation in the Center, it is blazon'd *square pierced*, which is more proper than *quarter pierced*, as *Leigh* expresses it, and accordingly the *French* Heralds call it *percée en quarre*. When the Hole or Perforation is round, it must be expressed *round pierced*, which *Gibbon*, in *Latin*, calls *perforata*, because all Holes made with Piercers or Augers are round. If the Hole in the Center be in the Shape of a Lozenge, it is expressed *pierced Lozenge ways*.

All Piercings must be of the Colour of the Field, because Piercing implies the shewing of what is under the Ordinary or Bearing. Though when such Figures appear on the Center of a *Cross*, &c. of another Colour, the *Cross* is not to be supposed pierced, but that the Figure on it is a Charge, and must be accordingly blazoned.

The Saltier, is a Kind of St. *Andrew*'s *Cross*, antiently called the *Cross of Burgundy*.—The *Saltier* may be said to be composed of a bended Dexter and Sinister, crossing each other in the Center of the Escutcheon. Its ordinary Breadth when alone is one Third of the Escutcheon. It is sometimes bore alaizé, and sometimes in Number, placed in different Parts of the Field: Sometimes charged, countercharged with the Field, accompanied, raguled, engrailed, indented, quarterly-quartered, *&c.*

The *Saltier* was antiently a Piece of the Knight's Harness, being fastened to the Saddle, and serving him for a Stirrup to mount on; and it was hence it had its Name *Saltier*, by the French *Sautoir*, from *sauter*, to leap.—It was made of Silk Cord, or some other Kind of Cord covered with rich Stuff.

Others will have it that the original *Saltier* was a Kind of Pallisade, serving to fence Parks, Woods, *&c.* where wild Beasts were inclosed. Though *Spelman* says it was an Instrument for the taking them, thus called, *quod sit in usu in saltu*. Lastly, others assure us, that *Saltier* was antiently the Figure of an Engine, which being full of Pins was used in the scaling of the Walls of a besieged Place; whence its Origin from *sauter*, as it helped the Soldiers to leap over the Wall.

Colombiere adds thirty-three more Sorts of *Crosses* to those above-mention'd, *viz.*—A *Croix remplie*, which is only one *Cross* charged with another; a *Cross party*, that is, one half of one Colour, and the other of another; a *Cross quartered*, that is, the opposite Quarters of several Colours; a *Cross of five Pieces*, that is, of so many Colours; a *Cross moussüe* and *abaissée*; a *Cross barbée*; a *Cross croissantée*, or *crescented*, that is, having a Crescent at each End; a *Cross forked* of three Points; a *Cross panetée* of three Pieces; a *Cross reffercelée*; a *Cross pointed*; a *Cross ankered*, and *sur-ankered*; a *Cross ankered* with Snakes Heads; a *Cross orled*; a *high Cross*; a *Cross rayonnante*, or casting out Rays of Glory; a *Cross of Malta*; a *Cross of the Holy Ghost*; a *Cross forked* like the antient Rests for Muskets; a *Cross with eight Points*; a *Cross bourdonnée*; a *Cross cramponée* and *tournée*; a *Cross cablée*; a *Cross inclining*; a *Cross Pater nostree*, that is made of Beads, though we most properly call it *une croix en chapellet*; a *Cross treflée*; a *Cross fleuronée*; a *Cross vaidée*, *clechée*, and *Pommetée*; a *Cross crenellée* and *Battilée*; a *Cross* with four Steps to every Arm; a *Cross rounded*; a *Cross and an half*; a *Cross estoillée* or Starways; a *Cross corded*; a *Cross doubled* of six Pieces set together; a *double Cross* solit in pale; a *long Cross* cut in Pieces and dismembered; a *Cross couped*, or cut through in Fesse, of the two contrary Colours to the Field; a Chevron surmounted by an *half Cross*; four Tails of Ermins in a *Cross*, the Tops of the Ermins opposite to each other in the Middle; four Pieces of Wire placed cross-ways, and counterpointing in the Center; the *Cross* or *Sword of St. James*; *Cross potence cramponée* on the dexter upper Arm, and a Potence about the Middle of the Shaft.

These are the various *Crosses* we find in the aforesaid Authors, which some may think too many, as not being all used in *England*; but *Heraldry*, like all other Arts and Sciences, extends to all Countries, and all Terms used require to be explained.

Nor is it only in *Crosses* that the Variety is so great, the like is found in many other Bearings, and particularly in Lions, and the Parts of them; whereas the same *Colombiere* gives us no less than ninety-six Varieties. *Leigh* mentions but forty-six several *Crosses*, *Sylvanus Morgan* twenty-six, *Upton* thirty, *Johannes de Bado Aureo* twelve, and others, whom it is needless to mention.—*Upton* owns, he dares not presume to ascertain all the various *Crosses* used in Arms, for that they are at present almost innumerable; and therefore he only takes Notice of such as had been used in his own Time.

The Chief, is the second honourable Ordinary, and is placed athwart the Top of the Coat, containing one third Part of its Height.

When the Escutcheon is cut in Stone, or in Relievo, the *Chief* stands prominent beyond the rest, and is supposed to represent the Diadem of the antient Kings and Prelates, or the Casks of the Knights.

It is frequently without any Ornament; sometimes it is charged with other Bearings; sometimes it is of a Colour or Metal different from that of the Coat.

The Line that binds it at Bottom is sometimes straight, sometimes indented, engrailed, embatteled, lozenged, *&c.* Thus, say they, the Field is Gules, a chief Argent, *&c.* Again he bears Gules, a chief Crenele, or embatteled Argent.

Sometimes one *Chief* is borne on another, expressed by a Line drawn along the upper Part of the *Chief*; when the Line is along the under Part it is called a *Fillet*. The first is an Addition of Honour, the second a Diminution.

The *Chief* is said to be *abaised*, when it is detached from the upper Edge of the Coat, by the Colour of the Field which is over it; and which retrenches from it one Third of its Height.—They also say, a *Chief* is *chevroned*, *paled*, or *bended*, when it has a Chevron, Pale, or Bend contiguous to it, and of the same Colour with itself.—A Chief is said to be supported, when the two Thirds a-top are of the Colour of the Field, and that at Bottom of a different Colour.

Pale, the third honourable Honorary in my Catalogue, is the Representation of a *Pale* or Stake placed upright; and comprehending the whole Height of the Coat, from the Top of the Chief to the Point.—When the *Pale* is single, it is to contain one Third of the Breadth of the Shield; when there are several more properly called *Pallets*, they are proportioned so, as that two take up two Fifths of the Shield, and three take up three Sevenths: And in those Cases the Number of Pieces is specified as well as that of those they are charged withal, *&c.*

Pales are bore various Ways, as *wavy*, *crenelle*, *faillis*, *indented*, *ingrailed*, &c. There are also *cometed* and *flaming Pales*, which are pointed, sometimes waved, *&c.*

The *French*, says *Mackenzy*, observe that Soldiers in antient Times, carried *Pales* of Wood for their Encampment, which they fixed in the Earth: And, according to *Varenne*, they are bestowed on him who impaled a City for its Defence.

A Pallet, in the *English* Heraldry, is the Moiety or one Half of the *Pale*, and therefore receives its Name of Diminution, as being a demy or little Pale: And an Endorse is the fourth Part of the *Pallet*.

The *French* have no such Diminutive of a *Pale*, tho' they have such a Bearing, which they only call *Pale*.

The Bend, our next honourable Ordinary, is formed by two Lines, drawn diagonally or athwart, from the upper Part of the Shield on the Right, to the lower Part on the Left; being supposed to represent a Shoulder-Belt, or Scarf worn over the Shoulder.—It contains a third Part of the Field when charged, and a fifth when plain.

It is sometimes indented, ingrailed, &c.

Heralds speak of a *Bend dexter*, and a *Bend sinister*.— A *Bend dexter* is that properly and absolutely called a *Bend*; which Word *dexter* is usually annexed to prevent Mistakes, and distinguish it from the *Bend sinister*, which is the same with what is otherwise called after the *French* Heralds, a *Bar*, *barre*.

The *Bend sinister* is subdivided into the *Scarf* or *Scarp*, and the *Battoon*; which latter is the fourth Part of the *Bend*, and the most usual Mark of Illegitimacy; but then it never extends itself quite athwart the Shield, but is cut off a little at each End.

When two straight Lines drawn within the *Bend*, run nearly parallel to the outward Edges of it, this is called voiding; and he that bears it, is said to bear a *Bend* voided.

A *Bend* is sub-divided into a *Benlet* or *Bandelet*, which is the sixth Part of the Shield; a *Garter*, which is the Moiety of a *Bend*; a *Cost*, which is the fourth Part of a *Bend*; and a *Ribband*, which is the Moiety of a *Cost* or *Cotise*.

Fesse, the next honourable Ordinary of the Escutcheon, divides it horizontally in the Middle, and separates the Chief from the Point. It is supposed to represent a broad Girdle, or Belt of Honour, which Knights at Arms were antiently girded withal. The *Fesse* possesses the Center of the Escutcheon, and contains in Breadth one third Part thereof. When it takes up less than its proper Breadth it is called a *Bar*.

The *Fesse* has no Diminutives in the *English* Heraldry, which *Mackenzy* wonders at, seeing the *English* Heralds assign so many to other Ordinaries: While the *French* call little Faces, *Triangles*, if they be equal in Number; and *Burells* if they be unequal, as five or seven.

Chevron, or Cheveron, which is the next Ordinary, represents two Rafters of a House joined together without any Division: It descends from the Chief towards the Extremities of the Coat, in Form of a Pair of Compasses half open.

The *Chevron* is the Symbol of Protection, say some, or of Constancy according to others: Some say it represents the Knight's Spurs; others, the Head-Attire of Priestesses; others a Piece of the List, or the Barrier, or Fence of a Park.

When it is alone it should take up the third Part of the Coat: When it is accompanied with any other Bearings, its Breadth must be adjusted thereby.

It is bore divers Ways, sometimes in Chief, sometimes in Base, sometimes marched, sometimes reversed, &c.

The *Chevron* is sometimes charged with another *Chevron*, one Third of its own Height.

Two *Chevrons* are allowed in the same Field, but not more; when they exceed that Number they are called *Chevronwise* or *Chevronels*. There are *Chevrons* of several Pieces.

A *Chevron* is said to be abased, when its Point does not approach the Head of the Chief, nor reach further than the Middle of the Coat; *mutilated* when it does not touch the Extremes of the Coat; *cloven*, when the upper Point is taken off, so that the Pieces only touch at one of the Angles; *broken*, when one Branch is separated into two Pieces; *couched*, when the Point is turned towards one Side of the Escutcheon; *divided*, when the Branches are of several Metals, or when Metal is opposed to Colour; *inverted*, when the Point is towards the Point of the Coat, and its Branches towards the Chief.

A Coat is said to be *chevroned*, when it is filled with an equal Number of *Chevrons*, of Colour and Metal.

Counterchevroned, is when it is so divided, as that Colour is opposite to Metal, and *vice versâ*.

The next in Order to the Chevron is the Bar, Barr, or Barre, nearly resembling the Fesse; from which it only differs by its Narrowness, and by this, that the *Bar* may be placed in any Part of the Field, whereas the Fess is confined to a single Place.

The *French* have no such Ordinary as this; for what the *English* call a *Bend sinister*, they call it a *Barre*; and when they say he bears *Barres* or *Barre*, they mean a Bearing like their Scarpes or bended Sinister; and so on the contrary, when we blazon what they call Barrs or barry, they say Faces or *facé*.

Giron, the next in Order, is an Ordinary consisting of two straight Lines drawn from divers Parts of the Escutcheon, and meeting in an acute Angle in the fess Point of the same.

The Word is *French*, and literally signifies the *Gremium* or Lap. In *Latin* they are called *pinnulæ octonæ*, and *Merli octango-laxi* by the *Italians*.

If the *Girons* be eight in Number, says *Mackenzy*, they need not be expressed, but if there be fewer, or more, it must.

Girons are bore diversely, *viz.* single, by Couples of six, of eight, of ten, and of twelve.

When a Coat has six, eight, or ten of these *Girons* meeting or centring in the Middle of the Coat, it is said to be *gironné* or *girrony*.

Some, instead of *gironné*, say *parti*, *couppé*, *tranché*, and *taillé*, by reason the *Girons* are formed by such Divisions of the Field. Four *Girons* form a Saltier, and eight a Cross.

Note, That the Heralds give several Reasons for the heretofore mention'd Ordinaries being called *honourable*. 1. Their great Antiquity, as having been used ever since Armoury was set on Foot. And, 2. For that they denote the Ornaments most necessary for noble and generous Men: Thus the *Chief* represents the Helmet, Wreath, or Crown, covering the Head: The *Pale* represents his Lance or Spear: The *Bend* and *Bar*, his Belt: The *Fesse*, his Scarf: The *Cross* and *Saltier*, his Sword: The *Chevron*, his Boots and Spurs: And the *Bordure* and *Orle*, his Coat of Mail.

As to the allotting or distributing of these *Ordinaries*, some Authors write, that when a Gentleman having behaved himself gallantly in Fight, was presented to the Prince, or General, and a suitable Coat Armour order'd him; if he were wounded in the Head, they gave him a Chief; if in the Legs he had a Chevron; and if his Sword and Armour were discolour'd with the Blood of Enemies, a Cross or Bordure.

Some Heralds have attempted to increase the Number of *honourable Ordinaries* to twenty; adding to those abovemention'd, the *plain Quarter*, the *Escutcheon*, *Cappe* dexter and sinister, *Emmanch* dexter and sinister, *Chausse* dexter and sinister, and the Point; but these are not yet authorized.

Besides the above-mention'd *honourable Ordinaries*, there are other Ordinaries, composed of the like Lines, *viz.*

The Canton, which is a square Portion of the Escutcheon, parted from the rest. It has not any fixed Proportion; tho' regularly it should be less than a Quarter: It is often only a ninth Part, and used as an Addition or Difference, frequently to express Bastardy.

The *Canton* is sometimes placed at the right Corner, and sometimes at the left, in which latter Case, it is called a *Canton* sinister.

The *Canton* is form'd of two strait Lines, the one drawn perpendicularly from the Chief, and the other transverse from the Side of the Escutcheon, and meeting therewith in a right Angle, near to the Corner of the Escutcheon.

Mackenzy and *Guillim* say, that it is called *Canton* from the *French* Word *Canton*, which signifies a Corner; and it represents the Banner which has been given to the Bearer, as a Reward of his Service; or at least is equivalent, as if a Banner had been given him.

The Quarter, an Ordinary of the like Composition with the Canton, and occupies the same Places, and bears a great Resemblance to it; insomuch that the same Rules that serve for the one, may be attributed to the other. The sole Difference between them is, that the Canton keeps only a Cantle or small Portion of the Escutcheon; and the *Quarter* comprehends the full fourth Part of the Escutcheon.

The Pile, which is an Ordinary consisting of two-fold Lines, formed in the Manner of a Wedge; that's to say broad at the upper End, and diminishing by Degrees throughout with a comely Narrowness, and taper Growth,

Growth, meeting together at the lower End in an acute Angle.

A *Pile*, says *Mackenzy*, represents that Engine whereby Soldiers and others secured the Foundations of their Buildings; and have since been given to such as were very useful in founding Commonwealths, Colonies, or Families: But he observes, that three *Piles* are often mistaken for the Passion-Nails, which were common Symbols assumed by such as went to the *Holy Land*.

Others are of Opinion, that the *Pile* is probably formed in Imitation of the *Roman Pilum*, which was a tapering Dart about 5 Feet long, and sharpen'd at the Point with Steel.

The *Pile* is borne inverted, ingrailed, *&c.* like other Ordinaries, and issues indifferently from any Point of the Verge of the Escutcheon. He bears a *Pile* Gules by the Name of *Chandois*.

The FLASK, or FLANCH, which is an Ordinary formed by an arched Line, which begins at the Corner of the Chief, and ends in the Base of the Escutcheon. *Flanches* are always borne by Pairs.

Leigh makes *Flanch* and *Flask* two distinct Bearings, whereof the former is more bent in than the latter; but *Gibbon* judiciously makes them but one, which he calls *Flangue*.

The VOIDER, an Ordinary, whose Figure is much like that of the *Flask* or *Flanch*; only that it does not bend so much.

This Armoury, they say, is properly the Reward of a Gentlewoman that has well served her Prince. It is always borne by Pairs.

Besides the above-mention'd Charges of the Escutcheon, which are called *proper*, there are others called *common Charges*, viz. *celestial Intelligences*, as *Angels*, *Cherubims*, &c. Planets, as the *Sun*, *Moon*, *Stars*, &c. Fossils, as all Sorts of precious and other Stones; Vegetables, as *Fruits*, *Trees*, *Flowers*, &c. Animals, as *Lions*, *Leopards*, *Wolves*, *Horses*, *Griffins*, *Bears*, *Eagles*, *Cocks*, &c. *Fishes* of all Sorts.

I'll begin by the Description of *Angels* and *Cherubims*, which are either *volant*, *standing*, or *kneeling*, with their Wings either *extended*, *displayed*, or *crossed*; and these are often of different Metals or Colours. The *Angels* almost always at full Length; and the *Cherubims* with only their Head and Wings.

Of the *heavenly Bodies*, the STAR is the first in Dignity, and being frequently borne on the Shield, and honourable Ordinaries, I'll speak of it first, by observing, that it differs from the *Mullet* or *Spur-Rowel*, in that it is not pierced as this last is.

The STAR, in *Heraldry*, usually consists of five Rays or Sparks. When it has six or eight, as among the *Germans* and *Italians*, particular Mention must be made thereof in Blazoning.

The SUN, is blazoned according to his different Phases, and is either called *in its Glory*, or *rayoning*, when in its greatest Radiancy; or eclipsed, or in a Cloud, and sometimes none but his Rays appearing.

The MOON, is also blazon'd according to its Phases; and is either *Crescent*, when with her Horns up to the Chief of the Escutcheon, or *Increscent*, when she enters into her first Quarter, and has her Horns towards the dexter Part of the Escutcheon; and when in her Eclipse, it is called *Detriment*.

A COMET has also its Place in *Heraldry*, and is called *Streaming*.

Next to the Planets I'll place the *Elements*, since sometimes they are found in an Escutcheon.

The FIRE, which is consider'd as the most noble of them, and is either *Flamant* or *Scintillant*, and sometimes both.

The SEA, which we'll take for Water in general, is blazon'd waved, in *French Ondoice*.

The EARTH, is seldom or never represented but in Part, in the Blazon, which admits only of Mountains, Rocks, and Islands, which are differenced by their Metal or Colour.

Of all precious Stones, the ESCARBUNCLE is the most in Use in *Heraldry*; and is a Charge or Bearing consisting of eight Radii, or Spokes; four whereof make a common Cross, and the other four a Saltier.

Some call these Radii *Battons*, or *Staves*, because round and enriched with Buttons, or pearl'd like Pilgrims Staves; and frequently tipped or terminated with Flower de Luces. Others blazon them royal Scepters, placed in Saltier pale and fesse.

From the Fossils I'll pass to the Vegetables, and among them place TREES first in Order; which are blazoned in a different Manner, according to their different Products, Shapes, *&c.* for Example, according to their Products, an Oak is blazoned *acorned*, a Pine Apple Tree, Pear Tree, *&c.* *fructed*; if represented with Fruits on them.

According to their Shapes, they are either Trunks of Trees, and are blazon'd *eradicated*, or *mooted up by the Root*; or Limbs of Trees, and are blazon'd *trunkated*, or *raguled*, or both; or Stocks or Stumps of Trees, and are blazon'd *couped*, or *eradicated*, or both; or Branches of Trees, which are blazon'd either *starved* or *slipped*, or both: Or Slips or Leaves, which are blazon'd either *pendant*, *bendways*, *barways*, *slipped*, *proper*, *in saltier*, or *erected*.

The Fruits of Trees have also their Place in *Heraldry*, and are either *slipped*, *pendant*, *erected*, *proper*, or have their Stalks trunked.

Note, That Trees, their Trunks, Limbs, Branches, Slips, Fruits, *&c.* are all of the different Metals and Colours adapted to *Heraldry*.

FLOWERS are the next Charges which fall under our Consideration; and are blazon'd either *bearded*, *seeded*, or *slipped*.

From Flowers I'll pass to HERBS of all Sorts; and particularly to CORN, which is blazon'd either *couped*, *bladed*, *eared*, or in *Stalks*, or in *Garbe* or *Sheaf*, which Sheaf is subject to different Changes, according to the different Metals and Colours of *Heraldry*.

We must not forget here the *Fleur de lys*, which is the Bearing of the Kings of *France*; and which are blazon'd either *Or*, *Argent*, &c. according to the different Sorts of Metals, and Colours of *Heraldry*.

TREFOIL, which is blazon'd either *erazed in the Stalk*, or *slipped*; as well as the *Cinquefoils*.

ANIMALS are the next in Order.

Lyons, Griffins, Wolves, and Bears, if exactly in *pale*, are said to be *rampant*; but if set more bend-ways, Lyons, Wolves, and Bears, are *saliant*; Griffins, *segrant*. Lyons are also *langued* (i. e. *tongued*) and *armed*, i. e. have their Nails of some different Colour from that of the Body. Griffins are armed, *i. e.* their Talons are of a different Colour from the rest of their Body. Eagles and Swans *membered*, i. e. when their Feet are of a different Colour from the rest of their Body. Hawks are *jessed* and *balled*; *jessed*, when they seem to spring or shoot out of some other Charge. Cocks are *armed*, *crested*, and *velloped*. *Crested* when their *Crest* is different from the rest of the Body. Capons are *armed*, *crested*, and *jowlopped*.

LYONS are most commonly borne whole, and then they are either *rampant*, *guardant*, or *rampant-regardant*. When they are set more bend-ways, they are term'd *saliant*. Also they are borne *passant*, *passant-regardant*, *sejant* (or *sitting*) *couchant* (or *lying*) *dormant* (or *sleeping*) *jessant*, *issuant*, and *naissant*.

Lyons, or any other Creature that proceeds from the Bottom of any Ordinary, is term'd *issuant*; when over two Colours, *jessant*; when from the Middle, *naissant*, or *swimming*; yet these are sometimes called *Demi-Lyons*. A *Lyon*, or other Thing, said to be *unbraled*, is when the Shape is only tricked out with a Pencil, and the Field appears through it. *Lyons* are sometimes borne *barry*, *vairy*, *nebulee*, &c.

STAGS are blazon'd either *tripping*, *standing at gaze*, *lodged* (when resting on a Mount) *springing forward*, and *currant* (when running). *Bucks*, when their Horns are spoke of, are said to be *attired*. All Creatures that are set one passing contrary to the other, are said to be *counter passant*; if two stand Face to Face upright, they are term'd *combatant*; if Back to Back, *endorsed*.

Creatures partly borne, as the *Head*, *Leg*, &c. are either

either *erased* (or torn off) *couped* (cut off) The Paw of a Lyon being called a *Gamb*.

When Lyons, Eagles, and other fierce Creatures are eating, they are term'd *ravening*; but when they appear with Flower de Luces, *&c.* in their Mouth, it may be said *swallowing* or *devouring*.

All Fowls are borne *going*, *sitting*, *standing*, or *volant*, i. e. *flying*. The Beeks and Feet of Cocks, *&c.* are termed *armed*. But Eagles Feet are called *Talons*, they are often borne with two Heads, and now and then closed, which is when their Wings are not spread.

Fishes are either term'd *naiant*, or *hauriant*. *Naiant* or *natant*, when drawn in an horizontal Posture, fesse-wise, or traversly a-cross the Escutcheon; that being their swimming Posture. *Hauriant* when erected upright. When three or four are borne intermixing with each other, it is term'd *fretted*.

Beasts, Birds, Flowers, or any other Thing, when but three in the Field, and not said to be in *pale*, in *bend*, or in *fesse*, they always stand two above, and one below; and when there are six, three, two, and one. If there be any Ordinary in the Field, where are three Things, it alters not their Position; but if there be six, they are commonly set otherwise.

Beasts, Birds, Flowers, *&c.* when of the Colour natural to them, in Blazoning, are term'd *proper*.

Note, That *Martlets* are Birds always painted without Legs, because they never use them, although they have them; and Alerions are Birds wanting Beaks, Legs, and Feet. *Furs* have also a Place in *Heraldry*, particularly *Ermin*, or *Ermine*, which is a white *Fur*, powder'd or interspersed with black Spots.

It is supposed to represent the Skin of an Animal of the same Denomination; which some will have a Water-Rat, others a Sort of Weazel, and others an *Armenian* Mouse. In Effect, there is no Animal whose Skin naturally corresponds to the Herald's Ermin.

The Animal is Milk white, and so far it is from Spots, that Tradition has it, he will rather die, or be taken, than sully its Whiteness. Whence its symbolical Use.

But white Skins having for many Ages been used for the Linings of the Robes of Magistrates, and great Men; the Furriers at length, to add to their Beauty, used to sew Bits of the black Tails of those Creatures upon the white Skins, to render them the more conspicuous; which Alteration was introduc'd into Armoury.

The sable Spots in Ermin, are not of any determinate Number, but may be more or less at the Pleasure of the Painter or Furrier.

We call *Ermine*, v. g. a *Cross Ermine*, a Cross composed of four Ermin Spots. It must be observ'd, that the Colours in such Arms are not to be expressed, by Reason neither the Cross nor the Arms can be of any Colour but white and black.

Colombiere blazons it, *quatre queues d'Ermine en Croix*. The Editor of *Guillim* describes it thus, a Cross of four *Ermines*; or more properly of four Ermine Spots in the Cross; it is the Coat of *Hurston* in *Cheshire*.

The Coat of the antient Dukes of *Bretagne*, and at present of the Province, is *Ermines sans numbre*; or a *Field Ermine*, without any Charge or Addition; and that of the House of *Coetlogon*, is by Concession of those Dukes, as a Reward for the great Attachment of my Ancestors to their natural Sovereigns, and their signal Services both in the Field, and in the Cabinet, a Field Gules, charged with *three Escutcheons Ermine*, two in Chief and one in Point; or according to our modern Manner of Blazoning, *two and one*.

Ermins are used by some *English* Writers for the Reverse of *Ermins*, i. e. for white Spots on a black Field: But on what Foundation no Body can tell, for the *French*, from whom the *English* (as they themselves confess) have their *Heraldry*, have no such Term, but call this black powder'd with white, *Contre-Ermine*; as denoting the Counter, or Reverse of *Ermine*, which is white powder'd with black.

What the *French* blazon *semé d'Ermines de sable*, some *English* Authors call it *Erminites*, which should seem a Diminutive of *Ermine*, and naturally to signify little *Ermines*; but they are mistaken, since *Erminites* expresses a white Field powder'd with black; only every Spot has a little red Hair therein.

Vair, is also a Kind of Fur or Doubling, consisting of divers little Pieces, *Argent* and *Azure*, resembling a *Dutch* U, or a Bell-Glass.

Vairs have their Point *Azure*, opposite to their Point *Argent*, and the Base *Argent* to the *Azure*.

When there are only two or three *Vairs*, the antient Heralds call it *great Vair*; and when they are more *small Vair*.

Vair is intended to represent a Kind of Skin, used antiently by the Kings of *France* in lieu of Fur, and wherewith the Gowns of the *Presidents a Mortier*, the Counsellors of the Court, the Heralds Coats, *&c.* were lin'd, till the fifteenth Century.

It was properly the Skin of a Kind of Squirrel, called also in *French Vair*, and in *Latin Scriveus*; which was white underneath, and Dove-Colour a-top. It is described by *Aldrovandus*, under the Name of *Scriveo varia*, and is the same, according to *Gesner*, with the *mus ponticus* of *Aristotle* and *Pliny*; which the *Latins* call *varus* or *varius*, from the Variety of its Colours. It's two Skins join'd together, make the Figure of the *Vairs* in Armories; being naturally White and Azure.

Vair, *Colombiere* observes, is the second Sort of Fur, antiently used as a Lining of the Garments of great Men; consisting of little Pieces, sewed by the Furriers on white Skins; and because these Pieces were usually blue, those who first settled the Rules of *Heraldry*, decreed, that this Fur in its natural Blazon, should always be *Argent* and *Azure*. So if it be absolutely said, such a Family bears *Vair*, it is supposed to be *Argent* and *Azure*.

Regularly there must be but four Rows, or Ranks of *Vair* in the Shield; if there be either more or less, the Number must be specified. The smallest Number being three Rows, is called *befroy de vair*; and the most being five or six, is called *menu* or *small vair*.

The *Beffroy* is also known by the first Figure on the dexter Side of the Escutcheon, being always of Metal, and in Form of a Belt; whereas that of mere *vair*, is in Shape of a Glass.

When a Coat is charged, or chequer'd with *Vair*, it is blazon'd Vairy, or *Vairé*.

When the Colours are *Argent* and *Azure*, or White and Blue, it is *very proper*; if it be otherwise, the Colours are to be expressly named, *viz. Vairy* of such a Colour or Metal. *He bears Vairy, Or, and Vert*. This is particularly called *Vair composed*.

The Bearings are likewise said to be *Vairy*, when they are charged with *Vairs*. When Chiefs, Crosses, Pales, Fesses, *&c.* happen to be *Vairy*, the Number of Ranks are to be specified.

Vairy Gowns are observed by *Julius Pollux*, to have been the Habit of the antient *Gauls*, as *Ermins* were of the *Armenians*.

Artificial Things have also been borrowed by the Inventors of the Art of *Heraldry*, to make of them Charges for their Escutcheons, as Crowns, Scepters, Swords, Rings, Battering-Rams, Cannons, Bows, Arrows, Stirrups, Horse-Shoes, Rowels of Stirrups, Lozenges, Fusile, *&c.* All which Charges have the same different Positions in a Shield, with the *honourable Ordinaries*; for they are either placed in Chief, in Pale, or in Point, or saltier-wise, bend-wise, or bar-wise, *&c.*

Note, That there are several Charges, singular in their Kind, and which are found no where but in *Heraldry*, and have scarce any Meaning, *viz. Fret*, *Compony*, and *Gobony*.

Fret, is a Bearing consisting of six Bars, crossed, and interlassed fret-wise. *Guillim* derives the Word from the *French Rets*, Net: But the Reader will easily furnish himself with a better Etymology, from the Word *Fret* in Architecture. Some call this the *True Lover's Knot*; others *Harrington's Knot*, because it is their Arms, and *nodo firmo* the Motto. *Gibbon* is

is for calling it *Heraldorum nodus amatorius.*

When it consists of more than six Pieces, the Number must be specified.

COMPONY. — A Bordure *compone*, is that form'd or compos'd of a Row of angular Parts, or Chequers of two Colours.

Compound or *composed*, is also used in the general, for a Bordure, a Pale, or a Fesse, composed of two different Colours or Metals disposed alternately, separated, and divided by Fillets, excepting at the Corners; where the Junctures are made in the Form of a Goat's Foot.

GOBONY, is the same as *Compony.*

CHECKY, is where the Shield, or a Part thereof, as a Bordure, is checquer'd, or divided into Chequers, or Squares.

Where there is but one Row of Squares, it is not properly called *Checky*, but *Countercomponed.*

Checky, according to *Colombiere*, is one of the most noble, and antient Figures in all Armoury; and ought never to be given but to Persons who have distinguished themselves in War: For it represents a Chess-Board, which itself is a Representation of a Field of Battle. The Pawns and Men, placed on both Sides, represents the Soldiers of the two Armies; which move, advance, attack, or retire, according to the Will of the two Gamesters, who are the Generals. But had *Colombiere* been acquainted with *England*, he had known that so noble a Piece of Armoury is rendered so despicable here, as to be made the distinguishable Sign of an Ale-House; because, perhaps, it is often made a Field of Battle, when the Knights of Malt find themselves inspired with a warlike Humour.

Checky is always composed of Metal and Colour. Some Authors would have it ranked among the Sorts of Furs.

When the whole Escutcheon is chequer'd, it should ordinarily contain six Ranges: There is no Need of Blazoning to express them; only it must be observed to begin to blazon by the first Square in Chief on the dexter Side; so that, if that be *Or*, and the next *Gules*, the House or Family is said to bear *Checky, Or, and Gules.*

When the whole Shield is not checquer'd, but only the Chief, a Bend, Cross, or the like, the Number of Ranges should be expressed.

Heralds have also invented Pieces, wherewith they charge their Escutcheon to distinguish Families, and make a Difference between Brothers, as also to distinguish legitimate from natural Issues, or Children.

Those Pieces are, a LABEL of three Points for the eldest Son.

Note, That a *Label*, in *French* a *Lambel*, is esteemed the most honourable of all Differences, and is form'd by a Fillet usually placed in the Middle, and along the Chief of the Coat, without touching its Extremities. Its Breadth ought to be a ninth Part of the Chief. It is adorn'd with Pendants, something like the Drops under the Triglyphs in the Dorick Frieze. When there are above three Pendants, the Number must be specified in Blazoning. There are sometimes six.

A *Crescent* for the second Son.
A *Mullet* for the third Son.
A *Martlet* for the fourth Son.
An *Annulet* for the fifth Son.
A *Flower de luce* for the sixth Son.

And they have appointed for the eldest Son of the second House, a *Label* upon a *Crescent*; the second a *Crescent* upon a *Crescent*; the third a *Mullet* upon a *Crescent*; and so on.

And for the eldest Son of a third House, a *Label* upon a *Mullet*, the second a *Crescent* upon a *Mullet*, &c. but Daughters all bear their Father's Coat without any Difference.

A Bastard's Arms should be crossed with a Bar, Fillet, or traverse from the Left to the Right. They were not formerly allowed to carry the Arms of their Father, and therefore they invented Arms for themselves. The Difference for the King of *France*'s legitimated Children, is a *Batton Pery en Barre.*

Having given an exact Description of all the different Charges of any Kind whatsoever, an Escutcheon can be charged with, and of the Pieces, which mark the Distinction of Families, and the Difference between Brothers, I must pass to those which Heralds have placed over the Escutcheon, to mark the Difference of Nobility, beginning by the HELMET.

The HELMET was antiently an Armour of Defence, wore by the Cavaliers, both in War and in Tournaments, as a Cover and Defence of the Head; and still used by Way of Crest or Ornament over the Shield, or Coat of Arms.

The *Helmet* is known by divers other Names, as the Casque, Head-piece, Steel Cap, *&c.*

The *Helmet* cover'd the Head and Face, only leaving an Aperture about the Eyes, secured by Bars, which served as a Visor.

The *Helmet* is bore in Armoury as a Mark of Nobility; and by the different Circumstance of the Bearing of the *Helmet*, are the different Degrees of Nobility indicated. In *France*, whence all the *English* Heraldry originally came, the following Rules obtain.

A *Person* newly enobled, or made a Gentleman, bears over his Escutcheon a *Helmet* of bright Iron or Steel, in profile, or standing sideways; the Visor quite close.

A *Gentleman* of three Descents bears it a little open, but still in profile; shewing three Bars of the Visor.

Antient Knights, *&c.* have it in profile, but shewing five Bars; the Edges of Silver.

A *Baron's Helmet* is of Silver, the Edges Gold; with seven Bars, neither quite in profile, nor yet in front; with a Coronet over it, adorned with Pearls.

Viscounts, and *Earls*, formerly bore a silver *Helmet*, with gold Edges, its Position like the former; but now they bear it quite fronting, with a Coronet over it.

Marquisses bear a silver *Helmet*, damasked, fronting; with eleven Bars, and their Coronets.

Dukes, and *Princes*, have their *Helmet* damasked, fronting; the Visor almost open, and without Bars; with their Coronets over them.

Lastly, the *Helmets* of *Kings* and *Princes* are all of Gold, damasked, full fronting, and the Visor quite open, and without Bars.

The *Helmets* of *Bastards* are turn'd to the Left, to denote their Bastardy.

Among the *English* Heralds, these Laws are of late somewhat varied.—*Leigh* will have the *Helmet* in profile, and close, to belong to Knights: But all other Authors give it to Esquires and Gentlemen.

To a Knight they assign the *Helmet* standing right forward, and the Bearer a little open.

The *Helmet* in profile, or posited sideways, and open, with Bars, belongs to a Nobleman under the Condition of a Duke.

The *Helmet* right forward, and open, with many Bars, is assigned to Dukes, Princes, and Kings.

Over the *Helmet* is placed a *Crown*, or *Coronet*, different, according to the different Degree of Nobility, from a *Baron* to an *Emperor.*

Over the *Helmet* of a *Baron*, the *English* Heralds put a *Coronet*, which has but six Pearls, four of them in Sight: The *French* Heralds a gold Circle, adorned with Pearls turned round it, in form of Necklaces.

Over that of a *Viscount*, a *Coronet* set full of Pearls close to the Circle.—And the *French*, one which has but six Pearls, three of them in Sight.

Over that of an *Earl*, a *Coronet* of Pearls, and Strawberry Leaves.—And the *French*, one set full of Pearls, close to the Circle or Ring.

Over that of a *Marquis*, a *Coronet* of Strawberry Leaves, and Pearls.—And the *French* the same.

Over that of a *Duke*, a *Coronet*, all Strawberry Leaves. —The *French* the same.

Over that of a *Prince*, a *Coronet* composed of Crosses and Flower-de-Luces.—The *French* all Flower-de-Luces for the Princes of the Blood.

The *Electoral Crown*, or *Coronet*, is a scarlet Cap, turned

turned up with Ermine, closed with a Semi-circle of Gold, all covered with Pearls: On the Top is a Globe with a Cross thereon.

The *Spanish* Crown, is adorned with large indented Leaves, covered with Diadems, bordering on a Globe, surmounted with a Cross.

The *English* Crown, is adorned with four Crosses, in the Manner of those of *Malta*; between which are Flower-de-Luces: It is covered with four Diadems, which meet at a little Globe supporting a Cross.

The *French* Crown, is a Circle of Flower-de-Luces, encompassed with six Diadems; bearing a-top a double Flower-de-Luce, which is the Crest of *France*.

The *Imperial* Crown, is a Bonnet, or Tiara, with a Semi-circle of Gold, supporting a Globe, with a Cross a-top.

Note, That in the remotest Antiquity, the *Crown* was only given to Gods: *Pliny* says, that *Bacchus* was the first who used it: *Pherecydes*, cited by *Tertullian de Corona*, says *Saturn*: *Diodorus* ascribes it to *Jupiter*, after his Victory over the *Titans*: *Q. Fabius Pictor* attributes the Invention to *Janus*; adding, that it was an Ornament he used in sacrificing: *Leo* the *Egyptian* says, it was *Isis* who first wore a Crown, and that it consisted of Ears of Corn; the Use whereof she first taught Men.

In this most Authors agree, that the Crown originally was rather a religious than a civil Ornament; rather one of the *Pontificalia* than the *Regalia*: That it only became common to Kings, as the antient Kings were Priests as well as Princes (hence *regale Sacerdotium*) and that the modern Princes are entitled to it in their ecclesiastical Capacity, as well as their temporal.

The first Crowns were no more than a Bandelet or Head-band, drawn round the Head, and tied behind; as we still see it represented on Medals, around the Head of *Jupiter*, the *Ptolemies*, and the Kings of *Syria*. Afterwards they consisted of two Bandelets; by Degrees they took Branches of Trees of divers Kinds: At length they added Flowers; insomuch that *Tertullian de Coronâ* assures us (from *Claudius Saturninus* who had wrote expresly on the Subject) there was not any Plant whereof Crowns had not been made. Woods and Groves were searched to find different Crowns for the several Deities. Thus on Medals, we find *Jupiter*'s Crown of Flowers, more frequently of Laurel; *Juno* of the Vine; that of *Bacchus* the Vine with Grapes, Vine-Leaves, and Branches of Ivy, with Flowers and Berries; those of *Castor*, *Pollux*, and the River Gods, of Bulrushes; that of *Apollo*, sometimes of Laurel, sometimes of Rushes; that of *Saturn*, new Figs; that of *Hercules*, Poplar; that of *Pan*, Pine, or Alder; that of *Lucina*, Dittany; that of the *Horæ*, the Fruits proper to each Season; that of the Graces, Olive-Branches, as well as that of *Minerva*; that of *Venus*, Roses; of *Ceres*, Ears of Corn, as well as that of *Isis*; that of the *Lares*, Myrtle, or Rosemary.

Crowns were not only used on the Statues and Images of the Gods, by the Priests in sacrificing, and by Kings and Emperors, but also on Altars, Temples, Doors of Houses, sacred Vessels, Victims, Ships, *&c.*

The *Argonothetæ* crowned those who were Victors in the solemn Games, Warriors, *&c.*

From some Passages in *Eusebius Cæsariensis*, some Authors conclude, that Bishops had likewise antiently their Crowns.

The *Roman* Emperors had four Kinds of Crowns, still seen on Medals, *viz.* a Crown of Laurel, a radiating Crown, a Crown adorn'd with Pearls and precious Stones, the fourth a Kind of Bonnet, or Cap, something like the *Mortier* wore by the Presidents of the Parliaments of *France*.

The first was that ordinarily used from the Time of *Julius Cæsar*: The Right of bearing it was granted him by the Senate; some say on Account of his Baldness, and afterwards continued to his Successors. *Justinian* was the first who took that of the Bonnet-Kind.

Among the *Romans* there were various Kinds of Crowns, distributed as Rewards of military Atchievments. The oval Crown was the first made of Myrtle; and was bestow'd on Generals who had been victorious over Slaves or Enemies unworthy of the *Roman* Valour, and who were entitled to the Honour of the lesser Triumph, called *Ovation*.

The second was the naval, or rostral Crown, consisting of a Circle of Gold, raised with Prows and Poops of Ships; given to the Captain who first grappled, or the Soldiers who first jumped a-board an Enemy's Ship.

The third called *Vallaris* or *Castrensis*, was also a Circle of Gold, raised with Piles or Pallisades, given him who first leaped into the Enemy's Camp, or forc'd the Pallisades.

The fourth called mural Crown, was a Circle of Gold, indented or imbattled; given him who first mounted the Wall of a Place besieged, and there lodged a Standard. This Crown we also find given on Medals, to the particular Genii and Guardians of Provinces and Places.

The fifth the civick Crown, made of a Branch of green Oak; given him who had saved the Life of a Citizen in a Battle or an Assault.

The sixth was the triumphal Crown, made of Branches of Laurel, given to a General who had gained a Battle, or conquer'd a Province. This was afterwards made of Gold.

The seventh, the *Corona obsidionalis*, or *Graminea*, made of Grass or Herbs found on the Ground; given to a General who had delivered a *Roman* Army besieged by the Enemy, and obliged them to decamp.

The eighth was also a Crown of Laurel, given by the *Greeks* to their *Athletæ*; and by the *Romans* to those who had negotiated or confirm'd a Peace with an Enemy; this was the least esteemed. Besides these in Antiquity we meet with radial Crowns, given to Princes at their Translation among the Gods, whether before or after their Death. *Casaubon* says, this Sort of Crowns was peculiar to Deities, yet it is certain *Nero* took it in his Life-Time.

Athletick Crowns were destin'd to crown Victors at the publick Games.

Father *Daniel* says, that S. *Louis* King of *France* ransom'd the Crown of Thorns of our Saviour, which had been pawn'd by *Baldwin*, Emperor of *Constantinople*, for an immense Sum of Money; and transported it with great Ceremony to *France*, where it is still kept in the Holy Chapel. The Author of the History of S. *Louis*, adds, that the Thorns were still green in his Days. Some Writers, from *Clemens Alexandrinus*, hold that it was made of Bramble, *ex rubo*; others of black Thorn, *ex rammo*; others of white Thorn. Those who see it in the Chapel, take it to be the *Juncus marinus*.

Galiot derives the Word *Corona*, whence Crown, from the *Latin Cornu*, Horn; because the antient Crowns were pointed in Manner of Horns; which were antiently, both by *Jews* and *Gentiles*, esteemed as Marks of Power, Strength, Authority, and Empire. Hence, in the holy Scripture, Horns are us'd for the regal Dignity: And accordingly Horn and Crown in the *Hebrew*, are expressed by the same Words.

Bishops and Abbots, instead of a Helmet, place a Mitre over their Escutcheon; the Bishops theirs in Front, and that of an Abbot in Profile. Though Bishops in *France*, cause to be placed over their Escutcheon, the Coronet borne by their House or Family, together with the Mitre, placed front-wise, on the Right of the Coronet, and the Crosier on the Left. An Archbishop, besides the Mitre and Crosier, places a double Cross in pale behind his Escutcheon, the double Arms of the Cross, surmounting the Coronet, and placed in Front. The Bishops of the Church of *England* content themselves with impaling their Arms with those of their Diocese, over which is placed a Mitre in Front.

If

If the Bishop be a Cardinal, the Cardinal's *Hat* with sixteen Loops is placed over all.

The Pope has over his Escutcheon a *Crown* composed of a Cap or Tiara, and a triple *Crown* incompassing it, having two Pendants like the Bishop's Mitres: Those three *Crowns* are supposed to represent the triple Capacity attributed to him by the Catholicks, *viz.* as high Priest, supreme Judge, and sole Legislator of the Christians.

The Helmet, Crown, Coronet, *&c.* are also often surmounted with what is called CREST; which is always one of the Pieces of *Heraldry*, oftner an Animal, or Part thereof, than any Thing else.

Guillim says, that next to the Mantle, the *Crest* or Cognizance claims the highest Place, being seated on the most eminent Part of the Helmet; yet so as to admit an Interposition of some Escrol, Wreath, Chapeau or Hat, Crown, *&c.*

The *Crest* of the Arms of *France*, is a *Flower de Lys*, and that of the Arms of *England*, a *Lion passant gardent*, crowned with an Imperial Crown.

Note, That in the antient Tournaments the Cavaliers had Plumes of Feathers, especially those of Ostriches and Herons, for their *Crests*; these Tufts they called *Plumarts*, and were placed in Tubes on the Top of high Caps or Bonnets.—Some had their Crests of Leather, others of Parchment, Paste-board, *&c.* painted or varnished to keep out the Weather; others of Steel, Wood, *&c.* on which were sometimes represented a Member, or Ordinary of the Coat, as an Eagle, Flower de Lys, *&c.* but never any of those called honourable Ordinaries, as Pale, Fesse, *&c.*—The *Crests* were changeable at Pleasure, being reputed no other than as an arbitrary Devise or Ornament.

Herodotus attributes the Rise of *Crests* to the *Carians*, who first bore Feathers on their Casks, and painted Figures on their Bucklers; whence the *Persians* called them *Cocks*.—The oldest of the heathen Gods are said to have wore *Crests*, even before Arms were made of Iron and Steel.—*Jupiter Ammon* bore a Ram's Head for his *Crest*; *Mars* that of a Lion, or a Tyger casting out Fire at his Mouth and Nostrils. *Alexander the Great* wore for his *Crest* a Ram's Head, to inculcate that he was the Son of *Jupiter Ammon*; *Julius Cæsar* sometimes bore a Star to denote that he was descended from *Venus*; and sometimes the Head of a Bull, or an Elephant with his Trunk; and sometimes the Wolf that suckled *Romulus* and *Remus*.

The Christians in their first religious Wars were wont to wear a Cross darting forth Rays for their *Crests*, as well as on their Shields and Banners, as *Prudentius* informs us;

——Clypeorum insignia Christus
Scripserat, ardebat summis crux addita Cristis.

The antient Warriors bore *Crests* to strike Terror in their Enemies, at the Sight of the Spoils of Animals they had killed; or to give them the more formidable Mien, by making them appear taller, *&c.*—*Plutarch* observes, that the *Crest* of *Pyrrhus* was a Bunch of Feathers with a Stag's Horn; and *Diodorus Siculus* that of the Kings of *Egypt*, Lions Heads, Bulls, or Dragons.

The *Crests* have given Rise to several Fables: The Antients, *e. gr.* give *Serapis* the Head of a Sparrow-Hawk, this being the *Crest* of that Cavalier. *Geryon*, they made a Monster with three Heads, because he bore a triple *Crest*; they feigned that *Proteus* changed his Form every Moment, because, being King of *Egypt*, he frequently changed his *Crest*; sometimes bearing that of a Lion, sometimes of a Dragon, *&c.*

The *Crest* is esteemed a greater Mark of Nobility than the Armoury, as being bore at Tournaments; to which none were admitted till they had given Proof of their Nobility. Sometimes it serves to distinguish the several Branches of a Family: It has served on Occasions, as the distinguishing Badge of Factions.

Sometimes the *Crest* is taken from the Device, but most usually is formed of some Piece of the Arms: Thus the Emperor's *Crest* is an Eagle, that of *Castille* a Castle, *&c.*—Families that exchange Arms, as have done the Houses of *Brunswick* and *Cologne*, do not change their *Crests*; the first still retain the Horse, and the latter the Mermaid.

Having thus adorned the Top of the Escutcheon with all its different Pieces or Ornaments, I'll adorn the Bottom thereof with a Motto, where it is most commonly placed; though sometimes a-top, and sometimes round the Escutcheon.

The MOTTO, is a short Sentence or Phrase carried in a Scroll, generally under the Arms, alluding to the Name of the Bearer, sometimes to the Bearing, and sometimes to neither.

The *Motto*, or Word, says *Guillim*, is an external Ornament annexed to Coat-Armour; being the Invention or Conceit of the Bearer, succinctly and significantly expressed, usually in three or four Words, which are set on some Scroll or Compartiment, placed at the Foot of the Escutcheon.

As the *Motto* holds the lowest Place in Arms, so it is the last Blazoning. In Strictness it should express something in the Archievement; but Custom has now received whatsoever is the Fancy of the Devisser.

Note, That the Use of *Motto's* is very antient; History both antient and prophane furnishing Instances thereof. Our Ancestors made choice of *Motto's* to express their predominant Passions, as of Piety, Love, War, *&c.* or some extraordinary Adventure befallen them; most of which from such Originals, have become hereditary in divers Families.

The *Motto* of the Royal House of *Bourbon* is *Esperance*, Hope; and that of the late King *Louis* XIV. and of his Successor, the present King *Louis* XV. *Nec pluribus impar.*—The *Motto* of the Royal Family of *England* is, *Dieu & mon Droit*, God and my Right; and of the Order of the Garter, *Honi soit qui mal y pense*, Shame be to him that evil thinks; of the Duke of *Norfolk*, *Sola virtus invicta*; of the Duke of *Bedford*, *Che sara sara*; of the Duke of *Devonshire*, *Cavendo tutus*, alluding to the Family's Name *Cavendish*; of the Duke of *Kingston*, *Pié repone te*, alluding to the Name *Pierpoint*; of the Earl of *Radnor*, *Quæ supra*, alluding to the three Stars in his Arms; of the Earl of *Abingdon*, *Virtus ariete fortior*, alluding to three Battering Rams bore in the Arms; of *Fortescue* Lord *Clinton*, *Forte scutum salus Ducum*.

Note, That if the Person be a Knight Companion of the Garter, his Escutcheon is environed with the Garter buckled, and adorned with the Motto, *Honi soit qui mal y pense*.—In *France* the Knights of St. *Michael*, and of the Holy Ghost, have their Escutcheons environed with the Collars of those two Orders; and in blazoning such an Escutcheon, it is said to be environed with the Collars of the King's Orders.

Next we'll put SUPPORTERS to our Escutcheon, thus charged and adorned; which *Supporters* are Figures in an Atchievement, placed by the Side of the Shield, and seeming to hold or support it.

Supporters are chiefly Figures of Beasts; Figures of human Creatures used for the like Purposes, are more properly called Tenants.

Some make another Difference between *Tenant* and *Supporter*; when the Shield is bore by a single Animal it is called *Tenant*, when by two they are called *Supporters*.

The Figures of Things inanimated sometimes placed aside the Escutcheons, but not touching, or seeming to bear them; though sometimes called Supporters, are more properly called *Cotises*.

The *Supporters* of the *French* Arms are Angels; which are said to have been first introduced by *Philip* VI. his Device being an Angel overthrowing a Dragon; the Dragon being at that Time the Device of the King of *England*.

The *Supporters* of the *English* Arms are a Lion and an Unicorn; some of the former Kings had a Leopard

and an Unicorn, others Griffins, and others Eagles.

Those of the Prince of *Monaco* are *Augustine* Monks; those of the Family of the *Ursini*, Bears, in Allusion to their Name.

In *England* none below the Degree of a Banneret are allowed *Supporters*, which are restrained to those called the *High Nobility*.—The *Germans* permit none but Princes and Noblemen of Rank to bear them. Among the *French* the Use is more promiscuous.

Supporters are always the last blazoned.

The Escutcheon of Kings, Princes, and Dukes, with all its Ornaments and *Supporters*, is wrapped in a MANTLE, which has the Appearance of foulding of Cloth, Flourishing, or Drapery, that is in any Atchievement drawn about the Coat of Arms.

It is supposed originally to have been the Representation of a *Mantle*, or military Habit worn by antient Cavaliers over their Armour to preserve it from Rust: Or as others hold, a short Covering only worn over the Helmet; which in After times was lengthened, and made to hang from the Helmet below the whole Shield.

The *Mantle* is always said in Blazon to be doubled, that is, lined throughout with one of the Furs, as Ermin, Pean, Vairy, *&c.*

The *Mantle* is seldom mentioned in blazoning a Coat of Arms, and it is not at all necessary to do it.

Note, That having thus compleated our Escutcheon, we must proceed to the blazoning it; which is deciphering it, and naming all the Parts thereof in their proper and particular Terms; and which cannot be done without having Regard to the following Rules.

1. The Metal, or Colour of the Field must be named first:—As *Or*, *Argent*, or *Gules*, &c. 2. The Manner of the Division of the Escutcheon by Line, whether downright or bendwise, and also the Difference of the Line, whether it be indented, ingrailed, *&c.* 3. The Charge which is on the Field. 4. Having thus expressed the Field, the Division, and the Charge, if there be more Parts of the Field occupied by the Charge than one, you are to name the principal Part of the Field first. 5. If there be more than one Kind of Charge in a Field, that in the chief Part is to be named first. 6. No Iteration or Repetition of Words is to be used in blazoning a Coat, especially of any of these four Words, *of*, *or*, *and*, *with*. 7. That there are but two Forms of Blazon, *viz.* Metals and Colours. 8. That Metal upon Metal, and Colour upon Colour is false Heraldry; which admits of no Exception but in the Arms of *Jerusalem*, which are, Argent, a Cross potent between four Crosslets, *Or*.

These previously considered, we'll begin by *Blazoning* the most simple Escutcheon, which is always accounted the noblest; for the great Quantity of different Pieces an Escutcheon is charged with, is not a greater Mark of the Nobility of the Family who bears it.

The Arms of the Kings of *France*, for Instance, are very simple, though the Arms of the most august House of the whole World; for I have heard say, that the late King *Louis* XIV. told an Embassador of the Emperor, who boasted in his Presence of the Antiquity and Nobility of the House of *Austria*, that there were Princes of the House of *Bourbon*, when there were no Gentlemen yet of that of *Austria*.

The *Arms of* FRANCE are blazoned, *Azure*, *Three Fleurs de Lys Or*, *two in Chief and one in Point*.

The Arms of the antient Dukes of *Bretagne*, which are those of the Province, are also very simple, and are blazoned *Ermines sans nombre*, Ermines without Number.

The Arms of the House of *Noailles* in *France*, are but *Gules*, *a Bend Or*.

Those of the Dukes of *La ferté senneterre*, *Azure*, *three Fusiles ranged in Fesse*.

Those of the Dukes of *Rohan*, *Gules*, *nine Macles Or*.

Those of the House of *Richelieu*, *Argent three Chevrons Gules*.

Those of the Dukes of *Brissac*, *Sable three Fesses dantée*, *Or*.

Those of the Dukes of *Sicily*, *Argent a Fesse Gules*.

Those of the Marquiss *de Coetlogon*, Gules, three Escutcheons Ermine, two in Chief, and one in Point.

The Arms of the Kings of *England*, as Kings of *England* only, are also very simple, and are blazoned, *Gules three Lions passant gardant in Pale*, *Or*.

The Arms of *Ireland* are but, *Azure a Harp Or*, *Strung Argent*.

The Arms of the Duke of *Ormond* are, *Or*, *a chief indented Azure*.

Those of the Duke of *Hamilton*, *Gules three Cinquefoils Ermine*.

Those of the Duke of *Ancaster*, *Argent three Battering Rams*, *Bar-wise*, *Azure*, *headed and hooped*, *Or*.

From these simple Escutcheons, I'll pass to those which are charged with more Pieces.

The Marshal of *Montmorency* in *France*, Duke of *Luxembourg*, bears *Or*, *a Cross Gules*, *cantoned with sixteen Alerons Azure*, *four and four charged encœur with an Escutcheon Argent*, *a Lion Gules*.

The Duke of *Villeroy* bears *Azure*, *a Chevron Or*, accompanied with three anchored Crosses of the same.

The Duke *de' Aumont* bears *Argent*, *a Chevron Gules*, accompanied with seven Merlets of the same, four in Chief, and three in Point.

Note, That in blazoning in the *French* Manner, the Term accompanied is never used, but with regard to Pieces of an equal Dignity.

The Arms of the Duke of *Norfolk*, first Duke, and Hereditary Earl Marshal of *England* (though contrary to the pernicious Maxims of a modern Politick, he prefers the Glory of professing his Religion, such as he has received it from his illustrious Ancestors, to the great Priveleges he should enjoy in those two Qualities) are blazoned thus in *English*.—*Gules a Band between six Cross-Crosslets, fishee Argent, with an Augmentation*, viz. *in the Middle of the Bend an Inescutcheon, Or, charged with a demi Lion rampant, pierced through the Mouth with an Arrow, within a double Tressure contre-fleury Gules*.—Which Manner of blazoning this antient Coat of Arms, is in my Opinion very defective, in several Particulars; for, 1. It is too prolix. 2. The Band is named without mentioning if it be Argent, or any other Metal or Colour. 3. The Band is left to mention the Cross-Crosslets, without mentioning what that Band is charged with; and after the Cross-Crosslets have been mentioned, they returned to the Cross-Crosslets, contrary to the strictest Rules of Blazoning, which require that when a Piece is blazoned, the other Piece it is charged with must be blazoned next, before one passes to the blazoning of other Pieces. 4. The Arrow, mentioned as a Piece, is not blazoned as a Piece: Therefore I would blazon this antient Escutcheon thus; *Gules a Band Argent*, *charged encœur with a Lion rampant*, *arrowed in the Mouth*, *within a Tressure contre-fleury Gules*, *the Band accompanied with six Cross-Crosslets Argent*, *three and three*.

Those of the Earl of *Derby* are blazoned in *English* thus; *Argent*, *on a Bend Azure*, three Stags Heads caboshed Or, with a Crescent for Difference; which I would blazon, *Argent a Bend Azure*, *charged with three Stags Heads caboshed Or*, *the Difference a Crescent*.

Those of the Earl of *Rivers*, are blazoned in *English* Argent five Lions rampant 3, 2, 1, Sable: Which blazoning is also lame, because the Colour of the Lions should be named before their Number, since the Colour is so inseparable from the Piece, that it would not be a Piece without it; therefore I blazon it thus:—*Argent*, *five Lions rampant Sable*, 3, 2, 1.

Those of the Earl of *Peterborough*, are blazoned in *English*, *Argent a Chevron between three Stars sable*. This is also defective, because the Colour of the Chevron is not named; therefore I blazon it, Argent a Chevron Gules, three Stars Sable, two in Chief, and one in Point; which last Circumstance, though essential in Blazoning, where the Position of the Pieces is always to be mentioned, is also omitted in the *English* Manner of blazoning this Escutcheon.

Those of the Earl of *Nottingham*, are blazoned in the *English* Manner, *Argent*, *a Chevron between three Griffins passant Sable*, where the Colour of the honourable Ordinary, which should always be mentioned, is omitted, as well

well as the Position of the Griffins. Besides it is false, that the Chevron is between the Griffins; for to be thus, the Griffins should be even in Number, *viz.* four or six, *&c.* Therefore I blazon it thus: Argent a Chevron sable, accompanied with three Griffins passant of the same, two in Chief and one in Point.

Those of the Earl of *Chesterfield* are blazon'd in the *English* Manner, *Party per Cross Ermine, and Gules.* Which Blazoning is contrary to the strictest Rules of *Heraldry*, which cannot admit of the Term Party, but where there is but two Divisions, for what is called here *Party per Cross*, is properly quartered; and if in other Occasions it is called so by the *English* Heralds, why not in this? Therefore I'll blazon it in a more proper, and shorter Manner, *Quarter'd Ermine and Gules of four Pieces.*

Note, That as the different Alliances contracted between noble Houses, seldom fails making some Additions to their Escutcheons, and engage a Family to quarter their Arms with those of another, or several Houses, according as they judge those Quarters more capable to Honour their own, we must give here some Instructions or Rules relating to quartering Escutcheons.

Quartering, in the *French* Manner, is to divide the Escutcheon into four equal Parts, by drawing first a Line perpendicularly from Top to Bottom, which divides it exactly into two equal Parts, and another a-cross which divides it into two other equal Parts, which together make four equal Parts or Quarters, which is told thus, 1, 2, 3, 4. The Quarter on the Left, a-top, being the first *Quarter*; the next to it the second; the Quarter on the Left at Bottom, the third; and the next to it the fourth, or last.

If the first and the last Quarter are the same Coat, they are blazon'd together first; and the second and third together, if they be likewise the same Coat; which always happens if there be but two Coats in the fourth Quarter. For Example, in the *French* Escutcheon, where the Arms of *France* are only quarter'd with those of *Navarre*, the *French* Escutcheon is the first and last; and that of *Navarre* the second and third; therefore we blazon it, quarter'd in the first and last of *France*; and in the second and third of *Navarre*; naming, if we please, the different Colours and Pieces of the Escutcheon; though there is much more Skill to blazon an Escutcheon, which contains several Quarters, in naming the Family to which the Quarter belongs, than in Blazoning the Pieces. For Example, I suppose that the Arms of the Duke of *Norfolk* were quarter'd with those of that excellent Nobleman the Viscount *Montacute Brown*, I would say, quarter'd in the first and last of *Norfolk*; and in the second and third of *Montacute*.

But perhaps the Escutcheon thus quarter'd, contains four different Coats of Arms; that of the Duke of *Norfolk*, of the Duke of *Montague*, of the Earl of *Harrington*, and of the Viscount *Montacute*; I'll say, quarter'd in the first of *Norfolk*, in the second of *Montague*, in the third of *Harrington*, and in the last of *Montacute*.

To divide the Escutcheon into six Quarters, we draw two perpendicular Lines, which divide it into three equal Parts, then draw another a-cross, which divides those three Parts into six, which Parts are told (beginning at the first on the Left a-top, proceeding to the next to it, from thence to the next to that, which is that on the Right a-top, then to the first on the Left at Bottom, from it to the next, ending at that on the Right at Bottom) 1, 2, 3, 4, 5, 6. This the *French* Heralds do not call quarter'd, but *Coupe of three Pieces*; for Example, the Duke of *Ledigunieres*, in *France*, *bears Coupe of three Pieces in Chief supported with three in Point.* In the first, Or a crequier Gules, which is of *Crequi.* In the second, Or two Lions leoparded Gules, which is of *Blanche-fort.* In the third, Or a Wolf hauriant Azure, armed Gules, which is of *Sault-agoult.* In the fourth (which is the first of the Point) Azure three Towers Or, which is of *Montauban.* In the fifth Azure three Pales Or, a Chief of the same, which is of *Fiſe.* In the sixth, and last, Or, two Leopards Azure, which is of *Montlaur.* And over all of *Bonne*, which is Gules a Lyon Or, the chief Cousu Azure, charged with three Roses Argent.

Note, That the *French* have but this Kind of *Parti*, which is the same as the *English Parti per pale*; the *English* Heralds applying the Word to all the Sorts of Partitioning, and never use it without some Addition to specify the particular one intended. Thus they have *Parti*, or *parted per cross*, *per chief*, *per pale*, *per fess*, *per bend dexter*, *per bend sinister*, *per chevron*, &c.

Parti per pale, is when the Chief is divided perpendicularly into two Halves, by a Cut in the Middle from Top to Bottom. This, and this only, the *French* call *Parti.*

Parti per fess, is when the Cut is a-cross the Middle, from Side to Side; which the *French* call *Coupé.*

Parti per bend dexter, is when the Cut comes from the upper Corner of the Shield on the Right Hand, and descends a-thwart to the opposite lower Corner; called by the *French*, *Tranché.*

Parti per bend sinister, is when the Cut coming from the upper left Corner, descends a-cross to the opposite lower Corner one, called by the *French*, *Taillé.*

When the Shield is *Parti* and *Coupé*, it is said to be quarter'd, or *Ecartele.*

It is said to be *Parti* one from the other, when the whole Shield is charged with some honourable Bearing, divided by the same Line that parts the Shield. Here it is a Rule, the one Side be of Metal, and the other of Colour.

The Humour of our Ancestors, *Colombiere* observes, turning much upon Exploits of Arms and Chivalry; they used to preserve their batter'd and hacked Armour as honourable Symbols of their hardy Deeds; and those who had been in the hottest Service, were distinguished by the most Cuts and Bruises that appear'd on their Shields. To perpetuate the Memory thereof, says the same Author, they caused them to be painted on their Shields, and thus handed down to Posterity. And when *Heraldry* grew into an Art, and Officers were appointed to direct the Manner of Bearing and Blazoning; they gave Names to those Cuts, answerable to the Nature thereof; appointing the four above-mention'd, from which all the others proceed.

When the Quarters are quarter'd over again, subdivided each into four, this is called by the *French*, *Contre-Ecartele*, and by the *English*, *counter-quarter'd.*

There are counter-quarter'd Coats which have twenty or twenty-five Quarters.

Colombiere observes, that thirty-two is the greatest Number us'd in *France*, but that the *English* and *Germans* sometimes extend to forty; as a Testimony of the Truth whereof, he says, he saw the Escutcheon of the Earl of *Leicester*, Embassador Extraordinary in *France*, in the Year 1639, divided into forty Quarters; and some, he affirms, go on to sixty-four several Coats.

But a Multitude of Quarters makes a Confusion; and accordingly all the Writers of Blazon cry out against it as an Abuse.

The first Instance of Quartering, whereof we have any Account, is said to be in the Arms of *Renatus*, King of *Sicily*, &c. in the Year 1435, who quarter'd the Arms of *Sicily*, *Arragon*, *Jerusalem*, &c.

William Wickley observes, that such Quarterings are much more proper for a Pedigree to be locked up in a Chest, and occasionally produced as an Evidence for the clearing and ascertaining of Alliances of Families, or Titles to Lands, than to be borne as a Cognizance.

When the Quartering is by a Saltier (which is sometimes used in the *English* Heraldry) the Chief and Point are the first and second Quarters, the right Side the third, the left the fourth.

Note, That in the Middle of a Quarter Shield, is almost always placed the proper Coat of the Family, who quarters it with others, which is blazon'd over all

all in *English*, and *sur le tout* in *French*, because it covers the two lowermost inward Corners of the two uppermost Quarters, and the two uppermost inward Corners of the lowermost Quarters.

Note also, That to render all the Rules of *Heraldry* given in this Treatise still clearer, and more practicable, I'll digest here, in an alphabetical Manner, all the technical Terms proper to it, and heretofore mentioned, with their Name and Signification, in *English*, *French*, and *Latin*.

English.	French.	Latin.
A.	A.	A.
Abatement. Is understood to be some accidental Figure, annexed to the principal Bearing of any Family, whereby it is abated as to its Dignity.	*Abatement.*	*Diminutiones Armorum.*
Adumbration.	The *French* have no such Thing.	*Adumbratus.*
Alerions, Are Birds the same with Martlets.	*Alerions.* The same Signification in *French.*	None in the *Latin.*
Anchor'd. A particular Kind of Cross, whose Extremities resemble the Flukes of an Anchor.	*Ancré.* The same Signification as in the *English.*	*Anchoratus.* Also the same Signification.
Annulet. A small Ring.	*Annulet.* The same Signification.	*Annulus, vel annellus.* The same.
Animé. A *French* Term, used when the Eyes of a rapacious Creature, are borne of a different Colour from the Creature itself.	*Animé.* The same Signification, only our modern Heralds have changed the Term *Animé* into *Alumé.*	*Animatus.* The same Signification.
Armed. Used when the Horns, Beak, or Talons of any Beast, or Bird of Prey, are borne of a different Colour from those of their Bodies.	*Armé.* The same Signification in the *French.*	*Armatus.* Also the same Signification.
Armorie, or *Armory.* The same with Coats of Arms.	*Armoiries. Ecussons.*	*Insignia.*
Arraché. A *French* Word to express any Member forcibly torn off from the rest of the Body. Also called *erased.*	*Arraché.* The same Signification.	*Extirpatus.*
Attired. Used to express the Horns of Stags, Bucks, &c. when of a different Colour from their Bodies or Heads.	*Acorné.* The same Signification.	No such Term.
Avelane. A Term peculiar to the Form of a Cross, whose Quarters resemble the Philberd Nut.	No such Thing.	*Crux avellana.*
Azure. The Colour blue.	*Azur.* The same Colour.	*Azureus.* The same.
B.	B.	B.
Barbed and *Crested.* Used when the Comb and Gills of a Cock are of a different Colour from the Body.	*Barbe & Creste.* The same Signification as in *English.*	*Barbula & Crista.*
Bar. An honourable Ordinary in form of, but less than the Fess, drawn transverse-wise, from the right Corner of the Escutcheon a top, down to the Left Corner.	*Bare.* Placed in the same Manner in the *French* Blazon.	*Vectis.*
Bar Gemel. A double Bar.	*Jumelles.* The same Thing as in the *English.*	*Juguriæ fasciolæ.*
Barrelet, or *Barrulet.* The Diminutive of the Bar, consisting of a quarter Part, or one half of the Closet.	*Barelle.* The same Signification.	*Barrula.*
Barruly. A Field divided Bar-wise, in many equal Parts.	*Barellé.* The same Signification.	*Transverse fasciolatus.*
Barry. A Shield divided transverse into 4, 6, or more equal Parts, and consisting of two or more Colours, interchangeably disposed.	*Fascé.* The same Signification, with this single Difference, that in the *English Barry,* the Pieces are always even, and in the *French* Heraldry, *fascé* is sometimes of 7, 9, or 3, or 4 Pieces.	*Fasciatum.*
Barry-Pily. Piles in Fesse counterplaced; others call it, *Party per Pale, dancetté.*	*Parti-Emanché.* Blazoned *Emanché d'argent & de gules,* of so many Pieces.	*Runcinatus.*
Baton, or *Battoon.* Signifying a Staff, or Cudgel generally used in Bastardy.	*Baton.* The same Signification.	*Bacillus.*
Becqué. Signifying beaked, when the Beak and Legs of any Bird of Prey are of a different Colour from the Body they are blazoned, *beaked and membered of such Colour.*	*Becqué.* The same Signification.	*Rostratus.*
Bend. One of the honourable Ordinaries, containing a third Part of the Field when charged, and a fifth when plain; drawn from the left Corner of the Escutcheon a-top, down to the right Corner.	*Bande.* The same Thing as in the *English.*	*Tænia.*
A Bend sinister. It differs from a Bend only in its Location, being drawn from the right Corner a-top, down to the left.	*Barre.* It differs from *Bande* only in its Location, being drawn like the *English* Bend sinister.	*Vitta.*
Bendlet. The half of a Bend.	*Bandelette.* The same Signification.	*Bandula.*
In Bend. Signify a Piece located Bendwise.	*En Bande.* The same Signification.	*Obliquè dextrorsùs positus.*
Per Bend, or *Party per Bend.* Signifying a Line drawn from the upper left Corner of the Escutcheon down to the lower left Corner, to divide it into two equal Parts.	*Tranché.* The same Signification as the English *per Bend.*	*Obliquè dextrorsùs bipartitum.*
Bezants or *Besants.* By this are understood certain round and flat Pieces of Bullion, without Impression, supposed to be the Money of *Byzantium,* now *Constantinople,* whence they borrow that Name. With the *English* they are always said to be of Gold; but the *French* and other Nations have them also of Silver.	*Besant.* The same Signification, as in the *English.*	*Byzantius nummus.*
Billets. Signifying Bricks; for *Mackenzy* tells us, that many *English* Families, settled in *France,* bear them to denote their Extraction from *England,* where so much Brick is made.	*Billettes.* Signifying, in my Opinion, the same as in the *English.*	*Laterculi.*

Billetty.

English.	French.	Latin.
Billetty. Signifies something strewed as it were all over with Billets.	*Billetté.* The same Signification as in the *English*.	*Laterculatus.*
Bordure. A *French* Word signifying a Border.	*Bordure.* The same Signification.	*Fimbria.*
	Bretessé. The *French* thus term what the *English* call imbattled, counter-imbattled, that is, imbattled on both Sides.	*Utrimque prinpatus.*
Brisé. A *French* Word signifying any Thing broken, as a Chevron, or other Ordinary; but then the Form in which such Ordinary is broken, ought to be expressed.	*Brisé.* The same Signification.	*Fractus.*
Brisure.	*Brisure.* By this Word the *French* express Family Differences borne in Coats of Arms, because they seem to break the principal Figure with which they are carried.	*Adscitia sectio.*
C.	C.	C.
Cabossed, or *Cabossed.* From *Cabosse*, an obsolete *French* Word, signifying a Head, and used when Beasts Heads are borne, without any Part of the Neck, full-faced.	*Cabossé.*	*Ora obvertentia.*
	Cabré. Signifying erect.	*Erectus.*
	Cheval Cabré. This the *English* would call Saliant.	
Caltraps. A Kind of Machine used in War, to throw into the Roads through which the Cavalry is to pass, to gall the Feet of their Horses; having always a Point upright, in whatever Manner they are flung.	*Chausse-trappes.*	*Murices* or *Tribuli.*
Canton. Is a *French* Word, signifying a Quarter, or rather a Corner, placed a top of the Escutcheon, on the Left Side.	*Canton.* The same Signification.	*Quadrans Angularis.*
Cantonné. Is also a *French* Word used by them, to express the Position of such Things as are borne with a Cross; when placed in the Angles.	*Cantoné.* They blazon the Arms of *Montmorency, d'Or a la Croix de Gule, cantonée de seize Alerions d'Azure.*	*Stipatus.*
	Chapeau. The common *French* Word for a Hat.	
Chaperonne.	*Chapron.* An old *French* Word, signifying a Hood, whence it is become the Name of those little Shields containing Death Heads, and other Funeral Devices, placed upon the Foreheads of the Horses that draw Hearses at Funeral Pomps.	
Chaperonné. Hooded.	*Chaproné.* The same Signification.	*Calyptratus.*
Charge. By the Charge of a Field is understood the Impressions or Figures therein contain'd.	*Charge.*	*Figura.*

English.	French.	Latin.
Charged. Is when a Shield is charged with any Figure.	*Chargé.* The same Signification.	*Ferens.*
Checky. To express an Escutcheon or a Piece chequer'd with a Metal and a Colour; for if it was chequer'd with two Colours or two Metals, it would be false Blazon.	*Echiqueté.* The same Signification, with this Difference, that the *French* mention of how many Panes their chequer Work consists, and sometimes they only mention the fewest Number that appears, accounting as it were the rest a Field.	*Quadris contextus.*
Chevron. Representing the Rafters of a House.	*Chevron.* Represents the same as in the *English*.	*Cantherius.*
Per Chevron, or *Party per Chevron.* Which Term is very little or not at all used in *Heraldry.*	*Manteli.*	*Manteliatum.*
Chevronny. Signifies a Shield divided into several by Partitions chevron-wise.	*Chevroné.* The same Signification.	*Cantheriatus*
Chief. Signifies the Head of a Shield; 'tis one of the Ordinaries, and occupies a third Part of the Field.	*Chef.* The same Thing as in the *English*.	*Summum.*
In Chief. Any Thing borne in the chief Part, or Top of an Escutcheon.	*En Chef.* The same Signification.	*In Summo.*
	Cimier. A Term used for the Crest, but never used in *English*.	*Accessio scuti Coronaria.*
	Clariné. A Term by which *French* Heralds express a Collar of Bells, round the Neck of any Beast, &c. *Vache Clarinée d'Azure.* *The* English *would say*, a Cow gorged with a Collar of Bells *Azure*.	*Cymbalatus.*
Cleché. Is a *French* Term to signify any Ordinary pierced throughout; that is, when any Figure is so perforated, as that the chief Substance is lost, and nothing visible but the very Edges.	*Cleché* The same Signification.	*Foratus.*
Close. A Term borrow'd from the *French* Word *Clos*, which signifies any Thing closed or inclosed, and used to express the Bearing of such Birds Wings, as are generally addicted to Flight, as an Eagle, Falcon, Swallow, &c.	*Fermé.* Used for the Bearing of a Helmet with the Visor down.	*Clausum.*
Closet. The Diminutive of the Bar.	Not used in the *French* Blazon.	
Combatant. Used when any two Figures are represented fighting.		*Pugnantes.*
Compony. Signifies the Shield being composed of seven or eight Pieces.	*Componé.* The same Signification.	*Compositus.*
Counter Compony. Is when the Figure is composed of two Panes.	*Contre-componé.* The same Signification.	
Counter-changed. Signifies a Field and Charge divided or parted by any Line or Lines of Partition, consisting all interchangeably of the same Colours.	No such Term in this Language.	*Transmutatus.*

English.	French.	Latin.
	Contrebandé. Entirely a *French* Term, used by us to express what the *English* call bendy of six per bend sinister counter-changed.	
	Contrebarré. The same with the *English* bend sinister per bend counter-changed.	*Contravittatus.*
Counter-quarter'd. When any one of the grand Quarters consists quarterly of two or more Coats.	*Cont 'Escartelé.* The same Signification.	*Contraquadriti partitus.*
	Contrechevroné. Signifies a Shield Chevron and parted by some Line. This is very seldom found in *Heraldry.*	*Contracantheriatus.*
	Contrefacé. Is by the *French* understood to signify what the *English* call barry per pale counter-changed; always specifying the Number of Panes into which the Escutcheon is divided.	*Contrafasciatus.*
	Contrepalé. The same as the *English* paly per fesse counter-changed.	*Contrapalitus.*
	Contrepotencé. (The same with the *English* potent counter-potent) is used to express what some antiently called *Varry couppé.*	*Patibulatum.*
	Contrevairé. This Fur is never found in *English* Writers, tho' the *French* use it.	
Cotice, or *Cotise.* The fourth Part of the Bend, never borne by the *English* but in Couples, with a Bend between them.	*Cotice.* The same Signification.	*Tæniola.*
	Cotice. The Manner of expressing any Escutcheon divided bend ways into many equal Parts; as in the Coat of *Anois*, blazon'd by Baron *Cotice, d'Argent & d'Azure de dix Pieces*; but when it is divided into six, they only say, *bandé de six.*	
	Cotoyé. This is the *French* Manner of expressing what the *English* understand by cottised. For *Cotoyé* signifying properly any Thing accosted or sided, does very well here for the Bend.	*Utroque latere accinctus.*
Couchant. This is understood of a Beast laying.	*Couchant.* The same Signification.	*Jacens.*
	Coupé. By this is meant one of the honourable Lines of Partition among the *French*, viz. the same as the *English* party per fesse, and represents a Cut athwart the Shield, received in Battle.	*Sectum.*

English.	French.	Latin.
	Couped. Is as much as to say cut, and is used to express when the Head or any other Limb of an Animal is cut off from the Trunk, and not forcibly erased or torn therefrom. Couped is used also to denote such Crosses, Bars, Bends, Chevrons, &c. as do not touch the Sides of the Shield; but seem, as it were, to be cut therefrom.	*A latere situi disjunctum.*
	Counterpassant. Whereby are understood two Beasts, passing the contrary Way to each other.	
	Countersaliant. When two are leaping different Ways from each other.	
	Countertripping. As Countersaliant, applied only to Deer, which are said to trip.	
	A Couple close. Thus called from enclosing by Couple the Chevron.	*Cantheria*
	Courant. A *French* Word signifying running or posting forwards, in which Sense it is used in Eng. *Heraldry.*	*Currens.*
	Couronné. Signifying crowned.	*Coronatus.*
	Cousu. Sewed: A Term taken from the *French*, to express a Chief, Bordure, &c. which is of the same Metal or Colour with the rest of the Field. Because as it is a Rule that Metal cannot be carried upon Metal, nor Colour upon Colour, those Pieces are understood to be sewed to, not carried upon the Field.	*Sutus.*
	Crenelé. The *French* Term for embattled, also frequently used by the *English.*	
	A Crescent. That Sort of Half Moon that has its Horns turn'd upwards.	*Croissant montant.*	*Luna Cornuta*
	Crest. Expressing those Devices with which antient Soldiers used to adorn the Tops of their Helmets.	*Crête.*	*Crista.*
	Cross. This is easily understood by every Body; and has the same Signification in all the three Languages.	*Croix.*	*Crux.*
	Crosslet. Signifies a little Cross.	*Croisette.* The same Signification.	*Crucicula.*
	Crossways. Signifies the Position of such Figures, whose Location seems to represent the Form of a Cross.	*En Croix.*	*In modum crucis collocata*
D.	D.	D.
	Dancette. A large Sort of Indenting.	*Danché.* The same Signification.	*Denticulatus*
			Debruised.

English.	French.	Latin.
Debruised. A Term peculiar to the *English*; by which they would intimate the grievious Restraint of any Animal, debarred its natural Freedom by any of the Ordinaries being laid over it.		
Demi, or *Demy.* A *French* Word, which signifies half. And thus the *English* use it as Demi or Half-Lyon.	*Demi.* The same Signification.	*Dimidiatus.*
Diapred. A certain dividing of the Field in Panes, like Fretwork, and filling the same with Variety of Figures.	*Diapré.* The same Signification.	*Duriatus.*
Differences. Certain Additions to a Coat of Arms, whereby something is added or alter'd to shew Juniority, or a Removal from the principal House.	*Brisures.* The same Signification.	*Diminutiones armorum.*
Displayed. Signifies a Bird with its Wings expanded.	*Eployé.* The same Signification.	*Expansus.*
Dormant. A *French* Word, borrowed by the *English* Heralds to signify any Creature sleeping.	No such Bearing in the *French* Heraldry.	*Dormiens.*
Doublings. To express the Linings of Robes, or Mantles of Estate.	*Doublé.* The same Signification.	
	Dragoné. A Term used in *French* Heraldry for bigenerous Serpents, to express such whose hinder Part partakes of the Dragon, and especially when of a different Colour from the rest of the Body.	
E.	E.	E.
	Ecusson. The same as the *English* Escutcheon.	
	Effaré. A Term used by the *French* Heralds to signify any Thing feared, or put in a Passion, particularly attributed to Animals, as an Unicorn, a Horse, *&c.*	*Elatus.*
Endorsed, the Corruption of *Indorsed.* Erroneously used for Addorsed, which signifies something borne Back to Back.	*Adossé.*	
Engrailed. Which signifies something made ragged at the Edges, by being struck with Hail.	*Engrailé.* The same Signification.	*Striatus.*
	Enté. Signifies something grafted or ingrafted.	*Insitus.*
	Environné. A Term used by the *French*, when a Lyon, or other Figure is environ'd or encompassed round with other Things: They say environ'd with so many Besants, *&c.* in Orle, or whatsoever other Form their Position may resemble.	*Septus.*

English.	French.	Latin.
Erased or *Erated.* Signifies any Thing plucked off from the Part to which Nature fix'd it. As Lyon's, Wolf's, *&c.* Head.	*Araché* The same Signification.	*Extirpatus.*
F.	F.	F.
	Face. Is the *French* Word for the *English* Fesse.	
	Facé. Is the same as the *English* Barry.	
A Fer de Moline, Inkmoline. Signify the same Thing, *viz.* the Iron of a Mill.	*Fer de Moulin.* La Piece de fer qui soutient la meule tournante dun moulin.	*Ferrum molindinatium.*
Fesse. One of the honourable Ordinaries, containing always a third Part of the Field.	*Face.*	*Fascia.*
	Fiché. Signifying the *English* Fitchy.	
Fillet. An Ordinary which, according to *Guillim*, contains the fourth Part of a Shield.		
Fimbriated. An Ordinary having a Bordure or Hem of another Colour.	*Frangé.* The same Signification.	*Fimbriatus.*
	Flanqué. By this the *French* express the *English* Party per saltiere.	*Decussaté quadrifidus.*
Fleury. Which signifies flowered.	*Florencé.* The same Signification as in the *English.*	*Liliatus.*
Fretty. Is of six, eight, or more Pieces.	*Fretté.* The same as in the *English.*	*Caltratus.*
Fusil. Signifies a Spindle.	*Fusée.* The same Signification.	*Fusus.*
Fusilly. By this Word is understood any Thing entirely full of Fusils.	*Fuselé.* The same Signification.	*Fusillatum.*
G.	G.	G.
Garbe. By which is expressed a Sheaf of any Kind of Grain.	*Gerbe.* The same Signification.	*Fascis frumentarius.*
Gardant. Is a *French* Word signifying guarding, preserving, *&c.* In Heraldry 'tis understood to represent any Thing full-fac'd, because the Action seems to imply a Watchfulness.	*Gardant.* The same Signification.	*Obverso ore.*
Regardant. By this is understood any Thing looking behind him.	*Regardant.*	*Retrospiciens.*
Gules. Is the red Colour in *Heraldry.*	*Gueule.* The same in the *French* Heraldry.	*Ruber.*
Gutty. Signifies any Thing full of Drops.	*Gutté.* The same Signification.	*Guttis respersum.*
H.	H.	H.
Hauriant. A Term used to express any Fish erected upright.	*Hauriant.* The same Signification.	*Hauriens.*

English.	French.	Latin.
I.	I.	I.
Jissant. Is a Term which some Heralds use to express a Lyon, or any other Figure borne Jacent, or as it were over all, having a Chief or other Ordinary, under some Part of it.		
Imbatteled. Signifies a Notch.	*Crenelle.* The same Signification.	*Pinnatus.*
Impaling. Is properly the halving or dimidiating any Thing by a perpendicular Line; in *Heraldry* it is used to express the Manner of Marshalling the Arms of Man and Wife, which antiently was done in that Manner; that is, the dexter half of the Man's Coat was join'd with the sinister half of the Woman's; but of later Years, the two Coats compleat are join'd together, yet retain the same Term, and are said to be impaled.		
Indorsed. By this is understood any Thing borne Back to Back.	*Adossé.* The same Signification.	*Ad invicem tergum vertentes.*
Inescutcheon. Is a small Escutcheon borne within the Field, and one of the Ordinaries, according to *Guillim.*		
Ingrailed. Any Thing struck, and notched by the Hail.	*Engraillé.* The same Signification.	*Striatus.*
Invecked. Signifies something furrowed.	*Canelé.* The same Signification.	*Invectus.*
Issuant. Signifies issuing or coming forth, which also is the direct Signification of the Word *Naissant.* Yet Heralds dispute their Significations when used as Terms in *Heraldry:* Some being of Opinion, that when a Lyon is term'd *Issuant,* he shews but his Head, the Top of his Tail, and the End of his Fore-Legs; whereas *Naissant* is generally understood to be the upper half of the Lyon; therefore to avoid confounding these Terms, we should express what Part of the Lyon appears.		*Nascens.*
L.	L.	L.
A Label. Authors differ concerning what this really is; therefore we need not wonder it has met with various Names.	*Lambel.*	*Lambella.*
Lambrequin. The Point of a Label, or Label of a File.	*Lambrequins.* The same Signification.	*Penna.*
Langued. A Term used when an Animal has its Tongue of a different Colour from the rest of his Body.	*Langué.*	

English.	French.	Latin.
Lozenge. Is much like the Fusil in Shape, except that it is more upon the Square.	*Lozange.* The same Signification as in *English.*	*Plinthium.*
Lozengy. Signifies a Shield full of Lozenges.	*Lozangé.* The same Signification.	*Rhombulis interstinctus.*
M.	M.	M.
Mantle. The Cloak or Mantle Coats of Arms are adorned with.	*Manteau.* The same Signification.	*Pallium.*
Martlets. It is a little swift Bird, that used to build in Castles and high Turrets; and is painted without Feet.		*Merula.*
Mascle. Are said to represent Spots in certain Flints; and others believe the *Mascle* to be the Mash of a Net.	*Macle.*	*Macula.*
Massoned Signifies the setting or joining of Stones in a Building.	*Massoné.* The same Signification.	*Glutinatus.*
Membred. Used when the Legs of an Animal are of a different Colour from the Body.	*Membre.* The same Signification.	*Tibiatus.*
Mooted. By this is understood any Tree that is eradicated, or torn up by the Roots.		*Eradicatus.*
	Montant. Expressing in the *French* Heraldry any Animal laying upon its Back, with its Belly upwards carelessly.	*Resupinus.*
	Morné. A Word for any Thing lame or imperfect.	*Mutilatus.*
A Mounde. Is the Sign of imperial Authority, being a Ball or Globe, encircled, and having a Cross on the Top, frequently to be met with in the Pictures of Princes.	*Monde.*	
Mullet.	*Molette.* All *French* Authors take this for the Rowel of a Spur, and affirm it must be always pierced, which differences it from a Star, which is never so. The *English* are some of them for having it a Meteor, or falling Star.	*Rotula Calcaris.*
N.	N.	N.
Nebuly. Signifies Cloudy.	*Nebule.* The same Signification.	*Nebulatum.*
	Nouri. A Term used in the *French* Heraldry, when the Stalk of a Flower, *&c.* is of a different Colour from the rest.	*Nutritus.*
O.	O.	O.
	Ombré. Signifies shadowed.	*Inumbratus.*
	Ondé. Is waved, or wavy.	
	Onglé. When the Claws or Talons of any rapacious Creature, are of different Colours from their Bodies.	*Ungulatus.*

English.	French.	Latin.
Or. Is the Term by which Heralds express the Metal Gold.	*Or.*	*Aurum.*
Orle. In vulgar *French*, signifies a Selvage or Welt; and which is also its Signification in *Heraldry*. This Trace going round the Shield, in the inner Side, in the Form of a Selvage.	*Orle.* The same Signification.	*Limbus.*
In Orle. That is, several Things borne orleways, or in the Form of an Orle.		*Ad oram positus.*
Over all. Thus Heralds term any Figure which is borne over another, obscuring Part thereof, together with Part of the Field.	*Sur le tout.* The same Signification.	*Toti superinductum.*
P.	P.	P.
Pale. An honourable Ordinary, containing a third Part of the Field.	*Pale.* The same in the *French Heraldry*.	*Palus.*
Pallet. A small Pale, containing but one half thereof.	No such Piece in the *French*.	*Palus minutus.*
In Pale. To signify Things borne one above another in Form of a Pale.	*En Palé.* The same Signification.	*In Palum collocatus.*
Paly. Is when the Shield is divided into four, or more equal Parts by perpendicular Lines.	*Palé.* The same Signification.	*Palis exoratus.*
Paly Bendy. Is when the Escutcheon is divided by Lines perpendicular and diagonal, from the dexter chief Point.	No such Term.	No *Latin* for it.
Pannes. The Term by which the *French* understand Furs.		*Pelles.*
	Papillioné. When the Charge is made in the Form of the Wings of Butterflies.	*Papillionatus.*
	Parti. The *French* Method of expressing *Party per Pale*.	*Partitus.*
Passant. By this is understood a Lion, or any other Creature, passing along in a gradual Pace.	*Passant.* The same Signification.	*Gradiens.*
	Passé en Sautoir. By this we express any Thing borne in Saltire.	*Decussatus.*
	Peri. Something appearing to be sunk in the Middle of the Field. There is *Peri en Bare*, *Peri en Bande*.	*In medio positus.*
Pheon. Is a Kind of Instrument or Dart, with a barbed Head.	*Fer de Dard.*	*Ferrum Jaculi.*
Pile. Is an Ordinary, and taken for those Piles on which Bridges, &c. are built.	*Pieu.*	*Pila pontis.*
Pily Bendy, or *Bendy Pily.* Consists of Piles placed Bend-ways, and extending from one Side of the Escutcheon to the other.		

English.	French.	Latin.
A Point. Is an Ordinary, something like to a Pile, and rising out of the Base.	*Pointe.* The same Thing in the French *Heraldry*, where it is reckoned among the twelve honourable Ordinaries.	*Cuspis.*
In Pointe. When Swords, Piles, &c. are so borne, as that their Points resemble the End or Point of a Pile.	*En Pointe.*	
Powdering. Is the strewing or filling up a Field irregularly with any small Figures, as Ermine Spots, &c.		*Repletus.*
Proper. When any Animal, Vegetable, &c. is of its natural Hue or Colour, it is said to be borne proper, that is, of a proper Colour.		*Color naturalis.*
Purflew. Is a Term by which some fancy to express a Bordure, or other Furr.		
Purpure. Is the Colour Purple.	*Pourpre.* The same Thing as in the *English*.	*Purpureus Color.*
Q.	Q.	Q.
A Quarter. Is a quadrangular Ordinary resembling a Banner, and taking up a fourth Part of the Field.	*Quartier.* The same Signification.	*Quadrans.*
Quartering. Signifying the Marshalling divers Coats, in separate Area's, or Quarters in one Shield.	*Ecartelèr.*	*Cumulationes armorum.*
	Queüe. Signifies a Tail, and is used to express a Lion with two Tails; as *queüe fourchee noüee*, &c.	
R.	R.	R.
	Racourci. A *French* Term, which signifies shortened.	*Accisus.*
Rampant.	*Rampant.* Is the Participle of *Ramper*, which in *French* signifies to creep; used in *Heraldry*, both by the *French* and *English*, to express an Animal erect.	*Insiliens.*
	Rangé. A *French* Term, by which we understand ranged or placed, as so many Martlets, &c. ranged in Saltire, Bend, or the like.	*Ordinatus.*
Rebus's. By this, in *Heraldry*, is meant such a Coat, as by its Figure alludes to the Name of the Bearer; as three Castles for *Castleton*; a Bear for *Bernard*; three Salmons, for *Salmon*, &c.	*Armes parlantes.* The same Signification as in the *English*.	
	Recroisé. Signifies crossed, as a Crosslet crossed, or as they say in the *English* a Cross-Crosslet.	*Crucibus iteratus.*
Regardant. Is a *French* Participle, which signifies looking towards the Tail.	*Regardant.* It signifies looking behind.	*Retrospiciens.*
Reversed. Is any Thing borne the upper Side, or End downwards.	*Renversé.* The same Signification.	

Rompu

English.	French.	Latin.
	Rompu. Signifies broken, from *rumpo*, to break; it is used to express broken Chevrons, Bends, and the like.	*Fractus.*
Roundle. Is a round Figure borne in Arms. The *English* have a Whim to distinguish all Roundles, by Name, according to their Colour; but the *French* call all *Torteaux* of this or that Colour, except they be of Metal, and then they term them Bezants.	*Tourteau.*	
S.	S.	S.
Sable. By this is understood the Colour black.	*Sable.* The *French* use the same, and the *English* have it from them; but whence they took it is the Question. *Guillim* thinks it might be from *Sabulum*, because of its gross, and heavy Aspect. But *Mackenzy* thinks it was, because the best sable Furrs are black.	*Ater, niger,* &c.
Salient. Signifies Leaping.	*Saillant.* The same Signification.	*Saliens.*
Saltire. *Upton* says, it was an Instrument to catch wild Beasts; whence it must come from *Saltus*, a Forest: Others say, it was an Instrument to scale Walls, by which it must come *à saltando in muros*, from leaping upon Walls. But most Authors agree it is borne in Imitation of St. *Andrew*'s Cross.	*Sautoir.*	
Scarp. A Scarf. *Guillim* holds it a Diminutive of the Bend sinister, something broader than a Baton.	No such Term.	
Escalop. A Sea Shell-fish.	*Coquille.* The *French* understand by this Term, all Sorts of Shells.	*Conchylium.*
Segreant. Is the proper Term for a Griffin displaying his Wings, as ready to fly.	*Segrant.* The same Signification.	*Erectus.*
	Sejant. Signifies only sitting.	*Sedens.*
	Semé. Denotes an irregular Strewing without Number, all over the Field. *Semé de fleurs de Lys d'Or.*	*Sparsus.*
	Sinople. Is the *French* Term for Green, and borrowed from the Name of a Place in the *Levant*, where the best Materials for dying Green are found.	
Slipped. As in Trefoils, or any Branch slipped from the Stem.		
T.	T.	T.
	Taillé. Is the *French* Term, by which is expressed the *Party per Bend sinister* of the *English*.	

English.	French.	Latin.
	Tiercé. A *French* Term, by which is understood a Shield tierced, or divided into 3 equal Area's, the Manner of which we express by *Tiercé en Pal, en face, &c.*	*Tertiatum.*
	Timbré. Having an Helmet.	*Galeatus.*
	Torce. A *French* Word, whereby some express a Wreath, or Pieces of Silk wreathed or twisted, on which Crests are frequently placed.	
	Torteaux. Are certain Rundles, by some taken for Cakes; by others for Bowls; and by others for Wounds.	*Tortellæ.*
	Tranché. Is the *French* Term to express *Party per Bend.*	
	Treillé. Signifies letticed. This Bearing is very like to *Fretté*; except that these Pieces do not alternately pass over, and under each other, but are carried throughout, and always nailed in the Joints.	
Tripping. As a Buck or Doe, passing in its proper Gait, which is with a Sort of *Tripping.*		*More suo incedens.*
Trunked. Is when the Trunk of a Tree is borne, lopped of its Branches, and cut from the Root.	*Trunqué.* The same Signification.	*Truncatus.*
V.	V.	V.
Vairé. In *Heraldry* is a Kind of Fur.	*Vairé.*	*Variegatum.*
Undy. Any Thing formed of a waved Line.	*Undé.* The same Signification.	*Undulatus.*
Voided. By this is understood an Ordinary so evacuated, as that nothing but the bare Edge thereof remains to shew its Form.	*Vuidé.*	*Evacuatus.*
	Vole. Signifying two Wings expanded.	*Ala.*
	Demi-Vole. Signifies but one Wing.	*Ala simplex.*
Volant. That is, flying; and thus any Bird is termed borne in that Action.	*Volant.*	*Volans.*
W.	W.	W.
Wyverm A Kind of flying Serpent; the upper Part resembling a Dragon, and the lower an Adder or Snake. This owes its Being to the Heralds, and can boast of no other Creation.		*Viverra.*

Note, That I'll conclude this Treatise of *Heraldry*, by blazoning the Arms of all the Sovereigns of the whole World; beginning with those of the Pope.

The

The Papal Escutcheon is *Gules, consisting of a long Cap or Head-piece Or, surmounted with a Cross Argent, and garnished with three Royal Crowns, and two Keys of St.* Peter, placed in Saltier. These Arms are put for Crest, to those of the House of the reigning Pope.

Note, That *Boniface* VIII. was the first that wore the Tiara with a double Crown. And *Urban* V. made it in Form of a Cap, adorned with a triple Circle of Gold for some Mystery contained therein. It is called the *Regnum*, because it denotes the Dignity and Power of Priest and Emperor. Some Popes had for their Devise, *Innocens manibus, & mundo corde.*—The Pope stiles himself *Servus Servorum Dei*, the Servant of the Servants of God.

The Arms of the present EMPEROR, are two Escutcheons joined together, 1. *Argent, a Lion, Gules, the Tail nowed and passed in Saltier, crowned, armed, and langued Or*, for *Bohemia*. 2. *Sable a Lion crowned Or*, for the *Palatinate*. 3. *Fusil in Bend Argent and Azure of 21 Pieces*. The Shield placed on the Breast of an Eagle displayed Sable in a Field Or, diademed, membred, and beaked Gules, holding a naked Sword in the right Talon, and a Scepter in the left (the two Heads signify the Eastern and Western Empire) the Shield crested with an Imperial Crown, closed and raised in the Shape of a Mitre, having betwixt the two Points a Diadem surmounted with a Globe, and Cross Or. For a Devise, *Pax & salus Europæ*.

The Arms of the King of FRANCE, are *Azure, Three Flowers de Lys Or*; and the Arms of *Navarre*, which he also bears, the Shield environed with the Collars of the Order of St. *Michael*, and the Holy Ghost. For Crest a Helmet entirely open, whereon a Crown with 8 inarched Rays, topt with a double Flower de Luce. The Supporters, two Angels habited as *Levites*; the whole under a Pavillion Royal, Semi of *France*, lined Ermine, with these Words: *Ex omnibus floribus Elegi mihi lilium. Lilia neque laborant neque nent.*

Note, That Sir *George Mackenzy* speaks thus of the Precedency which the Kings of *France* have obtained among Christian Kings: 'Next to the Imperial Ministers the *French* take Place, as being the largest 'Realm in Christendom, and most noble, since '*Charlemagne*, their King, obtained the Imperial Diadem;' and he should have added, that his next Descendants succeeded him in that Dignity, and were both Emperors and Kings of *France*.

The Arms of the King of ENGLAND, which I place next, because he is also King of the most antient Monarchy next to *France*, viz. *Scotland*, are *quarterly*, in the first grand Quarter, *England*, viz. *Gules, three Lions passant guardant Or*; *impaling Scotland*, viz. *Or, a Lion rampant within a double Tressure contre-fleury Gules*: The second grand Quarter *France*, viz. *Azure three Fleurs de Lys, Or*: The third *Ireland*, viz. *Azure, an Harp Or, strung Argent*: And in the fourth *Brunswick*, that is *Gules, two Lions passant guardant Or*, impaled with *Luneburg*, viz. *Or, semi of Hearts Gules, a Lion rampant Azure*, having antient *Saxony*, that is *Gules, a Horse saliant Argent, enté en point, with an Escutcheon surtout Gules, charged with the Imperial Crown of Charlemagne*; being the proper Badge of the hereditary Treasurer of the sacred *Roman* Empire, all within a Garter, the Ensign of the most noble Order of that Name: Above the same an Helmet, answerable to his sovereign Jurisdiction, and thereon a Mantle of Cloth of Gold, double Ermine, adorned with an Imperial Crown, surmounted on the Top, for his Majesty's Crest by a *Lion passant guardant Or*, crowned with a like Crown proper; sustained, on the dexter Side, with a Lion Imperially crowned Or, as the proper Supporter of the *English* Ensign; and on the Left by an Unicorn Argent, gorged with a princely Crown; from which is a Chain turn'd over his Back, and between his Legs Gold, of which Metal he is also hoof'd, mained, and tufted, both standing upon a Compartment, adorned with a Rose and Thistle proper, and inscribed (in a Scroll within) with his Majesty's Devise, *Dieu & mon droit*.

The Arms of the King of SPAIN, are *quarterly*. The first Quarter countrequartered, *in the first* and *fourth Gules, a Castle triple towered Or, bordered Azure, purfled Sable*, for *Castile*. In the *second* and *third*, *Argent a Lion passant Gules crowned, langued, and armed Or*, for *Leon*. In the second great Quarter, *Or, four Pallets Gules*, for *Arragon*. *Party Or 4 Pallets, also Gules, betwixt two Flanches Argent, charged with as many Eagles Sable membred, beaked, and crowned Azure*, for *Sicily*. These two great Quarters *grafted in Base Argent, a Pomegranate vert, stalked and leafed of the same open, and seeded Gules*, for *Granada*. On the whole the Arms of *Portugal*: In the third great Quarter, *Bendy of 6 Pieces Or, and Azure bordered Gules*, for antient *Burgundy*. In the fourth Quarter, *Azure Semi of Flowers de Lys Or, with a Bordure Componé Argent, and Gules*, for modern *Burgundy*. And over all *Azure three Flowers de Lys Or*, for *France*.—For Crest a Crown trefoiled Or, raised with 8 Diadems terminating in a Mound Or. The Shield encompassed with the Collars of the Holy Ghost, and of the Golden Fleece; and on the Sides stand two Pillars of *Hercules, viz.* one on each Side, with this Devise, *Nec plus ultra*.

The Arms of the King of PORTUGAL are, *Argent, five Escutcheons Azure, charged with as many Besants placed in Saltier*, for *Portugal*. *The Shield bordered Gules, charged with seven Towers Or*, for *Algarve*. The Crest a Crown Or, under the two Flanches; and at the Base of the Shield appear the Ends of two Crosses, the one pattee Gules, for the *Order of Christ*; the other Flower de luced Vert, for the *Order of Avis*. The Devise changeable; but frequently is, *Pro rege & grege*.

Note, That the five Escutcheons were borne in Memory of five Kings, whom *Alphonse* I. slew at the Battle of *Obrique*, *Anno* 1139. The Border and Towers were added by *Alphonso* III. on his Investiture into the Kingdom of *Algarve* by *Alphonso* X. of *Castile*, *Anno* 1257. whose Daughter *Beatrix* he then married.

The Arms of the Queen of HUNGARY, are *quarterly*: 1. *Barwise Argent and Gules of eight Pieces*, for *Hungary*: 2. *Argent, a Lion Gules, the Tail nowed and passed in Saltier, crowned, langued, and armed Or*, for *Bohemia*: 3. *Gules a Fesse Argent*, for *Austria*: *Party, and bendwise Argent and Azure, a Border Gules*, for antient *Burgundy*: 4. Quarterly, in the first and fourth *Gules a castle triple towered Or, purfled Sable*, for *Castile*: In the second and third *Argent, a Lion Purple*, for *Leon*: The Shield environed with the Collar of the Order of the Golden Fleece: For Devise, *Uno avulso, non deficit alter*.

The Arms of the King of DENMARK, are Party of three, and Coupé of two, which make 12 Quarters: In the first, *Or Semi of Hearts, Gules three Lions passant guardant in pale Azure*, for *Denmark*: Second, *a Lion rampant crowned and armed Or, holding a Battle-Ax Argent hilted of the second*, for *Norway*: Thirdly, *Gules a Lion passant gardant Or, on nine Hearts of the same, in Fesse*, for *Gothland*: Fourthly, *Shonen*, viz. *Gules a Dragon crowned Or*: Fifthly, *Azure three Crowns Or*, for *Sweden*. Sixthly, *Gules a Paschal Lamb Argent, supporting a Flag of the same Mark with a Cross Gules*, for *Jutland*: Seventhly, *Or, two Lions passant gardant Azure*, for *Sleswick*: Eighthly, *a Fish crowned Argent*, for *Zeland*. Over these eight Quarters, *a great Cross Argent* (which is the antient Devise of the Kingdom) on the Center of which is placed the Arms of *Dithmarsh*, viz. *Gules a Cavalier armed Argent*: 9. *Gules a Nettle Leaf open and charged in the Middle with a little Escutcheon*, the whole Argent for *Holstein*: 10. *Gules a Cygnet Argent, gorged with a Crown Or*, for *Stormash*: 11. *Gules, two Fesses Or*, for *Delmenhorst*: 12. *Gules a Cross patee fitchy Argent*, for *Oldenburgh*. The Shield surrounded with the Collar of the Order of the Elephant: The Crest is a Crown flowered raised with eight Diadems terminating in a Mound of the same. The Devise on the Reverse of his Medals, *Pietas & justitia coronant*, to which might be added for the present King, *Sapientia*.

The Arms of the King of SWEDEN, are *quarterly*: In the first and fourth, *Azure, three Crowns*, for *Sweden*: In the second and third *Barry Argent and Azure, a Lion Or crowned Gules*, for *Finland*. On the whole, *quarterly*,

terly, in the first and fourth *Sable a Lion Or, crowned, langued, and armed Gules*, for the Palatinate of the *Rhine:* The second and third *Fusil in Bend, Argent and Azure of* 21 *Pieces*, for *Bavaria*. The Crest a Royal Crown garnished with eight small Flowers, and closed by as many Demi-circles, terminating in a Mound Or, which is the Crest of *Sweden:* The Supporters are two Lions Or, crowned with the same; and the Devise or Motto, *Dominus protector meus.*

The Arms of the King of POLAND, are *quarterly:* In the first and fourth *Gules an Eagle Argent, crowned and armed Or*, for *Poland:* In the second and third *Gules a Cavalier armed cap-a-pie, Argent, in the Dexter a naked Sword of the same, in the Sinister, a Shield Azure charged with a double Cross Or, mounted on a Courser of the second, barbed of the third, and nailed of the fourth*, for *Lithuania*. On the whole the Arms of *Saxony* (the late King of *Poland*, and the present, being Elector of *Saxony*) viz. *Barry of six, Or and Sable, a Bend vert.* For Crest, a Crown raised with eight small Flowers, and closed with eight Semi-circles, terminating in a Mound Or: The Shield is environed with the Order of *France*; and the Motto *Habent sua sidera reges.*

Note, That the *Bend* in the Coat of the Electorate of *Saxony*, was added by *Frederick Barbarossa*, when he invested *Bernard of Anhalt* in that Dukedom; who desiring some Difference to be added to his Arms, to distinguish it from his former Dukes, the Emperor took a Chaplet of Rue (he wore on his Head) and threw it athwart his Buckler, which was presently painted thereon. (Witness *Heylin*).

The Arms of the King of PRUSSIA, are *Argent an Eagle vert, membred and crowned Or, langued Gules*, for *Prussia*. As Marquis of *Brandebourg*, he bears divers Quarterings, containing several Alliances and Principalities; over all, *Azure a Scepter in pale Or*, which belongs to the Electorship, a *triple Helmet*, and a *triple Crest*.

The Arms of the Great Duke of TUSCANY, are *quarterly:* In the first and fourth of *Tuscany*, which is *Or five Tourteaux*, 2, 2, 1, *and one roundle in Chief Azure, charged with three Flower de Lys Or:* In the second and third of *Lorrain*, which is *Bend Gules, charged with three Alerions Argent.*

The Arms of the Duke of SAVOY, are *Gules a Jerusalem Cross Argent*; and as King of *Cyprus*, he bears the Arms of that Kingdom, *viz. quarterly*; 1. *Azure a Cross potent between four Crosslets Or:* 2. *Barwise of eight Pieces Argent and Azure, supporting a Lion passant crowned Or:* 3. *Or, a Lion Gules:* 4. *Argent, a Lion Gules.*

Note, That the *Jerusalem* Cross was given to *Amadeus Magnus* by the Knights of *Rhodes* (at present Knights of *Malta*) *Anno* 1315. with these Letters in lieu of a Motto, *F. E. R. T.* i. e. *Fortitudo ejus Rhodum tenuit*, in *English*, His Courage has saved *Rhodes*. The Occasion was, *Amadeus* V. surnamed *Magnus*, forced *Mahomet* II. Emperor of the *Turks*, to raise the Siege he had laid to *Rhodes* in 1315. before that the Duke of *Savoy*'s Arms were *Or, an Eagle displayed with two Heads Sable armed Gules, supporting in Fesse an Escutcheon of Saxony*, a Coat belonging to the Emperors of the House of *Saxony*, from whom the first Earls of *Savoy* were descended.

The Arms of the Duke of MANTUA, are *Argent a Cross patee Gules between four Eagles Sable, under an Escutcheon in Fesse*, charged quarterly with Gules, a *Lyon rampant Or*, and *Or three Bars Sable.*

The Arms of the Duke of MODENA, are *Palewise of three Pieces*; 1. *Party per Fesse in Chief Or, an Eagle displayed Sable*, membered, beaked, and crowned Gules, and in Base, *France, within a Bordure indented Or and Gules:* 2. *Gules two Keys in Saltier, one Or, the other Argent charged in Fesse, with an Escutcheon of Pretence Azure, supporting an Eagle of the third, membered and crowned of the second:* Over all, *in the Chief, a Papal Crown Or.* 3. As the first, counterplaced.

The Arms of the Duke of PARMA and PLACENTIA, are *Or, Six Flowers de Lys Azure.*

The Arms of the *Elector* and *Archbishop* of MENTZ, is *Gules a Cart Wheel Or*, and over it an Electoral Cap.

Note, That the Wheel is borne in Remembrance of the first Elector of this Church, who being the Son of a Carman, kept always through Humility, a Wheel in his Chamber to remind him of his Extraction.

The Arms of the *Elector* and *Archbishop of* TRIERS—The Arms of the *Archbishoprick* of COLOGN, is *a Cross Sable in a Field Argent.*

The Arms of the *Elector* of BAVARIA, are those we have blazoned for the present Emperor.

Note, That the *Bavarian* Arms, *Paly Bendy Argent and Azure*, were antiently borne by the Dukes of *Bavaria*, for that it resembled the Party coloured Cassocks of the antient *Boi*; who were those *Gauls* that attempted the Surprize of the Capitol.

The Arms of the *Elector* of SAXONY, have been blazoned for the King of *Poland.*

The Arms of the *Elector* of BRANDEBOURG, for the King of *Prussia.*

The Arms of the *Elector* PALATINE, are quarterly: In the first and fourth, *Sable a Lion Or, crowned, langued, and armed Gules*, for the *Palatinate:* In the second and third, *Fusil in Bend, Argent and Azure of* 21 *Pieces with a Mound Or*, which belongs to the Electorate.

Note, That the Arms of the Empress of RUSSIA are, *Or an Eagle displayed with two Heads Sable, bearing on its Breast a Shield*; the Field being *Gules charged with St. George killing the Dragon Argent*; *betwixt the Heads of the Eagle are three Crowns placed one above another*, which are said to signify *Muscovy*, and the two Kingdoms of *Cassan* and *Astracan*. They say it was the Tyrant *Iwan Basilewitz*, who first made use of these Arms, to raise a Belief he was descended from the antient *Roman* Emperors. Others make the Arms of *Muscovy* to be *Sable a Portal open of two Leaves and as many Steps Or.*

That the Arms of the Emperor of TURKY, are *Vert a Crescent Argent, crested with a Turbant, charged with three black Plumes of Heron's Quils*, with this Motto, *Donec totum impleat orbem.*

The Arms of the *Republick* of VENICE, are *Azure a Lion winged Sejant Or, holding under one of its Paws a Book covered Argent*, supposed to be the Gospel of St. *Mark.*

The Arms of the *Republick* of GENOA, are *Argent a Cross Gules with a Crown closed*, by reason of the Isle of *Corsica* belonging to it, which has the Title of Kingdom. The Supporters are *two Griffins Or.*

The Arms of the *Republick* of RAGUSA, is the Image of the Virgin *Mary.*

The Arms of the *Republick* of LUCCA, are *Azure a Bend, on which is written* LIBERTAS, *betwixt two Cottises.*

The Arms of the *States* of HOLLAND, are *Or a Lion Gules, holding with one Paw a Cutlass, and with the other a Bundle of seven Arrows closely bound together* (alluding to the seven confederated Provinces) with this Motto, *Concordiâ res parvæ crescunt.*

The Arms of the *Republick* of GENEVA, are *Party per Pale Or and Gules*, in the first a *Demi-eagle displayed Sable*, the second a *Key Argent*; with this Devise, *Post tenebras lux.*

Note, That every Canton of *Switzerland* has its peculiar Coat of Arms, and blazoned in *French* in the following Manner.

ZURICH, Porte *d'Argent Taillé d'Azure.* These Arms are supported by a Lion standing upright, holding a Bowl or Roundure of the World, with his left Paw forward, and with the other a Sword.

BERN, Porte *de Gueule a la bande d'Or, chargée d'un ours rempant de Sable.* The Supporter a Bear standing upright having on its Thigh a Sword girded.

LUCERN, Porte *d'Argent party d'Azure*: The Supporter a naked *Switzer*, his Head and natural Parts covered

vered with Branches of Oak, and holding in his Right-Hand a Bough of the ſame.

URI, Porte *d'Or a une Teſte de buſle de Sable, acorné & buſlé ou embucclé de Gueule:* The Supporter a *Switzer* armed with a Sword and a Poniard.

SWITZ, Porte *de Gueule a la croiſette d'Argent:* The Supporter a *Switzer* armed, bearing a plain Croſs upon the Breaſt-Plate, and a Banner of the ſame.

UNDERVAL, Porte *de Gueule coupé d'Argent*: The Supporter a Griffin.

ZUG, Porte *d'Argent a la Face d'Azure:* The Supporter an armed *Switzer*, bearing a Lance in his Left Hand.

GLARYS, Porte *de Gueule un Saint Jaques d'Argent à ſon bourdon d'Or:* The Supporter an Angel.

BASIL, *D'Argent à l'eſtuy de Croſſe d'Evêque de Sable:* The Supporter a Dragon winged, with two Feet of Griffins.

FRIBURG, *de ſable coupé d'Argent.* The Supporter a Servant *Switzer*, without any other Arm than a Sword.

SOLEURE, *d'Argent coupé de Gueule.* The Supporter a *Switzer* armed, bearing a Banner of the Canton.

SCHAFFHOUSEN, *D'Or a un Belier ſautant de ſable acorne d'Argent*; the Supporter a Ram.

APPENZEL, *d'Argent a l'Ours debout de ſable*; the Supporter a Bear ſtanding upright, with the Throat fuming or ſmoaking out.

The GREAT CHAM *of Tartary*, in *Europe* (called *Crim Tartary)* bears *Or three Griffins ſable armed Gules.*

The GREAT CHAM *of Tartary*, in *Aſia*, who is alſo Emperor of *China*, bears *Or an Owl ſable.*

The EMPEROR *of China* bears *Argent Three Blackmoors Heads placed in the Front, their Buſts veſted Gules.* Some ſay the Arms are *Two Dragons.*

The Arms of the GREAT MOGUL are ſaid to be *Argent Semi of Beſants.*

Note, That as for particular Coats of Arms belonging to particular Houſes or Families, there are none in the *Indies*, neither Eſtate nor Honour being hereditary, within the Mogul's Dominions.

The Arms of the SOPHY *of Perſia* are various. Some ſay he bears *the Sun in his Glory in a Field Azure:* Others ſay *a Creſcent*, like the Grand Seignior; others would have it *Or a Dragon Gules*; others again, *Or, a Buffalo's Head ſable*; but the laſt and moſt received is, *the riſing Sun on the Back of a Lyon with a Creſcent.*

The Arms of the EMPEROR *of Japan*, are *Or, ſix Stars Argent in an oval Shield, and bordered with little Beaſants, or Points of Gold.* Some ſay that his Arms are *Sable three Trefoils Argent.*

The Arms of the EMPEROR *of Fez and Morocco*, are *Three Wheels Argent in a Field Vert.*

The Arms of the EMPEROR *of Abyſſinia*, or *Ethiopia*, are *a Lyon ſupporting a Croſs*, with this Motto, *Vicit Leo de Tribu Juda.*

Note, That all theſe Coats of Arms of the Sovereigns of *Aſia* and *Africa* (thoſe of the Grand Seignior excepted) are nothing but Imaginations of our *European* Heralds, who have been pleaſed (through that Exceſs of Liberality which engages them to beſtow Arms on every Body who is pleaſed to purchaſe them, let him be ever ſo meanly deſcended) to preſent thoſe Princes with each their Eſcutcheon long before they knew any Thing of it.

There has been a great Diſpute among the Learned, about the Origin of Arms. *Favyn* will have them to have been from the Beginning of the World; *Segoin* from the Time of *Noah*; others from that of *Oſiris*, which is ſupported by ſome Paſſages in *Diodorus Siculus*; others from the Time of the *Hebrews*, in regard Arms were given to *Moſes*, *Joſhua*, the twelve Tribes, *David*, &c.

Others will have them to have taken their Riſe in the heroical Age, and under the Empires of the *Aſſyrians*, *Medes*, and *Perſians*; building upon *Philoſtratus*, *Xenophon*, and *Quintus Curtius*.

Some pretend that the Uſe of Arms, and the Rules of Blazon, were regulated by *Alexander*. Others will have them to have had their Original under the Empire of *Auguſtus*; others during the Inundations of the *Goths*; and others under the Empire of *Charlemaigne*.

Chorier obſerves, that among the antient *Gauls*, each Man bore a Mark on his Buckler, by the Sight whereof he might be known to his Fellows; and hence he refers the Original of the Arms of noble Families. *Camden* has obſerved ſomething like this of the antient *Picts* and *Britons*, who going naked to the Wars, painted their Bodies with Blazons, and Figures of divers Colours, which he ſuppoſes to have been different in different Families, as they fought divided by Kindreds. Yet *Spelman* ſays, that the *Saxons*, *Danes*, and *Normans* firſt brought Arms from the North into *England*, and thence into *France*.

Upon the whole, it is certain, that from Time immemorial, there have been ſymbolical Marks in Uſe among Men, to diſtinguiſh them in Armies, and to ſerve as Ornaments of Shields and Enſigns; but theſe Marks were uſed arbitrarily as Devices, Emblems, Hieroglyphicks, *&c.* and were not regular Armories like ours, which ſhould be hereditary Marks of the Nobility of a Houſe, regulated according to the Rules of *Heraldry*, and authorized by Princes.

Before *Marius*, even the Eagle was not the conſtant Enſign of the *Roman* Army, but they bore in their Standards a Wolf, Leopard, or Eagle indifferently, according to the Fancy of the Generals.

The ſame Diverſity has been obſerved with Regard to the *French* and *Engliſh*; on which Account Authors are divided, when they ſpeak of the antient Arms of thoſe Countries. In Effect, it appear from all the beſt Authors, that the Armories of Houſes, as well as the double Names of Families, were not known before the Year 1000; and ſeveral have even endeavoured to prove, that the Uſe of Arms did not begin, till the Time of the firſt Croiſades of the *Chriſtians*, for the Conqueſt of the *Holy Land.*

The Truth is, it appears to have been the antient Tournaments, that occaſioned the fixing of Armories. *Henry the Fowler*, who regulated the Tournaments in *Germany*, was the firſt who introduced theſe Marks of Honour, which appears to be of an older Standing in *Germany*, than any other Part of *Europe*. It was then that Coats of Arms were firſt inſtituted; which were a Kind of Livery, compoſed of ſeveral Bars, Fillets, and Colours; whence came the Feſſe, Pale, Bend, and Lozenge, which were ſome of the firſt Elements of Armories. Thoſe who had never been concerned in any Tournament, had no Arms, though they were Gentlemen.

Such of the Nobility and Gentry as croſſed the Sea, in the Expeditions to the *Holy Land*, alſo aſſumed theſe Tokens of Honour to diſtinguiſh themſelves.

Before theſe Times, we find nothing upon antient Tombs but Croſſes, with *Gothick* Inſcriptions and Repreſentations of the Perſon deceaſed. The Tomb of Pope *Clement* IV. who died in 1268, is the firſt whereon we find any Arms; nor do they appear on any Coins ſtruck before the Year 1336. We meet with Figures, it is true, much more antient, both in Standards and on Medals; but neither Princes nor Cities ever had Arms in Form; nor does any Author make Mention of Blazoning before that Time.

Originally none but the Nobility had Right of bearing Arms; but *Charles* V. King of *France*, having enobled the *Pariſians* by his Charter, in 1371, he permitted them to bear Arms: From whoſe Example, the moſt eminent Citizens of other Places did the like.

Camden refers the Original of hereditary Arms in *England*, to the Time of the firſt *Norman* Kings. He ſays their Uſe was not eſtabliſhed till the Reign of King *Henry* III. and inſtances in ſeveral of the moſt conſiderable Families in *England*, wherein, till that Time, the Son bore always different Arms from the Father. About the ſame Time it became the Cuſtom here in *England*, for private Gentlemen to bear Arms; borrowing them from the Lords of whom they held in Fee, or to whom they were the moſt devoted.

Arms, at preſent, follow the Nature of Titles, which being made hereditary, theſe are alſo become ſo; being the

the ſeveral Marks for diſtinguiſhing of Families and Kindred, as Names are of Perſons and Individuals.

Note, That ſeveral Abuſes have been introduced from Time to Time in *Heraldry*, either by Heralds or the Princes themſelves; Heralds by a Motive of Avarice, having blazon'd Arms for Cowards and Scoundrels; and Princes by others as criminal as that, and perhaps the ſame, having had the ſcandalous Complaiſance of authorizing them; but however, I cannot imagine of what Service a Title and a Coat of Arms can be to ſuch Men, unleſs it be to render their ſpurious Birth and Want of Merit more conſpicuous; for though it be in the Power of a Prince to give a Title to an unworthy Subject, he cannot give him either Birth or Merit; and though qualified a Nobleman, he remains ſtill a Scoundrel in Reality, to whom an honeſt and induſtrious Peaſant or Artiſan is far preferable; though he has no other *Bearing* but the honourable, though very heavy one, of toiling for the Good of the Commonwealth. Coats of Arms have been ſo much prodigalized in the laſt Century, and in this, that they are almoſt become deſpicable, and rather the Marks of Unworthineſs than of a real Merit, or true Nobility; and what ſurprizes me moſt is, that the true Nobility are not aſham'd to quarter their Eſcutcheon (given to their illuſtrious Anceſtors, as a Reward for their ſignal Services, and to perpetuate in their Deſcendants the Memory of their noble Exploits) with the ſpurious one of a rich Scoundrel; who, puffed up with an inſolent Pride, is not always contented with that he has bought, but ſearches ſome Paraſite Genealogiſts, who to flatter his extravagant and ridiculous Vanity, diſguiſe his ſpurious Origin, make him deſcended, or related to the moſt antient and moſt illuſtrious Houſes of a Country, carrying ſometimes their ſcandalous Complaiſance ſo far as to quarter his Arms with thoſe of the Prince himſelf. We have had an Inſtance of this Kind in *France*, under the late King *Louis* XIV. An Extravagant, whoſe Grandfather had retail'd Vinegar in the Streets of *Rouen* in *Normandy*, and through ſome other Means, unknown to every Body but himſelf, had amaſſed immenſe Sums; found a poor Genealogiſt, who wanting a Dinner, and perceiving that the Vanity of our rich Scoundrel was ſo exceſſive, as to have almoſt entirely diſorder'd his Brain, perſuaded him, that his Anceſtors were very near related to the Crown of *France*, and conſequently had a Right to quarter his Arms with Three Flower de Lys. The Fool, elevated at ſuch Diſcovery, rewarded profuſely him who had made it, and ſoon gave Orders, that his Plate, Coaches, *&c.* ſhould appear with the new Shield the Genealogiſt had blazon'd for him. But by Misfortune, Complaints having been made to the King of that extravagant Preſumption, and the Princes of the Blood in no Manner approving of their new Kinſman, he was fined by the Court of Heralds, 50,000 Crowns, and Officers ſent to break all his Plate, Coaches, *&c.* where his Coat of Arms could be found quartered with that of *France*; but this, inſtead of rendering him wiſer, ſerved only to increaſe his Folly; for, as he at firſt contented himſelf with the Honour of being related to the Crown, his Genealogiſt perſuaded him, that he had ſince found, in ſome old Records, that he was lineally deſcended from the Kings of *France*, of the ſecond Race, and that what had been done againſt him by the then reigning Family, was by a Motive of Jealouſy, becauſe he was of a more antient and more auguſt Houſe than they; which the Fool believed, likewiſe, and began from that Time to take the Title of *Highneſs*, ordering his Servants, *&c.* to treat him henceforwards as a Prince, and which Folly accompanied him to the Grave.

In *England*, there is a College of Heralds, where (if I be rightly informed) any Body that has no Coat of Arms may be furniſhed with one at a very moderate Price; though that College was eſtabliſhed with far more noble Views; and the Occupations of the Perſons who compoſe it, were deſign'd to be of a quite different Nature, and agreeable to the Quality of a Herald; who, antiently was an Officer of Arms of great Repute, and poſſeſſed of ſeveral conſiderable Functions, Rights, and Privileges.

Antiently their principal Employment was to make out Coats of Arms for thoſe who truly deſerved them, Genealogies, and Titles of Nobility. They were the Superintendants of military Exploits, and the Conſervators of the Honours of War. They had a Right to take away the Arms of ſuch as for Cowardice, Treaſon, *&c.* deſerved to be degraded. They had a Commiſſion to examine, and correct the Vices and Diſorders of the Nobles, and to exclude them from Juſts, Tournaments, *&c.* To them belonged the correcting of all Uſurpations, Abuſes relating to Crowns, Coronets, Caſks, Creſts, Supporters, *&c.* they took Cognizance of all Differences among the Nobles, with Reſpect to their Bearings, the Antiquity of their Families, Precedencies, *&c.* They went into the Countries to ſearch into the Grounds and Pretenſions of the Nobility; and had a Right to open all Libraries, and to command all the antient Charters and Inſtruments in the Archives to be ſhewn them. They had Admiſſion into all foreign Courts, where they were commiſſion'd to proclaim War and Peace; and their Perſons were held ſacred as thoſe of Ambaſſadors. To them it belonged to make Publication of Juſts and Tournaments, to call the People to them, to ſignify the Cartels, to mark the Ground, Liſt, or Place of Duel, to ſee fair Play obſerved, and to divide the Sun between the two Parties. In the Army they advertiſed the Cavaliers and Captains of the Day of Battle, and aſſiſted therein before the Standard; retiring after the firſt Onſet, to ſome Place of Eminence, there to obſerve who behaved beſt, and to give a faithful Report thereof to the King. They numbered the Dead, relieved the Enſigns, redemanded Priſoners, ſummon'd Places to ſurrender, and in Capitulations, walk'd before the Governor of the Place, to ſecure and warrant his Perſon. They were the principal Arbitrators of the Diſtribution of the Spoils of the Vanquiſhed, and of military Rewards. They publiſhed Victories, and gave Notification thereof to foreign Courts. They convened the Eſtates of the Kingdom, aſſiſted at royal Marriages, and frequently made the firſt Demand, officiated at ſolemn Feaſts, *&c.*

The modern Heralds, *i. e.* thoſe we properly call *Heralds*, have loſt a good deal of the Diſtinction and Offices of the antient ones. What relates to the making out Arms; the rectifying of Abuſes committed therein, *&c.* is chiefly committed to the *King at Arms*, whoſe Buſineſs beſides is to direct the Heralds, preſide at their Chapter, *&c.*

There are three *Kings at Arms* in *England*, viz. *Garter*, *Clarencieux*, and *Norroy*.

GARTER is the principal *King at Arms*. — As principal *King at Arms*, he has the Offices above-mention'd. And as *Garter* he is to attend the Service of the Order of the *Garter*; for which he is allowed a Mantle and Badge, a Houſe in *Windſor* Caſtle, and Penſions both from the Sovereign and Knights, laſtly Fees. He alſo carries the Rod and Scepter at every Feaſt of St. *George*, when the Sovereign is preſent; notifies the Election of ſuch as are new choſen; attends the Solemnity of their Inſtallations, and takes Care of placing their Arms over their Seats; carries the *Garter* to foreign Kings and Princes; for which Service it has been uſual to join him in Commiſſion with ſome Peer, or other Perſon of Diſtinction.

Garter's Oath relates only to Services to be performed within the Order; and is taken in Chapter before the Sovereign and Knights. — His Oath as *King at Arms*, is taken before the Earl Marſhal. — This Office was inſtituted by *Henry* V.

CLARENCIEUX is the ſecond *King at Arms*, thus called from the Duke of *Clarence*, to whom it firſt belonged. — His Office is to diſpoſe and marſhal the Funerals of all the inferior Nobility, as Baroners, Knights, Eſquires, and Gentlemen, on the South Side of the *Trent*.

NORROY, the laſt *King at Arms*, is to do the ſame on the North Side of the River *Trent*.

These two last are also called *Provincial Heralds*, in regard they divide the Kingdom between them into two Provinces.

These by Charter have Power to visit Noblemen's Families, to set down their Pedigrees, distinguish their Arms, &c.

Antiently the *King at Arms* was created, and solemnly crowned by the Kings of *England* themselves; but of later Days the Earl Marshal has a special Commission at every Creation, to personate the King.

To these may be added LYON *King at Arms*, for *Scotland*, who is the second *King at Arms* for *Great Britain*; he is invested and crown'd with great Solemnity. To him belongs the publishing the King's Proclamations, marshalling Funerals, reversing Arms, &c.

In *England* they have six Heralds, *viz. Richmond*, *Lancaster*, *Chester*, *Windsor*, *Somerset*, and *York*; to which may be added a seventh, or *Brunswick Herald*, instituted by King *George* I.

Antiently none could arrive at the Dignity of Herald, without having been seven Years Pursuivant, who is a Gentleman whose Business is to attend with the Heralds in marshalling and ordering publick Solemnities.

Of the great Number of Pursuivants antiently on Foot, there are now only four remaining, *viz. Blue-Mantle*, *Rouge-Croix*, *Rouge-Dragon*, and *Portcullice*. Who are the lowest Order of Officers belonging to the College of Arms.

The Heralds, with the Kings at Arms, and the four Pursuivants are a College or Corporation erected into such by a Charter of *Richard* III. who granted them divers Privileges; as to be free from Subsidies, Tolls, and all troublesome Offices.

Note, That the Origin of Heralds is very antient. *Stentor* is represented by *Homer* a Herald of the *Greeks*, who had a Voice louder than fifty Men together. — The *Romans* had a College of Heralds, appointed to decide whether a War were just or unjust; and to prevent its coming to open Hostilities, till all the Means had been attempted to decide the Difference in a pacifick Manner.

HERESIES.

HERESIES are Errors in essential Points of the *Christian* Faith, maintained with Obstinacy, either by those who broached them first, for which they are called *Heresiarchs*, i. e. Founders or Inventors of Heresies; or by their Disciples or Followers, called for that Reason, *Hereticks*.

I say, that *Heresies are Errors in essential Points of the Christian Faith*; to distinguish *Heresy* from *Schism*, which in the strict Sense it should be understood, is only an Error in the Discipline of the Church, and from *Opinion*, which either does not attack the essential Points of the *Christian* Faith, or, if it does, is not maintain'd with Obstinacy; for it is properly Obstinacy that constitutes the Character of *Heresy*, not the Error; and a real Heretick is properly he who maintains a false Opinion out of a Spirit of Obstinacy, Faction, or Hypocrisy; for when a Man is humble and ingenuous, ready and desirous to receive further Light and Instruction, gives every Thing urged against him its due Weight, he is not guilty of Heresy; *Errare possum*, says St. *Augustin*, *Hereticus esse nolo*; i. e. I can err, but I will not be a Heretick.

In fact, Obstinacy is as much the true Characteristick of Heresy and of Hereticks, as Pride and Ambition are the Principles thereof; for we shall see throughout this Treatise, that among that almost infinite Multitude of Heresiarchs, who have disturbed the Peace of the *Christian* Church from its very Infancy, and have lacerated the seamless Gown of *Christ*, there have been none, who have not been entirely govern'd by those two Passions, so contrary to that Humility which our divine Saviour had placed for the Corner Stone of his Church, and which the Pagans themselves had admired in the primitive *Christians*. None who could be persuaded to prefer the Decisions of the universal Church to their own private Sentiments, much less to submit themselves to them. It is true, that to blind the ignorant and too credulous, they have affected at first an Abnegation of themselves, and appeared ready to submit themselves, sometimes to the Decisions of him who was esteemed the Chief of the Church, or to those of the Church itself, but that pretended Humility and Submission, never went farther than publick Protestations; which they judged indispensably necessary, to silence those zealous Assertors of the *Christian* Faith, who first discover'd the hidden Poison, and caution'd the Society of the Faithful against it; for when the Judges, to whom themselves had appeal'd, had condemned their Errors, they threw off the Mask, and appear'd at last such as they were in Reality; the disobedient Children of a tender Mother, who after she had employed all human Means to recall them to their Duty, was forc'd at last to spurn them from her Bosom, as obstinate and rebellious.

I'll trace Heresies, Heresiarchs, and Hereticks, throughout the different Ages of Christianity, from its very Infancy to this present Time; marking all their different Epocha's, Progresses, &c. and beginning by that of *Simon Magus*, who was the first Heresiarch.

SIMON MAGUS, was born at *Samaria*, and as he could not, or dar'd not contradict the Deacon *Philip*, sent thither to preach the Gospel, he suffered himself to be baptized with his Fellow Citizens, in the Year of *Christ* 35, of the Emperor *Tiberius* 20.

The News of the Conversion of the *Samaritans* being brought to the Church of *Jerusalem*, *Peter* and *John* were sent thither by the Apostles, to impose their Hands on the new Converts, and to give them the Holy Ghost; which *Philip*, being but a Deacon, could not do. This Imposition of the Hands, was nothing else but what we call at present *Confirmation*; which Bishops only, as Successors of the Apostles in the Episcopacy, can administer to the Faithful, to render them perfect Christians, in the Language of the antient Fathers.

Simon seeing that by the Imposition of the Hands of the Apostles the Holy Ghost descended on the Faithful; and that immediately after the true Believers spoke several Languages they had never learned, offered Money to the Apostles to purchase the same Power; and being reproved by St. *Peter* for his sacrilegious Presumption, and exhorted to repent, and pray for Forgiveness, pray your selves for me, said he, that none of the Misfortunes you have threaten'd me with, should happen to me. But far from being really penitent, and in a Condition to receive the Fruits of their Prayers; he, on the contrary, continued soon after his Departure to sow his Errors among the *Samaritans*, persuading them that he was the great Virtue of God. He also attempted to deceive the *Jews*, whom he saw prejudiced against the Faithful; telling them that *he was the Son of God for them, and the Holy Ghost for the* Gentiles.

Simon went to *Rome* in the Year of *Christ* 45, and of the Emperor *Claudius* 3; where by the Secrets of Magick he was Master of, he operated so many surprizing Things, which had the Appearance of Miracles, that the *Romans* newly converted, erected him a Statue, as to a God, with the Title of Saint; which *Justinus the Martyr*, and *Tertullian*, in their Apologeticks, reproach them with, as a ridiculous Impiety. It is true, that several learned Men accuse them of having been mistaken, as well as St. *Irenæus*, and *Eusebius*, on the same Subject, in taking the Name of *Semo Sangus*, or *Sancus*, which was a Divinity adored among the *Romans*, and which *Titus Livius*,

Livius, and *Denis Halicarnassus* mention, for that of *Simon Sanctus*, the Change of the Letters being not so great. But however, let it be how it will of the magical Deeds of *Simon Magus*, it happened afterwards, that Truth was easily confounded with Falshood, and that all the Miracles which the Christians operated by the Invocation of the Name of Christ, were mistaken for the Effects of Magick, because something much like it had been seen done by a Man known for a Magician.

The principal Errors of *Simon Magus* were, *That all Sorts of Impurities were lawful, even those condemned by Nature itself; that Women might be in common, that there would be no Resurrection of the Bodies; and that God had not created the World, but that the Powers and Principalities had created it with many Imperfections: That an evil Spirit, and not God, had given the Law of* Moses; *and that no Body could receive the Old Testament without incurring Death.*

His Impudence went so far that he intended to make *Helena*, his Concubine, pass for the Holy Ghost: He used to say, that for her Sake he descended from Heaven, and had created the Angels; that she was that same *Helena* who had caused the War of *Troy*; and what *Homer* had sung of a great Division among Princes on her Account, was but a poetical Fiction, to disguise the Truth of another War kindled by her Beauty among the Angels who had created the World, and who had killed one another without doing her any Harm. He gave her also the Names of *Notion* and *Minerva*, and of that lost Sheep which the good Shepherd was come to seek after. He invented barbarous Names for the Angels, whom he placed in new celestial Globes. The only Means, according to him, of being saved, was to practise his secret Mysteries, which he had mixed with so many Obscenities, that I beg to be excused from mentioning them in this Place.—From this corrupted Source flowed all the infamous and brutish Volupties of the *Gnosticks*, which will render them odious to the latest Ages.

Simon (according to St. *Irenæus*, *lib.* 1. *c.* 20.) condemned likewise Free-Will, Good Works, and admitted the Transmigration of Souls from one Body into another.

MENANDER, *Saturninus*, *Basilides*, and *Carpocras*, Disciples of *Simon Magus*, were the next *Heresiarchs*, who appeared in the Year of Christ 68. of St. *Peter* 24. and of the Emperor *Nero* 12. and invented monstrous Abominations.

The NICOLAITES appeared next, also in the Year of Christ 68. *They denied the Divinity of Jesus Christ by the hypostatical Union, and said that God had only dwelt within him. They maintained that the most lascivious Volupties were good and holy; and that one could eat of the Flesh sacrificed to Idols.*

Note, That it is questioned whether *Nicholas*, one of the seven Deacons, was the Author of this infamous Sect. Some of the Fathers, as St. *Irenæus*, *lib.* 1. *c.* 27. St. *Epiphanius*, *Hæres.* 25. affirm it, and say, that having been blamed by the Apostles of having took in again his Wife, from whom he had separated himself to live in Continency, he invented a brutish Error to defend his Conduct on that Occasion, teaching that it was necessary to Salvation, to plunge oneself every Day in the most lascivious Pleasures. Others, as St. *Jerom*, *epist.* 1. & 48. say, that the Apostles having reproached him with being jealous of his Wife, he brought her in the Assembly, and permitted her to marry whom she pleased; and that, as if he had taught by that Action, to abandon oneself to carnal Pleasures, some had formed an *Heresy* to which they gave his Name, though very unjustly, since he had never any other Wife but his first: That his Daughters died Virgins, and his only Son preserved his Purity to his Death. They add, that *Nicholas* himself was made Bishop of *Samaria*.

The CERINTHIANS followed the *Nicolaites*, and took their Name from *Cerinthus*, who, together with his Disciple *Ebion*, began to dogmatise in the Year of Christ 99. of Pope *Clement* 7. of *Nerva* 1. he was a zealous Defender of the Circumcision. St. *Epiphanius* says, that he was the Head of a Faction, which rose at *Jerusalem* against St. *Peter*, on account of some uncircumcised Persons with whom that Apostle had eat.

Cerinthus believed that *Jesus Christ* was a mere Man born of *Joseph* and *Mary*; but that in his Baptism a celestial Virtue descended on him in Form of a Dove; by means whereof he was consecrated by the holy Spirit and made Christ. It was by means of this celestial Virtue therefore that he operated so many Miracles, which, as he had received it from Heaven, quitted him after his Passion, and returned to the Place whence it came; so that Jesus, whom he called *a pure Man*, really died and rose again; but that Christ who was distinguished from Jesus, did not suffer at all.

Some Authors ascribe the Book of the *Apocalypse* to *Cerinthus*; adding, that he published it under the Name of St. *John*, the better to authorize his Reveries touching Christ's Reign in the Flesh: And it is even certain he published some Works of this Kind, under the Title of *Apocalypse*.

St. *Epiphanius* observes, that when a *Cerinthian* died without Baptism, another Person was baptized in his stead.

The *Cerinthians* received the Gospel of St. *Matthew*, to countenance their Doctrine of Circumcision, from Christ's being circumcised, but they omitted the Genealogy. They discarded the Epistles of St. *Paul*, because that Apostle held the Circumcision abolished. Which Practice of making free with the Scripture, retaining some Books, and rejecting others as apocryphal, when they condemned their Errors, is yet retain'd by Hereticks; and it is surprising that sensible Men would be such voluntary Blinds, as not to discover the Deceit.

The CHALIASTES were Hereticks, who pretended that the Saints were to reign with Christ upon Earth, 1000 Years after the Resurrection. Their Chief was *Papias*, who had been Disciple of St. *John the Evangelist*, and who in all Appearance, had founded that Revery on some of the Passages of his Master's *Apocalypse*. *Eusebius* mentions these Hereticks, *c.* 39. *lib.* 3. of his Ecclesiastick History.

The GNOSTICKS appeared in the Year 99. of Pope *Clement* 7. of *Nerva* 1. They had for their Chief the Heresiarch *Carpocras*, who had been *Cerinthus*'s Master.

The Name *Gnostick*, was adopted by those of this Sect, as if they had been the only Persons who had the true Knowledge of Christianity; accordingly they looked on all other Christians as simple, ignorant, and barbarous Persons who explained and interpreted the sacred Writings in a too low, literal, and unedifying Signification.

At first the *Gnosticks* were only the Philosophers and Wits of those Times, who formed themselves a peculiar System of Theology, agreeable to the Philosophy of *Pythagoras* and *Plato*; to which they accommodated all the Interpretations of Scripture. But *Gnosticks* afterwards became a general Name, comprehending divers Sects and Parties of Hereticks, who rose in the first Centuries; and who, though they differed among themselves as to Circumstances, yet all agreed in some common Principles; such were the *Valentinians*, *Simonians*, *Carpocratians*, *Nicolaites*, &c.

Gnostick was sometimes also more particularly attributed to the Successors of the first *Nicolaites* and *Carpocratians*, in the second Century, upon laying aside the Names of the first Authors.

St. *Irenæus* relates their Sentiments at large, and confutes them at the same Time; shewing the general Principles whereon their mistaken Opinions were founded, and the Method they followed in explaining the Scripture. He accuses them with introducing into Religion certain vain and ridiculous Genealogies, *i. e.* a Kind of divine Processions or Emanations, which had no other Foundation but in their own Imagination.

In Effect, the *Gnosticks* confessed that these *Æons* or *Emanations*, were no where expressly delivered in the sacred Writings; but insisted, at the same Time, that *Jesus Christ* has intimated them in Parables, to such as could understand him.

They built their Theology, not only on the Gospel and the Epistles of St. *Paul*, but also on the Law of *Moses* and the Prophets. These last Laws were particularly serviceable to them, on Account of the Allegories and Allusions they abound withal; which are capable of different Interpretations.

They set a great Value on the Beginning of the Gospel of St. *John*, where they fancied they saw a great deal of their Æons or Emanations under the Words the *Life*, the *Light*, &c.

They divided all Nature into three Kinds of Beings, *viz. hylic* or *material*; *psychic* or *animal*; and *pneumatic* or *spiritual*.

On the like Principle, they also distinguished three Sorts of Men, *material*, *animal*, and *spiritual*. The first, who were *material* and incapable of Knowledge, inevitably perished both Soul and Body: The third, such as the *Gnosticks* themselves pretended to be, were all certainly saved: The *psychic* or *animal*, who were the Middle between the other two, were capable either of being saved or damned, according to their good or evil Actions.

Note, That the Appellation *Gnostick*, sometimes also occurs in a good Sense in the ecclesiastical Writers, and particularly *Clemens Alexandrinus*, who, in the Person of his *Gnostick*, describes the Characters and Qualities of a perfect Christian. This Point he labours in his seventh Book of his *Stromata*, where he shews that none but the *Gnostick*, or learned Person, has any true Religion. He affirms, that were it possible for the Knowledge of God to be separated from eternal Salvation, the *Gnostick* would make no Scruple to chuse the Knowledge; and that if God should promise him Impunity in doing of any Thing he has once spoken against, or offer him Heaven on those Terms, he would never alter a Whit of his Measures.

In this Sense, that Father uses *Gnosticks* in Opposition to the Hereticks of the same Name; affirming that the true *Gnostick* is grown old in the Study of the Holy Scripture; and that he preserves the orthodox Doctrine of the Apostles and the Church; whereas the false *Gnostick* abandons all the apostolical Traditions, as imagining himself wiser than the Apostles.

At length the Name *Gnostick*, which originally was the most glorious, became infamous by the idle Opinions and dissolute Lives of the Persons who bore it.

The most infamous of the *Gnosticks* were the CARPOCRATIANS, Disciples of *Carpocras*, whom S. *Iræneus* says, was the Inventor of the Errors and Reveries of all the *Gnosticks*; and who taught that the Son of God was but a pure Man, whose Soul had nothing above all other Souls, only that it had received more Virtue and more Strength from the God they imagined when it was with him, and before it was infused into his Body. And that superabundant Communication had been made to him, to conquer and expel the evil Spirits which had created the World. He added other Impieties, which I pass over under Silence, lest they should make any Impression on weak Minds.

The EBIONITES appear'd in the Year of *Christ* 79; of Pope *Linus* 5, of the Emperor *Vespasian* 3; thus denominated from their Chief *Ebion*, who had been *Cerinthus*'s Disciple.

S. *Epiphanius* gives a long and exact Account of the Origin of the *Ebionites*, making them to have risen after the Destruction of *Jerusalem*, when the first Christians, called *Nazarenes*, went out of the same to live at *Pella*.

The *Ebionites* then are little else than a Branch of the *Nazarites*; only that they alter'd and corrupted in many Things, the Purity of the Faith held among those first Adherents to Christianity. For this Reason *Origen* distinguishes two Sorts of *Ebionites*, in his Answer to *Celsus*; the one believed that *Jesus Christ* was born of a Virgin; and the other that he was born after the Manner of other Men.

The first were Orthodox in every Thing, except that to the *Christian* Doctrine, they joined the Ceremonies of the *Jewish* Law, with the *Jews*, *Samaritans*, and *Nazarites*; they differ'd from the *Nazarites* however in several Things, chiefly as to what regards the Authority of the sacred Writings: For the *Nazarites* received all for Scripture, contain'd in the *Jewish* Canon; whereas the *Ebionites* rejected all the Prophets, and had the very Name of *David*, *Solomon*, *Isaiah*, *Jeremiah*, and *Ezekiel* in Abhorrence.

They received nothing of the Old Testament but the Pentateuch, which should intimate them to have descended rather from the *Samaritans* than the *Jews*. They agreed with the *Nazarites* in using the *Hebrew* Gospel of St. *Matthew*, otherwise called the Gospel of the twelve Apostles; but had corrupted their Copy in Abundance of Places; and particularly had left out the Genealogy of our Saviour, which was preserved entire in that of the *Nazarites*, and even in those used by the *Cerinthians*. These last, whose Sentiments as to the Birth of our Saviour, were the same with those of the *Ebionites*, built their Error on this very Genealogy.

Besides the *Hebrew* Gospel of St. *Matthew*, they adopted several other Books, under the Names of St. *James*, *John*, and the other Apostles.

Ebion their Chief, condemned the State of Virginity, employed but Water in the Sacrament of the Eucharist; abstain'd from the Use of Flesh, as believing it bad, and observed almost all the Ceremonies of the Old Testament. He would have every Body marry, leaving the Number of Wives every one may have, to the Intemperancy of his Disciples. He wrote false Acts of the Apostles, and alter'd so the Travels of St. *Peter*, supposed to have been written by St. *Clement*, that there was scarce any Thing of Truth left in them.

The Heresiarch *Valentin*, appear'd in the Beginning of the second Century, *i. e.* in the Year of *Christ* 142; of Pope *Telesphorus* 1; of the Emperor *Antoninus* 3. He was a very learn'd and very eloquent Man, but full of Ambition, and as he could not bear that another should be preferred to him in the Episcopacy, he abandon'd the Faith of *Jesus Christ*, and found in the Writings of the Poet *Hesiod*, his thirty Gods whom he called *Æons*; he made of them fifteen Males and fifteen Females; and from their Conjunction said that the Saviour was born, like another *Pandora*. He confessed that *Jesus Christ* had passed through the Virgin *Mary* with a Body he had brought from Heaven; and that all Men should not rise from the Dead; he published a Gospel and Psalms under his Name. *Tertullian* relates several other Dreams of *Valentin*, which he says refute themselves.

About the same Time appear'd another ridiculous Sect, called of the OPHITES, one *Euphrates* having been, according to *Origen*, *lib. 6. contr. Cels. Tertullian*, *de Præscript. c.* 47. *Theodoret*, *Hæres. Fab. lib.* 10. the Author thereof.

The OPHITES were thus called because they honour'd a Serpent, some of them pretending that the Serpent who tempted *Eve* was *Jesus Christ* himself, and the others that he changed himself into that Animal. When their Priests celebrated the Mysteries, they used to make one of those Animals come out of a Hole, and after he had rolled himself on the Elements, they believed that *Jesus Christ* had sanctified them, and therefore presented them to the People to be ador'd.

The CAINITES appear'd likewise about the same Time, called *Cainites* from *Cain*, who they said had been form'd by a celestial and omnipotent Virtue, whereas *Abel* had been form'd by a very weak one. They maintain'd, that to be saved, one should try all Things, and commit all Kinds of Debaucheries to gratify one's Luxury. They imagined a great Number of Angels to whom they gave barbarous Names, attributing to each of them a particular Sin; so that when they wanted to commit a Sin, they invoked that Angel whom they had made to preside to that Sin. They had composed a Book under the Title of the Ascension of St. *Paul* into Heaven, which was full of Blasphemies and execrable Obscenities; as if they had been the secret Words which the Apostle had heard in his Ravishment. They honoured with a peculiar Worship, *Cain*, *Corah*, the *Sodomites*, and particularly *Judas* the Traitor, because by his Treason he had occasioned the Death of *Jesus Christ*; and made use of a Gospel written under his Name.

In Opposition to the *Cainites*, another Sect of Hereticks was form'd, called by the Name of SETH. They used to teach that two Angels having created one *Cain* and the other *Abel*, and this having been killed, the great Virtue which was above all the other Virtues, had determined that *Seth* should be conceiv'd as a pure Seed, in order that those two first Angels should be depriv'd of their Power. That the Angels having copulated together, the great Virtue had sent the Deluge to destroy the wicked Generation, produced by such a Mixture; notwithstanding which, Part thereof had found Means to creep into the Ark, whence the Depravity of Manners had provignated afterwards into the World.

These Hereticks composed several Books under the Names of *Seth*, *Abraham*, *Moses*, and of the other Patriarchs. As for *Jesus Christ*, they said he was *Seth*, or occupied *Seth*'s Place.

CERDON would also have a Place in this infamous Catalogue. He admitted two Gods, one good and the other bad. He rejected the Law, the Prophets, the Gospels of St. *Matthew*, St. *Mark*, and of St. *John*, and Part of that of St. *Luke*; the Acts of the Apostles, the Apocalypse, and several of the Epistles of St. *Paul*. As for *Jesus Christ*, he said that he was come with the Appearance, and not the Truth of a human Body, and admitted the Resurrection but for the Soul.

Cerdon was a *Syrian*, who came to *Rome* in the Time of Pope *Hyginus*; and there abjured his Errors; but in Appearance only, for he was afterwards convicted of persisting in them, and accordingly cast out of the Church again. — His Followers were called *Cerdonians*.

MARCION, Disciple of *Cerdon*, was the Son of a holy Bishop. In his first Years he preserved his Purity, but having been convicted of a Sacrilege with a Virgin, his Father expelled him from the Church. Being come to *Rome*, and having been refused the ecclesiastical Communion, at the Desire of his own Father, Spite engag'd him in the Heresy of *Cerdon*, which he followed for some time, and afterwards invented a new one.

Like his Master *Cerdon*, he laid down two Principles, the one good, the other bad; he denied the real Birth, Incarnation and Passion of *Jesus Christ*, and held them to be all apparent only: He taught two *Christs*, one who had been sent by an unknown God for the Salvation of all the World; another whom the Creator would one Day send to re-establish the *Jews*. He denied the Resurrection of the Body, and allowed none to be baptized, but those who preserved their Continence; but these he granted might be baptized three Times.

He rejected the Law and the Prophets; pretended the Gospel had been corrupted by false Prophets, and allowed none of the Evangelists but St. *Luke*, whom he altered in many Places, as well as the Epistles of St. *Paul*, a great many Things in which he threw out. In his own Copy of St. *Luke*, he threw out the two first Chapters entire.

Marcion meeting once, in the Streets of *Rome*, S. *Polycarp*, Disciple of St. *John*, he ask'd him if he knew him, to which *Polycarp* answer'd, *Yes, I know thee for the first-born of the Devil.*

Marcion began to dogmatize in the Year 146. of Pope *Telesphorus* 5; of the Emperor *Antoninus* 7. His Disciples were called *Marcionites*.

APELLES, who was one of his principal Disciples, having been expelled from his Communion for some carnal Action, invented another Heresy, or rather learn'd it, from a young Woman, called *Philumenes*, who was possessed by the Devil, and whom he pretended was inspir'd by the Holy Ghost. He admitted but one Principle, whom he composed of an infinite Number of Parts; he rejected the Law and the Prophets, and gave Christ but an æthereal Body, leaving in his Ascension into Heaven, to each Element what he had borrowed from it, and therefore denied the Resurrection of the Bodies.

The SEVERIANS, were a Branch of that bad Trunk, and besides *Apelles*'s Errors, which they professed, rejected the Use of Wine, which they said proceeds from the Conjunction of the Serpent with the Earth; and condemn'd Women as having been form'd by an evil Virtue.

MONTANUS broached another Heresy, in the Year of *Christ* 173, of Pope *Anicet* 7; of the Emperor *Marcus Aurelius* 11; the more dangerous because disguised under a very great Appearance of Piety; for he was supposed endued with the Gift of Prophecy and Miracles; and to have an Uniformity of Sentiment with the Catholick Dogma's. The Pope *Pius*, had been deceived by those Appearances, and had given *Montanus* pacifick Letters, which shewed that he admitted him to his Communion. But *Praxeas* coming into *Asia*, informed the Pope of the Errors of *Montanus*, so that he revoked his Letters. His Pride render'd him Heresiarch after his Baptism, and instead of making good Use of the Grace of Regeneration, which is a Grace of Humility, he conceived so extravagant an Opinion of himself, that he thought the greatest Dignities of the Church far beneath his Merit; and preferred running to the Precipice, through an extraordinary Road, to walking with Security through that followed by every Body else. The Devil seiz'd him, and he began to give himself for a Prophet.

He first gained by his Impostures two Women of great Quality, *viz. Priscilla* and *Maximilla*, who, from his Pupils, became soon Mistresses in his Heresies. Their large Estates contributed much to corrupt those who preferred a temporal Ease to the Integrity of the Faith, *which is but too common among Christians.*

Their Errors could not be so secretly sowed, but they were soon discovered by the Bishops of *Asia*. The most learned among those Bishops wrote against them, especially *Apollinaris*, Bishop of *Hieropolis*, *Miltiades*, *Apollonius*, and *Serapio*. The Bishops assembled several Synods, where they were condemn'd; and at last *Montanus* and *Maxamilla* being agitated by the evil Spirit, died both of *Judas*'s Death, and strangled themselves. *Theodotus*, one of their chief Disciples, being carried by the Devil into the Air, was precipitated to the Earth, where he expired. However, *Apollinaris*, who relates these Deaths, does not give them for certain as to the Manner.

Montanus called himself the *Comforter*, promis'd by the Son of God to his Apostles; not that, in my Opinion, he would be accounted the third Person of the Blessed Trinity; but he wanted that People should believe that no Body had ever so great a Plenitude of the Holy Spirit as he had, to communicate it to the Faithful, without excepting even those on whom it descended on the Day of *Pentecost*; so that according to his Dreams, he had a higher or more sublime Knowledge than the Founders of the Christian Church, and taught greater Truths, and a more perfect Life.

Besides these Impieties, *Montanus* condemned a second Marriage as an Adultery, and permitted the Dissolution of Marriages, taking from their lawful Husbands the Women who follow'd him. He order'd the extraordinary Fast of three *Lents*, and wanted to oblige the whole Church to it by his own private Authority. He would not that any should fly Martyrdom, under any Pretence whatsoever, contrary to the express Words of our Lord, who commands to fly from one City to another if one be persecuted; and against the Example of the Apostles, who on several Occasions, had withdrawn from the Places where they were afraid of being put to Death.

The *Montanists* said, besides, that God the Father wanted to save the World by the Law and the Prophets, but as he could not succeed therein, he had been incarnated in the Bosom of the Virgin *Mary*, had preached in *Jesus Christ*, and suffered Death under his Figure. But this proving not yet sufficient for the Salvation of the World, he dwelt by the Holy Ghost in *Montanus* and their *Cenones*. They placed Bishops the third in Order, *i. e.* after their Patriarchs and *Cenones*. They were besides so rigid, that for the smallest Faults they expelled their Followers from their Church. From their very beginning they divided themselves into three Families, of *Cataphrigians*, *Proclians*, and *Æchinians*. These used to teach particularly that *Jesus Christ* was the Son and the Father in the Trinity.

These

These gave Birth to several other Monsters, *viz.* to the *Quintillians*, *Priscillians*, *Artothyrites*, who made the Eucharist with Bread and Cheese, and the *Pepuzians*. These took their Name from a Borough of *Phrygia*, called *Pepuzium*, which they called *Jerusalem*, where they wanted every Body should resort from all Parts. Women were Bishops and Priests among them. These Plagues infected *Phrygia*, *Cappadocia*, *Galatia*, and *Cilicia*, till the Time of St. *Epiphanius*.

As if it had not been enough for these to disturb the Peace of the Church, *Tatian*, born in *Syria*, revolted against it in the Year 174, of Pope *Anicet* 8; of *Marcus Aurelius* 12; and made himself Chief of the Sect of the ENCRATISTES, *i. e.* Continents.

TATIAN had appear'd for a considerable Time as a Man of an eminent Piety, and of an extraordinary Learning. He had wrote several excellent Books, among which *Origen* quotes a marvellous Treatise in Defence of the *Christians* against the *Greeks*; where he shews the Impertinence of the Belief of the *Gentiles*, on the Nature and the Crimes their Priests render their Gods guilty, and the Diversity of Opinions of their Philosophers; which shews that it is not in their Books that Truth is to be found. There are several Things in it either false or suspicious, which he mixes with Truths; as, that the Soul, which is mortal of its Nature, becomes immortal: He speaks of the Devils, in the Manner of the *Platonicians*, and of the Word of God, as if he was not co-eternal with his Father. This Work is placed in the fourth Tome of the Bibliotheca of the Fathers behind the Works of *Justinus the Martyr*, who had been *Tatian*'s Master.

While *Justinus* lived, *Tatian* remain'd within the Bounds of the true Doctrine; but after his Death he left *Rome*, and return'd into the East, where Pride and Learning swelling up his Mind, made him fall into the Errors of the *Valentinians* and *Marcionites*. He said that *Adam* was damn'd. He condemn'd Matrimony as a detestable Conjunction, under Pretence of teaching his Disciples an angelical Life, by keeping their Virginity. He used nothing but Water in the Celebration of the Eucharist, and forbad his Disciples the Use of Wine and Flesh. He composed a Kind of Harmony of the four Evangelists, which was but a mere Confusion, having omitted all that could prove the Truth of the Body of the Son of God, which he denied. Besides this Work, he published another, entitled, *Of the Perfection according to the Lord*, which, in his erroneous Opinion, consisted in abstaining from Matrimony, and from several other Things permitted in the Gospel.

SEVERUS his Disciple, adding new Blasphemies to those of his wicked Master, form'd a Sect of his Name, who rejected the Epistles of St. *Paul*, and the Acts of the Apostles. He taught that the Woman was the Work of the Devil, and consequently all those who married did his Work. He divided Man into two Pieces, attributing the Parts from the Head to the Navel, to God, and the rest to the evil Power. *Musanus* and *Apollinaris*, *Clemens Alexandrinus* and *Origen*, have wrote against the Errors of *Tatian*.

Eusebius, *lib.* 5. *c.* 14. mentions another of his Pupils, called *Rhodo*, whom he had educated while yet orthodox; and who composed several excellent Books against the Errors of *Marcian* and *Apelles*, which are lost, with a vast Number of others.

In the Year 175. of Pope *Soterius* 1; of *Marcus Aurelius* 13. BARDESANES, born a *Syrian*, and Disciple of *Valentin*, after he had wrote several Treatises against him, full of Learning and Eloquence, and attacked with the same Force the *Marcionites* and other Sects of his Time, lost all at once the Light of the Truth, and fell into the Errors he had refuted. S. *Epiphanius*, *Her.* 56. compares him in his End to a Ship loaded with rich Merchandizes, which, after it has made a long and good Voyage, comes to be wrecked at the Port. St. *Jerom*, *lib. de Script. eccles.* admires his Treatise of Fate. *Apollonius* of *Chalcedon*, the best Philosopher of his Time among the Stoicks, and who was *Marcus Aurelius*'s Master in Philosophy, did all he could to engage *Bardesanes* to deny the Christian Religion. Not only he resisted his Sollicitations, but he likewise composed Treatises to defend the Doctrine he was sollicited to abandon. But his End did not answer these glorious Beginnings.

Bardesanes, besides the Errors of *Valentin*, denied the Resurrection of the Dead. He left some Followers, who were called *Bardesanians*, and who invented new Dreams. He had a Son called *Harmonius*, a very learned Man, and who published several Books, which were very learnedly refuted by S. *Ephrem* of *Edessa*.

PTOLEMÆE, who had likewise studied in *Valentin*'s School, made also about the same Time a Sect a-part. St. *Irenæus* says, *lib.* 1. *c.* 5. that he gave two Wives to God, *viz.* *Intelligence* and *Will*, from whom he said, he generated the other Gods.

HERACLEO would also have the Glory of publishing new Follies, which differed no otherwise from those of *Valentin*, but in the Manner of telling them.

MARCK, was the worst of *Valentin*'s Scholars. By magical Illusions he us'd to make Blood appear in the eucharistical Chalice, whence we may learn that the Belief of the Church of his Time was, that in the Eucharist there was something besides Wine. He operated other false Miracles, which seduced the Simple, and established the Impiety of his Dogma's. Women were easier deceiv'd than Men; and he took a particular Care to gain those who were either rich or handsome; for under Pretence of making them Propheteses, and Partakers of that great and celestial Grace, the Source whereof he pretended was in him, he used to get several considerable Sums of those who were rich, and make the handsome ones believe, that in consenting to his Desires, they did an Act of Piety which filled them with the Holy Ghost.

COLOBARSIUS, another Disciple of *Valentin*, rivalled all his Companions by Dogma's still more detestable. The *Archonticks* rejected all the Sacraments; placed the perfect Redemption in a chimerical Knowledge, and denied the Resurrection of the Dead. They said besides, that the Sabbaoth God used to exercise a cruel Tyranny in the seventh Heaven, and that he had generated the Devil, from whom *Abel* and *Cain* were born by *Eve*.

THEODOTUS, in the Year 196. of Pope *Victor* 3; of the Emperor *Severus* 2; a Currier by Trade, after he had denied *Jesus Christ* in the first Persecution, added a new Crime to his Apostacy, teaching that our Lord had been conceived by the Operation of the Holy Ghost, but that he was but a pure Man, who only excelled all others in Justice and Holiness. He came to *Rome* to teach his Heresy, and remained hid for a considerable Time; but he was discover'd at last, and Pope *Victor* excommunicated him.

ARTÆMON soon after follow'd him in the same Blasphemy, and gave to the Son of God but some small Advantages over the Prophets. Another *Theodotus*, on the contrary, made him inferior to *Melchisedech*, who was, said they, eternal, without Father or Mother, and the Advocate of the Angels; whereas *Jesus Christ*, it is true, was born of the Holy Ghost and of the Virgin *Mary*, but was only a Man, and had excercis'd the Office of Mediator but for Men only.

The MONARCHICKS, who confessed but one single Person in the Trinity, and said, that the Father had been crucified, appear'd likewise under this Pontificate, and were Off-springs of *Praxeas*, *Montanus*'s Disciple, whom he abandon'd, and even discover'd to Pope *Pius*, who was not yet very well persuaded of the Impieties of that Heresiarch. *Tertullian* being turn'd *Montanist*, wrote against this *Praxeas* with much Vehemency.

In the Year 1216. of Pope *Zephirinus* 14; of the Emperor *Antoninus* 4. TERTULLIAN, who had been so strenuous an Asserter of the true Faith, abandon'd it: His natural Austerity, and his Pride proceeding from his profound Learning, could not bear that Pope *Zephirinus* should use so much Meekness, as to receive Adulterers to publick Penance; and this was the first Occasion of his Fall. It is not very well known what *Tertullian* did, or what became of him afterwards. He left several Disciples behind him, who called themselves *Tertullianists*. St. *Augustin*, in his Book of the Heresies says, that in his Time they were entirely extinct.

One of their principal Errors was relating to the Nature of the Soul, which they pretended came from Parents; and of the Conversion of those of the Wicked into Devils. The Church had admir'd his Writings against the *Marcionites*, the *Valentinians*, the *Jews*, and other like Hereticks. *Vincent* of *Lerins*, speaking of his Works, says, that they contain as many Sentences as Words, and that the Sense of every one of them is a Victory. Never Beginning gave so great Hopes, and had an End so different; so that the Errors of his last Books invalidated the Authority of the first; and he was, to use St. *Hilary*'s Expression, a great Temptation in God's Church. Notwithstanding which St. *Cyprian* used to read them assiduously, and when he asked for them, us'd to say, *Give me the Master*. St. *Jerom*, who loved to read them, answer'd to those who found it strange, that he admir'd the Genius of the Author, but condemned his Heresies.

As *Tertullian* had a natural Severity, he found that *Proclus*, Disciple of *Montanus*, taught a Manner of Life more modest and less unreasonable, which was conformable to his Humour. For on one Side he said nothing against the Trinity and the Incarnation; and on the other, he exhorted his Followers to frequent Fasts, to a rigorous Continence, and to a great Desire of Martyrdom, which he maintain'd it was not permitted to fly. These outward Appearances of Piety, deceived *Tertullian*, and increased the Distaste he had taken for the Church; either because his Countryman *Victor* had been raised to the Pontificate to his Prejudice; or because he had been refused the Bishoprick of *Carthage*; or for the Persecution the Priests of *Rome* made him suffer. He lost by Degrees the Light of the Faith, and at last revolted openly against that Church he had so well defended. He abandon'd himself to believe ridiculous Revelations, and the false Prophecies of a new Paraclet, and of certain Women, as if he had been a Child. But the more a Mind is exalted, the greater is its Fall, as soon as God's Grace, which it has despised, forsakes it, and leaves it to his own Conduct.

The Sect of the HELCÆSAITES, appear'd in the Year 250. of Pope *Fabian* 13; of the Emperor *Philip* 5; they rejected all the Epistles of St. *Paul*, and were of Opinion, that one might renounce the Faith by Mouth, provided he kept it in his Heart. S. *Epiphanius*, *Hæres.* 16 & 13. calls them *Sampsæans*; and says, that in his Time, there were two Women of the Race of the Authors of that Heresy, whom their Followers ador'd.

In the Year 254. of Pope *Cornelius* 1; of the Emperor *Decius* 2; began the Schism and Heresy of the *Novatians*.

NOVATIAN, their Chief, was a Priest who associated himself with *Novatus*, who was Bishop of a Church in *Africa*; the Name thereof is unknown. Though he shewed himself entirely unworthy of that Quality, and St. *Cyprian*, who never speaks ill of any Body, speaks of him as of a Man who loved Novelties, of a sordid Avarice, haughty to Excess, perfidious without Shame, and Adulator without Discretion. As a fatal Torch, carried Fire every where. His Discourses excited nothing but Tempests. He was a pacifick Enemy of the Peace. The Pupils committed to his Care, used to find in him an unpitiable Thief; Widows an Enemy of their Pudicity; and the Poor a sacrilegious Despiser of their Misery. He had left his Father to die of Hunger, and after his Death took no Care of his Burial.

Novatian, with the Assistance of his Collegue *Novatus*, caused himself to be elected Bishop of *Rome*, to supplant Pope *Cornelius*, already canonically elected, under Pretence that *Cornelius*'s Meekness in receiving too easily Sinners to Repentance, render'd him unworthy of the Pontificate. For *Novatian* refused absolutely to receive Sinners to Repentance. To this Error his Followers added others, *viz.* that the Church had no Power to remit Sins committed after Baptism; and that the second Nuptials were unlawful.

SABELLIUS appear'd in the Year 263. of Pope *Denis* 3; of the Emperor *Galienus* 9. He was Disciple of *Noëtus*, who confounding the Nature and the Persons of the Trinity, taught that there was no Distinction between them, but that they were one, like the divine Essence, and the same as the Body, the Soul, and the Mind make but one Man; whence it followed that the Father and the Holy Ghost had suffered Death. *Tertullian* attributes this Error to *Praxeas*, and St. *Ignatius* of *Antioch* writes that this Blasphemy had been advanced in his Time. St. *Epiphanius* says, that *Sabellius* had took his Error in some apocryphal Books, and particularly in that called the Gospel of the *Egyptians*, where our Lord was introduced teaching his Apostles, as a great Mystery, that the Father and the Son were but one Person.

A Bishop of *Egypt*, called *Nepos*, maintain'd with so much Obstinacy, and defended with so much Eloquence the Error of the *Millenarians*, in the Year 264. of Pope *Denis* 4; of the Emperor *Galienus* 10; that several embraced it; because it flatter'd much the carnal Sensuality; for it persuaded them that after the universal Judgment, the Predestinates were to remain on Earth to enjoy all Sorts of Pleasures, those of the Body, as well as those of the Mind. *Nepos* founded this Dream on a Passage of the Apocalypse misunderstood. He was famous for his Learning, and for several Hymns he had composed for the Church. But *Denis* of *Alexandria*, who mentions this, adds, that though he honoured his Merit, and loved his Person, he notwithstanding loved the Truth still better.

Antioch had a much more dangerous Enemy in *Paul* of *Samosate* its Bishop, who denied, with *Sabellius*, the Distinction of the divine Persons, and taught with *Artemon*, that the Word was descended into *Christ*, had alone operated by him, and afterwards was returned to his Father. He established likewise two distinct Persons in *Christ*, viz. the *Word* Son of God, and *Christ*, who, he maintained had not been before *Mary*, but had received the Name of the Son of God as a Reward for his Good Works. From these impious Principles he concluded, that in the Eucharist the Blood of our Lord was corruptible.

The MANICHEANS appear'd in the Year 275. of Pope *Eutichian* 1; of the Emperor *Aurelian* 5; their Sect began as follows:

A Man called *Tærebinthus*, Disciple of *Scythianus*, who was both a great Philosopher and a Magician, found in *Persia*, where he had been obliged to fly from *Palestina*, the Priests and the Learned of the Country so extremely averse to his Errors, that he was forc'd to take Sanctuary in the House of a Widow to save his Life; but being pursued thither, he began to invoke the Devil, who could not hinder him from being killed. The Landlady, by that Means, being left Heiress of his Books and of his Money, having no Relations, bought a Slave called *Curbicus*, whom she adopted afterwards, and had him instructed in the Sciences at that Time studied in *Persia*. Thus he became a Kind of Philosopher, and after the Decease of his Benefactress, he quitted the Name of *Curbicus*, lest some Time or other he should be reproach'd with his former Condition, and took that of *Manes*, which in the *Persian* Tongue signifies a Disputer. He not only qualified himself Apostle of *Christ*, but likewise called himself the Holy Ghost he had promis'd. He taught two Principles, one good and the other bad; that from the first proceeded the good Soul, and from the latter the bad Soul and the Body, and all corporeal Creatures. By a necessary Consequence of this Dream, he denied the Resurrection, and condemn'd Matrimony; but as neither himself nor his Disciples were very chaste, he permitted them to plunge themselves into all Sorts of carnal Pleasures, and renewed all the Impurities of the *Gnosticks*, under Pretence to shame the Flesh, and to injure it. He would not allow that the Poor who were not of his Sect should be relieved. He attributed the Motions of the carnal Concupiscence to the bad Soul. In his Opinion the Corruption was not cured by Grace, but the bad Substance was separated from the Good, and subsisted eternally in the Globe of Darkness, whereinto it returned, and where it was detained as in an eternal Prison. He admitted the Transmigration of *Pythagoras*, and made the Souls of those of his Sect to pass through the Elements, whence they ascend.

ascended into the Globe of the Moon, and from thence into that of the Sun, where they are purified, and lastly arrive to God, to whom they are re-united. As for those of other Men, he placed them in Hell, from whence they were released after they had been tormented by the Devil, to return into other Bodies; and if they did not grow better, they were sent back into a great Fire. He denied the Free Will by the fatal Necessity he introduced, which, according to his Principle, forc'd the Will in Spite of itself, to love or hate, without being able to resist, no more than that of the Brutes does to their natural Instinct. He maintain'd that *Jesus Christ* had no real Body, that he was neither dead, nor risen from the Dead, that he had no Unity of Essence with his Father, but a Part only. He said besides, that he was the Serpent which tempted *Eve*, and gave her the Knowledge of Good and Evil. He placed him in the Sun, as he did the Holy Ghost in the Air; the Wisdom in the Moon, and the Father in an Abyss of Light: Therefore he ador'd these two Planets, and believed them made of the pure Substance of God. He rejected the Prophets, and the Old Law as bad, and established by one of the Princes of Darkness; and retain'd of the sacred Scriptures but what pleased him most. He gave a Soul to Plants and Herbs, and abhorred those who pluck'd them out to cultivate the Ground; he believed that there were Portions of the Divinity united to them, and that when eaten by his Followers, those Portions were set at Liberty, and return'd to their Whole; whereas, on the contrary, when the Catholicks used them, these Portions remain'd Prisoners, which they consider'd as a great Crime. They condemn'd the Use of Eggs, of Milk, aud of Cheese, and that of Wine, as Creatures of the bad Principle. He abhorr'd a political Government, teaching Disobedience to legitimate Sovereigns and Magistrates; condemned the most just Wars, and Agriculture. But however, as for this he used to say that God would forgive it, because it contributed towards the Subsistance of the Elect. He baptized, but with a Form different from that of the Church.

The Sect of the *Manicheans* was divided into two Classes, *viz.* of *Auditors* and of *Elects*, to imitate the Church divided into Clerks and Laicks. Of these *Elects*, twelve were called Masters, supposed to represent the twelve Apostles. There was a third, who was like their Pope; those created their Bishops, who were seventy-two in Number, and the Bishops made Priests, and had Deacons.

It is almost impossible to relate all the Dreams and Impieties of this Heresiarch; of whom the Pope St. *Leo* speaking, says, that the Devil who reigns in all the Heresies, has built as a Fortress, and as it were established his Throne in that of the *Manicheans*, where he reigned, not by a single Species of Error, but by all the Impieties, and all the Follies the human Mind is capable of. For all that the *Pagans* have the most profane; the *Jews* the most blind and carnal; the Secrets of Magick the most forbidden; and the Heresies the most sacrilegious, has ran into that Sect as into a Common Sewer.

HEIRAX, born in *Egypt*, who was Master of all the Sciences of the *Greeks*, and very well versed in Astrology, began the Sect of the ABSTINENTS, in the Year of *Christ* 287. of Pope *Cajus* 4; of *Diocletian* and *Maximinian*, Emperors, 4. He had been a *Christian*, but he did not remain long faithful, and his Pride proceeding from his rare Genius, proved his Fall. For instead of reading the Scripture with a *Christian* Humility, and of following the Interpretations received in the Church, he walked through new Roads which led him into the Precipice. He denied the Resurrection of the Bodies, but not of the Souls; and said, that none but those who lived in Celibacy should be saved; that Children dead before the Age of Discretion, should not see God: That Paradise was not sensible, and that *Melchisedeck* was the Holy Ghost: He distinguished the Substance of the Word from that of the Father, and compared it to a Lamp with two lighted Cottons, as if there had been a Nature common between both, from which the one and the other borrow'd their Light.

They were called *Abstinents*, because they abstained from Wine, and several Sorts of Foods, in which they symbolized with the *Manicheans*.

Their Master composed a Treatise of the Work of the six Days, which he filled with puerile Fables, and fastuous Allegories. He was the more proper to seduce the Simple, because he professed in Appearance a very great Piety, receiving to his Communion but continent Persons and Solitaries.

The Sect of the DONATISTS, began in the Year 311, thus denominated from their Leader *Donatus*; when in the Room of *Mensurius*, who died in the preceding Year in his Return to *Rome*, *Cæcilian* was elected Bishop of *Carthage*; whom the People refused to acknowledge, and to whom they opposed *Majorinus*, who accordingly was ordained by *Donatus*, Bishop of *Casæ Nigræ*. They were condemned in a Council held at *Rome*, two Years after their Separation from the Catholick Church; and afterwards in another at *Arles* the Year following.

The Errors of the *Donatists*, besides their Schism, were, that Baptism conferred out of the Church, that is, out of their Sect, was null. That there was no Church but in *Africa*: All the rest of the Churches they held as prostitute and fallen, which has always been the Language of the Hereticks in all Ages.

Donatus seems likewise to have given into the Doctrine of the *Arians*, with whom he was closely allied; and accordingly St. *Epiphanius*, *Theodoret*, and some other accuse the *Donatists* of *Arianism*. But St. *Augustin*, Epist. 185. to Count *Boniface*, affirms, that the *Donatists*, in this Point, kept clear of the Errors of their Leader.

In the Year 344, under the Empire of *Theodosius the Great*, there arose a Schism among the *Donatists* themselves, by which they were divided into two Parties. For *Parminian* their Bishop being dead, some elected *Primian*, and were called *Primianists*; and others *Maximian*, called *Maximianists*. The *Donatists* had likewise other Appellations, as *Circumcelliones*, *Montenses*, or *Mountainers*, *Capites*, *Rupites*, &c.

They held three Councils or Counciliabules; that of *Cirta* in *Numidia*, and two at *Carthage*. *Constantine* decreed Exile and even Death against the *Donatists*. *Constantius* and *Honorius* made Laws for their Banishment; and *Theodosius* and *Honorius* condemn'd them to grievous Punishments.

ARIUS, Priest of *Alexandria*, published his Errors in the Beginning of the fourth Century; which Errors I have described at large in my Treatise of *Arianism*, under the Letter *A*.

About the same Time AECIUS, called the *Atheist*, invented a new Heresy at *Antioch*, where he was born, and where he had been ordain'd Deacon by *Leontius*; trusting to a superficial and imperfect Knowledge he had of the Catagories of *Aristotle*, he made use of it to draw very bad Consequences therefrom; and ignorant of the End *Aristotle* had proposed to himself from them, they only served to deceive *Aecius*. For *Aristotle* had wrote that Book only to exercise young Men, and to learn them to propose captious Arguments to the Sophists, who despised Philosophy. The Academicians who have explain'd the Books of *Plato* and *Photinus*, have found Fault with the Subtilties of *Aristotle*.

As *Aecius* had not an Academician for his Master, he minded more those vain Subtilties, and could not conceive an eternal Generation, nor how he who has been generated, can be co-eternal to him by whom he is generated. Besides, he had but an indifferent Capacity, no Knowledge of the sacred Scripture, and had only exercis'd himself in the Art of Disputation. He had never read the ecclesiastical Authors, and despised *Clemens Africanus*, *Origen*, and all the others, who had distinguished themselves by their profound Eruditior. He wrote Letters to the Emperor *Constantius*, and to others, full of captious Arguments, which procur'd him the scandalous Name of *Atheist*. Though he professed the Belief of the *Arians*, they notwithstanding consider'd him as an Heretick, because they could not understand him. When they had separated him from their Communion, he pretended to have renounced it first. He had some Followers called AECIANS.

In the same Century, EUSTATIUS, Bishop of *Sebaste*, in

in *Armenia*, broached a new *Heresy*, teaching that it was not lawful to marry, nor to use certain Food. He had separated several married Persons from his Communion, and advised those who appeared to have some Reluctancy against coming to Church, to take the Eucharist in their own Houses. He used to debauch, under Pretence of Piety, Servants from the Service of their Masters: He went cloathed in the Manner of the Philosophers: He advised his Female Proselytes to cut their Hair, and excused them from observing the Feasts appointed by the Church; but he would have them fast on *Sunday*. Lastly, he had forbid praying in the Houses of married People, and maintained that the Benediction of a Priest who had been lawfully married, was to be avoided as a Prophanation and a Sacrilege. He was deposed by the Council of *Gangres* in *Paphlagonia*, and his Errors condemned.

MACEDONIUS Bishop of *Constantinople*, confessed that the Son was not Consubstantial with the Father, but only semblable to him in all Things. He excluded the Holy Ghost from the blessed Trinity, pretending that he was but *a Creature*.

The APOLLINARISTS, were thus called from *Apollinaris* of *Laodicæa*, their Leader, who invested Christ with I know not what fanciful Kind of Flesh, which he supposed to have existed with the Son from all Eternity. He also distinguished between the Soul of Christ, and what the *Greeks* call νοῦς, Mind or Understanding; and from this Distinction took Occasion to assert, that Christ assumed a Soul without its Understanding, and that this Defect was supplied by the Word; though some of his Followers held that Christ had no human Soul at all.

Apollinaris taught farther, that the Souls of Men were propagated by other Souls, as well as their Bodies. *Theodoret* charges him with confounding the Persons of the Godhead, and with giving into the Errors of *Sabellius*: And *Basil* accuses him of abandoning the literal Sense of the Scripture, and taking up wholly with the allegorical Sense.

This Heresy was very subtile, and overspread most of the Churches of the East; it was condemned in a Synod of *Alexandria*, under St. *Athanasius*, in the Year 362. It was subdivided into several different Heresies, the Chief whereof were the *Dimœrites*.

AUDÆUS, born in *Syria*, not understanding well these Words of the Scripture, *faciamus hominem ad imaginem; & similitudinem nostram*, concluded hence, that God had a human Form, and a Body composed of Parts. His Followers were called *Audæans*.

The MESSALIANS appeared about the same Time, says *Theodoret*, *Eccles. Hist.* c. 1. and had for Chiefs *Dadoes*, *Sabas*, *Adelphus*, *Hermas*, *Simeon*, and others. They were also called *Antousiasts*, because agitated by the Devil; which Agitations they pretended to be an Effect of the Presence of the Holy Ghost. Those who were entirely infected with this Error, used to fly all Sorts of Handicraft as a Vice, and to abandon themselves to Sleeping, taking their Dreams for Prophecies: They believed that Baptism was of no Service to those who received it, and that nothing but an assiduous Prayer expels the Devil which inhabits within us; because, said they, all those that come into the World are born Slaves of the Devil, as well as Children of *Adam*: When the Devil is expelled from us, by the Assiduity of Prayer, the Holy Ghost comes in his Place, who gives sensible Proofs of his Presence, by delivering the Body from its Passions, and the Soul from its violent Inclinations to Evil; so that afterwards the one has no need of Fasts to moderate its Motions, nor the other of Instructions for its Conduct: Whosoever has received him, is delivered from the Revolt of his Passions, knows Futurity, and sees the blessed Trinity with his Eyes.

The ANTHROPOMORPHITES, appeared in 393. and had for Chief one *Vadius*, who taught, that God had a human Form.

In the Year 398, HELVIDIUS published, that the Blessed Virgin *Mary*, after the Birth of our Saviour, had other Children by *Joseph*.

In the Year 406. of Pope *Innocent* 3; of the Emperor *Arcadius*, and *Honorius* 12; appeared VIGILANTIUS, ranked by the Catholicks among the Heresiarchs of those Times.

Vigilantius was born in *Spain*, and had governed a Church in *Catalonia*. S. *Paulin* who had ordained him Priest, and believed him an honest Man, kept him sick in his own House; and as he wanted to go to visit the holy Places at *Jerusalem*, *Paulin* wrote in his Favour to St. *Jerom*, who had retired thither, and recommended him as a Man of an eminent Piety, who was his Friend.

Vigilantius published, that no Respect ought to be shewn to the Relicts of the holy Martyrs; and called Rake-Ashes and Idolaters those who respected them: That all the Miracles, which were reported to be operated at their Tombs, were Illusions of the Devil: That the Catholicks who frequented the Basilisks dedicated in their Honour, were to be considered as Idolaters: That the Prayers for the Dead were of no Service to them; and that it was a Folly to light Lamps and Tapers in Churches in the Day-time: He condemned all the Vigils celebrated there according to antient Custom: He renewed all the Errors of *Jovinian* against Celibacy and Virginity: He added another Opinion to these, called by the Catholicks Impiety, and which was, that the Mountain mentioned by *Daniel*, from which a Stone had unloosened itself, without any Help, was the Devil, and the Stone Christ.

Riparius and *Desiderius*, two Priests of *Gaul*, informed St. *Jerom* of these — Opinions of *Vigilantius*. The holy Doctor composed, in one Night, a Writing against him, where he refutes what St. *Jerom* believed Errors, and the Catholicks call so; pitying the Unhappiness of the *Gauls*, who till then having fed no Monsters, had at last produced this against the Church. This Work refuted so well the Opinions of that new Sect, that it was soon extinct.

The PRISCILLIANISTS arose in *Spain*, or rather were driven thither from *Egypt*, towards the End of the fourth Century.

The Origin of this Heresy is not well known; but it appears to have been brought into *Spain* by one *Marcus* of *Memphis*, who had for his Disciple the Rhetor *Helpidius*, under whom *Priscillian* was educated.

What their particular Tenets were, is not easy to discover; but they were charged with indulging all Kinds of secret Filthiness, and nocturnal Mixtures, under a religious Notion.—Among their Dogmata, this is said to have been one: *Jura, perjura, secretum prodere noli.*

They held that Souls are of the same Nature and Substance with God: They admitted all the Books of Scripture, but allegorized them into their own Sense.

Priscillian, their Leader, was a Man of great Birth, Fortune, Parts, and Learning: He was condemned with some Bishops his Adherents, in a Council at *Saragossa*, and in another at *Bourdeaux*; but he appealed to the Emperor *Maximus*, and had a Hearing at *Treves*; where being convicted of broaching Novelties, he was condemned to Death, with several of his Followers.

The PELAGIANS, began to appear in the Year 412. of Pope *Innocent* 11; of *Honorius*, 18; of *Theodosius*, 5. At first it was but a Spark of Fire, which soon spread into a very great Flame.

Pelagius, their Chief, was born in *Scotland* or *Ireland*; and St. *Prosper* calls him, *Carmine de ingrato*, the *British* Serpent. While yet young, he entered into a Monastery, where he lived very piously, and religiously, for some Years, if we believe St. *Augustin*, who speaks very advantageously of his Piety, in several Places of his Books. St. *Chrysostom* speaks of him in the same Manner in a Letter he wrote to the Widow *Olympia*. On the contrary, *Isidorus* of *Pelusa* taxes him of Gluttony, and accuses him, that to gratify his Appetite, he changed often Monastery.

Certainly if Heresy is the Chastisement of an extravagant Pride, and of other secret Sins, there is a very great Appearance that the Invention of a capital one like the *Pelagian*, which mines the very Foundation of the Christian Religion, had not been formed in an humble Mind, nor in a pure Heart: But as this is only known of

of God, it is better to adore his Judgments, by a religious Silence, than to account for it by Reasonings, which might be presumptuous.

Pelagius's Genius was quick, subtile, strong, and violent, says St. *Augustin*, *Epist. ad Paulin. Lib.* 2. *ad Bonif. c.* 3. he preached with so much Vehemency and Zeal, that he persuaded all his Auditors; and the Elegance of the Style in his Writings, joined to the Spirit they are adorned with, caused that they were read with Pleasure. It is true that St. *Jerom* appears to be of a quite contrary Sentiment, and that he treats him of Barbarism in his Elocution, of being an ignorant Calumniator, and a bad Logician. But, without offending that great Doctor, it seems to me, that in this Contrariety, one must have Regard to the Writings themselves in Question. We have a whole Epistle of him, written to the Virgin *Demetriade*, which is so eloquent for the Time, that during several Centuries it was attributed to St. *Ambrose*, St. *Augustin*, and to St. *Jerom* himself, among whose Works it is still printed. The Difference of the Sentiments has discovered the Supposition, but the Resemblance of the Stile must have given room to it; which is not an Argument of Barbarity. We have yet some Fragments of his Books of the Free-Will, which St. *Augustin* quotes, and which shew that he was eloquent, and subtle to disguise his Sentiments, and to puzzle those who had some Learning. The Writings of *Origen* were the Source of his Heresy; and whoever reads the *Book of Principles* of the one, will find the Seeds of the Opinions of the other, on Impeccality, Grace, and Free-Will: Therefore St. *Jerom* calls *Origen* the *Minion of the* Pelagian; *their Doctrine one of its Branches*; *and the Author of the Book of Principles*, *their Master*. He joins, besides, *Rufin*, *Evagrius* of *Pontus*, and *Jovinian*, in this unhappy Production. The last maintained, that those who had been truly baptized, cannot fall again into Sin; an Error which had been condemned by Pope *Siricius*. However, the Philosophy of *Aristotle*, and of *Zeno*, contributed in a particular Manner to this Heresy: And if *Tertullian* has called the Philosophers Patriarchs of the Hereticks, it may be said that the *Pelagians* were descended from them in a direct Line. For the first Error of *Pelagius*, was on the Impeccability, to which, he pretended, that Men could arrive in this Life, and several had in fact arrived It is the same Thing as the *Apathy*, or Exemption of Passions which the Stoicks attributed to Men of Wisdom. *Aristotle*, and the new *Academicians* maintained on the contrary, that Wisdom was susceptible of Passions, and that Virtue consisted in keeping them in Subjection: But the one and the other agreed in this pernicious Maxim, that Virtue proceeded from Man himself, and not from God. The Reason they give for it is, that Men boast, and were commended for their Acts of Virtue, which could not be if they received that Virtue from a divine Munificence. Who has ever returned Thanks to the Gods, says *Cicero*, *lib. de natur. deor.* for his being an honest Man? We thank *Jupiter* for the Riches we receive from him, for the Honour and Health he is pleased to give us, not for his making us just, wise, and temperate. *Seneca* in fewer Words teaches the same Impiety. *There is but one Good*, says he, *which is the Cause and Support of a happy Life*, viz. *to confide in oneself*. This is the Abridgment of *Pelagius*'s Doctrine, for the Power of human Will, whereby he maintained that a Man could govern his natural Motions; let them be ever so irregular and violent. As Vanity is the Character of human Philosophy, it has been that of the *Pelagianism*; and it is its specifick Difference from the other *Heresies*: For, if one examines all his Propositions, he'll find in them the Spirit of Pride at the most insolent Degree it can rise in Men, ever since their first Father lost his original Justice, for wanting to be semblable to God. Therefore it may be said that this *Heresy* is the *Heresy* of Nature, and that we have the Principles thereof in our Understanding and Will, which though they be in Ignorance and weak, persuade themselves notwithstanding, that they have all the Force, and all the Light necessary to govern themselves, and act well.

Pelagius came to *Rome* to corrupt, if he could, the Truth, as far as in its proper Source. There he discovered himself, without any premeditated Design: For finding himself in a Company where a Bishop, Friend of St. *Augustin*, related these beautiful Words found in his Confessions, *Lord, thou commandest me to love thee; give me what thou commandest me, and command me what thou wilt*; he exclaimed against them as if he had heard a Blasphemy, and disputed with him against the Sense they contained, though it be not only very orthodox, but likewise very pious, and as the Abridgment of the Doctrine of Grace. While he staid at *Rome* he contracted a strict Familiarity with *Rufin*, who gave him the principal Foundation of his *Heresy*, which is to deny the original Sin. He also inspired him with a Hatred against St. *Jerom*, who for that Reason calls *Rufin Pelagius*'s Precursor. He favoured the last as much as he could; and after his Death, *Pelagius* and his Disciples continued to calumniate in the most scandalous manner, that great *Anachoret*, who exposes their Persecutions in several of his Works.

The *Goths* having plundered *Rome*, *Pelagius* quitted it with his Disciple *Celestius* and came into *Africa*. He landed at *Hippone*, where St. *Augustin* was not at that Time. He remained concealed while he staid there, which was but a very short Time. But passing into *Palestina* he began soon to make himself known for a dangerous Enemy of the Church. St. *Jerom* was the first who wrote against that Sect, without however discovering yet its Author. The Occasion was on the Question which *Ctesyphon* sent him, on the *Apathy*, or Impeccability taught by those new Doctors, and whereby they began an open War against the Truth. They were distinguished from the rest of the Faithful by the Name of their Master, and called *Pelagians*.

Celestius remained in *Carthage*, where he dispersed his Sentiments publickly. He was *Pelagius*'s Countryman, and like him had a quick and subtle Genius. St. *Augustin* in the Book intitled *of the Perfection of Justice*, relates his Arguments against the Catholick Doctrine, and answers them with Accuracy. He addresses this Work to two Bishops, called *Eutropius* and *Paul*, who had sent him a small Book with this Title, *Definitions attributed to Celestius*. They were in fact of him, and very much conform to what he had wrote in a Book himself acknowledged to be his own, and which the Bishop of *Hippone* said he had read. One of the principal Questions treated in it is that of the Impeccability maintained by the *Pelagians*: He teaches that 'it is the voluntary 'Sin of the first Man, which rendred him criminal by 'the bad Use of his Free-Will: But that at present a 'Malice and a penal Corruption having succeeded to 'that first Offence, has made of the Liberty a Necessity. 'That it is what obliged *David* to say to God, *Deliver 'me from my Necessities*, under which being reduced, or 'we cannot understand what we want; or wanting to 'do what we understand, we cannot succeed therein: 'For Liberty is promised to Believers through the Li'berator, who says in St. *John*, *If the Son delivers you, 'you will be delivered*: Therefore as those who enjoy a 'perfect Health want no Physician, but the Sick; like'wise those who are free do not want a Liberator, but 'those who are Slaves, that the Gratitude of the Liber'ty may tell him *Thou hast saved my Soul from its Necessities*. But this Health is nothing else but the Liberty 'which had not perished, if the Will had remained 'found: But because the Will has sinned freely, a 'hard Necessity of having the Sin, has followed the 'Sinner, till the human Infirmity be entirely cured, and 'one receives too great a Liberty, that as it will con'stantly accompany a constant Will of living righteously, 'there will be likewise a voluntary and a happy Necessity of living well, and of never committing Sin.'

I have quoted this Passage at length, and without Ornament, to clear up one of the principal Errors of the *Pelagians*, which gave to the human Will the same Strength after its Corruption by *Adam*'s Sin, it had in the State of his Innocence. It must only be observed, that when St. *Augustin* says in this Passage, and in several others, that the Liberty has perished, he does not understand that Loss, but with Regard to the first Liberty *Adam* had received, and to the good Works, which

she is as much incapable to operate without Grace, as she can alone commit Sin, towards which she will incline always freely. Neither are we to take the Word *Necessity*, *ad literam*, for Constraint, and an antecedent Violence, which deprives Man of his Liberty.

As Priesthood could have very much authorized the Heresy of *Celestius*, he desir'd to be promoted to it. A Deacon, called *Paulin*, who had been sent into *Africa* by *Venerius*, Successor of *Simplician*, in the See of *Milan*, to supply the Want of ecclesiastical Ministers in that Province, persuaded how dangerous it would be for the Church, if that Wolf was placed among his Pastors, accused him before *Aurelius*, Bishop of *Carthage*, of publishing Heresies. To examine this Accusation, *Aurelius*, held a Synod, with some of the Prelates who were then at *Carthage*. It was objected to him, that he taught, *that the Original Sin had wounded no Body but the first Man*. He answer'd, that he had question'd the Transmission of that Sin, but in such a Manner, that he was of the Opinion of those to whom God had given more Knowledge, and that he had on that Subject, found different Opinions among the holy Priests. *Paulinus* asked him their Names, he said, that it was the holy Priest *Rufin*, who lived with the holy Priest *Pammachius*, at *Rome*; and who told him that there was no Transmission of the Original Sin.

The Synod passed to the second Proposition, in which he maintain'd, *that Infants newly born were in the same Condition* Adam *was before his Sin*. He explained himself in very ambiguous Terms, which discover'd that he was really of that Opinion, though he confessed that Children wanted Baptism; not, in his Sentiment, to be purified of any Original Spot, but to obtain the Kingdom of Heaven. These are the Words he used, to deceive, if it had been possible, the Bishops in the Profession of Faith he presented to them. It was objected to him, besides, that he dogmatiz'd, *that* Adam *had died, whether he had sinned or not sinned*; *that the Law gave Entrance into the Kingdom of Heaven, as well as the Gospel*; *that the whole human Race does not die by* Adam's *Sin, and therefore do not rise from the Dead, by* Christ's *Resurrection*; *that before his Incarnation Men have been without Sin*.

The Result of the episcopal Judgment, where those Propositions were examined, was the Condemnation of *Celestius*, against whom the Sentence of a just Excommunication was pronounced; though he had digested his Errors in such a Manner, that he seem'd rather to propose Questions than to teach any Thing affirmatively, the better to disown them if he ever was question'd about them.

This Thunder-bolt frighten'd him out of *Carthage*, but instead of engaging him to acknowledge his Fault, it only served to harden him in it. So that in *Sicily*, where he took Sanctuary, he continued to dogmatize with more Obstinacy than ever. The Church enjoy'd then a profound Peace in that Island, and all on a Sudden this Wretch changed it into an horrible Confusion. *Hilary*, who was there at that Time, wrote to St. *Augustin* for his Opinion on five Questions, which he answer'd by an excellent Epistle. A little before, *Marcellinus* finding himself puzzled by several Difficulties proposed to him by the *Pelagians* on the Baptism of Children, and on the Original Sin, had had Recourse to him, to answer those tedious Sophists. This obliged him to compose his three Books, entitled, *Of the Remission of Sins*.

This first Work against the Hereticks, was received by the Orthodox with the Applauses it really deserv'd for the profound Doctrine it contains. He treats there of the Childrens Baptism; which he maintains to be necessary for them, to blot out the Original Sin, the Propagation whereof was not admitted by the *Pelagians* from *Adam* to his Posterity, but only the Imitation. This he destroys by invincible Proofs, drawn from the Comparison the Apostle makes of two Men, *Adam* and *Jesus Christ*, as Chiefs of two different Generations, one of Corruption and Death, and the other of Holiness and Life. He says positively in the first Chapter of the first Book, and in several other Places, that Children that die without Baptism, are in Damnation, the mildest of all the Reprobates. The modern Schools could not suffer this Doctrine, which they accuse of too much Severity. Most Doctors place them in a third Place, where they not only do not feel any Pain in the Body, but where they enjoy a natural Felicity, though they be deprived of the Vision of God. Cardinal *Bellarmin* calls this Sentiment false and heretical, though he does not believe that they suffer the Pain of the Fire. Father *Petau*, a Jesuit, is entirely of the Sentiment of St. *Augustin*, and quotes some of his Passages, which he confirms by the Decree of the Council of *Florence*, which seems to him formal on that Point.

The *Pelagians* assigned to those Children a Place out of the Kingdom of Heaven, where they dared not to introduce them against the Authority of the Words of the Gospel, which exclude from that Kingdom, him who has not been regenerated of the Water and of the Holy Ghost: But when St. *Augustin* pressed them to shew in what Place of the Scripture they found the eternal Life, they granted to Children dead without Baptism; they could not give him a pertinent Answer. For him, as he knew that God had fixed in the Mysteries of his Election, particular Limits to the human Curiosity; when he was asked, why of two Children of Christian Parents, equally spotted with the Original Sin, one dying without Baptism, was damned; and the other receiving it, was saved; he answer'd nothing else, but said with the Apostle, *O the Depth of God's Wisdom, how incomprehensible are his Judgments!*

In the second Book he treats of the Question in Dispute between the Catholicks and the *Pelagians*, on the Innocence of Men. For these said, that not only one could pass his Life without Sin, but that several Persons in the written Law, and in the State of the Gospel, had never committed any Offence, not even a venial Sin. They alledged for Examples, *Abel*, *Abraham*, *Zacharias*, *Elizabeth*, and some others, whose Innocence is witnessed by the Scripture itself. St. *Augustin* attacks powerfully this Error, and shews that *Jesus Christ* excepted (in another Place he excepts the Blessed Virgin) no Body has lived in this World without being guilty of Sin. He establishes this Doctrine on the general Infection of the Concupiscence. For it is one of his Principles that whosoever has contracted the Original Sin, is subject to the actual Sin. In his Sentiment all Men have contracted the first, therefore they are guilty of the other. But as the *Pelagians* rejected this Principle, he lays a great Stress on the Lord's Prayer, which he says was given in the Apostles who were the Chiefs of the Flock, to all Christians to serve them as a Formula of a general Prayer. But in the Demands of that Prayer, Mention is made of the Remission of Sins, of Temptation, of the Deliverance from Evil, which is the Concupiscence and Sin: Therefore all Men commit Sins which they desire to be forgiven them; and may fall into a Precipice, since they wish to be preserv'd from that Fall. But however, he allows that through God's Grace, strengthening the Weakness of the human Will, a Man can live without Sin, but he denies formally such Innocence having ever been found; because the Voice of St. *John* is that of all the Saints, *If we say that we have no Sin, we deceive ourselves, and the Truth is not in us*, 1 Epist. Chap. 1. It was objected to him the Renovation of Man, made in Baptism; and he answer'd excellently, that that Renovation is only begun in Baptism, and that the perfect Adoption of the Children of God, will not happen till after the Resurrection of the Bodies. That at present we have the Premices of the Spirit, according to which we are Children of God, but that the rest of our Blessings are still in Hope. That we advance daily in the spiritual Innovation; and that according to what is within us of the new Creature, we do not sin, nor can sin; but that according to what remains within us of the old *Adam*, we sin continually in several Manners: That we are God's Children, and that what we are to be, does not appear yet; being semblable to God by the Premices of the Spirit, and dissemblable by the Remains of old Age.

In the third Book, he speaks of *Pelagius* as of a Man whom common Report made a Saint; and who had not

made a small Progress in the Christian Virtues: But in treating his Person with Honour, he does not spare his bad Doctrine against the Propagation of *Adam*'s Sin, which he had denied in his Commentaries on the fifth Chapter of the Epistle to the *Romans*, where the Apostle affirms, *that by Man, Sin had entered the World, and by Sin, Death.* He relates faithfully the Arguments of his Adversaries, and refutes them without Reply. Towards the End he employs the Authority of the ecclesiastical Authors, who had preceded him, and names St. *Chrysostom* with much Praise, as a Man who had the Reputation to excel all others in the Interpretation of the sacred Scriptures.

The Condemnation of *Celestius* could not silence the Disciples he had left at *Carthage.* They continued always to attack the Grace of the Son of God, and they deceived the Ignorant who could not discover their Impiety hid under Words full of Equivocations. St. *Augustin* coming to *Carthage*, *Aurelius*, according to the Canons, and the Custom inviolably observed among Bishops, which was, that the Diocesan desir'd him who came to visit him, to speak to the People, and to administer the Eucharist; intreated him to display on this Occasion all the Force of his Genius, against that Error newly broached, and which disturb'd him much. He did it with a marvellous Eloquence, and confirm'd his Discourse by a Passage of St. *Cyprian*, who had been Bishop of the same City, where that glorious Martyr says, *that nothing is ours, and that we have no Reason to glory of any Thing.* This Sermon is the fourteenth of those he composed on the Words of the Apostle. He attacks in it the Hereticks on their Distinction between the eternal Life, and the Kingdom of Heaven, giving that to Children dead without Baptism, and granting this to those who had been baptized. 'You condemn, says he, those you exclude from the Kingdom 'of Heaven; you condemn them, not in tormenting 'them, but in sending them into Exile. For the exiled 'suffer no other Pain, but that they are not in their 'Country. If they love their Country it is a great Torment, and if they do not love it, that Depravation of 'Heart, supplies the Place of that Torment. Is it 'then a small Evil in Man's Heart, not to seek the Society of the Saints, or not desire the Kingdom of Heaven? If he don't desire it, that bad Disposition is in 'him a great Pain; if he desires it, his Charity, which 'finds itself frustrated of the Good it wishes for, causes 'him another Evil much more considerable. But let 'that Pain be small if you will, it is always very great 'with Regard to him who having committed no Sin, 'may be subject to a Pain, even small.'

The *Pelagians* could not have a more formidable Enemy than St. *Augustin.* Therefore *Pelagius* used all his best Endeavours to gain him on his Side; and as Flattery was one of the Secrets of his Heresy, he employ'd it entirely in a Letter he wrote to him, to try if he could deceive him, and gain his Favour. He answer'd him, with his usual Humility, declaring that he was oblig'd to him for his Civility, and the Marks of his Affection; desiring him *to pray to God for him, that he might become, through his Grace, such as he represented him; rather than continue to represent him other than he was.*

The Heresiarch would not yet declare himself openly, and he was accounted Orthodox among those who had not Knowledge enough to discover his Equivocations, and his Manner of proposing his Errors by Questions. Thus in his Commentaries on the Epistles of St. *Paul*, he had attacked the Belief of the Church on the Propagation of the Original Sin. For he seemed to speak rather in the Person of others, than in his own; and St. *Augustin* taking Notice of it, says, *Lib. 1. de peccat. Merit. & Remiss. c. 3. That knowing very well that his Explication was a Novelty, he was both asham'd and afraid of confessing it*; and for this Reason calls him a circumspect Man. But the divine Providence revealed the Mystery of Iniquity, canvassed in the Dark, by a very remarkable Occasion.

Demetriade, of the illustrious House of the *Anicians*, having retired into *Africa* to avoid the Fury of the *Goths*, who had invaded *Italy*, was so efficaciously moved at what she had heard St. *Augustin* say in *Carthage*, of the State of Virginity, that she resolved to embrace it, and to quit the Spouse to whom she had been promised. St. *Jerom* writes very well this History, and shews what Value he had for an Action which he represents with all the Ornaments of Eloquence. He sent her a long Epistle much elaborated. Pope *Innocent*, and the most eminent Personages of that Time, wrote on the same Subject. *Pelagius*'s Piety had acquired him a great Reputation; which was the Cause that *Juliana*, *Demetriade*'s Mother, desired him to write to her Daughter, to strengthen her in her Resolution, at least himself speaks of it in that Manner. He did it with a great deal of Art; but among the Flowers of his Elocution, he mixed the Venom of his Heresy, to endeavour to debauch by Flatteries full of Impieties the Mind of a Person whom he pretended to exhort to Virtue. For in it he gives so much Power to the human Will: He speaks so little of its Corruption, and of the Necessity of the Grace of Christ, to keep the Continence, which is a special Gift from God, that Errors which were so visible could not be excused: But as it was by this Epistle the Heresiarch discovered himself, I judge it necessary to relate here some Echantillons thereof, that the Readers may the better see the Genius of the Author, and what Method he used to gain Persons of the first Rank, and debauch their Principles.

'At the Beginning of his Letter he confesses, That 'if he was Master of as much Wit, as of Science to 'write well, he should notwithstanding fear much, having to instruct *Demetriade*, a noble Virgin, a rich 'Maid, and what's more than all that, a Virgin, whose 'great Zeal for her Faith had made her despise the Nobility of her Birth, and the Riches of her Family. He 'protests, that he is actuated in this Enterprize neither 'by Temerity nor Ambition; but only by the Desire of 'obeying the irresistible Commands of her Mother '*Juliana*, and by whose Prayers he expected to be assisted, as well as by the Merit of the Virgin, for whom 'he calculated this Instruction.'—After this flattering Exordium, he enters into the Matter in the following Manner. As often as I have to treat of the Instruction of 'Manners, and of the Establishment of a holy Life, I 'always begin by shewing the Strength and Condition 'of human Nature, and what it can do, the better to 'excite thereby my Hearer to the Practice of good 'Works, of which I speak to him, lest it be needless 'to excite him to the Practice of Things he imagines 'impossible. In effect, we cannot enter the Road of 'Virtues, unless we have Hope for a Companion; because 'all our Efforts for their Possession perish, when we 'despair of being ever capable to enter it. I have already follow'd this same Method in my other Works, 'but I believe it so much more necessary on this Occasion, that I am obliged to extoll more the Advantages 'of Nature, when it is a Question to form a more perfect Life, lest the Mind should be slower, and less 'courageous in the Practice of Virtue, if it was to be 'believed that it can do less than it can, in fact, and 'not imagining to have what notwithstanding, is in 'him, because he is ignorant of what he possesses. 'The Things of which we design to make use, are always to be put in Evidence, and all the Good Nature 'can do, ought always to be explained, when all the 'Good which is proved to be in its Power, is to be accomplished: Therefore let's lay down for Foundations 'of a holy and spiritual Life, that the Virgin must know 'perfectly the Forces she can make use of, after she has 'discovered that she is possessed of them. For the best 'Manner to incite the Mind of a Person to do a Thing 'is, to shew him that he can do what he desires. In 'War the most persuasive Exhortations for Soldiers is, 'to speak to them of their Strength and Courage.'

This proud, prophane, and entirely impious Propoposition was sufficient to shew *Pelagius*'s Hatred against the Grace of Christ, by the Name whereof St. *Paul* beginning and ending all his Epistles teaches us a Method very opposite to that of the Heresiarch, who makes mention of it, neither in his Exordium, nor in the Body of his Letter. After he has said that God is the Author of

of that Good of Nature he has mentioned, which is nothing else but the Righteousness in which he has created Man, giving a Reason to discover the Truth, and an omnipotent Will to incline him to Virtue; and a Free-Will perfectly indifferent, either to embrace it, or to abandon himself to Evil. He confounds this first State of *Adam* with that of his Children; and represents Man after his Sin induced with the same Strength and the same Liberty he had before. He adds, that the Power of doing Evil is a Good, because it renders the Part of Good better; that's to say, that it renders the Will Mistress of itself, and free by its Judgment, and not tied by any Necessity. He afterwards taxes the Catholicks, indirectly accusing them to believe that God has created Man in the State of Corruption, and reproaching them, that instead of thinking to correct their Vices, they chuse rather to correct Nature. 'How many, says he, have 'we seen of Philosophers, who were chaste, patient, 'modest, liberal, abstinent, meek, despising the Honours and Pleasures of this World, and no less passionate Lovers of Justice than of Science? Whence 'came, I ask you, that those Things which are pleasing 'to God were found in Men separated from him? 'Whence came those Goods but from the natural Good? 'Therefore the Things I have mentioned, meeting 'either altogether in a Man, or some of them in particular, in some particular Persons; the Nature of all 'being semblable, they shew by their Example, that all 'can be found in all, or in particular Persons: That 'if Men without God, shew that they have been 'formed by the Hands of God, what can Christians 'do, whose Nature has received a better Instruction 'through *Jesus Christ*, and who are besides assisted by 'Grace?'

This Word seems contrary to what I have said, that *Pelagius* had not mentioned Grace in his Letter to *Demetriade*. But though he used the Name of Grace, he was very far from meaning the Grace in Question; for he admitted at that Time but the Grace of Illumination. And to shew it, he does not say, that human Nature has been repaired by *Jesus Christ*, which was the Language of the Church, but that it has been instructed better, which goes no further than to an Illumination of the Understanding, and not to a Reformation of the Will. But here follows a clearer Explication of his Sentiment: 'There is as it were, a natural Holiness in our Minds, 'which presiding there in the most sublime Manner, 'exercises a Judgment on the Good and on the Evil; 'and as it favours the good Actions, likewise it condemns the bad, and judges on the Testimony of the 'Conscience, the adverse Parties by a domestick Law. 'All those from *Adam* to *Moses*, who have led a holy 'Life, and been agreeable to God, have made use of 'this Law. *Abel* having been the first to follow this 'Guide, gained so well the Lord's Favour, that the sensible Mark he gave, that he took Pleasure in his Sacrifice, excited the Jealousy of his Brother.' After *Abel*, *Pelagius* speaks of *Enoch*, *Melchisedech*, *Noah*, *Joseph*, and dwells particularly on *Job*, whom he calls, 'apostolical Man, before the Precepts of the Apostles; and 'evangelical, before the Gospel.' He says of him, that 'having discovered the Riches hidden to Nature, and 'rendring them publick, he shewed by himself, what 'we were all capable of; and taught how great is that 'Treasure of the Soul we possess without using it, which 'we will not display publickly, and which we will not 'believe to have in our Possession.'

This Manner of speaking shews clearly that *Pelagius* did not admit the Necessity of an inferior Grace in the human Will for the most difficult Actions, as were those he relates of the Patriarchs; and that he understood nothing by the Word Grace, but the Light of the Understanding, and the Free-Will, God hath given to Man gratuitly, or to use his own Terms, the human Nature which alone sufficed to exercise Justice to those that lived before the Law. He calls this a File, with which God used to take off the Rust, which Nature had contracted by a long Usage of Sin, and by an old Custom of doing Evil, which was become as a Kind of Nature in Men. But he says nothing at all of the Corruption of the human Race, nor of the Domination of Concupiscence in our Hearts; of which, on the contrary, he uses all his best Endeavours to exalt the Force and Integrity, with all the Eloquence he is Master of; wanting to make *Demetriade* believe, that her Nobility, Riches, and other temporal Advantages, are not her own, but that for the spiritual Riches she herself gave them to herself; and that she is wholly indebted for them to her own Industry and Labour.

The Letter, I mention, except the suspect Passages, is very fine, and contains very holy and judicious Instructions for the Virgins of *Jesus Christ*, that they may live in a Manner agreeable to the Dignity of their Name. St. *Augustin* having read that Piece, and penetrating the Design thereof, judged judiciously, that it ought to be answered, lest the Poison hidden in it, under a florid and pompous Language, should corrupt the Mind of *Demetriade*, and of the other Persons who should chance to read it: Therefore he wrote to *Juliana*, her Mother. It is true, that his Letter is not so florid as was that of the Heresiarch, but it is irradiated quite throughout with a divine Light, and full of a salutary Antidote against the Venom of the false Praises given to Nature, which were so artfully display'd in that of *Pelagius*. 'The Virgin 'of *Jesus Christ*, says he, ought not to listen to that 'Doctor who writes to her, when he says, that no Body 'but yourself can enrich you with spiritual Treasures, 'and that they are in you by you. Let her hear him 'that says, that we carry our Treasure in Earthen Vessels, to shew thereby that all our Strength is from 'God, and not from us. All Good, and all perfect 'Gifts come from above, says the Apostle St. *James*, 'and descend from the Father of Light: Therefore 'from that Source flows that Virginity, whereby your 'Daughter surpasses you, but in a Manner that pleases 'you, in that she who is behind you in Order of Birth, 'precedes you by so excellent an Action: That she who 'draws her Origin from you, surpasses you in Honour; 'and she, in a Word, in whom an Excellence has began 'to be yours, which could not be found in you. These 'are God's Gifts, and are likewise yours, but they do 'not proceed from you; and be not surprized if I say, 'that they are yours, but are not from you: For we 'say in the Lord's Prayer, *our daily Bread*, but we add, '*give it us*, in speaking to God, lest we should imagine 'that it comes from us. Certainly we have so good an 'Opinion of the Christian Humility of *Demetriade*, that 'we do not question but when she has read the Letter 'sent to her, where she is told that the spiritual Riches 'her Soul is enriched with, were in her by herself, she 'has sighed, stroked her Breast, and pray'd to God, 'that as those are not his Words, it may never be her 'Faith to believe that she has some Virtues, of which 'she might glory within herself, and not in the Lord.' Thus St. *Augustin* pulled off the Mask of the Heresiarch, and undeceived the World, which *Pelagius* abused in using the Word Grace, which he reduced to the sole Doctrine, to the Examples of *Jesus Christ* and of the Saints, and to the Remission of Sins; whereas it appeared to those who could not discover his Malice, that he admitted an inferior Grace, and the Infusion of the Charity in our Hearts by the Holy Ghost, which was the Sentiment of the Church.

Notwithstanding this Discovery, *Pelagius* continued to write Books in Defence of his Errors. He surprized the too great Credulity of two young Men, one called *James*, and the other *Timasius*, who, at his Persuasion, quitted the World, and embraced the monastick Life. But soon after they were so powerfully moved by the Discourses of St. *Augustin*, in some Conferences they had with him, and conceived such an Horror for the Opinions they had been infatuated with, that they gave him a Book *Pelagius* had composed, where, under Pretence of defending Nature as the Work of God, he ruinated the Grace of *Jesus Christ* whereby the Impious is justified.

Though all those who have advanced some Errors against the orthodox Faith, have always endeavoured to dissemble their Impiety, with Terms which seemed orthodox; *Pelagius* has excelled them all in that unfortunate Dexterity; and unless one reads it with a great deal of

of Attention, weighs his Words, and mistrusts him, even when it seems that there is less Reason to suspect his Integrity, he'll be infallibly surprized, and will take for a salutary Herb, what is a very black and dangerous Poison. But in the Book I mention, through all the Veils he endeavour'd to steal from the most piercing Eye, his Blasphemies against the Grace of *Jesus Christ*, the quick ones of St. *Augustin* discovered them, and judged that it was absolutely necessary to answer them. Therefore he wrote a Book entitled, *Of the Nature and of the Grace*, which he addressed to the two young Men abovementioned. He treats in it of the Corruption of human Nature by the Sin of the first Man, which is the Cause of its wanting a medicinal Grace to cure it; because if it had a perfect Health, as *Pelagius* maintained, and could by its own Strength accomplish the Law of God, it would follow hence, that *Jesus Christ* died in vain, which is a great Blasphemy. He teaches afterwards, that the Grace is gratuite, as the Name implies it, and not given to any Body for his Merits, all Men being wrapt in a Mass of Condemnation, and none have any Reason to complain, if he should leave them in that Misfortune. He proves that Children, though born of Catholick Parents, want notwithstanding the Baptism, to be wash'd of the original Sin. He says, that 'those 'who pretend to maintain the Cause of God, in endea-'vouring to prove that human Nature is without Cor-'ruption, reject the Mercy of its Physician, who is no 'other than its Creator himself, and that the Author 'ought not to be praised in a Manner, whence it should 'follow, that the Necessity of a Saviour is excluded. 'Lastly, that it is very just to be grateful to a God who 'has created us; but that we must not be ungrateful to 'the same God who has cured us.—Towards the End of his Book he treats again, the Question I have already mentioned, *viz.* if under the three Laws any Body can be found who has lived without Sin, and concludes in the Negative, excepting the blessed Virgin, of whom he says, 'that for the Honour of our Lord, he will 'not have it disputed, when it is Question of Sins.'

Though *Pelagius* did not deserve to be spared; St. *Augustin* notwithstanding would not name him in the Book I mention, for Fear of offending him, and of rendering his Distemper incurable, if he had violated the Laws of their antient Friendship, by exposing his Person, though he attacked his Doctrine. The Event made him repent of his too great Complaisance for him; which served only to increase *Pelagius*'s Vanity, who imagined, that what St. *Augustin* did by a Principle of Charity, was an Effect of his Fear. He found all his Errors so well refuted, that, reduced to the Impossibility of answering, he said, that *of the Books in which he was accused to advance heretical Maxims, the one were not his, and the other had been taken from him before he had corrected them.* But it was very easy to see by those frivolous Answers, that he believed what he did not dare, and could not defend.

While St. *Augustin* attacked *Pelagius* in the West, St. *Jerom* in the East, who was sollicited by all Sorts of Persons, to oppose himself to his Errors, published three Dialogues, in which, under the Names of *Atticus* and *Critobulus*, he refutes his Impieties with an Energy becoming his Genius and Erudition. *Pelagius* was so sensibly offended at it, though his Name was concealed, that he published every where, that Jealousy and Envy had engaged that great Man to write against him.

Things did not remain in that Condition, for on the Accusation of *Heros* and *Lazarus*, Bishops of *Arles* and *Aix*, *Pelagius* was deferred to the Prelates of the *Palestina Cesariensis*, who assembled at *Diospolis* to the Number of fourteen. Those who deferred him were not of that Number; their Absence contributed much towards the Absolution of *Pelagius*; besides, that the Fathers of that Synod could not understand very well the Propositions extracted from his Books, because they were ignorant of the *Latin* Tongue in which they were written. The bad Success of the Synod was the Cause of its being called by St. *Jerom*, an unfortunate Assembly, in the Epistle he wrote on that Subject to St. *Augustin*, wherein he desires him to answer to one *Ananius*, which was the fictitious Name of some of *Pelagius*'s Upholders, if it was not that of *Pelagius* himself, lest, says he, I should be oblig'd to praise my own Works, which are attacked in it. St. *Prosper*, in his Poem of the Ungrateful, says, that though the wild Beast (meaning *Pelagius*) retain'd his Sentiments, he was, notwithstanding, obliged to smother his own Germ, and to condemn with his own Mouth, the bad Race he had produced by the same Mouth.

Pelagius was introduced in the Synod, and the first bad Proposition he was accused to have published, was this, *That he who had the Knowledge of the Law, could be without Sin.* He answered, that he did not understand, that he who had Knowledge of the Law could not sin, but that the Knowledge of the Law helps him towards keeping his Innocence.

The second Proposition was, *that all were govern'd by their own proper Will.* He answer'd, that he had spoke thus because of the Free Will, which by God's Assistance, chuses Good, Man being culpable when he sins by his Free Will.

The sixth was, *that Man could be without Sin if he would.* It was added, that Writing to a Widow he had used this Language: 'Let Piety find within you an 'Habitation, it can find no where else: Let Justice, 'which is a Stranger every where, find in you a Place 'of Rest: Let Truth, which no Body knows at present, 'become familiar to you, and your Friend: And let the 'Law of God, which is despised by almost all Men, be 'honour'd by you alone.' He was reproached, that in another Book, instructing the same Person in the Manner of praying to God, he had given her this impious Formula of Prayer. 'Thou knowest, O Lord, how 'much the Hands I raise up to thee are holy, innocent, 'and free from Malice, Iniquity, and Rapine: How 'just, pure, and free from all Falshoods are the Lips I 'use to offer to thee my Prayer, whereby I ask that 'thou may'st have Compassion of me.' *Pelagius* explaining this, said, *That Man, if he would, could be without Sin, and keep God's Commandments, because he had given him that Possibility; that he was not of Opinion, that a Man had ever been found, who had kept himself from his Birth to his Death free from Sin, but that a Man being converted from his Snares, could, by his own Industry, and by the Grace of God, be without Sin, and not thereby become impeccable.* As for what he had wrote to the Widow, he denied it formally, and anathematiz'd it, by the Bishop's Commands.

The Propositions of his Disciple *Celestius*, condemned in the Council of *Carthage*, were also alledged to him; to which were added these. 1. *That the Grace of God, and his Assistance are not given to us for every Action; that Grace consists only in the Law, and in the Doctrine.* 2. *That Grace is given us according to our Merits, because if God was to give it to Sinners he would be unjust.* Whence he concluded; *therefore Grace depends of my Will, whether I render myself worthy or unworthy of it.* 'For if 'we act by Grace, when Sin conquers us, it is not we 'who are vanquished, but it is Grace itself, which want-'ed to assist us, but could not. If it is by it we sur-'mount Sin, it is then its Fault, when we are vanquish-'ed, either because it would not entirely preserve us, or 'could not.

Pelagius answer'd, that it was *Celestius*'s Affair to defend himself on these Propositions, which he had never maintain'd, and which he condemn'd as impious. He made the same Declaration against the other Errors of his Disciple. 1. *That if Men are not entirely without Sin, they cannot be called God's Children.* 2. *That the Faults committed through Forgetfulness and Ignorance, cannot be Sins; because they do not happen voluntarily, but necessarily.* 3. *That there is no Free-Will, if it wants God's Assistance, because every one has in his Will the Power of acting or not acting.* 4. *That the Victory proceeds from our Free-Will, and not from God's Assistance.* 5. *That Grace is not given to Penitents according to the Measure of their Satisfactions.* Some other Propositions of less Consequence were objected to him, which I do not relate, thinking that it suffices to touch the most important.

The

The Bishops hearing *Pelagius*'s Answers, whereby he appear'd to have orthodox Sentiments; and seeing that he protested that he would follow the Doctrine of the Church in all Things, absolv'd him; without perceiving, that by the Subtilty and Equivocations of his Answers, he deceived them, and made a Jest of God's Judgments, in eluding that of his Ministers, in a Cause so important to his Glory, and to the Catholick Truth. He triumphed of their Simplicity among his Followers, and had the Impudence to write immediately to a Priest of his Friend, that his Opinion, *that Man could live without Sin, and keep easily God's Commandments, if he would*, had been approv'd by fourteen Bishops. He disguised what had happen'd with an insupportable Vanity; for he had not spoke to the Synod of that Facility of observing the Precepts, and had confessed the Assistance of Grace, which he dissembled in that Letter. He had boasted to the Synod, of that which St. *Augustin* had wrote to him, as a Proof of the Sincerity of his Sentiments on the Points in Question. That Bishop finding that he abused his Charity in this Encounter, explain'd himself, and said, that in fact he had admonish'd him, in his Letter, to follow the orthodox Opinions, on the Matter of the Grace of God, in Terms free from Heat, believing them more proper to recall him from his Errors; but that he had avoided, likewise, praising him; that he had stiled him a Gentleman, according to the common Manner of Writing, even to those who are not *Christians*. 'That he had call'd him dearest, and held 'him yet in that Quality; because he would injure himself much, if he was not to preserve for him a perfect 'Charity, was he even to put himself in a Passion, and 'hate him. Lastly, he concludes, that if he had been 'willing to do what the Letter he had so much boasted 'of in the Synod advised him, he had made no Difficulty 'to appear before the Bishops he had abused.'

Pelagius, not contented with endeavouring to deceive the East, attempted likewise, to persuade the western Churches of his Innocence, and sent to St. *Augustin* himself, by a Deacon of his Confidents, he had at *Hippone*, a small Book, written in his Defence against the Accusations of the Bishops of *Gauls*, which was an Abridgment of the Synod of *Diospolis*. The same Spirit of Finesse he had employed to disguise his Errors to the Bishops, was seen in the Discourse I mention, with which he expected to blind a Person whom he considered as his most formidable Enemy; for in the Manner he conceived the Propositions he was accused to maintain, he insinuated, that it had not been pronounced, that they were his, and it did not appear that they had been condemned; there were, besides, other Articles, of which he reserved the Defence to himself, as in the Synod, he had only promised to profess, not what the Church had already decided, but what it should decide for the future. This was also answer'd by St. *Augustin*.

Seeing himself restor'd to the Communion of the Orthodox, by an episcopal Sentence, he began to think of dispersing his Errors, with more Zeal than he had done before, since he could do it with more Security. He published to that Effect, four Books of the Free Will, where, on one Side he endeavour'd to persuade, that he had orthodox Sentiments on the Point of Grace, though he reduced it to the Law, and to the Doctrine; and on the other, he denied openly the Original Sin, though he boasted of the Synod, where he had confessed it. His Insolence went even to that Extremity, that the following Year, writing to Pope *Innocent*, he dared to boast of that Work as of an Apology of the Purity of his Belief on Grace and Free Will. He attempted, likewise, to be revenged on those who had wrote against him. St. *Jerom*, as the first who had discover'd his Errors in his Epistle to *Ctesiphon*, and in his Dialogues, was the principal Object of his Hatred. Several devout Ladies, who lived under his Conduct, received a cruel Death by the Hands of lawless Ruffians, of *Pelagius*'s Party. A Deacon fell a Victim to their Rage, and St. *Jerom* was saved by a Miracle; so that *Pelagius*, animated by the Spirit of Heresy, which is always very cruel, forgot nothing to gratify his Vengeance. *John*, Bishop of *Jerusalem*, who loved him as much as he hated St. *Jerom*; and it was certainly through his Dissimulation, and under the Hopes of his Favour, that these Cruelties were committed. For ever since the Synod of *Diospolis*, he had shewed openly, that he favoured him against his Accusers.

Pope *Innocent*, to whom *Paula* and her Daughter *Eustochia* complain'd, and sent a Relation of what had happen'd, wrote to that Bishop in a Manner which shewed well enough that he suspected him of having connived to those Cruelties. 'Is not your Piety, says he to him, 'moved at the bloody Effects of Power, which the 'Devil has exercis'd against you, and yours? Against 'you, says I, because it is a Condemnation and an Injury offer'd to your sacerdotal Dignity, that such 'Wickedness should be committed in the Church of 'God. Where was your Foresight to hinder it? Where 'are your Consolation and Succours, after the Disorder 'has happened? considering, particularly, that the Persons who have inform'd me of that Excess, say, that 'they fear still greater Evils than those they have already suffer'd.'

St. *Augustin*, on his Side, wrote to the same Bishop, to inform him that *Pelagius* was an Impostor, who entertained very bad Sentiments of the Grace of *Jesus Christ*, whereby we are made *Christians*. He sent him the Book of the Heresiarch, entitled, *Of the Nature*, and the Answer he had made to it. The Acts of the Synod of *Diospolis*, which were not yet in *Africa*, he desired him in the Name of his Brother Bishops, to send them to him, to know certainly how Things had passed. He received them sometime afterwards, and composed a Book of it, entitled, *The Acts of the Synod of* Palestina, and not the Acts of *Pelagius*. It is from that Book I have extracted the Things above related.

The Bishops of *Africa* being at *Carthage*, to the Number of sixty-eight, *Orosius*, who was returned lately from *Palestina*, presented them with the Letters of *Heros* and *Lazarus*, whereby they discover'd that *Pelagius*, and *Celestius* his Disciple, were Authors of a damnable Heresy, which ought to be condemned. Therefore having caused to be read what had happened in the same Place some Years before; they resolved, that if he and his Master refused to anathematize the Errors they had invented, they should be retrenched from the Church by Excommunication, in order to cure them.

The Bishops of *Numidia* on their Side, to oppose that growing Evil which threatened the universal Church, assembled at *Milævium*, to the Number of sixty-one, and condemned the two principal Propositions of *Pelagius* and *Celestius* relating to Grace, the Necessity whereof they denied, and to the Baptism of Children, which they did not consider as necessary to wash them of the original Sin. The Authors of these Impieties deserved to be excommunicated; and notwithstanding the Fathers defer doing it, yet chusing rather to attempt their Cure by Lenitives, than retrench them from the Church, till forced to it by an unavoidable Necessity, they left the Disposition thereof to Pope *Innocent*; to whom St. *Augustin* in their Names, wrote two synodal Epistles, to inform him of what had happened, 'that (these are 'his Terms) the Authority of the apostolical See, being 'joined to the Decisions of our Mediocrity, may serve to 'preserve the Faith in several, and even to correct the 'Depravation of some.' Besides these two Epistles, he wrote another for the same Pope, signed by *Aurelius*, *Alipius*, and *Possidonius*, where he treats divinely the Matter of Grace against the Heresiarch, whose Finesse he discovered. But as his Zeal was always governed by his Charity and Prudence, he proposes Means to bring *Pelagius* back to the Church, without having Recourse to Excommunication, which was either to disown his Book *Of the Nature*, or to say that Things had been inserted in it which were not his; or to give a good Sense to the Propositions explained by his Disciples in one contrary to the orthodox Doctrine.

A Bishop called *Julius*, carried all these Epistles to the Pope, who the Year following answered them; in that he addresses to the Prelates of the Synod of *Carthage*, he commends them 'for having observed the 'Tradition and Discipline of the Church, in referring to

'the

'the Judgment of the Apostolick See, the Resolution 'they had taken in their Assembly; that Custom having been always observed, that when it is a Question to 'make general Decisions for the Dogmata of Faith, 'which are to be put in Force in distant Provinces, the 'Intervention of the Authority of the *Roman* Chair is 'necessary; that the other Churches may draw from it, 'as from a Source, the Doctrine they are to follow; 'and that under a very pure Chief, the Members may 'remain uncorruptible.'

The Fathers of the Council of *Numidia* desired, likewise, *Innocent* to use his Pastoral Diligence, to remedy the Dangers the Members of *Jesus Christ* did run, of being lost by the new Heresy. He commends them, as he had done those of the Council of *Carthage*, for having consulted him, and says, 'that in that they had observed the Canons, that at all Times the Bishops (whom 'he calls Brothers and Co-Bishops) in the Difficulties of 'Doctrine, had always Recourse to St. *Peter*, the Author 'of the Name of Bishop, and of the episcopal Dignity.' He declares, towards the End, *Pelagius* and *Celestius* excommunicate, by the apostolical Rigour, or Vigour (for these two different Lections are found in the Manuscripts) The Pope adds, that this Separation from the Church is, till they come out of the Snares of the Devil, by a Recantation, and without pretending to hinder the Bishops from treating them as Penitents, if they were to repent.

St. *Augustin* was appointed by these two Synods to write against the *Pelagians*, in Defence of the Church, and the Event proved, that that Choice had been made by the Conduct of the Holy Ghost; who communicated his Grace in such a Plenitude, to this Defender of Grace, that as he was a Miracle of it by his Conversion, he should be likewise its invincible Advocate against its Enemies.

Pelagius and *Celestius* finding themselves thus so solemnly condemned, did not become more humble; on the contrary, they grew more furious; and resolved to employ all Sorts of Artifices to blot out that Infamy, and to reverse it on their Judges. To succeed in it, *Celestius*, who by Surprize had been made a Priest in *Asia*, came to *Rome*, where *Zozimus* had succeeded Pope *Innocent*. 'He appealed from the Condemnation fulminated against 'him in the first Synod of *Carthage*, and complain'd in 'particular, that in the second, Things had been tran'sacted without the least Formality of Justice; that he 'had been excommunicated on the Letters of *Lazarus* 'and *Heros*, Bishops in *Gaul*, brought by *Orosius*; that 'those Questions had never been agitated between them; 'that he had not even seen them before they wrote 'against him; and that *Heros*, in particular, had disco'vered that he had been misinformed.' Therefore asked that his Accusers should be confronted to him.

Zozimus left all other Affairs to apply himself entirely to this, which was of a very great Importance. He assembled a Synod in the Basilick of St. *Clement*, where he caused the Book of *Celestius*, where he denied the Origigal Sin, to be read. But as from the Beginning he had sheltered himself by a Submission to the Pope, in Case he should advance some Error, *Zozimus* intreated him in an amicable Manner, to condemn the Propositions objected to him by the Deacon *Paulinus*, in the first Council of *Carthage*, and to subscribe to the Epistles of *Innocent* his Predecessor. He refused to comply with the first Request, but he did not dare to do so to the second, so that he promised to condemn all that should be condemned by the Apostolick See. This Promise engaged *Zozimus* to receive his Book as Catholick, and him as Orthodox; notwithstanding which, he did not judge proper to absolve him of the Excommunication, till he had received News from *Africa*, where his Affair had been treated, and where it was perfectly known. He wrote to *Aurelius*, and to the other Bishops to inform them of what had happen'd, 'and 'blamed them for having been too easily imposed upon 'by the Letters of *Lazarus* and *Heros*, two wicked Bi'shops, formerly retrenched from the ecclesiastical 'Communion for their Crimes. He added, that *Ce*'*lestius* challenged his Accusers to appear; and there'fore ordered that those who had something to object 'against him, should come within two Months, to main'tain their Accusations in his Presence, in Default 'whereof, their Holinesses must know that there was no 'longer any Doubt in that Affair.' In Consequence of this Epistle, the Deacon *Paulinus* was cited to *Rome* by the Deacon *Basiliscus*.

The Bishops of *Africa* were very much surpriz'd at the Terms of *Zozimus*'s Letter; seeing that the Heretick had surpriz'd him with so much Dexterity, they immediately assembled a Council in *Carthage*, which was the second in the Affair of the *Pelagians*, and wrote to the Pope to desire him to leave the Affair in *Statu quo*, till they had inform'd him better of the Character and Finesses of the Person he imagined so good a Catholick. They did it soon after by very ample Letters they sent to him by the Deacon *Marcellinus*, and told him, 'that it was not suf'ficient that *Celestius* had subscrib'd to those of Pope '*Innocent*, but that he should abjure the Doctrine of his 'Book, lest the Ignorant and Simple should believe, 'that the bad Doctrine it contain'd, had been approv'd 'by the Apostolick See.' *Zozimus* finding this Advice very reasonable, order'd *Celestius* to appear, the better to discover his Artifices, or his real Amendment, and to take off all Subject of Suspicion; but as he knew himself guilty, he hid himself; and by his Flight gave Room to his just Condemnation, and to that of *Pelagius*, of whom I must speak at present.

The Censure of his Errors, made in the two first Synods of *Carthage*, and in that of *Milevium*, had not been less sensible to him than to *Celestius*, and he endeavour'd with the same Artifice to blot out that Spot; therefore he sent to Pope *Innocent*, whom he taught yet living a Profession of Faith, which was put in the Hands of *Zozimus* his Successor. It was conceived in Terms so equivocal, that unless one knew the Artifices, and Evasions of the Heresiarch, it had been judg'd orthodox. It is printed among the Works of St. *Jerom*, in the Edition of *Marianus*, under the Title of *Explication of the Symbol of* Damascus. Since *Charlemagne*'s Time, several have attributed it to him, without considering the invincible Reasons which oppose that Opinion. Others have given it to St. *Augustin* himself, and in fact is found among his Sermons to the Number of the 191. The Impostor has only made a Head and a Tail to it, that it may have a greater Appearance of an Homily; and instead of these Words, *Most blessed Pope*, *Pelagius* had put, are read these, *Beloved Brothers*. The End of this Profession of Faith, shelter'd the Author from all Accusations, and all Censures. For he speaks thus to the Pope; 'this is, 'most blessed Father, the Faith we have learn'd in the 'Church, and which we profess. If in that Writing we 'have said something with less Sufficiency, or Circum'spection than needs be, we desire that it may be cor'rected by you, who keeps the Faith and the See of 'St. *Peter*. But if our Confession is approved by your 'Apostolate, whoever attempts to blacken me, will 'shew that he is ignorant or wicked, or even a bad Ca'tholick.'

Thus Heresy had the Impudence to search a Refuge in the very Place where it should have found its Condemnation; and to take its Judge for its Protector.

Zozimus having received *Pelagius*'s Letters and Profession of Faith, and not penetrating the bad Sense thereof, a Thing very difficult, sent a Copy of both to the Bishops of *Africa*, telling them, among other Things, 'that he wished some of them had been at the Reading 'of those two Pieces, to be Witnesses of the Joy it had 'caused to those who had heard it; and that every one 'of them had said, Is it possible that a Man of a Faith 'so entire, could be blacken'd? Is there a Place where he 'does not mention God's Assistance, and his Grace? To'wards the End of his Letter, he accuses again *Heros* 'and *Lazarus*, and reproach them that while they run 'over Sea and Land to procure the Deposition of *Bricius*, 'Bishop of *Tours*, they remain still, and were afraid to 'come to *Rome*, to maintain against *Pelagius* and *Celestius*, 'the Errors they had falsly accused them of; and, not'withstanding disturbed the Peace of the Church of '*Africa*, and of the whole Christian World.' It was accusing tacitly the *African* Bishops of having been imposed upon

upon by their Letters. But his Mistake must be excused in a Matter of Fact; and it must be consider'd that his Zeal for the Peace of the Church, prompted him to receive a Man who submitted himself to his Judgment, with so great an Appearance of Candour and Integrity. He shewed his Prudence in deferring to receive *Pelagius* to the ecclesiastical Communion, till he had received an Answer from *Africa*. Some suspect these Epistles of *Zozimus*, which Cardinal *Baronius* has found in the Bibliotheca of the *Vatican*, of Falshood; but the Objections made against them, are not, in my Opinion, very considerable. For it is certain, that *Zozimus* had used a great deal of Clemency towards *Pelagius*, even so much, that his Disciples boasted that the *Roman* Clergy had approv'd their Doctrine, and had recanted afterwards without Reason. Besides, it is very certain, that the Deacon *Paulinus* was cited to *Rome*; since he says it himself in an Epistle of Congratulation he sent to *Zozimus* after the Condemnation of the *Pelagians*. We ought not to be surpriz'd to see *Zozimus* treat so ill *Heros* and *Lazarus*, since he speaks of the last in the same Manner, in another Letter, sent to the Bishops of *Africa*, of the *Gauls*, and of *Spain*. For he observes to them, that he had been condemn'd as a Calumniator of *Bricius*, Bishop of *Tours*, and that *Proculus* of *Arles*, one of his Judges, had, notwithstanding that Sentence, made him a Bishop; 'and that, sensible of his own Unworthi-'ness, he had voluntarily deposed himself.' By the Term of two Months prefixed to the Citation of those who would accuse *Celestius*, he is justified by St. *Augustin*. He says, besides, that *Pelagius* could not deceive the *Roman* Church to the End, though he had endeavoured to do it. *Zozimus*'s Letter shews, that in Effect he had been deceived.

The Bishops being assembled at *Carthage*, to the Number of 214, in the Vestry of the Basilick of *Faustus*, wrote to Pope *Zozimus*, informing him that they had ordered that the Sentence pronounced by *Innocent* his Predecessor, against *Pelagius* and *Celestius*, should remain in Force, till they had both confessed clearly, and without Equivocation, that the Faithful are assisted in every Action, by the Grace of *Jesus Christ* our Lord, not only for the Knowledge of Justice, but, likewise, to do the Acts of Justice. They inform'd him, besides, of the Equivocations the Hereticks used to disguise their Errors with. The Pope having examined the Judgment of the *Africans*, and being not capable to make *Celestius* appear, condemned him solemnly, and *Pelagius* with him; informing all the Bishops of the Christian Church of it, by a circulatory Letter he wrote to them. Those of *Africa*, who were not perhaps separated yet, received that Condemnation confirmative of that they had already made, and caused it to be published every where. Thus Heresy was anathematiz'd with an unanimous Consent; and Truth triumphed over Blasphemies and Impostures.

The *Pelagians* had endeavour'd to make *Sixtus*, Priest of the *Roman* Church, pass for a Patron of their Impiety, and this Falshood was very advantageous to them, to deceive the Simple and Ignorant, by the Reputation of the Doctrine of *Sixtus*. But he undeceived the World by the Anathema he pronounced solemnly against the Hereticks, who had been condemned by the Pope, and the whole Church. Not contented with this publick Declaration, to preserve his Reputation, he wrote to *Aurelius*, Bishop of *Carthage*, a Letter, which tho' very short, is notwithstanding full of Vigour, and shews clearly his Zeal for the orthodox Truth against *Pelagianism*. It was received with a great deal of Joy by *Aurelius*, and by the other Bishops of *Africa*, who caused Copies thereof to be dispersed every where, to undeceive the Catholicks, and strengthen their Faith by the Authority of so eminent a Man, that after Pope *Celestinus*'s Death he was chosen for his Successor. St. *Augustin* wrote two Letters to him, one very short, which he sent by *Albinus Acolyte*, wherein he informs him, 'that the Bishops of *Africa* had read 'his Letter with a Satisfaction he could not express.' Towards the latter End he desires him 'to take Care 'that those who defended still the Errors condemned 'by the Apostolick See, should not only be chastised 'with a salutary Severity, but likewise to be cautious of 'those, who not daring, thro' Fear, to maintain their 'Impiety, retain it, notwithstanding, in their Heart. He 'says, that one is not to believe that they have truly abjured their bad Opinions, if they do not defend the 'Catholick Truth, with as much Zeal as they have 'shewn in Defence of their Heresy. He adds, that they 'are not to be frightened, since their Silence shews that 'they are daunted enough already: But that they are 'not to be treated neither as if they were entirely healthy, 'their Wounds wanting the more the Diligence of a 'Physician, because hidden.' This Epistle is the 104, among those of St. *Augustin*; in the 105 he expresses to *Sixtus* the Displeasure the Bishops of the Province had felt, when it was reported by the *Pelagians*, that he had contracted a strict Union with them, and their Joy, when they saw, that far from being their Defender, he had so publickly declared himself their Enemy. He says, that those first Clouds of Sorrow which had darkened the Serenity of their Hearts, seemed to have risen but to render their Satisfaction greater. He afterwards treats the Matter of Grace, and answers to all the Arguments of the *Pelagians* with so much Energy, that this single Epistle could suffice to destroy their Error. The 106, written to St. *Paulinus*, Bishop of *Nole*, who loved and esteemed *Pelagius* for his great Virtue, deserves very well to be read; he teaches clearly in it, 'that the Predesti-'nation and Reprobation of Men, supposes the Corrup-'tion of the whole human Race by *Adam*'s Sin. If that 'Mass, says he, from which God can draw Vases of 'Honour, or of Ignominy, was in an indifferent State, 'and not more inclinable to Evil than to Good, it 'would not be objected in vain, that there is some In-'justice in God forming Vases of a different Condition; 'but the Sin of the first Man makes that Difference, by 'the bad Use of his Free Will, having rendered the 'whole Mass subject to Condemnation: And if he 'makes of it Vases of Honour, it must not be attributed 'to any Merit, which could not have preceded that 'Grace, but only to God's Mercy; as when he makes 'of it Vases of Ignominy, God must not be accused of 'Injustice, which cannot be in him, but we must sub-'mit ourselves to his Judgment.

The Emperor *Honorius* lent the Strength of his Arm to the Church, to support the Condemnation of the *Pelagians*, by the Councils of *Africa*. It is a solemn Edict given at *Ravenna*, the second of *May*, and addressed to *Palladius*, Prefect of the Pretory. He banishes *Pelagius* and *Celestius* from *Rome*, ordering all Sorts of Persons to inform against their Followers, who being convicted, he commanded they should be sent into Exile. The *Pelagians* were so insolent, and so blind, as to turn this Ordinance to their Advantage, as if by some Words inserted therein the Emperor design'd to favour their Heresy. But as St. *Augustin* said to *Julian*, who had published that Interpretation, 'why don't you appear then and maintain 'publickly to the secular Powers, that you are those whose 'Faith is approv'd by the *Christian* Emperor? Certainly 'one ought not to be surprised, if interpreting, accord-'ing to your Fancy, the Law of God, you do the same 'of the Law of the Emperor.'

After these solemn Edicts, every Body rose against those publick Plagues. They were expelled from *Ephesus* and *Sicily*; but at *Rome*, *Constantine*, who was Vicar there for the Emperor, suffered so much from their Faction, that St. *Prosper* ranks him among the Confessors. *Possidius* observes, likewise, that several fearing the Rigour of the Pains inflicted by the Edict of the Emperor, return'd to the Church. *Celestius* was forced to leave *Rome*; and believing that he could easier sow his pernicious Doctrine in *Constantinople*, he found there, on the contrary, his Condemnation, thro' the Cares and Courage of *Atticus*, Bishop of that See.

Pelagius complained, that he had been condemn'd absent, he who had been cleared by the Bishops of *Palestina*, in the Synod of *Diospolis*. He always endeavoured to continue his Deceit, and to pass for Orthodox. He even began to declare, *that Grace was necessary, not only at all Times, but likewise for every Action.* But he understood a Grace very different from that St. *Augustin* wanted he should confess. To discover his Imposture, the

the same Doctor published two Treatises, one *Of the Grace of* Jesus Christ, and the other, *Of the Original Sin*; and addressed them both to those who had inform'd him of the captious Declaration of the Heresiarch. For *Pelagius* did not understand by the Word *Grace*, that which entering into the Will, cures it of its Corruption and Weakness, applies it to the Action, and makes it do it, which is the true Grace of *Jesus Christ*, proper for Man's Condition after the Original Sin; but he understood either the Remission of Sins, or the Instruction by Means of the Doctrine of the Gospel, and by the Examples of *Jesus Christ*, and his Saints. In effect, he distinguished clearly the Power, the Will, and the Operation; and said, that Man had received the Power from God, but that the Will, and the Operation, were in his Free Will. It is what St. *Augustin* refutes in his Book of the Grace of *Jesus Christ*, where he teaches, 'that it does not consist in 'a simple Possibility of doing Good, under the Command 'of the Will; but in the Infusion of a new Love which 'cures that Will, and of a marvellous Sweetness which 'makes it do, what it made it will; and which is necessary not only to act with a great Facility, but without which it is impossible it should act at all; giving it 'Action without depriving it of its Liberty.' *Pelagius* had confessed in the Synod of *Diospolis*, that *Adam*'s Sin had affected his Posterity, as well as him; and the Synod had imagined, that he confessed that the Original Sin passed from the Father to his Children, which was the Sentiment of the Catholick Church. But in the Books he published afterwards, he explain'd that Term of affecting, of the Example given by *Adam* to all Men, and not of a true Transmission, which he denied absolutely.

Sometime after the Publication of his Book of the Original Sin, having been informed that the Hereticks had addressed some Writing to Count *Valerius*, in which they accused the Catholicks of teaching, that Marriage was bad, because they said that Children born from it, brought along with them into the World the Original Sin; he composed the first Book, *Of Marriage, and of Concupiscence*, wherein he shews, 'that we must distinguish those two Things, and that the Original Sin does 'not proceed from Marriage, which is good, but from 'Concupiscence, which is bad; as a fatal Consequence 'of Man's Sin, and not as his Nature, which could not 'suffer so great a Disorder, and so injurious to the Goodness of the Creator.' *Julian*, one of the principal Defenders of *Pelagianism*, having read this Book, wrote four to refute it.

This *Julian* was the Son of a Bishop, called *Memorius*, an intimate Friend of St. *Augustin*, as it appears by a Letter he writes to him, in sending him his sixth Book of Musick for his Son, of whom he speaks at the End of his Letter in these Terms: 'I dare not say that I love 'him better than I love you, because it would not be 'speaking sincerely; but I may venture to say that I desire more to see him, than to see you; and he must find 'it surprising, that I desire with more Passion to see a 'Person whom I do not love most. But this proceeds 'from that I entertain more Hope to see him, than to 'see you.' *Julian* had been married, and we read the Epithalamium of his Marriage, among the Poems of St. *Paulin*. His Wife being dead, he was ordain'd Deacon, and afterwards promoted to the Bishoprick of *Celeno*, a small City in *Campania di Roma*. He had been educated with Care, in what we call the liberal Arts, had a quick and agreeable Genius, and a great Strength of Reasoning. The Fragments of his Works we have left among those of St. *Augustin*, witness an Eloquence which was not common in that Age, where the *Latin* Tongue had suffered a strange Alteration.

This young Man, still more presumptuous than learned, thought he was capable alone to raise *Pelagianism*, and that if he could conquer St. *Augustin*, the War was ended, and Victory secure on his Side. He used to call him *Goliah*, and himself *David*, who was, in cutting off his Head, to make the Good Cause triumph over the Artifices and Blasphemies of the *Manicheans*, as he used to call the Catholicks. St. *Augustin* answered with his usual Modesty, that he was very far from attributing to himself, among the Orthodox, the Glory he boasted of among the *Pelagians*, of being capable to terminate a Difference of that Consequence by his Victory, or his Defeat; and that he was only one among several Combatants, who refuted their profane Novelties. *Julian*'s Conduct was different from this, for it seemed as if he had dipped his Pen in Gall, and in Venom, so fiery and so injurious was his Style; not only against St. *Augustin*, whose Book he attacked, but against the whole Church, which he accused of Precipitation, Error, and Injustice, in the Condemnation of the Chiefs of his Sect, and of their Dogmata. He complained, that they had been censur'd without assembling an universal Council. The Vanity of the Hereticks wished to have that solemn Satisfaction, that the whole Church should stir for them; and as they could not debauch the Christian World, they would disturb it by the Convocation of all the Bishops, whose Absence could favour the Introduction of their bad Doctrine.

Julian, who grew every Day more inveterate against the Church, wrote, at the same Time, two Epistles; one he sent to *Rome*, to endeavour to strengthen his Followers in his Doctrine, or to make new ones; the other, which he addressed to the Bishop of *Thessalonica*, with the Subscription of eighteen Bishops of his Party; to endeavour to gain that Prelate, who was very much respected in the East. They bore the Character of the Genius of the Author, *viz.* of Impudence in his Calumnies, and of Impiety in his Propositions against the Catholick Church. For he accused it of teaching, 'that 'God was not the Author of Marriage: That the Generation of Children came from the Devil: That the Patriachs and the Fathers of the Old Testament had never 'been purified of their Sins: That the Apostles had 'been guilty of several Crimes: That the Son of God 'had not been entirely free from Sin: That Baptism did 'not give the Remission of Sins committed before: 'And that there was no Free Will, but that it was under the Command of an unavoidable Fatality.'

St. *Augustin* answered the Epistles *Julian* had sent to *Rome*, by four Books, entitled, *Against the Two Epistles of the* Pelagians. In the Beginning of the first Book he refutes the Calumnies of *Julian*, who reproached the Catholicks with denying the Free Will, with the *Manicheans*. He says, 'that it is true that the Liberty has 'been lost by the Sin of the first Man, but that Liberty 'was that he enjoyed in the terrestrial Paradise, whereby 'he could, if he would, have an entire and perfect 'Justice, with Immortality; and that it is for that, human Nature wants the divine Grace, our Lord saying, '*John* viii. *If the Son shall make you free, then ye shall be 'free indeed*, i. e. free to live righteously. For far from the 'Free Will being perished in the Sinner, that it is by it, 'that those sin, who sin by the Motion of the Pleasure 'they find in sinning; the Love of Sin, making in them, 'that what they will please them; so that they are not 'free with Regard to Justice; the Law whereof they follow but by their Free Will, as they cannot be free with 'Regard to Sin, not to commit it, but by the Grace of 'God.' Afterwards he answers to the other Calumnies of *Julian*, who accused the Catholicks with condemning Marriage. He blamed, in particular, St. *Augustin*, for having said that *Jesus Christ* himself had sinned thro' the Necessity of a corrupted Nature; but that Imposture was so black and so ridiculous, that the Doctor does not amuse himself to answer, or refute it; its Absurdity refuting enough itself. He explains, likewise, divinely well the Origin and Nature of the Concupiscence, separating in Man, what is of God, and what is of *Adam*'s Disobedience, and especially in the Motions of the Flesh, against the Will of the Spirit; which he maintains could not, and had never been in the Body of the first Man after his Offence.

In the second Book he examines the Epistle sent to the Bishop of *Thessalonica*, and he compares the *Pelagians* with the *Manicheans*, shewing what the Church condemned in the one and in the other; and concluding that they attacked the Truth with a Will which seems different, but through a semblable Vanity; and that if they were separated in their Opinions, they were intimately united by the Malignity of their Intentions against Christ's

Christ's Spouse. One of the principal Objections of *Julian* against him, was, that he introduced a Fatality which destroyed Man's Freedom, under the Name of Grace, corrupting his Words, and the Sense thereof, as if God had violated by it the human Will, so that he had imposed on him an absolute Necessity, like that Judiciary Astrologers attributed to the Planets, and like that the *Manicheans* had once taught him.

St. *Augustin* refutes this Calumny, and shews by *Julian*'s Objection, that he thought that Grace was given according to Man's Merit; which *Pelagius* had disowned in the Synod of *Diospolis*; and what himself pretended likewise to condemn. He founds, particularly, the Proof of a gratuite Grace on what happens every Day to the Children of Christians, one of whom is baptized, and the other is not; though it cannot be said that there is any Merit in that, which is not in this. He adds, that the Apostle, *Rom.* ix. has untied the Knot of that great Difficulty, in not untying it, when he has sent Men to the Will of God, who has more Right to do what he pleases with the Mass of corrupted Nature, than the Potter to form of his Clay what Vessels he thinks proper; to whom, notwithstanding, those Vessels cannot say, by Manner of Complaint, Why hast thou made me thus?

In the third Book, St. *Augustin* continues to answer to the other Objections of the Hereticks; and begins by that relating to the Old Law, which they pretend, the Orthodox condemn'd as bad. He protests with the whole Church, That it is holy, though it does not give Justice, which belongs to the Gospel alone. In few Words, explaining the whole Question, he says; 'That 'by Faith one learns what God wants to be done, and 'that by Grace one obeys the Law; that *that* makes 'Hearers of Justice, and this Observers: That what is 'impossible to the Law, because of its carnal Infirmity, 'is render'd easy by the Grace of him, who has took 'Flesh, appearing in the Similitude of Sin, to destroy 'Sin by himself; that the Justice of the Law may be 'accomplished in those who do not walk according to 'the Flesh, but according to the Spirit; *i. e.* in those 'who do not flatter themselves with a vain Presumption 'of their Strength, as if they could accomplish the Pre-'cepts of the Law by their Free-Will, without the As-'sistance of Grace.'

Lastly, in the fourth Book, St. *Augustin* discovers all the Finesses, and Subterfuges, the *Pelagians* used to palliate their Impieties, and reduces them to five Heads: 1. To the Commendation of the Creature. 2. Of Marriages. 3. Of the Law. 4. Of Free-Will. 5. Of Saints. For as all those Things are good in themselves, under Pretence of defending the Goodness thereof, they denied the Corruption which has happen'd by Sin, and consequently the Necessity of Grace to cure it. He quotes all the Passages he uses to support their bad Opinions, and answers them with as much Candour as Solidity: Towards the End, he establishes the Belief of the Church, by Passages extracted from the Books of the Fathers who had wrote before the Birth of *Pelagianism*; of St. *Cyprian*, of St. *Ambrose*, whom *Pelagius* himself mentioned with Honour.

About the same Time *Alipius* came to *Ravenna*, to implore the Protection of the Emperor *Honorius* against the *Pelagians*, who continued to excite Troubles in *Africa*: We learn that this was the Occasion of his Journey, by the Rescript dated the 9th of *June*, under the Consulate of *Monakius* and *Plinta*. The first Condemnation is confirmed in it, and the same Punishments decreed against the Hereticks, and against the Bishops who should favour them, or refuse to subscribe to their Condemnation. The Emperor order'd that *Aurelius*, Bishop of *Carthage*, should inform them, that if they continued to dogmatise, they would be deposed, banished from their Cities, and deprived of the ecclesiastical Communion. *Aurelius* received this Ordinance, and caused it to be published throughout all *Africa*; it proved very agreeable to the orthodox Prelates, who had asked for it; but the *Pelagians* drew from it a lame Proof of the bad Cause of the Church, which had Recourse, say they, to the Secular Power, instead of employing Reason to convince them. *Alipius*, who had been the Sollicitor of it, sent to St. *Augustin* Extracts of the four Books of *Julian*, against that he had published under the Title of *De Nuptiis & Concupiscentiâ*, which Count *Valerius* had addressed to him. He answered them by a second Book, under the same Title of the first; but having found the whole Work of *Julian*, which he judged very pernicious in its Form and Matter, he published soon six Books, which refute his Errors with such Efficacy, that it is easily perceived that the Grace of *Jesus Christ* inspired the Mind, and conducted the Pen of its Defender.

In the two first Books, he shews by the Authority of the antient Fathers, that the Church cannot be condemned for teaching the Propagation of the Original Sin, of being *Manichean*, without condemning its greatest Doctors of having been guilty of the same Error, and without accusing it, consequently, of having not been from its Infancy *Jesus Christ*'s Spouse, and the Column of Truth, but an Adulteress, and a Synagogue of impious Men. In the four other Books he answers to the four of *Julian*; and as he had received them from the Bishop *Claudius*, he addresses to him his Answer, which himself calls a great and elaborated Work; and submits himself to his Judgment. In the Epistle Dedicatory, he acknowledges that he who had sent to Count *Valerius* the Extracts of the Books of *Julian*, to which he opposed the second Book *De Nuptiis & Concupiscentiâ*, had not been faithful; and that he had faithfully answered those alterated Objections. So that those who were to read his Answer, should consider, that it was made rather to the Author of the Extracts, than to *Julian*, whose Work he had not seen. This Declaration proved his Candour, and should have shut the Mouth of the Heretick, who loaded him with Injuries and Invectives, calling him a bold *Numidian*, whose Impudence was scarce to be parallelled; who had falsified his Writings, and had engaged in a Fight against him blindfolded, and in the Manner of the *Andabatians*. This was the beautiful Stile of the eight Books he published against the second *De Nuptiis & Concupiscentiâ*, of St. *Augustin*. *Alipius*, who was then at *Rome*, sent five of these Books to his Friend *Augustin*, with a Promise to send him soon the three others; intreating him, at the same Time, with Zeal to answer them immediately, for the Honour of the Truth, attacked by *Julian* with so much Impudence and Calumny. St. *Augustin* complied with his Request, and formed the Design to refute Book by Book, the eight of his Adversary. But Death interrupted the Course of this great Work, when he was already advanced as far as to the sixth Book.

The first Edict of *Honorius*, had banished *Pelagius* and *Celestius* from *Rome*. But this last shewed as little Obedience to his Sovereign, as he had done to the Church. He return'd soon into the City, where by the Favour of his Friends, and of those of his Sect, he kept himself concealed, and continued to sow his Heresy. At last he was discover'd and expelled a-new, by the Edict of *Constantius*, who had been declar'd *Augustus* by the Emperor. This new Banishment, proved to be a great Subject of Humiliation for the *Pelagians*, and, notwithstanding, it could not stop the Course of their Calumnies against St. *Augustin*, whom they accused of denying the Free Will, because in the Books he had wrote against them, he proved in very strong Terms, the Necessity of the Grace of *Jesus Christ*, and the Weakness of the human Will.

The SEMI-PELAGIANISM, succeeded the *Pelagianism*, in the Year of *Christ* 428 or 429; of Pope *Celestinus* 6; of the Emperor *Theodosius* 22; of *Valentinian* 5; or rather raised from its Ashes, if we may be allowed to speak thus of an Heresy, as a bad Egg from a bad Raven; which in the Bottom was no less injurious to the Grace of God, than *Pelagianism*, tho' it spoke with more Moderation.

Cassian, a *Scythian* born, had passed the first Years of his Youth in the Monasteries of *Egypt* and *Palestina*, where he made very great Progresses in all the Christian Virtues. As he had visited them all, and in that Journey conversed with the most excellent Solitaries found in them,

them, he took Occasion hence, to compose a Book, which he entitled, *Of the Collations, or Conferences*, in which he relates what he had learned from them. He was made Deacon of St. *Chrysostom*, who loved him for his Virtue; seeing that eminent Prelate banished by the Faction of his Adversaries, he return'd into the Monasteries where he had been educated; and where having exercised himself a-new in the Practice of Virtue, he came to *Marseille*, where he was ordained Priest, and where he built two Monasteries, one for Women, and the other for Men, which is that called at present St. *Victor*. He gave there all the Examples of Piety, which could be expected from a Man, who had spent almost his whole Life in the Exercises of Penitence. But his Reputation is remained blackened by his bad Doctrine, which appeared chiefly in his thirteenth Collation, where under the Name of the Abbot *Cheremon*, he speaks like a *Semi-Pelagian*, though he had began like a Catholick. This obliged St. *Prosper* to write against him, the Books entitled, *Against the Author of the Collations, or Conferences*; and made Pope *Gelasius* condemn his Works as apocryphal. He, notwithstanding, cannot be called Heretick, because he did not defend his bad Opinions with Obstinacy, and the Church had not yet distinctly condemned them.

His Errors on the Doctrine of Grace, do not deprive that Part of his Works where they are not contained, of the Praises it deserves. Much less do I pretend to lessen the Reputation of his Piety, which is acknowledged by *Prosper* himself, though he attacks his Errors. The Books of St. *Augustin* against the *Pelagians*, being fallen into his Hands, and he not understanding them very well, he began, among his Disciples, to condemn Grace and the absolute Predestination of a certain Number of Persons, taken from the Mass of Corruption. Several Priests, and some Bishops of an eminent Piety, followed his Sentiment, and, to avoid imaginary Errors, which they pretended to have found in that Doctrine, they fell into real Errors, which sometime afterwards formed the Heresy, called *Semi-Pelagianism*.

Prosper, who was a great Admirer of St. *Augustin*'s Books, maintain'd them against the *Semi-Pelagians*, with all his Might; but at last he was obliged to write him an Epistle, in which he relates all the Objections, and all the Calumnies of his Adversaries.

'Several Servants of *Jesus Christ*, says he, who are in 'the City of *Marseille*, think, that what you teach of the 'Vocation of the Elect, according to the absolute Decree of God's Will, in the Books composed by your 'Holiness against the *Pelagians*, is contrary to the Sentiments of the antient Fathers, and to that of the 'Church, for sometimes they have rather chose to accuse their own Stupidity, than to find Fault with what 'they could not understand; and several wanted to ask 'your Beatitude, a clearer Explanation of the Things 'which kept their Mind in Suspense. In the Interim, 'some Doubts having been started in *Africa*, you have 'published the Book *Of Correction and of Grace*. A 'favourable Occasion having procured us that Book, 'we thought that all the Complaints of those who opposed your Doctrine would be smothered, because in 'that Work your Holiness answers so plainly to all 'the Difficulties on which we design'd to consult you, 'that it seemed you had taken Care to appease the 'Differences excited between us. But the Publication 'of that Book of your Beatitude, has produced Effects 'contrary to our Hopes. For, as those who followed 'the Holiness and apostolical Authority of your 'Doctrine, were better instructed by that Reading: 'Likewise, those whose Mind was darkened by their 'own Pre-occupation, conceived a greater Hatred against 'your Sentiments. This Division is dangerous, first for 'the Authors; and it would be a deplorable Thing if 'the Venom of the *Pelagianism* was, by Surprize, to corrupt those Men, so eminent in all Sorts of Virtues. 'There is Room to fear, besides, that the Simple, who 'have conceived a great Respect for them, on the 'Reputation of their Probity, should receive for a found 'and orthodox Doctrine, the Sentiments of those whose 'Authority they follow, by a blind Deference, and not 'by Judgment.

'They believe that all Men have sinned in *Adam*, and 'that none is saved by his Works; but only by the 'Grace of God in the Regeneration. That, notwithstanding, the Propitiation which is in the Sacrament of 'the Blood of *Jesus Christ*, is, without Exception, proposed to all Men, in order that all those who will profess the Faith, and be baptized, may be saved. That 'those who are to believe and persevere in the Faith, 'which afterwards must be assisted by Grace, have been 'foreseen of God, before the Creation of the World, and 'he has predestinated to his Kingdom, those who being 'gratuitly called, he has foreseen to be worthy of his 'Election, and were to end their Life in Holiness. 'Therefore all Men are admonished, by the divine Instructions, to believe and operate, that no Body may 'lose the Hope of an eternal Life, seeing the Reward 'prepar'd to a voluntary Devotion. As to that Decree 'of the Vocation of God, whereby you say, that before 'the Beginning of the World, or in the Creation of the 'human Race (its future Corruption *supposed*) according to the Creator's Will, the one are created to be 'Vases of Honour, and the other to be Vases of Ignominy or Contempt; they maintain that this Separation, 'takes from all those that fall, the Care of rising again, 'and renders the Just luke-warm; because on either 'Side, Works are superfluous, if the Elect cannot fall 'through his Negligence, and if he who is rejected cannot enter, let his Industry be ever so great. For let 'him do what ever he can, and will, nothing can 'happen but what God has decreed. The Course cannot be constant under an uncertain Hope, and in 'vain a Man uses all his best Endeavours, if the 'Election of God, which predestinates him, be other 'than his Intention. Therefore all his Industry is 'taken off, and all Practices of Virtue abolished, if the 'Ordinance of God prevents the human Will; it is 'introducing a fatal Necessity under the Name of Predestination, and give Cause to make one believe, that God 'is the Author of divers Natures, if no Body can be no 'other than he has been made. But to inform you in a 'clearer, and more concise Manner of their Sentiments; 'all that your Holiness objects to himself, in the Book '*Of Correction and of Grace*; all that you have 'so powerfully refuted in the Treatises against *Julian*, 'composed on this Subject, is published, and embraced 'with Zeal by these holy Personages. And when we alledge against them the Writings of your Beatitude, 'strengthened with a vast Number of Passages of the 'Scripture, and we take from your Discourses and Books, 'some Arguments to convince them, they have Recourse to Antiquity to defend their Obstinacy, and affirm, that the Passages of St. *Paul*, in the Epistle to the '*Romans*, quoted to prove that the divine Grace prevents the Merits of the Elect, have never been understood by any ecclesiastical Author, as they are explained at present. When we desire them to explain those 'Passages, according to the Sentiment of whom they 'please; they answer that they have found nothing that 'pleases them; and that they will not speak of those 'Things, the Depth whereof no Body has ever been capable to penetrate. Their Obstinacy goes as far as 'to say, that our Belief is contrary to the Edification of 'the Hearers, and that if it was ever so true, it should 'not be declared, since there is no Danger to be silent on Things which one cannot make to be understood, and there is a great deal to publish Things 'which cannot be well received. These are the Sentiments of several.

'But there are others who deviate so very little from 'the Roads of *Pelagius*, that being obliged to confess 'the Grace of *Jesus Christ*, which precedes all human 'Merits; lest if it was given to Merits, it would be 'called Grace in vain; they refer that to the Creation 'of every Man, in that the Grace of the Creator makes 'him reasonable, and gives him a Free-Will without his 'deserving it. They say, that Man is put in that Condition, that by making a just Difference between Good 'and

'and Evil, he may carry his Will to the Knowledge of God, and to the Obedience of his Commandments, and acquire by a natural Power, that Grace which regenerates us in Christ, praying, searching, and knocking at the Door by a natural Power; so that he may receive, find, and enter, because, by making a good Use of the Goods of Nature, he has merited that Grace which saves us, and which they pretend to be at the Bottom of Nature, by the Creation. As for the Decree of the Will of God, they place in it that God has decreed to receive no Body in his Kingdom, but thro' the Sacrament of Regeneration; and to that Gift of Salvation, all Men, without Distinction, say they, are called, either by the natural or written Law, or by the Predication of the Gospel; that those who will, may be made Children of God, and that those who will not be of the Number of the Faithful, may have no Excuse. God's Justice requires, say they, that those who will not believe, should perish; and his Goodness appears in that he repulses no Body from the Road of Salvation; but on the contrary, desires that all indifferently may be saved, and come to the Knowledge of Truth. It is on this they alledge the Passages of the holy Scripture, which exhort Men to obey God, leaving to their Free-Will to do or not do what is commanded to them. Whence they conclude, that the same Reason which makes us say of the Sinner, that he has not obey'd God, because he would not, must also, by a necessary Consequence, make us say of the Faithful, that he has been devout and obedient, because he would be so. Therefore, in their Opinion, every Body has as much Power to do Good as to do Evil; and the Mind inclines itself to Virtues and to Vices, with an equal Indifference; so that notwithstanding, the Grace of God assists him when he inclines to Good, whereas he is very justly punished when he abandons himself to Evil. When we object to them that innumerable Multitude of Children, who (excepting the Original Sin, the Condemnation whereof includes all Men) have yet neither Will nor Action proper to them; notwithstanding which, a Choice is seen among them by God's Judgment, which does that by the Discernment of Good or Evil, the one going out of this World after they have received Baptism, are received among those who have inherited the Kingdom of Heaven; and the other dying without Baptism, are sent among those who are engaged in eternal Death. When, says I, this is objected to them, they answer, that those are saved or lost, according to what the divine Prescience has known of their Manner of living, if they had arrived at the Age of Action, without considering that they submit the Grace of God to those Wills, and make God's Election so entirely depend on the imaginary Merits of Man, that finding none real, they establish future ones, which are never to be: So that in their Opinion, by a new Absurdity, Actions which will never be are foreseen, and Actions foreseen will never be done. Certainly they imagine much more reasonably to establish God's Prescience, with Regard to human Merits, according to which the Grace of him who calls operates, when we consider the Nations, which in past Ages have been left in their Ways, or which even at present perish in the Impiety of their old Ignorance, and which no Light, either of the Faith or of the Gospel, has lightened; and though by Predications the Gate of the Gospel has been opened, and the Road of Truth made practicable, the Gentiles who were in Darkness have seen the Light, and that People who was not antiently the People, be at present the People of God; it notwithstanding is true and unvariable, that God wills that all Men should be saved, and come to the Knowledge of Truth, seeing that they are inexcusable, because they could have been instructed in the Belief and Worship of the true God, by the natural Intelligence; and that they have heard nothing of the Gospel, because they were not to receive it. They maintain afterwards, that our Lord *Jesus Christ* is dead for the whole human Race, and that no Body is exempted from the Redemption of his Blood, though he spends his whole Life in a Spirit entirely distant from him, because the Sacrament of the divine Mercy belongs to all, and that if several are not renewed by him, it is because God has foreseen that they would not be renewed: So that on God's Side, and as to what concerns him, the eternal Life is prepared for all; and as to Free-Will Salvation is required of those who have believed of a Good Will, and have received the Succours of Grace by the Merit of their Belief.

'Therefore those who have these Opinions, and contradict us, have embraced these Sentiments of Grace, having had better before, for a principal Reason, which is, that if they were to grant, that all Merits are preceded by Grace, which gives them, and makes them to be, they would be likewise, obliged to grant necessarily, that God according to his Will, by an occult Judgment, and by a manifest Operation, among several Vases, forms the one to be Vases of Honour, and the others Vases of Ignominy; no Body being justified but by Grace, and every Body being born in Prevarication. But they cannot grant this, nor attribute the Merits of the Saints to the divine Liberality, nor confess that the Number of Predestinates can neither be increased nor diminished; for fewer Exhortations should become needless for Infidels, and for idle Christians; and that it would be superfluous to recommend Labour and Industry, which cannot produce the Fruits expected from them, if the Election be not found joined to it; for every Body may be usefully invited to Correction, and to the Progress of Virtue, as they imagine, if he knows that by his Diligence he may be good, and that his Liberty will be helped by God's Succours, if he chuses what God commands. Therefore two Things being found in those who have Time, and the Use of their Will free to operate their Salvation, *viz.* God's Grace, and Man's Obedience; they will that such Obedience should precede Grace; that one should believe that the Beginning comes from him who is saved, and that human Will gives to itself the Succours of the divine Grace, and not that the Grace submits the human Will to itself.

'As we know, through God's Mercy, and by the Instructions of your Beatitude, that those Things are very false, and very pernicious; we can, it is true, be constant not to believe them, but we cannot resist the Authority of those who advance them, because they surpass us in Piety; and some of them having been lately risen to the sovereign Honour of the sacerdotal Office, are much above us.'

Thus *Prosper* informed St. *Augustin* of the Opinions of his Adversaries; certainly no Body knew them better than he did; so that his Authority cannot be suspected. Towards the End of his Letter, he asks him the Explication of the Questions proposed by those, who, renouncing in Appearance *Pelagius*'s Impieties, preserved some dangerous Remains thereof, that thereby he may be capable to undeceive them. He concludes, that the Hopes of every one for the Defence of Truth, and of the Grace of *Jesus Christ*, reposed entirely on the Vigour of his Doctrine and Charity.

When St. *Augustin* received this Letter he was employ'd in revising his Works, and answering the eight Books of *Julian*, heretofore mentioned. But he interrupted these Occupations to prevent, if possible, the Disorders St. *Prosper* had informed him, were likely to happen among the *Gauls*; and in a very short Time he composed two very excellent Treatises, one *of the Predestination of the Saints*, and the other *of the Gift of Perseverance*. In the third Chapter of the first Treatise, he confesses, that in the Works he had composed before his Episcopacy, and the Birth of *Pelagianism*, he had believed like the Priests of *Gaul*, that Faith was not preceded by Grace, to give Men the Means of asking in vain, and that its Prevention consisted in the Predication of the Gospel, which the Hearer could believe by the Strength of his Free-Will; but that ever since *Pelagius*'s Heresy, he had made some Progress in the Knowledge of the Truth of Grace, and that God had made him know that Faith, either perfect or imperfect, is a Gift of God; and that it is certain that God gives it to some,

and not to others. In the rest of the Work he establishes on the Authority of the Scripture, and particularly on divers Passages of St. *Paul*, the Predestination of the Elect, before the Prævision of their good Works, and according to God's Will; but in my Opinion one of the strongest Arguments he employs, is the Predestination of *Jesus Christ*, Chief of all the Predestinates, which he shews clearly to have preceded all Sorts of Merits, and to be entirely gratuite; which is an unquestionable Proof that the Predestination of the Members cannot be made in another Manner.

In the Book *of the Gift of Perseverance*, which he had joined to this above-mentioned, he proves, and by the Authority of the Scripture, and by that of St. *Cyprian*, in his Treatise of the Lord's Prayer, that Perseverance comes from God, and not from Man. He concludes that the Prayer our Lord has given to the Faithful, suffices alone to prove the Necessity of the efficacious Grace to begin the Good, to make Progress in it, and for the Perseverance. Afterwards he says plainly, that this actual Grace is not given to all Men, because God is just, and that all being equally unworthy of it, he cannot be accused of Injustice if he refuses it to some, and in them shews what all have deserved.

In the same Year, 429. *Nestorius* began to teach his detestable and impious Doctrine: But before he would maintain it openly himself, he caused to be preached by the Priest *Anastasius*, he had brought from *Antioch*, and who was his Confident, that *the blessed Virgin was not to be called Mother of God, because God could not be born of a Woman; but Mother of Jesus Christ only, who after his Birth had merited, for his Good Works, to be united to the Word, not of an hypostatical Union, but of an Union of Habitation of the Word in Humanity, as in a Temple, by Communication, by Relation, and by a moral Society.*

This Explanation leaves two Persons in *Jesus Christ*, one divine and the other human, and destroys the Mystery of the Incarnation of the Son of God, which consists in the Union of the two Natures, divine and human in the Person of the Word, whence results a Man-God, called *Jesus Christ*, whose Actions by this Means are theandrical, *i. e.* divinely human, and humanly divine, and consequently of an infinite Merit, such as they ought to be, to satisfy the infinite Justice of God, and to operate the Redemption of the human Race.

The People of *Constantinople* were seized with Horror when they heard this new Impiety; but *Nestorius*, who as Bishop was obliged to condemn it; far from taking the Part of those who were scandalized at it, he on the contrary, maintained that bad Doctrine, and refused absolutely to the Virgin *Mary* the Title of Mother of God. *Socrates* says, that his Manner of speaking made several believe that he wanted to renew the Heresy of *Paul* of *Samosates*, and of *Photinus*, who had published that *Jesus Christ* was a pure Man; but as for him, who had no Antipathy against his Person, having read his Books with Attention, he had found him very far from that Error; and if he had refused to the Virgin *Mary* the Title of Mother of God, that proceeded from his Ignorance in explaining himself; that in fact he was very ignorant in the Science of the holy Writs: That he had never read the Writings of the Fathers who had preceded him, and that he was possessed of an insupportable Pride. But all the ecclesiastical Writers who have spoke of him, among whom Pope *Celestinus*, and St. *Cyril* of *Alexandria*, are the most remarkable, have been of another Sentiment; and the last shews, that in fifteen Articles *Nestorius* agrees with *Paul* of *Samosates*. The Difference between them consists in that *Paul* took off the Distinction of the divine Persons in the Trinity, and consequently the Subsistance of the Word; denied that *Jesus Christ* had ever been the Son of God; and that *Nestorius* deprived him of that Quality, but while he had been in the Womb of the blessed Virgin; but though he gave it him afterwards, it was in such a Manner, that in fact, and by a necessary Consequence, he took it from him. He differs besides from *Paul*, in that he confessed the Consubstantiality of the Word established in the Council of *Nice*. *Cassian* writes, *lib.* 1. *de incarn. verb.* that he had learned his Heresy in the Writings of *Ebion*; and that muddy Brook having passed through the Canals of those who denied the Divinity of *Jesus Christ*, was fallen into the Common-Sewer of the *Pelagians*, and after that Course had appeared by itself.

In fact *Nestorius* had always favoured the *Pelagians*, and several Bishops who maintained that Heresy followed him to the Council of *Ephesus*. If one will even consider the Bottom of the Doctrine of *Pelagius*, who, in denying Man's Corruption by the Original Sin, took off consequently the Necessity of a Redemptor God and Man together; the Report which is between the *Pelagianism* and the *Nestorianism*, will be easily discover'd. It is certain that *Nestorius* had been Disciple of *Theodore* of *Mopsueste*, and that he learned from him the Heresy known under his Name. It is what we learn from the fifth œcumenical Council, from St. *Gregory the Great*, and from the Abridgment of *Liberatus*. This *Theodore* had led an infamous Life while he was Deacon, and Cardinal *Baronius* believes that it is to him St. *Chrisostom* addressed that fine Remonstrance found among his Works, intitled, *To Theodore fallen*. It is true, that *Theodoret* speaks of him in a quite different Manner, and represents him as a holy Bishop, Enemy of Hereticks, and Defender of St. *Chrysostom*'s Innocence. But to reconcile these two different Relations, Cardinal *Baronius* says, that his Errors were discovered in his Writings after his Death, and that he had always dissembled while he lived. *Diodorus*, Bishop of *Tharsis*, had also been one of *Nestorius*'s Masters, if we believe St. *Cyril*, who accuses him in the Epistle to *Successus*, of having distinguished the Word born of God, from the Son of *Mary*, and who calls him in that he wrote to *John* of *Antioch*, and to *Acacius* of *Militene*, Enemy of the Glory of Christ.

Nestorius, not contented with having his Heresy published by *Anastasius* employ'd in it, one *Dorotheus*, a deposed Bishop of *Marcianopolis*, who, preaching in the Church of *Constantinople* in his Presence, was so insolent, as to pronounce Anathema against those who should call the Virgin *Mary* Mother of God. All the People abhorred that Blasphemy; but *Nestorius*, when he had ended his Sermon, communicated with him in the holy Mysteries. He published the Books he had wrote in Defence of his Impiety, and was careful to have them dispersed, particularly in the Monasteries of *Egypt*, in order to debauch those good Solitaries. St. *Cyril* of *Alexandria* being informed of it, composed a Writing to serve for Antidote against that Venom, and which he sent them. He wrote besides two other Treatises, which he addressed to *Theodosius*, to *Eudoxia*, and to *Pulcheria*, to preserve their Faith from that new Poison, where he does not name yet *Nestorius*. He wrote likewise to *Nestorius*, but this first Letter proved needless, as well as the second he sent him in the Month of *February* of the following Year. He answered him with the Pride of an obstinate Heresiarch, and conceived an implacable Hatred against him who endeavoured to cure him, calumniating him every where, and searching all Occasions of being revenged on him. At last his impious Writings having been sent to Pope *Celestinus*, at first he could not believe that they were of *Nestorius*, of whose Piety he had received so lately several very favourable Testimonies. To be sure of it, and do dothing indiscreetly, he wrote to *Cyril*, and desired him to inform himself with Care, if *Nestorius* was Author of the Books published under his Name. This wicked Man hoping to deceive the Pope, sent him a very respectful Letter, where at first he speaks to him of the *Pelagian* Bishops he had received at *Constantinople*, and who complained, that though they were Orthodox, they had been condemned as Hereticks. He desires him, that he may be informed how the Thing had happened. Afterwards he declares his Heresy, and calls the Virgin *Mary* Mother of Christ, instead of Mother of God. *Possidonius*, sent by *Cyril* to *Celestinus*, arrived at *Rome* at the same Time the Pope received *Nestorius*'s Letter, and he learned the Truth he wanted to know by that of *Cyril* which *Possidonius* brought him.

Cyril informs *Celestin*, 'that he had been ready to 'write to *Nestorius* to tell him that he had separated 'himself

'himself from his Communion, but that having considered that we are obliged to lend a helping Hand to our Brothers when they fall, to raise them up; he had suspended that Declaration, and had contented himself to advise him as his Friend, that he would desist from teaching his Errors; but that these private Remonstrances had produced no Effect; that, on the contrary, far from renouncing his Dreams, which do not deserve being called Dogmata, he had conceived a mortal Hatred against him, and searched all Occasions of offending him: That the greatest Part of the Senate, of the People, and of the Monks of *Constantinople*, absented themselves from the Sinaxes, for fear of hearing him preach his Impieties. He adds, that all the Bishops of the East, and particularly those of *Macedon*, were very much offended at his Doctrine; but that he despised every Body, believing himself the only one capable of understanding the sacred Scripture, and of penetrating into the Mystery of the Incarnation. But, however, that that Plague ought to be remedied soon, and that he informs his Holiness of it, obliged to it by the long Custom of the Church. That the People of *Constantinople* is debauched daily; that it is not a Question of small Importance, but of a capital Point, since the Honour of *Jesus Christ* is attacked, and that in such an Occasion, Silence is criminal.'

Celestinus having received those Letters of *Nestorius*, and of *Cyril*, assembled a Synod at *Rome*, where the Impieties of *Nestorius* were condemned, and himself deposed, if in ten Days after the Signification of that Judgment, he would not abjure his Errors. The Pope, who wished passionately to bring him back to the true Faith from which he had departed, sent him an Answer, where he tells him first, 'that the *Pelagianism*, defended by those of whom he would be informed, had been pierced through by the Darts of the just Censures of the Eastern and Western Church; that *Atticus*, worthy Successor in that of the great *Chrysostom*, and Master of the Catholick Faith, had justly persecuted *Pelagius* and *Celestius*, and that under his Pontificate, they had not not dared to stop at *Constantinople*. That for those he wanted to be informed of, as if he knew nothing of what had happen'd in their Affair, they had been condemn'd and deposed by just Sentences: That he was not at all surpriz'd they had found a Refuge in a Place where a new Error began to pullulate, in Comparison of which, they could esteem themselves innocent: That he knew, that as for him, he believed, as he ought, the Corruption of Nature by the Original Sin; what could those do with him, who had been condemned for denying it? That when two contrary Parties unite themselves, they give him a just Suspicion of a pernicious Intelligence: That if those he protected, taught Maxims displeasing to him, he should expel them from his City; that he had no Need to enquire at *Rome*, what had passed between them; that it was from the Place where he resided, that *Atticus* had sent him the Acts of their Condemnation by his Church: That *Sisinnius* of blessed Memory, had not desir'd such Information, because he knew very well they had been condemned under his Predecessor. Besides, that he should rather think of defending his own Cause by a quick and catholick Resolution, than of maintaining the Party of others. Lastly, that he would let him know, that after he had not minded the two Letters *Cyril* had written to him, was to treat his in the same Manner, and refused to disown his Impieties, and to believe of *Jesus Christ* what the *Roman* Church, that of *Alexandria*, and lastly, the whole Catholick Church, believed of him, he was separated from the Body of Bishops, and from the Society of *Christians*.'

The Pope sent this Letter to *Cyril*, by the Deacon *Possidonius*, and wrote him one where he inform'd him of the Judgment of the Synod of *Rome*, and charged him to cause it to be signified to *Nestorius*, giving him the Authority of his See, and putting him in his Place for that Effect. He marks, besides, that he has wrote on that Subject to *John* of *Antioch*, to *Rufinus* of *Thessalonica*, to *Innocent* of *Jerusalem*, and to *Flavian* of *Philippes* his Brothers. He wrote another long Letter to the Clergy, and to the People of *Constantinople*, where he 'says, that they being his Bowels, he fears, with Reason, lest their Faith, which is famous throughout the whole World, be corrupted by the bad Doctrine *Nestorius* teaches them; that though he be at a great Distance from them, when he hears that his Members are tore by a perverse Instruction, he burns with a paternal Zeal; and that there is no Distance between the Churches of God, which all make but one nuptial Bed of *Jesus Christ*; that new Discourses, such as those of *Nestorius*, proceed from a Vain-glory, which can make Impression on no Body, unless he denies, at the same Time, his being the Disciple of him who says, that he is not of this World: That having the Enemy within their Walls who makes no Truce with them, they must be always on their Guard, lest they should be surprized by his bad Doctrine. Towards the End, he exhorts the Clerks and Priests, with Words full of Zeal, to fight courageously for the Truth, to strengthen the Laicks by their Example; and to cure those whom their bad Bishop could corrupt.' He proposes to them the Example of St. *Stephen*, and of St. *Athanasius*, whose Suffrances must be their Consolation, and their Courage in their Persecutions; and his glorious Return into his Diocese, the Subject of the Hopes of all those who suffer.

Cyril sent those Letters of the Pope, to the Bishops to whom they were addressed; and himself wrote others to *John* of *Antioch*, where he says to him, 'that the holy Synod of *Rome* having pronounced a Sentence of Condemnation against *Nestorius*, that Sentence must be obey'd, unless one would separate himself from the Communion of the whole western Church: That for his Part he is determin'd to follow the Determination of those great Men, who have not conceived an Indignation for a Thing of a little Importance; but for the Defence of the Faith, for the Conservation of the Churches of the whole Earth, and for the common Edification of the People.'

The Bishop of *Antioch* having received this Letter, and that of *Celestinus*, sent them to *Nestorius*, advising him, at the same Time, to give Peace to the Church, by retracting the Doctrine he had taught. He tells him, 'That he ought not to believe that Affair insignificant, and as such, entirely despicable; that the Devil renders the Evils, which had been neglected at first, so great, and so dangerous, that at last they become incurable. That he should read the Letters he had sent him with a pacifick Mind, and take the Advice of some wise Persons, giving them leave to speak to him freely. That tho' the Term of ten Days, fixed by *Celestinus*, for his Retraction, was very short, the Affair was of such a Nature, that it could be terminated in one Day; since nothing else was requir'd of him, but that he should only, speaking of the Virgin *Mary*, use the same Name the holy Fathers have used, and which is very proper to express the Birth *Jesus Christ* has received from her: That as that was neither troublesome, nor dangerous, his Holiness could not refuse it: That he should not be disturb'd at the Contradiction found in his Words, nor at using a Term which was to express the Piety of his Sentiment, if, as himself believed, it was conformable to that of the antient Fathers: That if one refused to believe what the Name of the Mother of God signified, he would either fall into very dangerous Errors on the Point of the unexplicable Œconomy, *i. e.* the Incarnation of the Son of God. Lastly, he intreats him as a Brother, and by the Advice of the Bishops *Archelaus*, *Apringius*, *Theodore*, *Heliadus*, *Meletius*, and *Macarius*, who had Part in the Composition of his Letter, to resolve himself to follow their Advice, and to let them know, very soon, what he designs to do.'

Cyril, at the Return of *Possidonius*, assembled his Synod in *Alexandria*, where he caused the Letters, and the Judgment of *Celestinus* to be read. Four Deputies were chosen, *viz.* *Theopente* of *Cabasis*, *Daniel* of *Darnes*, *Potamon*, and *Macarius Clerc*, to be sent to signify that Condemnation to *Nestorius*, at *Constantinople*. They were likewise intrusted with a synodal Epistle for him, where the

the Bishops say, that Preaching and Believing the Death ‘ and Resurrection, and Ascension of the only Son of ‘ God, that's to say, of *Jesus Christ*, they render to ‘ God, in the Church, an unbloody Worship, they celebrate the mystical Benedictions, and by that Means ‘ are sanctified, being made Partakers of the sacred ‘ Flesh, and precious Blood of Christ our Lord; that ‘ far from their Thoughts, that they should receive that ‘ Flesh as a common Flesh, or as the Flesh of some ‘ sanctified Man, and associated to the Word in Equality ‘ of Dignity; or having acquir'd the divine Habitation; ‘ but that they take it as the true vivifying and proper ‘ Flesh of the Word.' Afterwards the Fathers of the Synod of *Alexandria*, join'd twelve Anathema's or Articles, to which they will that *Nestorius* should subscribe sincerely. Which Anathema's are inserted in my Treatise of *Councils*.

Besides the Epistle which contain'd these Anathema's, the Synod of *Alexandria* wrote to the Clergy, and to the People of *Constantinople*, to inform them of the Condemnation of their Bishop, if he was not to retract his impious Doctrine, which, till then, he had defended.

The Bishops being arrived at *Constantinople*, deliver'd to *Nestorius*, on a *Sunday*, in the Cathedral Church, the Letters they had been intrusted with, in Presence of the Clergy, and of all the People, and of several Persons of Condition. He made no other Answer to it, but that they should come to him the next Day, which they did; but he caused his Door to be shut against them, and minded so little the Letters they had delivered to him, that he continued always to preach his Heresy. Having read the Anathema's of *Cyril*, he sent a Copy thereof to *John* of *Antioch*, who was scandalized at it, as if they had renewed the Errors of *Apollinaris*. *Cyril* being informed of that bad Interpretation, explained clearly the Doctrine of his twelve Articles. *Theodoret*, Bishop of *Cyr*, who was entirely in the Interests of *John*, published twelve others, entirely contrary to the orthodox Doctrine, and where he gives to some of *Cyril*'s Expressions, a very malicious Explication, as if he had confounded the divine and human Nature, and had wanted that the Honour due only to the Person of God, should be done to the single Humanity of *Jesus Christ*. *Nestorius*, not contented with despising the Letter and Condemnation of *Cyril*, persecuted him unjustly, and accused him near *Theodosius*, so that that Prince being deceived by the Heresiarch, wrote him a very bitter Letter, where he accuses him of exciting Scandals, and of calumniating his Brothers. Therefore the Condemnation of Pope *Celestinus*, which had been signified by the Bishops of *Alexandria*, remained without Effect; *Cyril* being accused himself of having advanced Heresies.

There was then no other Means left to terminate that great Controversy, but the Convocation of an universal Council. The Deacon *Basil*, the Reader *Thalassius*, the *Archimandrites*, and the other Catholick Monks, presented a Request to *Theodosius*, in which, exposing to him *Nestorius*'s Impieties, the bad Treatments, the Imprisonment, and the Torments he had made the Laicks, and particularly the Monks who opposed them, suffer, they intreated his Majesty to convoke an œcumenical Council, to hinder the Venom of that Heresy spreading farther; and if he refuses to comply with their Request, they protest of their Innocence, and cite him before the immortal King of Kings, who has descended from Heaven for our Salvation, who has conversed among Men, and who is to come to judge the Quick and the Dead.

Theodosius, judging in Effect that the Question which disturbed the Church, could not be defin'd but by a general Council, convoked one in *Ephesus*, for the following Year, on the Day of *Pentecost*. In that Council the Heresy of *Nestorius* was anathematized, as we have seen in my Treatise of *Councils*, himself deposed, and banished by the Emperor's Orders.

None of the ecclesiastical Authors speak of the Banishment of *Nestorius*, nor of what became of him afterwards, nor of his Death, of the Manner his Impiety was punished, except *Evagrius*, who, *c.* 7. *Eccles. Hist.* says, that he had found a Book, where himself makes a Recital of his Calamities.

Nestorius, says he, that Author of a Doctrine full of Impieties and Blasphemies, who, instead of building on a Foundation himself had laid, built on the Sand, and raised an Edifice, which, according to the Parable of our Saviour, is soon fallen into Ruin, wanting to answer to those who accused him of having introduced Novelties, and of having asked imprudently the Convocation of the Council of *Ephesus*, says, that he had been reduced to the indispensible Necessity to take the Party he had took; because the Church being divided, and the one maintaining on one Side, that *Mary* ought to be called Mother of a Man, and the others, that she should be called Mother of God, he invented the Term of Mother of Christ; not to unite the mortal to the immortal, and not to offend either Party. He adds, that the Emperor *Theodosius* disapprov'd at first his Deposition, because of the Affection he had for him; but that after the Bishops of both Parties had been deputed from *Ephesus*, to that Prince, and himself had asked to return to his Monastery near *Antioch*, it was granted him. He does not tell the Name of that Monastery; but some say, that it is called at present the Monastery of *Euprepræ*; and I know, that it is in fact two Stadia distant from *Antioch*. *Nestorius* says, that he staid there four Years, during which he received all Sorts of Honours and Respects; and that afterwards he was banished to *Dasis*, by Order of the Emperor *Theodosius*. But he dissembles what is the more important, which is, that having continued in that Monastery to teach his Errors; and *John*, Bishop of *Antioch*, having informed the Emperor of it, he was banished. He addressed another Book to an *Egyptian*, composed in Form of Dialogues on his Exile, where he speaks of it in an ample Manner. The Letter he wrote to the Governor of *Thebaides*, is a manifest Proof of the Chastisements the divine Justice employ'd to punish his Impiety, in permitting, that he should be led into Captivity, which is one of the most deplorable of all Miseries. But because he deserved to be punished with a still greater Severity, he was set at Liberty by the *Blemmyans*, and becoming thereby a Vagrant, he fell from his Horse, in some Parts of the Coast of *Thebaides*, and being extremely bruised by that Fall he died, as miserably as he deserved. Others pretend, that he had his Tongue devour'd by Worms, and that he passed from a temporal Torment into an eternal one.

In the Year of *Christ* 448; of Pope *Leo* 9; of the the Emperor *Theodosius* 41; of *Valentinian* 34; *Eutyches* invented his Heresy, which I have described at large in my Treatise of *Eutychians*, under the Letter *E*.

In the Year 483, PETER *the Fowler*, Bishop of *Antioch*, invented a new Heresy, in adding to the Hymn, called *Trisagion*, these Words, *Who has been crucified for us*, which attributed the Passion to the three Persons of the Trinity, and discovered him *Valentinian*, *Eutychian*, *Apollinarian*, and *Sabellian*. The Eastern Bishops having learn'd the Introduction of this Blasphemy in the Office of the Church, made loud Complaints of it, and wrote to him to persuade him to retract himself. *Acacius*, tho' his Friend, and had much contributed to his Restablishment, assembled a Synod at *Constantinople*, where that Error was condemned with the unanimous Consent of all the Bishops of that Synod. He even sent him a very sharp Letter, to bring him back to the Truth he had abandon'd. The News of his Impiety were carried to *Rome*, and Pope *Felix*, in a Council of the Bishops of *Italy*, he had assembled at the Request of the Bishop of *Alexandria*, expelled from his See by *Peter Mongus*, deposed him from the Episcopacy. The first synodal Epistle, which carried the Monition, was full of Compassion for his Person, of Horror for his Heresy, and of Exhortations to Repentance. *Peter* little minded it, no more than a second Writing on the same Subject; so that *Felix* addressed him in a third, which contained his Condemnation. He inform'd the Emperor *Zeno* of it; and advised him to separate himself from the Communion of *Peter the Fowler*, whom he calls the first-born of the Devil. But the Heretick made a Jest of the Sentence, remained in his See, and continued under the

Prince's Protection, his Persecution against the Catholicks.

Not satisfied with corrupting those of his Province, he attempted to extend his Jurisdiction in *Cyprus*, to spread his Errors, under Pretence that in the Church's Infancy, the Apostles coming out of *Antioch*, had carried the Light of the Gospel into that Island. He had so well pre occupied the Mind of the Emperor by those who approached him, and whom he had engaged by Presents to espouse his Interests, that the Bishop of *Salamina*, called *Anthemius*, was called to *Constantinople*, to answer to his Pretensions before *Acacius*. As he had more Piety than Doctrine or Eloquence, he was in Pain what he should do, and if he should obey the Order he had received: But at last he took the Resolution to depart for *Constantinople*, where he was conducted to the House of the Patriarch. *Zeno* being informed of his Arrival, commanded the Patriarch to assemble his Synod, in order to terminate all the Differences subsisting between the Bishops. In that Assembly *Peter the Fowler* maintained that his See was apostolical, as having been founded by St. *Peter*, patriarchal, and consequently that the Province of *Cyprus* ought to be under its Jurisdiction. *Anthemius* answered, that his Church had also been founded by an Apostle, *viz.* St. *Barnabas*, whose Body had been discovered uncorrupted, a few Days before his Departure for *Constantinople*. At which the *Antiochians* remained so confounded that they replied nothing.

Peter the Fowler remained always in his Heresy, and to have it dispersed among the People, he created one of his Tools, called *Xenaias*, Bishop of *Hierapolis*, who was every way unworthy of it: For besides that he was born a Slave, he had never been baptized. When *Peter* was reproached with this Irregularity, he answered, that the Episcopal Consecration supplied the Want of the Sacrament of Christian Regeneration. *Nicephorus* says, *lib.* 16. *c.* 17. that it was this *Xenaias* who first pretended that the Images of Christ and of the Saints were not to be honoured: But at last the unhappy *Peter the Fowler*, who had excited so much Trouble in the Church, went to receive the just Judgment of his Violences and Blasphemies, at the Tribunal of him whose Incarnation he had attacked with so much Fury.

In the Year 533, *Julius of Halicarnasse* published, that Christ's Body had been impassible from the very Instant of his Conception, and had never suffered any Changement in his Proprieties, either natural or voluntary, not even after his Resurrection.

The Agnoites appeared in the Year 560, and had for Chief *Temistius* Deacon of *Timothy*, Bishop of *Alexandria*, and who added to the Errors of *Eutyches*, that *Jesus Christ* was ignorant of the Day of Judgment, founded on the Passage of the Scripture, where it is said that *the Son of Man does not know the Day of Judgment*; which must be understood that he does not know it as Man.

In the Year 590, *James the Syrian*, pretended that the Forehead of those who were baptized should be burnt with a red-hot Iron.

The Tritheites appeared in the Year 606, and had for their Chief *Philopanus*, who introduced three Gods, whence his Disciples were called *Tritheites*. He composed besides a Treatise against the Resurrection of the Dead, which he turned into Ridicule, and against the Council of *Chalcedon*. Not that he pretended that the Souls at the Day of Judgment, were not to re-assume Bodies; but he would not confess, that they were to be the same they had informed before; and said that God created new ones to which he joined them. As for ours, he maintained that they were corrupted, according to the Matter and Form. This Error which came from *Origen* did spread, and had among its Followers *Eutychius* Patriarch of *Constantinople*. *Leoncius* Monk, *Ephrem* Bishop of *Theopolis*, and *George Pisides* wrote excellent Treatises against him.

The Monothelites, appeared for the first Time in the Year of Christ 630, of Pope *Honorius* 5. of the Emperor *Heraclius* 25. they had for Chief *Athanasius* Patriarch of the *Jacobites*. He was a Man of a great Genius, and had a great deal of Subtilty and Dexterity. The Emperor *Heraclius* promised him, that if he would receive the Council of *Chalcedon*, he would make him Patriarch of *Antioch*. *Athanasius*, seeing a Door open to him to so great a Dignity, to which he could never had aspired otherwise, made no Difficulty of receiving the Council of *Chalcedon*, and of affecting to be Catholick for some Time, in order to gain the Emperor's Favour; and promised himself that being Patriarch of the East, it would be more easy for him to sow the new Heresy he was infected withal; viz. *That in Jesus Christ there was but one Operation, and one Will.* Afterwards *Athanasius* speaking one Day with *Heraclius*, asked him, what was to be said of the Operations of *Jesus Christ*, and if they were simple or double. The Emperor, surprized at that Question, says Cardinal *Baronius*, consulted, by his Advice, *Sergius* Patriarch of *Constantinople*, in whom he had a very great Confidence, and *Cyrus* Bishop of *Phases*, and found them both in the same Sentiment, viz. *That there was but one Operation and one Will in Jesus Christ.* Till then *Sergius* had always appeared Catholick; but he had dissembled, and hid his Heresy, till he could find so favourable an Opportunity as this to discover it. He was born in *Syria*, and of *Jacobite* Parents, who had educated him in that Error. *Heraclius* finding these two Bishops of the Sentiment that there was but one single Will in *Jesus Christ*, embraced it, founded on the great Esteem he had for their Piety and Doctrine, particularly for that of *Sergius* his Patriarch. Therefore this Emperor, formerly so very religious, abandoned the Faith of the Church; and this was the Beginning of the Heresy of the *Monothelites*, which caused so much Disorders in the Church. Unless we rather chuse to refer the Origin of it to the Conference the Emperor had some Years before with one *Paul*, Bishop of the Party of the *Severians*. This confounded the Natures in Christ, and consequently the Operation and Will. Father *Cambysis*, who has wrote on the Heresy of the *Monothelites*, questions the Truth of the Conference of *Heraclius* with *Athanasius*, and believes that it is the same he had had with *Paul* of the Sect of *Severus*, in which he had already shewed his Heresy of a single Will in *Jesus Christ*.

This Heresy made soon very great Progress in the Church; for *Cyrus* who had been elected Patriarch of *Alexandria*, assembled a Synod of the Bishops his Suffragants, immediately after his Election, in which, under Pretence of uniting the *Theodosians* to the Catholick Church, he published that there was but one Will and one Operation in *Jesus Christ*, because it suffices, said he, to confess one Will and one Operation *Deivirilis*, to shew that one confesses two Natures in *Jesus Christ*, and that it is no Matter if the Name is suppressed, provided the Things remain. He wrote afterwards to the Patriarch *Sergius*, what had been concluded in his Synod; to which this sent an Answer, in which he praises extremely his Decision, and concludes for a single Will, and a single Operation in *Jesus Christ*, making no Mention, either of the Authority of St. *Denis*, or of the Word *Deivirilis*, *Cyrus* himself had employ'd, in which he made a more open Profession of the Heresy of *Eutyches* than *Cyrus* had done.

Sophronius, who was not yet Bishop of *Jerusalem*, but a simple Monk, having been inform'd of the Decrees of *Cyrus*'s Synod, which *Cyrus* himself communicated to him; and finding that the Heresy was strongly established in it, declared himself against it, shed an Abundance of Tears, and throwing himself at *Cyrus*'s Feet, intreated him not to publish in the Church, Decisions so contrary to the true Faith; but it was not in his Power to gain any Thing on his Mind. Which perceiving, he had Recourse to *Sergius*, as to a Bishop of a greater Authority, hoping to stop by that Means this growing Evil. To succeed in it he wrote him a long Letter, and exhorted him to procure the Suppression of the last Chapter published by *Cyrus*; for he did not know that he was infected with the same Error, and wanted even to persuade him, that two Wills and two Operations should be distinctly confessed in the Church. But not contented with writing, he came himself to *Constantinople*, to spur on the Patriarch to do what he asked him by his Letters, the

the first thereof are lost, and we have but those he addressed to the same *Sergius*, after he was created Bishop of *Jerusalem*.

Sergius having received *Sophronius*'s first Letter, wrote one to Pope *Honorius*, where he gave him an Account of all that had been done till then on that Question, as well by the Emperor, as by the Prelates. He added, likewise, that it seemed proper, in order to bring back the *Eutychians* to the Bosom of the Church, to abstain from those Words of *the two Operations*, and *two Wills in Jesus Christ*; they being two Manners of Speaking. *Honorius* received this Letter, and made an Answer to it, which was afterwards condemned as heretical in the sixth Council. For he approved, for the Good of the Peace, said he, that Mention should not be made, neither of one, nor of two Operations in *Jesus Christ*. But he did not discover *Sergius*'s Malice, who speaking in Appearance like a Catholick, disguised his Heresy under ambiguous Terms. It could also be inferred from *Honorius*'s Words, that he believed but one Operation, and one Will in *Jesus Christ*.

Cyrus did not remain within the Limits of the Suppression of the Manners of Speaking, prescribed by the Pope; but he maintain'd publickly, that there was but one Will in *Jesus Christ*. He even wrote to Pope *Honorius*, by the Bishop *Stephen*, which the Pope answering, he silenced him. It is true, that we have not those Letters, but they are mention'd in others he wrote to *Sergius*, and which were read in the third Session of the sixth Council. Those who want to excuse him say, that he understood that in *Jesus Christ* there was not two Wills opposed to one another, that of the Flesh to that of the Spirit, as they are within us, ever since *Adam*'s Sin; but that, in some Manner, there was but one, because the Flesh desired nothing against the Spirit; and therefore, two Operations should not be mention'd, but only one operating; nor two Wills, but one willing, in two Natures join'd indivisibly, inconvertibly, and without Confusion.

The Emperor *Heraclius* to support the *Monothelism* with his Authority, caused an Edict to be published under his Name (but composed by his Patriarch *Sergius*) which he called the *Ecthesis*, i. e. Explication, and which contained manifestly that Heresy. That Edict was sent to the Exarch *Isaac*, that it should be signed by the Pope: But *Severinus*, who had succeeded *Honorius* in the Pontificate, but not in his Sentiments, condemned it. The Patriarch *Sergius*, on the contrary, confirm'd it, in a Consiliabulum of Bishops, he assembled at *Constantinople*, and deposed all the Bishops, Priests, and Deacons, who should teach, that there are two Operations, and two Wills in *Jesus Christ*; and deprived of his Communion, all the Monks and Laicks who should be of that Sentiment. The Abbot *Maximus*, in his Dispute with *Pyrrhus*, speaking of that Synod, says, that he is surpriz'd how he dares give the Name of Synod to an Assembly held against all the usual Formalities of the Church; for the Convocation thereof no circulatory Letter had been sent; to which neither Day nor Place had been assigned; where no Accuser, nor Defender had appear'd; where those who had been assembled had brought no Letters of Recommendation, *i. e.* nor the Bishops from their Metropolitans, nor the Metropolitans from their Patriarchs: And where these had sent no Deputies according to the antient Custom of the Church.

Cyrus, Bishop of *Alexandria*, wrote a Letter to *Sergius* full of Flatteries; whereby he assures him that he has read his *Ecthesis* several Times with Pleasure and Attention. That he is pleased to see in it the true Faith interpreted in a Manner as clear the Sun; that he thanks God for giving to the World an Emperor, who takes so much Care to preserve the Peace of the Church.

Sergius, who swallowed those Flatteries with Pleasure, was in Hopes that his Heresy would triumph at last over the Truth; but God, whose Judgments are hidden, and who permits the Disorders of Men for his Glory, called him out of the World, after he had held the See of *Constantinople* more than thirty Years. *Heraclius* gave him for Successor the Monk *Pyrrhus*, who had already given several Marks of his Impiety.

The Pope *Severinus* died likewise, and was succeeded by *John*, the fourth of that Name, born in *Dalmatia*, and Son of the Scholastick *Venantius*. Soon after his Election, he assembled a Synod of Bishops; where the *Ecthesis* of *Heraclius* was solemnly condemned. The Acts of that Synod are lost, therefore I can say nothing of it in particular. This Pope, not contented with what he had done at *Rome*, exhorted so powerfully the Bishops of *Africa*, that several of them assembled Synods, likewise, where the Heresy of the *Monothelites* was treated in the same Manner it had been in that held at *Rome*.

Heraclius was sensibly offended at these Censures; but not seeing how he could resist their Authority, and supporting with Pain the Infamy they loaded him with, he published a Declaration, where he declares, that the *Ecthesis*, published under his Name, was not his, but had been composed by the Patriarch *Sergius*, who had made Use of his Name, to give it more Authority.

As one Heretick had succeeded another in the Patriarchal See of *Constantinople*, the same happen'd in the See of *Alexandria*. For *Cyrus* being dead, one *Peter* was put in his Place. *Heraclius* procured his Promotion, to have in that great City a Protector of the Heresy he professed; but at last God deliver'd his Church from that bad Emperor, who died after thirty-one Years Reign, loaded with Sorrow and Infirmities. That Prince had certainly several very excellent Qualities, and had been comparable to the greatest Emperors who have reign'd, as well for his Courage, as for his last military Exploits, if he had not dishonoured his Reign by the Heresy into which he fell; and of which he was the chief Protector. But perhaps he could be excused on that he was deceived by the Patriarch *Sergius*, a very learned Man, in whom he had Confidence, and by the other Bishops who abused his Ignorance, and of the Zeal he had to exterminate the Heresy of the *Eutychians*, and to procure Peace to the Church.

Constantine his Son succeeded him; but he reign'd but four Months, and was succeeded by *Cleonas*, who held the Empire six Months. The Senate placed *Constantius*, *Heraclius*'s Grandson on the Throne, who was an Heretick, like his Father, and who by an unconceivable Desire of extending *Monothelism* throughout the whole World, promoted to Bishopricks, and sent into the Provinces for Prefects, none but Persons he knew infected with that Heresy. Therefore we ought not to be surpriz'd if almost all the East was infected therewith. The Patriarchs and Prelates being corrupted, debauched their Flocks, or suffered them to be debauched; and the Church had infallibly made a Naufrage in those unhappy Days, if the Rage of the Devil, the Violence of Princes, and the Artifices of Hereticks, were capable to make her perish. Some Bishops, who had remain'd Catholicks, uncapable to resist the Violences of the Hereticks, and seeing the Error predominant in their Dioceses, fled to *Rome*, as to a Port secure against the Tempests which agitated the East. Others, unwilling to desert their Flocks, wrote to Pope *Theodorus*, to inform him of their Perseverance in the true Faith, and to condole with him on the Calamities of the Church.

Those of the Island of *Cyprus* assembled a Synod, and sent to the Pope a synodal Epistle, which was read in the Council assembled by Pope *Martin*. It was only subscribed by the Patriarch *Sergius*, and carried this Inscription, *To the most holy, and most blessed, our honoured Lord, Father of Fathers, Archbishop, and universal Pope, my Lord* Theodorus, *the humble* Sergius, *greeting in the Lord*. Then continued thus, ' *Jesus Christ* our God, ' has established your apostolical See, as a firm, and un- ' moveable Foundation, and as the most radiant Form ' of the Faith. For you are *Peter* (as the divine Word ' has pronounced it) and on that Foundation, the Co- ' lumns of the Church are founded. He has intrusted ' you with the Keys of the Heavens, and with the ' Power of binding and unbinding what is in Heaven, ' and on Earth. You are the Destroyer of profane He- ' resies, as the Prince and Doctor of the orthodox and ' immaculate Faith. Therefore, O Father, do not neg- ' lect the Care of the Faith of your antient Fathers, which ' is at present agitated by the Tempest, and disturb-

ed

'ed by heretical Winds. Be pleased to dissipate, O most 'holy, by the Light of your Science, the Clouds of He-'resy; and to silence the Blasphemies of some new He-'retick Doctors, who have lately appeared.'

Before *Pyrrhus*, Patriarch of *Constantinople*, departed for *Rome*, he had a Dispute in the Month of *July*, of the Year of *Christ* 645; of Pope *Theodorus* 4; of the Emperor *Constantius* 4, with the Abbot *Maximus*. The Acts of that Dispute have been preserved entire, and Cardinal *Baronius* has inserted them in his eighth Tome. There wanted no less learned, and less zealous Defender of the Catholick Faith, to confound so subtil, and so obstinate an Heresiarch as was *Pyrrhus*. This *Maximus* was a Person of an illustrious Extraction; and had rendered himself a great Philosopher, and as great a Theologian, which engaged the Emperor *Heraclius* to make him his Secretary of State. He accepted that Employment to oblige him, and exercised it so worthily, that he was an Example of Piety and Justice to the whole Court. But when the Heresy of the *Monothelites* began to gain Ground there, the Fear of being seduced by it, and the Care of his Salvation, made him quit the Court; so that he retired into the Monastery of *Chrysople* on the other Side of the Streight of *Constantinople*; and having passed some Time there, in the Exercises of the monastick Life, he was judged worthy of being made Abbot; but his Zeal for the Catholick Faith, obliged him to quit his Monastery to defend it. Perceiving then, that the Heresy had infected almost all the East, he came first into *Africa*, where he had several Conferences with the Bishops of that Province; and as he knew perfectly well all the Subtilties and Artifices of Hereticks, he taught others how they should easily answer them. From thence he passed into the Isles, then came to *Rome*, and acting every where with the same Zeal, he so well animated Pope *John* to maintain the Purity of the Faith, that he engaged him to assemble a Council of several Bishops, in which, as we have already observed, the new Heresy was condemned. After all this, Meeting, in *Africa*, with *Pyrrhus*, who had retreated thither; the Patriarch *Gregory* desiring to procure Peace to the Church, made Use of this Encounter, and resolved that there should be at *Carthage* a publick Conference, between these two famous Men. *Pyrrhus* was in it so absolutely convicted of his Error, that he recanted publickly, of his own Accord; though the *Monothelites* (according to Custom) published that he had been forced to it. Afterwards he came to *Rome* with *Maximus*, where having presented to Pope *Theodorus*, a Profession of Faith entirely Catholick, he was admitted into the Church by the same Pope, with the Title of Patriarch, causing all the Honours to be shewn to him, due to that eminent Dignity. This Conversion proved very glorious to *Maximus*, and the Bishops consulted him from all Parts as an Oracle. But this Glory, as it most commonly happens, created him several Enemies, who accused him with having praised *Pyrrhus* while he was yet in his Heresy, and of being fallen himself into Error, having taught, in an Epistle to the Priest *Marinus*, that there were three Wills in *Jesus Christ*. He disown'd that Epistle in the Apology he wrote for his Defence. He has left other Writings, addressed to the Priest *Marinus*, which justify clearly that he acted as a very learned Man, and very zealous for the Defence of the Faith.

The Conversion of *Pyrrhus* caused a very great Consternation among the Hereticks, and a very great Joy among the Bishops of *Africa*. It revived their Zeal, and all the Primates of that Part of the World assembled the Synods of their Provinces to condemn the new Heresy; being the more prompted to it, when they heard that Writings had been affixed at the Doors of the Church of *Constantinople*, to engage every Body to embrace the *Monothelism*: Therefore *Stephen*, Primate of the Province *Bizacene*, assembled 42 Bishops: *Colombus*, Primate of *Numidia*, assembled likewise his Suffragants; and *Reparatus*, Primate of *Mauritania*, convoked his. Those of the consulary Province of *Carthage*, met likewise to the Number of 68. Some Fragments of that Council were recited in that of *Lateran* assembled by Pope *Martin* some Time afterwards. The Primates of the *Bizacene*, of *Numidia*, and of *Mauritania* wrote to Pope *Theodorus* an Epistle, to desire him to forward a Letter they had wrote to *Paul* Bishop of *Constantinople*, the greatest Protector, and the greatest Defender the *Monothelites* had at that Time, to intreat him to quit his Error.

In all those Synods of *Africa*, there is no Mention made of the Bishops of *Carthage*, because *Fortunus*, or *Fortunatius* who held that See during those Synods, was joined in Communion with *Paul* Bishop of *Constantinople*; and by that Means could not appear in those Assemblies which were made against the *Monothelites*. After his Deposition, or after his Death, another Bishop, called *Victor*, was elected in his Place, who, as soon he was created, deputed the Bishop *Melossus*, the Deacon *Redemptus*, and *Crescitorus* Notary of his Church, to inform him of his Election, and sent him his Confession of Faith, to shew him that he was entirely orthodox.

Theodorus seeing the universal Consent of the Bishops of *Africa* against *Paul* of *Constantinople*, sent him *Nuncios* who carried their Letters to that Patriarch. He joined likewise to them his own Letter, which was more bitter than the former he had already written to him, without having gained any Thing on his Mind: For towards the End of this he pronounces Anathema against all those who should depart from the Sentiments of the Catholick Church. Father *Sirmond* has published that Letter in his Additions to *Athanasius* the Library-Keeper.

Paul made an Answer to the Pope, in which he endeavours to dissemble his Heresy, as if by confessing but one Will in *Jesus Christ*, he understood only that there is no Contrariety of Will in him; but that there is but one single Operating, and one single Willing. He advances besides that the antient Fathers, St. *Gregory* of *Nazianzen*, St. *Athanasius*, and St. *Cyril*, are of his Opinion, and have spoken in the same Manner. But notwithstanding those Artifices, the Pope, and the Bishops who were near him, discovered the Heresy contained in this Letter, and at last *Theodorus* condemned it.

This Condemnation had no Effect with Respect to *Paul*, nor brought him back to the Church: On the contrary, he persevered always in his Heresy, and even wrote an Edict, which was published under the Name of the Emperor *Constantius* to give it more Authority, as the *Ecthesis* had been under that of *Heraclius*. It had for Title the *Type* or *Formular*, and under Pretence of uniting all the Churches in the same Faith, it imposed Silence as well to those who said that there were two Wills in *Jesus Christ*, as to those who taught there was but one. The Patriarch on this Occasion deceived easily the Emperor, making him believe that this Edict procured Peace to the Church; and that on the other Side he would draw from it, this Advantage for his Heresy of preventing the Catholick Truth, contrary to it, from being publickly taught. The Emperor expected likewise by that Means to gain the Bishops of *Africa*, and hinder them from joining with the Prefect *Gregory*, who had revolted against him. Towards the End of that Edict the Emperor decreed Penalties against all those who henceforwards should speak of the Question of one or two Wills in *Jesus Christ*, deposing the Bishops and Priests, expelling the Monks from their Monasteries, degrading the Magistrates and Soldiers, confiscating the Estates of the Nobility, and lastly, commanding that all other Persons should be chastised and sent into Exile.

In the Council assembled some Time afterwards by Pope *Martin*, the Bishops speak of the *Type* in this Manner: 'In reading the *Type* it appears to have been 'written with a good Intention; but it contains Things 'contrary to that Intention which seems righteous, just, 'and reasonable. For it is really a very good Thing, 'and desirable to all those who fear God, to hinder 'Dissentions and Disputes in the Matters of Faith: 'But it is neither good nor useful to destroy Good in 'destroying Evil, that's to say, to destroy with the 'Heresies the Words and Dogmata's of the orthodox 'Fathers; for this is not the Means to appease Contro-'versies, since no Body, truly Christian, can suffer with 'Patience, that the Use of the venerable Expression of 'Faith should be forbidden together with an heretical 'Impiety.

Theodorus assembled a Synod at *Rome*, where the *Type* having been examined, was rejected and condemned. The Patriarch *Paul* was likewise fulminated in it and deposed. That Patriarch having heard it, was provoked to Excess, and to be revenged of it, he caused the Altar and Oratory which were in the Palace where the Pope's Nuncio's lodged in the City of *Constantinople*, to be pulled down; persecuted them in their Persons, and all the Orthodox who adhered to them, imprisoning the one, and sending the others into Exile, or having them cruelly whipped with Rods. *Pyrrhus*, who returned to his Heresy after he had abjured it, as above-mentioned, was likewise excommunicated. This is the Detail of this History.

The Emperor having learned that he had disowned his Errors, and given a Declaration of it to the Pope, ordered the Exarch *Olympius*, he was sending to *Ravenna*, to use all his best Endeavours to engage him anew in his old Heresy. *Olympius* employ'd so many Artifices to seduce this Wretch, and to corrupt him, that at last he succeeded therein, and engaged him to repent publickly of his Repentance, and to detest the Abjuration he had made in *Africa* and at *Rome*. The Pope having been informed of that Apostacy, assembled a Synod, in which he excommunicated him. *Pyrrhus* afterwards returned to *Constantinople*, where he was graciously received by the Emperor, who restored him to his See.

Pope *Theodorus*, after he had courageously defended and maintained the orthodox Faith for the Space of seven Years, five Months, and twenty Days, went to receive in Heaven the Reward of his noble Toils, and died the Eve of the Ides of *May*. *Martin*, born at *Todi*, a City of *Tuscany*, was elected in his Place. Soon after his Elevation, he convoked a Council at *Rome* to condemn solemdly the *Type* we have mentioned. He believed himself obliged to renew that Condemnation, though already made by his Predecessor, to let the Emperor know, that he was very far from receiving it, as he had intreated him to do by express Letters, imagining that he should obtain that Consent from him, in Gratitude for that he had given for his Election to the Pontificate. But he had too much Piety and too much Zeal for the Church, for acknowledging by an Impiety the Favour the Emperor thought he had done him.

That Council was very famous, and the Pope himself calls it a General Council, in his Letter to the Bishop *Amandus*; it was composed of 105 Bishops: The Abbot *Maximus*, who had so earnestly solicited its Convocation, was also there present. It was assembled in the Palace of *Lateran*.

In the first Session *Theophilete*, the first of the Notaries harangued, and addressing himself to Pope *Martin* who presided, said, 'That, imitating *Jesus Christ* who had 'penetrated the Heavens by Words and Deeds, he had 'assembled the Priests of the true God, on the Occasion 'of a Novelty, which had been introduced into the 'Church: That he desired him to let the Assembly of 'the Bishops know all that had happened in the Affair 'of that Heresy; and in what Condition it was at that 'present Time, *&c.*'

Afterwards Pope *Martin* made a pretty long Discourse to the Fathers of the Council, in which he exhorts them first to watch carefully over their Flocks by the Example of the Shepherds, to whom the Angels announced the Birth of our Saviour, lest the Plague of the new Heretics should corrupt them. Afterwards he spoke of *Cyrus*, Bishop of *Alexandria*, of *Sergius* of *Constantinople*, and of *Pyrrhus* and *Paul* his Successors, who, said he, publickly taught the Error of one Will, and of one single Operation in *Jesus Christ*. He refuted, in few Words, the new Heresy, by the Authority of St. *Basil*, writing against his Enemies, of St. *Cyril*, in his Book of the Treasure, of the Epistle of Pope *Leo* to the Emperor of the same Name, and of *Flavian* of *Constantinople*. He spoke, likewise, of the Penitence of *Pyrrhus*, who had presented to the apostolical See a Recantation of his erroneous Opinions, but had soon recanted again, returning like a Dog to his Vomit, which had obliged him to punish him with Deposition.

He says, afterwards, 'that *Paul*, Successor of *Sergius*, 'in a Letter he had wrote to him, had been so impu-'dent as to maintain his Heresy; and that for that Sub-'ject he had also been deposed by the holy apostolical 'See: That afterwards, to disguise His Error, he had 'persuaded the most clement Emperor to publish the '*Type*, in which eluding the Authorities of the holy Fa-'thers, that Prince had order'd that henceforwards no 'Mention should be made, neither of one, nor of two 'Wills in *Jesus Christ*. But to say, that *Jesus Christ* is 'without Will, and without Operation, is to say, that 'he is without Substance, and without Nature, and 'therefore to destroy him. *Dennis* of blessed Memory, 'teaching, that all that has no Operation is not, is no-'thing, and has no Stability, because Nature is no 'otherwise discover'd to exist, than by the natural and 'substantial Virtue of operating, which is inseparable 'from it. He complains of the Violence *Paul* had 'exercised against the apostolick Nuncio's, *&c.*

All that was done, besides, in this Council, where the *Type* was condemn'd, may be seen at large in my Treatise of *Councils*.

In the Year 650; of Pope *Martin* 2; of the Emperor *Constantius* 9; the Heresy of the *Monothelites* was condemn'd in a Council held at *Orleans* in *France*; and afterwards that Heresy could never make any Progress in that Kingdom.

The *Monothelism* was condemned for the last Time in the sixth general Council, called *in Trullo*, assembled in the Year 680; of Pope *Agatho* 3; of the Emperor *Constantine Pogonatus* 13; as it may be seen in my Treatise of the *Councils*.

The ICONOCLASTES, or *Ichonomachi*, i. e. those who destroyed the Images, appeared in the Year of *Christ* 717; of Pope *Gregory* II. 2; of the Emperor *Leo Isauricus*, 13; to which the Emperor himself gave Occasion; for having been excited by some Magician *Jews*, he declar'd War against the Images; and caused them to be pulled down in all the Places, where they could be found; publishing an Edict whereby he ordered that they should not be suffer'd in Churches.

The *Iconoclastes* were condemned as Hereticks in the second Council of *Nice*, assembled in the Year of *Christ* 786; of Pope *Adrian* 16; of *Constantine* and *Irene* 8; the History whereof may be seen in my Treatise of the *Councils*.

In the Year 791; *Felix*, Bishop of *Urgel*, in *Spain*, and *Elipandus*, Archbishop of *Toledo*, published that *Christ* was God's Son but by Adoption. They were condemned in the Council of *Ratisbon*, held in 792, under Pope *Adrian*; and also in that of *Francfort* on the *Main*, assembled by the Emperor *Charlemagne*'s Orders; and where he assisted in Person; together with the Bishops of the Provinces of his Kingdom, of that of *England*, and with the Pope's Legates.

The *Roman* Catholicks rank among the Hereticks, *Claudius*, Bishop of *Turin*, who pretended, that no Respect should be shown to the Cross, nor to the Sepulchres of the holy Apostles, nor to the Relicks of Saints; that Pilgrimages were needless, *&c.* He began to dogmatize in the Year 802.

In the Year 823; of Pope *Pascbal* 7; *Michael* III. called the *Stoterer*, Emperor of the East, shewed himself an Heretick. He began by persecuting the Orthodox, and professing *Judaism*. He turned into Ridicule, and denied the Existance of Devils, and the Resurrection of the Dead. He was of Opinion, that Fornication was not a Sin, and ranked *Judas* among the Saints.

In the Year 1049, *Photius*, Patriarch of *Constantinople*, began the Schism of the *Greeks*; and to publish his Error of the Holy Ghost proceeding from the Father only.

In the Year 1058, *Berengarius*, Archdeacon of *Angiers* (whom the *Roman* Catholicks rank among the Hereticks) began to teach, that the real Body and the real Blood of *Christ* were not in the Eucharist; and afterwards having revoked that Sentiment, which the whole *Christian* World called then an Error; he pretended, that the Substance of the Bread remained with the Body of *Christ*: He added, that none but Adults ought to be baptized; tho' he recanted at last, and died in the Catholick Faith.

The BOGANILES appear'd in the Year 1087, under Pope *Urban* II. and had for Author, *Basil*, who was burnt by Order of *Alexis Comnene*, Emperor. They denied the Trinity of God, pretending that God had a human Form, and the World had been created by the Devil, *&c.*

Peter and *Henry de Bruis*, dogmatized in the Year 1119; under Pope *Callistus* II. that Children ought not to be baptized, *&c.*

Peter Abellard appear'd in the Year 1144; he admitted an Inequality of Degrees in the divine Persons, and no Faith without Reason, and several other Things of the same Nature.

The CATHARI, or PATARI, published in the Year 1153, under Pope *Anastasius* IV. that the World had been made by the Devil; that the Sacraments were of no Service, *&c.*

Waldo, whence his Disciples were called WALDENSES, or the Poors of *Lyons*, began to teach in 1170, under Pope *Alexander* II. that the Power of remitting Sins, and of administrating the Eucharist, was also granted to Laicks; that the Feasts and Fasts ordered by the Church were not to be observed, *&c.*

Peter of John published, in the Year 1195, under Pope *Celestinus* III. that *Christ*'s Side had been perforated, while he was yet living: That the rational Soul was not the Form of the Body: That the universal Church was the *Babylon* of the Apocalypse, and the Pope the Antichrist.

Almarick, Doctor of *Paris*, taught in the Year 1209, under Pope *Otho* IV, that the Law of God the Father had lasted till the Birth of *Christ*; the Law of *Christ* till *Almarick*; and the Law of the Holy Ghost would last to the End of the World, *&c.*

The ALBIGENSES appeared in the Year 1241, under Pope *Innocent* III. who oppressed the Church, not only by their Sermons, but also by their Arms. They admitted two co-eternal Principles, one Good and the other Bad, *&c.*

William of St. Amour, Doctor of *Paris* (whom the Catholicks rank among the Hereticks) published in the Year 1254, under Pope *Alexander* IV. that it was not permitted to establish, or enter religious Orders, which had not Possessions, at least in common.

The FRATRICELLI appeared in the Year 1276, under Pope *Adrian* V. and had for Authors a certain Hermit, and *Dulcitius* of *Navarre*. Their principal Errors were, among many others, that their Sect was the true Church: That they were as perfect as the Apostles were; that they were obliged to obey no Body; that the Popes had all been Prevaricators from the Time of St. *Sylvester*, except *Celestinus* V.

The BEGARDS and BEGHINES (the one Monks and the other Nuns) appeared in 1299, under Pope *Boniface* VIII. they had for Author one *Bogonatus*. They pretended that a Man could become impeccable in this Life; and therefore was no longer obliged to fast and pray; neither could he increase in Grace, *&c.*

Walter Lolard, who appeared in the Year 1309, under Pope *Clement* V. was of Opinion, that God had unjustly condemn'd *Lucifer*.

The FLAGELLANTS appear'd in 1352; under Pope *Innocent* V. and used to say, that none but those who were baptized in their own Blood, by whipping themselves with knotted Cords, would be saved. They besides despised the Sacraments, and other good Works, *&c.*

I find in the Index, *John Wickliff*, an *Englishman*, who appeared in the Year 1372, ranked among the Hereticks. I also find him condemn'd as such in the eighth Session of the Council of *Constance*.

John Hus, a *Bohemian*, is also found in the Index among the Hereticks; and his Sentiments are condemn'd as heretical in the fifteenth Session of the Council of *Constance*, held in 1412.

The HUSSITES divided themselves into several different Sects; for some of them were called *Orebites*; others *Thaborites*; others *Orphans*; others *Adamites*, or *Pichards*, because they had for Chief a certain *Frenchman*, called *Pichard*, who pretended that he was the Son of God, and called himself *Adam*.

Bernard of *Luxembourg*, places in his Catalogue of Hereticks, *Herman Ruswich*, a *Dutchman* born, who in the Year 1492, under Pope *Alexander* VI. published that the Soul dies with the Body; that there is no Hell; that *Christ* was a Fool; that our Faith was fabulous, and the Gospel false.

Martin Luther, is also placed in the Index as a Heretick, and condemned as such by the Council of *Trent*; but as he is considered by the Reformed as one of their Apostles, and I write in a *Protestant* Country, I leave to the two opposite Parties, to dispute which of them is in the Right; though I design to give under the Letter *L*, an entire Treatise of the Origin, Progress, *&c.* of *Lutheranism*.

Andrew Carlostad, *Luther*'s first Disciple, accompanies likewise his Master in the Index, as an Heretick of the first Class; and is condemned as such in the Council of *Trent*.

Balthasar Pacimontanus, and *Bernard Rothman*, instituted the Sect of *Anabaptists*, in the Year 1527, under Pope *Clement* VII. they denied the Validity of Infant-Baptism, and pretended that if they had been baptized, they should be rebaptized when they arrived at the Age of Discretion.

I also find *Philip Melancthon* in the Index. He composed the Confession of *Ausbourg*, in 1536; whence those who followed it were called *Confessionists*.

I have given a whole Treatise of *Calvinism*, which had for Author *John Calvin*, who has likewise a particular Place in the Index; and was fulminated in the Council of *Trent*.

Michael Servetus, born in *Spain*, appeared in the Year 1550, under Pope *Julius* III. while he was yet but 25 Years of Age, he boasted of being a very great Prophet. He wrote seven Books, *Of the Errors of the Trinity*, in which he pretended, that there was no real Generation in God, nor a personal Distinction: That Men were not to be baptized till they were 30 Years of Age. At last he was burnt alive at *Geneva*, by *Calvin*'s Order, in 1555.

David George, born at *Delpht* in *Holland*, preached in 1558, under Pope *Paul* IV. that he was a very great Prophet, even greater than *Jesus Christ* the Son of God. That he would rise three Years after his Death, and then restore the Kingdom of *Israel*. But he has been dead almost two hundred Years, and is not risen yet, and in all Appearance will not till the last Day, when he will be condemned to eternal Punishments, with all the other Impostors like him.

Gaspard Swenkfeld, one of the Confessionists, published in 1564, under Pope *Pius* IV. that the human Nature of *Christ* had been changed after his Ascension, into the divine, *&c.*

Andrew Osiander, one of the Confessionists, but condemned by the Confessionists themselves, taught in 1566, that the Charity, Justice, and Wisdom of Man, are the proper Essence of God; and that justifies Men, according to the divine Nature only.

J. Brentius, a Confessionist, taught in 1572, under Pope *Gregory* XIII. that the Humanity of *Christ*, from his Incarnation, has always been every where; whence the *Ubiquestis*.

Matthias Flaccius, the principal Author of the Centuries of *Magdeburgh*, published in the Year 1577, under Pope *Gregory* XIII. that the Original Sin was a Substance.

Quintin Piccard, Chief of the Sect of the *Libertines*; published in 1585, under Pope *Sixtus* V. that it was lawful to dissemble one's Faith and Religion, and to communicate with every Body: That there was but one Spirit immortal: That the Angels, and Souls of Men were not immortal: That *Christ* did not really die on the Cross, but in Appearance only, *&c.*

Valentin Gentilis, renewing *Arianism*, began to teach in 1558, that the three divine Persons were three eternal Spirits, different in an essential Number; but that the Father was greater than the Son, and the Holy Ghost.

Francis David, taught in 1605, under Pope *Paul* V. that

that none but the Father was a true God; the Son and Holy Ghost being only the Virtues of God, not at all distinct from the Person of the Father, either by Relation or Essence. That *Christ* was a pure Man, and was called the Word of God, only because he preached the Word of God.

The SOCINIANS, are a modern Sect of *Antitrinitarians*, who in these Ages have revived some of the Errors of *Paulus Samosatenus*, *Photinus*, and *Arius*; whence they are also occasionally called *Arians*, *Photinians*, &c. tho' in many Respects different from them all.

Faustus Socinus, a Gentleman of *Sienna*, whence they take their Name, was not the first Author of the Sect; he himself affirms, in his Letter to *Martin Vodau*, wrote in 1548, that he advances no Dogma but what had been published by others before him, even in *Poland*, ere he came to settle there. The Truth is, he may be rather said to have refined by his Subtilties, on the Novelties that already prevailed there in his Time, than to have invented a new Heresy.

In his Life, wrote by a *Polish* Knight, we read, that he had not applied himself to the Study of Philosophy and Divinity, nor had studied any Thing but Logick, till 35 Years of Age: But had spent the greatest Part of his Life at the Court of the Great Duke of *Tuscany*. Upon his retiring thence, he began to think of Religion; and possessed as he was with the Writings of his Uncle *Lelius Socinus*, he formed a System thereon. *Lelius* had explain'd the first Words in the Gospel of St. *John*, *In the Beginning was the Word*; by these, *In the Beginning was the Evangelical Word*; as if the Beginning there spoke of, was only the Beginning of the Gospel.

This Interpretation, never heard of in all Antiquity, is followed by *Faustus*, on his Comment on the fourteen first Verses of that Gospel. He adds, that he who is called *Word*, had not been from all Eternity, nor even before the Creation of the World; but that by *Word* must be meant the Man *Jesus Christ*, God born of the Virgin, under the Emperor *Augustus*. But this is a Paradox, which all his Followers do not equally come into. However, they all deny, not only the Divinity of *Jesus Christ*, but the Existence of the Holy Ghost, the Mystery of the Incarnation, Original Sin, and Grace.

Their Sentiments are expressed at large in their Catechism, printed several Times, under the Title of *Catechesis Ecclesiarum Polonicarum, unum Deum Patrem illius que Filium unigenitum, una cum Sancto Spiritu, ex sacrâ Scripturâ confitentium*, i. e. the Catechism of the *Polish* Churches, confessing from the Scripture, one only God the Father, and his only Son, together with the Holy Spirit.

The *Socinians* are divided on several Articles; some of them leave *Socinus*, as to what regards the Worship offer'd to *Jesus Christ*, not being able to conceive how divine Worship should be given a mere Man.

The Heresy of the *Socinians* spread exceedingly in *Poland*, *Lithuania*, *Transilvania*, and the neighbouring Places. *Racow* was their chief School; and there all their first Books were published. But they were exterminated out of *Poland* in 1655; since which Time they have chiefly shelter'd in *Holland*; where, however, their publick Meetings have been prohibited: But they find Means to conceal themselves under the Names of *Arminians* and *Anabaptists*.

The ARMINIANS are accounted Hereticks, even by the *Calvinists* themselves, from whom they separated.

The *Arminians* appeared first in *Holland*, and are sometimes also called *Remonstrants*, by Reason of a Remonstrance which they preferred to the States General, in 1611, wherein the chief Articles of their Faith were laid down.

The later *Arminians* carried Things further than *Arminius* himself, and even came very near the *Socinianism*, especially under *Simon Episcopius*. — When the *Calvinists* upbraided them for renewing an antient Heresy, already condemned in the *Pelagians*, and *Semi-Pelagians*; they replied, that the mere Authority of Men could not be allowed a legitimate Proof any where but in the Church of *Rome*; that it was not enough to shew any Opinion had been condemned, without shewing it had been condemn'd justly.

On this Principle, the *Arminians* retrench Abundance of those called fundamental Articles of Religion. Not finding them all clearly expressed in the Scripture, they laugh at all the Catechisms and Formula's of Faith, which the former would restrain them to; and were condemn'd at the famous Synod of *Dort*, held in 1618, whereat Divines from most of the reformed Churches were present.

Many among them have quitted the Doctrine of their Master, relating to the Point of eternal Election and Predestination.

Arminius taught that God elected the Faithful out of his Foreknowledge of their Faith: But *Episcopius*, and others, thinks he elects no Person from all Eternity, and only elects them at the Time when they actually believe. They speak very ambiguously of the Prescience of God, which was the principal strong Hold of *Arminius*. They look on the Doctrine of the Trinity, as a Point not necessary to Salvation; and many of them held there is no Precept in Scripture, by which we are enjoin'd to adore the Holy Ghost; and that *Jesus Christ* is not equal to God the Father. In which they approach very near *Arianism*. And they generally avoid the Words, *Satisfaction of Jesus Christ*, which some Charge with *Socinianism*. Though *Episcopius* declares, that *Jesus Christ* has made Satisfaction to God, so far as to render him propitious to Mankind.

They press with a great deal of Earnestness, a general Toleration of all those who profess the Christian Religion; maintaining that all *Christians* are agreed in the essential Points; and that as it has never been decided by any infallible Authority, which of the many Ways is the true one, and the most agreeable to the Word of God, they ought all to combine on the same Footing, to compose one Church, without obliging any to quit their own Sentiments, or embrace those of others.

Their principal Writers are *Arminius*, *Episcopius*, and *Grotius*, to which may be added *Curcelleus*, who has collected a System of Theology, out of the large diffusive Writings of *Episcopius*, with the Addition of many Things of his own. Though *Curcelleus*, it must be owned, is ranked by the *Socinians* among their Writers.

Note, That as I have often mention'd the Word *Index*, at the End of this Treatise, I'll conclude it with informing the Readers what the *Index* is.

The INDEX, or INDICE, is the Denomination of a Congregation at *Rome*, whose Business is to examine Books, and to put such as they think fit to prohibit the Reading and Selling of, into an *Index*.

INDICES, or *Expurgatory Indices*, is the Name by which the Catalogue of prohibited Books are called; among which, however, there is this Difference, that some are condemn'd purely and absolutely, and others only *Donec corrigantur*, till they be corrected.

Philip II. of *Spain*, was the first who procured an *Index* to be published of the Books condemned by the Inquisition of *Spain*. Pope *Paul* IV. took the Hint, and in 1559; ordered the Congregation of the holy Office at *Rome* to print a second. *Pius* V. recommended the Matter to the Council of *Trent*, who made another. After this the Duke of *Alva* procured another to be printed at *Antwerp*, in 1575. *Clement* VIII. in 1596, published a very copious one, called by the Name of the *Roman Index*. — There were two others published in 1583, and 1612, by the Cardinals *Guiroci* and *Sandoval*; and several others by the Inquisitors and Masters of the sacred Palace. The most considerable of all the *Indices*, is that of *Sottomayor*, which was made for all the States subject to the King of *Spain*, and comprehends all the others, coming down as low as the Year 1667.

HIEROGLYPHICKS.

HIEROGLYPHICK, from the *Greek* ἱερὸς, *sacer*, holy, and γλυφειν, *sculpere*, to engrave, is a Symbol or mystick Figure, used among the antient *Egyptians*, to cover, or conceal the Secrets of their Theology.

Hieroglyphicks are distinguished from Symbols, in that *Hieroglyphicks* are properly Emblems, or Signs of divine, sacred, or supernatural Things; and Symbols are Signs of sensible, and natural Things.

As the *Hieroglyphicks* of the *Egyptians*, were most of them Figures of the Planets, of the different Parts of the human Body, and of Animals in different Shapes and Attitudes, each different Shape or Attitude, though of the same Animal, signifying a different Thing; I'll explain, in this Treatise, several of them, especially the most remarkable, and the Explication thereof is most interesting, and most capable to flatter agreeably our Curiosity, beginning by the Planets; taking only Notice of the *Sun* and *Moon*.

The SUN (fig. 1.) was a *Hieroglyphick* which had several Significations; for it has been often used both by the *Pagans* and *Christians*, to signify a supreme Being, and some of the *Pagans* have even adored him as such; especially the *Persians*. *Pythagoras* and *Hesiod*, wanted that he should be respected as something above a human Apprehension.

Among the Christians, St. *Gregory* the Theologian teaches, that God is among the intellectual Creatures, what the *Sun* is among the sensible ones. St. *John*, St. *Paul*, and St. *Denis* the *Areopagite*, make often a Comparison between God and the Sun.

The *Sun* was also the *Hieroglyphick* of Truth, because of its Simplicity, Visibility, and Nakedness, which have all an Affinity with Truth.

He is employed by the Christians to signify *Jesus Christ*, whom they call the *Sun of Righteousness*.

Nothing more proper than the *Sun* to signify *Light*, since himself is the Source of Light.

He was a *Hieroglyphick* among the *Romans* of the sovereign Majesty of the Empire.

Archemides, *lib.* 1. *c.* 36. says that he was the *Hieroglyphick* of the human Life: That to shew the Tranquility of that Life, he was represented in his full Glory; darken'd and cloudy, to signify Troubles and Inquietude.

The *Sun* was also a *Hieroglyphick* of the Revolution of the whole Year, as regulating the Seasons by his Course.

When the *Egyptians* wanted to signify a Woman with Child, or lying in, they represented the *Sun* divided in two, with a *Star* in the Middle of the Division, for a *Hieroglyphick* of the Child in the Womb of its Mother; not only because they compared the Belly situated in the Middle of the Body to the Sun; but, likewise, because they were of Opinion that he vivifies all Sorts of Conceptions; imagining besides, that a *Star* borrows its Light from the Sun, as a Child receives its Aliments from its Mother.

The MOON, (2) was a *Hieroglyphick* of human Life, because its Face changes every Day, like that of the human Life.

The Christian Church makes it the *Hieroglyphick* of the Assembly of the Faithful, which is enlightened by the divine Light of the *Sun* of *Righteousness Jesus Christ*, like the *Moon* is enlightened by that of the *Sun*.

The *Moon* was among the Pagans, a *Hieroglyphick* likewise of Eternity, because it seems to have a perpetual Rotation.

On some of *Faustina*'s Medals is represented a Figure, holding a Gown with the Left-Hand, and with the right a small Bird, with the Moon placed a-top, with this Legend, AETERNITAS, *Eternity*.

On some of those of the Emperor *Severus* is another Figure, lifting up the *Moon* with his Right-Hand, and this Legend, PERPETUITATI AUGUST. *to the Eternity of* Augustus.

For a *Hieroglyphick* of the Month, the *Egyptians* painted the *Moon* her Horns downwards.

On the Medals of *Antoninus Pius*, is represented a human Figure wanting to lay hold of the Moon with his two Hands, the Moon with her Horns downwards, and in her Disk, three small Protuberances. Under the Feet of the Figure backwards, are three Ears of Corn; forwards, a Crocodile having her Head erected towards the Figure. The Legend ALEXANDRIA, which in all Appearance, represented *Egypt*.

The *Egyptians* made a Star one of the *Hieroglyphicks*, to signify God; because they imagined that the fixed Stars gave the Motion to the inferior Heavens, as God does to all created Beings. It is perhaps for that Reason, that we see on the Coin of *Pertinax* an Image with the Hands lifted up to Heaven, towards a large Star, with this Legend, PROV. DEOR. cos. II. by *the Providence of the Gods twice Consul*.

From the Planets and Stars, I'll pass to the Parts of the human Body, beginning at the *Head*.

The principal *Hieroglyphick* of the *Head* has always been to signify the Beginning of something.

A *Head* with a Diadem is the *Hieroglyphick* of Sovereignty: It is likewise the *Hieroglyphick* of Riches, Security, Prosperity, and Providence.

Note, That *Pierius* says, that he has seen a Draught of one of the Standards of the Emperor *Theodosius*, which represented a Table loaded with Books ranged in Order, some marked with certain Characters, shewing, as he supposes, the Contents thereof, and others which had no Characters. In that Table was a little Eminence, in the Middle whereof were two *Genies* supporting a large Round, with a Head like that of a Man, and this Inscription, DIVINE PROVIDENCE. At each Corner of the Table was a *Head* like this; that on the Right a-top with this Inscription, VIRTUE; that on the Left with this, SCIENCE; that on the Right at Bottom with this Inscription, AUTHORITY; that on the Left with this, FELICITY. The same Author imagined, that these *Hieroglyphicks* concerted under the Christian Emperors, signified, that the Beginning of our Actions comes first from God, and that we must next ask for his Assistance to help us in persevering, without which it is a sacrilegious Temerity to flatter ourselves with any Hopes of acting with Success.

The *Corinthians* used to represent *Fear* with the *Head* of *Medusa*, which the Emperor *Domitian* used to carry before his Breast, with a Design of rendering himself formidable to the whole World.

We find on several Coins, that the City of *Rome* was represented by the Head of a Woman, with a Helmet.

The *Egyptians* signified watching, by *two Heads*, one of a Man looking inwards, and the other of a Woman looking outwards, whereby they pretended that the Devil had no Power to offend them.

You'll find often on antient Monuments *two Heads*, with these Letters D M, whereby is understood that the Thing is consecrated to the infernal Gods; *i. e.* to those who are Tutelaries or Protectors of the Dead.

Pollux mentions the Coin of *Tenedos*, whereon, on one Side, were represented *two Heads*, and on the other a Hatchet, to signify the rigorous Punishment inflicted by a King of *Tenedos* on his own Son convicted of Adultery, according to a Law himself had made against Adulterers.

By the *double Head* of *Janus*, so famous among the *Romans*, some imagine that Prudence and Popularity were represented.

On a certain *Roman* Medal was represented a *Janus* with two Heads; on the Reverse a Chariot drawn by four Horses, carrying *Jupiter* armed with his Thunder, and this Legend, ROMA, which was the Seal of the *Roman* Republick.

On

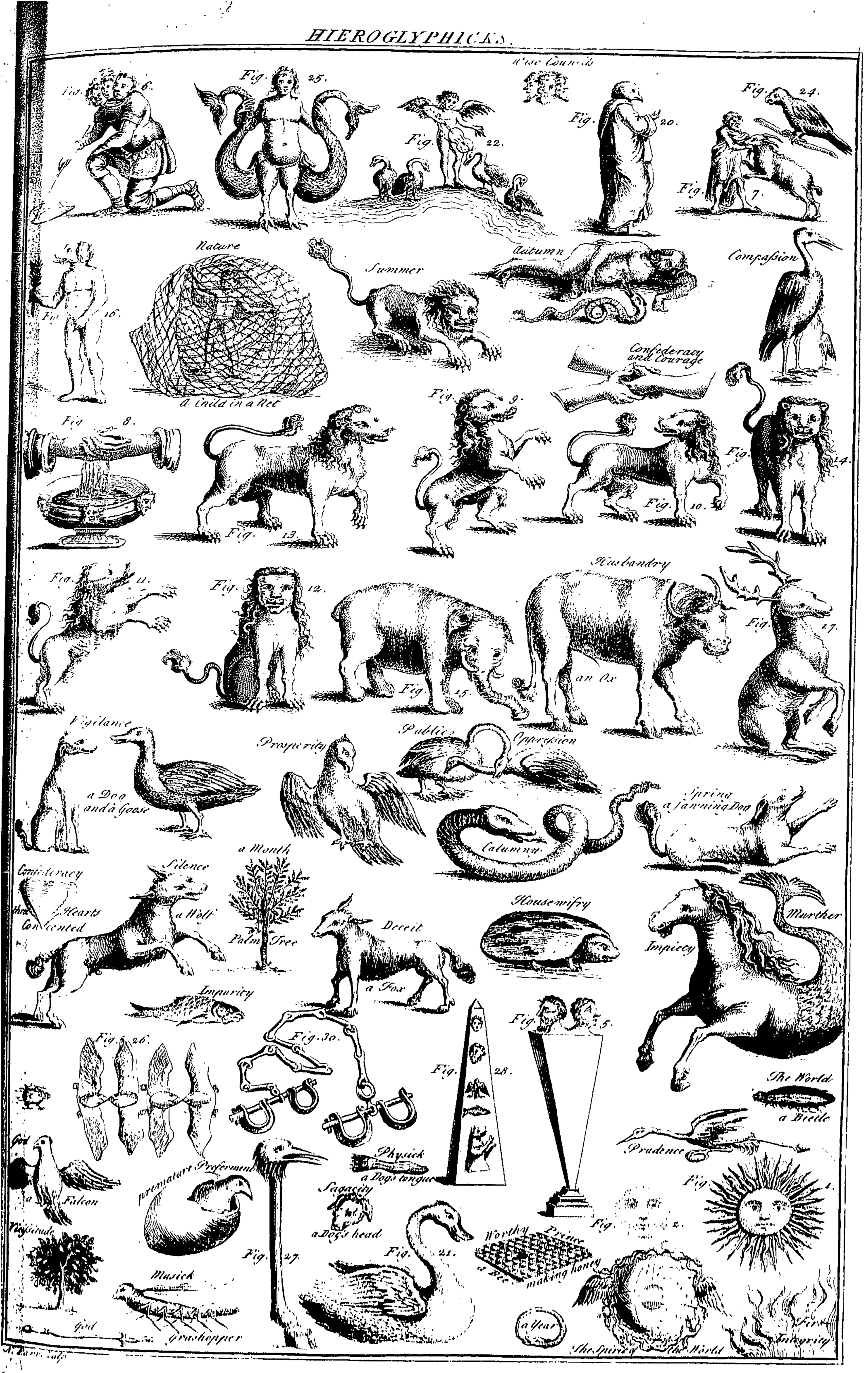


Fig. 6.
Fig. 25.
Wise Counsels
Fig. 22.
Fig. 20.
Fig. 24.
Fig. 7.
Fig. 16.
Nature
a Child in a Net
Summer
Autumn
Compassion
Confederacy and Courage
Fig. 8.
Fig. 13.
Fig. 9.
Fig. 10.
Fig. 14.
Fig. 11.
Fig. 12.
Husbandry
Fig. 15.
an Ox
Fig. 17.
Vigilance
a Dog and a Goose
Prosperity
Publick Oppression
Calumny.
Spring a fawning Dog
Confederacy
Hearts Contented
Silence
a Wolf
a Month
Palm Tree
Housewifry
Deceit
a Fox
Impiety
Murther
Impurity
Fig. 26.
Fig. 30.
Fig. 28.
Fig. 5.
The World
a Beetle
Prudence
God
a Falcon
premature Preferment
Physick
a Dogs tongue
Sagacity
a Dogs head
Fig. 27.
Fig. 21.
Worthy Prince
a Bee making honey
Fig. 2.
Nightinde
Musick
God
Grashopper
a Year
The Spirit
The World
Temperance

On a Piece of Silver a *Janus* with two Heads, with this Legend L. F. M. F. O. V. R. on the Reverse, a Trophy with a Whip, and a Scepter garnished at the End with a Serpent, and *Rome* near it, which puts a civick Crown on the Trophy.

Some imagine, that the *Janus*'s found in several Places, with two Heads, without Hands or Feet, mounted on a quadrangular Column, (5) large a-top, and always going in diminishing to the Bottom, is the *Hieroglyphick* of Constancy.

The Interpreters of *Hesiod* are of Opinion, that the *Gerion* with *three Heads*, signify the Moon: Others the Month divided into *Nones*, *Ides*, and *Calends*.

The Figure with *seven Heads*, (6) is the *Hieroglyphick* of a Man versed in all Sorts of Sciences.

The *Head* of an *Ass* on a human Body, was the *Hieroglyphick* of Ignorance.

The *Back*, was a *Hieroglyphick* of Flight.

The *Egyptians* made the *Eye* the *Hieroglyphick* of Justice. *Chrysippus* gives bright and quick Eyes to Justice, which never wink.

The *Eye* was also the *Hieroglyphick* of our Conceptions.

An *Eye* engraved on the Sole of a Shoe, was an *Hieroglyphick* for an Atheist.

Eyes without Eye-lashes, was the *Hieroglyphick* of a lascivious Person, because the *Egyptians* were of Opinion, that in Debaucheries of that Kind, the Hair used to fall.

The *Right-Eye* open, was a *Hieroglyphick* to signify *Life*, and the *Eye* shut, a *Hieroglyphick* to represent *Death*.

The *Eye-brows*, were a *Hieroglyphick* of Severity.

The *Lacedemonians* gave four Ears and four Hands to *Apollo*, to signify Wisdom, of which that God was the *Hieroglyphick*.

An Ear open was a *Hieroglyphick* of Obedience; and an Ear stopt, one of Obstinacy.

A *Tongue*, guided by a Hand, found represented on some Obelisks, was a *Hieroglyphick* of Eloquence.

A *Tongue* on an Altar represented *Sleep*.

Homer says, *Iliad* 3. that *Tongues cut*, signified Silence.

The *Egyptians*, to give to understand that a Thing had been slightly tasted, proposed the *Hieroglyphick* of a *Tongue*; the Tip whereof passed between the fore Teeth; and represented an entire Taste by the Entrance of the Throat adhering to the Root of the Tongue.

Aristander, *lib.* 1. *c.* 33. says, that the Mouth is a *Hieroglyphick* of a House, the Teeth representing the Inhabitants thereof.

A *Heart* hanging on the Neck, was a *Hieroglyphick* of *Sincerity*.

The *Egyptians*, to signify the Inundation of the *Nile*, represented a Heart, with a Tongue fixed to it.

Egypt was often represented by a *Heart* placed on an Altar.

The *Egyptians*, according to St. *Cyril* of *Alexandria*, represented Rage or Indignation by a *Heart* placed on a Gridiron.

By the *Back-bone* they signified a strong Inclination to Luxury, because they imagined that the Seed falls from the Brain through the *Vertebræ* into the Testicles.

By the *Penis*, represented on so many Pyramids or Obelisks, they gave to understand, the Valour or Courage of the Persons buried under, or near those huge Masses of Stones.

The *Matrice*, was a *Hieroglyphick* to signify a Person who had been vanquished thro' Cowardice.

The Antients represented Continency, by a *Man* holding his *Testicles* in his Hand.

The Figure of *Priapus*, holding in his Left Hand his *Penis* erected, and in the Right a *Caducee*, was a *Hieroglyphick* of the Sun.

The *Navel* was, on some Medals, a *Hieroglyphick* of *Jupiter*, as is seen on one mention'd by *Pierus*, with this Legend, ΣΕΛΕΥΚΕΩΝ ΠΙΕΙΕΡΙΑΣ ΖΕΥΣ. Jupiter, *God of the City of* Pieria *in* Seleucia.

Among the *Egyptians*, the *Hand* was an *Hieroglyphick* of Architecture.

The *Washing of Hands* (fig. 8.) was an *Hieroglyphick* of Innocence.

The *Hand* extended, signified Authority and Power.

Both *Hands* in one's Bosom, was an *Hieroglyphick* of Idleness.

On some Medals of the Emperor *Claudius*, is seen a small Figure, holding in his right Hand a Cap, and the Left open, with this Legend, *Liberty of* Augustus.

On the Coins of the Emperor *Antoninus*, *Piety*, represented thereon, has her Right Hand open and extended, and with the Left putting the Offering on the Altar.

The *Hands* tied behind the Back, was a *Hieroglyphick* of Captivity.

Victory, seen on the Medals of M. *Cato*, Pro-pretor, sitting with a Hand open and extended, is a *Hieroglyphick* of Peace, procured by good Councils.

On the Coin of *Gratian*, is seen a Hand extended to a Woman, kneeling on one Knee, with this Legend, REPARATIO REIPUB. *Reparation of the Republick.*

Two *Right Hands* joined together, were a *Hieroglyphick* of Felicity.

On the Coin of *Adrian*, that Goddess carries a *Caducee* in one Hand, and with the other lays hold of the Emperor, with this Legend, FELICIT. AUGUSTI. *The Felicity of* Augustus. But where the same Emperor seems to raise up Somebody kneeling, the following Legend shews what the two Hands join'd signify, RESTITUTORI GALLIÆ, *To the Restorer of the* Gauls.

A *Statue without Hands*, was the *Hieroglyphick* of a Judge, therefore at *Thebes*, the Statues of Judges were all without Hands, to signify that Legislators, or Judges, should have none for Bribery or Corruption.

The *Feet walking upon the Water*, were among the *Egyptians*, a *Hieroglyphick* of the Impossibility of a Project being executed.

But, on the contrary, the *Feet set firm on the Ground*, are an *Hieroglyphick* of a strong Foundation.

The *Egyptian* Priests represented the Winter Solstice, by two Feet in Fetters, to shew that then the Sun walks slower.

Lame, or *distorted Feet*, were a *Hieroglyphick* of Iniquity.

The *Right Foot* extended, and wrapt up, was an *Hieroglyphick* of Retreat, or Return; as it is seen mark'd on a *Roman* Coin, with this Legend, FORTUNÆ REDUCI, *To the Fortune returned.*

When we see an antient Statue with a Hand on his Head, and as if he was playing with his Fingers, it is a *Hieroglyphick* of Lasciviousness and Effeminacy.

The *Thumb* extended downwards, was, among the *Romans*, an *Hieroglyphick* of Peace. Extended upwards, an *Hieroglyphick* of Favour.

A *Hand* without a *Thumb*, was an *Hieroglyphick* of a Man unfit for the Army.

The *Index* on the *Mouth*, was a *Hieroglyphick* of Silence; there is a Statue of *Titus Livius* on the Gate of the Town-House of *Padua*, seen in that Posture; and in all the Temples of *Isis* and *Serapis*, there was an Image holding his Finger on his Mouth.

The *Egyptian* Priests represented the Stomach by the *Middle Finger*; because perhaps, those who have gorged themselves with Victuals, are sometimes forced to thrust their Finger into their Throat, as far as they can, to ease their Stomach.

The *Middle Finger* extended was also a *Hieroglyphick* of Infamy.

The *Annularis* was a *Hieroglyphick* of the Heart, and for that Reason the *Egyptian* Priests used to adorn it with a Ring, and perfume it. It is also the *Hieroglyphick* of Marriage, of Slavery, and Impetration when put to the Ear.

Having examined all the Parts of the human Body, which the *Egyptians*, and other Nations, have borrowed for *Hieroglyphicks*, I'll pass to the Animals which have served them for the same Use, beginning by the *Lyon*.

The Lion, *Hieroglyphick.*

Admet, King of *Theſſalia*, cauſed a *Lion* to be joined with a wild Boar, to ſhew the Strength of the Imagination by the *Lion*, and of the Body by the wild Boar.

The Lion alone was alſo among the *Egyptians*, a *Hieroglyphick* of the Strength of the Body.—By the *Head of a Lion* they underſtood *Vigilancy* and *Watchfulneſs*.—To ſignify an exceſſive Rage, they repreſented a Lion tearing his own Progeny into Pieces.

As the Lion is very fearful of Fire, the *Egyptian* Prieſts, to ſignify a Man poſſeſſed with the ſame Fear, repreſented a Lion, carrying in his Mouth a ſmall lighted Torch.—*Pierius* ſays, that he ſaw at *Rome* that *Hieroglyphick* engraved on a Piece of Marble.

The *Lioneſs* was moſt commonly the *Hieroglyphick* of a Proſtitute.—In fact, there was at *Corinth*, joining a Temple dedicated to *Venus*, the Tomb of *Lais*, on which was ſeen the Figure of a Lioneſs holding a Ram between her Paws, to denote Laſciviouſneſs.

A *Lion's Skin*, was the *Hieroglyphick* of Virtue.

On *Antiochus*'s Coin, was ſeen a Lion almoſt *couchant*, with an Owl flying upon him; which was an *Hieroglyphick* ſignifying, that Strength repreſented by the Lion, gives Way to *Prudence*, repreſented by the Owl.

The *Hieroglyphick* repreſented on a certain antient Coin, with this Legend ΜΙΛΗΤΩΝ, *of the Meletians*, has the ſame Signification, where the Lion leans his Foreſide againſt the Ground, and upon it a Caducee ſtanding upright.

The *Lions* ſet to the Chariot of *Cybel*, Mother of the Gods, was an *Hieroglyphick* to ſignify the Obedience due from Children to their Parents. On a Medal of *Fauſtina* is ſeen *Cybel* crowned with ſeveral Towers, ſetting with a Globe between her Hand and her Knees, and drawn by Lions, with this Legend, *Matri Magnæ*.

A *Lion Rampant* (fig. 9.) is the *Hieroglyphick* of *Magnanimity*.—*Regardant* (fig. 10.) of Circumſpection and Caution.—*Saliant* (fig. 11.) of Expedition, or Celerity. *Sejant* (fig. 12.) of Council.—*Paſſant* (fig. 13.) of Prudence.—*Gardant* (fig. 14.) of Defence.

The *Sphinx* (which was ſeen at the Entrance of ſeveral Temples of the Antients) with the Head of a Woman, and the reſt of the Body of a *Lion*, was a *Hieroglyphick* that ſignified, that human Nature ſurpaſſes in Excellency all other Animals.

The Elephant, *Hieroglyphick.*

The Figure of an *Elephant* (fig. 15.) was among the *Egyptians* a *Hieroglyphick* to ſignify a King; becauſe perhaps when thoſe Animals travel in Droves, the eldeſt marches always at the Head.—On a Medal of *C. Cæſar* is ſeen an Elephant with its Trunk erect, and a Serpent ready to engage him. And on another, a Serpent which an Elephant treads under his Feet, with this Legend, Cæsar.—There is another beautiful Piece of Silver Coin, with the Figure of *Scipio Africanus*, with his Helmet reſembling the Head of an *Elephant*, underneath a Plough, with an Ear of Corn in the Fore-part thereof; which *Hieroglyphick* ſignifies the Triumph of *Africa*, and the large Quantity of Corn and Proviſions brought from thence to *Rome*. The Legend is, Q. Metellus.

On the Enſigns of the fifth Legion there were *Elephants* painted, becauſe, during the Civil War between *C. Cæſar* and *L. Scipio*, that Legion aſked to fight the *Elephants*, which they did with much Glory.

It was decreed by the Senate and the *Roman* People, that on the Coin of *Auguſtus*, ſhould be engraved a Chariot drawn by four *Elephants*, to ſignify his Victories in *Aſia*. *Tiberius* having obtained the Empire, did the ſame Honour to his Father, as it appears by this Legend; Tib. Cæsar Divi August. F. August. P. M. Tr. Pop. XXIIX. Divo August. S. P. Q. R.

We ſee on a Medal of the Emperor *Antoninus Pius*, an *Elephant* erecting his Trunk in Form of a Roof, or making a Semicircle, the End whereof inward, with this Legend, Munificentia Augusti, *the Munificence of Auguſtus*; whence it appears that the *Elephant* in that Poſture, is a *Hieroglyphick* to ſignify *Munificence*.

The *Egyptians* repreſented in *Hieroglyphick* Terms, an *Elephant* and a Goat, to ſignify that a prudent Man avoids with Care, all that has the leaſt Appearance of Folly. They painted an *Elephant* and a Hog, to inſinuate that one muſt fly the Company of Tatlers, as the *Elephant* flies the Grunting of a Hog,—To ſignify a King who paſſes his Life in Luxury and Indolence, they painted an *Elephant* hunting Rats; an Occupation very little becoming a Body ſo large and ſo heavy.

The Rhinoceros *Hieroglyphick.*

Thoſe that ſee the Coin of *Domitian*, marked with a *Rhinoceros*, imagine, that it was to applaud and pleaſe that Prince, who was the firſt that cauſed thoſe Animals to be ſhewn at publick Feaſts.

The Bull *Hieroglyphick.*

The *Egyptian* Prieſts repreſented a *Bull* crowned with the Leaves of a Fig-Tree, for a *Hieroglyphick* of Modeſty.

The Horse *Hieroglyphick.*

The firſt of all the *Hieroglyphicks* of a *Horſe*, is that it ſignifies War.

Pegaſus, is the *Hieroglyphick* of the Sun; for there is a *Pegaſus* on the Coin of the Emperor *Galienus*, with this Legend, Soli Cons. Aug. *i. e.* Auguſtus *conſecrates it to the Sun*. Tho' on ſome other Coins, as on thoſe of *Adrian*, of *L. Papyrius Curſor*, the *Pegaſus* is thought to be the *Hieroglyphick* of Fame.

Some imagine, that the Horſes ſtampt on ſome Coins of *Italy*, are an *Hieroglyphick* ſignifying that Country.

For on ſome of thoſe Coins, either of Silver or Copper, is the Head of a *Horſe* bridled, behind it a Scepter, at the End thereof is likewiſe the Head of a *Horſe*, with this Legend, *Roma*. Unleſs we rather chuſe to believe, that by the *Horſe* is underſtood the Province of *Mauritania*, taken by Compoſition; ſince we ſee on the Coin of *Adrian*, a *Horſe* led by a Man on Foot, with this Legend, Mauritania.

The *Cephalians* repreſented, likewiſe, a *Horſe* on their Coin. The *Athenians* had repreſented a *Horſe* on one of their Coins, with this Legend, ΓΕΡΩΝΟΣ, which was a *Hieroglyphick* to ſignify the Valour and Experience of a Hero, in the Command of the Cavalry.

By the Repreſentation of a *Horſe*, the *Egyptian* Prieſts ſignified a profane Man.

The Dog *Hieroglyphick.*

The *Egyptians* ſignified by the Repreſentation of a *Dog*, a Theologian or Divine.

Macrobius, *Saturn. c.* 20. ſays, that the Figure of a *Dog*, was a *Hieroglyphick* to ſignify the Remembrance of Things paſt.

There is a Medal of *C. Manilius*, on which is repreſented a *Dog* barking at him, which is ſuppoſed to ſignify Confidence; becauſe he was ſent by the Senate, to meaſure the Frontiers of the Republick.—A *Dog* is likewiſe the *Hieroglyphick* of Fidelity.

The *Egyptians* repreſented under the Figure of a *Dog*, their God *Anubis*.

They likewiſe underſtood by the *Hieroglyphick* of a *Dog*, with a Diadem or Coronet, a Prince or Legiſlator. A *Dog* with a *Leading-Laſh*, was the *Hieroglyphick* of a Soldier; the *Laſh* ſignifying the Oath of a Soldier, and the *Dog* his Duty.

The *Egyptian* Prieſts, wanting to ſignify the Obedience due by a Servant to his Maſter, uſed to repreſent a *Dog* turning his Head backward.

On a Medal of *C. Poſthumus*, is ſeen a Dog running with his Tail erect, which is an *Hieroglyphick* of a Victory to come.

The Figure of a *Man* with the Head of a *Dog* (fig. 16.) is a *Hieroglyphick* of Impudence.

The Monkey *Hieroglyphick.*

The *Egyptians* wanting to ſignify a Man who diſſembled his Vices, repreſented a Monkey piſſing, becauſe

cause when he has done, he covers his Urine with Earth, or something else. By the *Monkey* they likewise signified a Lover of himself.

The Hart *Hieroglyphick.*

The *Egyptians*, by the Figure of a *Hart*, represented a Man deceived by Adulation, or Flattery. By the *Hart*, and the *Viper*, a panick Fear. By a *Hart* running, but looking back, a Man who takes some Respite from his Labours. A Man addicted to Fornication, by a *Hart*, his Genitals tied. By a *Hart* without Horns, a Man deprived of his Employments.

A *Hart* chewing the Cud (fig. 17.) is a *Hieroglyphick* of a Man perfectly accomplished.

The Ant *Hieroglyphick.*

The *Ant* was the *Hieroglyphick* of Care and Industry; of Foresight; of Constancy in Toils and Labours; of mutual Compassion; of different Offices and Manners; of Opulence; of Vain-Glory.

By the *Ant*, and a small Bundle of *Origan*, the *Egyptian* Priests signified Devastation.

The Hog *Hieroglyphick.*

The *Egyptian* Priests understood by the Figure of a *Hog*, a dangerous and brutish Man; by a *Hog* and an Elephant, Head to Tail, a Tatler; by a *Hog*, the Sophists; by a *Hog* wallowing in the Mud, an uncivil and ill-bred Man; by the same Animal, Luxury and Gluttony. In the Temple of *Thebes*, there was a Column on which were written several Imprecations against *Menis* King of *Egypt*, who had debauched his Subjects from Parcimony to Luxury, from Modesty to Intemperance, and from Virtue to Effeminacy.

A *Hog* feeding, was the *Hieroglyphick* of an Epicure.

The Goat *Hieroglyphick.*

By the Figure of a *Goat*, the *Egyptian* Priests understood a Person quick of Hearing. By a *Goat* held by the Hair under her Chin, a Riot (fig. 9.)

The Figure of *Pan*, was an *Hieroglyphick* of the whole Machine of the World.

The Sheep *Hieroglyphick.*

The *Egyptians* by the Figure of a *Sheep*, understood Folly.

The Figure of a *Sheep*, is likewise the *Hieroglyphick* of Innocence, of Good-Nature, and Meekness.

The Wolf *Hieroglyphick.*

The Figure of a *Wolf*, with the End of his Tail bald, was the *Hieroglyphick* of a Man fallen into the Hands of his Enemies. That of a *Wolf*, with his Tail between his Legs, that of Security. That of a *Wolf*, which a Mare kicked with her hind Feet, was the *Hieroglyphick* of Abortion. On the contrary, by the Figure of a *Wolf* biting the Buttock of a Horse, the *Egyptians* understood a Person raised from his Misfortunes. To signify a Man an Enemy of Sobriety, they represented a *Wolf* with his Mouth open. By a *young Wolf*, they understood Precipitation. By a Man holding a *Wolf* by the Ears, a Person who is irresolute.

The Hyæna *Hieroglyphick.*

The principal *Hieroglyphick* of the *Hyæna*, was to signify Contention.

To signify a victorious Enemy, the *Hyæna* was represented fighting, his Huntsman on the Left Side. The *Hyæna* was likewise the *Hieroglyphick* of Inconstancy. To signify a Calumniator of Persons dead, the *Latins* represented the *Hyæna* digging a Grave.

The Panther *Hieroglyphick.*

The *Egyptian* Priests signified Dissimulation by the Figure of a *Panther*; because it was imagined the other Beasts take Pleasure to flatter her.

The Tyger *Hieroglyphick.*

Some, to signify Revenge, have painted a *Tyger* tearing a Horse in Pieces. Others by a *Tyger* and a *Drum*, would represent a Man Enemy of Learning, or of Musick. The *Egyptians* had not ranked the *Tyger* among their *Hieroglyphicks*.

The Lynx *Hieroglyphick.*

The *Lynx*, is the *Hieroglyphick* of a quick Sight.

The Ass *Hieroglyphick.*

The *Egyptian* Priests signified by the Figure of a Man, with the Head of an *Ass*, Ignorance of all Things: Therefore *Jacob* who had lived in *Egypt*, and consequently was very well versed in the Science of *Hieroglyphicks*, after he had compared his Son *Issachar* to an *Ass*, says, that he'll die within his Limits, because an *Ass* is not much used to travel. The *Ass* was also a *Hieroglyphick* of Stupidity, and of Uncleanness.

A *Running Ass*, was a *Hieroglyphick* of a fine Enterprize began, but soon neglected; because the Galloping of an *Ass* is but short.

The *Egyptians* represented an *Ass bridled*, to signify the Want of a Capacity in a Man.

An *Ass* lying among Flowers and Perfumes, was a *Hieroglyphick* of Flattery.

By an *Ass* with a Whip behind her, signified a Woman who forsakes the Conjugal Bed for Fear of being got with Child.

The *Egyptians*, to signify a careful Father, and prodigal Children, represented an *Ass* twisting a Cord, and behind her, Children untwisting it as fast as she twisted it. And to signify an industrious Husband and a prodigal Wife, a Man making a Cord of Hay, and an Ass eating it as fast as it was twisted. They also signified their King *Ochus*, a Prince of a sordid Avarice, by the Figure of an *Ass*.

The Mule *Hieroglyphick.*

The most common Signification of this *Hieroglyphick* is Bastardy, because the *Mule* is not begotten of its own Specie.

The *Egyptians* represented the *Mule* to signify Sterility; because supposed to be incapable of Generation. Prodigies were also signified by a *Mule* foaling.

The Camel *Hieroglyphick.*

By the *Camel* led by a Child, was signified a tractable Humour; and also Abstinence and Frugality; because no Animal, of his Bigness, eats so little, and can be so long without Eating or Drinking.

The Hare *Hieroglyphick.*

The *Egyptian* Priests understood by the Figure of the *Hare*, Vigilancy; and likewise the Quickness of Hearing; because the *Hare* has the Ears longer than any Animal, in Proportion to the rest of his Body.

The *Hare* was, besides, a *Hieroglyphick* of Fecundity; and of Solitude.

The *Egyptian* Priests signified, by a dead *Hare* with a Dog near it, People disputing for Precedency, or Emulation; because, says *Plutarch*, a Dog which has killed a *Hare*, tears him with Pleasure, and delights in his Blood.

The Fox *Hieroglyphick.*

By the *Fox* was signified a deceitful, cunning, treacherous, and malicious Man. Though the *Egyptians* have not ranked it among their *Hieroglyphicks*.

The Antients used to sew a *Fox* Skin, with that of a Lyon, to signify a strong Effort done with Art and Cunning.

The Castor *Hieroglyphick.*

By the Figure of this Animal, the *Egyptians* signified a Man who had insulted a Woman; because this Animal, seeing himself closely pursued, cuts his Genitals, and throws them far from him, knowing very well that they are the principal Occasion of his being pursued.

The Mole *Hieroglyphick.*

The *Mole* is the common *Hieroglyphick* of Blindness; of a quick Hearing, and of Futurity.

The RAT *Hieroglyphick.*

The *Rat* was an *Hieroglyphick* of Ruin and Deſtruction; becauſe they are always gnawing ſomething Night and Day.

The *Egyptian* Prieſts repreſented the *Rat*, to ſignify Choice and Option, becauſe of ſeveral Eatables, he always chuſes the beſt. — By a *dead Rat*, they underſtood Imbecility; becauſe he faints away for the leaſt Indiſpoſition. By the Figure of a *white Rat*, the Pleaſures of Love.

Some of the Coins of *Argos*, were ſtamped with the Figure of a *Rat*.

The CAT *Hieroglyphick.*

The Figure of a *Mouſe*, taken or catched by a *Cat*, ſignified a Man fallen in the Hands of his Enemies, and aſking for Succour.

The *Egyptians*, by the Figure of a *Cat*, underſtood the Moon; by that of a *She Cat*, Lubricity.

A *Cat* of *Synople*, running, his Head turn'd backward, in a Field Argent, encompaſſed Gold, was the Enſign of the *Roman* Troop, called *Auguſta*.

The SERPENT *Hieroglyphick.*

The *Egyptian* Prieſts, to ſignify the World, repreſented a *Spotted Serpent* biting its Tail; pretending thereby to ſhew the Immortality of Things created, whoſe Beginning tends towards its End, and the End returns to the Beginning.

By a *Serpent* which had caſt off his Skin, was ſignified an old Man, reſtored to his priſtine Juvenility. — By one the Tail under his Throat, was underſtood Time; comparing the Revolution of the Seaſons, to the Circumvolutions of the Serpent.

The Figure of a *Serpent*, with the Head of a Saker, within a Braſs Hoop, almoſt in the Form of the *Greek* Letter Θ, ſignified the Maſs of the World.

The BASILISK *Hieroglyphick.*

By the Figure of the *Baſiliſk*, the *Egyptian* Prieſts underſtood a Century and Eternity; becauſe among all the Species of Serpents, this cannot be killed by Force, his very Sight being mortal to Men.

The *Baſiliſk* is ſeen on ſome Obeliſks, placed on a Column, and his Breaſt erect.

The Figure of the *Baſiliſk* ſignified likewiſe a Calumniator.

They alſo repreſented it to ſignify that univerſal Spirit, which they imagined filled up the whole World.

By the Figure of a *Snake*, was underſtood the Force or Energy of the Diſcourſe, becauſe the whole Strength of that Animal, was ſuppoſed to conſiſt in his Mouth. — It alſo ſignified Contumacy.

The VIPER *Hieroglyphick.*

By the Figure of the *Viper*, was underſtood a Wife who loves her Huſband no otherwiſe than for the Sake of gratifying her Senſuality; for the Female *Viper* (ſays *Horus*) in her Copulation with the Male, thruſts her Head into his Throat, and overcome by the extreme Pleaſure ſhe feels, cuts his Neck with her Teeth, and kills him.

The *Egyptian* Prieſts repreſented the *Viper* to ſignify Children who conſpire againſt their Parents.

The *Egyptian* Prieſts, to ſignify that a Prince ſhould reſide in the Heart of his Dominions, and among his Subjects, placed a Viper round-wiſe, and in the Middle thereof, the Repreſentation of a Palace.

On a Medal of the Empreſs *Julia Mammæa*, is ſeen the Figure of a Woman, leaning with the Left-Hand on a Launce, and extending the Right to a Serpent, with this Legend, JUNO CONSERVATRIX, which I ſuppoſe is a *Hieroglyphick* of Dominion and Power.

When the *Egyptians* wanted to ſignify a Prince, whoſe Dominion extended no further than over a Province only, they repreſented a *Serpent* cut in Pieces.

To ſignify a Prince inclinable to Clemency, they repreſented a *Serpent* in his Circumvolutions, and biting his Tail. And to ſignify one who had taken a particular Care of his People, they repreſented a *Serpent* with his Eyes open, his Neck erect, and raiſing up his Breaſt.

Epaminondas having been killed at the Battle of *Mantinea*, a Column was erected to his Memory, on the Field, with a Buckler, bearing the Figure of a *Dragon*, for a *Hieroglyphick* of his extraordinary Valour.

Aſia was figurated by *Three Serpents*; which is confirm'd by ſeveral Coins of Silver, with this Legend on one Side, CÆSAR IMP. VII. and on the Reverſe, *Three Serpents*, between them *Victory* leaning on a Cuſhion, the Legend, ASIA RECEPTA, *Aſia Recover'd.*

The CADUCEE *Hieroglyphick.*

This *Hieroglyphick* is entirely *Egyptian*. — By the *Caducee*, which is a Rod, garniſhed with two Serpents, Male and Female, they underſtand the Birth of Man, pretending that four Gods preſided at it, *viz.* Genius, Fortune, Love, and Fate. Others pretend, that by the *Caducee*, where the Serpents are placed in a Poſture as if they wanted to kiſs one another, the *Egyptians* underſtood by it Concord and Amity.

The *Cornu Copia* joined to the *Caducee*, ſignify Felicity, as is plainly ſeen on a Coin of *Adrian*, whereon the *Caducee* is repreſented with a *Cornu Copia*, with this Legend, FELICITAS AUG. *the Felicity of* Auguſtus. And on another of the Emperor *Severus Macrinus*, whereon there is a Figure with a Launce in the Left-Hand, and a *Caducee* in the Right, with this Legend, FELICITAS TEMPORUM, S. C. *Happy Time, for the Order of the Senate.* — On one of the Emperor *Veſpaſian*, is repreſented a *Caducee*, with this Legend, P. M. TR. P. Cos. VIII. i. e. *Military Pretor, Tribune of the People, and eight Times Conſul.* All theſe Medals were *Hieroglyphicks* of Peace.

The northern Wind was repreſented by the Figure of a Man with Tails of Vipers inſtead of Feet.

The SCORPION *Hieroglyphick.*

The *Egyptian* Prieſts painted the *Scorpion* and the *Crocodile*, to ſignify two Enemies fighting with equal Advantage. — The *Scorpion* was alſo a *Hieroglyphick* of Treachery. — A *Scorpion* in the Water, ſignified a Malice which could do no Harm.

The *Scorpions*, on ſome Coins of *Adrian*, is ſuppoſed to ſignify *Africa*.

The SALAMANDER *Hieroglyphick.*

By the Figure of the *Salamander*, the *Egyptian* Prieſts underſtood a Perſon environ'd on all Sides with Fire, but without being hurt thereby.

St. *Gregory Nazianzene*, takes the *Salamander* for the *Hieroglyphick* of Conſtancy; for ſhe is ſuppoſed, not only to live in the Middle of Fire, but likewiſe to conquer it by extinguiſhing it. — She is alſo the Symbol of Love.

From theſe Quadrupeds and Reptils, I'll paſs to the feather'd Kind, and chuſe among them, ſome of thoſe which were made uſe of for *Hieroglyphicks*, beginning by the *Vulture*.

The VULTURE *Hieroglyphick.*

The Figure of the *Vulture* was made Uſe of by the *Egyptian* Prieſts, to ſignify the Year; becauſe when the Seaſon is come for her Copulation, ſhe abſtains 5 Days from eating or drinking, remains 120 Days with Young after Impregnation, employs the ſame Space of Time in feeding her Young, and remains the other 120 Days without any other Care but of herſelf. By the Figure of a dead *Vulture*, they ſignified a Century, becauſe that Bird is ſuppoſed to live ſo long. By the *Vulture* cocking up her Tail, and turning it Northwards, they underſtood *Nature*, becauſe they ſuppoſed, that the *Vultures* being all Females, and no Males, they conceived by the Wind. By the *Vulture* tearing her Thighs to feed her Young withal, they repreſented Pity and Commiſeration.

Plunder is alſo repreſented by the Figure of the *Vulture*.

The *Egyptian* Prieſts wanting to ſignify ſomething very

very perfect, represented a *Vulture* with a *Beetle*; understanding by those two Figures, *Pallas* and *Vulcan*. The same Figure represented likewise the two Hemispheres; and Art and Genius.

The EAGLE *Hieroglyphick.*

The principal Signification of the *Eagle* was Prosperity.

The Figure of the *Eagle* is also employ'd to signify an *Apotheose*, — On a Medal, the Legend thereof is, DIVI AUGUSTI PATRIS, *Of the divine Augustus, Father*, is seen an Eagle with Fire under her, which is interpreted of *Augustus*'s Funerals. On another Piece of Money, the Legend whereof is, DIVUS PERT. PIUS PATER, is represented an *Eagle* on a Globe, as wanting to shew, that *Augustus* had been carried into Heaven; for the Legend on the Reverse is, CONSECRATIO. The same Figure is found, in different Manners, on the Coins of *Antoninus Pius*, sometimes with the Thunder; sometimes also, carrying that Prince on her Wings; and sometimes his Field-Bed into Heaven, with this Legend, CONSECRATIO. On a Coin of *Vespasian*, is seen an *Eagle* carrying a Globe, and on her Wings a Tent crowned a-top with Flowers. On some of *Adrian*, he appears to receive his Scepter from an *Eagle*; as he had received his Crown from *Jupiter*, as it appears by this Legend, PROVIDENTIA DEORUM, *By the Providence of the Gods.* A Medal of the Empress *Sabina*, shews an *Eagle* with the Thunder, and this Legend, CONSECRATIO.

By the Pen-Feathers of the *Eagle*, the *Egyptians* understood a dangerous Power; because they pretended, that those Feathers, when mixed with those of other Animals, bruise, and, in a Manner, destroy them. They also signified by the Eagle, the Prince who consults nothing else but his own Interest, having no Regard to those of his Subjects; because that Bird is supposed to destroy every Thing he thinks proper, to build his *Aire* or Nest. They besides represented by the *Eagle*, a Person who dies of Hunger.

Pindarus designs by the *Eagle*, a quick Wit, because no other Bird is so nimble in catching its Prey.

The *Egyptian* Priests had another *Hieroglyphick*, understanding by an *Eagle* which carried a Stone, a Person who had fixed his Habitation in a Place.

An *Eagle* carrying off a *Dragon*, was the Coat of Arms of the Republick of *Lacedemon*.

The PHŒNIX *Hieroglyphick.*

By the Figure of the *Phœnix*, the *Egyptian* Priests understood a Restoration; because the *Phœnix* was supposed to revive from his own Ashes; and likewise a long Absence.

The PELICAN *Hieroglyphick.*

The *Egyptian* Priests signified by the Figure of the *Pelican*, an extreme Folly; because, when as that Bird could build his Nest on the higher Places, he builds it on the lower, where his Young can be stolen away. Likewise paternal Love, because he is supposed to open his Breast, and feed his Young with his own Blood.

The *Christians*, imitating in this the *Egyptians*, place the *Pelican* a-top the Cross of *Jesus Christ*, to signify Compassion.

The OWL *Hieroglyphick.*

By the Figure of an *Owl* placed on an Altar, was understood *Minerva*; and consequently Wisdom.

The *Egyptian* Priests, by the Figure of an *Owl*, signified Death. To signify two Enemies hating one another to Death, they represented the *Owl* sucking an Egg. They understood Succours implored in vain, by representing the *Owl* and the Sparrow together. — By the *Owl* was likewise represented Tyranny.

The CROW *Hieroglyphick.*

By the Figure of *Two Crows*, the *Egyptians* understood Marriage; because they are said to follow in their Copulation, the Manner of the human Creatures. By the Figure of a dead *Crow*, they signified a Man who had happily ended his Days, and lived long. By the Figure of a young *Crow*, Inquietude; and by that of an old one, Winter.

The SPARROW *Hieroglyphick.*

By the Figure of a *Sparrow* the *Egyptian* Priests understood the Term of a Year, or a short Life; because it has been discovered that the Male Sparrow lives no longer than a Year, though this Rule is not without Exception. Wanting to signify a *prolifick Man*, they painted a wild Sparrow.

The LANNER *Hieroglyphick.*

By the Figure of the *Lanner*, the *Egyptian* Priests understood the Sun. *Zoroaster* says, that God has the Head of a *Lanner* (fig. 20.)

By the Figure of a *Lanner* flying, the *Egyptians* understood the Sublimity of Thoughts, and likewise Wit. To signify Parents who neglected or abandoned their Children, they represented a *Lanner* setting on her Eggs; because the *Lanner* lays three Eggs, sets on one of them, and breaks the two others.

A *Lanner* flying, is also a *Hieroglyphick* of Celerity and Quickness.

The *seven Lanners* pursuing a Vulture, were painted as a *Hieroglyphick* of the Victory gained by seven *Persian* Lords against *Smerdis*, an Usurper of the Throne of *Persia*.

The *Lanner* with his Wings extended, signifies the Element of the Air.

The DOVE *Hieroglyphick.*

By painting a black *Dove*, the *Egyptian* Priests understood a Widow persevering in the State of Viduity. And by the Figure of two *Doves* billing one another, they signified the Inticements of Love.

The Christians by the Figure of a *Dove* understood divine Love, otherwise called Charity.

The *Egyptian* Priests signified likewise by the Figure of a *Dove*, the Impious and Ungrateful; because the Male being grown strong, beats his Father and expells him from his Nest. They painted a *Dove* with his Tail erect, to signify a Man meek of his Nature, who can't be provoked at repeated Injuries; because the antient Authors had imagined that a *Dove* had no Gall. By a *Dove* carrying in his Beak a small Branch of Bays, they understood a Person recovered from Sickness, because that Bird when sick, cures himself by a Bay-leaf.

The SWALLOW *Hieroglyphick.*

By the Figure of a *Swallow* feeding her Young, the *Egyptians* understood Impartiality, or a Man who divides his Estate equally between his Children; because the *Swallow* feeds her Young with a marvellous Equality.

Horus writes, that the *Egyptians* understood by a Nest of *Swallows*, the Bulk of an Estate left to Children, because that Bird builds her Nest with so much Art and Labour, that it may serve for her Posterity.

The *Swallow* was also the *Hieroglyphick* of ungrateful and inconstant Friends, because she leaves soon her native Place.

The SWAN *Hieroglyphick.*

The *Egyptian* Priests understood by the Figure of the *Swan*, an old Man who delights in Musick, because the Swan is supposed to sing better the nearer he approaches his End.

The Figure of a *Swan* signified likewise, a Man who oppressed his Countrymen and Fellow Citizens (fig. 21.) For the *Swans* have this peculiar to themselves, that they fight and eat one another.

There is in the Cabinet of Curiosities of the Great Duke of *Tuscany*, an *Apollo* on Marble, who plays on the Violin, which he holds in his Left-Hand, and resting it on the Back of a *Swan*, which seems to touch gently the Chords with his Beak, as it were to heighten the Harmony. This was made for a *Hieroglyphick* of Musick, (fig. 22.)

The NIGHTINGALE *Hieroglyphick.*

By the Figure of the *Nightingale*, sometimes is signified the Spring, and sometimes Watchfulness, because he never appears but in the Spring, and is supposed to sing Part of that Season all Night.

The PARROT *Hieroglyphick.*

By the Figure of the *Parrot* is understood Eloquence, because no other Animal imitates so well the human Voice as he does, (fig. 24).

The RAVEN *Hieroglyphick.*

The *Raven* is the *Hieroglyphick* of a Man, who disinherits his own Children, because it's said, that he throws his Young

Young out of the Neſt as ſoon as they are capable to fly:—It is alſo the *Hieroglyphick* of a Coward.

The PEACOCK *Hieroglyphick.*

The Figure of the *Peacock* ſignified *Juno*, becauſe that Bird was conſecrated to her. The Ridicule and Vanity of Riches was alſo figured by the Feet of the *Peacock*, which are deſpicable when compared with the reſt of his Body. By the Tail of the *Peacock*, was ſignified the Viciſſitude of Fortune, becauſe its fine Feathers fall every Year at the Fall of the Leaves, and they begin to ſprout anew in the Spring following. To repreſent Night, they painted a *Peacock* making the Wheel with his Tail. To ſignify the Day, they painted the ſame Tail down.

Prodigality was alſo repreſented by the Figure of a Peacock; for though he makes Parade of fine Feathers, they are of no Uſe to him either to walk or fly.

The Medals of the Empreſs *Domitia* bear on one Side the Figure of a *Peacock*, with this Legend, CONCORDIA AUGUST.

There was a Silver Coin of *Fauſtina* marked with a *Peacock*, and this Legend CONSECRATIO. Another under the Name of *Diva Paulina*, bears the Head of a Woman already advanced in Years and vailed behind; and on the Reverſe a *Peacock*, ſupporting the ſame Figure ſetting on his Wings, with the Legend CONSECRATIO.

The HEN *Hieroglyphick.*

The Figure of a *Syren* or *Mermaid*, with the Feet of a *Hen*, ſignified Miſfortunes, (fig. 25.)

The Figure of a *Hen* ſignified Fecundity, Health, and Security.

The COCK *Hieroglyphick.*

By the Figure of a *Cock* is underſtood the *French* Nation. By the ſame Figure, the Antients underſtood the Purity of the Mind, Courage, and Victory, becauſe that Bird is ſilent when he is beaten, and ſings when he has conquered.

The *Cock* is alſo the *Hieroglyphick* of Impiety, becauſe he treads his Mother and beats his Father.

The GOOSE *Hieroglyphick.*

By the Figure of a *Gooſe* holding a Pebble in her Bill, the *Egyptians* underſtood Silence kept a-propos, and alſo a falſe Accuſer.

The OSTRICH *Hieroglyphick.*

The Feathers of an *Oſtrich* being very even between them, contrary to the Feathers of all other Birds, have been borrowed for a *Hieroglyphick* of Juſtice and Equality; as it appears by a Medal with this Legend, TI. CÆSAR. DIVI. AUG. F. AUG. P. M. TR. POP. XXIV. wherein is repreſented a Bunch of the Feathers of an Oſtrich, on the Forehead of a Figure, with this Word underneath, *Juſtitia.*

In the ſacred Scripture Irreſolution is ſignified by the *Oſtrich.*

The BAT *Hieroglyphick.*

The *Egyptian* Prieſts ſignified by the Figure of the *Bat*, a Man who without Birth, Wit, or Fortune, has been raiſed to ſome eminent Poſt. And repreſented likewiſe by the Figure of three *Bats* tied together, (fig. 26.) mutual Love.

To repreſent a Miſantrope, or a Man who hated the Civil Society, they painted an Ant, and the Wing of a *Bat*; for they imagined that there was ſo great an Antipathy between the *Bat* and the Ant, that if only a Wing of that Animal was placed near a Neſt of Ants, none of them dare to come out.

The BEE *Hieroglyphick.*

The *Egyptian* Prieſts wanting to repreſent good and loyal Subjects who loved their Prince, painted a *Bee*, repreſenting likewiſe a King by the *Bee*, as well as the Gift of Eloquence

The *Bees* painted feeding, ſignified a Man who thirſts after the Pleaſures of this Life.

A long Health, without being interrupted by any Diſeaſe, was ſignified by *Bees* placed on a Branch of an Olive Tree loaded with Fruit.

Heſychius of *Jeruſalem* ſays, *c.* 5. that by the *Hieroglyphick* of the Honey and *Bees*, is underſtood a foreign Doctrine, which has a great many fine Words and no Effect. By the *Bee* is alſo underſtood Chaſtity.

The FLY *Hieroglyphick.*

By the Figure of a *Fly*, the *Egyptian* Prieſts underſtood Importunity and Impudence, and likewiſe Obſtinacy.

The *Fly* is likewiſe a *Hieroglyphick* of Indocility; for *Plutarch* ſays, that there are but two domeſtick Animals, which never ſympathiſe with Man, *viz.* the *Fly* and the Swallow.

The SPIDER *Hieroglyphick.*

By the Figure of a *Spider* is ſignified a needleſs Work.

From the Air I'll deſcend into the Sea, and ſelect from among the Fiſhes, thoſe which were employ'd for *Hieroglyphicks*, beginning by the *Dolphin* as the moſt noble.

The DOLPHIN *Hieroglyphick.*

By the Figure of the *Dolphin* was ſignified Agility, and likewiſe a quick Navigation.

The Figure of a *Dolphin* tied to an Anchor, ſignified a mature Deliberation.

The CAMÆLEON *Hieroglyphick.*

By the Figure of a *Camæleon* is underſtood Cunning and Deceit.

The TORTOISE *Hieroglyphick.*

By the Figure of a Man ſaved from a Naufrage on the Back of a *Tortoiſe*, with a Ray of the Sun which helps him, is underſtood a Perſon who deſpiſes the Inconſtancy of Fortune. The Head of a *Tortoiſe* cut, is a *Hieroglyphick* of a Man wounded with ſeveral mortal Wounds, yet dying with great Difficulty. The Figure of a *Tortoiſe* walking, is the *Hieroglyphick* of a lazy and indolent Man. The Figure of the Head of a *Tortoiſe* ſhewing his Teeth, is the *Hieroglyphick* of Medicine.

The Coin of the *Peloponeſians*, at preſent *Morea*, was ſtamped with the Figure of a *Tortoiſe.*

The CRAWFISH *Hieroglyphick.*

The Republick of *Chio* had the *Crawfiſh* repreſented on their Coin, with this Legend a-top ΚΩΙΩΝ, and at Bottom ΛΕΥΚΙΠΠΑΣ. The *Crawfiſh* laid hold by a Hand ſignified fruſtrated Hope; becauſe as one endeavours to catch it, it flies back. By the *Crawfiſh* walking ſometimes forwards and ſometimes backwards, was ſignified Inconſtancy.

The OYSTER *Hieroglyphick.*

The Figure of the *Oyſter* ſignified the human Race, becauſe it repreſents the Soul incarcerated in the human Body.

The CROCODILE *Hieroglyphick.*

To ſignify the Eaſt, the *Egyptians* painted two Eyes of *Crocodiles*, as coming out of the Head. And the Weſt was ſignified by the Figure of a *Crocodile* laying at its full Length upon the Earth. By the Tail of the *Crocodile* they underſtood either Death or Funerals, becauſe ſo ſoon as the *Crocodile* has catched ſome Animal, he makes uſe of his Tail to kill him. The Figure of the *Crocodile* was likewiſe among them the *Hieroglyphick* of Luxury and Perdition. By the Figure of the *Crocodile* beating himſelf they underſtood Fury; becauſe when that Animal has loſt his Prey he puniſhes himſelf for it.

The Figure of the *Crocodile* with his Mouth open, ſignified an Epicure. There is ſeen on ſeveral Copper Coins, a *Crocodile* tied to a Palm-Tree, with this Legend COL. ÆG. *Egyptian Colony*; and on the Reverſe two human Heads, one looking Eaſtward, and wearing a naval Crown with theſe Letters a-top, IMP. *i. e.* Emperor; whereby the *Crocodile* is ſignified *Egypt*, and its being tied to a Palm Tree ſignifies the Victory of *Auguſtus*, which he cauſed to be engraved on an Obeliſk. As to the two Heads, I believe one is of *Auguſtus* and the other of *Agrippa.*

Another Piece of Silver of *Auguſtus* is ſtamped with the Figure of a *Crocodile*, with this Legend a-top, ÆGYPTO, at Bottom CAPTA, and on the Reverſe the Head of *Auguſtus*, with this Legend round it, CÆSAR DIVI F. COS. VI. there is alſo a Coin of L. ÆL. AUREL. COMMOD. where the Emperor *Commodus* under the Figure of *Hercules*, tramples on a *Crocodile* with his Right-Foot, holding in his Left-Hand a Club, and giving with

[illegible] Light, Ears of Corn to *Egypt*, which presents him with a Systus, the Legend INDULGENTIÆ AUGUSTI, *to the Indulgence of Augustus.*

The SEA-HORSE *Hieroglyphick.*

The *Egyptian* Priests to signify Impiety, Ingratitude, and Injustice, painted a *Sea-Horse*, and signified that Piety was preferable to Impiety, by the Head of a *Cassowary* fixed on the Foot of a *Sea-Horse*, (fig. 27.)

The LAMPREY *Hieroglyphick.*

By the Figure of the *Lamprey*, the *Egyptians* signified those who loved Foreigners; because the *Lamprey* comes out of the Water to fray with the Serpent.

The FROG *Hieroglyphick.*

The *Egygtians* to signify a Person without Shame painted a *Frog*, because it is supposed that she has Blood no where else but in the Eyes; and also understood thereby a needless or criminal Curiosity.

There was seen at *Sais*, on the Portal of a Temple dedicated to *Minerva*, a Child, an old Man, a Falcon, a Fish, and a Sea-Horse, (fig. 28.) which signified the Condition and Fragility of human Life: Which from its Infancy tends towards old Age, and returned again to Infancy. By the Falcon was understood our intellectual Faculty, which is a Participation of the Divinity; Death by the Fish, by reason of the Sea, which the *Egyptians* called Ruin and Destruction; and Violence by the Sea-Horse, because he does not even spare his own Father which he kills to enjoy his Mother.

Note, That besides the natural Productions heretofore mentioned, the *Egyptians* and other People of Antiquity, used to have Recourse to Art likewise to borrow from it several of their *Hieroglyphicks*; therefore as I have explained a great Number of the natural Productions applied by them to that Use, I must endeavour to do the same of the artificial ones, beginning by the *Circle*.

The CIRCLE *Hieroglyphick.*

The *Egyptian* Priests, with regard to that Beginning and End, which is invisible, understood *God* by the Figure of the *Circle*. The same Figure signified likewise Perfection, among some Nations, who after the Sacrifice used to make a Circle on the Altar with the Blood of the Victim, which Ceremony they called Accomplishment, or Perfection.

By the Figure of a *Circle* was understood the Course of a Year, in Consideration of the Gold Circle which *Cambyses* carried off from the Sepulchre of *Simand*, and which had in Circumference 365 Cubits, and a Cubit in Breadth, each Day of the Year being engraved on each Cubit, according to the diurnal Course of the Planets.

The *winged Sphere* wreathed about with *Serpents*, was the *Hieroglyphick* of the Spirit and Soul of the Universe, (fig. 29.)

The SQUARE *Hieroglyphick.*

The *Egyptian* Priests, by a quadrangular Figure, understood Wisdom; because they supposed that Form the most secure Foundation.

The PYRAMID or OBELISK *Hieroglyphick.*

By the Figure of a triangular *Pyramid* or *Obelisk*, the Antients understood the Divinity; as considering the Number Three the most perfect Number.

The Figure of an equilateral Triangle was the *Hieroglyphick* of Humanity.

The CAP *Hieroglyphick.*

By the Figure of the *Cap* was understood Liberty; therefore we see often on antient Coins the Representation of a *Cap*, with this Legend, LIBERTAS, *Liberty:* As on the Coin of *T. Claudius*, whereon is seen a Figure, holding a *Cap* in his Right Hand, with his Left open, and this Legend, LIBERTAS AUGUSTI, *the Liberty of Augustus.* Likewise on the Coin of *Antoninus*, the *Cap* is in the Left Hand, and in the Right a Battle-Ax, with this Legend, LIBERTAS COS. IIII. *the Liberty of the Consul for the fourth Time:* But on the Coin of *Caracalla*, that Liberty, besides the Rod and the *Cap*, has a Star before it.

On some of the Medals of *Brutus* are seen two Pionards with a *Cap*, which *Dion* imagined to signify that *Cassius* and *Brutus* were the Liberators of their Country; because the Pionard signified Murder, and the *Cap* Liberty. On the Coin of *Galba* is represented a Figure with a Javeline and a *Cap*, with this Legend, LIBERTAS PUBLICA, *the publick Liberty:* The same is seen on some of the Coins of *Nerva*.

The *Romans* have always considered the *Cap* as a *Hieroglyphick* of Priesthood; because the Priests Flamines, established by *Numa*, were thus denominated from *Pileus* a *Cap*, as if one would say *Pileamines*.

The GOWN *Hieroglyphick.*

By the Figure of a *Gown* was understood a Man employ'd in the Management of publick Affairs, or in the Legislature; the same Figure signified likewise Peace or Tranquility.

The HELMET *Hieroglyphick.*

The Figure of a *Helmet* signified War.

The VEIL *Hieroglyphick.*

By Figures we see represented veiled, on Medals with this Legend, PUDICITIÆ, is understood Chastity. On one the Legend thereof is SABINA AUGUSTA HADRIANI AUG. SABINE AUGUSTA, *of Hadrian Augustus*, is seen on one Side a Goddess sitting and veiled, and carrying the Index in her Bosom with this Legend, PUDICITIA, *Pudicity*. On another of *Horennia* is the Figure of a Woman sitting, with a Staff under her Left-Arm, and with the Right-Hand covering her Face with a *Veil*, with this Legend PUDICITIA AUG.

The GIRDLE, or BELT *Hieroglyphick.*

By the Figure of a *Girdle*, the *Greeks*, *Latins*, and *Hebrews* understood Virginity: — It also signified Strength and Virtue. By the Figure of a *Girdle* loosened or untied, was understood a Woman who had been delivered of her first Child.

The RING *Hieroglyphick.*

The Figure of a *Ring* was a *Hieroglyphick* of Faith and Honour, and among the *Romans* of Nobility.

The DIADEM *Hieroglyphick.*

The *Diadem* signified Royal Power or Authority, as well as Victory.

The CROWN *Hieroglyphick.*

The Figure of a *Crown* was a *Hieroglyphick* of the Laws established for the good Order of a State, because those Laws keeping the Subjects in Subjection, are signified by the different Circles a *Crown* is formed of. A *Crown of Roses* or rather Flowers, was a Hieroglyphick of Mirth.

The SCEPTER *Hieroglyphick.*

The *Scepter* signified a Kingdom.

The NECKLACE *Hieroglyphick.*

A *Necklace* or Gold Chain, signified a solid Virtue.

Note, That as the precious Stones have also been ranked among the *Hieroglyphicks*, it is but just, in order to render this Treatise more perfect, to mention them here, beginning by the *Diamond*.

The DIAMOND *Hieroglyphick.*

The Figure of the *Diamond* signified Strength and Constancy, because it can neither be broken nor consumed in the Fire. It was also a Sign of Impetration among the *Jews*.

The SAPPHIRE *Hieroglyphick.*

The *Sapphire* signified the Sovereign Sacrificature, because that Stone was supposed to draw a certain Virtue from *Jupiter* and *Saturn*. It also signified the Empyreum.

The EMERALD *Hieroglyphick.*

By the *Emerald* was understood Virginity, because it was supposed that this Stone breaks of itself in the Act of Venery.

The AMETHYST *Hieroglyphick.*

The *Amethyst* signified Sobriety.

Note, That all the different Sorts of Arms, were also used by the Antients for *Hieroglyphicks*, v. g.

To signify an heroical Virtue, they commonly painted their Gods and Goddesses arm'd *Cap-a-pie*.

The *Greeks* by painting theirs armed, understood that all are subject to the Fate of *Arms*.

The *Lacedæmonians* painted *Venus* armed, to signify an heroical Virtue in a Woman.

In several Places, and on several Medals, the Figure of *Mars the Avenger* is seen, with the Launce and the Buckler; which is an *Hieroglyphick* of War.

The

The Bow and the ARROWS *Hieroglyphicks.*

When the *Egyptian* Priests wanted to signify some Tumult, or the Beginning of a War, they represented a Figure shooting with a *Bow*; but in the Figures of *Apollo* and *Diana*, by the *Bows* and *Arrows* are understood the Rays of the Sun. On the Coin of *Galienus*, is the Figure of an Archer, much like the *Sagittarius* of the *Zodiack*, with this Legend, APOLLINI COS. AUG.

The QUIVER *Hieroglyphick.*

By the Representation of the *Quiver*, was understood Heart and Counsel.

Note, That some *Meteors* were also ranked among the *Hieroglyphicks*, particularly *Thunder*.

When the *Egyptians* wanted to signify or express Fame, they painted a *Thunder-Bolt*. By the Figure of a *Thunder-Bolt*, was also understood Celerity; as it appears by the antient Coins, especially by that with this Legend, Q. PHILIPPUS, whereon is seen a Horse on a full Gallop, with his Tail erect, the Thunder following it, and a Picque upright; which signified his Expedition in the Management of publick Affairs.

On some of the Coins of *Antoninus Pius*, and of *Nerva*, is represented a *Thunderbolt* laying on a Bed, which is understood to signify Clemency.

The SHIP *Hieroglyphick.*

By the Figure of a *Ship* was understood Felicity, as is plainly seen by some antient Coins, particularly that of *Adrian*, whereon is represented with this Legend, FELICITATI AUG. *To the Felicity of* Augustus. And underneath the Ship, S. C. Cos. III. P. P. *i. e. By Ordinance of the Senate, three Times Consul.* On some of the Coins of *Augustus* is seen a Galley with Oars, with the same Legend, FELICITATI AUG.

Among the *Athenians*, the Figure of a *Ship* was an *Hieroglyphick* of Preservation.

On the Coin of the *Tyrians*, was represented a *Ship* with this Legend, ΒΑΣΙΛΕΩΣ ΔΗΜΗΤΡΙΟΥ ΤΥΡΙΩΝ. *Of* Demetrius *King of the* Tyrians; giving thereby to understand, that they were the Inventors of Navigation. There is, besides, another Coin, with a *Galley* or *Ship*, and on the other Side a Head, wearing a Crown composed of Bays, with this Legend, ΒΑΣΙΛΕΩΣ ΑΝΤΙΟΧΟΥ ΣΙΔΩΝΙΩΝ. *Of* Antiochus *King of the* Sidonians.

The *Ship* represented on the Coin of *Agrippa*, with a *Trident* at the Poop, is a *Hieroglyphick* of the naval Victory he gain'd over *S. Pompey*.

The ANCHOR *Hieroglyphick.*

An *Anchor*, environ'd with a *Dolphin*, signifies Haste.

By the Figure of a *Ship at Anchor*, the *Egyptian* Priests understood a profound Security. The Figure of the *Anchor* signified, likewise, according to *Pindarus*, Bridle or Restraint.

On the Coin of *Seleucus*, is represented an *Anchor*, because from his Birth he was marked on the Thigh with the same Figure.

The RUDDER *Hieroglyphick.*

By the Figure of the *Rudder* of a Ship, was understood the Government of a State; therefore the Antients painted the Goddess *Fortune*, holding with her Right-Hand the Helm of a Ship, and in the Left a *Cornu Copiæ*. — But as that Goddess was very prone to Inconstancy, she was sometimes represented sitting on a Ball, in which Posture she is seen on the Coin of *Nerva*, with this Legend, FORT. RED. S. C. i. e. *The Fortune return'd by Arrest of the Senate.* On another Sort of Coin, of the same Emperor, *Fortune* is represented sitting, guiding an *Helm* or *Rudder* with her Hand, and which she lifts up with her Feet, and this Legend, FORTUNÆ REDUCI, *To Fortune return'd.*

On some of the Coins of *Adrian*, *Fortune* is represented with a Helm placed on a Ball.

The Coin of *Septimus Geta*, has the Figure of *Fortune* sitting, a *Rudder* and a *Cornu Copia*, with this Legend, FOR. RED. *To Fortune return'd.*

On the Coin of *Domitian* is the same Figure, the same *Rudder*, the same *Cornu Copia*; but the Legend is quite different; for it is this FORTUNA AUGUSTI, *The Fortune of* Augustus, as if Fortune had never changed with Respect to him.

The FISHING-HOOK *Hieroglyphick.*

The Figure of the *Fishing-Hook* signified Deceit and Falshood.

The TRIDENT *Hieroglyphick.*

By the Figure of the *Trident*, was understood Open Force.

The THREE JUGGS *Hieroglyphick.*

By the Figure of *Three Juggs*, the *Egyptians* underderstood the River *Nile*.

The LAMP *Hieroglyphick.*

The first Signification of the *Lamp*, is to represent the human Life; because the Oil which serves to feed and maintain the Light, represents the radical Humour of our Bodies, which entertains the natural Warmth, which failing, our Life must be at an End. *Light* was also an *Hieroglyphick* of Nobility and Fame.

The TORCH or FLAMBEAU *Hieroglyphick.*

By the *Torch* or *Flambeau*, the *Egyptians* understood Love.

By *Two Flambeaux* tied together, a Separation between, was signified a mutual Love. But if they were painted the Light downwards, they signified the Funerals of Lovers.

Note, That *Musick* supplied, likewise, the *Egyptian* Priests, and other antient People, with several of her Instruments for their *Hieroglyphicks*, viz.

The LYRE *Hieroglyphick.*

The principal Signification of the Figure of a *Lyre*, was a sound Judgment.

By the Figure of the *Lyre*, or *Violin*, in the Hand of *Mercury*, was understood the Union of several different Subjects.

By the *Lyre* represented on the Coin of *Nero*, is understood his Passion for Musick.

The FLUTE *Hieroglyphick.*

The *Egyptian* Priests, wanting to represent a Person who had for a considerable Time lost his Senses, but recovered them at last, painted a *Flute*, because it diverts us, and makes us forget all our Troubles and Misfortunes.

The *Flute* painted together with a *Hart*, is an *Hieroglyphick* of Adulation.

The TRUMPET *Hieroglyphick.*

The most common Signification of the Figure of a *Trumpet*, is Fame. Therefore the *Romans* placed a-top of the Temple of *Saturn*, two *Tritons* sounding the *Trumpet* with their Tail hidden, to signify that the History of what had passed ever since *Saturn* to their Time, was clear and apparent.

Note, That the Antients had even borrowed from the Workshop of a Smith, some of their *Hieroglyphicks*; as

The ANVIL *Hieroglyphick.*

By the Figure of the *Anvil*, was understood Patience in the greatest Adversity. — By the Figure of *Juno*, with two Gold Anvils, tied at her Feet, was signified the Earth and the Water.

The HAMMER *Hieroglyphick.*

The Signification of the Figure of the *Hammer*, was Instigation to Evil.

The CHAINS and FETTERS *Hieroglyphicks.*

The most common Signification of the Figure of *Chains* or *Fetters*, was Love.

The *Lacedæmonians* used to paint Love, under the Name of *Morphos*, with *Fetters* on her Feet, which *Pausanias* interprets of a conjugal Chastity.

The *Arcadians* used to represent *Minerva* with her Thighs chain'd, to signify the Wound she received from *Teuthis*, Chief of the *Arcadians*, while she was endeavouring to persuade him, to continue in the Alliance of the *Greeks*.

Chains, *Cuffs*, and *Fetters*, signify most properly the State of Marriage, (fig. 30.)

Note, That the *Egyptians*, and other Nations, have also ransacked the Vegetable World for *Hieroglyphicks*; as it will appear by the several *Plants*, &c. I am going

going to represent and explain as such, beginning by the *Palm-Tree*.

The PALM-TREE *Hieroglyphick*.

Among the several *Hieroglyphick* Significations of the *Palm Tree*; the following are the four principal; which are, that it signifies Year, Month, Justice or Impartiality, and Victory.

Among the sacred *Hieroglyphicks*, by the Figure of a *Palm-Tree* is understood Innocency and a good Life.

The LAUREL *Hieroglyphick*.

Aphthonius says, that the *Laurel* is an *Hieroglyphick* of Prophecy. — *Proclus* informs us, that it is the *Hieroglyphick* of Health, or of Preservation. The *Laurel* is also an *Hieroglyphick* of Victory.

The MYRTLE-TREE *Hieroglyphick*.

The Crown of *Myrtle*, the *Roman* Soldiers were crown'd with, signified a War, conducted without Effusion of Blood. The *Branch of Myrtle*, which the Antients presented one another with in their Rejoicings and Feasts, was a Sign of Mirth.

The OAK *Hieroglyphick*.

By the Figure of an *Oak*, was signified sometimes the Strength of Body, and sometimes Length of Time.

On a certain Coin which has the *Dorick* Legend, ΕΠΕΙΡΩΤΑΝ, is seen an Eagle treading under her Feet a Thunder-Bolt and two Branches of Oak in the Form of a Crown.

On the Coin of *Caligula* there is a Civick Crown made of Acorns, with this Legend, S. P. Q. R. PP. OB CIVES SERVATOS, *The Senate and the Roman People, for having preserved the Citizens*. Which proves that the Oak was likewise the *Hieroglyphick* of Preservation and Security.

The IVY *Hieroglyphick*.

By the *Ivy* was understood Antiquity, because it always grows round the Trees, or old Buildings, *&c*.

By the Poets being sometimes crowned with *Ivy*, was understood, that they were subject to be delirious, or that if they were so very jealous of a Rhime, they were not so of their Reason, with which they made but too often a Divorce.

The CYPRESS *Hieroglyphick*.

The *Egyptian* Priests have not ranked the *Cypress* among their *Hieroglyphicks*, and none but the *Greeks* and *Latins* have Significations for it; and particularly this, that the Figure of a *Cypress* signifies a Place polluted by the Death of Somebody.

Some Authors say, that the *Cypress* is the Figure of the Death, or Sepulchres of Persons distinguished by their noble Birth; and *Thucydides* informs us, that the Coffins of those killed in the Defence of their Country, were made of *Cypress*.

By Branches of *Cypress* engraved on Sepulchres, was understood, that the Deceased were recommended to the infernal Gods.

The Figure of a *Cypress*, signified, likewise, *Words without Deeds*; because the *Cypress*, tho' a beautiful Tree, produces no Fruit.

The OLIVE-TREE *Hieroglyphick*.

We see on several antient Coins and Medals, that the *Olive-Tree*, with a *Caducee*, is an *Hieroglyphick* of Felicity.

In several Places of the Scripture, by the *Olive-Tree* is understood Alms.

Mansuetude and Clemency, are also understood by the Figure of the *Olive-Tree*.

In the Scripture, Abundance or Plenty, is often figured by the *Olive-Tree*; and likewise Hope, because always green. — The *Olive-Branch* is an *Hieroglyphick* of Peace.

The VINE *Hieroglyphick*.

By the Figure of the *Vine*, the *Egyptians*, and other Nations, understood Joy and Mirth; and likewise Liberty.

The Wine offered in the Sacrifices, was a Sign of Blood; therefore the *Egyptian* Priests abstained from it.

The FIG-TREE *Hieroglyphick*.

Crates, by a *Fig-Tree* planted on a steep Rock, understood a Person loving Adulation or Flattery; the Fruit whereof is only devoured by Birds of Prey, as the Fortune of such a Person is dissipated by Adulators.

The Religion of the *Cyrenians*, was figured by several Statues, crowned with *Fig-Leaves*.

The PEACH-TREE *Hieroglyphick*.

Among several Figures used by the *Egyptians* to signify Silence, the *Peach-Tree* was one of them.

By the Figure of a *Peach*, with but one Leaf, Truth was signified. And by the Stone of a *Peach*, a barbarous Action, or Murder. A *Peach* in a Scale, was the *Hieroglyphick* of the Flower of the Age.

The POMEGRANATE *Hieroglyphick*.

The principal Signification of the *Pomegranate*, is the Assemblage of several Nations into one.

From *Trees* I'll pass to the *Flowers*, which have also been used for *Hieroglyphicks*.

The ROSE *Hieroglyphick*.

The principal Signification of the *Rose*, is the Fragility of human Life, which passes in an Instant like the Beauty of a *Rose*.

The WHITE LILLY *Hieroglyphick*.

By the Figure of the *White Lilly*, was understood Hope; in fact, on a Coin of the Emperor *Alexander Pius Aug.* is represented a Goddess holding a *White Lilly* in her Right Hand, with this Legend, SPES PUBLICA, *the Publick Hope*. On the Coin of *Tib. Claudius*, is the same Figure, with this Legend, SPES AUGUSTA, *August Hope*. The same is seen on the Coin of *Adrian*, with this Legend, SPES P. R. *the Hope of the* Roman *People*.

In the sacred Writ, the *White Lilly* is sometimes an *Hieroglyphick* to signify *Jesus Christ*, and sometimes to signify the Angels.

The Antients searched also their *Hieroglyphicks* in their Kitchen-Garden, among the *Pulses*, or *Legums*, viz.

The ONION *Hieroglyphick*.

By the *Onion*, the *Egyptian* Priests understood the Moon, and even ador'd her under that Figure; because they imagined, that the *Onion*, either whole or cut in Pieces, represented all the Phases of the Moon.

The RADISH *Hieroglyphick*.

The *Egyptians*, by the Figure of the *Radish*, signified the Sun, because they imagined that the *Radish* represented the Sun, as the *Onion* does the Moon.

Note, Having thus ran thro' the Animal, Mineral, and Vegetable World, in Quest of the *Hieroglyphicks* of the *Egyptians*, and other Nations, and even ransacked, for the same Purpose, the Workshops of several Mechanicks, I'll conclude this Treatise, by the Explication of the different Figures of the heathen Gods, which were all so many *Hieroglyphicks*.

The *God* ENEPH *Hieroglyphick*.

The *Egyptians*, by their God *Eneph*, understood, *hieroglyphically*, the Creator of the Universe, whom they represented under a human Figure, his Cloaths Sky-blue, with a Feather on his Head, a Girdle, and a Scepter in his Hand. The Feather signified the Creator, who is difficult to be found, who cannot be seen, is incomprehensible, or above human Understanding. The human Form denoted that he was Author of Life, and that he is susceptible of a Motion which can be conceived. The Scepter signified his Power over all created Beings. And by the Zone or Girdle, was understood the Origin and End of natural Things. They besides represented the same God with an Egg coming out of his Mouth; which signified the World created by the Word of God.

The *God* PAN *Hieroglyphick*.

The Antients represented *Pan* in the Form of a Goat, the Face red, the Horns hairy, the Feet of a Goat, and covered with the Skin of a Panther, holding in one Hand a Flute, and in the other a Crook. They pretended that this monstrous Figure was that of the Universe; for by the red Face, they understood the Air; by the two Horns, the Sun and Moon; by the Skin of the Panther, the Variety of the Stars; the lower End of his Body was hairy, to signify the Woods, Forests, and the Brutes. By his Feet like those of a Goat, was understood the Solidity of the Earth; the Harmony of the Heavens by the Flute; and the Revolution of the Year by the Crook.

The *Figure of the* WORLD *Hieroglyphick*.

The *Egyptians* represented the *World* under a human Form, his Legs bent, his Gown of several Colours, and supporting with his Head a golden Globe. He had his

his Legs bent to ſignify the Weight of the Earth; a long Gown of ſeveral Colours, to denote the Diverſity of Elements, and the great Quantity of Things they produce; and the golden Globe ſignified the Heavens, and their circular Rotation.

The *Figure of the* SUN *Hieroglyphick.*

They painted the *Sun* with a young and round Face, and placed him in a Ship, carried by a Crocodile; ſignifying by the Ship, his Influence on the Air, and the Intelligences. For ſeveral of them imagined, that even the elementary Region, where they placed the Fire, was humid.

In the City of *Elephanthopolis*, in *Egypt*, they adored a Figure of *Oſiris*, which had a human Body of a blue Colour, and the Head of a Sheep, which *Euſebius* ſays, ſignified the Conjunction of the *Sun* with the *Moon.*

The *Figure of the* MOON *Hieroglyphick.*

In the City of *Heliopolis*, the *Moon* was repreſented under a human Form, the Head excepted, which was that of a Hawk; killing *Thyphon* with a Launce, which *Thyphon* was repreſented under the Form of a Sea-Horſe; and the whole Figure was white, to ſignify that the *Moon* borrows its Light from another, *viz.* the *Sun*, ſignified by the Hawk, as conſecrated to the *Sun.*

The *Figure of* PLUTO *Hieroglyphick.*

The Antients, to let us know that we ſhould keep a Secret, painted *Pluto* with a Helmet, and carrying away *Proſerpine*; becauſe the Helmet covering the Head, ſignify that our Secrets, which reſide in the Head, ſhould be hidden; and becauſe *Pluto* is imagined God of the ſubterraneous Regions, which are hidden from us.

By the ſame Figure of *Pluto*, with a Scepter in his Hand, they ſignified an inferior Power, for though *Pluto* is the God of Hell, his Power is nevertheleſs ſubordinated to that of *Jupiter.*

The *Figure of* SILENUS *Hieroglyphick.*

The Antients pretended, that *Silenus* whom they repreſented old and ſleeping, was the *Hieroglyphick* of the Motion of the Mind; becauſe the animal Spirits are often ofuſcated, and their Motion retarded, by the Vapours which riſe from the other Parts to the Brain.

The *Figure of* VULCAN *Hieroglyphick.*

To repreſent the Strength of Fire, they painted the Figure of *Vulcan* with a blue Cap, ſignifying the æthereal Region, where the Fire was thought to reſide; and the Figure lame, to give to underſtand, that Fire cannot ſubſiſt of itſelf, without Food.

The *Figure of* HERCULES *Hieroglyphick.*

The Figure of *Hercules* ſuffocating *Anthæus*, is ſeen on ſeveral antient Coins, which ſignified the Revolt of the ſenſual Appetite againſt our Reaſon. For *Hercules* is the *Hieroglyphick* of the rational Soul and Mind; *Anthæus* of the Body; the Heart of *Hercules* is the Seat of Wiſdom and Prudence, which are always at Variance with our ſenſual Appetite; which it is impoſſible our Reaſon ſhould conquer, unleſs it be elevated, and carried ſo far from the Sight of the terreſtrial Things, that the Feet, *i. e.* our Affections, ſhould have no Commerce with the Earth. This is the greateſt of all Victories; therefore this Verſe was written on the Tomb of *Scipio*, the *African:*

MAXIMA CUNCTARUM VICTORIA, VICTA VOLUPTAS.
i. e. *The greateſt Victory, is the Pleaſure vanquiſhed.*

Boetius exalting this Action of *Hercules*, ſays,

SUPERATA TELLUS, SIDERA DONAT.
Having conquer'd the Earth, he procures Heaven.

By repreſenting *Hercules* ſhooting Arrows with three Points, the *Egyptians* and *Greeks* underſtood Logick, Phyſick, and Metaphyſick.

The *Figure of* PROMETHEUS *Hieroglyphick.*

The Figure of *Prometheus*, holding a lighted Torch in his Hand, which denotes his having ſtolen the Fire from Heaven, ſignified the Invention of Arts; becauſe by the lighted Torch is underſtood, that Vigour and Strength of Imagination is neceſſary for ſo excellent a Diſcovery.

The Figure of a Man ſtanding againſt a ſteep Rock, an Iron-Ring on his Finger, with a ſmall Stone, looſen'd from the Rock, by a Chain which had been fixed to it, ſignified Gratitude, for a Fault forgiven. Becauſe it was pretended, that *Prometheus* having been chain'd by *Jupiter* to Mount *Caucaſus*, as a Puniſhment for his Theft; and afterwards releaſed by the ſame *Jupiter*; in Gratitude for his Deliverance, he put on his a Finger a Ring of that Chain, with a ſmall Stone of the Rock to which he had been tied, whence the Manner of putting Stones in Rings.

The *Figure of* MERCURY *Hieroglyphick.*

The Figure of *Mercury*, repreſented with Wings at his Head and Feet, ſignified Words and Eloquence; becauſe the Words fly, and vaniſh in an Inſtant.

The ſame Figure of *Mercury*, with a Purſe in his Hand, and a Cock at his Feet, ſignified Commerce, by the Purſe was underſtood Money, which is the Sinews of Commerce, and by the Cock, Vigilancy, ſo neceſſary to a Merchant.

The *Figures of* HONOUR *and* VIRTUE, *Hieroglyphick.*

There are certain Medals of *Vitellius*, on which are repreſented very fine Figures of Honour and of Virtue. Virtue is repreſented with a Helmet in her Left-Hand, and in the Right, a Scepter, treading under her Right-Foot a Tortoiſe, and turn'd towards Honour. The Helmet ſignifies that Virtue muſt have Strength to oppoſe the Dangers ſhe is expoſed to; it is likewiſe for the ſame Reaſon ſhe holds a Pike. The Scepter ſhews her Authority or Power to conquer Vices; and the Tortoiſe, that Virtue marches always with Caution and Prudence. Honour is cloathed like a Woman, to ſignify that Women, in particular, ought always to be very jealous of their Honour; that Woman carries a *Cornu Copia*, to denote that Honour is the Source of all Sorts of Good; and treads a Helmet under her Feet, whereby is underſtood, that a Perſon rais'd to Dignities and Honours for his Merit, is reſpected by every Body.

The *Figure of* EUROPA *Hieroglyphick.*

The Figure of *Europa*, carried on the Sea by a Bull, turning her Head backwards, and looking afar off the Shore ſhe has left, ſignified the human Soul, carried by the Body on the Sea of this World, looking notwithſtanding towards the Shore ſhe has left, *i. e.* her Creator.

The *Figure of* DIANA *Hieroglyphick.*

Diana, whom *Mercury* preſented with a Suit of Cloaths, ſignified the Mutation or Viciſſitude of Things created.

The *Figure of* DANAE *Hieroglyphick.*

The Figure of *Danae*, with the Gold Rain falling in her Lap, ſignified the Beauty of the Mind.

The *Figure of* PANDORA *Hieroglyphick.*

The Figure of *Pandora*, repreſented with a Box in her Hands, ſignified Misfortune, Obſcurity of Birth, Poverty, Shame, Vain-Hopes, in a Word, all Sorts of Calamities and Miſeries.

The *Figure of* EURYDICE *Hieroglyphick.*

The Figure of *Eurydice*, her Heel bitten by the Serpent, ſignified human Affections.

Note, That the *Hieroglyphicks* were invented by Prieſts, called for that Reaſon, *Hierogrammatici*; who alſo uſed to write *Hieroglyphical* Books, and occaſionally explain them, with other Matters relating to the Doctrine of Religion. *Suidas* ſays, that they were alſo Prophets; at leaſt he relates, that an *Hierogrammaticus* foretold to an antient King of *Egypt*, that there would be an *Iſraelite* of great Wiſdom, Virtue, and Reputation, who ſhould humble *Egypt.*

The *Hierogrammatici* were always near the King, to aſſiſt him with their Informations and Counſels. The better to fit them for this, they made Uſe of the Skill and Knowledge they had acquired of the Stars, and the Motions of the heavenly Lights; and even of the Writings of their Predeceſſors, wherein their Functions and Duties were delivered. They were exempted from all civil Employments; were reputed the firſt Perſons in Dignity next the King; and bore a Kind of Scepter, in Form of a Ploughſhare. After *Egypt* became a Province of the *Roman* Empire, the *Hierogrammatici* fell into Neglect.

HORSEMANSHIP.

HORSEMANSHIP, in the Sense I take it here, is the Art of breeding, propagating, &c. Horses; and of forwarding and accommodating them to the Uses they are proper for.

Horsemanship, in this Sense, includes what relates to the Make, Colour, Age, Temper, and Qualities of Horses, and their respective Countries and Climates. Likewise the Knowledge of the Defects and Diseases of Horses, and the Remedies proper for the same; with the several Operations relating thereunto, as *Docking*, *Gelding*, *Shoeing*, &c.

Note, That before I can pretend to proceed further, on this important Subject, I must give my Readers some general, and very necessary Notions of a Horse.

A Horse is a domestick Quadruped, of great Use in Agriculture, Commerce, War, Sporting, &c. and is the Subject of the Art of *Horsemanship*.

Horses are distinguished into divers Kinds, and differently denominated; either with Regard to their *Strain*, or *Country*, or to their *Colour*; or to the *Uses*, or *Offices* they are reserved for.

They are distinguished with Regard to their *Strain*, or *Country*; as the *Neapolitan*, known by his Hawk Nose; the *Spanish Jennet*, known by his small Limbs; the *Barbe*, by his fine Head and deep Hoof; the *Dutch*, by the Roughness of his Legs; the *English*, by his strong knitting together, &c.

With Regard to their *Colours*; as a *Bay*, which admits of divers Shades or Casts, *viz.* a black *Bay*, brown *Bay*, dapple *Bay*, all which have constantly black Manes and Tails. *Dun*, and *Mouse-Dun*, having frequently a black List along the Back, which denominates them *Flea-backed*. *Flea-bitten*, which is white spotted with red. *Grey*, dappled *Grey*, silver *Grey*, sad or powder'd *Grey*, black *Grey*, sandy *Grey*, and Iron *Grey*. *Grissel* or *Roun*, a light Flesh Colour intermixed with white. *Peach-Colour*, or *Blossom-Colour*. *Pye-bald*, which consists of two Colours, one of them white. *Roan*, a Bay, Black, or Sorrel, intermixed with white Hairs. *Rubican*, Black, or Sorrel, with white Hairs scatter'd about his Body. *Sorrel*, common *Sorrel*, red or Cow-colour'd *Sorrel*, bright or light-colour'd *Sorrel*, burnt *Sorrel*, all chiefly distinguished by the Colour of their Manes. *Starling-Colour*, resembling a brownish, or blackish grey, only more freckled, or intermixed with white. *Tyger-Colour*, much the same with the branded grey, only the Spots smaller. — *Wolf Colour*. — *Deer-Colour*. — *Black*. *White*, &c.

The Colours are generally considered as symbolical of the Nature, Qualities, &c. of the Beasts; and accordingly their Value is much influenced thereby. The *dapple Grey*, is priz'd for *Beauty*; the *brown Bay*, for *Service*; the *Black*, with Silver Hairs, for *Courage*; the *Roan*, for *Countenance*; the *Sorrel*, black with white, and Iron-grey, are reputed *hot* and *fiery*; the *bright Grey*, *Flea-bitten*, and black with white Spots, are *sanguine*; the *White*, *Dun*, and *Pye-bald*, *phlegmatick* and *heavy*; the *Mouse-Dun*, *red Bay*, and *blue Grey*, are *dull*: The *Peach-Colour* rarely proves obedient to the Spur; the *Sorrel* seldom fails of being good, especially if their Legs, Tails, and Manes are black; and the same may be said of the Flea-bitten, at least those so mark'd in the Fore-parts, or over the whole Body; for when only behind, it is an ill Sign.

Indeed it is hard laying down any universal Rules. The *White*, which promises the least, proves good, when black about the Eyes and Nostrils; and there are excellent *Iron-greys*, though they are not reputed a good Colour.

With Regard to the *Uses* or *Offices* they are reserved for, Horses are distinguished into *Coach-Horse*, *War-Horse*, *Hunting-Horse*, *Running-Horse*, *Pack-Horse*, &c.

The two former Distinctions contribute much towards the Knowledge of a Horse; but one of the most essential Points of that Knowledge, consists in the Age; the Horse being an Animal, that remarkably shews the Progress of his Years, by correspondent Alterations in his Body.

We have Characteristicks from his Teeth, Hoofs, Coat, Tail, and Eyes.

The *first Year* he has his Foal's Teeth, which are only Grinders and Gatherers: The *second*, the four foremost change, and appear browner and bigger than the rest: The *third*, he changes the Teeth next to these; leaving no apparent Foal's Teeth, but two on each Side above, and two below: The *fourth*, the Teeth next to these are changed, and no Foal's Teeth are left, but one on each Side, above and below: At *five Years*, his foremost Teeth are all changed, and the Tushes on each Side are compleat: Those which come in the Places of the last Foal's Teeth, being hollow, and having a little black Speck in the Midst; which is called, *the Mark in a Horse's Mouth*, and continues till eight Years of Age: At *six Years*, he puts up new Tushes; near which appears a little Circle of young Flesh, at the Bottom of the Tush; the Tushes withal being white, small, short, and sharp: At *seven Years*, the Teeth are all in their Growth, and the Mark in the Mouth appears very plain: At *eight Years*, all his Teeth are full, smooth, and plain, and the Mark scarce discernable; the Tushes looking yellowish: At *nine Years*, the foremost Teeth shew longer, yellower, and fouler than before; and the Tushes become bluntish: At *ten Years*, no Holes are felt on the Inside of the upper Tushes; which till then are very sensible: Add that the Temples begin to be crooked and hollow: At *eleven Years*, his Teeth are very long, yellow, black, and foul; but he will cut even, and his Teeth stand directly opposite to one another: At *twelve Years*, the upper Teeth hang over the lower: At *thirteen*, the Tushes are worn close to his Chaps, if he has been much rode; otherwise they will be black, foul, and long.

As to the *Hoof*; if it be smooth, moist, hollow, and well-sounding, it is a Sign of Youth: On the contrary, if rugged, and as it were seamed, one Seam over another, and withal dry, foul, and rusty, it is a Mark of old Age.

For the *Tail*; taking him by the Stern thereof, close at the setting on to the Buttock, and griping it between the Finger and Thumb; if a Joint be felt to stick out more than the rest, the Bigness of a Nut, the Horse is under ten; but if the Joints be all plain he may be fifteen.

The *Eyes* being round, full, and staring; the Pits that are over them filled, smooth, and even with his Temples; and no Wrinkles to be seen, either under or above, is a Mark of Youth.

The *Skin* being plucked up in any Part betwixt the Finger and Thumb, and let go again; if it returns suddenly to its Place, and remains without Wrinkles, he may be accounted young.

A dark-colour'd Horse, growing grizzly above the Eye-brows, or under the Mane; or a whitish Horse, growing mackled, either white or black, all over, may be infallibly concluded extremely aged.

Lastly, a Horse being young, the Bars of his Mouth are soft and shallow; otherwise they are deep and feel hard, and rough.

The Masters in this Art lay it down, that a Horse to be good and well made, must have three Parts like those of a Woman, *viz.* the Breast, which is to be broad, the Hips round, and the Mane long: Three of a Lyon, *viz.* Countenance, Intrepidity, and Fire: Three of a Bullock, *viz.* the Eye, Nostril, and Joint: Three of a Sheep, *viz.* the Nose, Gentleness, and Patience: Three of a Mule, Strength, Constancy, and Foot: Three of a Deer, Head, Leg, and Hair short: Three of a Wolf, Throat, Neck, and Hearing: Three of a Fox, Ear, Tail, and Trot: Three of a Serpent, Memory, Sight, and Turning: Three of a Hare or Cat, Running, Walking, and Suppleness.

The Parts of a Horse's Body furnish a great Variety of Terms, some of which I have already mentioned, but

but which I have not explain'd, therefore I'll do it in this Place. The Skin and Coat, are called the *Hair:* The long Hair on the Neck, the *Mane:* The Fore-top, the *Topping* or *Tuke:* The Hair behind, on the Feet, the *Fet-lock* or *Fetter:* That growing over the Top of the Hoof, the *Coronet* or *Cronet:* That on the Eye-lids, the *Brills*.

The Ridge whereon the Mane grows, is called the *Crest* or *Crist:* The Fore-part, from the Neck to the fore-Legs, the *Brisket* or *Chest:* The Mark frequently running down his Face, the *Rath*; and that in the Forehead, the *Star*.

The Top of the Shoulder, at the setting on of the Neck, is called the *Withers:* The Place where the Saddle is set, the *Dock*; and a Bruise or Hurt thereon, a *Navel Gall:* The Middle of the Back, from the Mane to the Hips, the *Reins:* The Extremity of the Reins above the Hips, the *Croup:* The Tail, the *Dock* or *Runt:* The Hollow or Sinking of the Back-bone, the *Sway:* the hind Part of the Belly, next the Genital, the *Flank:* That nearer the Thighs, the *Groin:* The loose Skin wherein the Yard is, the *Sheath*; and the fore Part of the Shoulders, next the Breast, the *Fillets*.

The uppermost Part of the hind Leg, next the Buttock, is called the *Stiffle* or *Stiffle Joint:* The after-Joint or Bending of the hind Leg, the *Chambrel* or *Elbow*: The inner, the *Ham*, or *Hough:* The Joint at the Fetlock, the *Pastern*, *Ancle*, or *Fet-lock Joint:* The Foot, above the Hoof of the Ancle Joint, the *Coronet*.

The Part from the Withers to the Top Joint of the Thigh, is called the *Shoulder:* The middle Joint of the fore Leg, the *Knee:* The right Leg before, the *farther Leg*; and the Left, the *nearer*.

The Hoof is called the *Horn:* The Hollow of the Hoof, the *Coffin:* The tender Part of the Hoof, next the Heel, the *Frush:* The Ball of the Foot, the *Frog:* The Part to be pared, or cut off the Hoof, when over-grown, the *Rift:* The fore Part of the Hoof, the *Toes:* The hind Part, where there is a Rising in the Middle of the Sole, the *Heel*; and the Inside, meeting on the Heel, the *Quarters*.

From these first Rudiments of *Horsemanship*, I'll pass to the Manner of breeding Horses.

The principal Article of the Art of breeding Horses, consists in the Choice of the *Stallion* and *Mare*; since on this depends chiefly the Goodness of the Breed.

It is the common Opinion, that the best *Stallion* is either an *Arabian* Horse, a *Spanish*, a *Turk*, or a *Barbary*, that is well shaped, and of a good Colour; though Mr. *Blandeville*, and *Frederigo Grissone*, are of Opinion, that these Circumstances are not absolutely necessary.

To begin with the *Arabian* Horse, Merchants and other Gentlemen that have travelled in those Parts, report, that the right *Arabians*, are valued at an incredible, as well as an exorbitant Rate; being prized at five hundred, others say at one, two, and three thousand Pounds a Horse; that the *Arabs* are as careful of keeping the Genealogy of their Horses, as Princes in keeping their Pedigrees; that they keep them with Medals; and that each Son's Portion is usually two Suits of Arms, two Scimiters, and one of these Horses. They boast that one of them will ride fourscore Miles a Day, without drawing Bit; which is not so absolutely peculiar to the *Arabian* Horses, since the same has been performed by several *English* ones, and even much more; a Highwayman having taken a Booty, rode his Horse, on the same Day, from *London* to *York*, which is one hundred and fifty long Miles. Notwithstanding this great Value, and the Difficulty of bringing them over from *Scanderoon* to *England*, by Sea; yet by the Care, and at the Charge of some Breeders in the North of *England*, the *Arabian* Horse is no Stranger to those Parts.

The *Spanish* Horse (according to the Duke of *Newcastle*) is the noblest Horse in the World, and the most beautiful that can be; no Horse is so curiously shaped all over from Head to Croup, and he is absolutely the best *Stallion* in the World, whether you design your Breed for the Manage, the War, the Pad, Hunting, or running Horse. But as he is excellent, so it wants not for Price, three or four hundred Pistoles being a common Rate for a *Spanish* Horse. Several have been sold for seven hundred, and a thousand Pistoles a-piece. And one particular Horse, called *el Bravo*, that was sent to the Arch-duke *Leopold*, was held worth as much as a Manor of a thousand Crowns a Year. The best *Spanish* Horses are bred in *Andalusia*, and particularly at *Cordoua*, where the King has many Studds of Mares, and so have several of the *Spanish* Nobility and Gentry. Now, besides the great Price at first, the Charges of the Journey from *Spain* to *England*, will be very considerable; for first he must travel from *Andalusia* to *Bilboa*, or St. *Sebastian*, the nearest Port to *England*, and is at least four hundred Miles; and in that hot Country, you cannot with Safety travel your Horse above twenty Miles a Day; then there is the Expence of your Groom and Farrier, besides the Casualty of Lameness, Sickness, and Death. So that if he does prove an extraordinary good Horse, by that Time he arrives at your own Home, he will likewise be an extraordinary dear one.

The *Turkish* is very little inferior to the *Spanish* Horse in Beauty, but somewhat odd-shaped, his Head being somewhat like that of a Camel: He has excellent Eyes, a thin Neck, beautifully rais'd, and somewhat large of Body: His Courage is like that of a Mule; his Legs not so underlimbed as that of the *Barbary*, but very sinewy, good Pasterns and good Hoofs: They never amble, but trot very well; and are accounted at present the best Stallions for Gallopers.

Some Merchants affirm, that there cannot be a more noble and diverting Sight to a Lover of Horses, than to walk in the Pastures near *Constantinople*, about Sailing-Time, where he may see many hundred gallant Horses grazing; and every Horse has his Attendant or Keeper, with his little Tent placed near him to lie in, that he may look to him, and take Care to shift him to fresh Grass, as Occasion requires.

The Price of a *Turkish* Horse is commonly one hundred, or one hundred and fifty Pounds a Horse, and when bought it is difficult to get a Pass; the *Grand Seignior* being so very strict, that he seldom permits any of his Horses to be exported his Dominion. But if, when obtained, you travel by Land, without a *Turk* or two for your Escort, you will be sure to have them seiz'd on by the Way.

Some People chuse to buy Horses at *Smyrna* in *Anatolia*, and from thence, and likewise from *Constantinople*, transport them into *England* by Sea, which, if the Wind proves fair, arrive in *England* in a Month.

The *Barb* is little inferior to any of the former in Beauty, only he is accounted by our modern Breeders too slender and Lady-like to breed on; and therefore in the North, at this Time, they prefer the *Spanish* and *Turkish* Horse before him. He is so lazy and negligent in his Walk, that he'll stumble on Carpet-Ground. His Trot is like that of a Cow, his Gallop low, and with much Ease to himself. But he is for the most Part sinewy and nervous, excellently winded, and good for a Course, if he be not over-weighted.

The *Mountain-Barbs* are accounted the best, because they are the largest and strongest. They belong to the *Allarbs*, who value them as much themselves, as they are prized by any other Nations, and therefore will not part with them to any Body, except to the Prince of the Band to which they belong; who can, at any Time, command them for his Use. But for the more ordinary Sort, they may be bought in *Languedoc* or *Provence*, in *France*, for forty or fifty Pistoles a Horse. Or if you will send into *Barbary*, you may have one for thirty Pounds, or thereabout. But here too the Charges and Journey will be great; for though from *Tunis* to *Marseilles* in *France*, the Passage is but short; they must travel from *Marseilles* to *Calais*, by Land, which is a very long Journey; from thence they are shipt for *England*.

The fittest *Mare* to breed out of (according to the Duke of *Newcastle*) is one that has been bred of an *English* Mare, and a *Stallion* of the above-mention'd Races; but if such a *Mare* is not to be got, Choice must be made of a right bred *English* Mare, by Sire and Dam, that is well fore-handed, well underlaid, and strong put together in general; and in particular, see that she has a lean Head, wide Nostrils, open Chaul, a big Weasand,

and the Wind-Pipe ſtrait and looſe; and chuſe her about five or ſix Years old; taking Care, likewiſe, that the *Stallion* be not too old.

The next Thing we ought to conſider is, how the *Stallion* is to be fed, to make him ſtronger, and more capable to cover the *Mares*.

A *Stallion* muſt be kept as high as poſſible, for four or five Months, before the Time of Covering, with old clean Oats, and ſplit Beans, well hulled; to which you may add, if you pleaſe, Bread; and now and then, for Change of Diet, you may give him a Handful of Wheat or Oats waſhed in ſtrong Ale; I have ordered myſelf, once or twice a Week, Pieces of Bread ſoaked in Red Wine to be given them. Mr. *Morgan*, in his Perfection of *Horſemanſhip*, adviſes to mix Bay-Salt and Anniſeed with his Provender; which others think needleſs, while the Horſe is in Health; but he muſt have Plenty of good old ſweet Hay, well cleanſed from Duſt; and good Wheat Straw to lie on; watering him twice every Day, at ſome fair running Spring, or elſe a clear ſtanding Pond-Water, near ſome Meadow or level Piece of Ground, where you may gallop him after he has drank. When you have brought him to the Water, do not ſuffer him to drink his Fill at firſt, but after his firſt Draught, gallop and ſkip him up and down a little, to warm him; and then bring him to the Water again, and let him drink as much as he pleaſes, after which gallop him as before, never leaving the Water till you will find he will drink no more. By this Means, new Crudities are prevented, which the Coldneſs of the Water would produce to the Detriment of the Stomach, if he had been permitted to drink his Fill at firſt; whereas, in allowing him his Fill at laſt, thus by Degrees, his Body is kept from drying too faſt. And this, Maſters in the Art of *Horſemanſhip*, take to be much better for the Horſe, than to encourage his Water with White Wine, to qualify the cold Quality thereof; for they are of Opinion, that Nature itſelf is the beſt Directreſs for the Expulſion of her Enemies, eſpecially in Brutes, where uſually ſhe can command the Appetite; and therefore prefer the Horſe's own natural Heat, for warming his Water, to that which proceeds from any other. Neither are they of Mr. *Morgan*'s Opinion in another Article, which is of ſweating him every Day early in the Morning, which, he ſays, will not only perfect the Digeſtion, and exhauſt the Moiſture from his Seed, but alſo ſtrengthen and cleanſe his Blood and Body from all raw Humours; for they think, on the contrary, that it will both dry up the radical Moiſture too faſt, and likewiſe, inſtead of heightening his Pride and Luſt, weaken him too much; which, in my Opinion, is a very reaſonable Suppoſition; ſince there is always a very great Diſſipation of Spirits made in thoſe extraordinary Evacuations.

When the *Stallion* is in his Luſt, and the Time for Covering is come, which is beſt in *May*, that the Foals may fall in *April* following (otherwiſe they will have little or no Graſs, if they ſhould be put together, according to *Markham*'s Opinion, in *March*, though he holds that a Foal falling in *March*, is worth two falling in *May*, 'becauſe, ſays he, he poſſeſſes, as it were, two 'Winters in a Year, and is thereby ſo harden'd, that 'nothing afterwards can almoſt impair him.') The Time, ſays I, being come to put your *Stallion* and *Mares* together, you muſt pull off his hind Shoes, and lead him to the Place where the Studd of the *Mares* is, which you intend for Covering, which Place ought to be cloſe, well fenced, and in it a little Hut for a Man to lye in, and a large Shed with a Manger to feed your *Stallion* with Bread and Corn, during his Abode with the *Mares*, and to ſhelter him in the Heat of the Day, and in rainy Weather; and this Cloſe ought to be of a ſufficient Extent to keep your *Mares* for two Months.

Before you pull off his Bridle, let him cover a *Mare* or two in Hand, then turn him looſe among them, and put all your *Mares* to him, as well thoſe which are with Foal, as thoſe which are not, for there is no Danger in it; and by that Means they will all be ſerved in their Height of Luſt, and according to the Intention of Nature. When your *Stallion* has covered them once, he tries them all over again, and thoſe which will admit him he ſerves; and when the Buſineſs is finiſhed, he beats the Pale, and attempts to be at Liberty; which when your Man finds (who muſt watch them Night and Day, and take Care that no other *Mares* are put to your Horſe, and give you an Account which takes the Horſe, and which not, &c.) let him be taken up, and be well kept as before; unleſs you give him at firſt a good Maſh or two, to help to reſtore Nature, for you'll find him nothing but Skin and Bones, and his Mane and Tail will rot off. You ought not to give him above ten or twelve *Mares* in a Seaſon, to the Utmoſt; otherwiſe you will ſcarce recover him againſt the next Year Covering-Time.

When your *Stallion* is paſt this Uſe, then buy another; never making Uſe of a Horſe of your own Breed, otherwiſe the beſt Kind would in Time degenerate; but you cannot do better, ſays the Duke of *Newcaſtle*, than to let your own *Mares* be cover'd by their Sire, for there is no Inceſt in Horſes; and by this Means they are nearer, one Degree, to the Purity and Head of the Fountain, from which they are derived, ſince a fine Horſe got them, and the ſame fine Horſe covers them again.

Some are of Opinion, that this Method of the Duke of *Newcaſtle* for covering *Mares*, does not correſpond with the Intereſt of ſome private Gentlemen, who turn Breeders for Profit as well as Pleaſure; for a good *Stallion*, ſay they, bearing ſuch an extraordinary Rate, and they, having but one, have Reaſon to be cautious, to avoid as much as can be, all hazardous Experiments, which this, in ſome Caſes, may prove. For firſt, there have been Horſes of great Spirit, that have killed themſelves through Exceſs of Luſt, being left to range at their Liberty; and thoſe that have been confin'd to an Incloſure, and a ſelect Number of *Mares*, have yet in one Week ſo weaken'd Nature, that not above half the *Mares* have held. Secondly, ſome *Mares* are of ſo hot a Conſtitution, and their Luſt ſo violent, that if they are permitted to run long with the Horſe, after they have conceived, will (if they be high in Fleſh and luſty) deſire the Horſe again, which generally hazards the Loſs of the Embrio they go with.

To prevent therefore theſe Inconveniencies, they lay down another Method, which is called covering in Hand, and which is this: — When they have brought both their *Horſe* and *Mare* by Art and good Feeding, to a proper Condition for Breed, they ſet ſome ordinary ſtoned Nag by her, for a Day or two to woo her, and by that ſhe will be ſo proned to luſt, that ſhe will readily receive their *Stallion*; which they preſent to her, either early in the Morning, or late in an Evening, for a Day or two together, and let him cover in Hand once or twice, if they think proper, at each Time, obſerving always to give the Horſe the Advantage of Ground, having Somebody ready with a Bucket of cold Water, to throw on the Mare's Shape, immediately on the diſmounting of the Horſe, which will make her retain better the Seed received; for which Purpoſe, they get on her Back and trot her for about a Quarter of an Hour, avoiding, at the ſame Time, from heating or ſtraining her; and taking Care, after every Act, to let them faſt two Hours, and then giving each of them a warm Maſh.

As to the Manner of keeping the *Mares*, during the Time of their being with Foal, and at their Foaling, you muſt take Care to houſe them all the Winter, and to keep them well, their Colts will prove the better. When they are foaled, let them run with their Dams till *Martinmaſs*, then wean them, and keep them in a convenient Houſe, with a low Rack, and Manger on Purpoſe; litter them well, and feed them with good Hay, and Oats and Wheat-Bran mixed, which will make them drink and belly well. The firſt Year, you may put them all together, but afterwards they muſt be ſeparated, the Stone-Colts from the Fillies; and if you have Choice of Horſes, you may put Yearings together, two Years old, for their better Satisfaction and Agreement.

In a warm fair Day, you may grant them Liberty to run and ſkip, in ſome incloſed Court or Back-Side, taking Care to put them up again carefully, that they be not hurt. When Summer is come, and there is Plenty of Graſs, put them out in ſome dry Ground, that has convenient Watering, and ſo let them run till *Martinmaſs* again: Then houſe them as before, and order them in all Points as older Horſes, till they are full

full five Years old; then take them up for good, and let your Groom back them, if he has Skill, or elſe ſome ſkilful Rider. You may, if you pleaſe, break your Fillies, at two Years and a half old, and let them be cover'd at three; and by that Means they will be ſo tame and gentle, as not to injure themſelves, or their Foals. But in Caſe of Sickneſs, or any other Accident, as Lameneſs, *&c.* you muſt then commit them to the Farrier's Care.

The Reaſon why it is propoſed to houſe them every Winter, with dry Feeding and Lodging, is, that they may be the more like their Sire in Beauty and Shape. For the primary Cauſe of the Fineneſs of the Shape and Beauty in Horſes, is Heat, and dry Feeding. And this is proved from the ſeveral Races already mention'd, *viz.* the *Spaniſh*, *Barb*, and *Turkiſh* Horſe, all which Countries are under a hot Climate, and by Conſequence afford little Graſs: Therefore in our more moderate and cold Countries, we are to aſſiſt Nature by Art, and to ſupply the Want of Heat by warm Houſing, and dry Feeding. This is eaſily made evident by Examples. For, take two Colts begot by the ſame Sire, on Mares of equal Beauty, and houſe the one every Winter, and feed him as directed, and expoſe the other till they are four Years old, and fit to be backed; you ſhall find the former like his Sire, in all Reſpects, and the other fitter for the Cart than for any Thing elſe, as being a dull, heavy, flabby, ſcarce animated Clod; all which proceeds from the Humidity of the Air and Earth. From hence you may infer, that it is not only Generation, but, as I may term it, Education, that makes a compleat Horſe; and ſuch yours will be, if you order them according to the former Directions; for you may with Eaſe break the Colt, that is by ſuch good Management made gentle, and half backed to your Hand.

Note, That as a Stone-Horſe is ſeldom kept entire, but to ſerve for a Stallion, he is moſt commonly gelt, when deſign'd for any other Uſe.

In *Gelding* of Horſes, Regard muſt be had to their Age, the Seaſon of the Year, and the State of the Moon. — For the firſt, if it be a Colt, the Operation may be performed at nine or fifteen Days old, if the Teſticle be come down; in Regard the ſooner he is gelt, the better it will be for his Growth, Shape, and Courage; though the Horſe may be gelt at any Age, if Care be taken in the Cure. As for the ſecond, the beſt Time is about *April* or *May*; or elſe about the latter End of *September*. For the third, the Wane of the Moon is preferred as the fitteſt Time.

The Manner of *Gelding* is thus: The Beaſt being caſt on ſome ſoft Place, the Operator takes the Teſticles between his fore and great Finger, ſlits the Cod, and preſſes out the Stones; then with a Pair of Nippers, made very ſmooth, either of Steel, Box, or Braſil, claps the String of the Stones between them, very near to where the Stones are ſet on; and preſſes them ſo hard, that there may be no Flux of the Blood; then ſears away the Stone with a thin, drawing cauterizing Iron, made red-hot.

This done, he takes a hard Plaiſter, made of Wax, Roſin, and waſh Turpentine melted together, and melts it on the Head of the Strings with the hot Iron; and afterwards ſears the Strings, and melts more of the Salve, till there is a good Thickneſs of it laid on the Strings.

This being done to one Stone, the Nippers are looſen'd, and the like is done to the other; and the two Slits of the Cod filled with white Salt; and the Outſide of the Cod anointed with Hog's Greaſe; and thus they let him riſe, and keep him in a warm Stable, without tying him up.

If he ſwells much in his Cod, or Sheath, they chafe him up and down, and make him trot an Hour in a Day, and he ſoon recovers.

As our Colts are not kept to be look'd at only, we'll chuſe one among them fit for a Hunter, which, as near as can be, muſt have a lean, large, and long Head; a thin and open Chawl; ſmall and pricked Ears, or if they be ſomewhat long, provided they ſtand upright, like thoſe of a Fox, it is uſually a Sign of Mettle and Toughneſs: A long and broad Forehead, not flat, and as we term it, Mare-face, but riſing in the Midſt like that of a Hare, the Feather being placed above the Top of his Eye, the contrary being thought by ſome to be a Token of Blindneſs. His Eyes ought to be full, large, and bright; his Noſtrils wide and red within, for an open Noſtril betokens a good Wind; his Mouth large, deep in the Wykes and hairy; his Thropple, Weaſand, or Wind-Pipe big, looſe, and ſtrait, when he is rein'd in by the Bridle; for if when he bridles, it bends in like a Bow (which is called Cock-throppled) it very much hinders the Paſſage of his Wind. His Head muſt be ſet on to his Neck, that there may be a Space felt between his Neck and his Chaul; for to be Bull-necked is uncomely to Sight, and prejudicial to the Horſe's Wind. His Creſt ſhould be firm, thin, and well rais'd; his Neck long, and ſtrait, yet not looſe and pliant, which the northern Men term withy-cragged; his Breaſt ſtrong and broad, his Cheſt deep, his Chine ſhort, his Body large, and cloſe ſhut up to the Huckle-Bone; his Ribs round like a Barrel, his Belly being hid within them; his Fillets large, his Buttocks rather oval than broad, being well let down to the Gaſcoins; his Chambrels upright, and not bending, which is called by ſome, feckle-houghed, tho' ſome hold it a Sign of Toughneſs and Speed. His Legs clean, flat, and ſtrait; his Joints ſhort, well knit and upright, eſpecially betwixt the Paſterns and the Hoofs, having but little Hairs on his Fetlocks; his Hoofs black, ſtrong, and hollow, and rather long and narrow, than big and flat. And laſtly, his Mane and Tail ſhould be long and thin, rather than thick, which is counted by ſome a Mark of Dulneſs.

As to the Colour and Marks, ſome are rather inclined to believe them grateful to the Eye, than an infallible Sign of Goodneſs; and that the Goodneſs or Badneſs of a Horſe, proceeds from his inward Diſpoſitions; inſomuch, that Mr. *Morgan* is of Opinion, that Colour and Marks are no more Aſſurance of a good Horſe, than the having a Feather in a Man's Hat, does prove him a a good Man or a bad; inferring, that inherent Colours are of no greater Eminency or Value, than thoſe external ones are, which may be taken or laid aſide at a Man's own Will and Pleaſure.

Others are of a different Sentiment, pretending, that although Marks and Colour are not infallible Marks of the Goodneſs of a Horſe, yet they, as well as his Shape, intimate, in ſome Part, his Diſpoſition and Qualities. For Nature, ſay they, not being defective, forms every Part of the ſame Matter which compoſes the whole; and therefore the Fœtus being formed of a Mixture of the Seed of the Sire and Dam, derives from them as well the accidental, as the more eſſential Qualities of its Temperament and Compoſition. And for this Reaſon, Hair itſelf, may often receive the Variation of its Colour from the different Temperature of the Subject, out of which it is produced. To confirm this, they ſay, that wherever one ſhall meet with a Horſe that has no White about him, eſpecially in his Forehead, though he be otherwiſe of the beſt reputed Colours, as Bay, Black, Sorrel, *&c.* that Horſe they affirm to be of a dogged and ſullen Diſpoſition, eſpecially if he has a ſmall pink Eye, and a narrow Face, with a Noſe bending like a Hawk's Bill.

But yet they ſeem to be poſitive, that Horſes, even of the moſt celebrated Colours, and Marks anſwerable, prove always the beſt; becauſe we have ſeen, ſay they, thoſe Horſes worſted by others, whoſe Marks and Colour have been eſteemed the worſt; as bright Sorrel, and Mouſe, Black with bald Faces, and all the Legs white above the Knee. Though they rather attribute the Cauſe thereof to the Ignorance of the Rider, that had the training of thoſe beſt marked Horſes, than to any Defect in Nature. And therefore, as they would not have us put too great Confidence in Marks and Colours; ſo they would not have them eſteemed of a little Signification, as Mr. *Morgan* will have it; pretending that it is a conſtant and inſeparable Quality for Horſes to produce Hair, which is given them by Nature, as a Tegument and Defence againſt Cold; and if it be ſhaved off, galled, or any Ways elſe removed, or taken away, yet it will grow again; but a Feather may be put to, or taken from a Man's Hat at his Pleaſure.

Therefore, ſince Colour ſeems to ſet forth the Beauty of

of a Horſe, one may for Ornament Sake, and to pleaſe one's Eye, make Choice of a Horſe that is either a brown Bay, dapple Bay, black, Sad-Cheſnut, with flaxen Mane and Tail, ſo that they have either a white Star, Blaze, or Snip with a white Foot; dapple Grey, or white Lyard with black Muzzle, Eye and Ear. Any of theſe are reputed by moſt Men, to give a Grace to Shape, tho' in themſelves they are no perfect Signs of Goodneſs.

No doubt but the internal Qualities of a Horſe, are preferable to all the external ones. Thoſe internal Qualities are, his being of a gentle Diſpoſition to his Keeper, tractable and docile, free from thoſe ill Qualities of biting, ſtriking, reſtiffneſs, lying down in the Water, ſtarting, running away with his Rider, plunging, leaping, *&c.* Not but that moſt, if not all theſe ill Habits may be rectified by Art; for Experience has ſhewn us, that Horſes which have not been of ſuch a perfect natural Compoſition as might be deſired, have yet been tempered by Art, and have not only been reclaimed from their vicious Habits, but have been likewiſe brought to great Performance in Heat, as well as Hunting.

Therefore ſince Art was invented to perfect Nature, if, notwithſtanding your Care, you have a Horſe ſubject to any of theſe bad Qualities aforeſaid, you muſt ſearch into the Cauſes of it, which Art will help you to recover and remove; and then the Cauſe being taken away, the Effect will ceaſe. So that probably, contrary to moſt People's Opinions, a vicious Horſe, by good Management and Government, may be brought to excel a Horſe that has a better Reputation.

It is proper your Horſe ſhould be five Years old, and well weighed before you begin to hunt him; for though it be a general Cuſtom, even among the moſt noted Horſemen, to train their Horſes up to Hunting at four Years old, and ſome ſooner; yet at that Age, his Joints not being full knit, nor he arrived at his full Strength and Courage, he is diſabled from performing any Matter of Speed and Toughneſs; and indeed being put to ſore Labour and Toil ſo young, he runs a very great Hazard of Strains, and the putting out of Splents, Spavins, Curbs, and Windgalls, beſids the Daunting of his Spirit, and abating his natural Courage; in ſo much that he will grow melancholy, ſtiff, and rheumatick, and have all the Diſtempers of old Age, when it might be expected he ſhould be in his Prime.

Your Horſe then being full five, you may, if you pleaſe, put him to Graſs, from the Middle of *May* to *Bartholomew-Tide*, or at leaſt from the Middle of Summer to that Time; for then the Seaſon being very hot, it will not be convenient to work him; where whilſt he is ſporting at Liberty in his Paſture, we'll take Care to provide a good Stable for his Reception, at his taking up; and a good Groom to look after him; both which are more eſſentially neceſſary to the Hunter, than to other Horſes, which require not ſo great Care in Keeping.

The Stable muſt be ſituated, if poſſible, in a very good Air, and upon hard, dry, and firm Ground, that, in Winter, the Horſe may go out, and come in clean. It ſhould alſo be ſeated on an Aſcent, that the Urine, foul Water, or any Wet, may run through Trenches, or Sinks cut for that Purpoſe. No Hen-Houſes, Hog-Sties, Houſes of Eaſe, or any other filthy Smell, is to be ſuffer'd near it; for Hen-Dung or Feathers ſwallowed, often prove mortal, and the bad Air of a Jakes is as often the Cauſe of Blindneſs. Likewiſe the very Smell of Swine will frequently breed the Farcy; and no Animal delights more in Cleanlineſs, or is more offended at unwholſome Savours, than the Horſe. The Stable muſt be built of Bricks rather than Stones, ſince the latter is ſubject to ſweating in wet Weather, which Dampneſs and Moiſture is the Original of Rheums and Catarrhea's. The Wall ought to be about 18 or 20 Inches thick, both for Safety and Warmth in Winter, and to keep the Sun from annoying him in Summer, which would hinder Concoction. You may, if you pleaſe, make Windows both on the Eaſt and the North Sides, that you may have the Benefit of the Air, from the North in Summer, and of the Morning Sun from the Eaſt in Winter, the Windows ſhould be glazed and made with Saſhes, to let in the Air at Pleaſure, and to keep out Poultry. Thoſe Windows ſhould have likewiſe cloſe wooden Shutters, that by darkening the Stable in the Middle of the Day, your Horſe may take his Reſt as well, and as conveniently at that Time as in the Night. The Floor (meaning that Part on which the Horſe is to ſtand or lie down) is to be made of oaken Planks not pitched, being eaſier and warmer for him to lie on Boards than on Stones; laying thoſe Planks level, for if they were laid higher before than behind, his hind Legs would ſwell, and he could never lie at Eaſe, his hind Parts ſtill ſlipping down, The Planks are alſo to be laid Croſs-ways, and not at length, and underneath them a Trench is to be ſunk, which receiving the Urine through the Holes bored on purpoſe in the Planks, may convey it into ſome common Receptacle. The Ground behind him ought to be raiſed even with the Planks, that he may continually ſtand on a level; the Floor behind him well paved with Pebble, and that Part of the Stable where the Rack ſtands well wainſcotted.

It would be very proper to place two Rings at each Side of the Horſe's Stall, for his Halter to run through, which muſt have a light wooden Log at the Bottom of it to poiſe it perpendicularly, but not ſo heavy as to tire the Horſe, or to hinder him from eating.—Inſtead of a fix'd Manger, a Laker or Drawer made in the Wainſcot Partition, for him to eat his Corn out of, is far more convenient, becauſe it may be taken in or out at Pleaſure to be cleaned. Though it is uſual to make Racks in Stables to hold the Hay; ſome prefer to it the giving the Hay to their Horſe on the Ground upon the Litter, as the *Italians* do, or elſe nail ſome Boards in the Form of a Trough, in which they put his Hay, to prevent him from trampling and ſpoiling it. To which it may be objected, that this Manner of feeding him may ſpoil his Creſt, and that the blowing upon his Hay will ſoon ſurfeit him, and make it nauſeous to his Palate. To this they anſwer, that this Manner of feeding him, inſtead of ſpoiling his Creſt rather ſtrengthens it, and makes it firm, whereas on the contrary, to lift up his Head to the Rack, will make him withey-cragged; but that in the afore-mentioned Manner he will feed as he lies, which is more for his Eaſe and Satisfaction. That as to the Quantity of his Hay, it muſt be given to him in ſuch ſmall Proportions (though the oftner) that it may be eaten before his Breath can in the leaſt have tainted it. This Manner beſides, of giving it him upon the Ground, contributing much towards purging his Head from any Rheum or Doſe, which he might have gotten by Negligence, or through Exceſs of Exerciſe; and indue him by ſneezing, to throw out all manner of watry Humours that may annoy his Head.

If the Stable is to contain ſeveral Horſes, it muſt be divided into as many Stands or Stalls as it will contain Horſes, raiſing each Partition, which is to be of Boards to that Height towards the Manger, that one Horſe may not moleſt the other, and leaving to each Horſe Room enough to turn about in, and lie down at Pleaſure. One of the Stalls may be made cloſe, which will ſerve for the Groom to lie in, in caſe of a Match, Sickneſs, *&c.* and where he may burn Candle without the Horſe's diſcerning it.

The Stable ſhould likewiſe have Preſſes with Pegs in them to hang up Saddles, Bridles, Houſing-Cloaths, *&c.* and alſo Shelves to place Curry-Combs, Bruſhes, Duſting-Cloths, Ointments, Waters, or any other Neceſſaries.

To not incumber the Stable with Oat-bins, the beſt Way is to make uſe of the Invention of M. *Farmer* of *Oxfordſhire*, which is to let the Oats down from a Loft above, out of a Veſſel like the Hopper of a Mill, whence they fall into a ſquare Pipe let into the Wall of about four Inches diagonal, which comes down into a Cupboard alſo ſet into the Wall, but with its Ends ſo near the Bottom, that there ſhall never be above a Gallon, or other neceſſary Quantity in the Cupboard at a Time, which being taken away and given to the Horſes, another Gallon preſently ſucceeds; ſo that in the lower Part of the Stable, where the Horſes ſtand, there is not one Inch of Room taken up for the whole Proviſion of Oats; which Contrivance has alſo this further Convenience, that by this Motion the Oats are kept conſtantly ſweet,

ſweet, which laid up any otherwiſe in great Quantities grow frequently muſty. The Stable muſt have a Ceiling that no Duſt from above fall upon your Horſes: It muſt likewiſe be fitted with a Dung-Yard, Pump, and a Conduit, and have if poſſible, a Pond, or running River near at hand. Never leaving the Front of the Stable without Litter, that by frequent Practice the Horſes may learn to empty their Bladder when they come from airing.

Having fitted out our Stable with all that's neceſſary, except a Groom, which is one of the principal Utenſils thereof, we muſt ſeek for one who ſhould have the following good Qualities.—Firſt, he muſt love his Horſes, and endeavour by good Uſage to make himſelf loved and obeyed by them. He muſt beſides be patient, for nothing is more tractable than a Horſe if uſed kindly. Keeping his Stable clean and in Order, and alſo his Saddles, Houſing-Cloaths, Stirrups, Leathers, and Girths, but above all, his Horſes by dreſſing and rubbing them often. Diligence is abſolutely requiſite in the Diſcharge of his Duty, and he muſt obſerve even the ſmalleſt Alteration, either in his Horſe's Countenance, as Symptoms of Sickneſs, or in his Limbs and Gate, as Lameneſs, or in his Appetite, as forſaking his Meat, and immediately upon any ſuch Diſcovery to ſeek out for Remedy. Thus far for the Duties of a Groom.

Having thus provided ourſelves with a Stable and a Groom, we'll take up our Horſe from the Graſs about *Bartholomew-tide*, while his Coat lies ſmooth and ſleek, becauſe the Froſt and cold Dews of that Seaſon which weaken much the Strength of the Graſs, turns it into raw Crudities, and the Coldneſs of the Night abates as much Fleſh as he getteth in the Day-time. For the firſt Night we'll order the Groom to ſecure him in a ſpacious Houſe, where he may evacuate his Body, and ſo be brought by degrees to warmer Keeping, in order to ſtable him the next Day. Some do not cloath or dreſs their Horſes till two or three Days after their Stabling; and others do it as ſoon as they are ſtabled; in which every Body may follow his own Fancy, ſince neither of thoſe two Methods proves prejudicial or advantageous to the Horſe. But as to giving him Wheat-Straw to take up his Belly (a Cuſtom generally uſed by Grooms at the Horſe's firſt houſing) ſome appear utterly averſe to it. For the Nature of a Horſe, ſay they, being hot and dry, if he ſhould feed on Straw, which is alſo a very hot and dry Food, it would ſtraiten his Guts, and cauſe an Inflammation of the Liver, and by that Means diſtemper the Blood, making beſides, his Body ſo coſtive, as to cauſe a Retention of Nature, and make him dung with great Difficulty; whereas full Feeding will expell the Excrements according to the true Intention and Propenſity of Nature. Therefore, conclude they, moderate Airing, warm Cloathing, good old Hay, and old Corn, muſt ſupply the Place of Wheat-Straw.

The firſt Buſineſs of the Groom, after the Horſe is ſtabled, is in the Morning to water him, and then rub over his Body with a hard Whiſp a little moiſtened, and afterwards with a woollen Cloth; then to clean his Sheath with his wet Hand from all the Duſt it had contracted during his running, and to waſh his Yard either with White-Wine or Water, then he may trim him according to the Manner other Horſes are trimmed, except the Inſide of his Ears, which ought not to be meddled with, for Fear of making him catch Cold.

This done, he muſt ſend for the Farrier, who is to get him a Set of Shoes fitted to the Shape of his Feet, without paring, leaving it well open between the Quarter and the Thruſh, to prevent Hoof-binding, taking Care that the opening by ſtrait and not Side-ways, for by that Means in two or three Shoeings his Heels, in which conſiſts the Strength of his Feet, will be cut quite away. His Foot muſt be pared as hollow as poſſible, to hinder the Shoe from preſſing upon it. The Shoes muſt come near the Heel, yet not be ſet ſo cloſe as to bruiſe it, nor yet ſo open as to catch in his Shoe, if at any Time he happens to over-reach, and ſo hazard the pulling them off, the breaking of the Hoof, or the bruiſing of the Heel. The Webs of his Shoes muſt be neither too broad nor too narrow, but of a middle Size, about the Breadth of an Inch, with ſloped Spunges, and even with his Foot; for though it would be for the Advantage of the travelling Horſe's Heel, to have the Shoe a little wider than the Hoof on both Sides, that the Shoe might bear his Weight, and not his Foot touch the Ground; yet the *Hunter* being often forced to gallop on rotten ſpungy Earth, to have them large would hazard laming, and pulling off his Shoes.

The Farrier muſt take a particular Care that he pricks not the Horſe, but leave a Space at the Heel of the fore-feet, and a Space between the Nails at the Toe. When the Shoe is ſet according to this Direction, you'll find a great deal of his Hoof left to be cut off at his Toe. When that is cut off, and his Feet ſmoothen'd with a File, he will ſtand ſo firm, and his Feet will be ſo ſtrong, that he'll tread as boldly on Stones as on Carpet-Ground.

Note, That there are ſeveral Sorts of Horſeſhoes, as the *planch Shoe*, or *Pancelet*, which is ſaid to make a good Foot and a bad Leg; as cauſing the Foot to grow beyond the Meaſure of the Leg. It is choſe for a weak Heel, and will laſt longer than any other Shoe, being borrowed from the Moil, which has weak Heels, and Fruſhes to keep the Feet from Stones and Gravel.

Shoes with Calkins, which, though intended to ſecure the Horſe from ſliding, yet are reputed by many to do him more Harm than Good, in that he cannot tread evenly upon the Ground, whereby many Times he wrenches his Foot, or ſtrains ſome Sinew, eſpecially upon ſtony Ways, where Stones will not ſuffer the Calkins to enter. *Double Calkins* are leſs hurtful, as he treads evener with them than on the ſingle Calkins; but then they muſt not be over-long or ſharp-pointed, but rather ſhort and flat.

Shoes with Rings, firſt invented to make the Horſe lift his Feet up high; though ſuch Shoes are more painful than helpful, beſides the Unhandſomeneſs of the Sight. This Defect is moſt incident to Horſes that have not ſound Hoofs; for tender Feet fear to touch the Ground that is hard: But what is intended for Remedy proves a Prejudice to the Horſe, by adding high Calkins or Rings to his *Shoes*, as by that Means his Heels are made weaker than before.

Shoes with ſwelling Welts, or *Borders* round about them, are uſed in *Germany*, &c. which being higher than the Heads of the Nails, ſave them from wearing. —Theſe are the beſt Sort of laſting Shoes, if made of well-temper'd Stuff, as they were equally in all Parts, and the Horſe treads evenly upon them.—Others who uſe to paſs Mountains, and Places where Smiths are not ſo eaſily met with, carry Shoes about them, with Vices, whereby they faſten them to the Horſe's Hoofs, without the Help of the Hammer or Nail; yet this is more for Shew than Service; for though ſuch Shoe may ſave a Horſe's Feet from Stones, yet it ſo pinches his Hoof, that he goes with Pain, and perhaps injures it more than the Stones do.—On ſuch emergent Occaſions, therefore, it were better to make uſe of the

Joint Shoe, which is made of two Pieces, with a flat rivet Nail joining them together in the Toe, ſo that it may be taken both wide, or narrow, to ſerve any Foot.

Panton, or *Pantable Shoe*, which opens the Heels, and helps Hoof-binding.—To which may be added the *half panton Shoe*.

Patten Shoe, is uſed for a Horſe that is burnt in the Hip, Stiffle, or Shoulder, as it cauſes him to bear upon that Leg the Grief is on, and conſequently makes him uſe it the better.

By that Time the Horſe is ſhod, I preſume 'twill be Time to water him, therefore he muſt be taken to the River, and ſuffered, after he has drank, to ſtand ſome Time in the Water, which, in the Opinion of ſome Horſemen, will cloſe up the Holes made by the Nails. From whence he is gently brought to his Stable, where having tied him to the Rack, he muſt be rubbed all over, Body and Legs, with dry Straw; after which his Feet are to be ſtopped with Cow-Dung, and giving him a Quarter of a Peck of old Oats, well ſifted; then littering him, and leaving him a ſufficient Quantity of old Hay, to ſerve him all Night.

When the Horſe has evacuated all his Graſs, and his Shoes are ſo well ſettled to his Feet, that he may be fit to be rid abroad without Danger of ſurbating, you muſt

visit him early in the Morning, that is to say, by five a Clock in Summer, and Six in Winter; and having put up his Litter under his Stall, and cleansed the Stable, the next Thing to be done is to feel his Ribs, his Chaul, and his Flank, whereby the good or bad State of his Body is discernible. If by laying your Hands on the lower Part of his short Ribs, near the Flank, you feel his Fat to be exceeding soft and tender, and to yield, as it were, under your Hand, you may be sure that it is not sound, and that the least violent Labour or Travel will dissolve it; and when dissolved, before it be hardened by good Diet, if it be not then removed by scouring, the Fat or Grease belonging to the outward Parts of the Body will fall down into his Heels, and so cause Goutiness and Swelling; which Distempers are both to be prevented and cured. For, if by feeling his Ribs you have found his Fat soft, you must likewise feel his Chaul, and if you find any fleshy Substance, or big round Kernels, or Knots, you may be sure that as his outward Fat is not sound, so inwardly he is full of Glut, and pursive, occasion'd by gross and tough Humours cleaving to the Concavities of the Lungs, and stopping his Wind-pipe in such a Manner, that his Wind cannot find a free Passage, nor his Body be capable of much Labour. These Distempers are remedied by feeding him with wholsome Food to harden his Fat, by moderate Exercise, warm Cloathing, and gentle Physick, to cleanse away his inward Glut, that his Wind and other Parts being freed from all gross Humours, his Courage, and Activity may be thereby heightened.

Till your Horse be thoroughly purged, his Flank will likewise feel thick to your Gripe; otherwise it feels but like two thin Skins.

These Remarks made, the Groom must sift his Horse a Handful or two of good old Oats for a Preservative against the cold Humours, which otherwise would perhaps seize his Stomach, if he was to drink fasting, and which will likewise make him drink the better. When he has eaten them, he must pull off his Collar, and rub his Head, Face, Ears, and Nape of the Neck with a clean rubbing Cloth, which helps towards dispersing all the Humours which often gather in those Parts: Then washing a small Snaffle in fair Water, he'll put it on his Head, drawing the Reins through the Headstall, to prevent slipping it over his Head. Then taking in his Right Hand a Curry-comb, suitable to the Skin of his Horse; (*i. e.* if the Coat of his Horse be short and smooth, the Curry-comb must be blunt; but if long and rough, then its Teeth must be long and sharp) he stands with his Face opposite to the Horse's Face, and holding the left Cheek of his Head-stall in his Left-Hand, curries him hard, from the Root of his Ears, all along his Neck to his Shoulders: Then goes over all his Body with a more moderate Hand, currying his Buttocks down to the lower Cambrel, with a hard Hand again: Then changing Hand, and laying his right Arm over his Back, he joins his right Side to the Left of the Horse, and curries him gently from the Top of his Withers to the lower Part of his Shoulder, every now and then fetching his Stroke over the left Side of his Breast, and so currying him down to the Knee, but no further; then he curries him all under his Belly near his fore-Bowels; and, in a Word, very well over, except his Legs under the Knees, and his Cambrels.

Note, That if your Horse, while you are currying him, keeps riggling up and down, biting the Rack-Staffs, and now and then offering to snap at you, or lifting up his Leg to strike you, it is a Sign that he is not pleased, either by reason of the Sharpness of the Comb, the Teeth whereof must on that Occasion be blunted, or through Wantonness, and the Pleasure he takes in the Friction; then he must be gently corrected with the Whip.

As this currying is only to raise the Dust, when it is over, the Groom must take either a Horse's Tail, or a clean Dusting-Cloth, and with it strike off the loose Dust raised by his Comb: Then dress him all over with the *French* Brush, both Head, Body, and Legs, to the very Fetlocks, observing always to clean the Brush from the Filth it gathers from the Bottom of the Hair, by rubbing it on the Curry-Comb; and dusting the Horse a second Time. Which done, he dips his Hand in Water, and with it rubs his Horse's Body all over, leaving if possible no loose Hair behind him; and with the same wet Hand picking and cleaning his Eyes, Ears, Nostrils, Sheath, Cods, and Tuel; rubbing thus till he be as dry as he was at first, then he rubs his Body all over with a Hair-patch, but especially his fore-bowels under his Belly, his Flank, and between his hind Thighs; and lastly, wiping him over with a fine white Linnen Rubber.

When he has thus dressed him, he takes a large Saddle-Cloth, that may reach down to the spurring Place, and laps it about his Body, then claps on his Saddle, and throws a Cloth over him for Fear of his catching Cold. Which done, he rubs and chafes his Legs from the Knees and Cambrels downwards to the Ground, with two Ropes of Straw twisted hard together, picking his Fetlock-Joints from Dust, Filth, and Scabs; rubbing and dressing his Legs afterwards with another Hair-patch.

This done, his Feet must be picked clean with an Iron Picker, to hinder them from taking up Stones, and his Mane and Tail combed down with a wet Mane-Comb; and having spirted some Beer or Wine into his Mouth, and brought him out of the Stable, the Groom should mount him, in order to take or walk him to some running River, or fresh clear Spring, a Mile or two distant from the Stable, where he is suffered to drink half his Draught at first, bringing him afterwards calmly out of the Water, and riding him gently for awhile; for thrusting him then into a swift Gallop, not only hazards the breaking of his Wind, but endangers the uncording or bursting him, begets in him an ill Habit of running away as soon as he has done drinking; and the Foresight he has of such violent Exercise, makes him often refuse to quench his Thirst. When he has walked gently a little Way, he may be put into a gentle Gallop, for five or six Score, then take Wind. And after he has been raked a pretty Space, the Rider shews him the Water again, and lets him drink as much as he pleases, and then gallops him again; proceeding thus till he will drink no more, avoiding above all Things, to gallop him so much as either to chafe or sweat him.

Note, That in galloping your Horse after Water, it is not improper to give him sometimes a watering Course sharply, or twelve or twenty Score, for then it will quicken his Spirits, cause him to gallop more pleasantly, teach him to manage his Limbs, and stretch forth his Body more largely.

When your Horse has done drinking, then take him to the Top of the next Hill, if there be any near the watering Place, or else to some such Place where he may gain more Benefit both from the Sun and Air, and there air him a Foot-pace an Hour, or so long as you'll think sufficient for the State of his Body, and afterwards ride him home.

Note, That Airing brings several Advantages to the Horse; first, it purifies the Blood, purges the Body from many gross and suffocating Humours, and so hardens and enseams the Horse's Fat, that it is not so liable to be dissolved by ordinary Exercise. Secondly, it teaches him how to let his Wind rake equally, and keep Time with the other Actions, or Motions of his Body. Thirdly, it sharpens the Appetite, and provokes the Stomach; which is of great Advantage both to Hunters and Galloppers, which are apt to lose their Stomach through Excess or Want of Exercise: For the Sharpness of the Air will drive the Horse's natural Heat, from the exterior to the interior Parts, which Heat, by helping the Digestion creates an Appetite. Lastly, it encreases Lust and Courage in him, provided he be not too early aired; though M. *Markham*'s Directions are different on this Article; for he will have a Horse aired before Sun-rising, and after Sun-setting; and the Gentleman's Jockey says, that nothing is wholsomer than early and late Airing, but Experience proves the contrary; for in this Art all Things that any ways weaken Nature, or hinder it from growing strong and courageous, are to be avoided; such as Cold, which is always greater early in

in the Morning, and in the Evening, than it is in the other Parts of the Day; which is evidently apparent in Horses that run abroad all the Winter, which however hardly bred, and kept with the best Care and Food, yet cannot by any Means be advanced to so good Case in Winter, as an indifferent Pasture will raise them to in Summer. And this holding true of the nocturnal Cold, must needs be verified in some Measure of the Morning and Evening Dew. Besides, that the Dews, and moist Rimes, do as much Injury to a Horse, as the sharpest Colds or Frosts; since a Horse any Ways inclinable to Catarrhea's, Rheums, or any other cold Distempers, is apt to have the Humours augmented, and the Disease must sensibly increase by the early and late Airings. But if he be not brought forth to Air, till the Sun be risen, his Spirits will be cheared up and comforted. Horses, besides, naturally desiring to enjoy the Sun's Warmth, as well as almost all other Creatures. Besides the Benefit of the Sun, the Air is so mild and temperate, that it rather invigorates than preys upon his Spirits; and rather increases his Strength, than impairs it.

Note also, That during the Time of your Horse's Airing, you will easily perceive several Marks of his Satisfaction, and the Pleasure he takes in this Exercise: For he will gape, yawn, and as it were, shrug his Body. If he offers to stand still to dung or startle, which his Airing will provoke, you must give him Leave, as likewise to stare about, neigh, or listen to any Noise.

When the Groom is return'd from Airing, and dismounted, he must lead his Horse on the Straw, which should always lie before the Stable-Door; and there, by whistling, and stirring up the Litter under his Belly, will provoke him to stale, which a little Practice will bring him to, and is advantageous for the Horse's Health, and the keeping the Stable clean; then leading him into his Stall (which should likewise be well littered) and having tied up his Head to the empty Rack, he takes off his Saddle, rubs his Body all over with the *French* Brush, then with the Hair-patch, and lastly with the woollen Cloth. This done, he cloaths him with a Linen Cloth next to his Body, and over that a Canvas Cloth, both made so fit as to cover his Breast, and to come pretty low down to his Legs; which is the *Turkish* Way of Cloathing. Over these he must put a Body Cloth, of six or eight Straps, which is better than a Sircingle, and Pad stuffed with Wisps, to keep his Belly in Shape.

This Sort of Clothing is sufficient at his first Stabling, because being inured to the cold Air, he will not be so apt to catch Cold; but when the sharp Weather approaches, and his Hair is perceived to rise about his outward Parts that are uncloathed, as Neck, Gascoins, *&c.* a woollen Cloth must be added to those above-mention'd; and for any Horse bred under the Climate of *England*, and kept only for ordinary Hunting, this is Cloathing sufficient.

Note, That both the Temperature of the Climate, and the State of the Body, are to be considered in the Cloathing of a Horse; and that all Horses are not to be cloathed alike; for the *Barb*, *Turkish*, *Spanish*, &c. require more Cloathing than the *English* common Horses, that are bred in a colder Climate, and have naturally thicker Skins and a longer Coat. But however, take this for a general Rule, that a rough Coat shews Want of Cloaths, and a smooth one Cloathing sufficient; observing, that if by the Countenance of your Horse, his Dung, and other outward Marks, he is known to be in Health, notwithstanding which his Coat stares still, you must add still more till it lies flat; as on the other Hand, if it will lie with the Assistance of a single Linen Cloth, he wants no other. But if after your Horse has been in Keeping some Time, you find him apt to sweat in the Night, it is a Sign that he is over fed, and wants Exercise: And if he sweats at his first coming from Grass, the Cloathing allotted at his first Housing, must rather be increased than diminished; for that Sweating proceeds from the foul Humours which oppress Nature; and when by Exercise they are evacuated, Nature will cease working, and he will continue in a temperate State of Body all the Year after.

The Horse cloathed, his Feet must be picked with the Iron Picker, and his Hoofs washed clean, with a Spunge dipped in fair Water, and then dried with Straw, or a Linen Cloth, washing, likewise, his Legs, if dirty, provided they be rubbed dry afterwards. Then the Horse is left on his Snaffle for an Hour or more, to sharpen his Appetite. The Hour expired, the Groom returns to the Stable, and taking a handful of Hay, let his Horse taste it out of his Hand, till he has eaten it; then he pulls off his Bridle, and having rubbed his Head and Neck clean with a Cloth, as before, he pulls his Ears, and stops his Nostrils, to make him snore, which will help to bring away the moist Humours which oppress his Brain; and then put on his Collar, and give him a Quartern of Oats well sifted. While he is eating his Corn, his Cloaths must be turn'd up, his Fillets, Buttocks, and Gascoins rubbed over with the Hair-patch; and after that with a woollen Cloth: Then a clean Flannel Fillet-Cloth is spread over his Fillets and Buttock, to make his Coat lie smooth, and his Housing-Cloth turn'd down upon it; anointing his Hoofs round, from the Cronet to the Toe, with an Ointment made for the Purpose; picking his Feet with an Iron Picker, and covering them with Cow-Dung; by which Time (if he be not a very slow Feeder) he will have eaten his Oats, which if he does with a good Appetite, he must have another Quart; feeding him thus by little and little, whilst he eats with an Appetite; but if he fumbles with his Corn, he must have no more.

This done, a sufficient Quantity of Hay, well dusted, must be thrown down to him on his Litter, and then shutting up the Windows and Stable-Door, he is left till One o'Clock in the Afternoon, at which Time the Groom returns to him, and having rubbed over his Head, Neck, Fillets, Buttocks, and Legs, as before, with the Hair-patch, and woollen Cloth, he'll feed him as before, leaving him afterwards till the Time of his Evening Watering, which should be about three in the Winter, and four in the Summer; when he'll come to him, dress and saddle him as before, and having mounted him, shall rake him to the Water, and after drinking and galloping, shall air him along by the River Side, till he thinks it Time to go home; then order him in all Points, as to rubbing, feeding, stopping his Feet, *&c.* as he did in the Morning; and having fed him at six, he must feed him again about nine; littering him then well, and throwing him Hay enough to serve him all Night, and leaving him till the next Morning. This Exercise of a Groom must be repeated every Day, and in the very same Manner: Though as to that of feeding him, he must sharpen his Stomach by Change of Meat; giving him one Meal clean Oats, another Oats and split Beans; and when he has brought him to eat Bread, he may give him another Meal of Bread, always observing to give him oftnest what he likes best. Some Horses are of so hot a Constitution, that without they may drink at every Bit, they cannot eat, and those Horses usually carry no Belly; in this Case, a Pale of Water must stand continually before them, or at least, Water must be offer'd them at Noon, besides what they fetch abroad at their ordinary Time. The Habit of the Body of a Horse, is also discover'd by his Digestion; whether he retains his Food long, which is the Sign of a bad Digestion; or whether Nature expells the Dung oftner, which if it does, and his Dung be loose and bright, it is a Sign of a good Habit of Body; but if he dungs hard and seldom, it is, on the contrary, a Sign of a dry Body; and therefore, to remedy this, a handful or two of Oats, well washed in Ale, ought to be given him once a Day, whereby his Body will be loosen'd and kept moist, serving likewise to expel Winds.

Note, That during this Fortnight's Keeping, you are to make several Observations, as to the Nature and Dispositions of your Horse, Temper of his Body, *&c.* and order him accordingly. 1. If he be of a churlish Disposition, you must reclaim him by Severity; if of a loving Temper, win him by Kindness. 2. You must

must observe whether he be a foul Feeder, or of a nice Stomach; if he be quick at his Meat, and retain a good Stomach, then four Times of full Feeding in the Space of a Day and Night, is sufficient; but if he be a slender Feeder, and slow at his Meat, then you must give but little at once, and often, as about every two Hours; for fresh Meat will draw on his Appetite; leaving always a little Meat in his Locker, for him to eat at his own Leisure, and when you find any left, you must sweep it away, give him fresh, and expose that to the Sun and Air, which will prevent its growing musty, and restore it to its former Sweetness.

By that Time the first Fortnight is expir'd, the Hunter will be in a pretty good State of Body, and fit for a moderate Hunting-Match; but how to proceed in this Exercise, meets with some Difficulties; for some would have a Horse which is designed either for a Buck-hunter or Fox-hunter, used from the Beginning to the Chase they are designed for. Others think those Chases too violent for a young Horse, and therefore chuse to train him for Harriers; which last Opinion, seems to be founded on Experience; and which may be confirmed by taking a slight View of the several Chases the most in Vogue here in *England*, viz. the Stag, Buck, Hind, Fox, Otter, and Hare.

There is very little Difference in the three fore-mention'd Chases, and the Inconveniencies of each of them, are, in a Manner, the same; for they are all, either in Covert, or at Force. Now if Deer be hunted in a Park, they usually chuse the most woody Part of it, as a Refuge from the Pursuit of their Enemies, which is both unpleasant to the Rider, and troublesome to the Horse to follow the Dogs through the thick Bushes; and besides, the Ground in Parks is usually full of Mole-Banks, Trenches, *&c.* which is dangerous for a young Horse to gallop on, till he has attained to some Perfection in his Stroke. But if they be turned out of the Park, and be hunted at Force, you'll find that as soon as you have unharboured, or rouzed them, they will immediately make out endways, before the Hounds, five or six, nay sometimes ten Miles, they following in full Cry so swiftly, that a Horse must be compelled to run up and down Hill without any Intermission; leaping Hedge, Ditch, and Dale, nay often crossing Rivers, to the great Danger of the Rider, as well as of the Horse. So that it is altogether improper to put a young Horse to such violent Labour at first, till by Practice and Degrees he has been made acquainted with hard Service. Besides the Swiftness and Violence of this Chase, the Danger of cracking his Wind, and bursting his Belly, of straining his Limbs, and of creating in a young Horse a Loathsomeness to his Labour; the Season for these Chases beginning about *Midsummer*, and ending about *Holy-Rood-Tide*, during which the Heat of the Sun is excessive, and so scorches the Earth, a violent Chase would hazard the melting his Grease; and the Weight of the Rider, by Reason of the Hardness of the Ground, would occasion Foundering, Splints, and Wind-Galls, insomuch that in a short Time, the Horse would prove altogether useless.

However, there is not the same Danger for all Sorts of Horses, without Distinction; but none should be employed in this Chase but those of stayed Years, and which by long Practice and Experience, have been trained to Hunting. Young Horses (as the Duke of *Newcastle* observes) being as subject to Diseases, as young Children, and therefore he advises any Man who would buy a Horse for his Use, either for a Journey, Hawking, and Hunting, never to buy him, till the Mark be out of his Mouth; for, if he be Sound of Wind, Limb, and Sight, he will last eight or nine Years with good Keeping, and never fails his Rider. An old Nag, in his Grace's Opinion, of some Huntsman, or Falconer, that is found, is the best; for he gallops on all Grounds, leaps over Hedges and Ditches, and never fails his Rider in a Journey, nor any where else.

Fox-Hunting (which is a Chase much admired by the present Mareschal *de Villeroy*, and at which I have had the Honour to accompany him often) is not at all proper for the training of a young Horse, since it is swift without Respite, and of long Continuance, both which are distasteful to him; but the greatest Inconveniency that happens to a Horse in this Chase, is this; that when a Fox is unkennelled, he seldom or never betakes himself to a champaign Country, but remains in the strongest Coverts, and in the thickest Woods; so that a Horse can but seldom enjoy the Pleasure of accompanying the Hounds, without hazarding being stubbed, or other Accidents equally dangerous. The fittest Horses for this Chase, are Horses of Strength and Hability; since it begins at *Christmass*, which is the worst Time for Riding; and ends at *Lady-Day*, when the Ground is fittest for it.

Neither is the Chase of the Otters convenient for a Horse; for he that will truly pursue this amphibious Sport, must often swim his Horse; which cannot be done without running some Danger.

The Chase of the Hare is not so contrary to the training of young Horses; because Hares, commonly running the champaign Country, and their Scent being not so hot as that of the Foxes, the Dogs are oftner at Default, the Horse has by that Means many Sobbs, whereby he recovers Wind, and regains new Strength.

The best Dogs to bring your Horse to Perfection of Wind and Speed, are the fleet northern Hounds; for they, by Means of their hard running, will draw him up to that extraordinary Speed, that he will not have Time to loiter; and by continual Practice will be so inured, and used to the Violence of their Speed; that, in a short Time, he will be able to ride on all Sorts of Ground, and be of such Command upon the Hand, that he will strike at what Rate you please, and three Quarters Speed will be less troublesome to him, than a *Canterbury* Gallop.

The Day being fixed for your Horse's first going abroad after the Dogs; the preceding Day he must be ordered after this Manner. In the Morning proceed in your usual Manner, as to dressing, feeding, watering, *&c.* only abstaining that Day from giving him Beans, because they are hard of Digestion, instead of which you'll give him most Bread, if he can eat it, because more nourishing than Oats; and after the Evening watering, which ought to be somewhat earlier than at other Times, give him only a little Hay out of your Hand, and no more till the next Day, at his Return from Hunting; and to prevent his eating his Litter, or any Thing else, but what you give him, you must, instead of a Muzzle, put on a Cavezone, join'd to a Head-stall of a Bridle, being lined with double Leather for fear of hurting him, and tying it so straight as to hinder his eating; and this will prevent Sickness in your Horse, incident to some Horses, when their Muzzle is set on, notwithstanding the Invention of the Lattice Window, at present so much in Use; but this Way your Horse's Nostrils are at full Liberty, and he will never prove sick. But as to his Corn, give him his Meals, both after his Watering, and at nine o'Clock; at which Time it ought to be litter'd very well, that he may the better take his Rest, and leave him for that Time.

About four o'Clock the next Morning, he must have a Quarter of a Peck of clean Oats, mixed with a Quart of strong Ale, and while he is eating it, his Litter and Dung must be put back, and the Stable cleansed. When he has done eating, he must be bridled and dressed; when dressed, saddle him, throwing afterwards his Cloaths over him, and letting him stand till the Hounds be ready to go forth, forbearing the drawing the Saddle Girt strait, till you are ready to mount, lest otherwise he should grow sick. But generally old Horses are so crafty, that when an ignorant Groom goes to gird them up hard, they will stretch out their Body to such a Bigness, by holding up their Wind (on Purpose to gain Ease after they are girt) that it will appear difficult to girt them; but afterwards they let go their Wind, and their Body falls again.

When the Hounds are unkennelled (which ought not to be till Sun-rising) you must go up and down the Field along with them, and rake your Horse up and down gently till a Hare be started, always observing to let him smell at other Horses Dung (if he wants to do it) which will provoke him to empty himself, and let him stand still while he does it. And if you meet with any dead Frog, Rushes, or the like, ride him upon them, and by whistling provoke him to empty his Bladder.

When

When the Hare is ſtarted, you are to follow the Hounds as the other Hunters do, only obſerving that this being the firſt Time of your Horſe's hunting, he is not ſo well acquainted with the different Sorts of Ground, as to know how to gallop ſmoothly and with Eaſe on them: Therefore you are not to put him as yet to above half his Speed, that he may learn to carry a ſtaid Body, and to manage his Legs both as to Fallow, and Greenſworth; neither are you to gallop him often, nor any long Time together, for Fear of diſcouraging him, and breeding in him a Diſlike to the Sport; but obſerving to croſs the Field ſtill to your beſt Advantage, you ſhall make into the Hounds at every Default, and ſtill keep your Horſe as much as poſſible within the Cry of the Dogs, that he may be uſed to it, and you'll find that in a very ſhort Time he'll take ſuch Delight and Pleaſure in it as to be eager to follow them. If at any Time the Chaſe be led over a Carpet-Ground, or ſandy Highway, on which your Horſe may lay out his Body ſmoothly, you may there gallop him for a Quarter or half a Mile, to teach him to lay out his Body and to gather up his Legs, to enlarge and ſhorten his Stroke, according to the different Earths he gallops on, as if on a Green, Swarth, Meadow, Moor, Heath, *&c.* then to ſtoop and run more on the Shoulders: If among Mole-Hills, or over high Ridges and Furrows, then to gallop more roundly, and in leſs Compaſs, or according to the vulgar Phraſe, two up and two down, that thereby he may ſtrike his Furrow clear, and avoid ſetting his fore Feet in the Bottom of it, and by that Means fall over; but by this Way of gallopping, though he ſhould happen to ſet his Feet in a Furrow, yet carrying his Body ſo round, and reſting on the Hand in his Gallop, would prevent his falling; and nothing but Uſe and ſuch moderate Exerciſe can bring him to his Perfection.

About three o'Clock in the Afternoon you muſt have your Horſe home in a Foot-pace, as you came out in the Morning, but he ſhould be cool before he comes out of the Field, and if he has not ſweated a little you muſt gallop him gently on ſome ſkelping Earth, till he ſweats at the Root of his Ears, a little on his Neck, and in his Flank, which muſt be done of his own voluntary Motion, without the Compulſion of Whip and Spur; and then when he is cool, have him home and ſtable him, avoiding walking him in hand to cool him, leſt he ſhould cool too faſt.

When ſet in his Stall, which ſhould be well littered againſt his coming home, his Head muſt be tied up to the Ring, with the Bridle, rubbing him well afterwards with dry Straw, both Head, Neck, Fore-bowels, Belly, Flank, Buttocks, and Legs, and then his Body over with a dry Cloth, till there be not a wet Hair left about him. This done, his Saddle is taken off, and the Place where the Saddle ſtood rubbed dry, cloathing him immediately after with his ordinary Cloaths leſt he ſhould catch Cold, unleſs he be too hot, for then a ſpare Cloth muſt be thrown over him for Fear he ſhould cool too faſt; and leaving him afterwards to ſtand on his Snaffle two Hours or more, ſtirring him now and then, with the Whip, in his Stall, to keep his Legs and Joints from growing ſtiff.

When thoroughly cold he muſt be unbridled, have his Head rubbed, and his Feet picked from Dirt and Gravel, which he may have gathered abroad; and then his Collar is put on, and a Quart or three Pints of Oats mixed with a Handful of clean duſted Hempſeed given him: After which the ſpare Cloth is removed for Fear of keeping him hot too long; and when he has eaten his Corn, he muſt be left to reſt two or three Hours, with a ſufficient Quantity of clean Hay before him.

Whilſt you are abſent from him, you ſhall prepare him a good Maſh, made of half a Peck of Malt well ground, and boiling-hot Water, obſerving to put no more Water than your Malt will ſweeten, and your Horſe will drink, and having ſtirred them together with a Stick, you'll cover it over with a Cloth, till the Water has extracted the Strength of the Malt. Then when it is cold, that you can ſcarce perceive it to ſmoak, offer it to your Horſe, and when he has drank the Water, let him, if he will, eat the Malt alſo; but if he refuſes to drink, yet you muſt give him no other Water that Night, but by placing it in one Corner at the Head of the Stall, in ſuch a Manner that he may not throw it down, let him ſtand by it all Night that he may drink at his Pleaſure.

When he has eaten his Maſh, ſtrip him of his Cloaths, and run him over with your Curry-Comb, *French* Bruſh, Hair-patch, and Woollen Cloth, and cloath him up again, cleaning his Legs as well as his Body of all Dirt and Filth; then remove him into another Stall, and bathe his Legs all over from the Knees with a Quart of warm Urine, in which four Ounces of Salt-petre have been diſſolved; then having rubbed his Legs dry, ſet him into his Stall, and give him a good Home-feeding of Oats, or Bread, or both, and having ſhook a good deal of Litter under him that he may reſt the better, and thrown him Hay enough for all Night, ſhut up your Stable cloſe, and leave him to his Reſt till Morning; at which Time you muſt come to him betwixt ſix and ſeven o'Clock. If he be laid, diſturb him not, but ſtay till he riſes of his own Accord; but if he be riſen then go to him, and begin by putting back his Dung from his Litter, then proceed to order him as in his Days of Reſt, *i. e.* to give him a Handful or two of Oats before Water, then to dreſs, water, air, feed, *&c.*

The next Day after he has reſted you ſhall hunt him again; hunting him thus three Times a Week, for a Fortnight together, obſeving to give him his full Feeding, and no other Scowring but Maſhes and Hempſeed, which is equal in Virtue to any other, and only carries off ſuperfluous Humours.

By this Time your Horſe will be drawn ſo clean, his Fleſh will be ſo unſeamed, and his Wind ſo improved, that he will be able to ride a Chace of three or four Miles without much Blowing or Sweating, and you'll find by his Chaul and Flank, as well as by his Ribs, that he is in an indifferent State of Body; and therefore the next Fortnight following you muſt increaſe his Labour, by which Means you will come to a true Knowledge of what he is able to do; and whether or no he will ever be fit for Plates, or a Match.

When your Horſe is ſet over Night, and fed early in the Morning, then go into the Field with him, and when he is empty, as he will be by that Time you have ſtarted your Game, you ſhall follow the Dogs at a good round Rate, as at half Speed, and ſo continue till you have killed or loſt your firſt Hare. This will ſo rack your Horſe's Mind, and by this Time he will have ſo emptied himſelf, that he will be fit to be rid the next Chace briſkly: Which as ſoon as begun, you ſhall follow the Dogs, at three Quarters Speed, as near to them as is conſiſtent with the Diſcretion of a good *Horſeman*, and a true Huntſman, who will always take Care not to ſtrain him.

During this Day's Riding you'll obſerve your Horſe's Sweat under his Saddle and fore-Bowels; if it appears white like Froth or Soap-Suds, it is a Sign of inward Glut and Foulneſs, and that your Day's Sport was fully ſufficient, and therefore you muſt have him home, and order him as before directed. But if your Sport has been ſo indifferent as not to ſweat your Horſe thoroughly, then make a Train-Scent of four Miles long, or thereabouts, and lay on your fleeteſt Dogs, ride it briſkly, and then, having firſt cooled him in the Field, ride him home, and uſe him as aforeſaid.

When you unbridle your Horſe, give him inſtead of Hemp-ſeed and Oats, a handſome Quantity of Rye-bread, which being cold and moiſt, will aſſiſt in cooling his Body after his Labour, and prevent Coſtiveneſs, to which you'll find him addicted; then give him Hay, and afterwards a Maſh, and afterwards order him in all Points as formely.

Note, That a *Train-Scent* is the trailing or dragging of a dead Cat or Fox, three or four Miles, and then laying the Dogs on the Scent; for which Purpoſe two or three Couple of the fleeteſt Hounds muſt be kept, not employing Harriers in it; for it would teach them to lie off the Line, and fling ſo wide, that they will never be worth any Thing.

The Day following you may hunt your Horſe again, but not ſo ſeverely as you did the Day before, till the Afternoon, but then ride him after the Hounds briſkly, and if that does not make him ſweat thoroughly, make another

another Train-Scent, and follow the Dogs three Quarters Speed that he may sweat heartily. When you have a little cooled him, have him home, and upon his first Entrance into the Stable, give him two or three Balls as big as Walnuts of the following Scowring.

Take Butter four Ounces, Lenitive Electuary two Ounces, Granwel Broom and Parsley-Seeds, of each one Ounce, Jallap an Ounce; put the Seeds into Powder, and stir them into a Paste, with the Electuary and the Butter, knead it well, and keep it close in a Pot for Use.

As soon as you have given your Horse these Balls rub him dry, then dress him, and cloath him up warm, and let him stand two or three Hours on the Snaffle; then give him two or three Handfuls of Rye-Bread, and order him as you did before, as to Hay, Provender, Mash, &c. and so leave him till the Morning. Then come to him, and first observe his Dung, whether it keeps the true Colour, or whether it appears dark or black, or red and high Colour; next, whether it be loose and thin, or hard and dry. If it be of the right Colour, I mean of pale Yellow, it is a Sign of Health, Strength, and Cleanness; if it be dark or black, then it is a Sign there is Grease and other ill Humours stirred up, which are not yet evacuated; if it be red and high-coloured, then it is a Token that his Blood is feverish and distempered through inward Heat; if it be loose and thin it is a Sign of Weakness, but if hard and dry, it shews the Horse to be hot inwardly, or else that he is a foul Feeder; but if his Dung carries a Medium betwixt hard and soft, and smell strong, it is a Sign of Health and Vigour.

These Observations made with regard to his Dung, he must be fed, dressed, watered, &c. as in his former Days of Rest; observing always to give Variety, and his Belly full of Corn and Bread. Next, have him abroad in the Fields again, but by no Means put him to any Labour further than to take him from Hill to Hill after the Dogs, to keep him within Sound of their Cry; for the Design of this Day's Exercise is only to keep him in Breath and get him an Appetite. Observe as you ride that you let him stand still to dung. When the Day is near spent, bring him home without the least Sweat, and order him as at other Times, abstaining only from giving him Scowrings, or Rye-Bread. You may, if you will, water your Horse this Day, both at your going into the Field, and at your coming home, observing to gallop after it, to warm the Water in his Belly.—The next is a Day of Rest.

Note, That in the same Manner in every Respect you have spent this Week, you must spend the next likewise without Alteration in any Point, and by that Time your Horse will be drawn clean enough for any ordinary Hunting; so that observing afterwards to hunt him moderately twice or thrice a Week, according to your own Pleasure, and the Constitution of his Body, you may be sure to have him in a good State of Health, without Danger of his Wind, Eyesight, Feet, or Body.

But perhaps we design to order our Horse for a Match or a Plate, and then there are several other necessary Rules to be observed.

The first Thing to be done in this Case, is to keep him for a whole Month carefully, and without any violent Exercise, in order to draw his Body perfectly clean, and to refine his Wind to that Degree of Perfection it can attain to; which to accomplish, we must observe whether our Horse be low or high in Flesh, or whether he be dull and heavy when abroad, and this occasioned through too much hard Riding, or through some Grease that has been dissolved by hunting, and has not been removed for Want of a Scowring. If he appears sluggish and melancholly from either of these Causes, we must give him half an Ounce of *Diapente* in a Pint of good old *Malaga* Sack, which will both cleanse his Body and revive his Spirits; and then feed him for the first Week continually with Bread, Oats, and split Beans, giving him sometimes one and sometimes the other, according as he likes, always leaving some in his Locker, to eat at his own Leisure; observing at the same Time, that the Oats must have been well dried in the Sun, and afterwards hulled, before they are given our Horse: That the Beans must also be hulled, and that he must have none but the Crumb of the Bread, because the Crust is hard of Digestion, and apt to dry and heat his Body. This Bread must be made of an equal Quantity of Beans and Wheat, kneaded with new Ale-Barm, and the Whites of new-laid Eggs. Thus our Horse is to be fed till we have made him wanton and gamesome.

But if on the contrary our Horse be brisk and lively, we must abstain from giving him any Sort of Scowring whatsoever; for there being no foul Humours, or any other superfluous Matter left in his Body for the Physick to work upon, it will prey upon the Strength of his Body, and by that Means weaken it.

Besides the above-mentioned Directions, as to feeding our Horse, we must sweat him twice this first Week, not by hunting him after the Hare, as heretofore done, but by Train-Scents (*i. e.* if he be engaged in a hunting Match) since the former may prove deceitful on this Occasion; for though the Hounds be very swift, yet the Scent being cold, the Dogs will often be at fault, and by that Means the Horse will have many Sobs, so that when he comes to run Train-Scents in Earnest, our Horse will look for Ease, his Wind being not so perfect as it ought to be. Therefore we must lead our Train-Scents with a dead Cat, over such Grounds as we are likely to run upon, and best agree with our Horse's Humour, making Choice for that Purpose of the fleetest Hounds we can get; for then our Horse will be kept up to the height of his Speed. Order the Number of Train-Scents we are to ride at a Time, according to the Strength and Ability of our Horse in performing his Heats; for if we labour him beyond his Strength it will take him off his Speed, weaken his Limbs, and daunt his Spirits. Likewise if we give him too little Exercise it will breed Pursiveness and ill Humours, as Glut, &c. which will render him so lazy, that when he comes to be put to Labour, above his usual Rate, he will grow restive and settle like a Jade: Therefore if we are to run eight Train-Scents and a straight Course more or less, we must put him to such severe Labour not above twice in our Month's whole Keeping; and that should be in the first Fortnight, for then he will have another Fortnight to recover his Strength again; though he ought not to remain idle during that last Fortnight, but his Labour must be proportionable to his Strength and Wind, *i. e.* he should only perform then but half, or three Parts of his Task: Taking Care however, that his last Trial in the first Fortnight be a Train-Scent more than our Match, for we shall find thereby what he is able to do.

If we intend our Horse for a Plate, he should be kept near the Place where he is to run, that he may be acquainted with the Ground; regulating the Number of Heats according to the Articles stipulated for the Match, and the Sharpness of them according to the Temper of his Strength, and the Purity of his Wind; providing when we heat him, some Horses upon the Course to run at him, which will quicken his Spirits, and encourage him, when he finds he can command them at his Pleasure, abstaining always from giving our Horse a bloody Heat for ten Days or a Fortnight before the Day the Plate is to be run for; giving him his last Heat before the Day of Trial in all his Cloaths, only skelping it over, which will make him run the next Time much more vigorously, when he shall be stript naked, and feel the cold Air pierce him.

During this Month, both on his resting Days, and after his Sweats on heating Days, we are to observe the same Rules taught in the first Week of our third Fortnight's Keeping, omitting only all Scowrings but Rye-Bread and Mashes, since our Horse be in so perfect a State of Body as not to need any; only if we think there may be any Occasion, and our Horse proves thirsty, we may give him about eight or nine o'Clock at Night, to cool him, and quench his Thirst, two Quarts of Barley-Water, mixed with three Ounces of Syrup of Violets, and two Ounces of Syrup of Lemons. If he refuses this Mixture, it must be left to stand by him all Night.

During the last Fortnight, his Oats must not only be dried and hulled, but likewise half a Strike of it should be washed in the Whites of a Dozen or twenty Eggs, which must be left to soak spreading them in the Sun, the

the next Morning, till they be as dry as they were at first, and then be given to the Horse to strengthen his Wind.

If he will eat his Oats without Beans, there is no Necessity to give him any; and this Fortnight his Bread ought to be three Parts Wheat to one of Beans. If he be inclined to be costive, we must relieve Nature, by giving him Oats washed in two or three Whites of Eggs, and all beat together.

During the last Week, instead of a Mash, he should have the Barley-Water heretofore described; giving him Hay, as much as he will eat, till a Day before he is to ride his Match, when we must be pretty sparing of it, that he may have Time to digest that he has eaten, muzzling him then with our Cavezone; and feeding him that Day, till the next Morning he is led out, as much as possible. That Morning, an Hour before we are to lead out, we'll give him a Toast or two of white Bread steeped in Sack, and so lead him in the Field.

But if we are to run for a Plate, which usually is not till three o'Clock in the Afternoon, our Horse must be had out early in the Morning to Air, that he may empty his Body; and at his Return from Airing, we'll feed him with Toasts in Sack. When he has eaten what we think fit to give him, we put on his Cavezone; then chafe his Legs soundly with Train-Oil and Brandy warmed together, shake up his Litter, shut up our Stable close, and leave him to his Rest, till the Hour of his going into the Field.

While our Horse is thus taking his Rest, I'll give some Instructions to the Person who is to ride him, who should always be the same that has trained him.

The first Thing requisite in a Rider, next to the Faithfulness in his Trust, is to have a good close Seat, keeping his Knees firm to his Saddle Skirts, his Toes turn'd inward, and his Spurs outward from the Horse's Sides; his Left-Hand governing his Mouth, and his Right commanding his Whip, taking Care throughout the whole Trial, to sit firm on his Saddle, without waving, or standing up in his Stirrups, which very much incommodes the Horse. When he spurs his Horse, he must not strike him hard with the Calf of his Legs, as if he would beat the Wind out of his Body, but just turn his Toes outwards, and bring the Spurs quick to his Sides; and such a sharp Stroke will be more serviceable to the Quickening of his Horse, and sooner draw Blood, never spurring his Horse but when there is occasion, and avoiding spurring him under the Fore-Bowels, between his Shoulders and his Girths, near the Heart, till the last Extremity. When he whips his Horse, it must be over the Shoulder on the near Side, except upon hard running; and when he is at all, then he must be struck in the Flank with a strong Jirk, for there the Skin is tendereſt, and most sensible of the Lash. Taking Care when he whips, or spurs his Horse, and he is certain that he is at the Top of his Speed, if then he claps his Ears on his Pole, or whisks his Tail, to bear him hard, and to give him as much Comfort as ever he can, by shaking his Snaffle to and fro in his Mouth, and by that Means forcing him to open his Mouth, which will comfort him, and give him Wind.

If while he rides, there be any high Wind stirring, and that Wind be in his Face, he must suffer his Adversary to lead, and hold hard behind him, till he sees his Opportunity of giving a Loose; taking Care, notwithstanding, to ride so close to him, that his Horse may break the Wind from his own; and that he, by stooping low in his Seat, may shelter himself under him, which will assist the Strength of his Horse. But if the Wind be in his Back, he must ride exactly behind his Adversary, that his Horse may alone enjoy the Benefit of the Wind, by being as it were blown forward.

He must observe next, what Ground his Horse delights to run best on, bearing him, as much as his Adversary will give him Leave, on level Carpet-Ground; because his Horse naturally will be desirous to spend himself more freely thereon. But on deep Earth, *&c.* he must give him more Liberty, because he will naturally favour himself thereupon. In running up a Hill, he ought to favour his Horse, and bear him for fear of running him out of Wind; but down Hill (if his Horse's Feet and Shoulders will endure it, and he dares venture his own Neck) he must always give him a Loose. Taking this for a general Rule, that if he finds his Horse to have the Heels of the other, he be careful to preserve his Speed till the last Train-Scent, if he is not to run a strait Course; but if he is, then till the Course, and so husband it then too, that he may be able to make a Push for it at the last Post.

He must next observe his Opposite's Horse, and if he be fiery, run just behind, or just Side by Side, and with his Whip make as much Noise as he can, to force him on faster than his Rider would have him, and thereby spend him the sooner. Or else keep just before him upon such a slow Gallop, that he may either over-reach, or by treading on his Horse's Heels, endanger falling over. He should likewise take Notice on what Ground the contrary Horse runs worst, and on that Ground give his a Loose, that the Adversary's being forc'd to follow, may hazard Stumbling, or clapping on the Back Sinews. Minding, besides, in his Riding, the Correction of the Hand, the Whip and the Spur of the opposite Rider, and when, and how often he makes Use of them; and when he perceives that his Horse begins to be blown, by any of the aforemention'd Symptoms, as whisking his Tail, clapping down his Ears, holding out his Nose like a Pig, *&c.* he must take it for granted that he is at the Top of what he can do; therefore he ought to observe, in this Case, how his own rides, and if he runs chearfully and strongly without spurring, he should keep his Adversary to the same Speed, without giving him Ease, and by that Means will soon bring him to give out, or distance him.

At the End of every Train-Scent, Notice should be taken of the Condition the other Horse is in, and how he holds in his Labour; which may be easily discovered by his Looks, the Working of his Flank, and the Slackness of his Girths. For if he looks dull, it is a Sign his Spirits fail him, as well as his Wind, if his Flanks beat much, and consequently his Strength. If his Wind fails him, his Body will grow thin, and appear tucked up, which will make his Girths appear slack to the Eye; which is the greatest Sign of a Horse's Weakness; and the surest that he'll lose the Wager.

When each Train-Scent is ended, or after every Heat for a Plate; the Groom must, with an old Piece of a Sword-Blade (called by the Duke of *Newcastle*, a *Knife of Heat*) scrape off all the Sweat from the Horse's Neck, Body, *&c.* rubbing him afterwards all over, first with Straw, and then with dry Cloaths, both Linen and Woollen (which have been steeped in Urine and Salt-petre a Day or two, and then dried in the Sun) while others are employ'd about his Legs; which after they have been rubbed dry, must be chafed with wet Cloaths, steeped likewise in Urine and Salt-petre, never giving over till the Horses are called by the Judges to start again.

The next Thing to be considered, is the Office of the Judges or Triers, which is to see that all Things are order'd according to the Articles, which to that End, are to be publickly read before the Horses start.

Therefore each Trier, on whose Side the Train is to be led, according to the Articles, gives Direction for its Leading, according to the Advice of the Rider, or his Knowledge of the Nature and Disposition of that Horse on whose Side he is chose. — Each Trier ought to be so advantageously mounted, as to ride up behind the Horses all Day; and to observe that the opposite Horse rides his true Ground, and keeps to the Articles in every Point, or else not permit him to proceed. — After each Train-Scent is ended, each Trier is to look to that Horse, against whom he is chosen, and take Care that he be no Ways relieved but with rubbing, except Liberty on both Sides be given to the contrary. As soon as the Time allowed for rubbing is expired, which is generally half an Hour, they shall command the Riders to mount, and if either Rider refuses, it may be lawful for the other to start without him, and having beat him the Distance agreed on, the Wager is to be adjudged on his Side.

The Triers must keep off all other Horses from crossing the Riders, or leading them; only they themselves

elves may be allowed to instruct the Riders by Word of Mouth how to ride, whether slow or fast, according to the Advantages he perceives may be gain'd by his Directions. If there be any Weight agreed on, they shall see that both Horses bring their true Weight to the starting Place, and carry it to the End of the Train, on Penalty of losing the Wager. — The same Rules are to be observed, especially this last, by those who are chosen to be Judges at a Race for a Plate; only they usually stay in the Stand, that they may the better see which Horse wins the Heat.

Now for running for a Plate, there are not so many Observations to be made, nor more Directions requir'd than what have been already mention'd; only this, that if you know your Horse to be tough at Bottom, and that he will stick at Mark, to ride him each Heat, according to the best of his Performance, and avoid as much as possible either riding at any particular Horse, or staying for any, but to ride each Heat throughout with the best Speed you can. But if you have a fiery Horse to manage, or one that is hard-mouth'd, and difficult to be held, then start behind the rest of the Horses, with all the Coolness and Gentleness imaginable; and when you find your Horse to begin to ride at some Command, then put up to the other Horses, and if you find they ride at their Ease, and are hard held, then endeavour to draw them on faster; but if you find their Wind begins to rake hot, and that they want a Sob, if your own Horse be in Wind, and you have a Loose in your Hand, keep them up to their Speed, till you come within three Quarters of a Mile of the End of the Heat; and then give a Loose and a Push for it, and leave to Fortune, and your Horse's Goodness, the Event of your Success. Avoiding all foul Play, as crossing, hanging on the Posts, leaning on the other Horseman, yoking, *&c.* which are to be abhorred by all honest Horsemen.

When either your Hunting-Match, or your Trial for the Plate is ended, as soon as you have rubbed your Horse dry, you must cloath him up, and ride him Home, where you must give him first, a Pint and a half of sweet Milk, with three Yolks of Eggs beaten into it, which must be made lukewarm, adding to it afterwards, three-penny worth of Saffron, and three Spoonfuls of Sallad Oil; which Mixture ought to be given him in a Horn.

This done, dress him slightly over with your Curry-Comb, Brush, and woollen Cloath; and then bathe the Place where the Saddle stood with warm Sack to prevent Warbles, and wash the spurring Places with Piss and Salt, anointing them afterwards with Turpentine, and Powder of Jet mixed together, littering well the Stable, and then cloathing him up quickly. And after he has stood for two Hours, he must be fed with Rye-bread, after that with a very good Mash; then giving him his Belly full of Hay, and what Corn and Bread he'll eat. And lastly, bathing his Legs well with Urine and Salt-petre, leaving Corn in his Locker, without disturbing him any more till next Morning.

Horses employ'd in other Services, as in the Army, Coach-Horses, Pack-Horses, *&c.* need not so much Care and Attendance; and every Groom knows how to dress them, feed them, *&c.* to keep them in a good State of Body; and render them thereby capable of doing the Service they are design'd for. Though a Master should not entirely repose himself of their Care, on the Knowledge and Probity of his Groom, but should visit his Horses as often as his other Affairs will permit, and even sometimes make that Visit one of his principal Occupations, taking a particular Care that they should be very well fed, according to his Intention; for it happens but too often, that Grooms pocket Corn, and make Hay their only Diet; or if they give them Oats, it is, to make Use of the *French* Expression, *avec une fourche*, with a Fork, *i. e.* so sparingly, that it only serves to sharpen their Appetite for more. This Abuse is very common in Livery-Stables, and in those of Inns, where Gentlemen, Travellers, or others, pay but too often for Corn which has never been given to their Horses. Therefore it is not beneath any Gentleman, even of the first Rank, to repair to the Stable at that Time Corn is to be given to his Horses, and wait there till they have eat it quite; otherwise, if he content himself with seeing it given to his Horses, he has no sooner his Back turned, but the Corn is taken from before his Horses; which I know by Experience. I have also seen here in *England*, Straw cut very small, and mixed with perhaps a quarter of the Quantity of Oats, and given to a Horse; and Travellers tying a Horse they have hired at the Door of a Tavern, or other Publick-House, for half a Day or more, and leaving him there to feed on the Air like a Cameleon, which is both unjust and barbarous. For my Part, I am of Opinion, that a Traveller ought to take as much Care of his Horse, as of himself, and that if one must be neglected, the Traveller should, and not his Horse, since if his Horse fails him through Want, he cannot proceed on his Journey; for which he can blame no Body but himself.

Horses are subject to an infinite Number of Diseases, or Infirmities, for which there are as many different Remedies, some good, some bad, some efficacious, or Specificks, and some of no Effect, since Empirism reigns as much among Horse-Doctors (as we are pleased to call them) as it does among those who have a far more noble Subject for Object of their Science.

As it would be endless to enumerate here all the Diseases a Horse is Subject to, I'll confine myself to the most dangerous; beginning by the *Farcy*.

The FARCY, *Farcin*, or FASHIONS, is a Disease in Horses, something of the Nature of Scabs or Mange.

The *Farcy* is infectious, and spreads a true Plague. *Vegetius* calls it *morbus farciminosus*. It consists in a Corruption of the Blood, which shews itself in Eruptions of hard Pustules, Knots or Strings along the Veins, and in Ulcers which are not cured without great Difficulty.

The *Farcy* is ordinarily occasioned by over Heats and Colds, sometimes by Spur-galling with rusty Spurs, Snaffle-Bit, or the like; or by the Bite of another Horse infected with it; or if in the Leg, by cutting or interfering.

This Disease is commonly divided into these Kinds, *viz. Button*, or *knotted Farcy*, the *running Farcy*, the *Water Farcy*, and the *Pockey Farcy*; which are all the same, only differing in Degrees of Malignity.

As we have observed, that this Disease proceeds from the Corruption of the Blood, the best Method of curing it is, by correcting and carrying off the Humours the Blood is vitiated with, in order to restore it to its pristine State, and this must be done soon; otherwise, if the *Farcy* be too far gone, and has seized the Horse's Lungs, or some other noble Parts, it is not to be attempted with any great Hope of Success.

The first Remedy to be administered, in this Case, is a purging Mash, to mitigate the Venom, and carry off a great deal of those Humours from the vital and noble Parts; repeating the same Remedy twice, thrice, or four Times, at due Intervals, *i. e.* as soon as his Strength will permit. — The following is an excellent Purge for this Purpose.

Take four Ounces of Aloes Sucotrina, reduced into Powder, and pour upon it half a Pint of Spring-Water, wherein has been dissolved, over a gentle Fire, an Ounce of *Spanish* Liquorice Juice; put them in an Earthen Pan, over a gentle Fire, stirring it continually, that the Aloes may not burn at the Bottom, and till about half the Water be evaporated. Which done, there must be added to it Julap, Colocynthus, Tartar, Agarick, all in Powder, of each half an Ounce; *Mercurius Dulcis* half an Ounce; and Oil of Annisseed one Drachm and a half, mixing well all together in a Mortar, to be formed into Balls. Of which one Ounce, or ten Drachms, is a Dose sufficient to purge any Horse, or at most one Ounce and a half.

After your Horse has done taking this Purge, you must give him at a Time, mixed in his Oats and Beans, three or four Ounces of the following digestive Powder.

Take one Pound of Antimony in Powder, half a Pound of *Lignum Vitæ* in Powder, three Ounces of Cinnaber of Antimony; Powder of Liquorice four Ounces; Powder of Elecampane four Ounces; Annisseed three

three Ounces; all which muſt be mixed together, and kept in a Bottle well cork'd for Uſe.

While your Horſe is under Cure, he muſt drink no Water without a Quart, three Pints, or more, of the following Diet-Drink, put in his Pail, adding to it as much cold Water as you think he will drink at a Time, and if he refuſes at firſt, let him be without Water till he drinks it.

Take one Pound of Antimony in Powder, one Pound of Quickſilver, grind them well together in an Iron Mortar for about three or four Hours, then boil them in a new Iron Pot, being firſt tied up in a Piece of Cloth, with theſe following Ingredients tied up in a Rag likewiſe, *viz.* Raſpings of Guajacum, three Pounds; the Bark of Guajacum bruiſed, two Pounds; Raiſins ſlit, one Pound and a half; Figs ſlit, one Pound; Carraway-Seeds half a Pound; Fennel-Seeds, half a Pound; Liquoriſh cut and ſlit, half a Pound; boil all theſe in eight or ten Gallons of running Water, till it be reduced to half; to which add three Quarts of Lime-Water.

Laſtly, if you perceive that any of the Knots or Swellings are ripened, you muſt open them with a Lancet to let out the Corruption, and then waſh them with the following green Water.

Take one Ounce of Verdigreaſe, one Ounce and a half of Roch Allum, two Ounces of Copperas, one Ounce and a half of Roman Vitriol, all in Powder; put them into a Quart Bottle, upon which pour one Quart of the beſt and ſtrongeſt White-Wine Vinegar; put this Bottle into a Kettle full of Water, on a Rowl of Hay, to hinder it from touching the Bottom of the Kettle, and make it ſtand upright, ſo that two or three Inches of its Neck may remain above the Water: The Bottle being corked, with a Cork with two or three Notches for Vents leſt the Bottle ſhould break, put the Kettle over a Fire, or let it boil till the Vinegar has diſſolved the Powders, helping to do it, by often ſhaking the Bottle. When diſſolved, take the Liquor from the Fire, and keep it in a Bottle well corked.—Half a Pint or more of this Vinegar is mixed with a Quart of old Chamber-Lye, when one wants to uſe it.

Note, That beſides the knotted Farcy, which this green Water cures effectually, it cures likewiſe, at once or twice dreſſing the *Mellander*, the *Rat Tails*, *Scratches*, gourd or ſwell'd Legs and Heels; it prevents and cures the Greaſe fallen into the Legs and Heels, cleanſes and heals all Ulcers and Wounds, prevents the breeding of *Worms* and *proud Fleſh*, expelling beſides or driving away any Flux of Humours from any Part; alſo *Clifts* and *Cracks* in the Heels, Pains, *&c.* preventing of Wind-Gales, *&c.* the green Water alone, without the Chamber-Lye, is the beſt Remedy to cure all Fiſtula's, Cankers, and galled Backs.

Horſes are alſo ſubject to *Colds*, *Coughs*, &c. which to cure, eſpecially *New Cold*, *Cough*, or *Graſs Cold*, the following pectoral Drench is excellent.

Take one Pound of Raiſins of the Sun, two Ounces of ſlic'd Liquorice, two Ounces of Sugar-candy, one Pound of Treacle, three Ounces of Sallad Oil, three Ounces of Horſe Spice, two or three Heads of Garlick pounded with Raiſins, two Spoonfuls of Honey, and three Quarts of Ale; boil it till it be reduced to two Quarts, and give about a Pint of it in the Morning, faſting one or two Hours after it; and repeating it every Morning as Occaſion requires. Twice is enough for a Cold, and the whole will do in moſt of the other Caſes.—It is good for a *Surfeit*, *ſhort winded*, *Head-bound*, and to make a lean Horſe thrive.

As Horſes are very ſubject to *Swellings*, the following Poultice is very good to diſſolve them.

Take of our Garden green Orris Roots, and white Lilly-Roots, of each an Ounce, Marſh Mallows, Pellitory, Pennyroyal, Origan, Calamint, Rue, of each a Handful, Camomile, Melilot, and Elder Flowers, of each half a Handful, green Anniſeeds, common Fennel and Cuminſeeds, of each half an Ounce; boil them to a Maſh in Water and White-Wine Vinegar, then bruiſe them into an even ſmooth Maſh in a Stone-Mortar, adding to them of the Meal of Lupins and of Beans, of each one Ounce and a half, an Ounce and a half of Oil of Camomile, one Ounce and a half of Oil of Orris; mix them well in the Mortar, heating them again afterwards, and applying more or leſs of this Poultice hot on the Part affected.

But if the Swelling cannot be diſſolved, they ought to be ripened as ſoon as poſſible, and the following Poultice is very proper for that Purpoſe.

Take white Lilly, and Marſh-Mallow Roots, of each four Ounces; the Leaves of common Mallows, Marſh-Mallows, Groundſel, Violet Plants, Brank Urſin, of every one a Handful; the Meal of Linſeed and Fenugreck-Seeds, Gooſe Fat and Oil of Lillies, of each three Ounces. The Roots when waſhed and ſliced, are to be boiled in Water, and the Leaves being added ſome Time after, the Boiling is to be continued till the whole Maſh becomes perfectly tender and ſoft; when having ſtrained the Decoction, you'l beat the remaining groſs Subſtance in a Stone Mortar with a wooden Peſtle to a Pulp; then let the Decoction and Pulp be put into a Skillet, and having mixed the Meals of Lint-Seeds and Fenugreck Seeds, Gooſe Fat and Oil of Lillies, let them boil together over a gentle Fire, ſtirring the Ingredients from Time to Time, till they all be ſufficiently thickned for a Poultice.

Horſes being alſo very ſubject to Worms, the following Remedy is accounted very good to kill them.

Take half a Pound of the beſt Antimony in Powder, and two Ounces of Quickſilver, boil them in four Pales of Water till they be reduced to three; of which mix half a Pailful with as much Water as your Horſe will drink, having firſt ſtrained it, and continue thus till it is all gone.

It ſometimes happens that a Horſe is bitten by a mad Dog, which if not immediately remedied, may be attended with very dangerous Conſequences; and which to perform with Hopes of Succeſs, all the bitten Parts muſt be ſeared as ſoon as poſſible with a hot Iron; with this Caution, that you ſear not, nor let the hot Iron touch either Nerve or Tendon, the Eyes, or any Member whereby the Horſe may receive any Damage from the Operation; applying afterwards a ſtrong bliſtering Plaiſter, as well to every Part touched with the hot Iron, as to thoſe which you could not attempt to ſear, though bitten likewiſe.—That bliſtering Plaiſter muſt be compoſed in the following Manner.

Take an Ounce of Burgundy Pitch, Ship Pitch, and common Roſin, of each half an Ounce; of the common *Lapis Infernalis*, or Cauſtic Stone, one Drachm, Cantharides or *Spaniſh* Flies in Powder, ſix Drachms, or one Ounce. Putting firſt the *Burgundy* Pitch, Ship Pitch, and Roſin in a Pipkin, to melt over a ſlow Fire, ſtirring them to make them incorporated; when melted, put in the *Lapis Infernalis* in Powder, ſtirring it all the while that it may equally mix: Laſtly, put in by degrees the Ounce of Cantharides in Powder, ſtirring them likewiſe as you have done the *Lapis Infernalis*, and for the ſame End; but if you perceive that the Powders make it too thick, you may at your Diſcretion, add a little of the rankeſt Oil you can get, taking Care that it ſhould not boil after the *Spaniſh* Flies are in, nor remain long on the Fire, otherwiſe it would loſe its Virtue: Therefore about a Minute or two after the Powder of the *Spaniſh* Flies is all ſtirred in, take it off the Fire and keep it for your Uſe; and when you uſe it ſpread it pretty thick upon Leather, and apply it to the Part, where it muſt remain ten or twelve Hours; then when you dreſs it, cut all the Bliſters that are not broken, and wipe them clean, applying to the Parts the following Plaiſter.

Take four Heads of Garlick, one Ounce of Venice Treacle, half an Ounce of Venice-Turpentine, half an Ounce of the Filings of Pewter, and one Drachm of the Powder of *Spaniſh* Flies, half an Ounce of Honey, and two Drachms of Verdigreaſe in Powder, pounding

ing all these together in a Mortar; when you use it spread it on Leather and apply it, binding it on, by reason that it is not very apt to stick: But when the Bite is on a Part the Plaister cannot be conveniently bound on, then the Leather must be cut something broader than what is necessary for the Plaister, in order that the Margin may be spread with Burgundy-Pitch; then put the Plaister in the Middle of the Leather, and the *Burgundy* Pitch on the Margin will make it stick without binding. This Plaister must lie on twenty-four Hours, and then taken off, and the Part cleansed, and the Plaister renewed; keeping the Sores open as long as possible with this Plaister, in order to draw the Venom that it get not into the Blood, which would kill the Horse.

Besides these outward Applications for putting a Stop to the Venom; inward Remedies are also used to subdue and drive it out, in case it should have seized the Mass of the Blood, and also to prevent its getting there. The following Diet Drink is of great Efficacy in those Cases.

Take of the Leaves of Box, the Leaves of Rue, the Leaves and Roots of Primrose, the Leaves of Sage, of each two Handfuls; three Quarters of a Pound of fresh Roots of the Male Piony, three Ounces of the Powder of Crabs Claws, two Ounces of round Birthwort Roots in Powder, three Ounces of Venice Treacle: Bruise all these Things together in a Mortar, then put it in a Glass or Earthen Pot, and pour upon the Ingredients four Quarts of white *Lisbon* Wine, or for Want of it, of the best Cyder, or strong Beer, then stop the Glass or Pot slightly, putting it to infuse in a Kettle of hot Water for the Space of twelve or fourteen Hours, then keep it for Use. When you use it, you must strain off about a Pint, into which you must put about a Drachm of Balsam of Sulphur, and give it your Horse in a drenching Horn in the Morning, letting the Horse fast two Hours after, and repeating it thrice.

The Eyes of Horses are also subject to a Number of different Diseases, as *Pin* and *Web*, *Pearls*, *Clouds*, *Blood-shot*, *sore* and *running Eyes*, *salt*, *hot*, and *sharp Rheums*, *Ulcers*, *Fistula's*, *Bruises*, *Stripes*, &c. for all which the following Eye-Water is a sovereign Remedy.

Take a new Earthen Pipkin which will hold five Pints or three Quarts, put into it of the Stone called *Lapis Calaminaris* in Powder, of the best Bole Armonick, also in Powder, and of the best white Vitriol, of each an Ounce and a half; boil them over a gentle Fire till it be reduced to a Quart, then let it settle, and pour the clear from the *Fæces*, adding to the Water three Drachms of Sugar of Saturn, three Drachms of Salt of Vitriol, half an Ounce of Camphire dissolved in Spirit of Wine, an Ounce of Tincture of Aloes, three Drachms of Tincture of Opium, one Quart of Rose-Water, and half an Ounce of prepared Tutty; mix all together and keep it in a Bottle for Use.

If your Horse be troubled with any Dose in his Head, give him Mustard-Seed among his Provender, but if it be a worse Cold, which you will perceive by his Rattling, then give him the following Electuary.

Take Honey and Treacle, a Pound of each, having mixed these together, add to them Cumin-Seeds in Powder, Liquorice, Bay-Berries, Annisseeds, of each an Ounce; these likewise must be mixed together, and afterwards with the Honey and Treacle, which will make it of a thick Consistence. If your Horse has a Cold, instead of his Oats before Water, give him the Quantity of a Walnut of this Lambitive, at the End of a Stick or in a Spoon, and let him lick it off; doing the same after Airing, when first you come in, and your Horse will soon be cured.

The Lameness of a Horse is also worthy our Notice, which if it proceeds from old Strains you must make use of the following Ointment, with hope of Success.

Take fresh Butter, Oil of Bays, Dialthea and Turpentine, of each two Ounces, mix, and boil them together on a gentle Fire; and when they are well incorporated anoint the Horse twice a Day with it as hot as he can bear it, and give him Exercise, by airing him abroad Morning and Evening a Foot-pace; and you'll find it a sovereign Remedy for any Strain in the Shoulder, Clap on the Back Sinews, or any Grief whatsoever that proceeds from Strains.

But if you only fear *Lameness* from old Strains, then you must take Care that your Exercise be moderate, and always when you return from Water, and his Legs are rubbed dry, anoint them with such Ointments as are accounted good for the Limbs, as *Linseed*, *Train*, *Sheep's-foot*, *Neat's-foot*, *Nerve Oil*, and the like; all which may be used on his Days of Rest, but on his heating Days, Urine and Saltpetre. Some *Horsemen* use Brandy and Sallad Oil mixed, and bathe his Legs, and afterwards heat it in with a hot Iron, and commend it as the best Thing for the Limbs of an old stiff Horse.

But if your Horse through Negligence or any Casualty, happens to have the Grease fall into his Heels, you must endeavour to remove it by a good sound Heat, and a Scowring after it, applying to his Legs this Poultess.

Take a Pound of Honey, Turpentine, common Gum, Meal of Linseed and of Fenugreck, of each four Ounces, Bay-Berries in Powder, three Ounces: Mix and boil all these together, then take it off and add to it a Pint of White-Wine, boiling it over again till it be very thick; and with this as hot as the Horse can bear it, lap his Legs about, renewing it only once in three Days, if your Horse's Feet be bad, either surbated or founder'd, then instead of Cow-Dung, you may stop them with blue Clay and Vinegar tempered together.

HUNTING.

HUNTING, is the Art or Act of pursuing Beasts of Game.

In its general Sense, *Hunting* includes the Pursuit both of hairy and feathered Game; but in its more proper and restrained Signification, it is only applicable to Beasts of Venery and Chase.

Hunting is practised in a different Manner, and with a different Apparatus, according to the different Nature, Genius, and Address, of the particular Beast which is the Object thereof. These Beasts are, the *Hart*, *Hind*, *Hare*, *Boar*, *Wolf*, *Buck*, *Doe*, *Fox*, *Marten*, and *Roe*; the five first whereof are denominated Beasts of the Forest, or Venery, *Silvestres*; and the five latter Beasts of the Field, or of Chase, *Campestres*.

Note, That as this Diversion or Sport has a Set of Terms peculiar to itself, which may be called the *Hunting Language*; every Gentleman who wants to render himself perfect in this noble Exercise, must previously to it study those Terms or Language, and learn their true Signification; otherwise, if he had all the other Qualifications becoming the Art of *Hunting* without this, he would appear as disconcerted in a Forest, or in a Field among Huntsmen, as those who built the Tower of *Babel*, some of whom, as I suppose, invented this *Hunting Language*; which *Nimrod*, whom they followed in his Chases, appropriated to the new Profession he had embraced, becoming from a presumptuous Architect a mighty Hunter before the Lord.

Note, also, That these Terms are either appropriated to the Beasts which are hunted, or the Dogs employed in hunting them. We'll begin by learning those peculiar

culiar to the different Kinds of Beasts hunted; which are either to express their *Names*, *Seasons*, *Degrees*, and *Ages of Forest*, or *Venery*, *Chace*, *Warren*, &c. or to signify their different *Societies*, their *Lodging*, *Dislodging*, their *Noise* at *Rutting-Time*, their *Copulation*, their *Footing* and *Treading*, the *different Parts* of their Bodies, the *flying*, *stripping*, and *casing* them, *&c.* But to proceed in this with some Order, (referring the Terms proper for the Dogs of different Kinds to their proper Place) as almost every Kind of Beasts have Terms peculiar to themselves, and different from the others, I'll distinguish every Kind of Beast; and mention under every Kind the Terms peculiar to that Kind; beginning with the Terms used to express the Age of the *Hart*, as the most noble, worthy, and stately Beast of all.

The HART is called the first Year a *Hind-Calf*, or *Calf*; the second Year, a *Knobber*; the third Year, a *Brock*; the fourth Year, a *Staggar*; the fifth Year, a *Stag*; the sixth Year a *Hart*.

Note, That if a *Hart* be hunted by the King or Queen, it is called *Hart Royal*; if he escapes, and Proclamation be made for his safe Return, without Lett, or Detriment, he is then called *Hart Royal proclaimed*.

Note also, That M. *Guillim* is of Opinion, that it is a vulgar Error to think, that a *Stag*, of what Age soever he be, shall not be called a *Hart* till he be hunted by the King or Queen, and thence shall derive his Title. M. *Tuberville* says positively, that he shall not obtain that Name, till he be hunted or killed by a Prince. But the late Huntsmen agree, that he may be called a *Hart*, at, and after the Age of six Years old.—If the King or Queen happen to chase him, and he escapes with his Life, he shall ever after be called a *Hart Royal:* But if he flies so far from the Forest or Chace, that it is unlikely he will ever return of his own Accord to his former Place, and that Proclamation be made in all Towns and Villages thereabouts, that none shall kill or offend him, and that he may safely return if he list; he is then called *a Hart Royal proclaimed*.

The HIND is called, the first Year, a *Calf*; the second Year, a *Hearse*; the third Year, a *Hind*.

The HARE is called, the first Year, a *Leveret*; the second Year, a *Hare*; the third Year, a *great Hare*.

The WILD BOAR is called, the first Year, a *Pig of the Sounder*; the second Year, a *Hog*; the third Year, a *Hog's Steer*; the fourth Year, a *Boar*; at which Age, if not before, he leaves the *Sounder*, and then he is called a *Singler*, or *Sanglier*.

Note, That as there are no *Wolves* in *England*, the *English* Huntsmen have thought it needless to keep a Register of their Age.—In *France*, where there is Abundance of them, especially in the Province of *Britanny*, we call a very young Wolf, *Louveteau*; and an old one, *Loup*, *Lupus*.

Note also, That the above-mention'd Beasts are what we have called already *Beasts of Forest*, or *Venery*; and that they make their Abode all the Day-time, in the great Coverts and secret Places in the Woods; and at Night repair to their Lawns, Meadows, Pastures, and pleasant feeding Places.

From these I'll pass to the Names of the other Sort of Beasts, called *Beasts of Chase*; likewise, according to their Ages; beginning by the *Buck*.

The BUCK is called the first Year a *Fawn*; the second Year a *Pricket*; the third Year a *Sorrel*; the fourth Year a *Sore*; the fifth Year a *Buck of the first Head*; the sixth Year a *great Buck*.

The DOE is called the first Year a *Fawn*; the second Year a *Tegg*; the third Year a *Doe*.

The FOX is called the first Year a *Cub*; the second Year a *Fox*, and afterwards an *old Fox*.

The MARTEN is called the first Year a *Cub*; the second Year a *Marten*.

The ROE is called the first Year a *Kid*; the second Year a *Girl*; the third Year a *Hemuse*; the fourth Year a *Roe-Buck of the first Head*; the fifth Year a *fair Roe-Buck*.

Note, That the Beasts of Chace reside all the Day-time in the Fields, or upon Hills and Mountains, where they may see round them afar off, to prevent Danger; but when Night approaches, they feed, as the rest, in Meadows, *&c.*

After the different Names for the Ages of Beasts, I propose to mention their Seasons. — Therefore I must observe, that,

A HART, or BUCK, begins 15 Days after *Midsummer-Day*, and lasts till *Holy-Rood Day*. — The *Fox* at *Christmas*, and lasts till the *Annunciation of the Blessed Virgin*. — The *Hind*, or *Doe*, begins at *Holy-Rood Day*, and lasts till *Candlemas*. — The *Roe-Buck* begins at *Easter*, and lasts till *Michaelmas*. — The *Hare* begins at *Michaelmas*, and lasts till the End of *February*. — The Season of the *Wolf*, is said to be from *Christmas* till the *Annunciation of the Blessed Virgin*. — Lastly, the *Boar* begins at *Christmas*, and continues to the *Purification of our Lady*.

The Terms used for Beasts of *Venery* and *Chase*, as they are *in Company*, are these. — They say a *Herd of Harts*, and of all Manner of *Deer*. — A *Bevy of Roes*. A *Sounder of Swine*. — A *Rout of Wolves*. — A *Richess of Martens*. — A *Brace* or *Leash of Bucks*, *Foxes*, or *Hares*. — A *Couple of Rabbits*. — A *Couple of Coneys*.

To express their *Lodging*. — A Hart is said to *harbour*. A Buck *lodges*. — A Roe *beddeth*. — A Hare *sits* or *formeth*. — A Coney *sitteth*. — A Fox *kennelleth*. — A Marten *treeth*. — An Otter *watches*. — A Badger *eartheth*. — A Boar *couches*.

Terms for their *Dislodging*. — They say *unharbour* the Hart. — *Rouse* the Buck. — *Start* the Hare. — *Bolt* the Coney. — *Unkennel* the Fox. — *Tree* the Marten. *Vent* the Otter. — *Dig* the Badger. — *Rear* the Boar.

The Terms for their *Noise* at *Rutting-Time*, are as follow. — A Hart *belleth*. — A Buck *growneth*, or *troatch*. — A Roe *belloweth*. — A Hare *beateth* or *tappeth*. — An Otter *whineth*. — A Boar *freameth*. — A Fox *breeketh*. — A Badger *shrieketh*. — A Wolf *howleth*. A Goat *ratleth*.

Terms for their *Copulation*. — A Hart, or Buck, goes to *rut*. — A Roe goes to *turn*. — A Boar goes to *brim*. A Hare and Coney goes to *buck*. — A Fox goes to *clickitting*. — A Wolf goes to *match* or to *make*. — An Otter *hustles for his Kind*.

Terms for the *Footing* and *Treading*. — Of a Hart we say the *Slot*. — Of a Buck, and all Fallow Deer, the *View*. — Of all Deer, if on the Grass, and scarce visible, the *Foiling*. — Of a Fox, the *Print*; and of other like Vermin, the *Footing*. — Of an Otter, the *Marks*. — Of a Boar, the *Track*. — The Hare, when in open Field, is said to *fore*; when she winds about to deceive the Hounds, she *doubles*; when she beats on the hard Highway, and her Footing comes to be perceived, she *pricketh*; in Snow, it is called the *Trace of the Hare*.

Every Part of each Beast has always its different Name, expressed by a different Term, according to the different Kinds of Beasts.

Therefore the *Tail* of a Hart, Buck, or other Deer, is called the *Single*; that of a Boar, the *Wreath*; of a Fox, the *Brush* or *Drag*, and the Tip at the End is called the *Chape*; of a Wolf, the *Stern*; of a Hare and Coney, the *Scut*.

The Terms for the *Attire* of *Deer*. — Those of a *Stag*, if perfect, are the *Bur*, the *Pearls*, the *little Knobs* on it, the *Beam*, the *Gutter*, the *Antler*, the *Sur-antler*, *Royal*, *Sur-Royal*, and all a-top, the *Croches*.

Of a *Buck*, the *Bur*, the *Beam*, *Brow-Antler*, *Black-Antler*, *Advancer*, *Palm*, and *Spellers*.

If the *Croches* grow in the Form of a Man's Hand, it is called a *palm'd Head*. Head bearing not above three or four, and the *Croches* placed aloft, all of one Height, are called *crown'd Heads*. Heads having double *Croches*, are called *forked Heads*, because the *Croches* are planted on the Top of the Beam like Forks.

If you be asked what a *Stag* bears, you are only to reckon the *Croches* he bears, never expressing an odd Number: As if he has four *Croches* on his near Horn, and five on his far, you are to say he bears ten, a false *Right* on his near Horn (for all that the Beam bears, are called *Rights.*) If but four on the near Horn, and six

ſix on the far Horn, you muſt ſay he bears twelve, a double falſe *Right* on the near Horn. For you ought not only to make the Number even, but alſo the Horns even, with that Diſtinction.

The very Ordure of the Beaſts, is expreſſed by different Terms; for,

The *Excrement* of a Hart, and all Deer, is called *Fewmets*, or *Fewmiſhing*. — Of a Hare, *Crotiles*, or *Crotiſing*. — Of a Boar, *Leſſes*. — Of a Fox, the *Billeting*; and of other the like Vermin, the *Fuants*. — Of an Otter, the *Spraints*.

All Kind of *Deers-Fat*, is called *Suet*. — Of a Boar, *Greaſe*. — Of a Roe, *Beavy-Greaſe*.

They ſay a *Litter* of Cubs, a *Neſt* of Rabbits, a Squirrel's *Dray*.

The Terms for *ſlaying*, *ſtripping*, and *caſing* all Manner of Chaſes, are as follow. — The Hart, and all Sort of Deer, are *ſlain*. — The Hare *ſtripped*, or *caſed*; and ſo is the Boar. — The Fox, the Badger, and all Manner of Vermin, are *caſed*.

Note, That *Veniſon*, or *Venaiſon*, is thus called from the Manner of taking the Beaſt by *Hunting*, called in the *Latin*, *Venatio*. — That no Beaſt of the Foreſt, that is *Solivagum & nocivum*, is *Veniſon*, as the Fox, the Wolf, the *Marten*, becauſe they are not Meat. The Bear is no *Veniſon*, becauſe he is not only *Animal nocivum & ſolivagum*, but likewiſe no Beaſt of the Foreſt, and whatſoever is *Veniſon* muſt be a Beaſt of the Foreſt; but every Beaſt of the Foreſt is not *Veniſon*, On the other Side, *Animalia gregalia non ſunt nociva*, as the wild Boar; for the firſt three Years, he is *Animale gregale*, i. e. he goes in Company; and after truſteth to his own Strength, and becomes *ſolivagum*; he is then called *Sanglier*, becauſe he is alone, but he is *Veniſon*, and very good too. The Hare is *Veniſon*, which *Martial* prefers before all others:

Inter Quadrupedes gloria prima Lepus.

So are the Red-Deer and Fallow-Deer *Veniſon*. From all this we muſt conclude, that whatſoever Beaſt of the Foreſt is for the Food of Man, is *Veniſon*; and that any Beaſt that is not for the Food of Man, is not *Veniſon*. Therefore the Roe being not a Beaſt of the Foreſt, is no *Veniſon*, unleſs hunted.

Being ſo far advanced in the Dialect of *Hunting*, we may venture to provide ourſelves with Dogs, more properly called *Hounds*.

Hounds may be diſtinguiſhed with Regard to their Manner of *Hunting*, into ſuch as find out, and purſue the Game by Sight, and the Quickneſs and Swiftneſs of their Motion; of which Kind are the *Gaze-hound*, *Grey-hound*, the *Terrier*, &c. And thoſe which find and purſue the Game by the Goodneſs of their Smell.

The Species of *Hunting* Dogs may be divided further into *Hounds*, ſimply ſo called, and *Blood-hounds*, each whereof admit of ſome Diverſity.

1. As to the *Hounds*, ſimply thus called, thoſe which are all of one Colour, as white, black, *&c.* are more valued than thoſe ſpotted with red. Thoſe ſpotted with dun are little priz'd, as wanting Courage and Boldneſs. Fallow *Hounds* are of good Scent and hardy, not fearing the Water. They keep the Chaſe well without Change; but not ſo ſwift as the white. They love the Hart above any other Chaſe, having little Stomach for the Hare, *&c.* whence they are not ſo fit for private Gentlemen, beſides that, they are apt to run at tame Beaſts.

The Dun *Hounds* are of a more general Uſe, being fit for all Chaſes. Their Sagacity and Fidelity in knowing and ſticking to their Maſter's Voice and Horn, and none elſe, are much admired: They alſo underſtand each other, and know which are Babblers, which Liars, *&c.* They are of different Sizes and Qualities in ſeveral Countries, *&c.* Mountainous and Woodland Parts breed a tall heavy Sort, called *Slow Hounds*. Moderate Soils, where the Champaign and Covert ſhare equally, produce a middle Size *Hound*, of a more nimble Make.

The Marks of a good and fair *Hound*, are to be of a middle Proportion, rather long than round; the Noſtrils wide; Back bowed; Fillets great; Haunches large; the Thighs well truſſed; the Ham ſtrait; Tail big near the Reins, and the reſt ſlender to the End; the Leg big; the Sole of the Foot dry, and form'd like a Fox; and large Claws.

Note, That to chuſe a Dog and a Bitch for good Whelps, you muſt take a Bitch that comes of a good Kind; ſtrong, and well proportioned in all Parts, with large Ribs and Flanks. — The Dog that lines her muſt be of a good Breed, and likewiſe young, if you'll have light and hot *Hounds*; for if the Dog be old, the Whelps will participate of his dull and heavy Nature. — If the Bitch does not grow naturally proud, ſo ſoon as you would have her, you may make her ſo by taking two Heads of Garlick, half a Caſtor's Stone, the Juice of Creſſes, and about twelve *Spaniſh* Flies, or *Cantharides*; boiling theſe together in a Pipkin which holds a Pint, with ſome Mutton to make Broth of it; and of this give to the Bitch twice or thrice, and it will infallibly grow proud. The ſame Pottage given to the Dog, will make him deſirous of Copulation. — When the Bitch is lined, and with Puppy, ſhe muſt not hunt, otherwiſe ſhe would caſt her Whelps; but let her, without being confined, walk up and down the Houſe and Court, and never lock her up in her Kennel; for ſhe is then impatient of Food; and therefore you muſt make her ſome hot Broth once a Day. — If you would ſpay your Bitch, it muſt not be done before ſhe ever had a Litter of Whelps; and in ſpaying her, take not away all the Roots or Strings of the Veins; for if you do, it will much Prejudice her Reins, and hinder her Swiftneſs ever after; but by leaving ſome behind, it will make her much the ſtronger and more hardy. Whatever you do, ſpay her not when ſhe is proud; for that would endanger her Life; but you may do it 15 Days after. The beſt Time of all is when the Whelps are ſhaped within her.

To enter a young *Hound*, after having taught him to know the Hallow, and the Sound of the Horn, at about eighteen Months old he may be taken into the Field. The beſt Method to initiate him is, to take a live Hare, and trail her upon the Ground, this Way, then that; and at length hide her at a proper Diſtance. Then ſetting the *Hound* near the Trail, he will take Wind, and run to and fro about the Fields, Woods, Paſtures, Pathways, and Hedges, till he finds which Way the Hare is gone, but with a ſoft and gentle Pace, till coming near the Place where ſhe is lodged, he mends it, and at laſt leaps on his Prey, which he muſt be ſuffered to kill, and bringing it to his Maſter with Triumph, muſt be rewarded and encouraged. This done, he may be let run in a Pack of old *Hounds* to confirm and perfect him.

Note, That whatever young *Hounds* are firſt enter'd at, and rewarded with, they will ever after covet moſt; ſo that if they be intended, *v. gr.* for the Hart, they muſt not be enter'd at the Hind. And for the better hunting the Hart, young *Hounds* are not to be enter'd within a Toile; for there a Hart does nothing but turn and caſt about, ſince he cannot run end-ways, and thus they are always in Sight of him. — Neither are the *Hounds* to be enter'd or taught in the Morning; otherwiſe they will give over in the Heat of the Day.

2. The *Grey-hound* might deſerve the firſt Place, by Reaſon of his Swiftneſs, Strength, and Sagacity in purſuing his Game; ſuch being the Nature of this Dog, that he is well ſcented to find out, ſpeedy and quick of Foot to follow, fierce and ſtrong to overcome, yet ſilent, coming upon his Prey unawares.

The Make and Proportions requir'd in a good *Grey-hound* are, that he have a lean and long Head, with a ſharp Noſe, ruſh grown from the Eye downwards; a full clear Eye, with long Eye-lids; a ſharp Ear, ſhort and cloſe falling; a long Neck a little bending, with a looſe hanging Weaſand; a broad Breaſt, ſtrait Forehead, hollow Side, ſtrait Ribs, a ſquare flat Back, ſhort and ſtrong Fillets, a broad Space between the Hips, a ſtrong Stern or Tail, a round Foot, and good large Clefts.

Note, That for the Breeding of *Grey-hounds*, the beſt Dog upon an indifferent Bitch, will not get ſo good a Whelp, as an indifferent Dog upon the beſt Bitch.

That

That the Dogs and Bitches muſt be, as near as poſſible, of an equal Age, not exceeding four Years old; however, the beſt Means which can be uſed to produce excellent Whelps, is to breed with a young Dog and an old Bitch. That the Dieting of *Grey-hounds* conſiſts in the Food, Exerciſe, Airing, and Kennelling. The common Food of *Grey-hounds* ought to be Chippings, Cruſts of Bread, ſoft Bones, and Griſtles. The Chippings to be ſcalded in Beef, Mutton, Veal, or Veniſon Broth; and when it is indifferently cold, then make your Bread only float with good Milk, and give it your *Grey-hounds* Morning and Evening; which will keep them in good State of Body. But if your Dog be poor, ſickly, and weak, then take Sheep's Heads, Wool and all, clean waſhed, and having broken them to Pieces, put them into a Pot, ſcumming it when it boils, putting in it a good Quantity of Oatmeal; and making it boil till the Fleſh be very tender, then with your Meat and Broth, feed your Dogs Morning and Evening; this will recover them. As to the Exerciſe of a *Grey-hound*, it conſiſts in two Things, *viz.* in Courſing and Airing. As to the firſt, he ought to be practis'd twice a Week, in ſuch a Manner that you uſually reward him with Blood, which will animate and encourage him to purſue his Game; taking Care to give the Hare all reaſonable Advantage, ſo that ſhe may ſtand long before the *Grey-hound*, that thereby he may ſhew his utmoſt Strength and Skill before he reaps the Benefit of his Labour. If he kills, do not ſuffer him to brake the Hare, but take her from him, and having cleanſed his Chaps of the Wool of the Hare, give him the Liver, Lights, and Heart, and ſo take him in your Leaſh, and having led him Home, waſh his Feet with ſome Butter and Beer, and then put him in his Kennel, and feed him half an Hour afterwards.

The Huntſman is to lead theſe *Hounds* on his Left Hand, if he be on Foot; and on the Right, if on Horſe-back. The beſt Time to try and train them to the Game, is at twelve Months old, though ſome begin ſooner, with the Males at ten, and the Females at eight Months old, which laſt are generally more ſwift than the Dogs: They ſhould be kept in a Slip while abroad, till they ſee their Courſe; neither ſhould you looſen a young Dog till the Game has been a conſiderable Time on Foot, being apt, by Over-eagerneſs at the Prey, to ſtrain his Limbs.

3. The *Gaze-hound*, or *Beagle*, is a Dog more beholden to the Sharpneſs of Sight, than to his Noſe or Smelling, by Virtue whereof he makes excellent Sport with the Fox and Hare. He is alſo noted as Exquiſite in chuſing of one that is not lank or lean, but full, fat, and round, which, if it happens to return, and be mingled again with the Reſidue of the Herd, he will ſoon ſpy out, and leave the reſt untouched, never ceaſing after he has ſeparated it from its Company, till he has worried it to Death.

Theſe Dogs are much uſed in the North of *England*, and on champain Ground, rather than buſhy and woody Places; and by Horſemen rather than Footmen. If at any Time he happens to take a wrong Way, upon the uſual Sign made by his Maſter, he immediately returns, takes the right and ready Courſe, beginning his Chaſe afreſh with a clear Voice and ſwift Foot, following the Game with as much Courage as at firſt.

4. There is in *Scotland* a Kind of hunting Dogs called *Sluth Hounds*, moſt of them of a browniſh Colour, or ſandy-ſpotted. Their Senſe of Smelling is ſo quick, that they can follow the Foot-ſteps of Thieves, and purſue them with Violence till they overtake them; nay ſhould the Thief take the Water, they are ſo eager in their Purſuit that they will ſwim after them, and are reſtleſs till they find the Thing they ſeek after.

5. The *Blood-Hound*, differs nothing in Quality from the *Scotch* Sluth-Hound, ſaving that it is longer ſized, and not always of the ſame Colour; but ſometimes red, ſanded, black, white, ſpotted, *&c.* though moſt commonly either red or brown.

Their Nature is, that being ſet on by the Voice and Words of their Leader, to caſt about for the ſetting of the preſent Game, and having found it, they will never ceaſe purſuing it with full Cry till it be tired, without changing for any other.

They ſeldom bark, except in their Chaſe, and are very obedient and attentive to the Voice of their Leader. Thoſe that are really good, when they have found the Hare, make Shew thereof to the Huntſman, by running more ſpeedily, and with Geſture of Head, Eyes, Ears, and Tail, winding to the Form or Hare's Muſe, never giving over Proſecution with a gallant Noiſe.

They have good and hard Feet, and ſtately Stomachs, and are very properly denominated *Sanguinary* or *Blood-Hounds*, by reaſon of their extraordinary Scent; for if their Game be only wounded, ſo that it eſcapes the Huntſman's Hands, or if it be killed and never ſo cleanly carried away, theſe Dogs by their exquiſite Smell will diſcover it, and not be wanting either by Nimbleneſs or Greedineſs to come at it, provided there be any Stains of Blood. Nay, though by all the Cunning and Foreſight imaginable, a Beaſt be conveyed away without Spot or Blood, yet through the roughest and moſt crooked Ways and Meanders, will this Dog find out the Deer-ſtealer, and even in the thickeſt Throng, will by his Smell ſeparate and pick him out.

The *Terrier* or *Harrier*, only hunts the Fox or Badger, being thus called, becauſe after the Manner of Ferrets in ſearching for Conies, he leaps into the Ground and affrights and attacks the Beaſt, either tearing them in Pieces, or haling them out by Force, or at leaſt driving them out of their Harbours, to be taken in a Net or otherwiſe.

The Huntſmen having commonly a couple of Terriers they may put in a freſh one, as Occaſion requires, to relieve the other.

The Time of entring the Terrier, is when he is near a Twelvemonth old: If it be not done within that Time, they will hardly be brought to take the Earth; this entering and fleſhing of them may be performed ſeveral Ways. Firſt, when the Foxes and Badgers have young Cubs, take an old Terrier, ſet him into the Ground, and when he begins to bay, hold the young one at the Hole or Mouth of the Earth, that he may liſten and hear the old one bay.

The old Fox or Badger being taken, ſo that nothing remains within but the Cubs, couple up the old ones and put in the young ones in their room, encouraging them by crying, *to him, to him.* If they take any Cub within, let them do with him what they will; not forgetting to give the old Terriers their Reward, which is Blood and Liver fried with Cheeſe and ſome of their Greaſe; ſhewing them Head and Skin to encourage them.

6. The *Leviner* or *Lyemmer*, is ſingular in his Smell, and in Swiftneſs incomparable. He is a middle Kind between the Terrier and the Grey-hound, as well for his Kind as for the Shape of his Body. The *French* uſe it in hunting the Wolf.

Having thus provided ourſelves with all the different Kinds of *hunting Dogs* or Hounds, we muſt next learn the Terms uſed in reſpect of them; therefore of *Grey-hounds* two make a *Brace*; of Hounds a *Couple*. Of Grey-hounds three make a *Leaſh*; of Hounds *a Couple and a Half.*—They ſay, *let ſlip* a Grey-hound, and *caſt off* a Hound.—The String wherein a Grey-hound is led, is called a *Leaſh*, and that of a Hound, a *Lyom*. The Grey-hound has its *Collar*, and the Hound his *Couples*. They ſay, a *Kennel* of Hounds, and a *Pack* of Beagles.

When the Hounds or Beagles hit the Scent of their Chace contrary, as to hit it up the Wind when they ſhould hit it down, we ſay, they *draw amiſs*.

When the Hounds or Beagles take freſh Scent, hunting another Chaſe till they ſtick and hit it again, we ſay, they *hunt change*.

When the Hounds or Beagles hunt it by the Heels, we ſay, they *hunt counter*.

When the Chaſe goes off and comes on again, traverſing the ſame Ground to deceive the Hounds or Beagles, we ſay, they *hunt the Foil*.

When we ſet Hounds in Readineſs, where we expect the Deer will paſs, and then caſt them off, when the other Hounds are paſſed by, we account that *a Relay*.

When the Hounds or Beagles have finiſhed their Chace, by the Death of what they purſued, and then in Requital,

are fed by the Hands of the Huntsman or others, we call that their *Reward*.

Huntsmen, when they go drawing in their Springs at Hart's Hunting, usually make due Rounds, which we call *Ring-Walks*.

When any Deer is hard hunted, and then betakes himself to swimming in any River, *&c.* we say, he *takes Soil*.—When Deer cast their Horns, we say, *they mew*. The first Head of a Fallow Deer is called a *Prick*.

When Huntsmen endeavour to find a Hart by the Slot, *&c.* and then mind his Steps, to know whether he be large and long, they say then, that they know him by his *Gate*.

When Deer rub, and push their Heads against Trees, to cause the Peel of their new Horns to come off, we say, *they fray*.—When after being hard run, they turn Head against the Hounds, we say, *they bay*.

When Hounds or Beagles run along without opening, or making any Cry, we say, *they run mute*.

When Hounds or Beagles at first finding the Scent of their Game, open and cry, we say, *they challenge*.—When Hounds run at a whole Herd of Deer, we say, *they run riot*.—When the Hounds touch the Scent, and draw on till they rouze or put up the Chace, we say, *they draw on the Slot*.

When a Roe crosses and doubles, it is called *Trajoining*.

When a Hare takes the Ground like a Coney, which seldom happens, we say, *she goes to the Vault*.

When we beat the Bushes, *&c.* after the Fox, we call it *drawing*.

When a Hare runs on rotten Ground, or in a Frost, which sticks to her Feet, we say, *she carrieth*.

When Beagles bark and cry at their Prey, we say, they *yearn*. A red Male Hart of a Year old, is called a *Spitter*.

A *Rein-Deer*, is a Beast like a Hart, but has his Head fuller of Antlers.

A *Pricker*, is a Huntsman on Horseback.

Engines to take Deer withal, are called *Wiles*.

When we set Hounds or Beagles in Readiness, expecting the Chace to come by, and then cast them off before the rest come in, we call it a *Vauntlay*.

When Hounds or Beagles find where the Chace has been, and made a Proffer to enter but returned, we say, *there is a Blemish*.

The *Call*, is a Lesson blowed on the Horn to comfort the Hounds.—A *Recheat*, is likewise a Lesson blown on the Horn.—The *Mort* or *Death*, is a Lesson blown at the Death of any Deer.

Note, That though we seem to be entirely accomplished, and fitted out for the noble Exercise of *Hunting* (for we must be supposed to be provided, besides the Implements above-mentioned, with one or more of those hunting Horses we have bred up in my Treatise of *Horsemanship*) yet there is something wanted before we take the Field, and that is, the knowing how to cure the different Maladies our Dogs are subject to, in case they should be afflicted with any; the most dangerous of which are *Madness* and the *Mange*.

A Dog is subject to seven Sorts of Madness, *viz.* the *hot burning Madness*, *running Madness*, *dumb Madness*, *falling Madness*, *lank Madness*, *sleeping Madness*, *rheumatick* or *slavering Madness*; and the *Mange*.

The two first of these *Madnesses* are incurable, *viz.* the *burning* and the *running Madness*.

The Symptoms of the *burning Madness* are these: When the Dogs run, they raise their Tails bolt upright, and run upon any Thing that stand before them, having no Regard where, nor which Way they run; also their Mouth will be very black, having no Foam in or about it. They will not continue thus above three Days, which expired, they die. All Dogs they have bitten and drew Blood from will be mad likewise.

The *running Madness* is less dangerous, though incurable. The Dogs afflicted therewith run not on Men, but on Dogs, and other Beasts. The Symptoms are, they will smell on other Dogs, and having smelt them will shake and bite them, yet shaking their Tails, and seeming to offer no Harm.

The *dumb Madness* is curable, and is thus discovered; the Dog that is troubled with it will not feed, but continually hold his Mouth wide open, putting often his Feet to his Mouth, as if he had a Bone in his Throat. The Cure is this; put four Ounces of the Juice of *Spatula Putrida* into a Pot, taking the like Quantity of the Juice of black *Hellebore*, and as much of the Juice of *Rue*, straining them all well through a fine Cloth, and putting them into a Glass; then take two Drachms of Scammony unprepared, and having mixed it with the Juices, put it into a Horn or Funnel, and convey it down his Throat, keeping his Head up strait lest he cast it up again; then bleed him in the Mouth, cutting three or four Veins in his Gums, that he may bleed the better. Or you may only take eight Drachms of the Juice of an Herb called Hartshorn or Dog's-Tooth, and you'll find it a most excellent Receipt against any Madness whatever.

The *falling Madness* lies in their Heads, which makes them reel as they go, and then fall.—The Cure is this: Take four Ounces of the Juice of Piony, with the like Quantity of the Juice of Briony, the like of the Juice of *Cruciata*, and four Drachms of Stavesacre pulverized; mix these together, and give it your Dog or Hound as aforesaid, then let him Blood in the Ears, or the two Veins which come down the Shoulders; and if he be not cured at first, give him a second or third Dose.

The *lank Madness*, thus called by reason of the Leanness of their Bodies, is occasioned by *Skummering*—The Cure is thus performed: First purge your Dog with this Potion; take an Ounce and a half of *Cassia Fistularis* well cleansed, two Drachms and a half of Stavesacre pulverized, and the like Quantity of Scammony prepared in white-wine Vinegar, and four Ounces of Oil of Olive, temper these and warm them over the Fire, and give it your Dog. In the Morning put him into this Bath fasting; put into six Pails of Water ten Handfuls of Mugworth, of Rosemary, of red Sage, the Roots or Leaves of Marsh-Mallows, the Roots or Leaves of Wall-wort, the Roots or Stalks of Fennel, the Roots or Leaves of Elecampane, Balm and Rue, Sorrel, Buglos, and Melilot; let these boil together in two Thirds of Water, and the other of Wine, to the Consumption of one Third; the Bath being no hotter than your Dog can endure it, bathe him in it for the Space of an Hour, then taking him out, put him in some warm Place for Fear of catching Cold; which should be repeated four or five Times to perfect the Cure.

The *sleeping Madness*, is caused by some little Worms breeding in the Entrance of the Stomach from corrupt Humours, the Vapours and Fumes whereof ascending into the Head make the Dog sleep continually, sometimes till he dies sleeping. For the Cure, you must take five Ounces of the Juice of Wormwood, with two Ounces of burnt Hartshorn in Powder, and two Drachms of Agarick; mix them together, and if they be too thick add White-Wine, and give it your Dog to drink.

The *rheumatick* or *slavering Madness*, is thus called, because when a Dog is afflicted with it, his Head swelleth, his Eyes are very yellow, and he commonly slavereth at the Mouth. The Cure is performed thus; Take six Ounces of the Juice of Fennel-Roots, and the like Quantity of the Juice of Misseltoe, four Ounces of the Juice of Ivy, four Ounces of the Roots of Polipody in Powder; boil these in White-Wine, and give it your Dog to drink as hot as he can suffer it.

The *Mange* frequently proceeds from Want of fresh Water to drink, when a Dog desires it, and sometimes by foul Kennelling, sometimes likewise by foundering and melting his Grease. To cure this Distemper, take two Handfuls of wild Cresses, two Handfuls of Elecampane, as much of the Leaves and Roots of Rhubarb and Sorrel, and two Pounds of the Roots of Frodels, which must be all well boiled in Lye and Vinegar: Having strained the Decoction, put in it two Pounds of grey Soap, and when it is melted, rub your Dog with it four or five Days together, and it will cure him.

There

There are ſome other Terms and Deſcriptions, particularly thoſe relating to Foreſt and Foreſt Laws, which we muſt alſo learn, before we can reckon ourſelves perfectly well verſed in the Art of *Hunting*.

Therefore we muſt be inform'd, that a Foreſt is a certain Territory of woody Grounds, and fruitful Paſtures, privileged for wild Beaſts, and Fowls of Foreſts, Chace, and Warren, to reſt and abide in the ſame Protection of the King, for his princely Delight; bounded with unremoveable Marks and Meers, either known by Matter of Record or Preſcription; repleniſhed with wild Beaſts of Venery and Chaſe, and with great Coverts of Vert, for Succour of the ſaid Beaſts; for Preſervation and Continuance whereof, with the Vert and Veniſon, there are certain peculiar Laws, Privileges, and Officers.

All the Ground adjoining to Foreſts, is called a *Purlieu*, and a Purlieu-Man is he that hath Ground within the Purlieu, and 40 *s.* a Year Freehold, which entitles him to hunt, though with ſome Caution, within his own Purlieu.

The Officers of a Foreſt are, a Foreſter, Regarder, Ranger, Verderer, Agiſtor, *&c.*

A Foreſter is a ſworn Officer of the Foreſt, appointed by the King's Letters Patent, to walk the Foreſt, and watch the Vert and Veniſon; as alſo to attach and preſent all Treſpaſſes againſt both, within his Balliwick, or Walk, to the Foreſt Courts, to be puniſhed according to their Offences.

A Regarder is an Officer ſworn to take Care of the Vert and Veniſon, and to enquire into all Offences, committed within the Foreſt; and whether all the other Officers execute their Office or not.

In ſome Foreſts there are twelve Rangers, whoſe Office are to look after the Purlieu, and drive back the wild Beaſts into the Foreſt again; to enquire of Offenders and to preſent them.

A Verderer is an Officer of the King's Foreſt, choſen by the Freeholders of the Country where the Foreſt is, by the King's Writ directed to the Sheriff for that Purpoſe. Their Office is chiefly to look after the Wood and Graſs in the Foreſt.

An Agiſtor is an Officer of the Foreſt, that takes in to feed the Cattle of Strangers, and receives for the King's Uſe, all ſuch Tack-Money as becomes due from thoſe Strangers.

A CHASE is a Place appointed to receive Deer and Beaſts of the Foreſts; in this it differs from a Foreſt, that it may be in the Hands of a Subject, and a Foreſt, properly ſpeaking cannot; and from a Park, in that it is not incloſed like it, and has a larger Compaſs, a greater Store of Game, and more Keepers, and Overſeers.

At preſent for the Terms peculiar to Foreſts, Chaſes, Parks, *&c.* — A *Woodgeld* is the gathering or cutting of Wood in the Foreſt, or the Money paid for it to the Uſe of the Foreſters, or an Immunity for it by the King's Grant.

Expeditate, is the cutting off (according to Mr. *Manwood*) the three fore-Claws of the Foot of a great Dog, by the Skin; and that the Owner of every ſuch Dog, unexpeditated in the Foreſt, ſhall forfeit 3 *s.* 4 *d.*

Fence-Month, hath 31 Days, begins 15 Days before *Midſummer* and ends 15 Days after; in which Time it is unlawful to hunt in the Foreſt, or to go among the Deer to diſquiet them; becauſe it is the Time of Fawning.

Frank Chaſe, is a Liberty of free Chaſe in a Circuit annexed to a Foreſt, whereby all thoſe that have Ground within the Circuit, are forbidden to cut down Wood, or diſcover, *&c.* within the View of the Foreſter, though it his own Demeſne.

Green Hue, or *Vert*, ſignify both one Thing, it being every Thing that grows, and bears green Leaves within the Foreſt, that may cover and hide the Deer. *Over Vert*, is all Manner of high Wood. *Nether Vert*, is all Sorts of Under-Wood. — Bruſh-Wood is called *Cabliſh*.

Horngeld, is a Tax within the Foreſt for all Manner of horned Beaſts. — *Footgeld*, is an Amercement on ſuch as live within the Foreſt, for not expeditating their Dogs. And to be quit of *Footgeld*, is a Privilege to keep their Dogs unlawed, without any Penalty.

Pawnage, is Money taken by the Agiſtors, for the feeding of Hogs, with the Maſt of the King's Foreſt, but (according to Mr. *Compton*) it is moſt properly the Maſt, Woods, Lands, or hedged Rows, or Money due for it to the Owners of the ſame.

A *Scotale* is, where any Officer of the Foreſt keeps an Alehouſe in the Foreſt, under Colour of his Office, cauſing Men to come to his Houſe, and to ſpend their Money, for fear of being maltreated by him.

Perambulation, is the Admeaſurement and ſetting down Bounds and Limits to the Foreſts.

Drift of the Foreſt, is an exact View taken at certain Times, as Occaſion ſerves, of the Beaſts that are in the Foreſt; that none ſhould be there but ſuch as have Right, leſt the Foreſt ſhould be overcharged with the Beaſts of Foreigners.

An *Aſſart* is a great Offence committed in the Foreſt by grubbing up the Wood, Coverts, and Thickets, and making them as plain as arable Lands, or the like.

Minoverie, is a Treſpaſs or Offence committed by ſome Engine ſet up in the Foreſt to catch Deer, or the like.

Tritis, is a Freedom that one hath from holding a Grey-hound in his Hand, when the Lord of the Foreſt is hunting there, or to be amerced for his Default.

Stable-ſtand, is when one is found ſtanding in the Foreſt, with his Bow ready bent to ſhoot at any Deer; or with his Grey-hound in a Leaſe ready to ſlip.

Swainmore, or *Swanimore*, is a Court appointed to be held thrice in a Year within a Foreſt; the firſt 15 Days before *Michaelmas*; the ſecond about *Martinmas*; and the third 15 Days before St. *John Baptiſt*.

Chiminage is taken by Foreſters in Fee throughout their Balliwick for Buſhes, Timber, *&c.* and ſignifies the ſame with Toll.

With theſe Inſtructions, moſt of them indiſpenſably neceſſary, and provided with all the Implements of a profeſs'd Sportſman, we may venture to take the Field, mounted on one of thoſe Hunters I have mention'd in my Treatiſe of *Horſemanſhip*; but as we cannot hunt all Sorts of Beaſts at once, we'll begin by hunting the Hart, as the moſt noble Animal of our Foreſts, Chaſes, *&c.* the Seaſon proper for that Sport, being from the End of Fence Month, which is a Fortnight after *Midſummer*, till *Holy-Rood-Day*, as we have already obſerv'd.

Note, That before we make any Attempt on the Hart, we muſt make the following Obſervations,

1. That a Hart is naturally an excellent Swimmer; there being Inſtances, when ſore hunted, of his plunging into the Sea, and being killed by Fiſhermen 12 Miles from Land. When in going to rut, they have Occaſion to croſs a great River, or Arm of the Sea, it is ſaid they aſſemble in great Herds; the ſtrongeſt goes in firſt, and the next of Strength follows, and ſo one after the other, relieving themſelves by ſtaying their Heads on the Buttock of each other.

2. That the Hind commonly carries her Calf eight or nine Months, which uſually falls in *May*, although ſome alter: Some have two at once; and they eat up the Skin wherein the Calf laid. As the Young grows up ſhe teaches it to run, leap, and how to defend himſelf from the Hounds.

3. That the Hart is amaz'd at hearing any Call or Whiſtle in his Fiſt; if you cry *ware*, *ware*, or *take heed*, you will ſee him inſtantly turn Back, and make ſome little Stand. His Senſe of Hearing is very perfect when his Ears and Head are erected; but very imperfect when he holds them down; hence when he pricks up his Ears, he is known to be apprehenſive of Danger. When he is on Foot, and not afraid, he wanders, and takes Pleaſure to gaze at every Thing he ſees.

4. That the Hart is very long liv'd, commonly reaching to an hundred Years and upwards. The principal Marks of his Age, are taken from his Head, yet this is ſomewhat precarious, ſome having more Croches thereon, at the ſame Age, than others. Thoſe are accounted to excel in Beauty of Horns, which bear them high. The Horns do not grow to the Bone or Scalp, but only to the Skin, branching into many Spears, and falling off, once a Year, in the Spring; though ſolid throughout as

Stones

Stones; yet if they remain a while in the Air, they grow very light and friable, discovering themselves to be no other than an earthy Substance, concrete and harden'd with a strong Heat into the Form of Bones.

5. That the Horns being fallen, they retire and hide themselves in the Shade, to avoid the Annoyance of Flies; and only come out to feed in the Night. Their new Horns appear at first like Bunches, very soft and tender; but by the Increase of the Sun's Heat, at length grow harder, and are covered with a rough Skin, called a *Velvet Head*. As that Skin dries, they daily try the Strength of their new Heads upon Trees, which not only burnishes, and scrapes off the Roughness, but by the Pain they feel thereby, admonishes them how long to forbear the Company of their Fellows; for when the Horn grows insensible, they return to their former Condition.

6. That the taking of this Beast requires a deal of Art and Attention. 'The deceitful and subtle Hart, 'says *Gesner*, by Windings and Turnings deceives his 'Hunters, no less than the Harts of *Mæandros*, fly-'ing from the terrible Cries of *Diana*'s Hounds. The 'prudent Hunter, therefore, must frame his Dogs, as '*Pythagoras* did his Scholars, with Words of Art, 'to set them on, and take them off at Pleasure.'

According to this last Instruction of *Gesner*, the first Thing we'll do, when come to the Forest or Chase, *&c.* we'll encompass the Beast *(en son giste)* in her own Layer, and thus unharbour her in the View of the Dogs, that so they may never lose their Slot or Footing; avoiding from setting off upon every one, either of the Herd, or those that wander solitary: The young, the small, *&c.* are to be passed over; and partly by Sight, partly by their Footing, Fumets and Layers judging of our Game, singling out, for that Purpose, the largest Head in the whole Herd.

Note, That there are divers Means for knowing an old Hart, *viz.* by the *Slot*, the *Entries*, the *Abatures* and *Foils*, the *Fewmets*, *Gate* and *Walks*, *Fraying-Stocks*, *Head* and *Branches*.

1. As to the *Slot*. — The Treadings of the Hart's Foot are to be carefully noted. If you find the Treadings of two, the one long, and the other round, yet both of one Bigness, the longest *Slot* declares the largest Hart: Add, that the old Hart's hind Foot, never over-reaches the fore Foot, as that of the young one does.

2. When you have found out the *Slot* of a Hart, mark what Manner of Footing it is, whether worn or sharp, and accordingly observe the Country, to judge thereby, whether either proceeds from thence: For Harts bred in Mountains and stony Countries, have their Toes and the Sides of their Feet worn, by Reason of their continual climbing, and resting themselves thereon, and not on the Heel; whereas, in other Places, they stay themselves more on the Heel, than the Toes; for in soft, or sandy Ground, they slip upon the Heel, because of their Weight; and thus by their frequent staying themselves thereon, it makes the Heel grow broader and greater.

3. The *Fewmet* is chiefly to be judged of in *April* or *May*; if it be large and thick, it signifies the Hart to be old. In the Midst of *June* and *July*, they make their *Fewmets* in great Croteys very soft; and from that Time to the End of *August*, they make them large, long, knotty, anointed and gilded, letting them fall but few and scatter'd. In *September* and *October* there is no longer judging, by Reason of the *Rut*.

4. To know the Height and Thickness of the Hart, observe his Entries and Galleries into the Thickets, and what Boughs he has over-stridden; marking from thence the Height of his Belly from the Ground; for a young Deer usually creeps low, as he passes to his Harbour, and goes through Places, which the old one being stiff and stately, will not stoop to.

5. By his *Gate*, it may be known whether the Hart be large, and whether he will stand long before the Hounds; if he has a long Step, he will stand long; being swift, light, and long breathed; but if he leaves a great Slot, which is the Sign of an old Deer, he will never stand long when he is chased.

6. As to his Fraying-Post. We must observe, that the older the Hart is, the sooner he goes to fray; and the greater is the Tree he chuses to fray upon, and such as he cannot bend with his Head. For all Stags, as they are burnished, beat their Head dry against some Tree or other, which is called their *Fraying-Post*. The younger Deer against weaker, lesser, and lower Trees; the elder against bigger, stronger, and higher; so that, accordingly, we confidently judge of their Age, and of the Proximity of their Harbour; since they use this last Ceremony before they enter it.

Note also, That to seek or find out a Hart in his Haunt or Feeding-Place, it is to be observed, that he changes his Manner of Feeding every Month. From the Conclusion of the Rutting-Time, which is in *November*, they feed in Heaths and broomy Places. In *December*, they herd together, and withdraw into the Strength of the Forest, to shelter themselves from cold Winds, Snows, and Frosts, and to feed on Elm-Trees, Elder-Trees, Brambles, *&c.* and if it snows they will skin the Tree like a Goat. The three following Months, they leave off herding, but keep four or five in a Company, and in the Corners of the Forest will feed on the Winter-Pasture, making sometimes their Incursions into the neighbouring Cornfields, if they can perceive the Blades of Wheat, Rye, or the like, appear above Ground. In *April* and *May*, they rest in their Thickets, and other shady Places, stirring very little till Rutting-Time, unless disturbed. There are some Harts so cunning, that they will have two several Layers to harbour in, a good Distance one from the other; and will frequently change for their greater Security, from the one to the other, taking still the Benefit of the Wind. The three succeeding Months they are in their Pride of Grease, and resort to Spring Copses, and Corn Fields. In *September* and *October*, they leave the Thickets, and go to rut; during which they have no certain Place either for Food or Harbour.

Having found out the Game we must discouple and cast off the Dogs; and some on Horseback, others on Foot, are to follow the Cry with the utmost Art, Observation, and Speed, remembring and preventing the subtil Turnings and Leadings of the *Hart*; standing with Dexterity to leap Hedge, Pale, Ditch, *&c.* and using our utmost Address and Circumspection to keep to the Beast first attempted, and prevent the Dogs from pursuing any other; which makes one of the principal Difficulties and Glories of the Chace, the Beast having a hundred Devices to put off some other Head for his own: Sometimes he will send some other little Deer in his Stead into the Dogs Way, lying close the while himself; on which Occasion our Huntsman is to sound a Retreat and break off the Dogs, and *take in Leam*, till the Game be recovered.

Sometimes he will purposely seek out for another Deer at Layer, and rouze him, to make the Hounds hunt Change, himself lying down flat in some of their Layers upon his Belly, to make the Hounds overshoot him; and that they may neither scent nor vent him, he will gather up his fore Feet under his Belly, and blow or breathe on some moist Place of the Ground, so that the Hounds shall pass within a Yard without apprehending him. He will break into one Thicket after another to find Deer, rousing, gathering them together, and herding with them, and even beating some of them into his Treads, that he may the more easily escape. Finding himself spent, he will break Herd and fall a doubling and crossing in some hard-beaten Highway; always running against the Wind, not only to cool himself, but the better to hear the Voice of his Pursuers.

The Soil is the last Refuge of a *Hart* sorely hunted, keeping in the Middle for Fear, lest by touching a Bough or the like, he may give Scent to the Hounds. He always swims against the Stream, whence the old Rule, *He that will his Chase find, let him try up the River and down the Wind.* In taking Soil he will sometimes cover himself under Water, so as to shew nothing but his Nose.

Where Opportunity of Water fails, he will fly into Herds

Herds of Cattle, as Cows, Sheep, &c. and ſometimes leap on an Ox, Cow, or the like, laying the fore Part of his Body thereon, that ſo touching the Earth only with his hind Feet, he may leave a ſmall or no Scent behind. What is further ſtill, the chief Huntſman (in French *grand veneur)* to *Louis* XII. King of *France*, relates, that a *Hart* which they were in full Chaſe of, leaped into a great tall White-thorn, which grew in a ſhady Place, and there ſtood aloft, till he was thruſt through by a Huntſman, rather than he would ſtir. Yet their Manner is, when they ſee themſelves every where intercepted, to make Force at him with their Horns, who firſt comes to him, except prevented by Sword or Spear.

Note, That the *Hart* is known to be ſpent by his running ſtiff, high, and limpering, by his Mouth being black and dry, without Foam on it, and his Tongue hanging out; though he will ſometimes cloſe his Mouth to deceive the Spectators; and by his *Slot*, for he will ſometimes cloſe his Claws together as if he went at Leiſure, and ſtrait again open them wide, making great Glidings, and hitting his Dew-legs upon the Ground, &c.

The *Hart* being killed, his Death is ſolemnized by the Huntſman, winding with his Horn the Fall of the Beaſt; and then every one approaches, luring with Triumph for ſuch a Conqueſt; the moſt diſtinguiſhed of whom who has not taken Say before, takes up the Knife and lays it croſs the Belly of the Deer (ſome of the Aſſiſtants holding by the fore Legs, and at the ſame Time the Huntſman drawing down the Pizzle) and thus draws the Knife along the Middle of the Belly, beginning near the Briſket, cutting deep enough to diſcover how fat he is. Then the moſt ſkilful Perſon breaks up the Deer, by firſt ſlitting the Skin, from the cutting of the Throat downwards, making the Arber that the Ordure may not break forth, and then paunching him, and rewarding the Hounds therewith.

Laſtly, the Perſon that took the *Say*, being preſented with a drawn Hanger, is to cut off the Head; which done, and the Hounds rewarded therewith, the concluding Ceremony, if a Buck is a Double, if a Stag a Treble *Mort* blown by one, and a Recheat, in Conſort, by all who have Horns, the whole concluding with a general *Woo Hoop*.

But notwithſtanding all the Precautions imaginable, a Huntſman is not always ſure of killing a *Hart*, and may fail doing it divers Ways; either by reaſon of great Heat, or of being overtaken by the Night, &c. and thus loſe his Prey. When this happens, the firſt Thing to be done is, that they who followed the Hounds muſt mark the Place where they left the Chaſe, and at Break of Day bring their Blood-Hounds to it, with their Kennel after him. If any Hound vents, which he knows to be a Lyer or Babler, he ſhall put his Hound to it, whooping twice, or blowing two Notes with his Horn, to call all his Fellows about him; and if he finds that the *Hart* is got into ſome Covert or Grove, he muſt draw his Hounds about it, and beat croſs to it. And if there he renews his Slot or View, let him firſt conſider whether it be the right or not; if it be the right, he ought to blow his Horn. But perhaps he'll find five or ſix Layers, which muſt not appear ſtrange to him; for *Harts* hunted and ſpent, frequently make many Layers together, becauſe they cannot ſtand but lie and feed.

Harts which are hunted commonly run up the Wind (as we have already obſerved) and ſtrait forwards as far as they are able, and when they find any Water on the Soil, ſtay a long while therein, whereby their Joints are ſo benummed and ſtifned, that coming out they cannot go far, nor ſtand up long; and therefore are forced to take any Harbour they can find, which may be a preſent Covert to them.

If our Huntſman ſeeks his *Hart* in high Woods, he muſt have Regard to two Things, that is, the Thickets of the Foreſt, and the Seaſon. If it be in very hot Weather, Gnats, Horſe-Flies, and the like, drive the Deer out of the high Wood, and they diſperſe themſelves into ſmall Groves and Thickets near Places of good Feeding. According to the Thickets which are in the Foreſt, the Huntſman muſt make his Enquiry: For the *Harts* ſometimes lie in Tufts of White-thorns, ſometimes under little Trees, ſometimes under great Trees in the high Woods, and ſometimes in the Skirts of the Foreſt, under the Shelter of little Groves and Copſes. Therefore the Huntſman ſhould make a Ring-Walk great or ſmall, according to the Bigneſs of thoſe Harbours or Coverts.

Note, That though I have given ſome general Directions as to the unharbouring the *Hart*, I ſhould notwithſtanding have entered into the following particular ones; which are, that when the Relays are well ſet and placed, the Huntſman muſt walk with his Pole before the Kennel of Hounds, taking Notice, when arrived to the Blemiſhes of the Slot, and ſuch other Marks as may be obſerved from the View of the Deer, to the Intent he may know whether the Hounds run Riot or not. Which done, he is to caſt abroad about the Covert, to diſcover the *Hart* when he is unharboured, the better to diſtinguiſh him by his Head or otherwiſe. The *Hart* unharboured, all the Hounds ſhall be caſt off, all the Company crying, *to him, to him, that's he, that's he*, or other ſuch Words of Encouragement. If the Blood-Hound as he draweth, chances to overſhoot, and draw wrong or counter, then the Huntſman muſt draw him back, and ſay, *back, back*; *ſoft, ſoft*, until he has ſet him right again: And if he perceives that the Hound has mended his Fault, by his kneeling down and obſerving the *Slot* or *Ports*, he muſt then cheriſh him, by clapping him on the Back, and giving him ſome encouraging Words. Thus let him draw on with his Hound till the Deer be deſcribed.

If the Huntſman have the *Hart* in View, he muſt ſtill draw up the *Slot*, blowing and hollowing till the Hounds are come in. When he ſeeth they are in full Cry, and take it right, he may then mount, keeping under the Wind and Coaſt, to croſs the Hounds that are in Chaſe to help them at Default.

The Huntſman is never to come nearer the Hounds in Cry, than 50 or 60 Paces, eſpecially at the firſt Uncoupling, or at caſting off their Relays. For if a *Hart* makes Doublings, wheels about, or croſſes before the Hounds, which happens but ſeldom; if then he comes in too haſtily he'll ſpoil the *Slot* or View, and ſo the Hounds for Want of Scent, will be apt to overſhoot the Chaſe. But if after hunting an Hour, the Huntſman perceives that the *Hart* makes out Endways before the Hounds, and they follow in full Cry, taking in right, then he may come in nearer, and blow in a *Recheat* to the Hounds to encourage them.

If it happens that the Hounds are at a Default, and hunt in ſeveral Companies, it may be judged thereby, that the *Hart* has broken Herd from the freſh Deer, and that the freſh Deer have ſeparated themſelves alſo: Then the Huntſman muſt obſerve how the old Staunch-Hounds make, and the *Slot*; and where he ſees any of the old Hounds challenge he muſt cheriſh and encourage him, haſting the reſt to him, by crying hark to ſuch a Hound, calling him by his Name. Taking Notice, that they cannot make it ſo good in the hard High-ways as in other Places, becauſe they cannot have there ſo perfect a Scent, either by reaſon of the Tracts or Footing of divers Sorts of Beaſts, or by the Sun drying up the Moiſture, ſo that the Duſt covers the *Slot*: Now in ſuch Places the *Hart* will make many Croſſes and Doublings, holding them long together, to make the Hounds give over the Chace. In this Caſe the firſt Care of the Huntſman is, to make good the Head, and then draw round apace; firſt down the Wind, though uſually Deer go up the Wind; and if the Way be too hard to *ſlot*, he muſt try far enough back, which expert Hounds will frequently do of themſelves.

But if a *Hart* breaks out into the Champaigne Country in the Heat of the Day, then if the Huntſman perceives his Hounds out of Breath, he muſt not force them much but comfort them; and though they do not call upon the *Slot* or View, yet it is ſufficient if they do but wag their Tails; for, being almoſt ſpent, it is painful for them to call.

Our next Chaſe will be to hunt a Buck, or *Fallow-Deer*, which is a Beaſt as corpulent as a Hart, but in

moſt Things reſembles more a Roe, except in Colour; which is various, but moſt commonly branded, or ſandy on the Back, having a black Liſt all along on the Ridge, and the Belly and Sides ſpotted with white.

The *Buck* is common in moſt Countries. The Male has Horns not much differing from a Hart, except in Largeneſs, and they grow out of the Head like Fingers out of the Hand; whence it is called *Cervus palmatus:* As for the other Parts, he much reſembles a *Roe-Buck*. The Female has no Horns.

Leſs Art and Skill are required in lodging a *Buck*, than in harbouring a Hart, and leſs drawing after; but only we are to judge by the View, and mark what Grove or Cover he enters, for he does not wander and rove ſo often as a Hart, nor ſo frequently change his Layer.

He makes his Fewmets in divers Manners and Forms, as the Hart does, according to the Diverſity of Food, and Time of the Day, Morning and Evening; but moſt commonly they are round.

When hard hunted, he takes to ſome ſtrong Hole or Covert he is acquainted with; not flying far before the Hounds, nor croſſing nor doubling, nor uſing any of the Subtilties the Hart is accuſtomed to.

The *Buck* will beat a Brook, but ſeldom a great River, as the Hart; nor can he keep ſo long at Stay; only he leaps lighter at Rut than the Hart; and groaneth, or throateth, as the Hart belloweth, but with a lower Voice, rattling in his Throat.

The *Bucks* don't love one another; nor will they come near each other's Layer. He herds more than the Hart, and lies in the drieſt Places: But if he be at large, unconfined within the limitary Precinct of a Park, he will herd but little, from *May* to *Auguſt*, becauſe the Flies trouble him: He takes great Delight in hilly Places, but much more to feed in Dales.

The greateſt Subtlety a Huntſman need uſe in hunting the *Buck* is, to beware in hunting Counter or Change, becauſe of the Plenty of Fallow Deer, which us'd to come more directly upon the Hound than the red Deer do. Upon the breaking up of a *Buck*, the Hounds Reward is the ſame with that of the Hart.

Our next Chaſe ſhould be the *Roe-Buck*, if there were any in *England*; but though there are none, and therefore we cannot hunt them, I'll notwithſtanding give ſome Directions towards hunting them.

Note, That the *Roe-Buck* the firſt Year is called a *Hind*; the ſecond a *Gyrle*; the third a *Hemuſe*; the fourth a *Roe-Buck of the firſt Head*; the fifth a *Fair Roe-Buck*. The Herd of *Roe-Bucks* is called a *Bevy*.

The *Roe-Buck* is very eaſy to hunt, and goes to Rut, or moſt properly, to Tourn in *October*, which laſts fifteen Days, and never parts from the Doe till fawning Time. The *Doe* finding herſelf near her Time ſecretly departs from the *Buck*, fawneth as far from him and his Knowledge as ſhe can; for could he find the Fawn he would kill it. When the Fawn grows big, and can run and feed, ſhe then returns to the *Buck* again very lovingly; the Cauſe whereof is, that the Roes fawning Twins, which are commonly Buck and Doe, they are ſo accuſtomed together in their Youth, that they love to keep Company ever after.

Soon after Rutting the *Roe-Buck* caſts his Horns; which are ſet with ſix or ſeven Branches, not palmed but branchy, yet ſhorter than Fallow-Deer. The Doe has no Horns.

The *Roe Bucks* keep commonly in the Mountains among the Rocks, being very ſwift, which Swiftneſs does not only appear upon the Earth, but alſo in the Water, which they cut when they ſwim, as with Oars: And therefore love Lakes and ſtrong Streams, breaking the Floods to come at freſh Paſtures, feeding deliciouſly on ſweet Ruſhes and Bull-Ruſhes.

It is ſuppoſed by the Learned, that the *Roe* was called in Greek *Dorcas*, by reaſon of the Quickneſs of her Sight; and that ſhe can ſee as perfectly in the Night as in the Day; never winking, not even when they ſleep.

They make good Chace, ſtand long, and fly Endways. When hunted they turn much and often, and come back upon the Dogs directly; when they can no longer endure, they then take Soil, as the Hart does, and will hang by the Bow in ſuch a Manner, that nothing ſhall appear of them above Water but their Snout, and will ſuffer the Dogs to come juſt upon them before they will ſtir.

There is another Sort of Deer, called *Rein-Deer*, which is not unlike a Hart, only his Head is fuller of Antlers, being bigger and wider in Compaſs; for he bears twenty-four Branches and more, according to his Age, having a great Palm on the Top as a Hart, and his fore Antlers being palmed alſo. He feeds like the Hart, and make his Fewmets ſometimes long and ſometimes flat; and as the Hart ſtrikes with his Head, the *Rein-Deer* ſtrikes with his Feet, againſt any one that comes to him to help the Dogs; never turning his Head, which is his chief Defence againſt the Dogs.

When the *Rein-Deer* is hunted he flies End-ways, by reaſon of the great Weight of his Head: When he has ſtood up a great while, doubled, croſſed, and uſed other crafty Tricks to ſhun the Hounds, he makes a Tree his laſt Refuge; ſo planting himſelf, that nothing can aſſail him but juſt before, placing his Buttock and Haunches againſt the Tree, and hanging down his Head low to the Ground, whereby all his Body is covered.

But however the *Rein-Deer* is moſt commonly drawn after with the Blood-Hound, then hunted and intrapped with Nets and Engines, and that in the thick and greateſt Holds; which is the beſt and ſpeedieſt Way, by reaſon of his great and ſpreading Head.

The *Rein-Deer* bears fatter Veniſon when he is in Pride of Greaſe, than any other Deer does, and is very long-lived; but there are very few of them in *England*.

Note, That from this I'll paſs to the moſt common, leſs dangerous either for the Huntſmen or Dogs, and moſt diverting Sport of this Kind, which is hunting the HARE, call'd in Hebrew *Arnebet*, in the Feminine Gender, which makes ſeveral imagine that *Hares* are all Females; by the *Greeks* Λαγως, for its immoderate Luſt, and φοβος, for his Fear; and by the *Latins*, *Lepus*, *quaſi levi-pes*, to denote her Swiftneſs.

There are four Sorts of *Hares*; ſome live in the Mountains, ſome in the Fields, ſome in Marſhes, ſome every where without any certain Place of Abode. Thoſe of the Mountains are the moſt ſwift, and thoſe of the Marſhes the ſloweſt: The wandering *Hares* are the moſt difficult and dangerous to follow; for by exerciſing themſelves often through Vallies and Plains, they grow ſoon acquainted with the neareſt Way to their Forms; which is the Reaſon why they put the Dogs ſo often to default.

Each Part and Member of the *Hare* is formed for Celerity; for the Head is round and ſhort, of a convenient Length, the Ears long and lofty, to hear the Enemy at a Diſtance, and ſave itſelf in Time; the Lips continually move ſleeping and waking, and the Eye is too big and round for the Lid to cover it, even when aſleep, ſo that the Creature ſleeps as it were on the Watch. The Breaſt is capacious, and fit to take more Breath than any other Beaſt.

They feed abroad to conceal their Forms, and never drink, but content themſelves with the Dew: Her Ears lead the Way in her Chace; for with one of them ſhe hearkeneth to the Cry of the Dogs, the other being ſtretched forth like a Sail to promote her Courſe.

Hares which frequent Buſhes and Brakes are not able to endure Labour, nor very ſwift, as being tender-footed and growing fat, through Diſcontinuance of Exerciſe. The *Hare* of the Fields or Mountains, moſt commonly regulates her Pace by that of the Dogs which purſue her; for if ſhe finds that the Dogs are ſlow and ſluggiſh, ſhe only walks gently before them, and yet ſafely from their Clutches, reſerving her greateſt Strength againſt ſhe wants it moſt; knowing very well that ſhe can out-run the Dogs at Pleaſure, and therefore will not fatigue herſelf more than Need requires. But if one Dog follows her more ſwiftly than the reſt, then ſhe ſets forth with all the Celerity ſhe can; and when ſhe has left the Dogs far behind, ſhe goes to ſome Hill or riſing Ground, where rearing on her hind Legs, ſhe obſerves at what Diſtance her Purſuers are.

The younger *Hares* having their Members weaker, tread always heavier than the elder, and therefore leave a greater Scent behind them. At a Year old they run very ſwift, and the Scent is ſtronger in the Woods than in the plain Fields; and if they lie down upon the Earth in red Fallow-Ground, they are eaſily deſcried. In Winter Mornings the Scent does not lie till the Froſt be a little thawed: And it may be added, that a Hare always leaves more Scent when ſhe goes to relieve, than when ſhe goes to Form.

Her Footſteps are more ſeen in Winter than Summer, becauſe as the Nights are longer they travel further: Their Prints are very uncertain at the Full Moon; at which Time they leap and play together.

A *Buck* or *Male Hare*, is known by his beating the hard High-ways, feeding further out in the Plains, and making his Doublings of a greater Compaſs than the Female, who keeps cloſe by ſome Covert-ſide, turning, winding, and croſſing in the Buſhes like a Coney, and rarely running out an End; whereas the *Buck* having made a Turn or two about his Form then farewel Hounds, for he will frequently lead them five or ſix Miles without once turning his Head: Add, that the *Buck* is known at his riſing out of Form, by his hind Parts, which are more white, or his Shoulders redder than the *Doe*.

The *Hare* regulates her Conduct according to the Weather. In a moiſt Day ſhe holds the Highways more than at any other Time, by reaſon the Scent is then moſt apt to lie; and if ſhe comes at the Side of any young Grove or Spring ſhe forbears to enter, but ſquats down on the Side thereof till the Hounds have overſhot her; upon which ſhe returns the ſame Way as ſhe came, without turning into any Covert, for Fear of the Wet and Dew hanging on the Boughs.

The *Hare* obſerves likewiſe, ſome Order and Craft with Regard to her Manner of ſetting: For if ſhe forms either upon the North or South Wind, ſhe will not willingly run into the Wind, but aſide or down the Wind: On the contrary, if ſhe form in the Water, it is a Sign ſhe is foul and meazled, and in the Courſe will make all her Doublings and Croſſings about Brook-ſides and near Plaſhes; for her Scent under this Condition being very ſtrong, ſhe needs a Place that will take but little. Sometimes when hunted down ſhe will ſtart a freſh *Hare* and ſquat in the ſame Form: Other times ſhe will creep under the Door of a Sheep-coat and hide among the Sheep, or run among a Flock of Sheep; and cannot by any means be gotten from among them till the Hounds are coupled up, and the Sheep driven into their Pens. Some will take the Ground like a Coney, which is called *going to vaut*. Some will go up one Side of the Hedge and come down the other, the Thickneſs of the Hedge being the only Diſtance between the Courſes; and a *Hare* ſorely hunted has been known to get upon a quick-ſet Hedge, and run a good Way upon it, and then leaped off upon the Ground. They will likewiſe frequently betake themſelves to Fuz-Buſhes, and leap from one to the other, whereby the Hounds are frequently in a Default.

A *Hare* does not live above ſeven Years at moſt, eſpecially the Buck; and if he and the Doe keep one Quarter, they will not ſuffer any ſtrange *Hare* to ſit by them; hence the old Proverb, *The more you hunt, the more Hares you ſhall have*, becauſe when you have killed one *Hare* another will come and poſſeſs his Form.

A *Hare* has great Scent, and is more eagerly hunted by the Hounds, when ſhe feeds and relieveth upon green Corn, than at any other Time in the Year: And yet there are ſome *Hares* which naturally give greater Scent than other; as the great Wood-Hares, and ſuch as are foul and meazled, and keep near to the Waters: But the little red *Hare*, which is not much bigger than a Coney, is neither of ſo ſtrong a Scent, nor ſo eagerly hunted. Such as feed upon the ſmall Branches of wild Thyme or the like, are commonly very ſwift, and will ſtand long up before the Hounds. There are beſides, ſome *Hares* which have not been hunted, are fooliſh, and have neither Strength nor Cunning to uſe the Subtilties and Crafts of the other *Hares*; but moſt commonly hold on End-ways before the Hounds, ſquat and ſtart again ſometimes, which much encourage the Hounds, and enters them better, than if the *Hare* flies End-ways.

The Females are more crafty and politick than the Bucks, for they double and turn ſhorter, which diſcompoſes the Hounds; for it is troubleſome for them to turn often, delighting more in an End-way Chaſe, and in running with all their Force.

Thus perfectly inſtructed in all the Particulars relating to the *Hare*, we'll take the Field for that Chaſe, accompanied by our Huntſman, who is to make his Hounds very well acquainted with him and his Voice; let him then underſtand the Horn, which is done by never blowing it, and never hollowing but when there is good Cauſe for it; taking Care beſides to encourage well his Hounds.

Note, That if we deſign to enter a young Kennel of Hounds, Regard muſt be had to the Country and to the Quarry; for according to the Place where they are entered, and the Game firſt given them, they will prove ever after. Thus if they be firſt entered in the Plains, they will henceforwards delight more to hunt there than in any other Place, *&c.* notwithſtanding what ſome Huntſmen ſay to the contrary, that all ſtrange Countries that differ from that to which the Hounds are accuſtomed, cauſe them to be at a Loſs at firſt; ſince good Hounds will ſoon be Maſters of any Country; and therefore to have the beſt Hounds, they muſt be uſed to all Kinds of Hunting, and it is eaſy to bring Hounds to have a Scent, from a black down to a freſh Paſture; which is the Reaſon why ſome Huntſmen chuſe to enter in the worſt Countries. But however, the beſt Way to enter young Hounds, is by the Help of old ſtaunch Hounds; ſince they will the better learn to caſt for it, at a Doubling or Default.

The beſt Seaſon for *Hare-Hunting*, is to begin about the Middle of *September*, and ends towards the latter End of *February*, for fear of deſtroying the young Brood of Leverets. This Seaſon is much the propereſt for this Sport, as the Moiſtneſs and Coolneſs of the Earth is more agreeable to the Nature of the Hounds, than extream Heats.

If there be any Hound which has found the Trail of a Hare, where ſhe hath relieved that Night, the Huntſman ſhould not be then over-haſty, but leave the Hounds to make it of themſelves: And when he perceives that they begin to draw in together, and to call on anew, he muſt encourage them. Taking Notice that a Hare leaves better Scent when ſhe goes to relieve, than when ſhe goes towards her Form; for when ſhe relieves in the Field, ſhe coucheth her Body low upon the Ground, paſſing often upon a Piece of Ground, to find where lieth the beſt Food; and thus leaves the better Scent.

Having found where a Hare has relieved in ſome Paſture or Corn-Field; to find her Form, the Seaſon of the Year, and the State of the Weather, are to be conſidered. In the Spring or Summer, a Hare will not ſit in the Buſhes, becauſe frequently offended with Piſmires, Snakes, and Adders, but will ſit in Corn-Fields, and open Places. In Winter they chuſe to ſit near Towns and Villages, in Tufts of Thorns and Brambles, eſpecially when the Wind is northerly, or ſoutherly.

According to the Seaſon and Nature of the Place where the Hare is accuſtom'd to ſit, there beat with your Hounds and ſtart her; which is better Sport than trailing of her from her Relief to her Form. Having ſtarted her, ſtep in, and hallow in the Hounds till they have undertaken it, crying *that*, *that*, or *there*, *there*, and go on with full Cry; then recheat them, and follow at a Diſtance, taking Care not to forward them too much at firſt, as being apt, in the firſt Heat, to overſhoot the Game. Above all Things mind the firſt doubling the Hare makes, which is to be a Key or Direction for the whole Day; all the other Doublings ſhe afterwards makes, being like the firſt. According to the Policies you ſee her uſe, and the Place where you hunt make your Compaſs, to help the Default,

fault, great or little, long or ſhort; always ſeeking the moiſteſt and moſt commodious Places for the Hounds to ſcent in.

One of the moſt diverting Chaſes, is that of the *Fox*; becauſe his having a very ſtrong hot Scent, he makes an excellent Cry; and that Scent being hotter at Hand, it dies ſooner than that of a Hare.

The Nature of a Fox, in many Reſpects, is like that of a Wolf. And both bring the ſame Number of Cubs at a Litter; with this Difference, that the Fox litters deep under Ground, which the Wolf does not.

A *Bitch Fox* is hard to take when bragged and with Cubs; for then ſhe lies near her Burrow, into which ſhe runs upon hearing the leaſt Noiſe: Indeed it is not very eaſy to take her at any Time, ſhe being a Beaſt of exceeding Subtilty. When ſhe goes a clicketting, and ſeeks the Dog, ſhe cries with a hollow Voice, not unlike the Howling of a mad Dog, and the like Noiſe ſhe makes when ſhe miſſes any of her Cubs; but never cries at all when ſhe is killing, but defends herſelf in Silence to the laſt Gaſp.

A Fox preys upon any Thing he can overcome, and feeds upon all Sorts of Carrion; but the Food they prefer to all other, is Poultry; for which Reaſon, they are accounted very deſtructive in the Country, eſpecially in thoſe Places where there are Warrens, and near Villages, *&c.*

The Fox chuſes to earth in Ground hard to dig, as in Clay, and ſtony Grounds, or among the Roots of Trees; and his Earth has commonly but one Hole, which goes ſtrait along in, before it comes at their Couch. He ſometimes by Craft, poſſeſſes himſelf of a Badger's old Burrow, which has Variety of Chambers, Holes, and Angles. *Geſner* relates, that he frequently cheats the Badger of his Habitation, by laying his Excrement at the Hole of the other's Burrow: Add, that the Wolf being an Enemy to the Fox, this latter ſecures his Earth, by laying an Herb, called Sea-Onion, on the Mouth thereof, which the Wolf has a natural Averſion to, ſo that it never comes near the Place where it either lies or grows.

The Fox is taken with Hounds, Grey-hounds, Terriers, Nets, and Gins. — When courſed in a Plain by Grey-hounds, his laſt Refuge is to piſs on his Tail, and ſlap it in their Faces as they come near him; ſometimes ſquirting his thinner Excrements upon them, to make them give over the Courſe or Purſuit.

There are two Sorts of Terriers for Fox-hunting; the one is crook'd-legg'd, and commonly ſhort-hair'd; which will take the Earth well, and lie very long at Fox or Badger. The other Sort is ſhagged and ſtrait-legg'd; which will not only hunt above Ground as others, but alſo enter the Earth with much more Fury than the former; but cannot ſtay in ſo long, by Reaſon of their great Eagerneſs.

Theſe Terriers muſt be enter'd when they are near 12 Months old, otherwiſe they'll never be brought to take the Earth. A young Terrier ſhould be encouraged by putting an old one before him, that can better endure the Fury of the Fox or Badger; taking Care that neither of them be old, when you engage your young Terrier with him. This Entring may be done ſeveral Ways, either by entring the old Terriers into the Ground, when Foxes and Badgers have young Cubs; and when they begin to bay, holding every one of the Terriers at each Hole or Mouth of the Earth, that they may liſten and hear the old ones bay. The old Fox or Badger being taken, and nothing remaining within but the young Cubs, then all the old Terriers muſt be coupled, and the young ones put in their Stead, encouraging them by crying *to him, to him.* And if they take any young Cub within the Ground, they muſt be ſuffer'd to do what they pleaſe with him; not forgetting to give the old Terriers their Reward, which is the Blood and Liver, fried with Cheeſe, and ſome of their own Greaſe, ſhewing them the Head and Skin to encourage them; before you reward them, they muſt be waſhed with Soap and warm Water, to clear their Skin from Earth and Clay that is clodded to the Hair, otherwiſe they are very apt to be mangy. Or the Terriers may be enter'd, by taking an old Fox or Badger, breaking all his Teeth, to prevent him from biting the Terriers; then digging an Earth, in ſome convenient Place, large enough for two Terriers to enter, and turn therein; which Hole muſt be covered with Boards and Turf; and then thruſting the Fox or Badger into it, firſt, and afterwards the old and young Terriers, which are to be encouraged with Words appropriated to the Art. When they have bayed ſufficiently, the Fox muſt be taken out through another Hole, dug for the Purpoſe, and kill'd before the Terriers to reward them with it.

When a good Terrier does once find the Fox, he then yearns, and defends himſelf very well, but not ſo vigorouſly as the Badger, nor is his biting half ſo dangerous.

Note, That there is not much Sport in *Hunting* a Fox under Ground; for as ſoon as he perceives the Terriers, if they bay hard, and lie near unto him, he will bolt out immediately, unleſs it be when the Bitch has young Cubs, for then ſhe will ſooner die than ſtir.

Fox-Hunting above Ground, is far more diverting; and thoſe who deſign to take that Diverſion, begin by ſtopping the Night before the Earths of the Fox, by laying two white Sticks a-croſs before them, which will make him believe it is ſome Gin or Trap laid for him; or elſe they may be ſtopped cloſe with Black-thorn and Earth together. This muſt be done about Midnight, for then the Fox goes out to ſeek his Prey.

The beſt Seaſon for *Hunting* the Fox above Ground, is in *January*, *February*, and *March*, becauſe his Earthings are found then with leſs Difficulty, and the Huntſman have a better Sight of their Hounds; which hunt beſt in cold Weather, the Fox leaving then a very ſtrong Scent behind him; though at that Time it chills the faſteſt.

The Finders muſt be caſt off firſt, and as the Drag mends, and thoſe ſhould be old ſtaunch Hounds which are ſure, never caſting off too many at once, becauſe Woods and Coverts being full of ſeveral different Chaſes, they would be engaged in too many at once. If you hear ſuch a Hound call on merrily, you may caſt off ſome other to him, and when they run it on the full Cry, caſt off the reſt.

The Hounds muſt be ſuffer'd to kill the Fox, and worry and hare them as much as they pleaſe. When he is dead, hang him at the End of a Pike-Staff, and hallow in your Hounds to bay him: But reward them not with any Thing belonging to the Fox; for it is not good, neither will they eat it.

Note, That ſince we have mention'd the *Badger*, under the Article of *Fox-Hunting*, we'll hunt it next.

Note alſo, That the *Badger* is called by ſeveral Names, *viz.* a *Grey-brock*, *Boreſon* or *Bauſon*, in *France*, *Tauſſon*. The Male is a Badger or Boar-Pig, and the Female a Sow. The Badgers are very common in *Naples*, *Sicily*, the *Alpine* and *Helvetian* Coaſts, and not uncommon in *France* and *England*. There are two Kinds, the one reſembling a Dog in his Feet, and the other a Hog by his cloven Hoof; they differ too in their Snout and Colour, the one reſembling that of a Dog, the other of a Swine: The firſt has a greyer or whiter Coat than the other, and goes further out to ſeek his Prey. They differ alſo in their Meat, the one eating Fleſh and Carrion like a Dog, the other Roots and Fruits like a Hog.

Mr. *Tuberville* mentions, likewiſe, two Sorts of Badgers, but in a different Manner; the one, according to him, caſting his Fiaunts long like a Fox, having his Reſidence in Rocks, and making his Burrow very deep; whereas the Burrows of the other are made in light Ground, and have more Variety of Cells and Chambers: The one is called the *Badger-Pig*, and the other the *Badger-Whelp*: The firſt has his Noſe, Throat, and Ears yellowiſh, and is much blacker, and higher Legs than the other. Both live on Fleſh, hunting greedily after Carrion, and are pernicious to Warrens, eſpecially when big with young. When the Badgers earth, after they have dug a good Depth, for to carry off the Earth, one of them lies down on his Back, and the reſt lay the Earth on his Belly; thus taking his hind Feet in their Mouth, they draw

draw the belly-laden Badger out of the Hole or Cave, and having disburthen'd him, he re-enters, and repeats the Labour till the Work be compleated. It is very pleasant to see them when they gather Materials for their Couch, as Straw, Leaves, Moss, and the like; for with their Feet and Head they will wrap as much together, as a Man can well carry under his Arm, and will make shift to get it into their Cells and Couches.

The Badger is a very sleepy Beast, especially in the Day-time, seldom stirring abroad but in the Night, whence the Denomination *Lucifuga*, q. d. Avoider of the Light. He is a deep biting Beast, having very sharp Teeth; to guard against the Effects whereof, it is usual to put great broad Collars about the Dogs Necks. His Back is broad, and his Legs longer on the right Side than the left; whence he runs best on the Side of a Hill, or Cart-Road-Way. He fights on his Back, and by this Means is at Liberty to use both his Teeth and Nails: He has a Faculty of blowing up his Skin after a strange Manner, by which he defends himself against any Blow or Bite of the Dogs; so that you may thrash your Heart out on his Back; but a small Stroke on the Nose dispatches him presently. In *Italy* and *Germany* they eat the Flesh of Badgers, boiling it with Pears; but in *England* it is not liked, being of a sweet rankish Taste; it is best in *September*; and of the two Kinds, the *Swinish Badger* is the best Meat.

The Badgers love Hog's Flesh above any other; for if you take but a Piece of Pork, and train it over a Badger's Burrow, if he be within, it will entice him out immediately. They are very cold of their Nature; and when it snows they will not come out of their Holes for three or four Days together. They live long, and generally grow blind by mere Age; from which Time they never stir out of their Holes, but are fed by the rest.

The Badgers have this Subtilty, that when they perceive the Terriers begin to yearn them, they will stop the Hole between the Terriers and them: If the Terriers continue baying, they will remove their Baggage with them into another Apartment or Chamber of the Burrow (their Houses having half a Dozen of Rooms at least) and thus will remove from one to the other, till they can go no further, barricading the Way as they go.

To hunt the Badger, you must seek the Earth and Burrows where he lies, and in a clear Moon-shine Night, go and stop all the Holes, except one or two, placing Sacks therein, fastened with drawing Springs, which may shut him in as soon as he strains the Bag. The Bags thus set, cast off your Hounds, and beat all the Groves, Hedges, or Tufts, within a Mile or two. What Badgers are abroad, being alarmed by the Dogs, will strait repair to their Earths, and so be taken. He that stays to watch the Sacks, must stand close, and upon a clear Wind; else the Badger will find him, and fly some other Way for Safety. If the Hounds either encounter him, or undertake the Chase, before he can get into his Earth, he will stand at bay like a Boar, and make excellent Sport.

Note, That our next Chase will be that of the Otter, which is an amphibious Creature, living both in the Water and on Land; and which some have imagined to be of the Castor or Beaver-Kind; its outward Form bearing a Similitude of that Beast, except the Tail, differing besides in Habitation; the Beaver frequenting both salt and fresh Water, and the *Otter* only the fresh.

Though the *Otter* lives much in the Water, he does not breathe like Fishes, but after the Manner of Quadrupeds; yet will remain a long while under Water without Respiration. If he wants Prey in the Water, he quits it for the Land; and if by much hunting a Shoar, he cannot have a full Refection, he will feed on Herbs, Snails, or Frogs; taking the same Pains in the Water to satisfy Hunger, and swimming two Miles together against the Stream, that he may, when his Belly is full, be carried by the Current down to his intended Lodging, which is near the Water, artificially built with Boughs, Sprigs, and Sticks, laid together in a marvellous Order, wherein he sets to keep himself from the Wet. He is web-footed like the Water-Fowl, and has an admirable Smell, whereby he will directly wind a Fish in the Water a Mile or two off; therefore he is a most pernicious Beast to a Fish-Pond, his Dexterity at Diving and Hunting under Water, being such, that scarce any Fish can escape him; taking always much more than he can dispense withal.

The Flesh of this Beast is cold and fishy, because he feeds on stinking Fish; for which Reason it is not eaten among the *English*; though among the *Germans* it is a pretty common Food; and the *Carthusian* Monks, who are forbidden to eat all Manner of Flesh, are allowed this.

The *Otter* is to be hunted with particular Dogs, call *Otter-Hounds*, and also with special Instruments, called *Otter-Spears*. To find them out, some are to go on one Side of the River, and some on the other, beating all the Way on the Banks, with the Dogs following. Thus it is soon found, if there be an *Otter* in that Quarter; for the *Otter* cannot endure long in the Water, but must come forth to make his Spraints, and in the Night sometimes to feed on Grass and other Herbs. If the Hounds find an *Otter*, look in the soft and moist Places to learn by the Prints, which Way he bent his Head. If the Prints make no Discovery, you may partly perceive it by the Spraints, and so follow the Hounds, and lodge him as a Hart or Deer. If you find not the *Otter* quickly, you may imagine then he is gone to couch somewhere farther off from the River; for sometimes he will seek his Food a Mile from his Place of Rest, chusing rather to go up the River than down, because upwards he meets with better Scent of Fish; and bearing his Nose into the Wind, he will the sooner find any Fault that is above him.

The *Otter* always endeavours to keep to the Water where he is Master. — In hunting him, therefore, you are to be ready with your Spears, to watch his Vents, for that is the chief Advantage; and if you perceive where the *Otter* swims under Water, then strive to get to a Stand before him, where you expect he will vent, and there endeavour to strike him with the Spear: If you miss, pursue him with the Hounds; which, if they be good, and well entered, will come chaunting and trailing along by the River Side, and beat every Tree, Root, every Osier Bed, and Tuft of Bulrushes; nay sometimes they will take the Water, and beat it like a Spaniel, by which Means the *Otter* can hardly escape.

If the Beast finds himself wounded with a Spear, he makes to Land, where he will maintain a furious Battle with the Dogs; and unless they be first wounded, they will not forsake the Water; for they are not ignorant how safe a Refuge the Waters are for them, and how unequal the Combat must be which they maintain on Land, with Men and Dogs; yet, because the cold Water annoys their green Wounds, they spin out their Lives to the Length of the Thread, chusing rather to die in Torments among Dogs, than to die in the Water.

An *Otter* and *Ferret* grow salt much about the same Time, and bring forth their Young much after the same Manner, neither having their constant Number.

Note, That besides the aforemention'd Chases, which are the only ones practis'd here in *England*, there are others practis'd in other Countries, where there are several Sorts of Game, not to be met with in *England*, as the *Wolf*, *wild Goat*, *wild Boar*, *Bear*, *Beaver*, and *Elk*; and as my Work bears the Character of Universality, and as such, is calculated for the Instruction of the whole World; I must here take Notice of the Method of *Hunting* those different Sorts of Beasts, beginning by the *Wolf*.

The *Wolves* go a clicketting in *February*, and continue in that Manner ten or twelve Days. Where there are many Wolves, many will follow one Bitch; but the Bitch will be only lined by one; for after she has carried the Males after her, sometimes eight or ten Days, without Meat, Drink, or Rest; when they are tired that they can go no farther, she first lies down, the rest following her Example; when she perceives that

that they are all asleep, and snoring through Weariness, she rises, and awakes that *Wolf* she observ'd to follow her most, entices him with her, far from the rest, and suffers him to line her. The rest awaking, and finding how cunningly she has deluded them, fall instantly on her Companion, which has been beforehand with them, and revenge themselves upon him, by depriving him of his Life, whence the Proverb, *Never Wolf yet ever saw his Sire.*

Their Whelps are able to ingender at twelve Months old, and then part with their Dam, that is, when those Teeth are grown, which they cast the first half Year; and being grown, they never shed them again. And here see their Gratitude (for *Tuberville* will not believe the aforesaid Story) after they have preyed for themselves, if they chance to meet their Dam or Sire, (though bloody cruel Creatures) they will fawn upon them, and lick them, rejoicing at the Sight of them. The Dog will never bring any of his Prey to his Whelps, till he has filled his own Belly, whereas the Bitch will not eat a Bit, till she has served them first. They go nine Weeks with Whelps, sometimes a little longer, and grow salt but once a Year. They prey upon all Kinds of Things, and feed on Carrion, Vermin, *&c.* They will kill a Cow, or a Bullock, and as for a Sheep, Goat, *&c.* they carry him off in their Mouths, without touching the Ground with it; and run so fast away, notwithstanding the Load, that they are hardly to be stopp'd but by Mastiffs or Horse-Men. — No Beast runs faster than the Wolf, and holds very long. When he is hunted with Hounds, he flies not far before them; and unless he be coursed with Grey-hounds and Mastiffs, he keeps the Coverts like the Bear or Boar, and especially the beaten Ways. Night is the usual Time of his preying, though Hunger will force him to prey by Day. They are more subtle and crafty than the Fox or any other Beast: When hunted they take all the Advantage they can; at any other Time, they never run much, but keep themselves in Breath and Strength.

When a *Wolf* falls into a Flock of Sheep, he would, if he could, kill them all before he feeds on any. They bark and howl like Dogs; and if there be but two together, they make such a terrible hideous Noise, that one would think there could be no less than twenty in a Body.

To hunt a *Wolf*, the Huntsman must first look out some convenient Place, a Mile or more distant from some great Wood or Forest, where there is some Close standing, to place a Brace of good Grey-hounds, near a Pond of Water, if possible; there he must kill a Horse that is worth nothing, and take the four Legs thereof, and carry them into the Woods, and Forest adjoining; then four Men should take each one Leg of the Beast, and draw it at his Horse's Tail, all along the Paths and Ways in the Woods, till they come back to the Place where the Carcass of the Beast lies, where they must lay down their Trains. Now when the *Wolves* go out in the Night to prey, they'll follow the Scent of the Train till they come to the Carcass. Then the Sportsmen must come early and privately near the Place; and if the *Wolves* be discernible, while they are feeding, having first considered which Way will be the fairest Course for the Grey-hounds, they'll place them accordingly, forestalling, as near as they can, with their Grey-hounds, the same Way the *Wolves* did, or are flying, either at that Time or the Night before. But if the *Wolves* be in the Coverts, near the Carrion, Hewers must be set round those Coverts, to make a Noise on every Side, except on that where the Grey-hounds stand, keeping close together, and making what Noise they can to force them to the Grey-hounds. Then the Huntsman goes with his Leam-Hounds, and draws from the Carrion to the Thickets Sides, where the *Wolves* have gone in, casting there the third Part of his best Hounds; for the *Wolf* will hold a Covert a long Time before he comes out. He must hold near the Hounds, blowing hard, and encouraging them with his Voice: For several Hounds will strain Courtesie at this Chase, tho' they are strong and fit for all other Chases.

When the *Wolf* comes to the Grey-hounds, they who hold them should suffer him to pass by the first Rank till he comes further, when the last Rank must let slip their Grey-hounds full in his Face, all the other Ranks letting slip also; so that the first Rank staying him but ever so little, he may be assaulted on all Sides at once; and thereby he'll be more easily taken.

A *Wolf* will stand a whole Day before a good Kennel of Hounds, unless Grey-hounds, or *Wolf* Dogs course him. If he stands at bay, have a Care of being bit by him; for as he is then mad, the Wound is desperate, and hard to be cured.

The Province of *Britanny* in *France*, where I was born, being a woody Country, full of large Forests, has Abundance of *Wolves*, which cause often great Ravages among the Flocks of all Sort of Cattle, they even attack Horses, when not on their Guard, seizing them by the Throat, which they do rather by Craft than open Force, otherwise a Horse would be too strong for a *Wolf*. The Gentlemen who have Estates on the Borders of Forests, assemble their Tenants, especially on a *Sunday*, to beat Part thereof, with a great Noise, to force out the *Wolves*, while others stand on the Cross-ways, to shoot them as they pass by, whereby a great Number of *Wolves* are destroy'd. Besides the Money allowed to every one who at any other Time shall kill a *Wolf*, the Reward increasing according to the Number of *Wolves* they kill. We commonly hunt them with *Leam-Hounds*; but this Chase is very fatiguing, and I have seen *Wolves* jumping over the Wall of a Park 20 Foot high, which the Dogs which followed them could not do, and therefore was left in Default. The Grandfather of the present King of *France*, was a great Admirer of *Wolf-Hunting*, and preferred it to any other Chase whatever.

Note, That it is best to enter the Hounds at young *Wolves*, which are not above half a Year or a Year old; for a Hound is more willing to hunt this than an old one; or you may take *Wolves* alive in Engines, and breaking their Teeth, enter your Hounds at them.

Note also, That you may know a Dog *Wolf* from a Bitch, by the Tracks of his Feet; for a Dog has a greater Heel, a greater Toe, greater Nails, and a rounder Foot. Besides, the Bitch commonly casts her Fiaunts in the Middle of the Highway, whereas the Dog casts them either on the one Side or the other of the Path.

Another dangerous Chase, both for Men and Dogs, but particularly the Dogs, is that of the *wild Boar*.

Note, That the *Boar* is always pigged with as many Teeth at first, as he shall have ever after, which only increase in Bigness, not in Number. Among the rest, they have four which are called *Tushes* or *Tusks*, whereof the two biggest do not hurt when he strikes, but serve only to wet the two lowest, with which they frequently kill. They feed upon all Kind of Corn and Fruits they can come at; and also on Roots. In *April* and *May*, they feed on the Buds of Plumb-Trees, and Chesnut-Trees, and all other sweet Buds they can find, especially on the Buds of Broom and Juniper, and are never measled, as the tame Swine are. Near the Sea-Coast, they feed on all Manner of Shell-Fish. If it happens, that there is a *Sounder* of them together, if any of them break *Sounder*, the rest will run that Way; and if a *Boar* be hunted from a thick and strong Covert, he'll go back the same Way he came thither: And when he is reared he never stays, but flies continually, till he comes to the Place where he was farrowed and brought up. This Mr. *Tuberville* observ'd, while he was in *France*, and says, that he saw a *Boar* hunted from a Thicket, which returned the same Way he came, to the Place of his farrowing, which was seven *French* Leagues distant: And this was performed by the Track of his Feet.

If the *wild Boar* be hunted in a Forest or Hole where he was bred, he is hardly to be forced out of it. Sometimes he takes Head, seems to go out, and draws to the Outsides of the Wood, but it is only

to hearken to every Side; and if he hears the Noise of the Hounds, he then returns, and will not be compelled to go that Way till Night, but when he has broke out of a Forest, and took Head end-ways, he is not to be put out of his Way, either by Men, Dogs, Voice, or any other Stratagems. A *Boar*, especially a great one, will not cry when kill'd; though the Sows and young Swine will sometimes.

Note also, That there are Terms peculiar to this Chase, *viz.* a *Boar* of three Years old, is called a *young Boar, which has lately left the Sounder*. An old *Boar* is called a *Singular*, or *Sanglier*. To say that the *Boar* fed the Night before, it is said, *he fed in the Corn*. If he feeds in the Fields or Meadows, it is called *routing*; and *worming*, when he feeds on Roots; and *grazing*, when he feeds on any Thing else.

A *wild Boar* should never be hunted with Hounds and Force, before he be in his fourth Year; for if he be hunted when he is but three Years old, he will stand up as long, if not longer, than any young Deer, which bears but three in the Top.

As this Chase is very dangerous, the Huntsmen must never take the Field without being very well armed with Boar-Spears, and accompanied with a good Store of very strong and bold Hounds, and not to be discouraged by the Slaughter of their Comrades; for I have seen several *wild Boars*, making Head against both Men and Dogs, and slaughter several Dogs, tossing some of them into the Air, and renting the Bellies of others with their Tusks, before they could be killed themselves.

In the Rearing of the *Boar*, you need not be afraid to come near him, for he values you not, and will lie still, and not be rear'd by you alone. — If he intends to abide in his Den, Couch, or Fort, he'll make some Crossings or Doublings at the Entry thereof, upon the Highway, or beaten Path; whereby a Huntsman being early in the Wood, may judge of the Subtilty of the *Boar*, and make Preparations accordingly.

If he be a great *Boar*, and one that hath lain long to rest, he must be hunted with a good Store of Hounds, and such as will stick close to him; the Huntsman being on Horse-back among them, to charge the *Boar* and discourage him; for such a *Boar* will not mind a Dozen Couple of Dogs; and when they have chased him, will take Courage, and keep them at bay, running at any Thing he seeth before him; but if he be charged home, and hard laid unto with the Hounds, he will turn Head and fly.

This Beast should be raised early in the Morning, before he has discharged his Bladder, for the Burning of it makes him soon weary. When first raised out of the Wood, he snuffles in the Wind, lifting up his Nose to smell what is with him, and what against him; and rarely strikes a Man before he be first wounded himself.

The Hunting-Spear must be very sharp and broad, branching forth into certain Forks, so that the *Boar* may not break through them upon the Huntsman. The best Places to wound the *wild Boar* in, are the Middle of his Forehead betwixt his Eye-lids, or else upon the Shoulder; either of those Wounds is mortal. For if he be not mortally wounded, he will run fiercely upon his Pursuers, and make Head against them; on which Occasion, the Huntsman must not fly, but rather meet him with his Spear, holding one Hand on the Middle of it, and the other at the End, standing one Foot before the other, and observing carefully which Way the Beast turns his Head; for the *Boar* is so daring, that, if he finds an Opportunity, he'll snatch the Spear out of the Hand of the Huntsman, or else recoil the Force back again upon him, whereby he is in great Danger of his Life: Whenever this happens, the sole Remedy is, that another Huntsman must charge the *Boar* with his Spear, and then to pretend to wound him, though he must not do it, for fear, in casting of his Dart, he should hurt the Huntsman who first engaged the *Boar*, which seeing this, forsakes the first Man, and rushes upon the second, who must be upon his Guard, and ready to defend himself with all the Dexterity he is Master of. In the mean Time, he that was overthrown must rise again, and run with his Spear to his Friend's Assistance.

When a *wild Boar* feels himself mortally wounded, were it not for the Forks of the *Boar-Spear*, he would press on the Huntsman, who has wounded him, to revenge his Death; for such is the Fury of this Beast, that he will endeavour to wound and kill, though he feels upon himself the Pangs of Death; and what Place soever he bites, whether Men or Dogs, the Heat of his Teeth causes an Inflammation in the Wound. — As for the other Devices, Diligence, Labour, Prosecution, and Observations used in *Hunting* the *wild Boar*, they are the same with those prescribed for the Chase of the *Hart*.

Note, That as there is a great Number of *wild Goats* in *Wales*, though none in *England*, it will not be improper to give Place here to some Observations on the *wild Goat*, and to some Rules for that Chase.

The *wild Goat* is as big as a Hart, but not quite so long in the Body, nor in the Legs, their Age is known by the Wreaths and Wrinkles they have on their Horns; for their Age is numbered according to the Quantity of those Wreaths, which he mews, but not his Beam, which, if an old Goat, may be as big as a Man's Leg. They have a long Beard, are of a brownish grey Colour, very shaggy, with a long black List down the Ridge of the Back; and their Track is bigger than the Slot of a Hart. They fawn in *May*, and have but one Fawn, which they suckle and bring up, as a tame Goat does her Kid. They feed like Deer, only they will eat besides, Ivy, Moss, and the like. In the Spring they make their Fewmets round, and afterwards broad and flat, as the Hart when he comes to feed well. They go to rut about *Alhallowtide*, and continue therein a Month or five Weeks. That Season over, they descend from the Mountains and Rocks, their Abode for the Summer Season, and herd themselves; not only to avoid the Snow, but because the Mountains and Rocks afford them Food no longer; and yet they come not very low, but keep at the Foot of the Mountains, feeding there till *Easter*; then they return again, every one chusing some strong Hole in the Rocks. About Fawning-Time, the Females separate from the Males till Rutting-Time: In this Interval, they will run at Man or Beast, and fight as Harts do, one against another. When he goes to rut, his Throat and Neck is much bigger than usual; he is very strong back'd, and (which is surprizing) tho' he should fall down from a high Place, he will receive no Harm; walking as secure on the sharp Tops of Rocks, as a Horseman does in a high Road.

The propereſt Season for *Hunting* the *wild Goat*, is *Alhallowtide*, observing well, before you hunt, the Advantages of the Coasts, and the Rocks, and other Places, where the *Goats* lie. This previously done, you must set Nets and Toils towards the Rivers and Bottoms; since it is impossible the Hounds should follow a *Goat* down every Place of the Mountains. Tho' it is necessary that some of the Huntsmen should stand on the Top of the Rocks, and throw down Stones as they see occasion. Where the *Goat* goes down to the small Brooks or Waters in the Bottom, there place your Relays, and let them never tarry till the Hounds come in, which were cast off. And this is the best Help, for a Man can neither follow on Foot, nor on Horseback.

Note, That *Bear-Hunting* is as dangerous as that of the *wild Boar*; but it is seldom practised for Diversion, in the northern Climates of *Europe*; and in the *Helvetian Alps*, where they are so strong and courageous, that they can tear in Pieces, Oxen, Horses, *&c.* for which Reason, they are often hunted by the Inhabitants of those Countries.

The *Bear* is of an excessive lustful Disposition; for Night and Day, the Females provoke the Males to Copulation, at which Time they are more fierce and angry than at any other. They go to Mate in the Beginning of Winter, some sooner, some later, according to their Rest and Feeding. And their Heat lasts no longer than fifteen Days. They follow in their Copulation the Manner of Man, and continue so long in the Act, that if they were fat at their first

first Entrance, they disjoin not themselves again till they be lean. It is reported in History, that in the Mountains of *Savoy* a Bear carried a young Maid into his Den, where he had a carnal Use of her Body; and while he kept her went forth daily, and brought her the best Fruits he could get for her Food; but taking Care always when he went to Forage to rowl a large Stone to the Mouth of his Den, left the young Woman should escape from him; who was found at last by her Parents, and delivered from her Captivity.

The *Bears* are naturally very cruel, and very strong on all the Parts of their Body, except their Head, where a small Blow proves mortal.

When the *She-Bear* perceives herself with Whelps, she withdraws into some Cave or hollow Rock, where she remains till she brings forth her Whelps, which grow fat, especially the Males, by only sucking their fore Feet. They enter their Den backwards, to steal their Foot-steps from the Sight of the Huntsman.

The *Bears* are naturally so chilly, that they hide themselves in Winter, chusing rather to starve than be exposed to the Rigour of the Season; lying commonly for three or four Months together, without so much as seeing the Light. When they come forth, they are so dazled by the Light, that they stagger and reel instead of walking; and to relax their Guts, straightned by their long Abstinence, they eat an Herb called *Arum*, in English *Wake-robin*, or *Calf's-Foot*.

They are whelped most commonly in *March*, some times two, and not above five in Number; most part of them are dead one whole Day after they are whelped; but the *Bear* licking them, warming them with her Breath, and hugging them in her Bosom, revives them again. They are littered blind, without Hair, the hind Legs not perfect, the fore Feet folded up like a Fist, and the other Members deformed, by reason of the immoderate Moisture in them. As soon as the Dam perceives her Cubs to grow strong, she suckles them no longer. Afterwards she preys abroad upon any Thing she can meet with, and which she casts up again to her young ones, and so feeds them till they can prey for themselves.

The *Bears* tumble and wallow in Water and Mire as Swines, and feed like a Dog. Some say, their Flesh is very good Food, I have eat none, but in an extream Want of Provisions at Sea, I have eat Bisket fried in Bear-Grease, which I found delicious then, because had nothing else on board, our Voyage having been much longer than could have been reasonably expected.

The *Bear* may be hunted with Hounds, Mastiffs, and Grey Hounds, and they are chased, and killed with Bows, Boar-Spears, Darts, and Swords.

The best Method to find a *Bear*, is with a Leam Hound; or with the same Sort of Trail we use after a Buck or Roe. The most expeditious Way to hunt him, is to mingle Mastiffs among Hounds; for they will pinch the *Bear*, and so provoke her to Anger, till at last they bring her to the Bay; or else she may be driven from the Plain into a Covert, where she is not to be left at Rest till she fights in her own Defence.

They naturally abide in Mountains; but when it snows, or in hard Weather, they descend into Valleys and Forests for Provision. They cast their *Lesses* sometimes in round Croteys, and sometimes flat like a Bullock, according to their Feeding. When they come from Feeding they commonly beat the High-ways and beaten Paths; and when they have quitted the High-ways, you may be sure they are gone to their Dens; for they use no Doublings nor Subtilties. They go sometimes a Gallop, and sometimes an Amble; but walk easier when they wallow. They have an excellent Scent, and smell further than any other Beast, except the Boar. When hunted, they are so heavy that they make no Speed, and so are always in Sight of the Dogs. They stand not at Bay as a Boar, but fly wallowing; but if the Hounds stick in, they will fight valiantly in their own Defence; sometimes they stand upright on their hind Feet, which must be taken as a Sign of Fear and Cowardice; for they fight stoutest and strongest on all four. While hunted they'll follow a Man, but not run upon him, unless they are wounded. They are so strong in their Paws, that they will hug a Man or Dog till they have broke his Back, or squeeze his Intrails out of his Belly: With a single Paw they will pull a lusty Dog to their Mouth. They bite so severely that they will bite a Man's Head to the Brains, and crush an Arm or Leg as a Dog does a small Bone.

The *Bears* may be taken in Snares, Caves, Pits, *&c.*

Note, That the Chase of the *Beavers* is not practised in *Europe*, though there be some bred in *Spain*, few in *France*, *Germany*, *Poland*, *Lithuania*, *Sclavonia*, *Russia*, and *Prussia*. But there is Abundance of them in *North America*; their Skins being one of the principal Commodities of those Countries.

The Beaver differs from the Otter but in the Tail; his Colour is somewhat yellow and white, asperfed with Ash-colour, which stands out between the shorter Hairs, double their Length, and neat and soft like an Otter's.

These Beasts are amphibious, living both on Land, and in fresh and salt Water, keeping the salt Water in Day-time, and the fresh in the Night; without Water they cannot live, for they participate much of the Nature of Fish. They are about the Bigness of a Country Cur, their Head short, their Ears small and round, their Teeth very long, their under Teeth standing out beyond their Lips three Fingers Breadth, and the upper about half a Finger, being very broad, crooked, strong, and sharp, standing very deep in their Mouths, wherewith they defend themselves against Beasts, take Fishes, as it were upon Hooks, and will gnaw asunder Trees as big as a Man's Thigh. Their fore Feet are like those of a Dog, and their hind like those of a Goose, made on purpose to go on Land, and swim in the Water. Their Tail is without Hair, and covered over with a Skin like that of a Soal, and six Fingers broad, and half a Foot long. They are accounted a delicate Dish, and eat like Barbels.

The *Beavers* are hunted in several different Manners. First, when their Caves are found (in which are several Chambers built over one another by the Water-side, to ascend or descend, according as the Water rises or falls) they make a Breach therein, wherein is thrust a little Dog, which the Beaver perceiving, she flies instantly to the End of her Cave, and there defends herself with her Teeth, till her Building be raised and she laid open to her Enemies, who kills her with Instruments for that Purpose.

The *Beavers* cannot live long under Water, but must put up their Head for Breath; which being seen by those who are hunting them, they kill them with Gun-shot, or Otter-Spears. His Nature is, if he hears any Noise, to put up his Head above Water, whereby he is discovered, and so loses his Life.—Those Skins are best which are blackest.

Note, That the Chase of the *Elk*, which is the last I'll take Notice of, is also very rare. This Beast is twice as big as a Hart; and has his upper Lip so large, that it hangs over the nether so far, as to hinder him from eating going forwards; so that as he eats he is obliged to go backwards. His Mane is different both on the Top of his Neck, and underneath his Throat, which bunches like a Beard or curled Lock of Hair, his Neck is so short, that it is not at all proportionable to the rest of his Body. Both Males and Females have two large Horns bending backwards in a plain Edge, the Spires standing forwards: Those Horns are solid at the Root, and round, but afterwards branched, broader than a Hart's Horns, and very heavy, being not above two Foot long; they mew them every Year. The Colour of the *Elk* is much like that of a Hart; he has cloven Feet, but without Joints in his fore Legs, and therefore sleeps leaning on Posts or Trees, and fights not with his Horns, but with his fore Feet. It is a very timorous Creature, which does not care to stir much, unless provoked to it by Hunting; which may be done without Danger, provided the Huntsman avoids coming right before him; for

for if this Beaſt faſten his fore Feet upon him, he cannot eſcape alive; but if the *Elk* receives any ſmall Wound it inſtantly dies.

The *Elks* are taken by Nets and Toils, or in the ſame Manner the Elephants are taken; for when thoſe who hunt them have found the Trees whereunto the *Elk* leans, they cut or ſaw them in ſuch a Manner, that when the *Elk* comes to lean againſt it, the Tree falls and the *Elk* with it, and being not able to riſe is thus taken alive. When they are chaſed eagerly, and can find no Place to reſt themſelves, and lie ſecret, they run to the Water where they ſtand, taking up ſome of it into their Mouths, where in a ſhort Time it grows ſo hot, that ſquirting it upon the Dogs, it ſcalds them in ſuch a Manner, that they do not dare approach the *Elk* any more.

Note, That the *Hunting* uſed by the Antients, was much like that now practiſed for the Rein-Deer, which is ſeldom hunted at Force or with Hounds, but only drawn with a Blood-Hound, and forſtalled with Nets and Engines. Thus did they with all the Beaſts; whence a Dog is never commended by them for opening, before he has diſcovered where the Beaſt lies; hence they were not in any Manner curious as to the Muſick of their Hounds, or the Compoſition of their Kennel of Pack, either for Deepneſs, Loudneſs, or Sweetneſs of Cry, which is the principal Point in the *Hunting* of our Days. Their Huntſmen indeed were accuſtomed to ſhout and make a great Noiſe, as *Virgil* obſerves in the third of his *Georgics*; — *Ingentem Clamore premes ad retia cervum.* But that Confuſion was only to bring the Deer to the Nets laid for him.

The *Sicilian* Manner of *Hunting* had ſomething in it very extraordinary. The Nobles or Gentry being informed which Way a Herd of Deer paſſed, gave Notice to one another, and appointed a Meeting; every one bringing with him a Croſs-Bow or Long-Bow, and a Bundle of Staves ſhod with Iron, the Heads bored with a Cord paſſing through them all: Thus provided, they came to the Herd, and caſting themſelves about in a large Ring, ſurrounded the Deer. Then each taking his Stand, unbound his Faggot, ſet up his Stake, and tied the End of the Cord to that of his next Neighbour, at the Diſtance of ten Foot from one another: Then taking Feathers died in Crimſon, and faſtened on a Thread, they tied them to the Cord; ſo that with the leaſt Breath of Wind they would whirl round. This done, the Perſons who kept the Stands, withdraw, and hide themſelves in the next Covert. Then the chief Ranger entring within the Line with Hounds to draw after the Herd, rouſed the Game with their Cry; which flying towards the Line were turned off, and ſtill gazing on the ſhaking and ſhining Feathers, wandered about as if kept in with a real Wall or Pale. The Ranger ſtill purſued, and calling every Perſon by Name as he paſſed by their Stands, commanded him to ſhoot the firſt, third, or ſixth, as he pleaſed, and if any of them miſſed, or ſingled out another than that aſſigned him, it was accounted a great Diſgrace. By ſuch Means, as they paſſed by the ſeveral Stations, the whole Herd was killed by the ſeveral Hands.

Note, alſo, That from thoſe Words of God to *Adam*, *Gen.* i. 26, 28. and to *Noah*, *Gen.* ix. 2, 3. *Hunting* was conſidered as a Right devolved, or made over to Man; and the following Ages appear to have been of the ſame Sentiment. Accordingly we find that among the more civilized Nations, as the *Perſians*, *Greeks*, and *Romans*, it made one of their genteeler Diverſions; and as to the wilder and more barbarous, it ſerved them with Food and Neceſſaries. The *Roman Juriſprudence*, which was formed on the Manners of the firſt Ages, made a Law of it, and eſtabliſhed it as a Maxim, that as the natural Right of Things which have no Maſter, belongs to the firſt Poſſeſſor; wild Beaſts, Birds, and Fiſhes, are the Property of whoever can take them firſt. But the northern Nations of *Barbarians* who over-run the *Roman* Empire, bringing with them a ſtronger Taſte for the Diverſion; and the People being now poſſeſſed of other and more eaſy Means of Subſiſtence, from the Lands and Poſſeſſions of thoſe they had vanquiſhed; their Chiefs and Leaders began to appropriate the Right of *Hunting*, and inſtead of a natural Right, to make it a royal one. Thus it continues to this Day; the Right of *Hunting* among us belonging only to the King, and thoſe who derive it from him.

In *France*, none but the Nobility has a Right of *Hunting*, and among them none but thoſe who are Lords of Fiefs, who can only hunt as far as the Extent of thoſe Fiefs, and no further; the Tranſgreſſion whereof, has often been, and is ſtill the Occaſion of long and vexatious Law-Suits. The Lord of a Fief, is not ſo much as permitted to bring his Pack of Hounds to croſs over his next Neighbour's Fief, nor when they are caſt off on his own, to ſuffer him to enter that Fief without expoſing them to the Danger of being ſhot; therefore when the Hounds approach the Borders of another's Fief they muſt be called back, though in a full Cry after a Beaſt, which has been raiſed on their own Fief. It is true, that all Noblemen are not ſo very litigious to take always Advantage of thoſe Irruptions of his Neighbour's Hounds; but they have a Right to do it, and ſome of them do it; therefore a diſcreet Nobleman chuſes rather to confine himſelf within the Limits of his Fief, than to be expoſed to the Inconveniencies which commonly attend thoſe Irruptions; or if they be made unawares, ſome Excuſes made in a polite Manner to the Lord of the Fief, on which they have been made, is a competent Satisfaction, provided that happens but ſeldom. In the whole Kingdom of *France* none are more jealous of the Right of *Hunting* than my Countrymen the *Brittons*; Diſputes occaſioned thereby have often been decided by the Sword; and ſuch a Diſpute was the fatal Origin of all my Misfortunes.

The *Engliſh* have alſo Laws and Charters of the Foreſt, and Laws and Regulations for the Preſervation of the Game, *&c.*

By a Statute in 33 *Henry* VIII. it is enacted, that no Perſon ſhoot with, or keep in his Houſe any Croſs-Bow, or Stone-Bow, Hand-Gun or Hagbut, under the Length of one Yard; unleſs he have Lands of the yearly Value of 100 *l.* on Pain of a Forfeiture of 10 *l.* for every Offence; nor ſhall any Perſon travel with a Croſs-Bow bent, or Gun charged; or ſhoot within a Quarter of a Mile of a City or Town, except at a dead Mark, or in Defence of his Houſe, under the like Forfeiture, to be divided between the King and the Proſecutor. None under the Degree of a Baron ſhall ſhoot with a Hand-Gun within a City or Town; or ſhoot at any Fowl whatever with Hail-Shot; on the ſame Forfeiture. *Id. Stat.*

Any Perſon ſhooting in the Night-time, or diſguiſed, ſhall be deemed a Felon, if he deny; if he confeſs, he is fineable at the next general Seſſion, 1 *Hen.* VII.

None ſhall kill or take Pheaſants or Partridges, with any Net or Engine in the Night-time, on Forfeiture of 20 *s.* for every Pheaſant, and 10 *s.* for every Partridge, 33 *Eliz.*

None ſhall hunt or hawk with Spaniels in ſtanding Corn, or before it be ſhocked, unleſs on his own Ground; on the Penalty of 40 *s.* Half to the King, and the other Half to the Proprietor of the Ground.

He that is convicted of killing or taking a Pheaſant, Partridge, Duck, Heron, Hare, or other Game; or of taking or deſtroying the Eggs of Swans, Pheaſants, or Partridges, ſhall pay 20 *s.* for every ſuch Fowl, Hare, *&c.* to the Uſe of the Poor, 1 *Jac.* I.

Every Perſon convicted to have kept a Grey-hound Dog, or Net, to kill, or take Deer, Hare, Pheaſant, or Patridge, unleſs he have Inheritance of 10 *l. per Annum*, a Leaſe for Life of 31 *l. per Annum*, or be worth 200 *l.* in Goods, or be the Son of a Knight, or Heir apparent of an Eſquire, ſhall pay 40 *s.* for the Uſe aforeſaid. Nor ſhall any ſell, or buy to ſell again, any Deer, Hare, Pheaſant, or Partridge, on Pain of 40 *s.* *Idem. Stat.*

The Lord of a Manor, or one having Inheritance of 40 *l. per Ann.* Freehold of 10 *l.* or Goods worth 400 *l.* or their Servants licenſed by them, may take Pheaſants

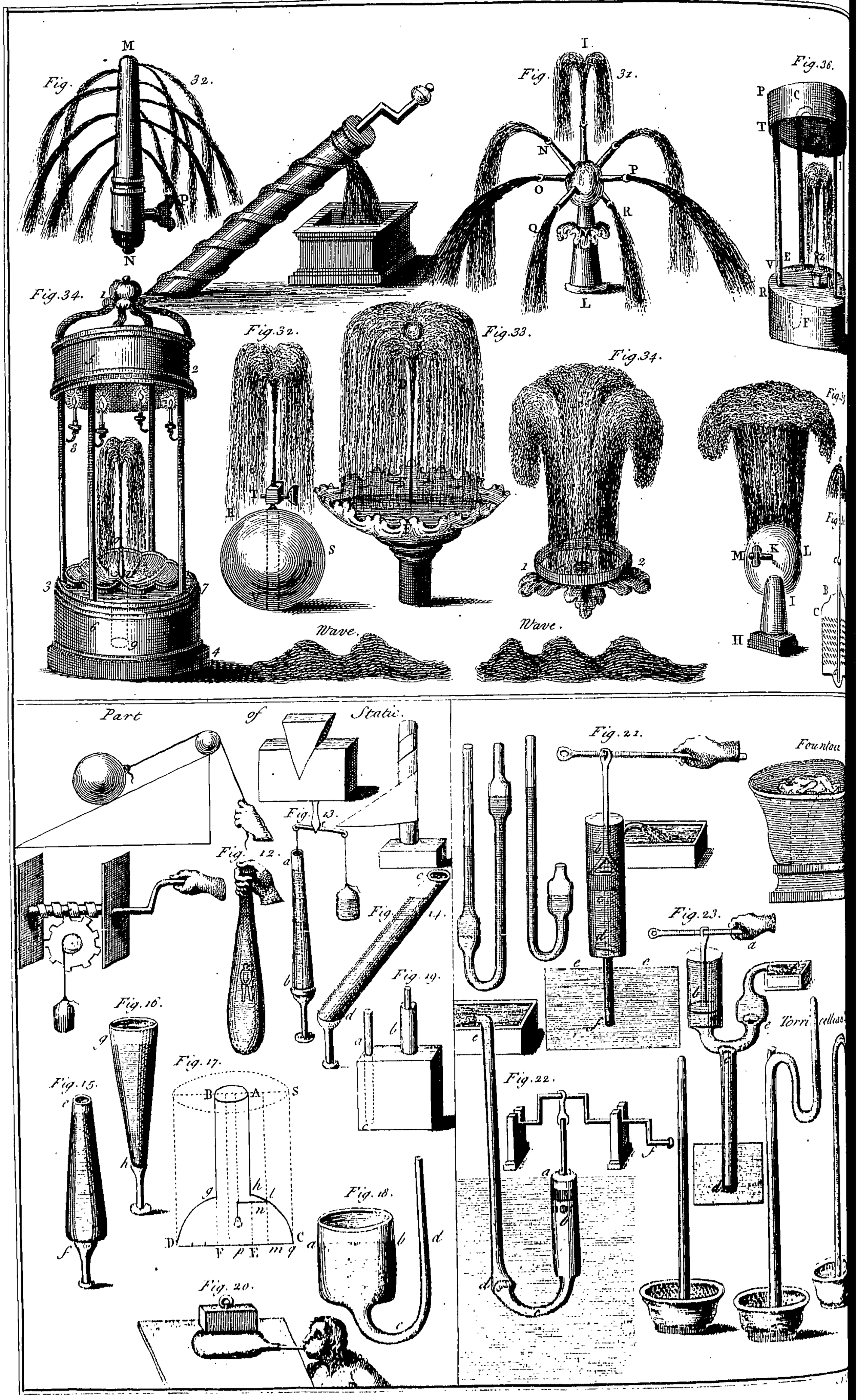


Fig. 32.
Fig. 31.
Fig. 36.
Fig. 34.
Fig. 32.
Fig. 33.
Fig. 34.
Wave.
Wave.
Part of Static.
Fig. 13.
Fig. 12.
Fig. 14.
Fig. 21.
Fountain
Fig. 23.
Fig. 19.
Fig. 16.
Fig. 17.
Fig. 15.
Fig. 22.
Fig. 18.
Fig. 20.
Torricellian

Pheasants or Partridges, within their own Lands, or Precincts, in the Day-time, between *Michaelmas* and *Christmas*, 7 *Jac.* I.

No Layman, who has no Lands of 40 *s. per Annum*; nor Clerk, who has not 10 *l.* Revenue, shall keep any Grey-hound, Hound, Ferret, Net, or Engine, to destroy Deer, Hare, Conies, or other Gentleman's Game; on Pain of a Year's Imprisonment, 13 *Jac.* I.

They that kill and take away Red, or Fallow Deer, without Consent of the Owner, shall forfeit 20 *l.* to be taken by Distress; one half to the Owner, and the other to the Informer; or for Want of such Distress, suffer a Year's Imprisonment, 13 *Car.* II.

Lords of Manors, or other Royalties, not under the Degree of Esquire, may Commission one or more Game-Keepers, who may seize all Dogs, Guns, Bows, *&c.* of Persons not having Estates of 100 *l. per Annum*, Freehold, or 150 *l.* Leasehold, or are not Sons and Heirs of Esquires; and destroy, or convert such Guns, *&c.* to the Use of the Lord, 22 *Car.* II.

If any enter a Coney-Warren, though not inclosed, and chase or kill Conies, he shall forfeit treble Damages, and be imprisoned three Months: And they that kill Conies in the Night-time, upon the Borders of Warrens, or Grounds used for keeping Conies, shall be amerced at the Discretion of the Justice of Peace, in any Sum, not exceeding 10 *s. Id. Stat.*

He who unlawfully hunts, takes in Toils, kills, or takes away any Deer, in any Forest, Chase, Park, Purlieu, or other inclosed Ground, or shall be aiding or assisting therein, shall forfeit 30 *l.* for every Deer killed, taken, or even wounded; and 20 *l.* tho' none shall be wounded or taken, to be levied by Distress, 3 *Will.* and *Mary*. And if the Keeper of the Forest, *&c.* be an Offender herein, or be aiding thereto, he shall forfeit 50 *l.* 5 *Geo.* I.

In Case any Hare, Partridge, Pheasant, Fish, Fowl, or other Game, shall be found in any Offender's House, he shall forfeit a Sum not less than 5 *s.* nor more than 20, to be levied by Distress; or in Want thereof, be committed to the House of Correction, for a Space of Time not greater than a Month, nor less than ten Days. And not qualified by Law, shall keep, or use any Bows, Grey-hounds, Setting-Dogs, Ferrets, Tumblers, Snares, *&c.* he shall be subject to the same Penalties.

If any Higler, Chapman, Carrier, Inn-keeper, or Victualler, shall have in his Keeping, any Hare, Pheasant, Partridge, Heath Game, or Growse, not put in his Hands by Persons qualified by Law, he shall forfeit 5 *l.* for every such Hare, *&c.* half to the Informer, and half to the Poor, levied by Distress; or for Want thereof, be sent to the House of Correction for three Months, 5 *Annæ.*

Persons not qualified for keeping Grey-hounds, Lurchers, Setting-Dogs, or Engines to destroy Game; or Game-Keepers, who under Colour of their Office, kill, and sell Game, without their Master's Knowledge, are liable to the like Penalty, *Id. Stat.*

No Lord of a Manor to appoint more than one Game-Keeper, and his Name to be enter'd with the Clerk of the Peace, who is to give a Certificate thereof; otherwise he is liable to the Penalties against Higlers, 5 *Annæ.*

If any Hare, Pheasant, *&c.* be found in the Possession of a Person not qualified; unless he be entitled to it by some Person that is qualified; the same shall be adjudged an exposing it to Sale. — Persons destroying a Hare in the Night, shall incur the Forfeiture of 5 *l.* 5 *Annæ.*

No Lord of a Manor shall appoint a Game-Keeper, with Power to kill or destroy Game, unless he be truly a Servant of such Lord, or be immediately employed to kill Game for the sole Use of such Lord: Nor shall any Lord authorize a Person not qualified, to keep or use Guns, Grey-hounds, *&c.* and such Persons as shall be found offending in either of these Points, shall for every Offence, fine 5 *l.* 3 *Geo.* I.

Lastly, if any Person enter a Park, Paddock, or other inclosed Ground, where Deer are usually kept, and wilfully wound or kill any Red or Fallow Deer, he shall be transported to the Plantations for seven Years, 5 *Geo.* I.

The Laws of the *Norman* Kings of *England*, were still more severe than all the aforemention'd. For *William the Conqueror* decreed, the Eyes of any Person to be pulled out, who took either a Buck or Boar. *William Rufus* makes the stealing of a Doe a hanging Matter: The taking of a Hare was fined at 20 *s.* and a Coney at 10 *s.* *Eadmer* adds, that fifty Persons of Fortune being apprehended by that last Prince, for killing his Bucks, were forced to purge themselves by the Fire of *Ordeal*, &c.

Henry I. made no Distinction between him who killed a Man, and a Buck; and punished those who destroyed the Game, tho' not in the Forest, either by Forfeiture of their Goods, or Loss of Limbs; though *Henry* II. remitted it for a temporal Imprisonment.

Richard I. revived the old Discipline of Gelding, and pulling out the Eyes of those convicted of *Hunting* in the Forest: But he afterwards relaxed a little, and was contented to make such Convicts abjure the Realm, or be committed, or pay a Fine.

HYDRAULICKS and HYDROSTATICKS.

HYDRAULICKS (from the *Greek*, ὑδραυλικὸς, sounding Water) is that Part of Staticks, which considers the Motion of Fluids, and particularly Water; with the Application thereof in artificial Water-works. To *Hydraulicks* belong not only the conducting and raising of Water, with the constructing of Engines for those Purposes; but also the Laws of Motion of fluid Bodies.

HYDROSTATICKS explain the Equilibrium of Fluids, or the Gravitation of Fluids at rest; upon removing that Equilibrium, Motion ensues; and here *Hydraulicks* commence.

Hydraulicks, therefore, suppose *Hydrostaticks*; which induces me to begin this Treatise by *Hydrostaticks*; and *Hydrostaticks*, by proving against the vulgar Opinion of the Schools, that all the sensible Elements, *viz.* the Air, the Water, and the Earth, and all heavy Bodies, are ponderous in their proper Places, *i. e.* the Water of the Sea, in its Bed; and a Stone, or any other heavy Body, placed on the Earth, have a gravitating Force, or Gravity. And such are called proper or natural Places of all heavy Bodies, which have been assigned to them by Nature, according to their Manner of Gravity in that elementary Region; which *Aristotle*, *Lib.* 4. *de Cælo*, *c.* 4. seems to insinuate; and which I prove in the following Manner.

Those Bodies have a gravitating Force in their proper Places, which being compressed by the subtile Matter, can scarce be removed from that Place, in which the Ratio of Gravity seems to be placed. But the sensible Elements, and all heavy Bodies, compressed by the subtile Matter, can scarce be removed from their Place; as it appears in Water, Earth, *&c.* which cannot be raised upward without Difficulty: — Therefore the sensible Elements, and all other heavy Bodies, have a gravitating Force in their proper Place. For the Water of the Sea, by its Gravity, does no less compress its Bed, than Water contained in a Vessel, compresses by its Gravity, the Bottom of that Vessel; but it is confirmed by repeated Experiments, that Water contained in a Vessel, gravitates on its Bottom; and that the Water which occupies that Bottom, is pressed by the other Water over it. Whence if the Side of a Vessel full of Water be perforated near its Base, the greater is the Quantity of the Water contained in that Vase, the further will it flow

flow through that Hole; therefore, &c.

To this it will be objected, first, that a heavy Body, as Lead, has less Weight in Water than in the Air; since Water diminishes very near a twelfth Part of the Weight of the Lead; and takes off, likewise, very near a ninth Part of the Weight of Copper; so that if the Weight of the Body, and that of the Water, be equal; that Body will be found to have no Gravity in the Water: And therefore Water has no Gravity in its proper Place.

I answer, that what has deceived most Philosophers, on this Point, is, that they made no Distinction between an *absolute* and *relative Gravity*.

We call *absolute Gravity*, that whereby a Body is heavy in itself, or tends downwards: And a *relative* one, that whereby a Body is heavy with Respect to our Senses; therefore Lead loses a twelfth Part of its *relative Gravity* in the Water, because we feel it lighter of a twelfth Part; but it loses nothing of its *absolute Gravity*.

If I be asked why Lead loses almost a twelfth Part of its Gravity in the Water? I'll answer, that the Reason of this Phœnomenon is very easy, *viz.* that a Mass of Lead is almost twelve Times heavier than a Mass of Water of the same Volume, or Magnitude; whence that the Water may be in an Equilibrium with the Lead, its Volume must be twelve Times greater than that of the Lead. — Hence if a wooden Beam be as ponderous as an equal Volume of Water, in whatever Place it shall be put in the Water, there it will remain, without rising higher, or descending lower; and will have the Effect of a Volume of Water, which are in an Equilibrium, with Parts equal and semblable to it.

But if that Wood be much lighter than the Water, *v. gr.* twice, thrice, four Times, five Times, six Times, &c. lighter than the Water, it will take up half, a third, a fourth, a fifth, or a sixth Part of its Weight of the Water. The same as a Boat only full of Air, scarce penetrates a sixth Part of its Weight of Water; but if it be loaded with Sand, Stones, or Men, together with the Air, so that the whole Mass of the Boat, Men, Air, and Sand, approaches the Gravity of an equal Volume of Water, the Boat will be depressed lower; but if, at last, it be too much loaded, and grows heavier than an equal Mass of Water, it will be ready to sink.

The same may be said of a Glass Bottle full of Air, which represents sometimes a human Figure (fig. 12.) for that Bottle being put in a Tube or Pipe of Glass, full of Water, as it is somewhat lighter than a semblable Volume of Water, some Part thereof is seen above the Water. But its having a very small Hole on the Side; if while it is in the Water, some of the Air be pumped out, to make Room for as much Water; then, by the single Compression of the Finger on the Orifice of the Pipe, it will happen that more Water shall enter the Bottle through the Hole on the Side, and depress it more down towards the Bottom of the Tube: But if the Finger be removed, the Air left in the Figure, will, by its elastick Virtue, thrust out the little Quantity of Water, which had enter'd through the Hole, and the Figure being again render'd thereby lighter than an equal Volume of Water, will return upwards. But if so much Air be pumped from it, as to make Room for a greater Quantity of Water, then it will descend of its own proper Weight to the Bottom of the Tube, and not ascend to the Top but by pumping.

There are also other Glass Bottles, from which a greater or less Quantity of Air has been taken out, which being likewise inclosed in a Tube full of Water, where the Water grows thicker, by Cold, ascend and descend, if the Water, thro' Heat, be rarified; whereby the Degree of Heat may be known at any Time. But I'll speak of the *Thermometer*, or Instrument proper to measure the Degrees of Heat, in another Place. Therefore, so often as a Body is much more heavy, as often it is precipitated downwards; but it only loses as much of its relative Gravity, as the like Volume of Water is suspended over it, *v. g.* Copper, which is nine Times heavier than Water, loses a ninth Part of its Weight, as Gold loses a nineteenth Part. Therefore, if you suspend Gold in open Air, and afterwards put it into Water, while it remains of the same Weight suspended in the Air, you may observe, that a ninth Part of the Equality of Weight, must be taken off, to make of it an Equilibrium with the Water.

In this Manner you'll easily discover, how much all Sorts of Bodies are heavier than Water. For Gold is nineteen Times heavier than the same Volume of the Water of the River *Seine* at *Paris*, Quicksilver almost fourteen Times; Lead almost twelve; Silver ten Times, and a thirtieth; Copper nine Times; Tin almost seven Times and a half; white Marble almost three Times; common Stone almost twice; but Wine a fifteenth Part; Wax a twentieth; and lastly, Oil a twelfth Part less ponderous than Water.

From all these it appears, why those Bodies, which were of equal Weight, while in the Air, lose their Equilibrium when weighed in Water. For if Lead and Copper, while suspended in the Air, are equal in Weight; as the Volume of the Lead must be less than that of the Copper, since Lead is heavier than Copper, if they be put into Water, the Lead shall occupy a lesser Space than Copper of the same Weight; whence it will be ballanced by a lesser Mass of Water; and thereby be heavier than Copper; tho' while in the Air it was in an Equilibrium with it.

It may be objected, that a Diver does not feel the Weight of the superincumbent Water; and that a Pail full of Water, can be easily moved here and there, while it remains in the Well; tho' out of it, it feels very heavy; and therefore, that Water does not gravitate in its proper Place.

I answer this Objection, by observing, that a Diver does not feel the Weight of the superincumbent Water, because all the Parts of the Water, sustain mutually one another in an Equilibrium, not only according to their perpendicular Lines, but likewise according to their oblique ones. For, 1. Who would deny, that they are in an Equilibrium, according to their perpendicular Lines? Since it is the Nature of Liquids, that if they be divided by our Imagination into several equal Columns, all those Columns, by Reason of the Fluidity of their Parts, will mutually counterpoise one another; for if one of them descends, the neighbouring, and adjacent ones must ascend; as when a Weight put in one Side of a Ballance descends, that in the other Side of the same Ballance must ascend; for there is no greater Reason that a Column should conquer another, than of its being conquer'd by it. 2. By Reason of the same Fluidity of the Water, those Parts which are superincumbent on the Head of the Diver, are counterpoised, according to the oblique Lines, by those which are on his Sides: Likewise those which environ his Body, are supported by others placed round them. Whence it happens, that their Weight is felt neither on the Head of the Diver, nor on his Sides.

For the same Reason, a Pail full of Water is easily rais'd from the Bottom of a Well, as far as the Superficies of the Water of the Well, because it is supported by an equal Volume of Water, as by a Counterpoise placed in another equal Column; and not because Water has no Gravity, otherwise it would not be ponderous in a Vessel, because when a Hand is plunged into it, it feels no Gravity, which, notwithstanding, a daily Experience proves to be false.

But what is more surprizing in this Place, and which no Body would believe, if it was not demonstrated by certain and evident Experiments, and is, notwithstanding, the whole Foundation of *Hydrostaticks*, is, that Fluids press upon subject Bodies, according to their perpendicular Altitude, and according to their Latitude or Breadth; having, notwithstanding Regard to the Base; which I prove in the Manner following.

The Gravity of Fluids, is to be estimated according to their Altitude, Regard being had to their Base, if they press more or less the Bottom of the Vessel in which they are contain'd, according to their greater or lesser perpendicular Altitude, whatever the Figure of the Vessel be; which is the Case of Fluids: For if several Vessels or Tubes of the same Altitude (fig. 13, 14, 15, 16.) be filled with Water, and in the Bottom of every one of them should be made an equal Aperture, and every Aperture stopp'd in the same Manner; all the Corks which stop those Apertures must be equally strong,

ſtrong, whether the Tubes be placed in a perpendicular Manner (as *a b* fig. 13.) or inclined (as *c d*, fig. 14.) or equally wide in the Form of a Column or Cylinder, as *a b* and *c d*; or broader at one End like a Cone or Funnel (as *e f*. fig. 15. or *g h*. fig. 16.) So that if there be wanted an hundred Pound Weight to ſupport the Water contained in the greater Tubes, 14, or 15, or 16, the ſame Force or Weight muſt be fixed at the Beam of a Ballance, to ſupport with an Iron-wire or ſmall Cord, the Cork of the narrower Tube *a b*, fig. 13. which Cork ſerves as a Baſe, which is preſſed by the Water:—Therefore Fluids are ponderous according to their Altitude.

My Proof is confirmed by this Experiment: Let the Tube, A B C D, fig. 17. be wider at Bottom, and narrower a top, I ſay, that the Bottom C D is no leſs preſſed by the Water contained in that Tube, than if the Veſſel was equally wide every where, as S T D C, of the ſame Figure. Which to demonſtrate, the Sides A *h* B *g*, muſt be carried into E and F; and afterwards, the Part of the Baſe E C is to be divided into the equal Parts E *m*, *n p q c*. but in ſuch a Manner, that the Latitude or Breadth of every one ſhould not exceed half the Altitude of the Tube B A, or E F. Which done, if E *p* be taken equal to the firſt Part E *m*, it may be ſhewn that the Column E *i* preſſes equally the Bottom of the Veſſel, as the Column *p* A; for if you conceive the Line *l i*, as a Ballance of equal Members, *n* being the Fulcrum thereof in the right Line A E; and at one of its Extremeties, *l*, be ſuſpended the Weight *v*, kept in Equilibrium by the Point *i* of the Side of the Veſſel, which is the other Extremity of the Ballance, certainly the Fulcrum *n* will ſuſtain both the Weight *v*, and the Reſiſtance of the Point *i* equal to the Weight *v*, and conſequently will carry twice the Weight of *v*.

Then let it be imagined that the Water of the Column A *p*, has the ſame Effect on the Bottom *p* E, the Weight *r* has on the Arm *u l*; therefore, as the Point *i* of the Side of the Vaſe hinders the Weight *r* from deſcending, likewiſe the Part *h i* hinders the Water of the Column A *p*, from forcing upwards the Water of the Column E *i*, and therefore that Column E *i* will by its Reſiſtance preſs as much the Bottom, as the Column A *p* preſſes *p* E in gravitating.

In the ſame Manner the Part of the Baſe *m q*, is as much preſſed by the Column *i q*, as the Part E *m* by the Column E *i*, i. e. as much as the Part *p* E is preſſed by the Column *p* A: And thus the whole Baſe is as much preſſed by the Water contained in the Vaſe D B A C, as it ſhould be preſſed by the Water filling up the whole Veſſel S T D C, which was to be demonſtrated.

Note, That the Fluidity of the Water, is the Cauſe that the Column A *p* exerciſes its Strength on the Column E *i*; for if the Water ſhould be frozen, thoſe Columns ſhould have no Power over one another; therefore what we ſay of the Water cannot be applied to Ice.

To confirm and illuſtrate this Doctrine of the Preſſure of the Fluids, in the ratio of the Baſe and Altitude, provide a metallick Veſſel, ſo contrived as that the Bottom may be moveable, and to that End fitted in the Cavity of the Veſſel with a Rim of wet Leather, to ſlide without letting any Water paſs: Then through a Hole in the Top apply ſucceſſively ſeveral Tubes of equal Altitudes, but different Diameters. Laſtly, faſtening a String to the Beam of a Ballance, and fixing the other End by a little Ring to the moveable Bottom; put Weights in the other Scale, till they be ſufficient to raiſe the Bottom: Then will you not only find that the ſame Weight is required, what Diameter or Magnitude ſoever the Tube be of; but even that the Weight which will raiſe the Bottom, when preſſed by the ſmalleſt Tube, will raiſe it when preſſed by the whole Cylinder.

The moſt ſolid and ponderous Body, which near the Surface of the Water would ſink with great Velocity, yet if placed at a greater Depth than twenty Times its own Thickneſs will not ſink, unleſs aſſiſted by the Weight of the incumbent Water.

Thus immerge the lower End of a ſlender Glaſs Tube, in a Veſſel of Mercury; then ſtopping the upper End with your Finger, you will by that Means keep about half an Inch of that ponderous Fluid ſuſpended in the Tube. Laſtly, keeping the Finger thus, immerge the Tube in a long Glaſs of Water, till the little Column of Mercury be more than thirteen or fourteen Times its Length under Water; then removing the Finger, you will find that the Mercury will be kept ſuſpended in the Tube by the Preſſure of the Water upwards: But if you raiſe the Tube very little above the former Station, the Mercury will immediately run out; whereof, if before you had removed the Finger from the Top, you had ſunk the Pipe ſo low, as that the Mercury were twelve or fourteen Inches, *&c.* below the Surface of the Water, the Mercury would be violently forced up, and make ſeveral Aſcents and Deſcents in the Tube, till it had gained its former Station, according to the Laws of ſpecifick Gravity.

We may alſo make uſe in this Place, of the Experiment of a Siphon; for if Water be put in a Siphon or inflexed Tube (*a b e d c*. fig. 18.) though one Limb, *viz.* *a b*, be an hundred Times larger than the other, *viz.* *c d*, the Water will notwithſtanding remain ſuſpended in both Limbs at the ſame Altitude; which could not happen unleſs Water was ponderous according to its Altitude, or ſhould preſs the Point *e*. For as there is a greater Volume of Water in the larger Limb, it ſhould force upwards that contained in the ſlenderer Limb, which is contrary to Experience. Therefore Water and other Liquors gravitate in the ratio of their Altitude.

Now what has been obſerved in the Equilibrium of Solids, the ſame is found in Fluids. For then the Water muſt be in an Equilibrium, ſince on one Part its Volume, and on the other the Ratio of its Velocity is reciprocal; which is the Caſe of the aforeſaid Experiment of the Siphon, where the Volume of the Water contained in both Limbs, and the Ratio of its Velocity are reciprocal: For when you'll have poured a hundred Times more Water into the Tube *a b*, than into *c d*, when that will be depreſſed towards *e* to the Height of an Ounce or Inch, then that which is in the ſlenderer Tube, or the Limb *c d*, will riſe to the Altitude of an hundred Ounces: So that the greater is the Volume of Water in the larger Tube, the greater is its Velocity in the leſſer, by reaſon of the Amplitude of each Tube. Therefore it is neceſſary that the Water ſhould be in an Equilibrium in both, and gravitate equally every Way on the Point *e*.

This is ſo very true, that if there be Water in a large Veſſel (fig. 19.) and the two Tubes *a* and *b* be adapted to it, of which *b* be an hundred Times thicker than *a*; Water put in the Tube *a* of a Pound, will be equivalent to the Weight of an hundred Pounds put in the Tube *b*. For the Force or Power is no leſs in the Weight of one Pound, for it to raiſe the other Weight of a hundred Pounds of Water in the Space of one Ounce, as it ſhould happen here, than it is in the hundred Pounds, to raiſe one Pound in the Space of one Ounce.

Hence, if a ſmall Tube or Pipe be adapted to the Orifice of a Hog's Bladder (fig. 20.) which is an hundred Times narrower than the Circumference of the Bladder, as the Wind blows through that ſmall Tube into the Bladder, has an hundred Times a greater Velocity of Motion, in the ſmall Tube than in the Bladder, for though the Wind or Breath conſidered in itſelf, has only the Force of one Pound, it is notwithſtanding a Weight equivalent to a Weight of a hundred Pounds; and if the Bladder be preſſed by a ninety-nine Pounds Weight, that Weight will be lifted up by the ſingle Breath of the Mouth introduced through that Pipe into the Bladder. Notwithſtanding that ſeveral imagine, that the Water contained in the Tube *a*, fig. 19, and which has the Force of one Pound, is only ponderous on the Part which is immediately under it. For the Propriety of *Liquids* incloſed in Veſſels is ſuch, that if they be compreſſed in any Place, the Force of the Compreſſion inclines on every Part of the Veſſel wherein they are contained; whence if any of thoſe Parts cannot bear that Force either upwards or downwards, or on the Sides, it will preſently break. Hence it is, what we have already mentioned, that Liquids are not only ponderous according to their perpendicular Lines only, but likewiſe according to their oblique ones, by reaſon of the Fluidity of their Parts. Therefore the Water of the Tube *a* is ſaid to act,

not only on the Part *c* of the Vase subject to it, but likewise on the Orifice of the Tube *b*; the same as the Water of the lesser Tube in the Siphon *a b e d c*, fig. 18. supports in an Equilibrium, the other Water contained in the larger Limbs.

It may be objected to this, that in the Siphon, one Limb whereof is very narrow, and the other very wide, the Water in the narrower Limb is sustained higher than that contained in the broader; and therefore Fluids do not always gravitate according to their Altitude.

I answer, that the Water being raised higher in the narrower Tube than in the broader, is first to be attributed to the Texture of the Parts, whereby the small Fibres of the Water being inserted into the Meats of the Glass of the narrower Tube, adhere to its Parieties or Sides, and are raised higher. Besides, there is no doubt that the Air super-incumbent on the Orifice of the narrower Tube, presses with a far less Force the Water inclosed in it, than that contained in the larger Limb, having a much more free Access into the larger Tube than into the narrower.

So far I have explained the Laws of *Hydrostaticks*, at present I'll pass to those of *Hydraulicks*; proceeding afterwards to the Application thereof to Practice, as to conducting and raising of Water, with the constructing of Engines for that Purpose.

The first of the *Hydraulick Laws* of *Fluids*, is, that the Velocity of a Fluid, as Water moved by the Pressure of a superincumbent Fluid, as Air, is equal at equal Depths, and unequal at unequal Depths. For the Pressure being equal at equal Depths, the Velocity arising thence must be so too, and *vice versâ*; yet the Velocity does not follow the same Proportion as the Depth; notwithstanding, that the Pressure whence the Velocity arises, does increase in the Proportion of the Depth. But here the Quantity of the Matter is concerned; and the Quantity of Motion which is compounded of the Ratio of the Quantity and Velocity of the Matter increased in equal Times as the Squares of the Velocities.

The second Law is, that the Velocity of a Fluid, arising from the Pressure of a super-incumbent Fluid, at any Depth, is the same as that which a Body would acquire in falling from a Height equal to the Depth.

The third Law is, that if two Tubes of equal Diameters full of any Fluid, be placed any how, either erect or inclined, provided they be of the same Altitude, they will discharge equal Quantities of the Fluid in equal Times. That Tubes every Way equal, should under the same Circumstances empty themselves equally is evident; and that the Bottom of a perpendicular Tube is pressed with the same Force as that of an inclined one, when their Altitudes are equal, has already been shewn; whence it easily follows, that they must yield equal Quantities of Water, *&c.*

The fourth is, that if two Tubes of equal Altitudes, but unequal Apertures, be kept full of Water; the Quantities of Water they yield in the same Time will be as the Diameters; and this whether they be erect or any how inclined. Hence if the Apertures be circular, the Quantity of Water emptied in the same Time, are in a duplicate Ratio of the Diameters.

This Law, *Mariotte* observes, is not perfectly agreeable to Experiment. If one Diameter be double the other, the Water flowing out of the least, is found more than a Fourth of what flows out of the greatest. But this must be owing to some accidental Irregularities in making the Experiments. *Wolfius* ascribes it principally to this, that the Column of Water directly over the Aperture, is shorter than that next the Sides or Parieties of the Vessel; for the Water in its Efflux, forms a Kind of Cavity over the Aperture, that Part immediately over it being evacuated first, and the other Water not running fast enough from the Sides to supply it. Now this Cavity or Diminution of Altitude, being greater in the greater Tube than the less; hence the Pressure endeavouring to pass out, becomes proportionably less in the greater Tube than in the less.

The fifth Law is, that if the Apertures of two Tubes be equal, the Quantity of Water discharged in the same Time will be as the Velocities.

The sixth is, that if two Tubes have equal Apertures, and unequal Altitudes, the Quantity of Water discharged from the greater Tube, will be to that discharged from the lesser in the same Time in a subduplicate Ratio of their Altitudes. Hence, 1. The Altitudes of Water discharged through equal Apertures, will be in a duplicate Ratio of the Waters discharged in the same Time: And as the Quantities of Water are as the Velocities; the Velocities are likewise in a subduplicate Ratio of their Altitudes. Hence, 2. The Ratio of the Waters discharged by two Tubes, together with the Altitude of one of them being given; we have a Method of finding the Altitude of the other, *viz.* by finding a fourth Proportional to the three given Quantities; which Proportional, multiplied by itself, gives the Altitude required. Hence also, 3. The Ratio of the Altitude of two Tubes of equal Apertures being given, as also the Quantity of Water discharged by one of them; we have a Method of determinating the Quantity the other shall discharge in the same Time. Thus to the given Altitudes, and the Squares of the Quantity of Water discharged at one Aperture, find a fourth Proportional. The square Root of this will be the Quantity of Water required.

Suppose, *e. gr.* the Height of the Tubes, as 9 to 25, and the Quantity of Water discharged at one of them three Inches; that discharged by the other will be $= \sqrt{(9.\ 25 : 9)} = \sqrt{25} = 5$.

The seventh Law is, that if the Altitudes of two Tubes be unequal, and the Apertures likewise unequal, the Quantities of Water discharged in the same Time, will be a Ratio compounded of the simple Ratio of the Apertures, and the Subduplicate one of the Altitudes. And hence if the Quantities of Water discharged in the same Time by two Tubes, whose Apertures and Altitudes are unequal, be equal; the Apertures are reciprocally as the Roots of the Altitudes, and the Altitudes in a reciprocal Ratio of the Squares of the Apertures.

The eighth is, that if the Altitudes of two Tubes be equal, the Water will flow out with equal Velocity, however unequal the Apertures be.

The ninth, if the Altitudes of two Tubes, and also their Apertures be unequal, the Velocity of the Waters discharged are in a subduplicate Ratio of their Altitudes. And hence, 1. As the Velocities of Waters flowing out at equal Apertures, when the Altitudes are unequal, are also in a subduplicate Ratio of the Altitudes, and, as this Ratio is equal, if the Altitudes be equal; it appears in the general, that the Velocities of Water flowing out of Tubes, are in a subduplicate Ratio of the Altitudes. Hence also, 2. The Squares of the Velocities are as the Altitudes.

Mariotte found from repeated Experiments, that if a Vessel has a Tube fitted to it, there will be more Water evacuated through the Tube, than there could have been in the same Time, through the Aperture of the Vessel without the Tube: And that the Motion of the Fluid is accelerated so much the more, as the Tube is the longer, *e. gr.* the Altitude of a Vessel being one Foot, that of the Tube three Feet, and the Diameter of the Aperture three Lines; 6 ¼ Septiers of Water were discharged in the Space of one Minute, whereof, upon taking off the Tube, only four Septiers were discharged. Again, when the Length of the Tube was six Feet, and the Diameter of the Aperture an Inch, the whole Quantity of Water run out in thirty-seven Seconds; but cutting off half the Tube, the Vessel was not evacuated in less than forty-five Seconds; and taking it quite away, in less than ninety-five Seconds.

The tenth Law is, that the Altitudes and Apertures of two Cylinders full of Water being the same; one of them will discharge double the Quantity of Water discharged in the same Time by the other; if the first be kept continually full, while the other runs itself empty. For the Velocity of the full Vessel will be equable, and that of the other continually retarded. Now it is demonstrated, that if two Bodies be impelled by the same Force, and the one proceeds equably, and the second is equably retarded; by that Time they have lost all their Motion, the one has moved double the Space of the other.

The eleventh, if two Tubes have the same Altitudes and equal Apertures, the Time wherein they will empty themselves will be in the Ratio of their Cases.

The twelfth, cylindrick and prismatick Vessels empty

themselves by this Law, that the Quantities of Water discharged in equal Times, decrease according to the uneven Numbers, 1, 3, 5, 7, 9, &c. taken backwards. For the Velocity of the descending Level, is continually decreasing in the sub-duplicate Ratio of the decreasing Altitudes: But the Velocity of a heavy Body descending, increases in the sub-duplicate Ratio of the increasing Altitudes.

The thirteenth is, that if Water descending through a Tube, spouts up on an Aperture, whose Direction is vertical; it will rise to the same Altitude, at which the Level of the Water in the Vessel does stand; for since the Direction of the Aperture is vertical, the Direction of the Water spouting through it will be so too; consequently the Water must rise to the Height of the Level of the Water in the Vessel.

The fourteenth Law is, that Water descending through an inclin'd Tube, or a Tube bent in any Manner, will spout up through a perpendicular Aperture to the Height at which the Level of the Water in the Vessel stands.

The fifteenth Law is, that the Length or Distances, to which Water will spout, either through an inclined, or a horizontal Aperture, are in a sub-duplicate Ratio of the Altitudes in the Vessel or Tube. For since Water spouted out through the Aperture, endeavours to proceed in an horizontal Line; and at the same Time by the Power of Gravity, tends downwards in Lines perpendicular to the same; nor can the one Power hinder the other, inasmuch as the Directions are not contrary: It follows, that the Water will arrive at the Line proposed, in the same Time wherein it would have arrived at it, had there been no horizontal Impulse at all. Hence, as every Body projected, either horizontally, or obliquely, in an unresisting Medium, describes a Parabola; Water projected either through a vertical or inclin'd Spout, will describe a Parabola. Hence we have a Way of making a delightful Kind of Water Arbours or Arches, *viz.* by placing several inclined Tubes in the same right Lines.

On these Principles, we'll form several *Hydraulick* Engines, for the Raising, &c. of Fluids, as *Pumps*, *Siphons*, *Fountains*, or *Jets d'eau*, &c. beginning by *Pumps*.

A Pump, *Antlia*, is a Machine formed on the Model of a Syringe, for the Raising of Water.

Pumps are distinguished into several Kinds, with Regard to the several Manners of their acting, as the *Common*, or *Sucking Pump*, *Forcing Pump*, *Ctesebes's Pump*, *Chain Pump*, *Bare Pump*, *Bur Pump*, &c.

The *Common* or *Sucking Pump*, (fig. 23.) is that which acts by the Pressure of the Air, and whereby Water is raised out of a lower into a higher Place, not exceeding 32 Feet. This *Pump* is made of a hollow Cylinder, or Barrel, provided of any solid Matter, usually Wood, and erected perpendicularly in a Spring, or other Source of Water; the lower Part of the Cylinder being first fitted with a Valve *d*, which opens upwards. — A Piston, or Embolus *b*, called the Sucker, furnish'd with a Valve *c*, which likewise opens upwards, is let down the Cylinder; and for the more easy working upwards and downwards, furnished with a Lever or Handle *a*. Now the Embolus being drawn up, will leave a Space void of Air, at least in a great Measure so: The Pressure, therefore, of the Air on the Surface of the stagnant Water, prevailing, will, by the Laws of *Hydrostaticks*, lift up the Valve *d*, first mention'd, and raise it to fill the Cavity supposed void of Air. — If then the Embolus be again let down, the lower Valve being now fast closed with the Weight of the incumbent Water, upon pressing the Piston, the Water must open the upper Valve *c*, and get into the Embolus, by which it is raised up and discharged out of the Spout. — Thus is the Embolus alternately raised and depressed.

This Ascent of the Water, the Antients, who supposed a *Plenum*, attributed to Nature, abhorrent of a *Vacuum*; but the Moderns, more reasonably, as well as more intelligibly, attribute it to the Pressure of the Atmosphere, on the Surface of the Fluid. For, by drawing up the Embolus, the Air left in the Cavity of the Cylinder, must be exceedingly rarified; so that being no longer a Counter-ballance to the Air incumbent on the Surface of the Fluid; that prevails and forces the Water thro' the little Tube, into the Body of the *Pump*.

Note, That a Valve in *Hydraulicks*, is a Kind of Lid, or Cover, of a Tube or Vessel, so contrived, as to open one Way; but which, the more forcibly it is pressed the other Way, the closer it shuts the Aperture. So that it either admits the Entrance of a Fluid into the Tube, or Vessel, and prevents its Return; or admits it to escape, and prevents its Re-entrance. In *Hydraulick* Engines, they are frequently of Leather; their Figure round; and are fitted to the Bottom, or other Parts of the Barrel, &c. to shut the Apertures. Sometimes they are made of two round Pieces of Leather, inclosed between two others of Brass, having divers Perforations, which are covered with another Piece of Brass, moveable upwards and downwards, on a Kind of Axis, which goes thro' the Middle of them all. — Sometimes they are made of Brass, covered with Leather, and furnished with a fine Spring, which gives Way upon a Force applied against it: But upon the ceasing of that, returns the Valve over the Aperture.

The *Piston* or *Embolus*, is a short Cylinder of Metal, fitted exactly to the Cavity of the Barrel or Body of the Pump; and which being worked up and down alternately therein, raises the Water; and when raised, presses it again, so as to make it force up the Valve wherewith it is furnished, and so escape through the Nose of the Pump.

The *Forcing Pump* (fig. 24.) acts by mere Impulse or Protrusion, and raises Water to any Height at Pleasure. This *Pump* is made in this Manner: A Cylinder is divided by a Diaphragm, or transverse Piece, fitted with a Valve, opening upwards *d*, and thus immerged in Water: An Embolus *b*, furnished with a Valve, is so fitted to an Iron Rod *f*, moveable on a Hinge at each End, as that it may be conveniently raised, and depressed by the Hand. Now, upon pressing the Embolus, the Water will open the Valve, and thus ascend into the Cavity of the Cylinder. But upon raising it again, the Valve is shut, so that there is no Passage for it that Way; the other Valve therefore becomes open'd, and the Water mounts through it; and by repeating the Agitation of the Embolus, is at length driven out thro' the Spout.

The great Difficulty of rectifying this *Pump*, when out of Order, on Account of the chief Seat of Action being under Water, makes People decline the Use of it when they can do well without it, notwithstanding its Advantage of raising the Water to any given Height.

Ctesebes's Pump (fig. 25.) is the first and finest of all the Kinds, and acts both by Friction and Pulsion. Its Structure and Action is as follows. A Brass Cylinder furnished with a Valve *c*, is placed in the Water. In this is fitted the Embolus *b*, made of green Wood, which will not swell in the Water, and adjusted to the Aperture of the Cylinder, with a Covering of Leather; but without any Valve. Another Tube *e*, is fitted on with a Valve that opens upwards. Now the Embolus being raised, the Water opens the first Valve *c*, and rises into the Cavity of the Cylinder: And when the same Embolus is again depressed, the last Valve is opened *c*, and the Water driven out thro' the Tube.

This is the *Pump* used among the Antients, and that from which both the others are deduced. Sir *S. Morland* has endeavoured to increase its Force, by lessening the Friction, which he has done to good Effect, insomuch as to make it work without almost any Friction at all.

Note, That the other Pumps I have mention'd, are only used in Ships; and therefore I'll give the Description thereof in my Treatise of *Naval Architecture*, under the Letter *N*.

Galileus was the first who discovered that this Ascent of Water into the Pump was not to be attributed to Nature's Abhorrence of a *Vacuum*.

In the Year 1643, *Torrellius* made an Experiment which

which supported *Gallilæus*'s System, *That the Ascent of the Water was to be attributed to the superincumbent Air.* He caused to be made, for that Purpose, a Glass-Tube, four Feet long, and open only at one End, which he filled with Quick-silver, and stopping the Aperture with his Finger, he inverted the Tube into a Vase where there was Quick-silver likewise; and then the Quick-silver remain'd suspended in the Tube, to the Altitude of 27 Ounces or Inches, and more.

This same Experiment was often repeated in the Year 1644, by F. *Marinus Marsene*, a Cordelier of the Convent of *Paris*. And it was afterwards agreed by all Philosophers, that such Phœnomenon was to be attributed to the Weight of the super-incumbent Air.

But we are more indebted for this curious Discovery, to the Industry and Labours of Mr. *Paschal*, than to any Body else. For this excellent Man spent the whole Year 1646, in revising and perfecting this Experiment of *Torrellius*. And having been informed in 1647, that the same *Torrellius* suspected that the Air was ponderous, he presently thought that he was very well founded in his Suspicion, which he endeavour'd to confirm by a very curious Experiment. Therefore, towards the End of the same Year, he wrote to *Francis Perier*, on that important Subject; and the Year following, 1648, made that famous Experiment, known at present throughout the whole learned World, on the highest Mountain of *Auvergne*, called *Le Puy de domme*.

He took two Glass-Tubes of the same Bigness, and about four Foot long, which having filled with Quick-silver, and inverted into a Vessel, where there was likewise Quick-silver; he observed that the Quick-silver at the Foot of the Mountain, remain'd suspended at the Altitude of 26 Ounces or Inches, and 3 Lines, in one of those Tubes; and that in the other, which was placed at the Top of the said Mountain, the Quick-silver remained suspended at the Altitude of 23 Ounces 2 Lines; whereby he discovered that the Air was less ponderous on the Top, than at the Foot of the Mountain. Whence it is concluded, that the Air gravitates; and that by his Gravitation, may be explained the Phœnomena of the *Pumps* heretofore mentioned.

From the *Pump* I'll pass to the SIPHON; which is a crooked Tube, one Branch or Leg whereof is longer than the other; used in the raising of Fluids, emptying of Vessels, and in various *hydrostatical* Experiments.

Note, That the Word in the Original *Greek* σιφων, signifies simply Tube; whence some apply it to common Tubes or Pipes. *Wolfius* particularly describes two Vessels, under the Name of *Siphons*; the one cylindrical in the Middle, and conical at the two Extremes; the other globular in the Middle, with two narrow Tubes fitted to it, axis-wise; both serving to take up a Quantity of Water, *&c.* and to retain it when up.

There is not a more useful and celebrated *Siphon* than this. A crooked Tube is provided of such a Length, and with such an Angle, that as when the Orifice is placed on an horizontal Plane, the Height may not exceed 30 Foot. For common Uses, a Foot, or half a Foot high suffices. If now the lesser Arm be immerged in Water, or any other Liquid, and the Air be sucked out of it by an Aperture made for that Purpose, till the Liquor follow; the Liquor will continue to flow out of the Vessel, through the Tube, as long as the Aperture is under the Surface of the Liquor. Instead of sucking out the Air, the Event will be the same, if the *Siphon* be at first filled with the Fluid, and the upper Aperture stopped with the Finger, till the lower be immerged.

The Truth of the Phœnomenon is known by Abundance of Experiments; nor is the Reason of Part of it far to seek. In sucking, the Air in the Tube is rarified, and the Equilibrium destroy'd, consequently the Water must be raised into the lesser Leg, by the perponderating Pressure of the Atmosphere.

The *Siphon* being thus filled, the Atmosphere presses equally on each Extremity thereof; so as to sustain an equal Quantity of Water in each Leg: But the Air not being able to sustain all the Water in the longer Leg, unless it exceeds 32 Foot in Height; it will be more than able to sustain that in the shorter Leg: With the Excess of Force, therefore, it will raise new Water into the shorter Leg; which new Water cannot make its Way, but by protruding the first before it. By this Means the Water is continually driven out at the longer Leg, as it is continually raised by the shorter.

But *Wolfius*, and some other Authors assert, that the Water continues to flow through the *Siphon*, even when placed under a Receiver, and the Air exhausted from it. The Reason of this, if it be true, is very difficult to account for. Some will have it, that there is still Air enough left in the evacuated Receiver, to raise the Water to an Inch or two; but as both Mercury and Water, are found to fall entirely out of the *Torricellian* Tube, *in vacuo*; the Pressure of the thin remaining Air, can never be the Cause of the Ascent, both of Mercury and Water, in the less Leg of the *Siphon*.

Hence as the Height of the *Siphon* is limited to 31 Foot; for this only Reason, that Air cannot raise Water higher; it does not appear, whether or no we are in the Right in rejecting *Hero*'s Method of carrying Water, by Means of a *Siphon*, over the Tops of Mountains into an opposite Valley. For *Hero* only orders the Aperture of the *Siphon* to be stopped, and Water to be poured through a Funnel into the Angle, or Meeting of the Legs, till the *Siphon* be full; when shutting the Aperture in the Angle, and opening the other two, the Water will continue to flow. Now if only there needs Air, for the first Rise of the Water into the less Leg, not for the Continuance of the Motion; it were possible to raise the Water much higher than the Height of the Atmosphere would carry it.

The real Cause, therefore, of this extraordinary, though very well known Phœnomenon, needs some further Disquisition. This is certain, that a *Siphon* once set a running, will persist in its Motion, tho' removed into the most perfect *Vacuum* our Air-Pumps will make; or if the lower Orifice of a full *Siphon* be shut, and the whole be thus placed in a Receiver, with a Contrivance for opening the Orifice when the Air is exhausted; the Water will be all emptied out of the Vessel, as if it had been in open Air.

This too is remarkable enough, that the Figure of the *Siphon* may be varied at Pleasure, provided only the lower Orifice be below the Level of the Water to be drawn up; but still, the further it is distant from it, the faster the Fluid will be carried off. And if, in the Course of the Flux, the higher Orifice be drawn out of the Fluid; all the Liquor in the *Siphon* will go out at the lower Orifice; that in the longer Leg, dragging, as it were, that in the shorter Leg after it.

If a filled *Siphon* be so disposed, as that both Orifices be in the same horizontal Line, the Fluid will remain pendant in each Leg, how unequal soever the Length of the Legs may be. Fluids, therefore, in *Siphons*, seem, as it were to form one continued Body; so that the heavier Part descending like a Chain, pulls the lighter after it. Observing, besides, that the Water will flow out, even thro' a *Siphon* that is interrupted, by having the Legs join'd together, by a much bigger Tube full of Air.

The most extraordinary Machine of this Kind, is the Machine of *Wirtemberg*, because it performs divers Kinds which the common *Siphon* will not reach; *e. gr.* in this, tho' the Legs be in the same Level, yet the Water rises up in the one, and descends through the other: The Water rises, even tho' the Aperture of the less Leg be only half immerged: The *Siphon* has its Effect after continuing dry a long Time: Either of the Apertures being open'd, the other remaining shut for a whole Day, and then open'd, the Water flows out as usually. Lastly, the Water rises and falls indifferently, thro' either Leg.

The Project of this *Siphon*, was laid by *Jordanus Pelletier*, and executed at the Expence of Prince *Frederick Charles*, Administrator of *Wirtemberg*, by his Mathematician *Shabackar*, who made each Branch 20 Foot long, and 18 Foot apart: The Distinction thereof was described by *Reiselius*, the Duke's Physician. This gave Occasion to M. *Papin* to invent another, that did the same Things, described in the Philosophical Transactions; and which *Reiselius*, in another Paper in the Tran-

Transactions, ingenuously owns to be the very same with that of *Wirtemberg*.

The most considerable Machine of *Hydraulicks*; the most agreeable to the Sight, and most diverting, is the *artificial Fountain*.

The *artificial* FOUNTAIN, is a Machine, or Contrivance, whereby Water is spouted or darted up, called also *Jet d'eau*.

Note, That M. *Mariotte* shews, that a *Jet d'eau* will never raise Water so high as its Reservoir, but always fall short of it by a Space, which is a subduplicate Ratio of that Height. He shews, likewise, that if a greater *Jet* branch out into many smaller ones, or be distributed thro' several *Jets*, the Square of the Diameter of the main Pipe, must be proportion'd to the Sum of all the Expences of its Branches; and that if the Reservoir be 52 Foot high, and the Adjutage half an Inch in Diameter, the Pipe ought to be three Inches in Diameter.

There are divers Kinds of *artificial Fountains*, some founded on the Spring, or Elasticity of the Air; and others on the Pressure or Weight of the Water, *&c.* the Structure of each hereof, being entertaining and curious, and affording a good Illustration of the Doctrine of *Hydraulicks*, shall be here explained; beginning by the Construction of an *artificial Fountain, playing by the Spring or Elasticity of the Air*.

For the Construction of that Kind of *artificial Fountain*, a Vessel proper for a Reservoir as A B, of Metal, Glass, or the like, is provided; ending in a small Neck *c* a-top. Through this Neck a Tube is put *c a*, traversing the Neck of the Vessel, till its lower Orifice *d*, nearly, but not absolutely, reach the Bottom of the Vessel; the Vessel being first half filled with Water. The Neck is so contrived, as that a Syringe, or condensing Pipe may be screwed upon the Tube; by Means whereof a large Quantity of Air may be intruded through the Tube into the Water; out of which it will disengage itself, and emerge into the vacant Part of the Vessel, and lie over the Surface of the Water C D.

Now the Water here contain'd, being thus pressed by the Air, which is, *e. gr.* twice as dense as the external Air; and the elastick Force of Air being equal to its gravitating Force, the Effect will be the same as if the Weight of the Column of Air over the Surface of the Water, were double that of the Column pressing in the Tube; so that the Water must of Necessity spout up through the Tube, with a Force equal to the Excess of Pressure of the included, above that of the external Air.

But if our *artificial Fountain* is to play *by the Pressure of the Water*, we must search a Reservoir of Water in a Place considerably higher than that where the Fountain is to be (whether that Reservoir have been placed there by Nature; or whether it have been raised for the Purpose by a proper Engine, as a Pump, Siphon, spiral Screw, or the like) having found such Reservoir, we'll lay vertical Tubes for the Water to descend through; and to these vertical Tubes, fit other horizontal ones under Ground, to carry the Water to the Place where the Fountain is to play. Lastly, from these horizontal Tubes, we'll erect other vertical ones, by Way of Adjutages, Jets, or Spouts; their Altitude being much less than that of the Tubes whereby the Water was carried to the horizontal ones. Then will the Water, by the Pressure of the superincumbent Column, be spouted up at these Jets; and that to the Height or Level of the Water in the Reservoir; and thus howsoever any of the Tubes be bent or incurvated.

Thus may Water be spouted to any given Height at Pleasure: The Tubes may be so proportioned, as to yield any given Quantity of Water, in a given Time; or several Tubes of the same *Fountain*, may be made to yield Water in any given Ratio; or lastly, different Tubes may project the Water to different Altitudes.

Note, That these aerial or aquatick *Fountains*, may be applied in various Manners; so as to exhibit various Appearances; and from these alone arises the greatest Part of our artificial Water-works, which so agreeably strike the Sight, that the Description of some of them, must be very entertaining; therefore,

I'll begin by the Description of an *artificial Fountain, which spouts the Water in various Directions*; supposing, first, the vertical Tube or Spout in which the Water raises, to be I L (fig. 31.) into this are to be fitted several other Tubes; some horizontal, others oblique; some inclining, others reclining, as M N, O P, Q R, *&c.* Then all the Water will retain the Direction of the Aperture through which it is spouted, that issuing through I, will rise perpendicularly; and that through M N, O P, Q R, will describe Arches of different Magnitudes, and tending different Ways.

Or thus; suppose the vertical Tube M N (fig. 32.) through which the Water rises, to be stopped a-top, as in M; and instead of Pipes or Jets, let it be only perforated with little Holes all round, or only half its Surface, then will the Water spin forth in all Directions, through the little Apertures, and to a Distance proportional to the Height of the Fall of the Water: And hence if the Tube M N, be supposed the Height of a Man, and be furnished with an Epistonium, or Cock, at P; upon opening the Cock, the Spectators dreaming of no such Matter, will be covered with a Shower, observing, however, that the Diameter of the Apertures, through which the Water is emitted, must be considerably less than those Tubes in which the Water is brought; lest the Resistance of the Air, and other Impediments, break the Force of the Water.

We'll exhibit next, a *Fountain playing by the Draught of the Breath*; in supposing R S (fig. 32.) to be a Glass, or metalline Sphere, wherein is fitted a Tube T V, having a little Orifice in T, and reaching almost to V, the Bottom of the Sphere; if now the Air be sucked out of the Tube T V, and the Orifice T be immediately immerged under cold Water, the Water will ascend thro' the Tube into the Sphere. Thus procceeding by repeated Exsuctions, till the Vessel be above half full of Water, and then applying the Mouth to T, and blowing Air into the Tube; upon removing the Mouth, the Water will spout forth. Or, if the Sphere be put into Water, the Air being thereby rarified, will make the Water spout as before. This Fountain is called *Pila Heronis*, or *Hero*'s Ball, from the Name of its Inventor.

To make a *Fountain, the Stream whereof rises, and plays thro' a Brass Ball*; we must provide a hollow Brass Ball B (fig. 33.) made of thin Plate, that its Weight may not be too great for the Force of the Water; and make the Tube D E, through which the Water rises, exactly perpendicular to the Horizon. Then the Ball being laid in the Bottom of the Cup or Bason F, will be taken up in the Stream, and sustain'd at a considerable Height, as B; alternately vibrating, or playing up and down. Hence as the Figure of the Ball contributes nothing to its reciprocal Rise and Fall; any other Body, not too heavy, may be substituted in lieu thereof, *e. gr.* a Bird with its Wings stretched forth.

Note, That it is necessary the Ball, when on the Descent, should keep the same precise Perpendicular, wherein it rose (since otherwise it would miss the Stream, and fall downright) and that such a *Fountain* should only be played in a Place free from Wind.

For the Construction of a *Fountain, which spouts Water in Form of a Shower*; to the Tube wherein the Water is to rise, we must fit a spherical, or lenticular Head 1, 2, (fig. 34.) made of a Plate of Metal, and perforated a-top with a great Number of little Holes: The Water rising with Vehemence towards 1, 2, will be there divided into innumerable little Threads, and afterwards break, and disperse into the finest Drops.

To make a *Fountain, which spreads the Water in Form of a Table Cloth*; we must solder to the Tube H I, (fig. 35.) two spherical Segments K L, almost touching each other; with a Screw M, to contract or amplify the Interstice or Chink at Pleasure. Others chuse to make a smooth, even Cleft, in a spherical or lenticular Head fitted upon the Tube. The Water spouting through

through the Chink, or Cleft, will expand itself in Manner of a Cloth.

Since Water may be derived or conveyed by Tubes in any Situation, and always retains the Direction of the Apertures, *artificial Fountains* may be made wherein the *Water spouts out of the Figures of Men and other Animals*; by inclosing Tubes within the Figures of Men or other Animals, having their Orifices in those Parts, whence the Waters are to spout forth. From the Principles hitherto laid down, it will be very easy to deduce whatever relates to the Furniture of *Fountains*; and the various Forms Water may be put into by their Means; all depending on the Magnitude, Figure, and Direction of the Adjutages or Apertures.

To make a *Fountain, which when it has done spouting, may be turned like an Hour Glass*; we must provide two Vessels, P Q and R S (fig. 36.) which should be so much the bigger, as the *Fountain* is to play the longer; and placed at so much the greater Distance from each other T V, as the Water is desired to spout the higher. Then X Y Z, which is a crooked Tube, must be furnished with a Cock in Z; and A B C, another bent Tube, furnished with a Cock in B. In F G, are to be other lesser Tubes, open at both Ends, and reaching near the Bottom of the Vessel R S, and P Q, to which the Tubes T V and Q S, are likewise to reach. If now the Vessel P Q be filled with Water, it will descend through the Tube I X, and upon opening the Cock Z, will spout up near to the Height of G: And after its fall again, will sink through the little Tube F, into the Vessel R S, and expel the Air through the Tube E D. At length, when all the Water is emptied out of the Vessel P Q; by turning the Machine upside down, the Vessel R D will be the Reservoir, and make the Water spout up thro' the Cock Z. Hence if the Vessel P Q and R S, contain just as much Water as will be spouted up in an Hour's Time; we shall have a spouting Clepsydra, or Water Clock, which may be divided or graduated into Quarters, Minutes, *&c.*

An *artificial Fountain* may also be constructed, *which begins to play upon the lighting of Candles, and ceases as they go out*; by providing two cylindrical Vessels 1 2, 3 4, (fig. 37.) and connecting them by Tubes, open at both Ends 5 6, 2 7, *&c.* so that the Air may descend out of the higher into the lower. To the Tubes soldering Candlesticks 8, *&c.* and to the hollow Cover of the lower Vessel 3 4, fitting a little Tube or Jet 9 10, furnished with a Cock, and reaching almost to the Bottom of the Vessels. In 11 we'll make an Aperture, furnished with a Screw, whereby Water may be pour'd into 3 4. Then upon lighting the Candles 8, *&c.* the Air in the contiguous Tubes becoming rarified thereby; the Water will begin to spout thro' 9 10.

By the same Contrivance, a Statue can be made to shed Tears upon the Presence of the Sun, or the lighting of a Candle, *&c.* All here requir'd being to lay Tubes, from the Cavity wherein the Air is rarified, to some other Cavities near the Eyes, and full of Water.

Note, That an *Hydraulick* Machine has been invented to spout Water plentifully, on Purpose to extinguish Fire, and Conflagrations of Houses; which Machine is called *Hydronasterium*. We have several Contrivances to this Effect. The first, and which is, as it were, the Basis of the rest, is a Pump inclosed in a Cistula, or wooden Vehicle filled with Water, and mounted on Wheels; the Pump being wrought with long Levers, which come out of the Cistula; and the Water it raises, directed to the Place, by Means of a jointed Tube. The *Dutch*, and others, use a long flexible Tube of Leather, Sail Cloth, or the like, which they carry or conduct in the Hand, from one Room to another, as Occasion requires; so that the Engine may be applied where the Danger is only within Side, and does not burst out, to expose it to its external Action. To improve on this original Fire-Engine, they have since contrived to make it yield a continual Stream; by substituting a forcing or pressing Pump, in lieu of a sucking Pump.

Note also, That the modern Philosophers have made the Laws of the Motion of Fluids, by their own Gravity, along open Channels, as Rivers, *&c.* a Part of *Hydraulicks* and *Hydrostaticks*; and accordingly consider a River as a Stream of Water running by its own Gravity, in a Channel open above; endeavouring to bring the Motion and Flux of those Streams to precise Laws; the *Italian* Authors having distinguished themselves therein; particularly *S. Guglielmini*, who in his Treatise, *Della natura de fiumi*, has made the following Observations.

That Author says, that Rivers usually have their Source in Mountains or Elevations of Ground; and that it is in their Descent from these, that they acquire the Velocity or Acceleration which maintains their future Current. That in Proportion as they advance further, this Velocity diminishes, by Reason of the continual Friction of the Water against the Bottom and Sides of the Channel, of the various Obstacles they meet withal in their Progress, and of their arriving at length in Plains, where the Descent is less, and their Inclination to the Horizon, of Consequence, greater. Thus the *Reno*, a River of *Italy*, which gave Occasion, in some Measure, to these Speculations, is found near its Mouth, to have scarce a Descent of 52 Seconds.

If the acquir'd Velocity be quite spent through the many Obstacles; so that the Current becomes horizontal; there will then nothing remain to propagate the Motion, and continue the Stream, but the Depth, or the perpendicular Pressure of the Water, which is always proportional to the Depth. And happily for us, this Resource increases, as the Occasion for it increases: For in Proportion as the Water loses of the Velocity acquired by the Descent, it rises and augments in Depth.

The upper Parts of the Water of a River, and those at a Distance from the Banks, may continue to flow from the single Cause or Principle of Declivity, how small soever it be; for not being detained by any Obstacle, the minutest Difference of Level, will have its Effect: But the lower Parts, which roll along the Bottom, will scarce be sensible of so small a Declivity, and only have what Motion they receive from the Pression of the superincumbent Waters.

The natural Viscidity and Cohesion of the Particles of Water, and that Implication, as it were, which they seem to have with one another, makes the lower, which are moved by Means of the Depth, carry along with them the upper, which in an horizontal Channel, would have no Motion at all; or in a Channel very little inclin'd, next to none. So that the lower, in this Case, communicate to the upper, a Part of the Motion they have received from the Pressure of it. Hence by the Pressure of it, frequently happens that the greatest Velocity of a River is about the Middle of its Depth; such middle Parts having the Advantage of being pressed with half the Depth of the River, and of being free, at the same Time, from the Friction of the Bottom.

To find whether the Water of a River, almost horizontal, flows by Means of the Velocity acquired in its Descent, or by the Pressure of its Depth; set up an Obstacle perpendicular thereto: If the Water rises and swells immediately against such Obstacle, it runs in Virtue of its Fall; or if it stops a little while, in Virtue of its Pression.

Rivers, according to this Author, most commonly make their own Beds. If the Bottom have originally been a large Declivity; the Water, in Consequence hereof, falling with a great deal of Force, will have swept away the most elevated Parts of the Soil, and carrying them lower down, will gradually render the Bottom horizontal; where the Stream is swiftest, there will the Earth be most dug up, and consequently there the greatest Cavity will be made.

The Water having made its Bed horizontal, becomes so itself, and consequently rakes with the less Force against the Bottom, till at length that Force becomes only equal to the Resistance of the Bottom. The Bottom is now arrived at the State of Permanency, at least for a considerable Time; and the longer, according

ing to the Quality of the Soil, Clay and Chalk resisting longer.

On the other Hand, the Water is continually gnawing and eating off the Brims of its Channel; and this with the more Force, as by the Direction of its Stream, it impinges more particularly against them. By this Means it has a continual Tendency to render them parallel to its own Course; and when it has arrived as near that as possible, it ceases to have any Effect that Way. At the same Time that it has thus rectified its Edges, it has enlarged its own Bed; that is, has lost of its Depth, and consequently of its Force and Pressure: This it continues to do, till there is an Equilibrium between the Force of the Water, and the Resistance upon its Banks, upon which they will remain without further Mutation. And it is evident from Experience, that these Equilibriums are all real, inasmuch as we find the Rivers only dug and widen'd to a certain Pitch.

The very Reverse of all these Things happens also on some Occasions. Rivers, whose Waters are thick and muddy, raise their Bed by letting Part of the heterogeneous Matters, contained in them, fall to the Bottom. They also contract their Banks by a continual Opposition of the same Matter, in brushing over them. This Matter being thrown aside, far from the Stream of Water, might even serve, by Reason of the Obscureness of the Motion, to form new Banks.

Now these opposite Effects seem almost always to concur, and are differently combined, according to the Circumstances; whence it is very difficult judging of the Result. Yet must this Combination be known very accurately, before any Measures can be taken about Rivers, especially as to the diverting their Courses. The *Lamona*, which emptied itself into the *Po*, being turn'd another Way to make it discharge itself into the *Adriatick*, was so alter'd, and its Force so far diminished, that its Waters were left to themselves, that it raised its Bed a great Height, by continual Depositions of Mud; till it became much higher than the *Po*, in its utmost Accretions, and needed very high Banks or Dykes, to keep it from overflowing.

A little River may be received into a large one, without either augmenting its Width or Depth. This seeming Paradox arises hence, that the Addition of the little River, may only go towards moving the Waters, before at rest, near the Banks of the large one, and thus augmenting the Velocity of the Stream, in the same Proportion as it does that of the Quantity of Water. Thus the *Venetian* Branch of the *Po*, swallowed up the *Ferrarese* Branch, and that of the *Panaro*, without any Enlargement of its own Dimensions. The same may be concluded proportionably of all other Accessions to Rivers; and in the general of all new Augmentations of Water.

A River offering to enter into another, either perpendicularly, or in an opposite Direction, will be diverted by Degrees from that Direction, and obliged to make itself a new and more easy Bed towards the Mouth.

The Union of two Rivers into one, makes it flow the swifter; by Reason in lieu of the Friction of four Shoars, they have only two to surmount, and that the Stream being farther distant from the Banks, goes on with the less Interruption; besides, that a great Quantity of Water, moving with a greater Velocity, digs deeper in the Bed, and of Course retrenches of its former Width. Hence, also, it is, that Rivers, by being united, take up less Space on the Surface of the Earth, and are more advantageous to low Grounds, which discharge their superfluous Moisture into them, and have likewise less Occasion for Dykes, to prevent their overflowing.

These Advantages are so considerable, that *S. Guglielmini* thinks them worthy of Nature having had a View to them, in her contriving to make the Confluence of Rivers so frequent as we find them.

To determine more precisely the general Laws of the Motion of Rivers, it may be observed, that a River is said to remain in the same State, or to be in a permanent State, when it flows uniformly, so as to be always at the same Height in the same Place: And that a Plane, which cutting a River is perpendicular to the Bottom, is called the Section of a River. Hence when a River is terminated by flat Sides, parallel to each other, and perpendicular to the Horizon, and the Bottom also is a Plane, either horizontal or inclin'd, the Section of the River, with these three Planes, makes right Angles, and is a *Parellelogram*.

Now in every River that is in a permanent State, the same Quantity of Water flows in the same Time, thro' every Section; for unless there be in every Place as great a Supply of Water, as what runs from it, the River will not remain in the same State. This will hold good whatever be the Irregularity of the Bed or Channel, from which in other Respects several Changes in the Motion of the River may arise: For Example, a greater Friction in Proportion to the Inequality of the Channel.

The Irregularities in the Motion of a River, may be infinitely varied, nor can any Rules be given to settle them. To ascertain their general Course, all Irregularities must be set aside; only the general Tenor or Flux be considered. Suppose then the Water to run in a regular Channel, without any sensible Friction, and that Channel is terminated with Plane Sides, parallel to one another, and vertical; and also that the Bottom is a Plane, and inclined to the Horizon; the same Quantity of Water flowing through every Section, the Depth of the Water, as you recede from the Head of the River, is continually diminished.

To determine the Velocity of the Water in different Places; suppose the Aperture of the Channel to be shut up with a Plane; if there be a Hole made in the Plane, the Water will spout the faster through the Hole, as the Hole is more distant from the Surface of the Water; and the Water will have the same Celerity that a Body falling from the Surface of the Water, to the Depth of the Hole below it, would acquire: All which arises from the Pressure of the superincumbent Water. There is the same Pressure, *i. e.* the same moving Force, when the Obstacle is taken away, upon which every Particle of Water enters into the Channel with the Celerity a Body would acquire in falling from the Surface of the Water to the Depth of the Particle. This Particle is moved along in an inclined Plane in the Channel, with an accelerated Motion; and that in the same Manner, as if falling vertically, it had continued its Motion to the same Depth, below the Surface of the Water in the Head of the River.

JANSENISM.

JANSENISM, is the Doctrine of *Cornelius Jansenius*, Bishop of *Ypres* in *Flanders*, with Relation to Grace and Free-Will.

This Doctrine made no great Noise in the World, till after the Death of its Author, in 1638; when *Framond* and *Calenus* his Executors, published his Book, entitled *Augustinus*, in three Volumes, *Folio*, printed at *Louvain*, in 1640; the first Tome whereof contains a Discourse against *Pelagianism*; and the second divers Treatises of Reason; the Use of Authority in theological Matters; the State of Innocence; fall of Nature by Sin, Grace, &c.

From these several Treatises, were formed, by the Bishops of *France*, the five famous following Propositions.

I. Some Commands of God are impossible to righteous Men, even though they endeavour with all their Powers to accomplish them: The Grace being wanting, by which they should be enabled to perform them.

II. In the State of corrupted Nature, a Man never resists inward Grace.

III. To Merit or Demerit in the present State of corrupt Nature, it is not requisite a Man should have that Liberty.

Liberty which excludes Necessity: That which excludes Constraint, is sufficient.

IV. The *Semipelagians* admitted the Necessity of inward Preventing Grace to each Act in particular, and even to the Beginning of Faith; but they were Hereticks, in regard they asserted, that this Grace was such, as that the Will of Man might either resist or obey it.

V. It is Semipelagianism to say, that *Jesus Christ* died or shed his Blood for all Men in general.

These five Propositions were condemned by the Popes *Urban* VIII. *Innocent* X. *Alexander* VII. and *Clement* IX.

Those who followed this Doctrine, and maintained it with Obstinacy were called *Jansenists*; whether they asserted that the *five Propositions* were sound and orthodox, as they did before they were so often, and so solemnly condemned: or that they were evil and heretical, in the Sense wherein the Church has condemned them; but that this Sense is not that of *Jansenius*, whence that famous Distinction between the *Right* and the *Fact*, which occasioned so long and so warm Disputes, especially in the *Gallican* Church.

As to the asserting and maintaining that the *five Propositions* were sound and orthodox, the *Anti-Jansenists* pretended, that it was destroying entirely the Free-Will, and admitting no other Grace, but the *efficacious by itself*; that it was approving the Doctrine of *Luther* and *Calvin*, fulminated against in the Council of *Trent*; accusing God of Injustice, to command us Things, which he knew are not in our Power to accomplish without his divine Assistance, and refusing us that Assistance: Of a cruel Partiality, in having created some of us to eternal Damnation, since Christ's Death could have saved us all, and yet he was not dead for all.

But to understand well the State of this Affair, and the Difference between the Sentiment of the *Jansenists*, and that of the *Roman* Catholick Church, on the Doctrine of *Grace*. I'll give here a Treatise of *Grace*, beginning by its Definition.

GRACE, is a Gift given *gratis* by the Creator, without any Merit, on the Part of the Creature, *otherwise Grace were not Grace*, says St. *Paul*, *Rom.* xi. Whence we read in St. *Augustin*, *lib. de nat. & grat. c.* 4. *That Grace, without which neither Infants nor Adults can be saved, is not given to Merits, but gratis, therefore it is called Grace.*

There are divers Acceptations of Grace taken in general, in the Scripture, and in the Doctrine of the Fathers. 1. It is taken for *Dilection*, or that Love bestowed by Somebody, without any Regard to Merit. 2. For all Gifts which are the Effects of that Love. 3. For *Gratitude*, or Compensation of a Gift thus given.

Grace, considered in the aforesaid second Manner, can be taken besides in three other different ones.— 1. For any Gift, even a natural one given *gratis*.— 2. For any supernatural gratuite Gift, abstracted from the Merits of Christ.— 3. For any supernatural gratuite Gift, given in View of the Merits of Christ.

I prove the first Part, viz. *that Grace is taken for Dilection, or that Love bestowed* gratis. From its being taken in that Manner *Genes.* vi. where *Noah* is said to *have found Grace in the Eyes of the Lord*; that's to say, found the Benevolence and Love of God, which is an inexhaustible Source of all the Blessings and Gifts which God bestows gratuitely. For the Apostle writes to the *Philippians*, that his Mercy and good Will work in us *both to do and to will, of his good Pleasure.* To which may be added, that that Quality whereby a Person gains the Love of another, is often called *Grace*. Whence the blessed Virgin is called *full of Grace*, *Luke* i. i. e. gracious and amiable.

I prove the second Part, *viz.* that Grace is taken sometimes, for *that Benefit or Gift given gratuitely by a Motive of Love*; because it is thus taken, *John* i. where it is said, *that of his Fulness we have all received, and Grace for Grace*; and commonly that Person is said to do a Favour, who does not exact what he could exact, from him who receives that Favour.

I prove the third Part, *viz.* that *Grace is sometimes taken for Gratitude or Compensation of a Benefit, or Gift given gratuitely*; because it is taken thus, 2 *Sam.* ii. where *David* speaks thus to the Men of *Jabesh-Gilead*, *And I also will requite you this Kindness, because ye have done this Thing.*

I prove the fourth Part, viz. *that Grace is also taken for any gratuite Benefit, even a natural one*; because it is thus taken by St. *August. Epist.* 95. *It is not without Reason*, says he, *that it is said that we are created by the Grace of God.* And *Serm.* 11. he calls the Creation itself a Grace, and says, that he who was not a Man, has not merited to be one.

I prove the fifth Part, *viz.* that Grace is also taken for a *gratuite supernatural Gift*, i. e. *for a Gift surpassing the Exigency of any Nature created, either abstracted from the Merits of Christ, or not*; because it is taken in that Manner by the same St. *Augustin*, *lib. de prædest. sanct. c.* 31. where he says, that the Gifts first distributed to the Angels, and to our first Parents were *Graces*; as he calls Graces those Gifts given to the Man Christ. *By that Grace*, says he, *a Man is made from the Beginning of his Faith a Christian, whereby is made from his Beginning, the Man Christ.*

I prove the sixth Part, viz. *that Grace is also taken for any supernatural Gift, granted in View of the Merits of Christ*; because it is thus taken by the Apostle, *Rom.* iii. *Being justified gratuitely by his Grace, through the Redemption that is in Jesus Christ.* This Acceptation of *Grace* is the strictest of all, and is agreeable to all *Graces* founded on the Merits, either *habitual* or *actual.*

Note, That it is of Grace taken in this last Sense, I intend to speak throughout the whole Course of this Treatise, *i. e.* as it is a gratuite supernatural Gift founded on the Merits of Christ: That this Gift is created, and consequently distinct from the increated Grace, which is God himself, who, by his Incarnation has given himself to our Humanity; as I'll shew more at large in my Treatise of the Incarnation. These pre-observed.

Grace may be defined, *a created supernatural Gift, given gratuitely to intellectual Creatures, and appropriated to eternal Salvation.*

1. It is called *a Gift*, to express the Genus in which the supernatural Grace agrees with the natural, heretofore mentioned.

2. It is called *divine*, because it is from God, *for every good Gift, and every perfect Gift is from above*, says St. *James*, *c.* 1. *and comes down from the Father of Lights.*

3. It is called *supernatural*, because it is above all natural Faculty; whence it is necessarily required to be infused from God, according to this of *Psalm* lxxxiv. *The Lord will give Grace and Glory.*

4. It is said, *given to intellectual Creatures*, because it is only given to Angels and Men.

5. It is said, *given gratuitely*, because Grace is given, without a Debt from the Part of him who gives it, and without Merit, strictly taken, from the Part of him who receives it. For Grace is given either to him who is not worthy or unworthy of it, as it was given to Angels, and to our first Parents in their Creation; or it is given to him who is positively unworthy of it, as it was given to Man fallen.

6. It is said, *appropriated to Salvation*, because it is given to help the intellectual Creature to operate her Salvation.

Note, That I may be asked, 1. Whether Grace, which I have defined a gratuite Effect of the divine Will, *be something permanent in the Soul, and inherent to it?* I answer in the Affirmative, if it be meant of the *habitual Grace*, which is insinuated by the Scripture, *John* xiv. where *Jesus Christ* says, that he with his Father will dwell, *viz.* by Grace, in the Soul of him who keeps his Commandments. *And we will come unto him*, says he, *and make our Abode with him.* And likewise 1 *John* iii. where Grace is called Seed remaining in him who is born of God. But in the Negative, if it be a Question of the *actual Grace*, whereby a Man is assisted from God, when he is excited to know, will, or do something; for Grace thus considered, is not a Quality but a Motion of the Soul, since according to the Maxims of Philosophy, the Act of him that moves, is the Motion in him who is moved.

2. If

2. It may be asked, *if that Grace which is something permanent, be a Quality of the first Species*, viz. *an Habit?* To which I answer, 1. in the Affirmative; either because it has the Ratio of Quality, or because it cannot be recalled to any other Predicament. For, 1. it is not a Substance, it being neither Nature, nor Part of Nature. 2. It is not a Quantity, since a Quantity only belongs to corporeal Things, and places the Part of a Body beyond the Parts, which Grace does not. 3. It is not a Relation, either because there is no Motion towards a Relation, and there is a Motion towards Grace, which in Justification is produced by itself; or because Relation gives not Operation, or is not towards operating, as Grace is. 4. It is neither Action nor Passion, because those two Accidents are something transitory; but the Grace meant here is something permanent.

I answer, 2. That this Grace is referred to the first Species of Quality, *viz.* Habit; though it be not an Habit properly called. I prove the first Part, *viz. That it is referred to the first Species of Quality*, viz. *to Habit.* For suppose that those four Species of Quality be combined, *viz. Disposition* and *Habit*, *Power* and *Imbecility*, *patible Quality* and *Passion*, *Form* and *Figure*; it can be referred to neither of those combined Species, except to the first, and that to *Habit*; for, 1. It cannot be referred to Power, or to natural Imbecility, because those Qualities flow from essential Principles, or from Nature's Bosom where they are: But the Grace understood in this Place, is something supernatural produced and infused from God. 2. It can be referred neither to Passion or passible Quality, nor to Form or Figure; because those Qualities are Affections of the Body, not of the Soul; therefore suppose that the *Grace* meant here be Quality, it must rather be referred to the first Species of Quality, than to any of the others. I prove the second Part, *viz.* that it has not the Ratio of an Habit properly so called, because it is not immediately appropriated to the Action, but to some spiritual Being it produces in the Soul; and thus is a Disposition to Glory, which is *Grace* consummated: Which notwithstanding, does not hinder it from being the active Principle of a supernatural Operation, if not an immediate, at least a remote one. Inasmuch as from *Grace* which is in the Essence of the Soul, Virtues flow into its Powers, whereby it moves them to Action, in the same Manner those same Powers flow from the Essence of the Soul, to be the Principles of Actions.

It may be asked, 3. *Why God gives an habitual Grace to Man, since it is certain that an actual Grace is sufficient for a supernatural Act?* To which I answer, that it is true, that an *actual Grace* is sufficient for a supernatural Act; but that the habitual Grace is only given to an intellectual Creature, that she may act connaturally; which acts connaturally when she acts by a Form inherent to her. But if I be asked, *If it is an Article of Faith, that there is a certain permanent Grace given?* I'll answer, that there are two different Opinions on that Subject. For some deny it, under a Pretence that nothing of this has been expresly defined by any Council, notwithstanding the Council of *Trent*, where it is said, that Grace and Charity is infused, and inherent in the Heart; because it does not define whether it be inherent in the Manner of an Act, or in the Manner of something permanent. Others affirm it, and with a greater Appearance of Reason; because they imagine, that the Council of *Trent*, *Sess. 6. c.* 11. is to be understood of the permanent Grace.

4. It is asked, whether the sanctifying Grace be distinguished from *the moral Virtues, and from Faith and Hope?* I answer in the Affirmative; because, 1. As to the moral Virtues, there is not the least room to call it in question: For those Virtues do not regard God immediately, as Grace does. 2. As to the theological Virtues of Faith and Hope, the Thing is clear, because Grace being lost, those two Virtues cannot remain in the Sinner.

5. It is asked, *if the habitual Grace and Charity be the same Thing*, or whether it is distinguished from it, and in what Manner? I answer, that it seems more probable, that the sanctifying habitual *Grace* is really distinguished from Charity. Which Answer I prove, 1. From the Manner of speaking of the Scripture, which seems to distinguish between Grace and Charity, as between a Cause and its Effect, *Rom.* viii. *The Charity of God is diffused in your Hearts by the holy Spirit who is given to you.* And to the *Galat.* v. *But the Fruit of the Spirit is Joy and Charity*, &c. By the Name of Spirit is understood there Grace, which has Charity for its Effect. 2. I prove it by the Manner of speaking of the Councils, particularly those of *Vienna* and *Trent*, *Sess. 6. c.* 11. where Grace and Charity are expressed by different Terms. 3. I prove it by the Manner of speaking of the antient Fathers, particularly St. *Denis*, *lib. de eccles. hierarch. c.* 2. where he teaches, that as in natural Things it is first to be, then to operate; likewise we must be established by Grace in a certain supernatural Being, before we can be capable to operate. He calls that supernatural Being a divine State, given to us by a spiritual Birth. Likewise St. *Augustin*, *lib. de grat. christ. c.* 30. where he makes Charity the Effect of Grace: *I have never found*, says he, *in the Writings of* Pelagius *and* Celestius, *that they confessed as it should be confessed, that Grace whereby we are justified*, i. e. *whereby the Charity of God is diffused in our Hearts, be the holy Spirit given to us.* 4. I prove it by Reason, because a Man should be perfect in a spiritual Being, before he be disposed by Virtue to operate supernaturally; as one must be perfect in a natural Being, before he receives a natural Virtue, since, according to the Maxims of Philosophy, Virtue is the Disposition of the Perfect, *i. e.* of a Thing perfect in its Being; and Charity being a Virtue, a Man must be perfect in a spiritual Being by Grace, before he receives Charity. And it is evident, that by Grace Man is established in some spiritual and natural Being, because by Grace Man's Understanding is made Partaker of the divine Nature, as by Faith in this transitory World, and by a clear Vision in Heaven, he is made Partaker of the divine Knowledge; and as the Will of Man is made Partaker by the Virtue of Charity, of the divine Love. Whence it is not surprising if we read in the Scripture, *viz.* 2 Pet. i. *He has made you large and precious Promises, that by them you may become Partakers, of the divine Nature.* Notwithstanding that the Effects attributed to Grace, are also attributed to Charity. In the Scriptures, *v. gr.* 1. That it expells Sin, *Luke* i. *A great Number of Sins are remitted to her because she has loved much.* 2. That it makes us beloved of God; *John* iv. *If any love me he will be loved by my Father.* 3. That it makes us Sons of God, 1 *John* iii. *Behold what manner of Love the Father has bestowed upon us, that we should be called the Sons of God.* 4. That it be the Root of all good Works, 1 *Cor.* xiii. *Charity suffers long, and is kind*, &c. 5. That it is the Seed of eternal Life, *James* i. *He shall receive the Crown of Life, which the Lord has promised to them that love him.* Notwithstanding all this, say I, because though the same Effect attributed to *Grace* be likewise attributed to Charity; it suffices that they are not attributed to both in the same Manner. For to run through all the Passages objected to me, it may be said to the first, that the Remission of Sins is attributed to *Grace* as to a Form, and to Charity as to a Disposition: To the second, that the Dilection of him who loves God, is not so much the Reason why God loves, as *vice versâ*: To the third, that by the Charity which God has given us, must be understood an uncreated Charity, the Effect whereof is the *Grace*, whereby we are called the Sons of God: To the fourth, that Charity is said to be the Root of all good Works, because it is their nearest and elicitive Principle, and Grace the remote one, from which Charity flows, as Power from Essence: To the fifth and last, it may be said, that Charity is not so properly called the Seed, as the Merit of eternal Life, since the Reward must answer the Merit. Grace should rather be called the Seed; for Charity, says St. *Thomas*, could not be sufficient to merit an eternal Good, if Grace was not presupposed. Notwithstanding, 2. What we see in the Council

Council of *Trent*, *Seſſ.* 6. *c.* 7. where the formal Effect of Juſtification, which it attributes ſometimes to *Grace*, is alſo attributed to Charity; for after the Fathers of that Council have ſaid that we are juſtified by the Juſtice of God; not by the Juſtice whereby himſelf is juſt, but by that whereby he makes us juſt; they add preſently, that this happens, when thro' the Merit of the Paſſion of Chriſt, God's Charity is diffuſed by the Holy Ghoſt, in the Hearts of thoſe who are juſtified, and is inherent to them. Becauſe only the formal Effect of Juſtification, is attributed to Charity; as to an inſeparable Companion of that Effect, or as to a Diſpoſition to it; but it is attributed to *Grace*, as to its formal Cauſe. Notwithſtanding, 3. what we read in St. *Auguſtin*, *lib. de nat. & grat. c. ult. That Charity began, is a began Juſtice; that Charity advanced, is an advanced Juſtice; and that a perfect Charity, is a perfect Juſtice.* And *conc.* 26. *in Pſalm* 119. where he calls Juſtice or ſanctifying Grace, by the Name of Virtue. Becauſe Juſtice, in that Place, is not ſo preciſely taken for the ſpecial Virtue of Charity, but rather for an Aſſemblage of all Virtues; and the Senſe is, that he who has that Aſſemblage of all Virtues, is agreeable and acceptable to God.

At preſent I'll treat of the *Exiſtence* and *Subject of Grace*; and aſk firſt, if there be ſuch a *Grace* as that above-mention'd, *viz. A ſupernatural Gift, given gratuitely to an intellectual Creature, and appropriated to eternal Salvation?* Which Queſtion I anſwer in the Affirmative; and which I prove by the Scripture, the Councils, Fathers, and by Reaſon.

By the Scripture, making mention of the Promiſe, and Gift of *Grace*, Pſalm xxvi. *For the Lord will give Grace and Glory.* Zech. ii. *I'll pour upon the Houſe of David, and upon the Inhabitants of Jeruſalem, a Spirit of Grace.* Of 2 *Cor.* ix. *And God is able to make all Grace abound towards you.* And *Eph.* ii. *For by Grace are ye ſaved through Faith; and it is the Gift of God.*

By the Councils, not only by that of *Paleſtina*, and the four *Africans*, where the *Pelagianiſm* was condemned; but likewiſe by that of *Epheſus*, and thoſe of *Orange*.

By the Fathers, eſpecially St. *Auguſtin*, whoſe Writings mention almoſt nothing elſe but the Exiſtence, Effects, and Neceſſity of Grace.

By Reaſon, becauſe as it is certain, that there is a ſupernatural End, *viz.* eternal Life; it muſt be equally certain, that there is a Means, which is ſuppoſed neceſſary to obtain that End; which Means is *Grace*, without which, no Body can obtain eternal Life; whence, as I have already obſerved, the eternal Life is called by the Fathers a *conſummate Grace:* All which is evident from the Scripture, *Eph.* i. where it is ſaid, that *God has predeſtinated us unto the Adoption of Children, by Jeſus Chriſt to himſelf, according to the good Pleaſure of his Will. To the Praiſe of the Glory of Grace, wherein he has made us accepted in the Beloved: In whom we have Redemption, through his Blood, the Forgiveneſs of Sins, according to the Riches of his Grace.*

The ſecond Queſtion is, *If it be more probable that the Grace, eſpecially the ſanctifying, is in the Soul, as in a Subject, than in the Powers of the Soul?* Which I anſwer, likewiſe, in the Affirmative; becauſe by that *Grace* we are regenerated into Children; and as the Generation is ſooner terminated to the Eſſence, than to the Powers; the *Grace* muſt be ſooner in the Eſſence of the Soul than in the Powers of the Soul. Whence it follows, that *Grace*, viz. the habitual and juſtifying, reſides in the Soul as in a Subject; though thoſe who do not diſtinguiſh *Grace* from Virtue, think otherwiſe.

It may be objected, 1. That *Grace*, according to St. *Auguſtin*, *Hypognoſt. lib.* 3. *c.* 11. is compared to Free-Will, as a Horſeman is compared to his Horſe; and as a Horſeman ſits on his Horſe, in the ſame Manner is *Grace* on the Free-Will.

To this I anſwer, 1. That this Place can be underſtood of the *actual Grace*, which is as the directing to the directed. 2. That though this Place was even ſuppoſed to be underſtood of the *habitual Grace*, it would be of no Signification; becauſe, although that *Grace* be ſaid to reſide in the Eſſence of the Soul, as in a Subject, it may likewiſe be ſaid to reſide on the Free-Will, as the Soul is ſaid to reſide in the Faculties it applies.

It may be objected, 2. That in the Opinion of St. *Anſelmus*, *lib. de concep. Virgin. c.* 3. Sin and Juſtice are in the Soul, but only through the Will; and therefore, the *Grace*, which is called by the Name of Juſtice, is in the Will as in a Subject.

I anſwer to this, that Sin, conſider'd as a bad Action, in the ſame Manner as Juſtice is conſidered as a good one, reſides in the Will as in a Subject; but not, if only conſider'd as depriving us of *Grace:* The Reaſon is, that Privation and Form are in the ſame Subject; therefore as *Grace* is in the Eſſence of the Soul, likewiſe the Privation of the ſame *Grace* is in the Eſſence of the Soul.

Note, That the *Pelagians* and *Semi-Pelagians*, have abſolutely denied the Exiſtence of *Grace*; and as I have enter'd into a particular Detail of their Errors, on this Subject, in my Treatiſe of *Hereſies*, it would be needleſs to repeat here their Sentiments, ſince the Reader can have Recourſe to that Treatiſe. Therefore I'll paſs to the next Diviſion of the *ſupernatural Grace*, into that called in the Schools, *gratum faciens*, and *gratis data*, with their *reſpective Subdiviſions*.

The *Grace*, *gratum faciens*, is commmonly defined *an internal, and ſupernatural Gift, given gratuitely to an intelligent Creature, to render him holy and agreeable to God.*

It is ſaid, 1. *A Grace*, or *internal and ſupernatural Gift*, as well to expreſs the Genus, which is common between it, and the *Grace*, *gratis data*; as to inſinuate, that our former Definition of *Grace*, can very well be applied to it.

It is ſaid, 2. *To render the Creature holy and agreeable to God*; to expreſs the Difference between the *Grace*, *gratum faciens*, and the *Grace*, *gratis data*. For by the next Propoſition it will appear, that the *Grace*, *gratis data*, is not ſo much given to render the Perſon who has it holy, as to procure the Salvation of others.

Note, That it may be aſked here, whether our Definition of the *Grace*, *gratum faciens*, be agreeable both to the *habitual* and *actual Grace?* To which I anſwer, that it can be applied to both, though not in the ſame Manner; for it is the Property of both, to render the Soul holy, though with this Difference, that the *habitual Grace* renders an intelligent Creature holy *formally*, and the *actual*, *efficiently* only; in ſome of theſe three Manners, *viz.* either *diſpoſitively*, in diſpoſing to Sanctity; or *conſervatively*, in preſerving the Holineſs; or *directively*, in directing towards Deeds of Sanctity.

The *Grace*, *gratis data*, is commonly defined a *ſupernatural Gift, given gratuitely to Man, and directly appropriated to the Salvation of another.*

It is ſaid, 1. *A ſupernatural Gift*, as well to expreſs the Genus which it has in common with the *Grace*, *gratum faciens*; as to inſinuate, that the Definition of the *ſupernatural Grace* taken in general, can be applied to it. This Gift is ſo extremely ſupernatural, that it is above the Faculty of Nature, and the Merit of the Perſon.

It is ſaid, 2. *Directly appropriated to the Salvation of another*, to ſhew the Difference between the *Grace*, *gratis data*, and the *Grace*, *gratum faciens*. For it appears from what has been ſaid, that the *Grace*, *gratum faciens*, is firſt, and by itſelf, ordained for the Salvation of the Perſon to whom it is given; and that the *Grace*, *gratis data*, is by itſelf, firſt, and directly appropriated to the Salvation of another. As it is eaſily underſtood from the following Paſſages of the Scripture. 1 *Epiſt. Cor.* 12. *But the Manifeſtation of the Spirit is given to every Man to profit withal*, i. e. to our Neighbour. And 1 *Epiſt.* of *Peter c.* 4. *As every Man has received the Gift, even ſo miniſter the ſame one to another.* Which notwithſtanding, does not hinder, but that the *Grace*, *gratis data*, can, ſecondarily, be uſeful to the Perſon who has it, eſpecially if he uſes it well, according to the Diſpoſitions required.

Our next Question is, *If the* Grace, gratum faciens, *can be conveniently divided into habitual and actual Grace? And in what Manner both Graces are further subdivided?*

Note, That I only design to mark, in this Place, the Divisions or Sub-divisions of these two Sorts of *Grace*; reserving the Explication of every Member to another Place; these pre-observ'd,

I answer, 1. That the *Grace, gratum faciens*, is very well subdivided into *habitual* and *actual*. Because that Division is into opposite Members, which are adequate to the whole divided, and have as great a Latitude as the *Grace, gratum faciens* itself; since there is no *Grace, gratum faciens*, which could not be referred to one of these two dividing Members; for either the *Grace, gratum faciens*, is formally sanctifying, and this is *habitual*; or is only efficiently sanctifying, and this is *actual*. But that this may appear clearer, it is necessary to give here the Definition of both.

The *habitual Grace*, which is in the Manner of an Habit, or of a permanent Thing is commonly defined, *a supernatural Gift given gratuitely to an intelligent Creature, rendering her permanently Companion of the divine Nature, and formally holy agreeable to God, and proper for eternal Life.* This Sort of *Grace*, is design'd by these Words we read *John* xiv. *If a Man loves me he will keep my Words; and my Father will love him, and we will come unto him, and make our Abode with him.*

The *actual Grace*, which consists in Action and Motion, and is commonly called *a gratuite divine Motion, imprinted on the Free Will, and reducing it from Power to a supernatural Act, and operating it with it, as some effective Principle, or supernatural Influence.*

From both Definitions we may gather, that the Power is rais'd or elevated by the *habitual Grace*, and other infused supernatural Habits; that it may be capable, *in actu primo*, of supernatural Operations: But to operate actually, and to pass from the Power to the second Act, it wants special Succours, which should move it to act. For as it cannot pass to any natural Act, without the general Concourse of the first Cause reducing it from Power to Action, and operating the same Act with it; likewise it cannot pass to a supernatural Act, without the supernatural and actual Succours of *Grace*, whereby God actuates the Free-Will, and makes it will and accomplish a supernatural Good.

The *habitual Grace*, is justly subdivided into first and second. Because the dividing Members have the same Latitude as the whole divided. For there is no *habitual Grace*, which is not referr'd to one of these two dividing Members; for the *habitual Grace* is either that which does not presuppose any *habitual Grace* in the Subject, but renders formally the intelligent Creature, from unjust, a just one, and thus is the first *habitual Grace*; or, is that which finds already in the Subject an *habitual Grace*, and renders the intelligent Creature from formally just she was already, still more just, more agreeable to God, and more proper for eternal Life; and thus is the second *habitual Grace*, or Increase of *Grace*.

It may be asked here, *If that second Grace falls under Merit, and how it retains the Ratio of a Gift gratuitely given, supposed that it be acquir'd by Merit?*

To which I answer, that this *Grace* can fall under Merit, and retain, notwithstanding, the Name and Quality of *Grace*, because, though it falls under Merit, it is still, notwithstanding, to be accounted gratuitely given, either because it is supposed given without any rigorous Obligation on the Part of God, and without a perfect Merit on our Part; or because our Merit is not perfectly from us to us, since it is a *Grace* and something gratuitely given, as St. *Augustin* teaches it, *Epist.* 105. where he says, that it is thus called for no other Reason, than because it is given gratuitely; not because it is not given to Merits, but because those Merits themselves to which it is given, are given likewise.

The *actual Grace* is subdivided into *antecedent, concomitant*, and *subsequent*, and this Division includes all *actual Grace*.

Our first Question, relating to this Division, is to know if there be in fact, an *antecedent*, and a *subsequent Grace*; what are those two Sorts of *Grace?*

To the first Part of this Question, I answer in the Affirmative, *viz.* that *there are in fact an antecedent and subsequent Grace*; because the Scripture makes mention of those two Graces, *Psalm* lix. *Because his Mercy shall prevent me*; and *Psalm* xxiii. *And thy Mercy shall follow me*; and St. *Augustin* in *Eucher. c.* 32. *God prevents him who is unwilling that he should be willing, and follows the Willing that he should not be willing in vain.*

The *antecedent* or *preventing Grace*, is that which precedes all good free Motion of the human Will, whether the Will does consent or resist to it; because St. *Augustin* has always took it in that Sense; but more particularly, *lib.* 2. *ad Bonif. c.* 9. *Without it*, says he, *we can neither do, nor begin, nor accomplish any Thing; because that we may begin it is said, his Mercy will prevent me; and that we may accomplish, it is said, his Mercy shall follow me.* If we ask the Reason why St. *Augustin* has given that Name to *Grace?* The Answer is, because he disputed then against the *Pelagians*, some of whom, as *Julian*, did not deny the *Grace*, but pretended, that it was prevented by Man's Merits, and thus imagine that Grace was granted to the Desire of Good which was in Man, to assist the Will, and to perfect the Good began by the Strength of the Free-Will.

I have said, whether the Will consents or resists to it, because the antient Fathers were of the same Sentiment; for in that of St. *Augustin*, the *preventing* or *antecedent Grace* is that which excites; but the exciting Grace does not include Man's Consent, as the same Father insinuates it *Conc.* 1. on these Words of the *Psalm* lix. *His Mercy shall prevent me: For*, says he, *I have not risen to the first, but thou art come to excite me.* And St. *Bernard* teaches the same in different Terms in his Book of Grace and Free-Will, towards the End, where, after he has said that Grace excites the Free-Will when it serves the Thought, and cures when it changes the Affection, he presently adds to it, *and thus Grace operates with the Free-Will, that it may only prevent it at first, and accompany it afterwards.* In that Place the preventing or antecedent Grace is manifestly said of the sole Thought, or Inspiration and Illumination, to which Will can either resist or obey. Therefore it is not surprizing that he had said a little higher, that God in sending us a good Thought, prevents us; and by changing our depraved Will, joins us to him by the Consent.

Grace can also be said preventing, because it precedes another Grace; since St. *Augustin* has took it in that Sense, *lib. de natur. & grat. c.* 32. *He prevents us*, says he, *by his Mercy; and prevents us that we may be cured, because that will follow whereby we may be cured; he prevents us that we may be called, and will follow us that we may be glorified: He prevents us that we may live piously, and will follow us that we may always live with him, because without him we can do nothing.* St. *Fulgentius* seems to have taken it in the same Sense, *lib.* 1. *ad monim. He gives*, says he, *his Grace gratuitely to an unworthy, that by the antecedent Mercy he may begin to will Good, and by the subsequent Mercy be capable to do the Good he wills.* And a little afterwards, *he prevents the Impious that he may become just, and follows the Just lest he should become impious: He prevents the Blind to give him the Light he has not found, he follows him that sees that he may preserve the Light he has given him: He prevents him that is fallen that he may rise; and follows him that is up lest he should fall.*

The *subsequent Grace, is that which follows the preventing one, and assists the Will, that he may not will in vain.* Because it assists Man already consenting, by the exciting or preventing Grace, to accomplish the Good he has already proposed. According to St. *Gregory*, *lib.* 22. *moral. c.* 10. *Holy Men*, says he, *become indebted to God for the present received, who has given them by preventing them to will the Good they would not, and in following them has granted them to be capable of the Good they will.*

From what we have said it may be understood, that the *preventing Grace* is that which excites the Will by the Illustration of the Understanding, and the internal Inspirations of the Will; and the *subsequent* that whereby the Will consents to the exciting Grace, and consequently proceeds to Action. 2. That not only that

Grace is called preventing, which precedes the first good Motion of the Will, but likewise that which excites to the other Acts of Piety.

But the most remarkable Distinction of the *actual Grace*, is into *sufficient* and *efficacious*; which Distinction was the Occasion of those long Disputes between the *Molinists* and *Tomists*, and much more still of those between the *Jansenists* and *Ante-jansenists*, as it will appear in the Sequel of this Treatise.

To proceed with some Order, and likewise with Caution, in these thorny and intricate Questions, we must inform ourselves of what is understood by the *efficient Grace* as opposed to the *efficacious*.

Note, That it is not Question here of the *sufficient Grace* taken in general, for that which gives the Power of acting supernaturally, in any Manner whatever, either declinably or indeclinably; because thus taken it is not opposed to the efficacious, since in that Sense the efficacious Grace can likewise be said sufficient, according to this of the Apostle, 2 *Epist. Corint.* xii. *My Grace is sufficient for thee.* But it is only Question of the sufficient Grace taken in particular, and as opposed to the efficacious. These pre-observed,

I say, that the *sufficient Grace* is commonly defined, *an actual preventing Grace, which says from the Part of the Power what suffices it to operate, or to obtain what is necessary to operate, and which notwithstanding can be resisted.*

1. It is said *an actual preventing Grace*, to express the Gender which it has in common with the efficacious Grace: And to give to understand that the habitual Grace is not that *Grace sufficient* meant here; for the *sufficient Grace* is that whereby Men are called to Justice, or whereby the Just are excited to Acts of Piety, or which is to be resisted; all which cannot be said of the habitual Grace. Add, that in the Sentiment of those who admit this *sufficient Grace*, it is given to those who are actually guilty of a mortal Sin, in whom there can be no habitual Grace; therefore, *&c.*

2. It is said, *which says from the Part of the Power that which is sufficient*; otherwise how could it be rightly called sufficient? For who can say, that what begins the Action, and not accomplish it, is sufficient? Whereby it appears, that the *sufficient Grace* is neither the external Vocation, nor a simple Illustration of the Understanding excluding the Motion of the Will. The first is evident, since the external Vocation is no more sufficient by itself than the Sound of a Trumpet is sufficient to an Army to fight. The last is likewise certain, because the simple Grace consisting wholly in that Illustration of the Understanding, and leaving the Will in its Infirmity, cannot be said sufficient to operate, as the Command of walking is not sufficient to a lame Man remaining infirm, if he receives no Strength in the motrice Faculty.

3. It is said, *to operate, or to obtain what is necessary to operate:* To give to understand, that the Ratio of the *sufficient Grace* does not absolutely require that one should operate by that Grace he has, but that it is enough if by that Grace he has already, he can obtain a sufficient Succour to operate; which can be made clear by an Example. Is not a Man said to be sufficiently capable, when he can obtain of a Friend all that he desires of him, tho' his own Circumstances be but mean?

4. It is said, *which can be resisted*; which is insinuated by the Scripture in several Places, particularly in the following ones. *Proverb* i. *I have called, and ye refused:* —*They would none of my Council, they despised all my Reproof.* Isaiah v. *What could have been done more to my Vineyard, that I have not done in it? Wherefore when I looked that it should bring forth Grapes, brought it forth wild Grapes?* And chap. lxv. *I have spread out all the Day unto a rebellious People, which walks in a Way that is not good, after their own Thoughts.* Matth. xxiii. *How often would I have gathered thy Children together, even as a Hen gatheredh her Chickens under her Wings, and ye would not?* And chap. xi. *Then began he to upbraid the Cities wherein most of his mighty Works were done, because they repented not: Woe unto thee* Chorazin, *Woe unto thee* Bethsaida: *For if the mighty Works which were done in you had been done in* Tyre *and* Sidon, *they would have repented long ago*, &c. By these Testimonies extracted out of the Scripture, the Afferters of the *sufficient Grace* are of Opinion, that it is very well proved, that there is a *sufficient Grace* which remains without Effect: And from them is deduced the Difference between a sufficient and an efficacious Grace.

If we ask if there be really any such Thing as a sufficient Grace, the *Molinists* and *Tomists* will answer in the Affirmative; and the *Calvinists*, *Lutherans*, and *Jansenists* in the Negative.

Those who are for the Affirmative, prove their Assertion by the Passages lately quoted, and by the following ones, which, say they, not only indicate and suppose an external, but likewise an internal Grace, whereby a true Repentance is perform'd. Act. vii. *Ye stiff-necked, and uncircumcised in Hearts and Ears ye do always resist the Holy Ghost.* Rom. ii. *Or despisest thou the Riches of his Goodness and Forbearance, and long Sufferings, not knowing that the Goodness of God leadest thee to Repentance? But after thy Hardness and impenitent Heart treasurest up unto thyself Wrath against the Day of Wrath.*

They prove it likewise by the Councils, by the Fathers, and by Reason.

By the Councils, particularly the *second of Orange can.* 25. where it is defined, that all those who are baptized, can and ought, if they will apply themselves to it, fulfill all that belongs to Salvation, *viz.* with Christ's Assistance and Co-operation. That of *Valence* in *France*, *c.* 2. and 5. That of *Sens* under *Clement* VII. *p.* 1. *decret.* 15. That of *Trent*, *Sess.* 6. *c.* 11. where it is said, that *God commands no Impossibilities, but in commanding he admonishes, and that you may do what you can, and ask for what you cannot do, and he assists you that you may.* Which Passage is almost entirely taken out of St. *Augustin*, *lib. de nat. & grat. c.* 43. and a little lower in the same Chapter of the Council it is said, that *God never forsakes those he has once justified by his Grace, unless he be first forsaken by them.* Notwithstanding what is said, that the Council is to be understood in this Place of the habitual, not of the actual Grace, when he says, that none is forsaken by God unless he be first forsaken by them. Because, as the Council uses in this Place St. *Augustin*'s Words, it is reasonable to suppose that the Council has taken them in the Sense of St. *Augustin.* But St. *Augustin* in the Passage quoted by the Council treats of the actual Grace, without which he is of Opinion that a just Man cannot live justly and piously, and he illustrates that Sentiment by the Example of a sound Eye, which notwithstanding cannot see without Light: *For*, says he, *as the Eye of the Flesh entirely sound, cannot see without the Assistance of Light; likewise Man, though perfectly justified, cannot live righteously, without being divinely assisted by the eternal Light of Justice.* He confirms that Sentiment towards the End of the same Chapter by these Words, *God cures Man, not only by blotting out our Sins, but likewise by doing that we should sin no more.* But whereby can he do that we should sin no more but by the actual Grace? Therefore when the Council of *Trent* says, that God forsakes no Body unless he be first forsaken, it must be understood of the actual Grace.

By the Fathers, but not by all those, say they, whose Doctrine prove their Proposition; for that would be an immense and superfluous Labour; but only by St. *Augustin*, and several others both antient and modern. For,

St. *Ambrose*, *lib.* 6. *in Luk. c.* 9. at these Words, *give ye them to eat*, insinuates clearly enough that there are Graces granted from Christ which can be resisted. These are his Words, *The Lord has Mercy that none should fail in the Way; and if any Body fails, it is not through the Lord Jesus, but he fails of himself.*

St. *Jerom*, *Epist. ad Cypri. Man*, says he, *makes use from the Beginning of God's Succours, and as it is through his Grace that he has been created, and through his Mercy that he subsists and lives, he can do no good Act without him who has granted him a Free-Will in such a Manner, as to not deny his Grace for every Act, to which notwithstanding several resist.*

St. *Augustin* in several Places, and particularly, 1. In those where he shews that a Sinner has no Excuse, when he will not avoid Sin, when he could do it, *v. gr. conc.* 2. *in Psalm* xxii. likewise *lib. de Past. c.* 14. in these Words, *What are you to answer your Judge, for refusing*

to be your own Pastor? You'll have nothing to answer. I did not know, I did not see, I did not hear; what is that you did not know? 2. In those Places, where he teaches that Man can and will not, or receive God's Grace in vain, *v. gr. lib. de nat. & grat. c.* 67. *It is not imputed to thee as Sin, that thou art ignorant in spite of thee, but that thou neglect to search what thou art ignorant of; nor that thou does not take Care of thy wounded Members, but that thou despisest him who wants to cure them.* 3. In those Places where he says, that God exhorts to Repentance, and insinuates that he is ready to hear our Prayers, *v. g. Serm.* 5. *de verb. Dom. He exhorts you*, says he, *to ask, will he deny what you ask? Our Lord Jesus Christ is a Suitor among us, and a Giver with his Father, neither would he exhort us so much to ask, if he had no Design to give. Let the human Indolence blush; he will give more than we will receive; he has more Mercy than we want to be delivered by that Mercy*, &c. 4. Lastly, in those Places where he shews that the Things commanded are easy and possible, v. g. *lib. de nat. & grat. c.* 69. *For by the same Motive we are induced to believe certainly, that a good and just God could not have commanded Impossibilities, we are admonished what to do in the easy, and what to act in the difficult.* From all these Passages and several others, we may easily draw this Inference, that the Grace sufficient to operate, or to obtain what is sufficient to operate, does not so fail us, as we fail to the Grace of God.

St. *Prosper* in several Places, but more particularly, *lib. de vocat. gent. c.* 28. speaks thus; *Who himself gives the Will of obeying him, without taking off from those who persevere, that Mutability which can be unwilling, otherwise none of the Faithful had ever deviated from the Faith, no Body had ever been conquered by the Concupiscence, and no Body would neglect the Grace; but as all these can happen, and the Descent towards the Consent to those Temptations is easy*, &c. There he supposes, that the Grace and even an internal one, is neglected, since it is that which he grants to those who persevere, which, as it has its Effect in them, it likewise can be rejected by those who deviate from the Faith.

St. *Fulgentius, lib. de remiss. peccat. c.* 19. *If any Body*, says he, *reject the Grace of the Time present whereby God is come, not to judge, but to save Sinners, and believes that he ought to remain in his Iniquities, he'll find no Mercy at the future Judgment.*

They prove it likewise by Reason, either because Christ would that all should be saved, and notwithstanding all are not saved: Whence that? unless it be that several resist to the sufficient Grace which is given to all, or because Christ is dead for all, and for every one of us; which notwithstanding all do not receive the Benefit of his Death, and whence that? unless it be from that all do not acquiesce to the exciting Grace: Therefore, *&c.* or because several oppose the Grace which God gives them to fulfil his Commandments. Which to understand better, we must observe, that God never commanded Impossibilities, as it appears from *Deut.* i. and from the Council of *Trent, Sess.* 6. *c.* 11. But several Precepts without Grace are impossible, *viz.* those which are of a supernatural Order, and those of a natural Order, which are attended with great Difficulties; therefore it must be confessed that when God imposes those Precepts, he gives Grace to render them possible; or at least he gives a Grace which renders us capable to accomplish them. But notwithstanding all this, all those to whom those Precepts are given do not accomplish them, or ask for the Strength necessary to accomplish them: Therefore it follows hence, that some resist to the Grace; which Grace is that called *sufficient*, therefore, *&c.*

Notwithstanding what is alledged against their last Reasoning, *Rom.* vii. *I do not do the Good I would, but I do the Evil I would not*; because the first Part of this Passage must be understood of the Apostle, in not doing the Good he would perfectly; but not of the Apostle not doing *the Good he would*, in any Manner. Good is done perfectly, in St. *Augustin*'s Opinion, *lib.* 1. *retract. c.* 15. when done without any Reluctancy on the Part of the Concupiscence. *The Perfection of Good*, says he, *is, that there should be no Concupiscence of Sin in Man.* Therefore when the Apostle *obey'd the Law of God, according to the inward Man, and the Law of Sin according to the Flesh*, he could not then operate a perfect Good; though he operated good in some Manner; because, as the same Father observes, *lib.* 1. *oper. imperfect. He that cannot thus perfectly operate Good, has some other Manner left of operating it*, viz. in not consenting to Vice, as the Apostle did not consent. For he adds, in the same Chapter; therefore *I obey the Law of God by the Spirit, and obey that of Sin by the Flesh.* The second Part of the Passage, must be understood of *Evil*, improperly so called, and done without Sin; but not of *Evil*, properly so called, and imputable to Sin. Which to understand in a more clear and easy Manner,

We must observe, 1. that it appears sufficiently enough from the Circumstances related by the Apostle in the above-quoted Chapter, that the Sin he did against his Will, was not properly a Sin, since himself declares, that it was done without the free Consent of his Will.

We must observe, 2. from the Doctrine of St. *Augustin, lib. de duab. anima. c.* 11. that there can be no Sin without Will. Therefore, *lib. de ver. relig. c.* 14. *Sin*, says he, *as far as it is voluntary, is evil, since there is no Sin unless it be voluntary.*

Notwithstanding what is objected against this last Reasoning, and taken from the same St. *Augustin, lib. de nat. & grat. c.* 16. whence some not understanding very well the Sense of the Author, have inferr'd the Necessity of Sin, from the Impossibility of accomplishing the Precepts. St. *Augustin* speaks thus, *There is a certain Necessity of Sinning, which Man should know proceeds from the Vices of Nature, and not from the Condition of Nature; and that such a Necessity may cease, let him learn to say to God, deliver me from my Necessities.* For this is only true, when the Grace fails, as the same Doctor insinuates it, in the preceding Chapter, *viz.* 65. in these Words; *Therefore there's no Tie of Necessity, because there's a Liberty of Charity.* — But you'll say, does not the Grace fail, when the Precept is impossible? They answer, that the efficacious Grace fails; but not the sufficient; and consequently deny that some of the Precepts are simply impossible.

Note, That there is an infinite Number of Objections made against this Sentiment of a *sufficient Grace*; but as it would be endless to relate them all here, I'll select from among them, those which seem to me to have most Strength; and answer them all in the same Manner they are answer'd by the Assertors and Defenders of that *sufficient Grace*; therefore,

It is objected, 1. That there is in the Scripture a very good Foundation for asserting, that there is no other *Grace* but the *efficacious*, whereby we come at *Christ*; for it is said, *John* vi. that *Every Man that hath heard; and learn'd of the Father, cometh to me.* Whence St. *Augustin, lib. de grat. Christ. c.* 14. and *lib. de prædest. sanct. c.* 18. infers, that he who does not come, has neither learn'd nor heard from the Father, and consequently has had no Grace; therefore there is no other Grace but the efficacious.

To this they answer, that nothing can be inferred from the Text, but that he has not had the efficacious Grace; but that it cannot be inferred, that he had not the sufficient.

It is objected, 2. That if there was a *sufficient Grace*, a Man could distinguish himself from others, in Things which relate to Salvation; for he could consent to the divine Grace, or not consent; but a Man cannot distinguish, according to these Words of the Apostle, 1 *Cor.* iv. *For who makes thee to differ from another?* Therefore it follows, that there is no sufficient Grace.

It is answered to this, that there is a great Disparity between Man's *Assent* and *Opposition*; because his Opposition to Grace, proceeds from the Liberty, or rather Pravity of his free Will alone; but when he gives his Consent to Grace, it is not done by the sole Strength of his Free-Will alone; but rather by Grace's Assistance, whereby he is helped and excited to consent; whence he does not distinguish himself, but is discerned or distinguished by the Grace, whereby he is excited and helped to consent to the divine Inspiration. Therefore he must confess himself indebted to Grace, for all

all the Good he does, and ought not in any Manner boast, as if by that Consent he had distinguished himself from others.

From this Answer, say they, it may be inferred, that though the human Will concurs with Grace, to form a Consent; the Parts of Grace are notwithstanding much more powerful than those of the human Will, especially for this Reason, that by Sin the Free-Will has been alienated from God, and more inclinable since to Evil than to Good; and therefore does not embrace Good unless it be assisted by Grace: Whence it happens, that the Choice is rather attributed to Grace, than to the Free-Will.

But that the Will concurs with Grace, may be proved by an infinite Number of Texts of Scripture, particularly *Ezek.* xviii. *Make you a new Heart, and a new Spirit.* And *Jer.* iv. *Wash thine Heart from Wickedness, that thou mayst be saved.* Acts iii. *Repent ye therefore and be converted, that your Sins may be blotted out.* And 2 *Tim.* ii. *If a Man therefore purges himself from these, he shall be a Vessel unto Honour, and sanctified for the Master's Use.* It appears from these Texts, that the Sinner separates and distinguishes himself from other Sinners, and from the Impious, by quitting the Road of Iniquity: But he does not this without the Assistance of Grace, the Parts thereof are far more powerful than those of the Free-Will. And that the said Effect is rather to be attributed to Grace, than to Free-Will, is evident from all the Texts of Scripture, where the principal Part of our Salvation is attributed to God. Whence, when he says, *Be converted to me*, we have Reason to say, *Convert us O God our Salvation.*

But, say you, St. *Augustin, lib. de prædest. sanct. c.* 5. says, *that Grace distinguishes the Good from the Bad*, viz. that Grace which is not common to both: But the *sufficient Grace* is common to the Good and to the Bad; therefore a Man is not distinguished from another by the *sufficient Grace.*

They answer to this, that St. *Augustin* understands there, by the Grace common to the Good and to the Bad, a natural Grace, and not a supernatural one, as it appears from the following Words. *For*, says he, *who distinguishes you? what have you that you have not received? and if you have received it, why should you glory, as if you had not received it? In that most evident Intention of the Apostle, whereby he speaks against the human Pride, lest any Body should glory in Man, not in God. It is, in my Opinion, a too great Absurdity, to suspect the natural Gift of God, or Nature itself entire and perfect, as it was given in the first Condition of Man, or any of the Relicks of a vitiated Nature; for are they not, by those Gifts which are common to all Men, distinguished from Men?* And a little lower, *For what have you that you have not received? Is any Thing else design'd here, but that whoever glory should glory in the Lord?* And nothing is so contrary to this Sense, but for one to glory of his own Merits, as if he was indebted to himself for them, and not to the Grace of God, *i. e.* to that Grace which distinguishes the Good from the Bad, and not to the Grace which is common to both.

It may be objected, 3. That it can be inferr'd from the second Council of *Orange, c.* 4. that any Grace determines our Will, since God does not expect, that we should purge our Will of Sin. For that Council speaks thus: *If any Body pretends that God expects that our Will should purge us of Sin, and that such Thing*, i. e. *that we will be purged, is not done by the Infusion and Inspiration of the Holy Ghost, he resists to the Holy Ghost, who says, by* Solomon, *that the Lord prepares the Will. And to the Apostle, teaching, that God operates within us, the Will, and the Perfection.*

They deny this Inference; and say, that it can be only inferred from the said Council, that God does not expect our Will should be previous to Grace, as the *Semi-Pelagians* pretended; but expects that our Will should follow and be subsequent; as is evident from the sixth Chapter of the same Council.

It is objected, 4. That St. *Augustin, lib. de correp. & grat. c.* 14. speaks thus, *None of Man's Free Will resists, God willing to cure*, from which it is inferr'd, that no Sort of Grace is resisted, and consequently there is no sufficient Grace, since God is willing to save Men by any Grace.

They answer, that this Place of St. *Augustin* is to be understood of the efficacious Grace, and not of the sufficient, whereby God prepares us for the Grace of Salvation. For *lib. de nat. & grat. c.* 67. he confesses, that Man despising him who will cure him, is imputed to him as a Fault: Whence it appears that there is a Sort of Grace which is resisted; therefore there is a sufficient Grace.

It is objected, 4. That the sufficient Grace as admitted by them, is entirely the same with that Grace of Possibility admitted by the *Pelagians*, and which is refuted by St. *Augustin*, throughout his whole Book of the Grace of Christ, and in several other Places, and therefore is not to be admitted.

They deny the Antecedent, because the *Pelagians*, say they, admitted two Sorts of Grace, and none of them is their sufficient Grace: For they said, 1. That if Grace was given the Liberty would be destroy'd; which was condemned by the Council of *Diospolis*, though afterwards *Pelagius* being forced to it by the Authority of the same Council, admitted a certain external Grace, not an internal one, which he placed in the Doctrine of the Gospel and the Example of *Jesus Christ.* They used to say besides, that without the Assistance of any Grace a Man could lead a good Life, and avoid all Sorts of Sins; which Possibility the *Pelagians* attributed to Nature, and they attribute it to the sufficient Grace, which is quite different.

It is objected, 6. That if there was a sufficient Grace, the Church would pray to obtain it, which it does not; therefore it is a Sign there is no such Grace.

They answer to this, that the Church prays therefore to obtain all Sorts of Grace without Distinction, *v. g.* when it prays thus; *We pray thee O Lord, to infuse thy Grace into our Minds*, &c.

It is objected, 7. There is no *supernatural Grace* where it is resisted, but the *Grace* which is supposed sufficient is resisted; therefore there is no such a *Grace*; as St. *Augustin* insinuates, *lib. de grat. Christ. c.* 25. where he speaks thus, *He that knows what's to be done and does it not, has not yet learned from God according to Grace, but only according to the Law; not according to the Spirit, but according to the Letter.*

They answer, that he who has the Grace and resists to it, is not said to know according to the Law, because he has nothing else but the Law for Principle; but because the Grace has no other Effect than if he had only the Law: For the Property of the Law is only to give Knowledge, but Grace gives not only the Knowledge, but even the Action itself.

Note, That those who admit that *Grace* sufficient, which excites human Will, and gives it the Power to act; which can be resisted, and is in fact resisted, imagine that without it it is absolutely impossible, to excuse God from that too great Severity, Partiality, &c. attributed to him, by those who admit no other Grace than the *efficacious by itself*, rejecting the sufficient as a Velleity or a Shadow of Grace, which has no other Existence but in the Mind of its Asserters; though I must confess, that without it, it is very difficult to reconcile the frequent Exhortations of God in the holy Scriptures, his Reproaches, Threatnings, &c. with his Justice, Mercy, Compassion, &c. which are some of his most essential Attributes: For if we can do nothing relating to our eternal Salvation, but with the Assistance of his Grace, why don't he give us that Grace? and if that Grace produces always its Effect, it is a Sign that we have not that Grace when we neglect to observe God's Precepts, avoid Sin, repent from those we have committed, &c. and why should God reproach us with our Neglect, since he knows that we have not the Grace necessary for those supernatural Acts; and that as soon as he'll be pleased to give it us there will be no more room for Exhortation, Reproaches, Threatnings, &c. since that Grace is to operate within us all that he commands, without its being in our Power to oppose or resist it. For admitting that there is no other Grace than the efficacious

cious by itself, when he reproaches us, that *he wanted to assemble us as a Hen assembleth her Chickens under her Wings, and we would not*, or the like; he knows then that we could agree that he should do it? whence could that Consent proceed, but from our natural Strength? But to admit such a Power within us, is an Error which has been condemn'd in *Pelagius*, as contrary to the Notion we must have of the fallen Nature. And if we cannot do it of our own natural Strength, it would be a Sort of Injustice to upbraid us for not doing it, since *ad impossibile nemo tenetur:* No; but we can do it with the Assistance of his Grace? But when we have that Grace, we always do what he will have us do, or rather, that Grace doth it within us, since it is efficacious by itself, and we are nothing but mere Machines, which it moves at Pleasure; and which it is impossible we could oppose in its Motions, considering our natural Imbecility; therefore, there would be no Need of Exhortation, Intreaties, *&c.* unless we admit another Sort of Grace, which God gives us, or offers us always, and which by the Depravation of our Nature, we refuse or resist when we please, and thereby give Room for God to reproach us, with having neglected his Exhortations, Inspirations, *&c.* and that very justly, since he has neglected nothing on his Side; and on ours, we have render'd his Endeavours vain and fruitless, as himself complain'd of. *Calvin* and *Jansenius*, or the *Jansenists*, having found the same Inconveniency in reconciling these Exhortations, Reprimands, *&c.* with the efficacious Grace, they admitted or admit, rejecting all other Sorts as smelling too much of *Semi-Pelagianism*, are fallen into another Excess far more injurious to God, as arraigning his Mercy and Justice; for the first, *viz. Calvin*, has had the Temerity to advance, and to maintain afterwards with Obstinacy, that some of God's Commandments are absolutely impossible; for even in a civil Life, to command any Thing impossible, is the most notorious Oppression, or Tyranny a Man can be guilty of, and how can we have the sacrilegious Injustice to accuse God himself of it? The other, *viz. Jansenius*, or his Disciples, pretend, with *Calvin*, that some of God's Commandments are impossible, with this Difference, that they do not reckon them absolutely impossible, as *Calvin* does, but say, that the Grace, whereby they could be render'd possible, is wanting, which is but a slight Modification, since both Opinions tend to the same End, *viz.* to accuse God tacitly of Cruelty and Injustice. For where can be a greater, than to command us Things, which he knows, to speak the Language of *Calvin*, are absolutely impossible, whatever Grace he could assist us with to accomplish them? with what Design could he command us those Things, which he knew impossible, even with the Assistance of his Grace? was it to render us more criminal, and from thence have a greater Occasion to punish us eternally? or was it to shew us that his Power was limited? (for I consult in this Case my Reason, only according to the Notion it can form to itself of a Divinity) If it was to render us more criminal, why would he humble himself so low, as to take our Nature, to be expos'd to all its Infirmities, and to expire at last amidst the most cruel Torments; since by leaving us in the Mass of Perdition, we have been all involved in by *Adam*'s Fall, it had answer'd the same End, without he could have been reproach'd with having committed Injustice? And in promising us, that he who shall keep his Commandments, shall be saved, would it not be deceiving us, if he knew that there are some of them so absolutely impossible, that they are not to be kept, not even with his most powerful Assistance, according to *Calvin*'s Opinion, who thereby limitates his Power, and consequently deprives him of his Divinity. — As for the *Jansenists* mitigating this impious Opinion of *Calvin*, by saying, that if some of God's Commandments be impossible, it is only because the Grace whereby they could be render'd possible is wanted, if they do not limitate God's Power as *Calvin* does, they equally offend his Justice, since he could assist and will not.

Note also, That those who admit the *sufficient Grace*, support and strengthen their Opinion by the following very essential Questions.

The first Question is, If God is willing that all Men should be saved; and in what Sense he is willing?

Note, 1. That it is not without Reason we ask here, if, and in what Sense, God is willing all Men should be saved? And that we are to ask in the second Question, if Christ be dead for all Men? before we enquire in the third Question, if the *sufficient Grace* be given to all Men in general; because for the *sufficient Grace* to be given to all Men, these two Things are absolutely necessary. 1. That God be willing that all Men should be saved. 2. That Christ, by his Death, should have procured them the Means to be saved.

2. That the Theologians consider two Sorts of Will in God, with Regard to our Salvation, *viz.* an antecedent one, whereby God wills as much as it is in himself, the Salvation of all Men, before he has foreseen their Obedience or Disobedience, or which is the same, their Merits or Demerits; and the other consequent, whereby God determines Men's Salvation after he has foreseen their Perseverance in Righteousness. Which two Sorts of Wills in God, I have treated at large in my Treatise of *God's Attributes*, in the Article of *Predestination*.

3. That the consequent Will is always efficacious; but the antecedent is only conditional. These preobserved,

They answer, that God wills of an antecedent and conditional Will, and as much as it is in himself that all Men should be saved. This Answer is against *Lucidus* a certain Priest of great Reputation, as *Baronius* relates, *ad Ann.* 490. It is also against *Godescalchus* a Monk, whose pestiferous Genius *Hincmarus* describes in his Epistle to Pope *Nicolas*, related by *Flodoardus*, *lib.* 3. *c.* 14. where it is said, that *Godescalchus* had nothing of a Monk but the Habit; for he was of a wild and turbulent Spirit, loving Novelties, ambitious, *&c.* and called by *Rabanus* a vagrant Monk, in the synodical Epistle of the Council of *Mayence*. This Answer is also against *Calvin*, *lib.* 3. *inst. c.* 24. *numer.* 15 & 16. and also against *Jansenism*.

They prove their Answer by the Scripture, the Councils, and by the Fathers.

By the Scripture, *Wisdom* xi. *You have Mercy of all, because you are omnipotent, for you love all Things, and you hate none of those Things you have made. And you forgive all, because all Things are yours, O Lord, who loves the Souls.* Ezekiel xviii. *Have I any Pleasure at all that the Wicked should die, and not that he should return from his Ways and live?* And chap. xxxiii. *Why should thou die O House of Israel? I have no Pleasure in the Death of the Wicked, but that the Wicked turn from his Way and live; turn ye, turn ye from your evil Ways.* On which Words *Tertullian*, *lib. de pœnit. c.* 4. says that he swears that he should be believed. *Therefore happy are we, for whose Sake God swears, O unfortunate if we do not believe God when he swears.* Matt. xi. *Come unto me all ye that labour, and are heavy laden, and I will give you Ease.* This Invitation would be needless, if he had no Design that all Men should be saved. *Matt.* xviii. *For the Son of Man is come to save that which was lost.* 1 Epist. *Tim.* ii. *I exhort therefore that first of all Supplications, Prayers, Intercessions, and giving of Thanks be made for all Men: For this is good and acceptable in the Sight of God our Saviour, who will have all Men to be saved, and to come unto the Knowledge of the Truth: For there is one God and one Mediator between God and Man the Man Christ Jesus; who gave himself a Ransom for all,* 2 Pet. iii. *But his long Suffering towards us, not willing that any should perish, but that all should come to Repentance.*

It may be asked here, if the Texts of the Scripture above quoted, are to be understood of every one of the Genders, or of the Genders of every one?

I answer, that they are to be understood of every one of the Genders, *i. e.* of all Men without Exception, because these Particles *all Men*, *for all*, and the like; but extend themselves as wide as those are, for whom the Apostle

Apostle says we ought to pray; but the Apostle there wills, that Prayers should be made for every one of the Genders, that's to say, for all Men in general; as St. *Augustin* understands it, particularly, *lib. de correpr. & grat. c.* 15.

They prove it by the Councils, particularly that of *Mayence*, celebrated in the Year 848, against the Errors of *Godescalchus*; which were, 1. That as God had predestinated some to Life, he had also predestinated some to eternal Death. 2. That God wills not that all Men should be saved, but only those who are saved. 3. That *Jesus Christ* had not been crucified, and was not dead for the Redemption of all the World, but only for those who are saved. 4. That those who perish were only saved in Appearance: For maintaining which Errors *Godescalchus* was condemn'd as a Heretick, in a provincial Synod assembled at *Rheims* by *Hincmarus* Archbishop of that See.

It is proved by the Fathers, particularly St. *Ambrose, octon. octavo.* on this of the Psalm cxviii. *The Earth is full of thy Mercy, O Lord*, where he speaks thus; *Therefore the Earth is full of the Lord's Mercy: Therefore the Remission of Sin is given to all: The Sun is commanded to rise for all, and this Sun rises for all: For this mystical Sun of Justice is risen for all, is come to all, has suffered for all, and has rose from the Dead for all: But if any Body does not believe in Christ, he defrauds himself of the general Benefit, like one who excludes the Rays of the Sun by shutting his Windows.*

St. *Chrysostom, hom.* 7. *in Joan.* confirms this Sentiment in these Words; *If he illuminates all Men that come into this World, how comes it to pass that so many Men remain without Light? Certainly he illuminates them as far as in him lies; but if some of their own Accord, and by the Connivance of the Eyes of their Mind, will not turn themselves towards that Light, they do not remain in Darkness, by the Nature of that Light, but by their pure Malice.*

St. *Augustin, lib. de Spirit. & litera. c.* 32. speaks thus, *For God wills that all Men should be saved, and should come to the Knowledge of the Truth, but not as to deprive them of their Free Will, of which making a good or bad Use, they will be justly judged; for the Infidels act against God's Will, when they do not believe in his Gospel; not that they conquer then his Will, but they defraud themselves of a great and sovereign Good, being to feel in the eternal Torments, the Power of him whose Mercy they have despised in Good.*

St. *Prosper*, subscribes to his Tutor St. *Augustin*, in several Places, but more particularly in his Answer to the Objections of *Vincent*, and still more pathetically to the second Objection, where he speaks thus, *We should believe, and confess sincerely*, says he, *that God wills all Men should be saved, since the Apostle from whom we have this Sentiment, commands strenuously, that it should be piously observed in all Churches, to pray God for all, of whom if several perish, it is their own Fault; and if several are saved, it is a Gift of the Saviour.* He speaks in the same Manner, *Sent.* 7. *ad cap. Gall. Whoever says, that God wills not that all should be saved, but only a certain Number of Predestinates, speaks with a greater Severity than he should of the unsearchable Depth of the Grace of God, who is willing that all Men should be saved, and come to the Knowledge of the Truth.*

They prove it, likewise, by Reason, if not by a positive one, since there is no positive one, all depending on the Mercy and divine Will of God, at least by a negative one, which consists in the Solution of the Objections: Therefore,

It may be objected, 1. That it is *Pelagianism* to say, that God is willing that all Men should be saved if they will; therefore, that it is not to be admitted.

They answer, that it is so when taken in the erroneous Sense of the *Pelagians*; but not when taken according to the Sense and Explication of the Catholick Church. For the *Pelagians* erred in two Manners, in their Explication of this Sentence of the Apostle, *God wills that all should be saved.* For they erred, 1, in extending it to all Men, without Exception, even Infants, whom, they say, God was willing to save, if they would, not of an actual Will, but only of a future, understood in that Sense, *viz.* if they were to arrive at the Age of Discretion. St. *Prosper* relates this Sentiment in an Epistle to St. *Augustin*, and St. *Augustin* refutes it, *lib.* 3. *ad Bonif. c.* 8. towards the End. 2. They erred in saying, that God was willing all Men should be saved, if they would themselves, of a natural Will, and preceding the Grace. As St. *Augustin* witnesses it, *lib.* 1. *retract. c.* 10. But the Doctrine of the Catholick Church is, that God wills that all Men should be saved, as well Infants as Adults, though in a different Manner, *viz.* the Infants independently of their Will, supposed, notwithstanding, that there were neither Ministers nor natural Causes wanted; and the Adults, if they were willing themselves, but of a Will prepar'd by the Grace of God. Whence it appears, how much the Sentiment of the Catholicks differs from that of the *Pelagians.*

It is objected, 2. That St. *Augustin* writes expresly, that God is not willing that all Men should be saved, and proves that by the Example of the Infants who die before Baptism; and this he proves in several Places, but particularly, *lib.* 4. *cont. Julian, c.* 8. therefore, *&c.*

The Answer of the Catholicks to this is, that St. *Augustin* denies that God is willing that all Men should be saved, in the Manner pretended by *Julian*, but not absolutely. For *Julian* pretended, that God neither desired the Salvation of Men, nor granted them his Grace, unless they had first searched it by their Free-Will; and never denied his Grace, but when they would not search. Which Doctrine is as false in Infants, as it is evident by itself, and by these Words of St. *Augustin*; *But those Infants, by their Imbecility, contradict your Sentiment, for they neither search nor ask, but on the contrary, when they are baptized, refuse and struggle against it, and notwithstanding receive and find, and it is open'd to them, and they enter into the Kingdom, where there is an eternal Salvation, and the Knowledge of the Truth*, &c.

It is objected, 3. That God wills not of an absolute Will, that all Men should be saved, otherwise all Men actually and in fact would be saved; because what he wills in that Manner is always accomplished; according to this of the Psalmist, *He has done whatsoever he pleases:* Therefore he neither wills that all Men should be saved, of that Will which is antecedent and pure conditional, since such conditional Will is equivalent to the absolute, since that Condition depends on him that is willing. For when it is said, that God wills that all Men should be saved, if they will themselves, that Condition which we add for the Adults, does not less depend on the Will of God than the Salvation itself, since it cannot be done by the human Will, *i. e.* unless God gives them the Will for them to accept Grace, and consent to it.

The Answer to this Objection is, that it is true, that the conditional Will is equivalent to the absolute, when the Condition depends in such a Manner of the Willing, that it is entirely to be accomplish'd by him alone; but that it is false, if it is to be accomplished part by him, and part by another; but the conditional Will now in Question, depends in Part from God, and in Part from Man; for tho' Man cannot will to be saved, unless God be willing, likewise, and prepares Man's Will, he notwithstanding does not so prepare it in all Things, but that he desires still Man's Consent. As St. *Augustin* insinuates it plainly, *lib. de Spirit. & lit. c.* 33.

It is objected, 4. That it would be needless to pray to God for the Salvation of all, if he was willing, as far as in him lies, that all Men should be saved; therefore, *&c.*

The Answer to this Objection is a Negative; because there is almost an infinite Multitude of Men who deserve to be abandon'd by God for their actual Sins; and because he may be prayed to give more abundant and efficacious Succours.

But, *If God be willing of an antecedent Will that all Men should be saved; he is not willing of a consequent one.* Which is proved both by the Scripture, and the Fathers.

By the Scripture, *John* xvii. *I do not pray for the World*, viz. efficaciously, and of a consequent Will.

By the Fathers, particularly St. *Chrysostom, Hom.* 1. *in Epist. Eph.* where he speaks thus: *The first Will is, that none of those who have sinned should perish; the second Will is, that those who are grown bad should perish.* Likewise

wise St. *Augustin* expounding in three Manners this Passage of the Apostle, *God wills that all Men should be saved*; whose triple Exposition is to be referred to the absolute and consequent Will: The first Interpretation is this, that none is saved, but him whom God will save. And in this Sense, St. *Augustin* is to be understood, when he says, that God will save those who are saved; which Interpretation is taken from his 107 Epistle to *Vitalis*; from his *Enchiridion*, c. 22. &c. The second Exposition of the aforesaid Passage of the Apostle is, that God wills that all Men should be saved, and come to the Knowledge of the Truth, because he will save some of all Nation, Age, Sex, Condition, &c. as it is said, that all Animals was in *Noah*'s Ark, *i. e.* Animals of every Specie. This second Interpretation is in the *Enchiridion*, c. 103. whereby it appears, that St. *Augustin* has took that Sentence of the Apostle uncompleatly, *viz.* for the Genders of Particulars. The third Exposition of the said Sentence is, that God wills that all Men should be saved, because he makes us will we should be saved. In this Sense, the Holy Ghost is said, *Rom.* viii. *To intercede for us with Groans unutterable*; not that in fact he groans himself, but because he makes us groan; as we see, *lib. de correp. & grat. c.* 15.

The second Question is, *If God is dead for all Men, and for every one of them in particular?*

Note, That it is not asked here, of what Value and Merit was Christ's Passion, since every Body knows that it was of an infinite Value; and consequently very sufficient for the Redemption of all Mankind, as I'll shew more at large in my Treatise of the *Incarnation*.

2. Neither do we ask whether it is profitable to all those to whom it is applied, since it is an unquestionable Truth that it is. St. *Prosper* speaks incomparably well on this Subject, in his Answer to the Objections of *Vincent*, expressing himself in his Answer to the first Objection; *The Cup of Immortality, composed of our Infirmity, and of the divine Virtue, has in itself, what's requisite to be profitable to all; but if it be not drank, it cannot cure.*

3. That it is asked here chiefly, if Christ dying has had the Intention, to give himself as Mediator or Redeemer for all Men in general. These pre-observed,

The Catholicks answer, *That Christ is dead for all Men in general, and has had the Intention of dying, as far as it was in himself, for all Men in general.* According to the Sentiment of St. *Thomas*, in the Commentary on the second Chapter of the first Epistle to *Timothy*; against some who asserted falsly, that St. *Augustin* has never confessed in his Writings, that Christ has given himself in Redemption for all without Exception, or was crucified and dead for all, but only for those to whom his Death has proved profitable; whence they say, that he has given himself in Redemption for his universal Church, and consequently for all Genders of Men.

They prove their Answer by the Scripture, the Councils, and the Fathers.

By the Scripture, 2 *Cor.* v. *If one died for all, then were all dead; and that he died for all, that they which live, should not henceforth live unto themselves, but unto him which died for them, and rose again.* For does it not as clearly appear, in this Place, that Christ died for all, as the Death of all by Sin clearly appears? Otherwise, how could the Apostle conclude that all are dead by *Adam*'s Sin; but Death, by Sin, is extended to all Men in general, therefore, 1 *John* ii. *And he is the Propitiation for our Sins; and not for our Sins only, but also for the Sins of the whole World.* By the whole World, in this Place, not only the Elect, but likewise the Reprobates are understood by the Council of *Trent*, *Sess.* 6. *c.* 3. *For though Christ be dead for all*, says that Council, *all, notwithstanding, do not receive the Benefit of his Death, but only those to whom the Merit of his Passion is communicated.*

They prove it by the Councils, particularly that of *Mayence*, where *Godescalchus* was condemned for asserting the contrary. And likewise by that of *Trent*, *Sess.* 6. *c.* 4. which is above-quoted. There is no Room for evading the Passage of the Council of *Trent*, by this Subterfuge, that the Price of Redemption, given by the Passion and Death of Christ, is sufficient to redeem all Men in general, even the Reprobates, but that Christ had no Intention to redeem all Men in general, and to die for them all. There is no Room for this Subterfuge, say they, because it cannot be conceived how, *v. gr.* he who either possesses or accumulates a Sum sufficient to pay the Debts of another, can be supposed to possess or accumulate that Sum for him unless he has Intention to offer that Sum for the Payment of such a Debt.

They prove it by the Fathers, as well by those who have preceded St. *Augustin*, as by those who have followed him; and particularly by St. *Athanasius*, *lib.* 3. *de incarn. verb.* St. *Chrysostom*, *Hom. in. c.* 2. *Epist.* 1 *Tim.* St. *Jerom*, *Epist. ad Ocean.* in these Words; *St. John Baptist is an Impostor, shewing Christ with his Finger, and with his Voice saying, this is the Lamb of God, this is he who takes off the Sins of the World, if there are yet some in the World, whose Sins Christ has not taken off.*

St. *Augustin*, as well in those Places where he insinuates that Christ is dead for others as well as for the Elect, *v. gr. lib.* 2. *de Symb. ad Catech. c.* 5. where he speaks thus of *Herod*, searching after Christ to put him to Death, *O World unclean, he is come to redeem thee, and thou art troubled, and thou wantest to kill him, when he prepares himself to deliver thee.* As in those others, where he gives to understand, that Christ is dead for all, *v. gr. lib.* 1. *de peccat. mer. c.* 18, 23, 27. likewise *lib.* 6. *con. Jul. c.* 2. where he proves against the *Pelagians*, that all Men, and in particular all Infants are dead in *Adam*, because Christ is dead for all. For having proposed the above-quoted Passage of the Apostle 2 *Cor. c.* 5. *One is dead for all; then all are dead.* He adds immediately, *From that he has proved that all are dead, because one is dead for all, I imprint and inculcate it on him who refutes it.* Likewise St. *Prosper*, *lib.* 2. *de vocat. gent. c.* 6. and St. *Leo*, *Serm.* 1. *de nativit Christ. Our Lord*, says he, *the Destroyer of Sin and Death, as he has excused no Body from Sin, likewise he is come to deliver all.* And St. *Bernard*, *Serm.* 2. *in Psalm. qui habitat. All Men can say thou art my Redeemer, but he only can say truly thou art my Receiver, who inhabits in the Succours of the Almighty.*

It may be objected, 1. That *it is* Semi-Pelagianism *to say, that Christ is dead, or has spilt his Blood* (this is the fifth Proposition of *Jansenius*) *for all Men in general*; therefore, &c.

The Catholicks deny it to be *Semi-Pelagianism*; and that no Body ought to believe, that what St. *Augustin*, St. *Prosper*, and all the orthodox Theologians have endeavoured to persuade the whole Christian World, is one of the Errors of the *Semi-Pelagians*. Therefore it is not surprizing, if *Innocent* X. and *Alexander* VII. have fulminated this Proposition in *Jansenius* and his Disciples, as impious, blasphematory, injurious to the divine Piety, and heretical.

Note, That the *Jansenists*, by maintaining this Proposition, that *it is an Error condemned in the* Semi-Pelagians, *to say that Jesus Christ is dead, and has spilt his Blood for all Men in general*; pretended, that to say that Jesus Christ was dead for all, and that notwithstanding several were excluded from the Benefit thereof, it was admitting a certain Inefficacy in Christ's Death, and a certain Mutability in God's Judgments, which was highly injurious to his Omnipotency. That his Intention was either to make all Men in general Partakers of the Benefit of his Death, or only Part of them: That if he designed that all should be Partakers of that Death, as all have not been Partakers of the Benefit of that Death, since all are not saved, his Intention has been then frustrated, whereby his Decrees have been subject to Mutation, which it is an Impiety even to suppose: But that Intention was perhaps but a Velleity, with Regard to those who are not saved? But would a Velleity be compatible with the Idea we are obliged to have of the Divinity, whose Intentions are all so many Decrees, which are subject to no Changes or Vicissitudes, and can meet with no Opposition. Therefore they conclude,

conclude, that as the sole Elect have received the Benefit of that Death, it was design'd for them only.

It is objected, 2. That the Scripture insinuates in several Places, that Christ is dead for the sole Predestinates, *Psalm* cxi. *He sent Redemption unto his People. John* x. *I give my Life for my Sheep.* John xvii. *I do not pray for the World.* Likewise St. *Augustin* in several Places, and particularly *lib.* 22. *de civit. c.* 24. *Epist.* 48. and 102. And also St. *Prosper*, in his Answer to the first Objection of *Vincent*, where he speaks thus, *The Property of the Redemption, belongs without doubt to those from whom the Prince of the World has been expelled, and who are not Vessels of the Devil, but Members of Christ.* Therefore, *&c.*

To this it is answer'd, that those Places of the Scripture, and of the Fathers, insinuate, that Christ is dead efficaciously for the sole Predestinates; but do not deny that he is also dead, at least sufficiently, for all other Men.

It is objected, 3. That Christ has prayed for none but the Predestinates (this is also the Sentiment of the *Jansenists*) *John* xvii. *I pray not for the World, but for them which thou hast given me.* Therefore he is dead for no others than for the Predestinates; for he is only dead for them he prayed for.

This is answer'd, 1. By a Distinction of the antecedent, *viz.* that he is dead for the sole Predestinates efficaciously, and for the other sufficiently. 2. By denying the Consequence, because it was not necessary that his Prayer should be of so great an Extent as, was his Death.

The third Question is, *If the sufficient Grace be given to all the Infants, even to those who die in the Womb of their Mother?*

Note, That the Grace called *sufficient*, can be taken in two Manners, 1. Properly for an Illumination of the Understanding, and a pious Motion of the Will. 2. In a wider Sense, for all Succours and Means sufficient to obtain our Salvation, which God had provided and would be applied.

2. That when it is asked, if the *Grace sufficient* is given to Infants who have not yet the Use of their Reason; by the *sufficient Grace* it is not to be understood that which consists in the Illumination of the Understanding, and in the pious Motion of the Will; but that which can be taken in a wider Sense, for any Succours sufficient to obtain Salvation, which God is willing they should be provided with. The Reason is, because Infants are not yet capable of the said Illumination and pious Motion. These pre-observ'd,

The Catholicks say, *that God provides sufficiently for Infants, not only for those who are baptized, but likewise for those who die before they have been baptized, even for those who die in the Womb of their Mother.*

They prove the first Part of their Assertion, *viz. that God provides sufficiently for the Infants who live to be baptized.* Because the Benefit of the Redemption is applied to them by Baptism.

They prove the second Part, *viz. that God provides sufficiently for Children who die without Baptism, through the Neglect of their Parents, which is the Cause that they were not baptized:* Because it is evident of itself, that God was not any Hindrance to their receiving the baptismal Grace. Whence the whole Fault seems to be laid on their Parents: As St. *Prosper, lib.* 2. *de vocat. gent. c.* 23. confesses, when he says, *that those Men of few Days belong to that Part of the Grace, which is always distributed to all Nations, of which if Parents would make a good Use, they would also be assisted by them.*

They prove the third Part, *viz. that God provides, likewise, sufficiently for those Children, who, without their Parents Fault and Neglect, die without Baptism; even for those who die in the Womb of the Mother.* Because, suppose that God wills as much as it is in himself, that all Men in general should be saved, and supposed that Christ is dead for all Men in general, it follows, that he has not only provided a sufficient Remedy for those Infants; but has likewise sincerely provided for the Application of that Remedy to them; for he that desires the Salvation of another, if he acts with Prudence, prepares him the sufficient Means, and takes Care that they should be applied to him, at least as much as it is in him; otherwise those Means had been prepar'd in vain; and that he has prepared for them a sufficient Remedy, and provided sincerely for the Application thereof to them, is evident from that he has instituted Baptism, and Ministers to administer it, as well for them as for others; and has commanded Parents and others to take Care to have their Children baptized; therefore, *&c.* — Notwithstanding that Baptism is not administer'd to those Infants, actually and in fact. Because it does not happen by any positive Decree of God, whereby he wills not positively, that Baptism should be administer'd to those Infants, but only by a negative or permissive one; or if it proceeds from some positive Disposition, as some imagine, it must be said, that such is that positive Disposition of God, as not to exclude on the Part of God, the Preparation of the Means, and the sincere Will of applying the Means prepar'd; but only to exclude the nearest Means or Power, and therefore some singular Benefit of God, which supposed a Means could be applied, and would be applied in fact, for Want whereof it is commonly said, that the Thing cannot be done; as St. *Augustin* insinuates it, *lib. de nat. & grat. c.* 8. in these Words, *But I say, that an Infant born in a Place where he could not be succoured by the Baptism of Christ, because prevented by Death; has been without Regeneration, because he could not be otherwise.*

From what they have said, it may be inferr'd, that God does not mind the Salvation of certain Infants by a special Providence and Mercy, whereby all Impediments are taken off; but only by a certain more general Providence. We ought not to enquire further, why he will not provide for all in a particular Manner, by taking off all Impediments? since nothing can be answered to it, but that such a Thing happens, according to the occult Direction of his divine Providence, the Judgments whereof are unsearchable, and the Ways unpracticable.

It may be objected, that a Guide or Tutor, who can save from an imminent Danger the Person he has under his Care, and neglects or will not do it, does not seem to provide sufficiently for his Security; but God is a Guide with Regard to all, and consequently with Regard to Infants, and can remove all the Impediments whereby Infants are hindered from coming into the World, and from receiving Baptism, and does not remove them; therefore he does not seem to provide sufficiently for them.

The Answer to this is, that the Reasoning would be just, if it was a Question of a particular Guide, but not when applied to a general one; that God being a general Guide, is not obliged, as such, to mind particular Things, so as to neglect the Care of all others, and cause them some Prejudice. Therefore, as a general Provider, he cannot prevent those Causes which procure the Death of the Infant, in the Womb of the Mother, without proving prejudicial to those natural Causes; for he is no less the Author of Nature than of Grace. Therefore, as general Provider, he ought not to cause any Prejudice to the natural Order of Things, to favour the Order of Grace; which notwithstanding does not hinder him, as special Provider, to do something in Favour of the State of Grace and Glory, to the Prejudice of the natural Order of Things.

Note, That before I leave this important Subject, which has been the Stumbling Block of some of the most profound Theologians, in all the Ages of the Christian Church, whose thorny Difficulties have puzzled those who seemed to have learn'd the Doctrine of Grace, in the School of the divine Author of Grace, and quenched their Thirst of that Knowledge in that very Torrent of Grace, which flowed from his sacred Side on the Cross; I must, without pretending to fathom the bottomless Depth of God's Judgments, to which they have had Recourse, when too closely pursued by their Enemies, make some Reflections of my own upon it. — Far from my weak Mind, and narrow Understanding, all Notions of Injustice and Partiality, when I reflect on God's incomprehensible

Conduct in the Distribution of his Grace; for I know this, if nothing else; that being the absolute Master of his Will, which it would be a sacrilegious Temerity to controul; and being indebted in nothing to his Creatures, he can bestow his Favours when he pleases, and to whom he pleases, without even the least Shadow of Injustice; since nothing that can be called a Favour, even among us Men, can be reckon'd due, otherwise it would not be a Favour. But God seems to have created us with no other View, than to make us the continual Objects of his Favours, since, according to our Manner of conceiving Things, he had decreed we should be so, before he had decreed we should be at all; *Let us make Man in our own Image*, says he, in the sublime Council of the supreme Wisdom, which is a signal Favour; then he created *Adam* from nothing, which is another Favour; he places him in the Garden, makes him the Sovereign and absolute Master of all other Creatures, which is heaping Favours upon Favours, Grace upon Grace; which being done from the very first Instant of Man's Creation, must have render'd God's Favours and Grace so natural to him, that if he consults his Reason alone, which of itself is a divine Favour, he'll imagine, that he has a certain Right to God's Grace: It is true, that by the Original Sin Man seems to have renounced or forfeited that Right; but then, as if some of the divine Attributes of the supreme Being, had also suffered by that Alienation, the Eternal Word was sent, to renew that Right, or rather that former Claim to God's Grace; and as our Disinheritance proceeds wholly from *Adam*'s Fall, and we were all equally guilty in him, without any of us could pretend to a lesser Degree of Guilt, we must then have been all (according to the Laws of distributive Justice, which is one of God's chief Attributes) restored to that Right or Claim, without Distinction or Exception; and if any Thing has been capable since to lessen that Claim in some of us, or to introduce a Difference among us, so as to give a greater Right to one to God's Grace than to another, it must be the actual Sin. But Infants in the Womb of their Mother, or newly born, or even before they can make Use of their Reason, are all in the same State of Unworthiness, without the least Difference, we were before the Grace of our Redemption had been applied to us by Baptism; why then are some of them called to that Benefit, by being suffer'd to be regenerated by Water and the Holy Ghost, and others, in the same State with them, entirely deprived of it? It cannot be said, that the one were more worthy of it than the other; because, besides that it is an Error to say that we can render ourselves worthy of a supernatural Grace, without the Assistance of another supernatural Succour, which is not to be found but in the Source thereof, Baptism; they are both equally reduced to an absolute Impossibility of acquiring the least Degree of Merit, either natural or supernatural, neither being capable to operate in any Manner whatever, and Merit, either natural or supernatural, not to be acquir'd but by Operation. It is true, that it is in the Power of God to make of one a Vessel of Ignominy, and of the other a Vase of Honour; but is that Distinction very agreeable to his infinite Bounty, in two Infants, neither of whom has contributed in the least to that Distinction? and if we were permitted to speak according to the Dictates of our Reason, of these incomprehensible Mysteries, where would be the Justice to form one with a direct Intention to make of him a Vase of Ignominy, and the other with the direct one of making him a Vase of Honour, when neither of them deserves that Fate, supposing always that no Body can be saved without Baptism? But if I was permitted to expostulate with the Almighty, who is a Source of Goodness and Mercy, and an inexhaustible Treasure of Grace (without having Recourse to those scholastical Distinctions of Grace, and to that sufficient Grace, which I cannot imagine to be sufficient with Regard to them) has he no other Blessing left for those unhappy Creatures, who have no Sin of their own? And must they be punished so severely for that of another; when the greatest Criminal, whose Life is nothing but a monstrous Texture of Disorders, and atrocious Vices, can still flatter himself with Hopes of Mercy? If we cannot fathom God's Judgment, why should we attempt to do it at all? And if we do, why should we be so barbarous, to set aside all his other Attributes, on Purpose to find only a severe Justice, divested of all Appearance of Mercy and Compassion? I submit my Judgment on this, as on all other Mysteries of our Faith, to the Decisions of the Church, as to Oracles dictated by the Holy Ghost; but as she has not yet pronounced dogmatically, on the Destination of Children dead without Baptism, and some of her Doctors have different Sentiments on that important Subject, the greatest among them having Recourse to God's unsearchable Judgments; I hope from his infinite Mercy, for those dear Infants, that he has some Means to save them, which our too great Curiosity in attempting to discover, has engag'd him to keep hid from us. Though I would not run any Risque, on that Uncertainty, but on the contrary, have always Recourse to those infallible Means the Church is possessed of, whereby their Salvation is surely accomplished, meaning Baptism; for my Supposition proceeds only from the Impossibility, sometimes, of using those Means.

The fourth Question is, *If the sufficient Grace be given to all the Faithful and Just?* Which the Catholicks answer in the Affirmative, against *Luther*, *Calvin*, the *Jansenists*, and others; proving their Assertion by the Scripture, Councils, the Fathers, and by Reason.

By the Scripture, 1 *Cor.* x. *But God is Faithful, who will not suffer you to be tempted above that you are able; but will also make that you may be able to bear the Temptation.*

By the Councils, particularly the second of *Orange*, *can.* 25. in these Words, *We believe, according to the Catholick Faith, that by the Grace received in Baptism, all those who are baptized, Christ co-operating and assisting, can and ought to accomplish, if they will work faithfully, all that belongs to Salvation.* Likewise by that of *Trent*, *Sess.* 6. *Can.* 11. where we read these Words, *No Body, though he be justified, ought to imagine himself free from observing the Commandments. No Body ought to use that temerarious Expression, fulminated with Anathema by the Holy Fathers, that it is impossible for a Man justified, to keep God's Commandments. For God commands nothing impossible; for he admonishes in commanding, and to do what you can, and to ask for what you can't do, and also assists you that you can*, &c. Whence, *Can.* 18. of the same Session, we have these Words, *If any Body says, that the Observance of God's Precepts is impossible, even for a Man justified, and in a State of Grace, let him be anathema.*

They prove it likewise by the Authority of the Popes, particularly Pope *Celestinus* in his Epistle to the Bishops of *Gaul*, *c.* 10. and *Innocent* X. who condemned in his Constitution, the first of the five Propositions, which his Successor declared to be of *Jansenius*, and which Propositions we have inserted at large at the Beginning of this Treatise.

They prove it by the Fathers, particularly St. *Augustin*, *lib. de nat. & grat. c.* 22. in these Terms, *When God, thro' the Mediator between God and Men, Jesus Christ Man, performs the spiritual Cure of the Sick, or vivifies the Dead, he never abandons, only he be abandon'd first.* Illustrating this Point, *c.* 26. of the same Book, by the Difference he makes between a Physician who cures a sick Person, and God who justifies the Impious. In that the Physician leaves his Patient when he is cured, but God does not abandon the Impious he has cured of his Iniquities, and recover'd to the perfect Health of Justice, till he be first abandon'd by him. He argues in this Place against the *Pelagians*, who admitted the Necessity of Grace, when we sin, and denied it to be necessary that we should not Sin.

They prove it by Reason, because there is more Occasion for the Faithful and Just to be assisted by God's Grace, than for the Sinners; which to understand in a clear and more accurate Manner, we must observe, that by the Name of Justice, is not understood here, that Justice properly called, which is between God and Man, but

but only Faithfulness. Notwithstanding that *Peter* fell because abandoned by Christ; because *Peter* had at least a remote sufficient Grace whereby he could obtain a greater Abundance of Grace; for he could pray to obtain it.

The fifth Question is, *If a sufficient Grace be given to all the Adults in actual Sin, and likewise to the Obdurates and Infidels?*

The Catholicks answer to the first Part of the Question, (*viz. If the sufficient Grace be given to all the Adults in actual Sin, and to the Obdurates*) in the Affirmative: And prove it by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, where God invites Sinners to return to him, *Matt.* xi. *Come unto me all ye that labour, and are heavy laden, and I will ease you.* Would not that Invitation be vain, if a sufficient Grace was not prepared for all? *John* i. *He is the true Light, which lights every Man that comes into the World.* St. Augustin, *lib.* 1. *de gen. cont. Manich. c.* 3. makes Use of this Text of Scripture to prove that Men can if they will, keep God's Commandments: For their Will is prepared by the Lord, if not of all efficaciously, at least sufficiently, otherwise the Discourse of St. *Augustin* would be ridiculous.

By the Councils, particularly the Third of *Valence*, who defines, that the Bad do not perish because they could not help it, but because they would not. And likewise by that of *Sens, decr.* 15.

They prove it likewise by the Fathers, particularly St. *Augustin* in several Places, but more particularly *lib. de liber. arb. c.* 19, 20. in these Words, Man has received wherewith to search piously and diligently if he would. And in all those Places where he says that God commands nothing impossible; and St. *Prosper, lib. de vocat. gent. c.* 4. 10. 16. & 17. where he says, *that the Saviour's Grace has not yet appeared to some Nations; notwithstanding which the Measure of a general Succour always offered to all Men is not denied.*

By Reason; because God calls sufficiently Sinners to Repentance; whence the Fathers take Occasion to say, that the Grace supposed which he gives to all, it is in their Power to return to God if they will. On which St. *Augustin* explains himself in a fine Manner, *lib.* 1. *retract. c.* 22. where he speaks thus, *Unless every one changes his Will, he cannot operate Good, which the Lord says in another Place, to be in our Power; where he says, or make a good Tree, and its Fruit good, or make a bad Tree and its Fruit bad; which is not against the Grace we preach, for it is in Man's Power to change his Will into a better; but that Power is null unless it be given from God.* And what he has on *Psalm* lxiv. *Have you no Room and no Time to reform your Conduct, and change your bad Life into a good one?* Cannot that be done To-day if you will? Can't it be done now if you will? This is confirmed from that the Apostle praises on this, the Patience and Benignity of God. *Rom.* ii. where he speaks thus, *Or despisest thou the Riches of his Goodness and Forbearance, and long Sufferings, not knowing that the Goodness of God leads thee to Repentance? But* (says St. *Augustin* in *Psalm* ciii.) *why so indulgent, why so merciful? He sins and lives; the Sins increase, the Life is lengthned: He is blasphemed every Day, and he makes his Sun shine on the Good and Bad: He calls from all Sides to an Amendment, he calls to Repentance, he calls to the Benefits of the Creature, he calls by giving Time to live, he calls by Instruction, by inward Thoughts, by the Rod of Correction, by the Mercy of Consolation.*

I have said *even to Obdurates*, because the Authorities of the Fathers already quoted seem to insinuate it: Whence St. *Prosper, in resp.* 15. *ad object. vincent.* says, *that God deprives no Body of the Way of Correction, nor divests any Body of the Possibility of doing Good.* If some Objections are made, they can be easily resolved by saying, that they only shew that the more efficacious Power or Grace is wanted, but not a remote Power, nor a sufficient Grace. It may be objected against what we have just now said of the *Obdurate*, that Obduration imports the Substraction of either Grace; and therefore no sufficient Grace is given to the Obdurates.

The Catholicks answer, that an absolute Obduration, if there is such a Thing, supposes the Substraction of all Sorts of Grace, but not an imperfect Obduration. Which can be rendered evident by the Example of a darkened Sky; for it is either absolutely darkned, as in a very dark Night, when it is neither lighted by the Sun nor by any other luminous Body, or is only darkned in Part.

They answer to the second Part of the Question, *that a sufficient Grace is given to all Infidels, as well to them who are Infidels of a negative Infidelity*, viz. *who have never heard the Predication of the Gospel, or have not refused to hear it; as to those who are Infidels of a positive Infidelity*, viz. *who have already heard the Predication of the Gospel, or will not hear it.*

The Catholicks prove this particularly as to those who are Infidels of a negative Infidelity, by the Fathers being of that Sentiment, particularly St. *Augustin* in *Psalm* xix. where he speaks thus, *And there's none hid from his Heat. For as the Word is made Flesh, and has dwelt within us, taking our Mortality he has not permitted that any one could excuse himself on the Darkness of Death, since his Heat has penetrated it.* Likewise St. *Prosper, lib.* 2. *de vocat. gent. c.* 31. says, *That not only in the earliest Times, but also in the succeeding Ages, the Grace of God has always been offered to all Men in general, through an equal Providence and general Goodness, but in several different Manners, and in a different Measure.* Whence St. *Thomas* concludes thus, *quæst.* 14. *de verit. art.* 11. *If any Body, brought up in Forests or among Brutes, was to follow the Dictates of his Reason, in operating Good and avoiding Evil, we must certainly believe that God, either by an inward Inspiration, would let him know what he ought to believe, or would send some Body to instruct him, as he sent Peter to Cornelius the Centurion*, Acts x.

It will be asked in this Place, if what we have said of the Infidels may be applied to the *Jews?* Which I answer in the Affirmative, for the Reasons above alledged with Regard to the Infidels.

Note, That this Question of the Infidels seems to me to be attended with some very great Difficulties, which would appear incomprehensible to a Christian, who knowing no more of his Religion but what is absolutely necessary to lead him into the Road to Heaven; and having been instructed, that that Road is not to be found but through *Jesus Christ*; that it is impossible to know any Thing of *Jesus Christ* but by means of the Predication of the Gospel, could scarce be persuaded, even by a St. *Augustin* or a St. *Thomas*, that the *Americans* for Example, some of whom have never heard yet any Thing of the Mysteries of the Christian Religion, and those who are dead before the Discovery of that Part of the World, who thereby were reduced to an almost physical Impossibility of knowing any Thing of *Jesus Christ*, or of his Gospel, had a *sufficient Grace*; for if they had had that sufficient Grace, it is not even probable, that for so many Ages, and amidst so great a Multitude of Men, there could not have been found some who followed the Dictates of their Reason, as to doing Good and avoiding Evil; and if we believe St. *Thomas*, a Man living thus had learned by Inspiration the Principles of Christianity, or God had sent some apostolical Man to instruct him, though we hear of none before the Discovery of that Country by the *Spaniards*; for History has took Care to inform us of the Destination of every one of the Apostles when they were sent to preach the Gospel; and we do not learn from it, that either of them, nor even any of their Disciples, were sent into that, then unknown World; he that went furthest was St. *Thomas*, and he terminated his Mission in what we call the *East-Indies*. As for their having learned the Principles of Christianity by a divine Inspiration, the first Missionaries who were sent thither inform us in their Relations, that the *Americans* were so far from having even the least Tincture of it, that they were not tractable on that Subject, and that it was even impossible to make them believe the least of the Christian Truths; even now that by their long Commerce with the *Europeans* they have been better civilized, it is the most difficult Thing in the World to make a Proselite among them. This cannot be attributed to their neglecting to follow the Dictates of their Reason, as to doing Good and avoiding

ing Evil; since for the Generality, their Morals are as good as could be expected among Christians; notwithstanding which they don't come to the Knowledge of the Truth, without which no Salvation is to be expected, since according to the Apostle, there is but *one Christ, one Faith, and one Baptism*; and according to Christ himself, *He who believes shall be saved, and he who does not believe shall be condemned.* For these Words are so positive that they admit of no Interpretation: Therefore, with Submission to the Decisions of the Church, we should also in my Opinion, have Recourse in this Case to the Incomprehensibility of God's Judgments, without amusing ourselves to search what is not to be found, and to prove what is not to be proved by a human Understanding: For to pretend on the other Side, that God finds other Means to save those Nations than by the Faith in Christ, on this trite and misunderstood Text, that there is a Remnant of all to be saved, is a formal Contradiction of the Scripture.

Note, also, That from the Questions on the sufficient Grace, I'll pass to the chief Point of this Treatise, which has caused so much Controversy in the Church, from *Pelagius*'s Time to ours, which has never been quite decided, and perhaps never will; I mean the *efficacious Grace*: Therefore,

The first Question on this important Subject is, *If there is an efficacious Grace distinct from the sufficient; and what it is, considered either* in actu primo, *or* in actu secundo?

Note, That it is a Question here of the *efficacious Grace* properly taken, *viz.* as distinct from that Grace simply sufficient, we have heretofore treated of.

2. That the *efficacious Grace* thus taken, may be considered in two Manners, *viz.* either *in actu primo*, or *in actu secundo*.

3. That it is a Question here, chiefly of the *efficacious Grace* considered *in actu primo*, and not of the *efficacious Grace* considered *in actu secundo*: Which, every Body agree, includes the Consent of the Will. These pre-observed.

I answer, that the *efficacious Grace* considered *in actu primo*, can be defined *a supernatural Motion, which has a certain particular Faculty of inducing the Will to consent to God.* By the two first Particles the Genus of this Definition is expressed, and the Difference by the others.

It is said, 1. A *supernatural Motion*, either because it is a certain Species of the exciting and preventing Grace; or to insinuate, that in this it agrees as in a common Genus with the sufficient, from which notwithstanding it differs widely, as we'll see in its proper Place.

It is said, 2. *Which has a Faculty to induce the Will to consent to God*; because it has the Faculty of inducing the Will to that Consent always, certainly, infallibly, insuperably, indeclinably, to use the Words of St. *Augustin.* And in this it is sufficiently shewed that this *efficacious Grace in actu primo*, differs from the Grace simply sufficient, which, though it has the Faculty to excite the Will to consent to God, meets notwithstanding with Opposition from the Part of the Will.

It is said, 3. Of *inducing the Will*; to give to understand that such a Grace does not force or necessitate the Will to consent, but entices it, pushes it, so that notwithstanding the Will consents always, though absolutely speaking he could refuse to consent. Whence St. *Augustin, lib. de grat. & lib. arbit. c.* 5. calls it *a Grace of Congruity.*

I answer, 2. That the *efficacious Grace*, considered *in actu secundo*, can be defined *a supernatural Motion whereby Man consents in fact and is converted, and is joined with his Consent.*

This Definition wants no further Explication; since it can be easily enough understood from the Definition given of the *efficacious Grace in actu primo.* The sole Difference between both Definitions is, that the former explains the Nature of the efficacious Grace, as it is something antecedent to the Action; and the latter explains the same Grace as something joined in fact with its Effect, *viz.* with the Consent of the Will.

I answer, 3. *That there is an efficacious Grace simply distinct from the sufficient*; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Ezek.* xxxvi. *A new Heart also will I give you, and a new Spirit will I put within you, and I will take away the stony Heart out of your Flesh, and I will give you a Heart of Flesh, and I will put my Spirit within you, and cause you to walk in my Statutes.* John x. *Neither shall any pluck them (my Sheep) out of my Hand.*

By the Fathers, particularly St. *Augustin*, in several Places against the *Pelagians*, but particularly *lib. de predest. sanct. c.* 8. *This Grace*, says he, *which through the divine Liberality, is secretly granted to human Hearts, is refused or rejected by none; and it is given to take away first the Hardness of the Heart.* Likewise, *lib. de correp. & grat. c.* 12. in these Terms, *It is supplied to the human Infirmity, that it should be moved indeclinably, and insuperably by the divine Grace, that though it is infirm, it notwithstanding should not faint away, or be conquered by some Adversity.*

By Reason, because a Grace is given which has some special Faculty of reducing the Will, certainly, always, irresistably, *&c.* to give its Consent to God exciting and moving; therefore there is an *efficacious Grace in actu primo.*

This is confirmed by the Prayers of the Church asking of God, *that he be pleased to compel propitiously the Wills, and to grant that what we ask sincerely, we may obtain it efficaciously.*

Our second grand Question is, whence Grace borrows its Efficacy; *whether*, v. gr. *from that it determines physically the Will, according to the Sentiments of the Thomists, or from the Will's Consent, as the Molinists will have it, or from any other Chief, and which?*

Note, That before we answer this important Question, I must give in this Place some general Ideas of the *physical Premotion* of the *Thomists*, on which the *Jansenists* build their whole System of the Grace efficacious by itself.

Physical Premotion, with Regard to a created Will, is that Act of God whereby the created Will is applied to some particular Good, and consequently drawn from Evil; or to explain it in a clearer Manner, it is the Act whereby God produces in a created Will the Love of some determinated Good, together with a Hatred for the Evil opposed to it. For, say the *Thomists*, God moves no otherwise a created Will, but by operating in it the Love of God, whence follows the Hatred of Evil. Whence it appears, that *that* special Premotion of God relates only to Acts of a supernatural Order; and that it differs in no Manner from the *victorious Grace* and *efficacious* by itself: For in this, say they, consists the *Grace efficacious* by itself, from St. *Augustin, lib. de spirit. & litt. c.* 29. *That God, through the infinite Suavity of the Grace by the Holy Ghost, makes that what he commands is more delectable than what he forbids.* Or which is the same, produces by his Grace physically and inwardly in our Mind, a certain agreeable Delection, and together moves in a particular and supernatural Manner, our Will towards loving what he commands, and hating what he forbids. These pre-observed.

I answer to the Question, *That the efficacious Grace does not determine physically the Will to give its Consent to God exciting it, and consequently ought not to be said efficacious, because it determinates physically our Will.* Which I prove by the Councils, the Fathers, and by Reason.

By the Councils, particularly that of *Trent, Sess.* 6. *c.* 5. where it is said, that Man can reject the Inspiration of the Holy Ghost, whereby he touches the Heart. And *c.* 4. those are fulminated who affirm, that the Free-Will, moved and excited by the Grace of God, co-operates in nothing but consenting to God exciting or calling, and that he cannot dissent if he would. Whence I argue thus; Our *efficacious Grace* is not the physical Premotion of the *Thomists*, nor takes its Efficacy from it, if Man can resist to the said *efficacious Grace* if he would, and cannot resist if he would to the physical Premotion of the *Thomists*; but Man can resist if he will to that efficacious Grace, and cannot resist if he would to the physical Premotion of the *Thomists*, as it will apppear by the Sequel: Therefore it is a Sign that our *efficacious Grace* is not the physical

physical Premotion of the *Tomists*, nor borrows its Efficacy from it.

By the Fathers, particularly St. *Augustin*, who is very far from admitting that physical Premotion, since he places the efficacious Grace in a certain moral, or sweet Persuasion and Induction, and congruous Vocation, especially *lib. de spirit. & liter. c.* 22. where he speaks thus, *What have you that you have not received? Therefore, likewise, the Will whereby we believe, is considered as a Gift of God, because it exists in the Free Will, which we have received in our Creation: And let him consider and see that that Will is not entirely to be attributed to God's Gift, because proceeding from the Free-Will, which has been created with us; but likewise, that God does by good Persuasions, that we will and believe; either outwardly by evangelical Exhortations; where the Precept of the Laws operate something, if still they admonish Man of his Infirmity, to induce him, by believing, to have Recourse to the justifying Grace: Or inwardly, where no Body has it in his Power, that it should come into his Soul, but it belongs to the Will to give consent or not.*

By Reason, because that exciting and preventing Grace, which is efficacious, *in actu primo*, does not necessitate the Will to consent to God calling and exciting; but it is very difficult to explain how the physical Premotion does not necessitate the Will. Since that is supposed to necessitate, which admitted, the Will cannot act; but the physical Premotion admitted the Will cannot act, as the beatifick Vision admitted, it is impossible the Will should not love God thus intuitively seen: Therefore the physical Premotion admitted, it is almost impossible to explain how the Will is not necessitated to act, as the beatifick Vision admitted it is necessitated to love God. For is not that physical Premotion something antecedent, and taking off the Undetermination of the Will, as the beatifick Vision is something antecedent? Notwithstanding what the *Thomists* say to the contrary, *viz.* that their physical Premotion, takes off only *in sensu composito*, the Indifference and Undetermination of the Will; for though the clear Vision of God, takes off only *in sensu composito*, and not *in sensu diviso*, the Indifference and Undetermination of the Will, it notwithstanding, does not cease from being said to be necessitated to love.

This is confirm'd from that the physical Premotion, which the *Thomists* call virtuous Motion, and in which they place the Reason of the Efficacy of *Grace*, is only received passively in the Will, as they express themselves, but the efficacious Grace is a vital Act, *viz.* a certain Cogitation of the Understanding, and a pious Affection of the Will, in which the Understanding as well as the Will, concurs in the Genus of a physical Cause; as it appears from St. *Augustin*, explaining in several Places the efficacious Grace, by the vital Acts of the Understanding and Will, and more particularly, *lib.* 2. *de peccat. merit. & remis. c.* 17. where he speaks thus, *Men will not do what is just, either because it does not appear if it be just, or because it does not please; for every one will desire it with a greater Vehemency, or Ardour, the more we are certain that it is good, and we take a greater Pleasure in it. Therefore Ignorance and Infirmity are Vices which hinder the Will from being moved to do Good, or to abstain from Evil. But that what was hidden may be known, and what pleased may be saved, it is a Grace of God, which assists the Will of Men.*

It may be added, that the Grace physically predeterminating, is defended by the *Thomists* as necessary in all States, since they defend it necessary as well in the State of Innocency, as in that of Nature fallen. But to shew this, they take its Necessity, not so much from the Part of the Infirmity of Nature, as from the Part of the Faculty of the first Cause, to which it pertains, say they, to premove the second Causes, and from the Part of the Indifference of the Will, which must be determined by the first Cause. But how much this is foreign to the Sentiment and Doctrine of St. *Augustin*, is evident from that St. *Augustin* is of Opinion, that the efficacious Grace was necessary neither to Man in the State of Innocence, nor to the Angels themselves, to make their Will pass from the first to the second. It removes from them the Succours *quo*, or *wherewith*, and attributes only to them the Succours *sine quo*, or *without which*, i. e. a sufficient Succour. For he believes, that Man before his Fall, had the same Succours the good Angels had; though the first Man fell with it, and the good Angels persevered; as it appears from *lib. de correp. & grat. c.* 10.

I answer, 2. That *the efficacious Grace*, in actu primo, *does not borrow its Efficacy from the Consent of the Will*, or, *which is the same Thing, the Grace is not efficacious* in actu primo, *from that the Will gives its Consent, to God calling and exciting*, according to the *Molinists*. Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, insinuating that Grace is efficacious from itself, and not from the Consent of the Will. *John* vi. *Every Man therefore that has heard, and has learn'd from the Father, comes unto me.* Whence it appears, if any Body, who is called, consent to it, that's rather to be attributed to the Vocation than to the Will. *No Man can come unto me* (says Christ, in the same Place) *except the Father which has sent me, draw him.* To be drawn to Christ, must be taken from the Part of him that draws. Whence it is said, *Rom.* ix. *It is not of him that willeth, nor of him that runneth, but of God which sheweth Mercy.* And *Phil.* ii. *For it is God which works in you, both to will and to do of his good Pleasure.* But if he works in us both the Will and the Doing, the Consequence is, that our Will is especially from God, by some Grace distinct from that which gives only the Power. Likewise, 1 *Cor.* iv. *For who makes thee to differ from another? and what hast thou that thou didst not receive? now if thou didst receive it, why dost thou glory as if thou hadst not received it?* From this Text I argue thus. — If Grace's Efficacy proceeded from the Co-operation and Consent of Man, Man would have something to distinguish him from another, *viz.* from him who having a semblable Grace, would not consent to it, as we may infer from St. *Augustin*, *lib.* 2. *de peccat. merit. c.* 18. And *lib.* 2. *ad Bonif. c.* 1. but he has no such Thing. Therefore, *&c.*

I prove it by the Fathers, particularly St. *Augustin*, in several Places of his Works, where he teaches, that this proceeds from the Grace of God, and not from the Free Will, that a Heart is softened; which Grace is never rejected by any Heart let it be ever so hardened, *lib. de correp. & grat. c.* 12. and 14. and *lib. de prædest. sanct. c.* 8.

By Reason, because if the Efficacy of Grace proceeded from us, and the sole Sufficiency from God, it would follow hence, that what is the most essential in a Conversion, and holy Affection, should be attributed to us, and to Grace what is the least essential; but this is contrary to the Scripture and to the Fathers, therefore that whence it follows is not to be admitted.

Notwithstanding, 1. Several Places of the Scripture, from which it seems, could be inferred, that God expects our Consent to render Grace efficacious. As for Example, *Rev.* iii. *Behold, I stand at the Door and knock, if any Man will open the Door*, &c. And *Zach.* i. *Turn you unto me, and I will turn unto you.* Here he seems to wait for Man's Consent, as if it was the Property of Man to open the Door when God knocks, and thus render his Grace efficacious, as it is the Property of God to prevent us by knocking, and exciting by his preventing Grace: Notwithstanding, say I, these and other Places of the Scripture, for it can only be inferred from them, that in the Affair of our Conversion and Justification, the Consent of our Will is requisite, but not that it is requisite to render the Grace efficacious, *in actu primo*. For Example, Is not a Remedy efficacious, *in actu primo*, and capable of restoring the Sick to his former Health, previously to his taking it, tho' it does not actually recover him, unless he actually takes it?

Notwithstanding, 2. Certain other Passages of the Scripture, in which the Lord upbraids his People because they would not be converted by a true Repentance, *Isa.* v. *What could have been done more to my Vineyard, that I have not done in it? wherefore when I looked that it should bring forth Grapes, it brought forth wild Grapes.* And *Matt.* xxiii. *O Jerusalem, Jerusalem, thou that killest the Prophets, and stonest them which are sent unto thee, how often would I have gathered thy Children together, even as a Hen gathers her*

her Chickens under her Wing, and ye would not: Notwithstanding, say I, these and the like Passages of the Scripture; for they do not shew that God had given them *efficacious Graces*, the Efficacy whereof depended on their Will, but only sufficient Graces, with the Assistance whereof they could have converted themselves to God, and even greater Graces than those he had given to several others: And because they made no use of it as they should have done, God reproaches them with the Hardness of their Heart, and their Negligence.

Notwithstanding, 3. That the Will can resist the *efficacious Grace* and reject it, according to the Doctrine of the Council of *Trent*, *Sess.* 6. *c.* 5. & *c.* 4. since it cannot be inferred hence that it rejects it, its being such of its Nature, as to engage certainly and infallibly the human Will to consent, or it can be inferred to the utmost, that the Will can render efficacious *in actu secundo*, a Grace which is supposed *efficacious*, but not render it inefficacious.

I answer, 3. *That the preventing Grace is efficacious in actu primo, as it being such formally, from some special Congruency, Aptation, Contemperation of his, with the Will of him who is called and excited*; because from that *Congruency* and *Aptation* the calling and exciting Grace borrows its Power to incline the Will insuperably and indeclinably, to consent freely to God thus calling and exciting, and this can be evident from Scripture, and the Fathers.

From the Scripture, *Heb.* xiii. *The God of Peace make you perfect in every good Work to do his Will.*

From the Fathers, particularly St. *Basil, homil.* 3. *in hexam.* towards the End, where he says, *That God gives us all a Strength appropriated to the Knowledge of his Truth.* And from St. *Augustin* in several Places, but more particularly, *lib. ad simpl. q.* 2. *We are called*, says he, *in that Manner it was proper to call those who have followed their Vocation.* And *lib. de dono. persev. c.* 14. where he speaks thus; *Whence it appears that some have naturally in their Mind a divine Gift, whereby they are moved to Faith, if they apply that Mind, either to hear the Word, or to see the Signs.*

It is proved also by Reason, because the efficacious Grace given to Man, is as a Medium ordained towards this End, *viz.* to induce surely, infallibly, indeclinably Man's Will, to give Consent to the Vocation of God, and therefore must consist in that Consent; since generally speaking that which is a Medium appropriated towards obtaining something infallibly, if it be considered formally as such Medium or Means, it must be considered in some Appropriation of it, to the Object to which it is given, and to that End it is ordained for.

If I be asked, *which is that inward Virtue whereby Grace is rendered formally efficacious by itself in actu primo?* I'll answer, that it is nothing else but a certain Suavity, or victorious Declaration which is in the undeliberate Act of the Understanding and Will, and which causes that the efficacious Grace, the Entity whereof consists particularly in its Acts, has the Power to produce surely and infallibly a free Consent of the Will. This Answer is founded on the Manner of speaking of the Scripture, *viz. Psalm* lxxxv. *The Lord shall give that which is good, and our Land shall yield her Increase.* Psalm xxi. *For thou prevented him with the Blessings of Goodness.* St. Augustin, *lib.* 2. *de peccat. mer. c.* 17. By *that which is good* understands Grace, and says in the same Place, that Grace is given to cure the Vices of our Natures, *viz.* to cure our Ignorance and Infirmity, and that it cures those two Vices, by illuminating with Suavity our Understanding, and pleasing our Will. And *lib.* 2. *ad Bonif. c.* 9. he understands by the Blessing of Sweetness, the Grace of Christ.

It may be asked besides, why God moves thus our Will, by that Suavity and Delectation, to give Consent to his Calling? To which I answer, that nothing is more convenient than the Will to be moved and excited to Good, in the same Manner it is moved to Evil: But Man is moved to Evil and excited to Sin by a terestrial Suavity and Delectation; therefore nothing is more convenient than he should be moved to Good by a celestial Suavity and Delectation.

Note, That from what we have already said, may be inferred the Conciliation of the *efficacious Grace* with the Free-Will; because the aforesaid moral Premotion which renders Grace formally efficacious, does not take off the Indifferency of the Will, nor hinders the Will from determining itself to act; but induces with Suavity the created Will to give freely its Consent to God calling and exciting; therefore, &c. notwithstanding what St. *Augustin* says, *lib.* 1. *de grat. Christ. c.* 47. that Conciliation is very difficult to explain, because that Difficulty is not an Obstacle to the Agreement which is between the Grace and the Free-Will, even in St. *Augustin*'s Opinion, as it may be inferred from the Passages of his Works already quoted.

From this I'll pass to the Necessity of Grace in every State Man has been, is, or could be in; but before I speak of this Necessity, I must say something of those different States, as well of those which are supposed to exist or to have existed, as of those which have never been, and of which it is asked, if they can exist, or could have existed. Inquiring first what is understood by the Name, State, and how many Sorts of States there are.

Note, First, that *State* may be considered in three Manners, 1. As it is considered in the Civil Law, and thus it is a certain Condition of Man according to which he is either entirely independent, or free, or a Slave. 2. As it is considered in the Canon Law, and as such signifies a certain Manner of living, to which a Man is tied with an indissoluble Knot, such is the ecclesiastical State, or the monastick Life among the Catholicks, or that of Matrimony. 3. As considered by the *Theologians*, and thus is a certain Condition of human Nature with Regard to the last End.

2. That it is only a Question here of the *State* as taken by the *Theologians*, how many Sorts there are of those States, and how they are sub-divided. These pre-observed.

I say, 1. *That there are generally two Sorts of States, as State is taken by the* Theologians, viz. *the State of the Way, and the State of the Term*; because the Conduct of human Nature is different in this Life with Regard to the last End, from that after Death.

I say, 2. That there are three States of the Way, and two of the Term, according to those who differ from the Church of *Rome*, and three according to that Church.

There are three States of the Way, *viz.* 1. The *State of the original Justice*, in which our first Parents were created. 2. The *State of Nature fallen*, but repaired by Christ, which is our present State. 3. The *State of those confirmed in Grace*, which was that of the Apostles, after they had received the Holy Ghost.

There are two *States* of the Term, *viz.* 1. The *State of an eternal Felicity*; 2. The *State of eternal Damnation*; and a Third, according to the *Roman Catholicks*, which they call, the *State of those who are in Purgatory.*

I may be asked, if besides the above-mentioned *States* of the *Way*, and of the Term which exist actually, or have existed, there are not others which are possible? I'll answer in the Affirmative, because, besides those States, there are three others possible, *viz.* 1. The *State of pure Nature*, which is that in which Man would have Perfections and Imperfections which follow Nature, without any supernatural Gift, or Direction towards a supernatural End; or which is the same, the *State of pure Nature*, is the Condition of human Nature considered without Grace and without Sin. 2. The *State of sound Nature*, which is that in which the superior Part would be subject to God, and the inferior Part subject to Reason, through Succours of a natural Order, but not due to Nature; for thus they would follow the State of pure Nature, but gratuite, though pertaining to the Integrity of Nature, since with them she would operate according to Reason. 3. And the *State of fallen Nature*, but not repaired, which had been that of Man after *Adam*'s Sin, if God had not provided a Remedy for it.

It may be asked, 1. If, and how the *State of pure Nature* differs from the *State of Nature fallen?* To which I answer, that those two States differ among themselves, as Negation and Privation differ among themselves. For all that the *State of fallen Nature* supposes

poſes, it ſuppoſes it by manner of Privation, which is commonly defined by Philoſophers, the Abſence or Want of Form, in a Subject capable of it: But what the *State of Nature fallen* ſuppoſes, it ſuppoſes it by manner of Negation, which is commonly defined the Abſence or Want of Form in a Subject inept, and to which the Form, which is ſuppoſed abſent, is not due. Both may be eaſily made evident: For the *State of Nature fallen* ſuppoſes the Want of original Juſtice, by manner of a Pain depriving, becauſe, the Sin abſtracted, it was due to it. That Want is followed by Ignorance, Concupiſcence, Maladies, and an infinite Number of other Miſeries, and by Death itſelf. But in the *State of pure Nature*, though all theſe Things would be found, they would not be in it by manner of a Pain depriving it of ſomething due to that State, ſince neither Juſtice, nor being free from all thoſe Incommodities would be due to it, and would not be loſt by the Sin of Man, nor the Want of original Juſtice would be a Sin.

It is aſked, 2. If the State of pure Nature be poſſible, or which is the ſame, if Man could have been, or could be created wanting original Juſtice, and having Ignorance, Concupiſcence, Maladies, and the other Miſeries, and even be obliged to die, though he had not contracted the original Sin? Which I anſwer in the Affirmative, according to St. *Thomas*, *Scotus*, *Cautanus*, and ſeveral others; becauſe that Integrity and Righteouſneſs, in which the firſt Man was formed, was not due to his Nature, whence it is not ſurprizing if we ſay that God could have formed him without it.

This is confirmed by the Authority of the Popes, who have condemned ſeveral Propoſitions contrary to my Anſwer, and particularly this fifty fifth of *Michael Baius*, conceived in theſe Terms; *God could not create from the Beginning, Man, ſuch as he is at preſent*; which Sentiment of *Baius* was alſo that of the *Manicheans* refuted by St. *Auguſtin:* Who ſuppoſes, that a Soul could have been created before the Sin, ſuch as it is made after it. The *Manichæans* maintained particularly, that if a pure Nature was created, all its Sins would be attributed to God as to the Author thereof; but St. *Auguſtin* ſays on the contrary, that if a Soul thus created would refuſe to acquire, by Study and Circumſpection, Wiſdom and Repoſe, it would juſtly be accounted culpable of Sin, in that it had not made a good Uſe of the Faculty it had received. The *Manichæans* maintained beſides, that it would be unjuſt in God to create a Creature with Ignorance, and all the other Miſeries heretofore mentioned, without any previous Sin on the Part of the Creature: But St. *Auguſtin* ſays, that far from ſuch a Creature ſhould have room to complain of God's Injuſtice, ſhe, on the contrary, would have Cauſe to return Thanks to God for having received from him a very conſiderable Good.

With Regard to the *State of Nature fallen, and repaired*, it is aſked, 1. *What is that State of Nature fallen, and for which Reaſon it is to be pitied?*

I anſwer, 1. That by the State of Nature fallen, is to be underſtood that State of *Adam* after his Sin, and likewiſe that of all his Deſcendants as ſoon as they are conceived, except Chriſt, and his bleſſed Mother the Virgin *Mary*.

I anſwer, 2. That *that* State is to be deplored for ſeveral Reaſons, 1. Becauſe Man's Nature has been corrupted by *Adam*'s Sin. 2. Becauſe the Underſtanding has been darkned, as St. *Auguſtin* declares, *lib.* 3. *de lib. arbit. c.* 19. 3. Becauſe the Will has been alienated from God, as the ſame Doctor inſinuates, *lib.* 2. *de peccat. mer. c.* 22. 4. Becauſe the inferior Appetite revolts againſt the ſuperior. 5. Becauſe in that State Man is ſubject to a great many Miſeries, and to Death.

It is aſked, 2. *What is the State of Nature repaired?* To which I anſwer, that by the State of Nature repaired, is underſtood that State in which, through the Merits of Chriſt, Man is regenerated, is delivered from the original Sin, but not from all Infirmities, and receives ſeveral Benefits from God; which Benefits are, 1. The ſanctifying Grace, whereby Infants are delivered from the original Sin. 2. The efficacious Grace, given not only to receive a ſalutary Goodneſs, but likewiſe to perſevere in it. 3. A ſufficient Succour granted to all.

I may be aſked if, and what Infirmity remains in that State? And I'll anſwer, that there remains in it not only the Concupiſcence, but likewiſe the Maladies, and all the other Infirmities of the Body.

Our next grand Queſtion is, *If in the State of Nature fallen and repaired, the actual Grace be ſo abſolutely neceſſary to know the Truth, as to be impoſſible to know it without that Grace?*

Note, 1. That there may be conſidered two Sorts of Truths, one natural, and the other ſupernatural. The natural, is that which without any particular Revelation of God, may be known by a human Underſtanding, by means of his Senſes, becauſe it has a Proportion and Commenſuration with the natural Faculty of the Underſtanding. But the ſupernatural is that, the Knowledge whereof human Underſtanding cannot acquire by the ſole Strength of his Nature, as the Truth of the Trinity, of the Incarnation, *&c.*

Note, 2. That both the aforeſaid Truths can be conſidered in two Manners, *viz.* as ſpeculative or as practical. That that is commonly called ſpeculative, which repoſes itſelf in the Knowledge of its Object, and does not proceed to Action: Such is the Knowledge of the Myſtery of the Trinity. But the practical is that which does not remain in the ſole Cognition, but proceeds to Action.

Note, 3. That Truths, either natural or ſupernatural, may be conſidered together, or ſeparately: They are known together when they are conſider'd together; and diſtributively when every one of them is known apart.

Note, 4. That the cognoſcitive Power may be conſidered either as phyſical or moral. That is called phyſical, which ſuppoſes an Adequation and Commenſuration of the cognoſcitive Faculty, with the Object to be known. And that is called moral, which preſuppoſes the Impediments, whereby the Perception of the Object is hindered or taken off. For Example, the active phyſical Power with Reſpect to reading all the Pages, Lines, and Words of ſome Book which it can read. Theſe pre-obſerved,

I anſwer firſt to our grand Queſtion, *that in the State of Nature fallen Man can, without an actual Grace, know ſome natural Truths as well practical as ſpeculative; but not all, or together, or diſtributively taken.*

I prove the firſt Part, *viz. that Man can, without Grace's Aſſiſtance, know ſome ſpeculative natural Truths*, by the Scripture, the Fathers, and by Reaſon.

By the Scripture, *Rom.* i. *For the inviſible Things of him from the Creation of the World are clearly ſeen, being underſtood by the Things that are made, even his eternal Power and Godhead; ſo that they are without Excuſe, becauſe when they knew God, they glorified him not as God.*

By the Fathers, ſaying that this Paſſage of St. *Paul* to the *Romans*, is to be underſtood of a natural Knowledge; which is the Sentiment of *Tertullian*, *Apolog. c.* 7. *This is the Height of the Guilt of thoſe who will not know what they cannot be ignorant of.*

By Reaſon, becauſe it is known by Experience, that Philoſophers by their ſole natural Strength, knew ſeveral ſpeculative natural Truths, according to *Tertullian*, *lib. de anim. c.* 2. Add, that for ſome Object to be naturally known by the Underſtanding, it ſuffices that ſuch an Object ſhould naturally imprint on our Senſes a Species repreſentative of itſelf. 2. That our underſtanding acting could produce an intelligible Species repreſentative of that Object. 3. That our Underſtanding could have the natural Faculty of producing a Cognition through Means of the imprinted Species. But theſe are all naturally poſſible to Man, in whatever State he may be conſidered, either of Innocence or of fallen Nature; therefore, *&c.*

Notwithſtanding this Paſſage of the Apoſtles, 2 *Corint.* iii. *Not that we are ſufficient of ourſelves, to think any Thing as of ovrſelues*, &c. Becauſe this Text is only to be underſtood of that which belongs to Salvation, but not of any natural Truth whatſoever.

I prove the ſecond Part, *viz. that Man by his natural Parts, without any particular Succour of God, can know ſome natural practical Truth*; by the Scripture, the Fathers, and by Reaſon.

By

By the Scripture, *Rom.* ii. *The Nations which have no Law, do by Nature the Things contained in the Law, these having not the Law, are a Law unto themselves*, &c.

By the Fathers, particularly St. *Augustin, lib.* 10. *confess. c.* 6. where he speaks thus: *The Heaven and the Earth, and all Things which are in them, tell me to love thee, and tell it continually to all, that they may be inexcusable.*

We must observe here, that St. *Augustin* distinguishes two Sorts of Love of God, *viz.* a supernatural one, which proceeds from Grace, and which he insinuates in these Words, *Thou hast stricken my Heart with the Word of thy Virtue, and I have loved thee.* Another natural, to which the Heaven and Earth, and all Things which are in them invite, *They tell me every where*, says he, *that I must love thee.* Notwithstanding which he gives us to understand, that this last Sort of Love, cannot serve for our Salvation, unless he provides to it in a superior Manner.

I prove it by Reason, because the Understanding can no more judge naturally that a good Action is to be done, than the Will can naturally do an act supernaturally good; which it cannot do; therefore, *&c.*

Notwithstanding this Passage, *Gen.* vi. *And the Lord saw that every Imagination of the Thoughts of the Heart of Man, was only evil continually.* For these Words are not to be understood that it was always so, but only sometimes.

I prove the third Part, *viz. That Man cannot by his natural Parts, without a particular Succour from God, at least of a moral Power, know entirely all the practical and speculative Truths, taken either together or distributively.* Because the practical natural Truths, cannot be known without being applied to the Senses; but the natural Truths are in so great a Number, and some of them so difficult, that on Account of the too great Shortness of our Days, they cannot be all applied to the Senses, and there has not been a Mortal yet, who has been entire entire Master of all Sciences.

But if I be asked if such a Knowledge can be acquir'd by the Succours of Grace? I'll answer in the Affirmative; and I'll prove it, from that there is no Repugnance against God infusing into a human Understanding, the Species of all the natural Things, as St. *Thomas* imagined they were infused into *Adam.*

If I am asked, besides, *If that Succours be of a supernatural Order?* I'll answer that it is of a supernatural Order, if it be considered by Accident, and with Regard to the Manner; for thus it cannot be acquired by a natural Strength: But not if it be consider'd by itself, and with Regard to the Object.

My second Answer to the grand Question is, *that a Man cannot without Grace, and supernatural Succours, acquire the Knowledge of any supernatural Truth.* Which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, *Matt.* xi. *And no Man knoweth the Son but the Father; neither knows any Man the Father, save the Son; and he to whomsoever the Son will reveal him.* And Chap. vi. where, when Christ had asked his Disciples what they said he was, and *Simon Peter* had answered that he was Christ, the Son of the living God; presently Christ says to him, *Blessed art thou Simon Barjona; for Flesh and Blood has not revealed it unto thee, but my Father which is in Heaven.* The second Epistle to the *Corinthians*, Chap. iii. *Not that we are sufficient of ourselves, to think any Thing as of ourselves, but our Sufficiency is of God.* Eph. ii. *For by Grace are ye saved, and that not of ourselves, it is the Gift of God.*

I prove it by the Councils, particularly the second of *Orange, can.* 5. and 7. and that of *Trent, Sess.* 6. *c.* 3. *If any Body says, that Man can believe as he ought, without the Inspiration and Succours of the Holy Ghost, let him be Anathema.*

By the Fathers, particularly St. *Augustin*, almost throughout all his Book of the Predestination of the Saints.

By Reason, because nothing can act beyond its Propriety, that is to say, beyond its natural Faculty, unless it be assisted outwardly by the Super-addition of some Form, *v. gr.* can any Thing be hot unless it has been heated by the Fire; therefore the human Understanding cannot know supernatural Objects, unless it be assisted by a stronger Light; but that stronger Light is Grace, or the Gift of Prophecy; therefore, *&c.*

Our next Question is, *If without the habitual Grace, a Man can will and do some supernatural Good, and if he can likewise do it without the actual Grace?*

To the first Part of this Question I answer, *that without the habitual Grace a Man can will and do a supernatural good Action.* Because several have done good Actions without such a Grace, as it appears from the Scripture, and the Fathers. For we read, *Acts* x. that *Cornelius* had prayed and given Alms, which were agreeable to God, without an habitual Grace, as St. *Augustin* insinuates it, *Epist.* 57. *quest.* 2. whence it is not surprising, if God, in the Scripture, often invites Sinners to Repentance, for who will deny, that the very Act of Repentance, which God recommends, and commends, is a good Act?

I answer to the second Part, *that without the actual Grace, in the State of Nature fallen, no Man can will or do any supernatural Act*; which I prove by the Scripture, the Councils, Fathers, and by Reason.

By the Scripture, *John* vi. *No Man cometh to me, except the Father which has sent me draw him.* John xv. *Without me ye can do nothing.* Where it is to be observed, that it is not said, without me you cannot easily operate, but without me you can do nothing. Likewise, 1 *Cor.* iv. *For who makes thee to differ from another? And what hast thou that thou didst not receive?* And Chap. xv. *For by the Grace of God I am what I am.* Phil. i. *Being confident of this very Thing, that he which has begun a good Work in you, will perfect it.* And Chap. ii. *For it is God which worketh in you, both to will and to do of his good Pleasure.*

I prove it by the Councils, particularly that of *Diospolis*, assembled against *Pelagius*, as we have seen in my Treatise of *Heresies.* The second of *Orange, can.* 7. and that of *Trent, Sess.* 6. *can.* 3. *If any Body say, that without the preventing Inspiration of the Holy Ghost, and his Succours, a Man can believe, hope, love, and repent, as he ought, so that the Grace of Justification may be conferred on him, let him be Anathema.*

By the Fathers, particularly St. *Augustin*, in several Places of his Works, but in a more particular Manner, in all the Books he wrote against the *Pelagians*, out of which I'll extract the two following Passages. The first, out of his first Book, *De nupt. & concupis. c.* 3. *If any Body*, says he, *pretend that Men can serve God by his Free-Will, without God's Assistance, he seems to be a* Celestian *and a* Pelagian. — The second is taken out of his Book, *De natur. & grat. c.* 4. where he speaks thus, *If a natural Possibility by the Free-Will is sufficient, to know how to live righteously, then the Benefit of the Cross is vanished.* And from St. *Prosper, ad cap. Gall. c.* 8. *And let's confess*, says he, *that Faith is a Gift of God, without which no Body runs to Grace.* He pursues the same Subject in these Terms, *Let us say, that the Grace of God through* Jesus Christ *our Lord, does assist us, through every Action, not only to know, but likewise to operate Justice, so that without it, we can have no true Piety*, &c.

I prove it by Reason, because to will and to do a supernatural good Action, exceeds the Proportion of a human Property or Faculty, since an Act tending towards the eternal Life, which is a Motion towards a supernatural End, exceeds that Proportion: Whence it follows, that no Action tending towards the eternal Life, and no Work pertaining to Salvation, and consequently supernatural, can be done by Man without a Form super-added to him; but that Form is Grace; therefore, *&c.*

We'll ask next, *If a Man in the State of Nature fallen, can do any Action morally good, of a natural Order without the Grace, either habitual or actual, and what we ought to think of the Actions of the Infidels?*

The Catholicks answer to the first Part of the Question, *that in the State of Nature fallen, a Man can do some acts morally good of a natural Order, without the habitual Grace.* Because it has been proved already that he can do, without that Grace some supernatural Acts; and consequently can do some good ones of a natural Order. The Reason is, because the Corruption, which

which is only of Principle, does not affect the Action, unless such Principle has some special Obligation, view his Condition, to have the sanctifying Grace when he acquits himself of his Functions, *v. gr.* such as the Ministers of the Altar have; for Purity of Heart is recommended to them when they discharge their Functions: *Isaiah* lii. *Be ye clean that bear the Vessels of the Lord.*

Notwithstanding, 1. This Place of the Scripture, *Isaiah* i. where God defeats the Sacrifices and Prayers of Sinners, *Bring no more vain Oblations, Incense is an Abomination unto me.* And a little lower, *When ye make many Prayers I will not hear*; because these Places are only to be understood of Prayers and Sacrifices made against the Precepts of the Law, as is plainly seen by the following Words; *For your Hands*, says God, *are full of Blood. Wash ye, make ye clean*, &c. or it is to be understood of Sinners offering, in a servile Manner, *i. e.* for Fear of Punishment, and with the Intention of persisting in their Crimes; for it is not to be understood of all Sinners in general, and without Distinction.

Notwithstanding, 2. This other Place of the Scripture, *Matt.* vii. *The Tree cannot bear good Fruits*; for this Place is only to be understood of a Sinner, who acts with a bad Will, or bad Intention. As we learn from St. *Augustin, lib.* 4. *cont. Jul. c.* 3. *The Tree is not bad, because he is a Man, which is the Work of God, but because the Will is bad.* Therefore it is not to be understood simply of every Sinner without Distinction, and particularly of him who acts with some Detestation of his Sin; as the Example of the Publican, who, says the Scripture, obtained his Justification.

They answer to the second Part of the Question, that *in the State of fallen Nature, a Man can do some morally good Action of a natural Order, without the actual Grace:* Which they prove by the Scripture, the Authority of the Popes, and the Fathers.

By the Scripture, *Rom.* ii. *For when the Nations which have not the Law, do by Nature the Things contained in the Law, these having not the Law, are a Law unto themselves.* This Place is understood variously, by divers Fathers; St. *Augustin*, St. *Prosper*, and St. *Fulgentius*, interpret this Passage of the Apostle, of those who had renounced Paganism, and embraced the Christian Faith: I do not disapprove this Interpretation, on the contrary I respect it; but it suffices that other Fathers interpret this Place, of Nations who having nothing but Nature for Guide, accomplish some Precepts of the natural Law. Thus it is interpreted by *Tertullian, lib. de coron. milit. c.* 6. by St. *Chrysostom*, and several others.

It is proved by the Authority of the Popes, particularly of *Pius* V. in that Bull, where this 28th Proposition of *Baius* is condemned, *The Free-Will*, says he, *without the Assistance of the Grace of God, serves to nothing but to Sin.*

They prove it by the Fathers, particularly St. *Chrysostom, homil.* 73. *ad popul.* in these Words: *None is so absolutely bad, but he has something good, whereby he can merit some temporal Good.* For as St. *Jerom* expresses himself on *Gal.* i. *Every one has within himself the Seeds of Justice and of the other Virtues.* Whence it happens, that several without Faith and Christ's Gospel, do several good Actions. And likewise St. *Augustin* in several Places, but more particularly *lib. de spirit. & liter. c.* 27. *For if those*, says he, *do naturally what is of the Law, they are not to be ranked yet among them whom the Grace of Christ justifies, but rather among them, who though they do not worship the true God, have done some Actions, which in Justice we not only cannot despise, but are obliged to commend and praise.*

But, say you, those good Actions, mentioned by St. *Augustin*, either in the Places above-quoted, or in others, must be understood good from the Part of the Object, and not from that of the Circumstances, and more particularly from that of the End: Therefore, without the actual Grace, a Man in the State of fallen Nature, cannot do an Act morally good of the natural Order.

The Catholicks answer this Objection by a Negative, and say, that it can sufficiently appear from the 27*th Chap. lib. de spirit. & liter.* That St. *Augustin* insinuates it; for when he adds to the Words above quoted, these, *though if it be searched to what End they are made, we'll scarce find any which deserves the Praises due to Justice.* This Particle, *scarce*, used by St. *Augustin*, denotes enough that the Works of the Law are sometimes done for a good End, though they are seldom done so. If you ask the Reason, that may be alledged, suggested by the same St. *Augustin*, and in the same Place, when he says, that God's Image is not so entirely defaced in the human Soul, by terrestrial Affections, but there remain in it yet some Lineaments of that divine Image: Whence it can justly be said, that even in the Impiety of their Life, they can do something agreeable to the Law. And all this is confirmed by the following Words we read in the same Chapter, where St. *Augustin* says, *That as some venial Sins, it is impossible to be without in this Life, do not debar a just Man from his eternal Salvation; likewise some good Acts, without which it is difficult to find the Life of the greatest Reprobate, are not profitable to his eternal Salvation.*

One of the most important Questions of this Treatise, is, *if a Man already justified wants the Succours of an actual Grace to persevere in his Justification; and whether that actual Grace must be a special one?*

Note, 1. That the Name of *Perseverance* is commonly taken in two Manners, 1. As it is the same with never falling off from the Justice once received, and dying in it. St. *Augustin* speaks of the Perseverance taken in that Sense, *lib. de don. persever. c.* 1. when he defines it, *a Gift whereby one perseveres in Christ to the End.* Understanding that End which terminates our Life. 2. As the same with persevering for some Time in Christ, but not to the End; but, *v. gr.* for Part of one's Life. None but the *Perseverance* taken in the former Manner is absolutely to be called Perseverance.

Note, 2. That the Perseverance in Grace to the End, can be considered in two Manners, *viz.* 1. When some Body dies after he has received the justifying Grace, and before he can perform any free Act, as *v. gr.* when an Infant dies after he has received Baptism, and before he has the Use of his Reason, and an Adult soon after he has received the justifying Grace. 2. When a Man lives some Time after he has received the justifying Grace, and persists in the Faith and in the Love of God, by accomplishing his Law, and resisting the Temptations to the End.

Note, 3. That it is not a Question here of the Infants who die after they have received Baptism, and before they have the Use of their Reason; nor of the Adults who die immediately after their Conversion and Resipiscence, and before they could have Time to perform a good Action, or to resist the Temptations; since it appears clearly that they do not want any inward Succours to persevere. It is said inward Succours, since it is certain that several external Favours are granted, especially to Infants, if it was but this, that they are carried off before they have been exposed to any Danger. Therefore it is only a Question here of those who live some Time after they have received the justifying Grace, and have to fight against the Devil, the World, and the Flesh. And of these we must enquire whether by their natural Strength, and without the Succours of Grace, they can persevere to the End.

Note, 4. That that Succour of Grace a Man may want to persevere in, is taken in two Manners; 1. In general, for any Benefit, either internal, such as a good Inspiration, &c. or external, such as the special Protection of God. 2. In a stricter Manner, for the inward Succours. These pre-observed.

I answer to the first Part of the Question, *that no Body can persevere to the End, without a particular Succour from God*; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, *Psalm* cxxvii. *Except the Lord keep the City the Watchman wakes but in vain.* Philip. i. *He which has begun a good Work in you will perform it unto the Day of Jesus Christ.*

By the Councils, particularly that of *Africa*, in the Epistle to Pope *Innocent*, and likewise the second of *Orange, can.* 10. in these Terms, *God's Succours are ne-*

ways to be implor'd for those who have been regenerated, and for the Saints that they may persevere to the End. And that of *Trent, Sess.* 6. *can.* 22. *If any Body says, that without a special Succour of God, Man can persevere in Justice, or with it cannot, let him be Anathema.*

By the Fathers, particularly St. *Augustin*, in several Places, but in a more particular Manner throughout his whole Book, *De don. perser.* and in his Book, *De correp. & grat. c.* 8. he says, that it is incomprehensible, how of two Just, one should persevere and the other not.

It is proved, likewise, by the Prayers made to God to obtain from him the Gift of Perseverance, *v. gr.* Psalm xxvii. *Thou hast been my Help, leave me not. For why should that Perseverance be asked of God* (says St. *Augustin, lib. de don. persev. c.* 2.) *if God was not to give it?*

By Reason, because the Man in Question here, cannot persevere, unless he receives some efficacious Succours.

It is answered to the second Part of the Question, *that the Grace whereby one perseveres to the End, in Christ, is an actual and particular Grace.* Because a just Man, with the sole justifying Grace, and the Virtues and Gifts it is accompanied with, and the ordinary Succours, has not wherewithal to persevere to the End, by Reason of the Inconstancy of his Will: Whence it follows, that he wants a special Grace towards that End, *i. e.* to have the Happiness to die in Christ.

Note, That from this I'll pass to the Consideration of the various Effects of Grace; and though several Doctors consider Grace, particularly the habitual, as the medicinal Grace of Nature, the justifying Grace, the Grace which remits Sin, and confers upon us a Right to the eternal Life; I will, notwithstanding, reduce all those Effects to two principal, *viz.* the *Justification* and *Merit*, since those two cannot very well be explain'd, without, at the same Time, explaining all the others; beginning by *Justification*; and asking first what *Justification* is, as well the first as the second, whether it be consider'd as active, or as passive?

The *first active Justification*, is commonly defined, *An Act whereby God makes an intellectual Creature just, from unjust he was before.*

It is said, 1. *An Act*, to distinguish it from the *passive Justification*, which is nothing else but the Reception of Justice.

It is said, 2. *Whereby God*, to indicate the first Author of *Justification.*

It is said, 3. *An intellectual Creature*; to shew the Subject of the *Justification.*

It is said, 4. *From unjust, or not just*, to give to understand, that the first *active Justification*, is the Infusion of Grace in a Subject who has it not, either by a mere Privation, or by a mere Negation.

The *first passive Justification, is the Reception of Justice, in a Subject which is either unjust, or not just.*

If I be asked, *how is that passive Justification made?* I'll answer, that it is made by an inward Form; for we read in the Council of *Trent, Sess.* 6. *c.* 7. that *Justification* is made by a Renovation of the interior Man, and by voluntarily receiving the Grace and Gifts. The formal Cause of *Justification*, being God's Justice, not that whereby he is just himself, but whereby he makes us just.

The *second active Justification, is the Act whereby God makes a just intellectual Creature, still more just than he was.* Because it is the Act whereby God increases the Grace which is supposed to be already in the intellectual Creature, which Increase of Grace God must infuse, as he has already infused the first habitual Grace.

The *second passive Justification, is nothing else but an Extension of the infused habitual Grace.* Because it is nothing else but the Reception of the Increase of the habitual Grace, already existing in the intellectual Creature. But if it be asked, *why that Increase is called Justification?* I'll answer, that it is called *Justification*, because the Forms which admit Degrees of Intention, have homogeneous Increases.

From this Definition of the second *passive Justification*, it is inferred, that the *Justification* of the Impious, does not pertain to the second, but to the first *Justification*, since it is the Translation of Man from the State of Sin, either original or actual, to a State of Grace.

A very important Question on the Subject of *Justification* is, *If the Justification of the Impious be made by a true Remission of Sin, which cannot be done without the Infusion of Grace, or if a Non-imputation of Sin, and a simple Imputation of Justice suffices?*

Note, That several Things are asked in this Question, 1. If by Justification a Man is truly and properly made just, or is only reputed such? 2. If the Justification of the Impious is made by a true Remission of the Fault? 3. If the Infusion of Grace is required to that Remission of the Fault? These pre-observ'd,

I answer to the first Part of the Question, *that Man is not made just by Justification, as to be only reputed such; but is really made such by it*; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, *Rom.* v. *For as by one Man's Disobedience many were made Sinners; so by the Obedience of one, shall many be made righteous.* It is not said in this Place, that Men are reputed just, but that they are established such. Which Expressions are to be observ'd as well as those which follow. 1 *Cor.* vi. *But ye are washed, but ye are sanctified, but ye are justified in the Name of the Lord Jesus.*

By the Councils, particularly that of *Trent, Sess.* 6. *c.* 7. where it is said *Justification* is not the sole Remission of Sin, but is the Sanctification and Renovation of the inward Man, by the Susception of Grace and Gifts, whence the Injustice of Man is changed into Justice, that he may be made an Heir according to the Hope of eternal Life.

By the Fathers, particularly St. *Augustin, lib. de spirit. & liter. c.* 26. *What is it to be justified*, says he, *but to be made just? but by whom else, but by him who justifies the Impious, that he may become just, from unjust he was before?* Likewise, *lib. de liber. arbit. c.* 6. *The Impious is justified by the Grace of God.* Though *Calvin, lib.* 3. *instit. c.* 11. exclaims against it, pretending that St. *Augustin* is, in this, contrary to himself.

By Reason, because in the *Justification*, Grace, and even an inherent one is infused: But that Grace not only washes off the Spot of Sin, but washes off entirely the Sin itself; therefore, *&c.*

Notwithstanding, 1. That the Sins are said in the Scripture, cover'd, and simply not imputed, *Psa.* xxxii. *Blessed is he whose Sins are covered.—Blessed is the Man unto whom the Lord imputeth not Iniquity*, &c. Because the Royal Psalmist understands his Sins to be so covered, as to be likewise blotted out, so as to appear and be imputed no more; which appears from that he prays for the blotting out of his Sins. For he prays thus, *Psa.* li. *Blot out all mine Iniquities.* And Ver. 9. *Hide thy Face from my Sins; and blot out all mine Iniquities.* Ver. 10. *Create in me a clean Heart O God, and renew a right Spirit within me.*

Notwithstanding, 2. What we read, *Psalm* cxliii. *For in thy Sight shall no Man living be justified.* Because we are not to infer from these Words, that Man is justified by Imputation, and not truly; but it must only be inferred from them, that Man, even with God's Grace, when compar'd with God's Justice, is but imperfectly, and not perfectly justified. And that Man can boast of having received within him a Grace from God, appears from these Words of *Psalm* viii. *Judge me O Lord, according to my Justice.*

Notwithstanding, 3. That the Name of *Justification*, is taken by profane Authors for a single Declaration of Innocence; since it suffices that among sacred Authors, to justify is the same, as to make of an Impious a just Man.

We'll ask next, *What Disposition is required in Adults, towards their first Justification?*

Note, That it is not a Question here of the positive Disposition of Infants, since it is certain, that they are not capable of any; and therefore it suffices, that the Remedy instituted by Christ, *viz.* Baptism, be applied

plied to them. But it is a Question of the Disposition of the Adults, and is asked, 1. Whether some positive Disposition be requir'd in them? And, 2. What must that Disposition be? These pre-observ'd,

The Catholicks answer, 1. *That some Preparation or Disposition is requir'd from the Part of an Adult, who must co-operate in some Manner to his Justification.* Which they prove by the Scripture, the Fathers, and by Reason.

By the Scripture, where this is insinuated in several Places, but more particularly, 1 *Sam.* vii. *Prepare your Hearts unto the Lord, and serve him only.* Zech. i. *Turn you unto me, and I will turn to you.* James iv. *Draw nigh to God, and he will draw nigh to you.*

By the Fathers, particularly St. *Augustin, Serm.* 15. *de verb. Apost. The Justice of God,* says he, *can be without your Will, but it cannot be within you but by your Will. God has made you without you, for you have not given your Consent that he should make you; for how could you have consented, since you was not? Therefore he who has made you without you, will not justify you without you. He has made him who knew nothing of it, and he justifies him who is willing.*

By Reason, because God disposes all Things with Suavity, according to a Manner becoming every one; but it is becoming human Nature, that he should confer no Benefit on an Adult, whereby he can obtain his Justification, unless that Adult consent, and be willing, either explicitly or tacitly, to accept such a Benefit, and to prepare himself to co-operate to it; therefore, *&c.*

If I be asked, which must be that Consent supposed requisite, that a Man may be consider'd co-operating sufficiently to his Justification?

I'll answer, that it must be a supernatural one, proceeding both from the Grace and the Free Will, as St. *Bernard* explains it, *lib. de grat. & lib. arb.* where he speaks thus, *the Grace excites the Free-will, &c. and this operates thus with the Free-will that it only prevents it at first, and always accompanies it afterwards, but by preventing it so, that it may co-operate to it afterwards, therefore the Beginning is from the Grace alone, likewise the Accomplishment is from both,* &c.

From this Answer it may be inferred, 1. That a Man does not dispose himself to his Justification, by his sole natural Strength: But rather is always prevented by Grace, *viz.* some Inspiration, as is evident from several Places of the Scripture. *Psalm* lix. *The God of my Mercy shall prevent me.* lxvi. *I am found by those who were in search of me, I have appeared to those who did ask no Question.* 2. That though a Man be prevented by the divine Grace, he, notwithstanding, does not desist from co-operating by his Free-Will

The Catholicks answer to the second Part of the Question, that it is requir'd for a Man to prepare himself to the first Justification, that he should have Faith, an Abhorrence for Sin, together with a Resolution to sin no more, in Hope of Forgiveness.

They prove the first Part of their Answer, *viz. that Faith is requir'd,* by the Scripture, the Fathers, and by Reason.

By the Scripture, *Heb.* xi. where it is said, *that he that comes to God must believe,* &c.

By the Fathers, particularly St. *Augustin,* who says, that Faith is the Foundation of our Justification.

By Reason, because Justification is the Conversion of Man to God, inasmuch as he is the Object of a supernatural Beatitude; and the Cause of Justification: But such Conversion cannot be made without Faith; therefore, *&c.*

If they be asked, *what Sort of Faith is requir'd?*

They'll answer, 1. That the Faith requir'd for the first Justification of an Adult, is not that Faith, or rather Confidence, whereby we believe to ourselves in particular, that our Sins are remitted, that God is to be, and is in Reality propitious to us, through the Merits of the Passion and Death of *Jesus Christ.*

They prove this Answer by the Parable of the Pharisee and the Publican, *Luke* xviii. for there the Pharisee, who was faithful, though he considers himself as a just Man, he notwithstanding is condemned by Christ. But the Publican is justified by him, though he be diffident of himself, and does not dare to lift up his Eyes to Heaven. Therefore it is not surprising if the Apostle advises us, *Eph.* iv. *To operate our Salvation with Fear and Trembling.*

They answer, 2. That the Faith required for the first Justification of an Adult, is not the Faith of Miracles, *i. e.* that Faith which is supposed to consist in the Power of doing Miracles, and which the Apostle teaches, 1 *Cor.* xiii. where he speaks thus; *And though I have all Faith, so that I could remove Mountains,* &c. To prove this Answer, they say that without such a Faith, several have been, and are daily justified; therefore, *&c.*

They answer, 3. That the Faith requir'd for the Justification of an Adult, is an historical, or dogmatical Faith, consisting in a firm Assent to all the Things which God has revealed; as it may be inferred from the Manner of speaking of the Scripture, *John* xxi. speaks thus, *These are written that you may believe that Jesus Christ is the Son of God, and that by believing it you may have eternal Life.*

They prove the second Part of their Answer, *viz.* that the Abhorrence of Sin, with a Resolution of sinning no more, in Hope of Forgiveness, is requir'd in an Adult to prepare himself to his first Justification; because unless the former Life displeases, we cannot begin a new one; unless we divest ourselves of the old Man, we cannot be invested with the new; unless we renounce Satan, his Pomps, and his Works, we cannot serve Christ in Holiness and Justice of Truth.

They prove the third Part, *viz. that a Resolution of sinning no more is requir'd*; because without such a Resolution, the aforesaid Abhorrence is not sufficient, since that Abhorrence pertains either to a perfect Contrition, or to a supernatural Attrition; but a perfect Contrition, as well as a supernatural Attrition, requires that Resolution, if not always explicit, at least implicit.

They prove the fourth Part, *viz. that the Hope of Forgiveness is requir'd*; because the Council of *Trent* teaches it expresly, *Sess.* 6.

We'll ask next, *If a Man can have some Certainty of his being just, or of his having the justifying Grace?*

Note, 1. That by the Name of Certitude, is commonly understood the Infallibility of the Assent; inasmuch as it has a Conformity with the Thing understood. 2. That there are two Sorts of Certitudes, *viz.* one absolute and physical, and the other moral. The infallible is that Infallibility of Assent, with Regard to an Object of an unquestionable Truth, *viz.* when the Understanding assents absolutely to an Object. This Certainty is defined by St. *Thomas,* a firm Adhesion of the cognoscitive Faculty, to its cognoscible. But the moral Certainty, is commonly defined the Infallibility of the Assent, esteemed probable. If it be asked, *on what that Probability is founded?* It is answer'd, that it is founded on some probable Authority, or Reason. These pre-observ'd,

They answer to the first Part of the Question, *that no Body, without a divine Revelation, can be certain that he is in Grace, of an absolute and physical Certainty*; which they prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Prov.* xvii. *Who can say my Heart is clean, I am free from Sin? Not even an Infant who is but a Day old.* Eccles. ix. *Man does not know, if he be worthy of Hatred or of Love.* Acts viii. *Repent therefore of this thy Wickedness, and pray God, if perhaps the Thought of thine Heart be forgiven thee.*

By the Fathers, particularly St. *Augustin, lib. de perfect. just.* towards the Middle, where he speaks thus; *Whatever may be a Man's Justice, he must fear, lest something should be found in him, which is a Guilt.*

By Reason, because though they are of Opinion that the Sacraments produce Grace of themselves, as they do not produce that Grace but in those who are rightly prepar'd to receive them, where is the Person that can have the Temerity to be persuaded of an absolute Certainty, that he is rightly prepar'd? Though *Calvin* and *Luther* were of the Opinion, that a Man in this Life could not only be certain, of an absolute Certainty, of

of his being in a State of Grace, and of his Salvation; but was even obliged to believe it as an Article of Faith.

Notwithstanding this Text of the Apostle, *Rom.* viii. *The Spirit himself testifies to our Spirit, that we are the Children of God.* Because the Apostle does not understand this Place of every *Roman* in particular, but the whole *Roman* Church, considered together, to which he writes, and which he compares to the Synagogue, being willing they should know, that the Church has the Spirit of Adoption, and the Synagogue had only the Spirit of Servitude. Or if this Place was to be understood of every Faithful in particular, as some Doctors will have it, it must be understood conditionally.

They answer to the second Part of the Question, *that a Man, in this Life, can, without a divine Revelation, have some moral Certainty of his being in a State of Grace.* Because he can be certain, at least of a probable and conjectural Certainty, that he is in such a State; notwithstanding that such Certainty does not exclude all Reason of Fear; for it suffices, that it takes off the Anxiety of the Mind, and can procure Peace to a Conscience.

If it be asked, what Marks a just Man can have of his being in a State of Grace? they answer, that though several of those Signs could be found in the Writings of almost all the antient Fathers, they'll content themselves with those proposed by St. *Leo* and St. *Bernard.* The first, *viz.* St. *Leo*, says, *Serm. de Epiph.* that the *Humility of Heart, Patience in Adversities, the Love of God*, and *of our Neighbour*, are some probable Signs of that State. And St. *Bernard, Serm.* 69. on the Canticks, reckons among those Signs, *a Resolution to please God in all Things, an extream Sorrow for Sins past, and a Caution to avoid them, the Frequentation of the Sacraments, with the Dispositions requir'd, and a great Desire to hear the Word of God.*

It may be asked in this Place, *If Justice once received, can be lost?* The *Calvinists* answer this in the Negative; and the Catholicks in the Affirmative; but without pretending to enter into any Controversy on that Subject, I'll form my Judgment on the Example I find in the sacred Scripture, and in the ecclesiastical History, of Persons who had been justified, and have lost that Justice. I will have no other out of the Scripture, but that of St. *Peter*, who soon after he had received his Justification in the Sacrament of the Body and of the Blood of his divine Master, denied him, and consequently lost the Grace he had received. *Origen* had all the Marks of his Justification, as well as *Tertullian*; notwithstanding which, one has left us in the Uncertainty, if he lost that Justification, and we have better than a moral Certainty, that the other lost it entirely.

I'll conclude this Treatise of the Grace, by *Merit*, asking, 1. *What Merit is, and how many Sorts of Merits?*

Note, 1. That *Merit* may be taken in a good and in a bad Part. It is taken in a good Part, when taken for that which is worthy of Recompence: And in a bad Part, when taken for that which deserves Punishment. We'll consider *Merit*, in this Place, as taken in a good Part. 2. That Theologians distinguish three Sorts of *Merit*, *viz.* 1. A rigorous Merit *de condigno.* 2. A Merit *de condigno*, commonly so called. 3. A Merit *de congruo*; these preobserv'd,

The Catholicks answer, 1. That *the rigorous Merit de condigno, is a good Action, to which a Recompense is due, in all the Rigour of Justice.* Which Sort of *Merit* is that of *Jesus Christ* alone; for suppose that such a *Merit* has an Equality to the Reward, absolutely from the Dignity of the Work, and of the Workman, without any Favour done to him who merits; that could become no Body but Christ; notwithstanding that the Favour was done to Christ's Humanity; because it suffices that it was done to a deserving Suppositum, which was divine, and whose Actions they were.

They answer to the second Part of the Question, that *the Merit de condigno, commonly so called, is defined a good Work, to which is due, in Justice, though not a rigorous one, a Reward, according to the Dignity of the Action, and of the Person who has done it.*

It is said a *good Action*, because as St. *Augustin* observes, *lib. de grat. & lib. arbit. c.* 6. God does not crown Evil. Whence it is not surprizing if we read, *John* v. *And shall come forth, they that have done good, unto the Resurrection of Life; and they that have done evil, unto the Resurrection of Damnation.*

It is said, 2. *To which is due in Justice a Reward according to the Dignity of the Work, and of the Workman*; as well to express some Difference between the *Merit de condigno*, and the *Merit de congruo*, to which no Recompence is due in Justice; but is given from a Motive of pure Liberality; as to give to understand, that to the *Merit de condigno* of the eternal Life, is required a Convention of giving the Recompence on the Delivery of the Work, that the Workman may have a Right to the Reward, and the Remunerator lie under an Obligation of giving the Reward.

It is said, *but not a rigorous one*, viz. Justice, to express some Difference between the common *Merit de condigno*, and that *Merit de condigno*, which is called *rigorous.*

From what has been said, it is inferr'd, that to Merit, or to a meritorious Action *de condigno*, commonly so called, five Conditions are requir'd, *viz.* 1. That it be a good Action. 2. That it be voluntary and free. 3. That it be done by a Man yet on his Journey through this transitory World. 4. That it may be done by a Man just, and in a State of Grace. 5. That from the Part of God, the Promise of the Reward may have preceded. We must prove every one of these Conditions in particular.

1. As to the first Condition, *viz.* that the meritorious Act *de condigno*, must be a good Action, is proved, because, as we have already observed from St. *Augustin*, *God does not crown what is vicious.* But if it be asked, *whether to render an Act meritorious, it must be done, if not with an actual, at least with a virtual Intention, and a Motive of Charity*; it will be answered in the Affirmative; either because the Scripture insinuates it, 1 *Cor.* x. *Whether therefore ye eat or drink, or whatsoever you do, do all to the Glory of God.* Or because the Council of *Trent* says, *Sess.* 6. *c.* 16. and *can.* 26. *that Merit is attributed to those Actions of the Just, which are made in God.*

If it be asked, besides, *If for an Action to be meritorious de condigno, it is necessary it should be good on the Part of the Object?* It is answered in the Negative; for it suffices that it should be good, on the Part of the End, when it is indifferent on the Part of the Object.

As to the second Condition, *viz. that a meritorious Act de condigno, must be voluntary and free*, is proved, because the Fathers teach it often, and clearly enough. First St. *Jerom, lib.* 2. *cont. Jovin.* who says, *that where there is Necessity, there is neither Damnation nor Crown.* Which is approved by St. *Augustin, lib. de natur. & grat. c.* 65. And St. *Bernard, Serm.* 81. *in cant. Where there is no Liberty, there is no Merit.* And the Reason is, because that Merit which is said to be ours, must be such that we have some Authority over; and it cannot be such without Liberty: Therefore, *&c.*

As to the third Condition, *viz. that the meritorious Act de condigno, must be the Act of a Man who is yet upon Earth*, is proved, either because the Scripture insinuates it, *Eccles.* ix. *Whatsoever thy Hands find to do, do it with thy Might; for there is no Work, nor Device, nor Knowledge, nor Wisdom in the Grave whither thou goest.* John ix. *The Night comes when no Man can work.* Gal. vi. *While we have Opportunity, let us do good*; or because the antient Fathers have taught it; particularly St. *Jerom, in cap.* 6. *Epist.* 1. *Corint. The Time of Sowing*, says he, *is the present Life, which we run through; that Life once past, the Time of working will be taken away.*

As to the fourth Condition, *viz. that the meritorious Act de condigno, must be the Act of a just Man, and in the State of the justifying Grace*; is proved, because the eternal Life is promised to none but to the Sons, as it appears, *Rom.* vi. hence it follows, 1. That Man by his natural Talents or Faculties, cannot merit *de condigno*, because the Act is not order'd towards something exceeding

exceeding the Proportion of Virtue; and eternal Life exceeds the Proportion of a created Nature; therefore, &c. 2. It follows, that Life is not due to the Sinner, but Death; according to this, *Rom.* vi. *The Reward of Sin is Death.*

As to the fifth Condition, *viz. that on God's Part, the Promise of the Reward must have preceded*, is proved by the Scripture, and the Fathers. — By the Scripture, *James* i. *Blessed is the Man that endures Temptations, for when he is tried, he shall receive the Crown of Life, which the Lord has promised to them that love him.* By the Fathers, particularly St. *Augustin, in Psalm* lxxxvi. *God has given Mercy, and he'll give the Crown; he is the Giver of Mercy, and the Debtor of the Crown; but whence is he Debtor? Has he received something? to whom does God owe any Thing? Let's see who calls him a Debtor*; Paul *has received Mercy, and he exacts, the Lord will return me*, says he, *in that Day. What shall he return thee, but what he owes thee? He makes God a Debtor, not in receiving, but in promising: It is not said to him, return what thou hast received, but return what thou hast promised.*

They answer to the third Part of the Question, *that Merit de congruo*, is commonly defined, *a Good worthy of a divine Retribution, by a pure Motive of Liberality, and not of Justice.*

From this Definition it is inferred, that to the *Merit de congruo*, these Conditions are required, 1. That it must be a good and honest Act. 2. That it must be the Act of a Man yet upon Earth, though it be not necessary that he should be in the State of Grace; which St. *Augustin* insinuates, Epist. 103. when he says, *that by some Merit the Remission is obtained, which in a meriting Subject, does not suppose the justifying Grace.* 3. It must be a free Act, because generally Liberty is wanted to Merit, and St. *Augustin, lib. de spirit. & lit. c.* 32. requires it in the Faith which obtains. 4. It must be a supernatural Act, because by the sole natural Strength, no Act can be done belonging to Salvation.

Our next Question is, *If a Man can merit eternal Life de condigno.*

The Catholicks answer in the Affirmative, and prove it by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, *Matt.* v. *Rejoice and be exceeding glad; for great is your Reward in Heaven.* 2 Tim. iv. *I have fought a good Fight, I have finish'd my Course, I have kept the Faith; henceforth there is laid up for me a Crown of Righteousness, which the Lord the righteous Judge shall give me at that Day.*

By the Councils, particularly that of *Trent, Sess.* 6. *can.* 26. where they define that Man who is justified, can merit eternal Life by his good Works.

By the Fathers, particularly St. *Augustin*, Epist. 105. where he says, *that as Death is given for a Reward to the Merit of Sin, likewise eternal Life is given as a Reward to the Merit of Justice.*

By Reason, because the Conditions of the *Merit de condigno*, with Regard to eternal Life, are agreeable to the Actions of a just Man, as it appears by itself, since such a Man is supposed just and moral; and his Act supposed voluntary, free and honest, and often proceeding from and commanded by Charity; and founded on the Covenant, and Promise of God in the Scripture, to give eternal Life to those who live righteously and keep his Commandments.

Notwithstanding, say they, 1. That the eternal Life is called Grace in the Scripture; for it is not called Grace to exclude all Sort of Merit, but to shew that our Merits don't make God a Debtor of a strict and rigorous Justice; for he is only Debtor in that Sense, that he would, promised, and did by his Benignity, that what are his Gifts should be our Merits.

Notwithstanding, 2. That Infants who have not the Use of their Reason, cannot properly merit the everlasting Glory, because in that Age they are not capable of Merit; because it suffices that in that Age they obtain the Glory, by Manner of Inheritance, and through the Merits of Christ, with whom they are Coheirs of the everlasting Glory according to the Apostle, *Rom.* vii.

Note, That I judge proper to give this Treatise of *Grace*, under this Title *Jansenism*: as well because the Disputes between the *Jansenists* and *Catholicks* rose chiefly on the Doctrine of *Grace*; as because I had omitted giving it under the Letter *G*. But in omitting it entirely, I had render'd my Theology very imperfect, by the Omission of one of the principal Subjects thereof, and which is still a very great one of Controversy among the Christian Sects. *Jansenius* renewed in his *Augustinus*, the new Doctrine of *Luther*, *Calvin*, &c. on the Grace, though with some Mitigation; and all have endeavour'd to defend their Sentiment by that of St. *Augustin*, who is justly called the DOCTOR OF GRACE, for having wrote copiously on that Subject against the *Pelagians* and *Semi-Pelagians*; but in endeavouring to prove the *Necessity* and *Efficacy* of Grace, against those who rejected both; he has, in my Opinion, used several very severe Expressions, which he had certainly omitted, could he have foreseen, that in future Ages, they had been made use of, to ascertain the entire Loss of Man's Liberty, and deprive him absolutely of his Free Will, leaving him nothing, after his Redemption by Christ, but that fatal Penchant to Evil, which had been necessarily inseparable from him, if he had not been redeemed; and thereby reflecting injuriously, though tacitly on God's Justice, for leaving us no other Liberty, but that of displeasing him, and punishing us for it, though he has not left it in our Power to act otherwise; since according to the *Calvinists* and *Jansenists*, the immense Treasure of his Graces, is filled with nothing but victorious ones, which operate within us, with such Efficacy, that they not only are never resisted, but even can never be resisted; so that if God condemns us for the Sin we committed, and which it had been impossible for us to commit, had he been pleased to give us that victorious Grace; he condemns us because he will have us guilty; and not because we will be so ourselves; for where is the Master, unless he be a very unjust one indeed, who will punish his Servant for not obeying his Orders, when he has put it entirely out of his Power to obey them? God's Judgments, on that Point, are unsearchable, say the new Disciples of St. *Augustin*, but unsearchable as they are, our Reason can notwithstanding see through them, at least in the Manner they are represented by the new Dogmatists, a great deal of Cruelty, which is absolutely incompatible with the divine Justice.

The *Jansenists*, after they had a long while defended with Obstinacy the Doctrine of a victorious Grace, which neither could, nor ever was resisted, relented a little; but that consisted in nothing else but some more moderate Expressions, for their real Sentiment of a victorious Grace, has always been and is still the same. They likewise maintain'd and defended the Doctrine of the five Propositions; but when they saw that it had been fulminated several Times by the *Gallican* Church, and by several Popes, to whom they had appealed from the Decisions of the Clergy of *France*; they denied that those Propositions could be found in the *Augustinus* of *Jansenius*, or have been extracted from it; which made that Distinction between the *Right* and the *Fact*; of which I must speak at present.

Jansenius's Partisans pretended, *that the End their Adversaries had proposed to themselves, in attacking and procuring the Condemnation of their Sentiments; was to represent as Hereticks, Theologians of Reputation, who had opposed with a laudable Zeal, the new Doctrine of the School of the Jesuits, on the Grace. To accuse openly these Theologians of maintaining Errors which had always been condemned, and to procure the Condemnation of some Truths they maintain, as if they were Errors. To have made use for that Design of the five famous Propositions, by composing them in equivocal and ambiguous Terms, which rendered them at the same Time susceptible of the heretical Sense of* Luther *and* Calvin, *and of the Catholick one of the Grace efficacious by itself.*

To this Accusation the *Anti-jansenists* answer, that no Body has fabricated the five famous Propositions, and the Doctors of the Faculty of Theology of *Paris* had only

only extracted them, such as they are found in *Jansenius*'s *Augustinus*, without the least Variation, as those who will give themselves the Trouble to read that Book, can easily perceive. That the *Jansenists* and their Adversaries gave them at first the same Sense; and that all their Efforts to destroy that Truth serve only to confirm it. That it was a Question then, neither of *Molina*, nor of the *efficacious Grace*, such as it is taught in the Jesuits School. That it is true that in attacking the *five Propositions*, it was discovered presently that they had for Foundation the *efficacious Grace*, in the Manner *Jansenius* wanted to establish it; which they pretended, was confessed once by the *Jansenists* themselves.

On this they represent two Things; the first that *Jansenius* and his Disciples maintained, that the Difference of the Graces of the State of Innocence and of the State of fallen Nature, which is our present State, consists in that in the State of Innocence, there were no other but sufficient Graces, and that in our present State there are none but efficacious. The second, that it is an Heresy, accounted as such by all the Catholick Theologians, to admit no other Grace in our present State of Nature fallen, but the efficacious.

The *Jansenists* say, in their Turn, speaking of those appointed by the Faculty of Theology of *Paris* to examine the *five Propositions*, that if one would read the first of those Propositions submitted to their Examination, he'll easily find that their Design was to tread under their Feet the Authority of St. *Augustin*, since there is no Maxim better established in all his Works, and more agreeable to the Principle of his Doctrine than that; which they could not be ignorant of, since they have extracted it almost Word for Word, from the Book of the Bishop of *Ypres*, where it is justified by a great Number of Passages, very clear and evident, extracted from the Book of St. *Augustin*.

In this the *Jansenists* contradict themselves; since instead of those Propositions which they pretended their Adversaries had canvassed in equivocal and ambiguous Terms, they maintain here the Doctrine of those Propositions, and pretend that *Jansenius* himself had extracted it almost Word for Word from the Writings of St. *Augustin*. Though afterwards they equivocated again, and entrenched themselves against their Adversaries, behind that famous Distinction of the *Right* and of the *Fact*, pretending to support that Distinction by the Bull of *Clement* IX. who condemned the *five Propositions*, in the Sense they were condemned by the Church; pretending, that thereby the Pope had no Design to condemn them in the Sense of *Jansenius*; as if his Holiness had questioned, if those Propositions were really in *Jansenius*'s *Augustinus*. Though the *Anti-jansenists* understood the *Right* and the *Fact* of this Affair in a different Manner. For under the Name of *Right*, they understood the Question of the Sense of the Book of *Jansenius*; and by the *Fact*, they understood only, if *Jansenius* had in his Mind the heretical Sense of the five Propositions, and if those Propositions were in his Book in proper or equivalent Terms. As to *Clement* IX. not condemning in express Terms the five Propositions in the Sense of *Jansenius*; the *Anti-jansenists* say, that it is no Objection at all, since by condemning them in the Sense they were condemned by the Church, he condemned them in the Sense his Predecessor *Alexander* VII. had condemned them, who mark'd the heretical Sense condemned in the five Propositions by the Terms of the *Sense of Jansenius*; and therefore considered that Question as decided by the Constitutions of his Predecessors and condemned the five Propositions in the *Sense of Jansenius*.

The *Jansenists* objected to this, *that the Term, Sense, cannot be taken but for determinate Senses, explained and applied to certain known Terms, which include Errors, and consequently cannot include the unlimited Sense of* Jansenius, *which has never been explained, and which remains as suspended in the Air, without being applied to any Word of that Author; and that when it is said in the Sense condemned by the Church, the Sense of* Jansenius *is not included in it.*

To this the *Anti-jansenists* replied, that it is notoriously false, that in condemning the *five Propositions* in the Sense they were condemned by the Church, the Sense of *Jansenius* was not included, since some of those Propositions having been extracted Word for Word from the Book of *Jansenius*, and having been condemned afterwards, the Sense of *Jansenius* must have been included in that Condemnation.

JAPANNING.

JAPANNING, is the Art of varnishing and drawing Figures on Wood, *&c.* after the Manner of those Works brought to us from *Japan*, from which Island this Art borrows its Name.

There are two Things necessary for *japanning*, viz. the Colours and the Varnish.

The Colours are, for a fair Red, the *Spanish* Vermilion, with a fourth Part of *Venice* Lacquer; though, if it could be afforded, Carmin is far preferable to it. For Blue, Ultramarine, and only twice as much Varnish as Colours; the *Prussian* Blue has the same Effect, and is not so chargeable. The Black is made of Ivory calcined between two Crucibles. Green is seldom used in *Japanning*, because it is difficult to make it fair and lively.

The Varnish is made by taking a Pint of Spirit of Wine, well dephlegmated, and four Ounces of Gum Lacca, which after it has been broke from the Sticks and Rubbish, and roughly bruised in a Mortar, must be tied up in a Bag of coarse Linnen, together with a little *Castile* Soap, and put to steep in Spring Water for the Space of twelve Hours. This done, all the Tincture must be rubbed out, adding to it a little Allum, and reserving it apart: Then must be added as much Mastic and white Amber, distilled in a Matrass, with Spirit of Wine, by a two Days Digestion, frequently stirring it that it do not stick to the Glass; then straining and pressing it out into another Vessel.

This done, the Wood to be *japanned* must be covered with a Layer of this Varnish, till it be sufficiently drenched with it; then taking some of the Colours the Figures are to be of, it must be incorporated with seven Times as much of the Varnish, and applied with a Pencil, going over each Part three several Times, each a Quarter of an Hour after the other: Two Hours after this it must be polished with a Pestle or *Dutch* Reeds.

What they call *Night-Japanning*, is performed by applying three or four Layers, with the Colours first, then two of pure Varnish uncoloured. Before it is dry, some Venturine or Gold Wire reduced to Powder, must be sifted over it, then covering it over with as many Layers of pure Varnish to render it like polished Glass; and lastly, rubbing it over with Tripoli, Oil of Olive, or Hatters Felt.

JEWELLER.

JEWELLER, is an Artist, whose Art consists in setting Diamonds, Rubies, Emeralds, and other precious Stones, in Gold, Silver, or other Metals.

The whole Secret of this Art consists in setting the Stones to the best Advantage, that they may appear with a full Lustre; and hiding their Defects, if

if they have any, as much as possible.

To heighten the Lustre of a Stone, they put commonly under it a Leaf of the same Colour of the Stone, but livelier, which they call *foyl*.

To proceed in this Operation, they begin by putting the Ring, or other Piece which is to be set with Jewels, into Cement; then they put the Foyl, and over it the Stone, which they fasten in the Callet by approaching the Metal near it, with their setting Tool as close as possible, without breaking or scratching the Stone; this done, they file and polish the Metal.

This Art must be very antient, and ought to be considered as having been invented in Heaven, since God, *Exodus* xxviii. gives these Directions for the Breast-plate, ver. 17. *And thou shall set in it Setting of Stones.*

The most common Jewel, and one of the most antient, is the *Ring:* Though the Ring has not been always set with Jewels. *Pliny* observes, *lib.* 37. *c.* 1. that we are in the Dark as to the Person who first invented or wore the Ring; for that what is said of *Prometheus*, as also of *Midas*'s Ring are Fables. The first, among whom we find the *Ring* in Use, are the *Hebrews*, *Genes.* xxxviii. where *Judah*, *Jacob*'s Son, gives *Tamar* his *Ring*, or Signet, as a Pledge of his Promise: But the *Ring* appears to have been in Use at the same Time among the *Egyptians*, from *Genes.* xli. where *Pharoah* puts his *Ring* upon *Joseph*'s Hand as a Mark of the Power he gave him, and in the first Book of *Kings*, chap. xxi. *Jezebel* seals the Warrant she sent for the killing of *Naboth* with the King's *Ring*.

The antient *Caldeans*, *Babylonians*, *Persians*, and *Greeks*, had likewise the Use of the *Ring*, as appears from several Passages in Scripture, and from *Quintus Curtius*, who tells us, that *Alexander* sealed the Letters he wrote into *Europe*, with his own Seal; and those into *Asia* with *Darius*'s Ring.

The *Persians* will have *Guiamschild*, the fourth King of their first Race, to have first introduced the *Ring*, to seal his Letters, and other Acts withal. The *Greeks*, *Pliny* thinks, knew nothing of the *Ring* in the Time of the *Trojan* War: The Reason he gives is, that we find no mention thereof in *Homer*, but that when Letters, *&c.* were to be sent away, they were tied up, and the Strings knotted.

The *Sabines* had Rings in *Romulus*'s Time, and it is to them probably, the Practice first came from the *Greeks*, and from them passed to the *Romans*, though it was some Time before it got Footing there. *Pliny* cannot learn which of the Kings of *Rome* first adopted it; but there are no Signs of it in any of their Statues, before those of *Numa*, and *Servius Tullus*. He adds, that it was in Use among the antient *Gauls* and *Britons*.

As for the Matter of *Rings*, there were some of one single Metal, and others of a Mixture, or of two. For the Iron and Silver were frequently gilt, or at least the Gold was enclosed within the Iron, as appears from *Artemidorus*, *lib.* 2. *c.* 5. The *Romans* were contented with Iron *Rings* a long Time; and *Pliny* assures us, that *Marius* first wore a Gold one in his third Consulate, which was in the Year of *Rome* 650. Sometimes the *Ring* was Iron and the Seal Gold; sometimes it was hollow, and sometimes solid; sometimes the Stone was engraven, and sometimes plain; and the Graving sometimes in Relievo, and sometimes in Creux: The last were called *Gemmæ cEtypæ*; the former *Gemmæ sculpturâ prominente.*

The Antients had three different Kinds of *Rings:* The first served to distinguish Conditions or Qualities. *Pliny* assures us, that the Senators at first were not allowed to wear the Gold *Ring*, unless they had been Ambassadors at some foreign Court; nor was it even allowed them to wear the Gold *Ring* which was given them, in publick, except on publick Occasions. At other Times they wore an Iron one. And those who had had a Triumph observed the same Rules.

At length the Senators and Knights were allowed the common Use of the Gold *Ring*; but *Acron* on *Horace*, *lib.* 2. *Sat.* 7. observes, they could not do it unless it was given them by the Prætor.

In after Days, the *Ring* became the Badge of the Knights, the People wearing Silver *Rings*, and the Slaves Iron ones. Though the Gold *Ring* was sometimes also allowed the People; and *Severus* granted it his common Soldiers. *Augustus* allowed it the *Liberti*, or Freedmen; and though *Nero* made a Regulation to the contrary, yet it was soon set aside.

A second Kind of *Rings* were the *Annuli Sponsalitii*, *Wedding-Rings.* Some carry the Origin of this Custom as far back as the *Hebrews*, on the Authority of a Text in *Exodus* xxxv. 22. *Leo* of *Modena*, however, maintains, that the antient *Hebrews* did not use any nuptial *Rings*. *Selden*, in his *Uxor Hebraica*, *lib.* 11. *c.* 14. owns, that they gave a *Ring* in the Marriage, but that it was only in Lieu of a Piece of Money of the same Value, which had used to have been given before. The *Greeks* and *Romans* did the same; and from them the Christians took it up very early, as appears from *Tertullian*, and in some antient Liturgies, where we find the Form of blessing the nuptial *Ring*.

The third Kind of *Rings*, were those used as Seals, called *Cerographs*, or *Cirographi.*

Richard Bishop of *Salisbury*, in his Constitutions, *Anno* 1217, forbids the putting of *Rush-Rings*, or any the like Matter on Women's Fingers, in order to the debauching them more readily: And he insinuates the Reason of his Prohibition, that there were some People weak enough to believe, that what was thus done in Jest was a real Marriage.

De Brevil, in his Antiquities of *Paris*, says, it was an antient Custom to use a Rush Ring in the Marriage of such as had had an Affair together, before Marriage.

The Bishop's *Ring* makes a Part of the pontifical Apparatus; and is esteemed a Pledge of the spiritual Marriage, between the Bishop and his Church: It is of a very antient Standing.—The fourth Council of *Toledo*, held in 633, appoints, that a Bishop condemned by one Council, and found afterwards innocent by a second, shall be restored, by giving him the *Ring*, Staff, *&c.* —From Bishops the Custom of the *Ring* has passed to Cardinals, who are to pay I know not what Sum, *pro Jure Annuli Cardinalitii.*

The Manner of wearing the *Ring* has been various: From *Jeremy* xxii. it appears, that the *Hebrews* wore it on the right Hand. Among the *Romans*, before they came to be adorned with Stones, and while the Graving was yet on the Metal itself, every Body wore them at Pleasure, on what Hand and Finger he lifted. When Stones came to be added, they wore them altogether on the left Hand; and it would have been held an exceeding Foppery to have put them on the Right.

Pliny says, they were at first wore on the fourth Finger, then on the second, or Index; then on the little Finger, and at last, on all the Fingers, except the middle one. The *Greeks* wore them altogether on the fourth Finger of the left Hand, as we are informed by *Aul. Gellius*, *lib.* 10. and the Reason he gives for it is, that having found from Anatomy, that this Finger had a little Nerve that went streight to the Heart, they esteemed it the most honourable, by Reason of this Communication with that noble Part. *Pliny* says, the *Gauls* and antient *Britons* wore it on the middle Finger.

At first they only wore a single *Ring*; then one on each Finger; and at length several on each Finger. *Martial*, *lib.* 11. *epig.* 60. at last one on each Joint of each Finger. *Aristoph. in nub. &c.*—Their Delicacy at length went to that Pitch, that they had their weekly *Rings*. *Juvenal*, *Sat.* 7. speaks of *Annuli Semestres*; as also of Winter and Summer *Rings*. But of all others, *Lampridius*, *cap.* 32. observes, *Heliogabalus* carried the Point farthest, who never wore the same *Ring* or the same Shoe twice.

Rings have been also wore in the Nose, as Pendants in the Ears. *Bartholin* has an express Treatise, *De Annulis Narium*, of *Rings of the Nostrils.* St. *Augustin* assures us, it was the Fashion of the Moors, and *Pietro Della Valle* observes, the same of the modern Orientals.

In effect, there is no Part of the Body where they have not been wore. Several *East-India* Travellers affirm, that the Natives commonly wore them on their Nose, Lips, Cheeks, and Chin. *Ramusio* tells us, that the Ladies of *Narsingua*, in the *Levant*; and *Diodorus Sicul. lib.* 3. that those of *Ethiopia* used to adorn their Lips with Iron *Rings*.

As to the Ears, the Custom still obtains of wearing *Rings*

Rings therein, both by Men and Women all over the World.

The *Indians*, particularly the *Guzerattes*, have wore *Rings* on their Feet. And when *Peter Alvarez* had his first Audience of the King of *Calicut*, he found him all cover'd with Stones set in *Rings*; Bracelets and *Rings* both on the Hands and Fingers, and even the Feet and Toes. *Louis Bartome* represents a King of *Pegu*, as still more extravagant, having *Rings* set with precious Stones on every Toe.

Besides these common Jewels, of Rings and Ear-Rings, there are others less common, such as Diamond-Necklaces and Girdle-Buckles for Ladies, Shoe-Buckles for Ladies and Gentlemen, Solitairs for Ladies, *&c.* Swords set with Diamonds, and other precious Stones, for Gentlemen, *&c.* but though the Figure of those Pieces is different, the Operation is the same, as to setting the Stones, and the same Rules above-mention'd to be observed.

Every Crown-Head has a certain Number of Jewels, more or less, which are called *les Joyaux de la Courone*, the Jewels of the Crown, which are never parted with but on some urging Necessity. The Crown of *France* is reckon'd the richest in Jewels of any in *Europe*. When *Mehemet Risabeck*, the late Ambassador from *Persia*, at that Court, had his first publick Audience, of the late King *Louis* XIV. that Prince had a Suit of Cloaths, the Buttons thereof were all brilliant Diamond, valued at 700,000 Pounds Sterling; and this present King, then Dauphin, and an Infant, was all covered over with Diamonds, and other Jewels, of an immense Value; of which I was an Eye-witness.

In *England* there is an Office or House called the *Jewel-Office*, which takes Care of fashioning and weighing the King's Plate; delivering out by Warrants from the Lord Chamberlain. When his Majesty makes any Present of Plate, *&c.* they have the Charge of providing it, with some other Things less material.

The principal Officers are: The Master of the Jewel Office, whose Salary is 450 *l. per Ann.* a Yeoman, a Groom, and a Clerk; all in the King's Gift.

There are also in this Office, in the Gift of the Lord Chamberlain, the Poet-Laureat at 100 *l. per Ann.* Salary; the King's Historiographer, at 200 *l. per Ann.* the History Painter, and principal Painter, at 200 *l. per Ann.* the Painter in Enamel, and Keeper of the Pictures, at 200 *l. per Ann.* each.

The Goldsmith and Jeweller are employ'd by the Master, and are usually in his Gift.

INCARNATION.

INCARNATION, signifies the Mystery, by which *Jesus Christ*, the Eternal Word, was made Man, in order to accomplish the Work of our Salvation.

Note, That this august Mystery being the whole Foundation of the Christian Religion, and which has been the principal Point of Controversy, between the *Christians* and *Jews*; the one denying with Obstinacy its having been accomplished yet, and the other giving infallible and convincing Proofs, taken from the very same sacred Writs, whereon the Adversaries found their Incredulity; I must treat of it with that profound Respect becoming a Christian Theologian; and in a Manner capable to confound the incredulous *Jews*, and to confirm the true *Christians* in their sacred Belief.

The antient Fathers have called this august Mystery of the *Incarnation* by several different Names. *Tertullian, lib. cont. prax. c.* 23. and St. *Epiphanius*, *Hær.* 30. call it *Œconomy*; because God, in this Mystery, has secured us, by his divine Providence, as a tender and careful Father provides for his Family. It is called *Assumption* by St. *Gregory* of *Nice*, against *Apollinaris*; and by St. *Gregory Nazianzen*, *Orat.* 42. because the divine Word in taking our Humanity, has not abandoned his Divinity. St. *Basil*, *in Psalm* xxix. calls it *Incorporation*; because the whole Plenitude of the Divinity dwells in Christ corporally, according to St. *Paul*, *Col.* ii. St. *Epiphanius*, *Hæres.* 30. calls it *Inhumanation*, because the divine Word has taken the human Nature. But the most common Name is that of *Incarnation*; because that Name expresses above all others the ineffable Love of God for us Men, in not thinking it beneath him, to assume our vile and abject Nature, and to have in common with us, what we have in common with the most despicable Animals.

The *Incarnation* may be considered in two Manners, either *in fieri*, i. e. as it was to happen; or *in facto esse*, i. e. as it has happened.

The *Incarnation*, considered *in fieri*, is commonly defined, *An Act whereby human Nature is united to the divine, in an Union of Suppositum.* It is said, 1. *An Act*, because the *Incarnation* thus consider'd, is a certain Operation *ad extra*, and consequently common to the whole Trinity; whence it appears, that it is something transitory, and should rather be called *Unition*, than Union. 2. *Whereby human Nature is joined to the divine Word*; to shew in what consists the Mystery of the *Incarnation.* 3. *In the Union of the Suppositum*; to signify more expressly that the divine Word has taken human Nature, precisely considered, without Personality; whereby it happened, that there are two Natures subsisting in the divine Word, by a single Personality.

The *Incarnation* considered *in facto esse*, is commonly defined *the Union of the divine Word with the human Nature, in the Unity of the Suppositum.*

It is said *Union*, because it is a Conjunction of several Things, whence results an Unity. Of the *divine Word*, i. e. of the second Person of the blessed Trinity, which perfects and terminates entirely the human Nature, *viz.* as to acting what she would act, if there was a Personality. *Of the human Nature*, to give to understand, that human Nature was taken alone, without its Personality.

Note, That we can infer from what has been above-mention'd, that the Mystery of the *Incarnation* consists entirely in the divine Word having taken the human Nature alone, and not the Personality; tho' we must not imagine, that when it is said that the Word has been made Flesh, he has took the Flesh only, and not the Soul; since it is certain, that he has taken the entire human Nature, *viz.* the Flesh and the Soul.

Note also, That before I proceed farther, I must explain some Terms or Expressions, without which it is impossible to understand all that I am to say throughout the Course of this Treatise; *v. gr.* I understand by *Suppositum*, an individual, compleat, and incommunicable Substance; called *Suppositum*, either because supposed join'd to Essence, which cannot subsist by itself, nor without it; or because supposed as well united with Accidents, whereof it is the principal Subject of Inhesion, as to universal Substances, whereof it is the principal Subject of Predicate; as it appears in the Example of *Peter*. Because there are in *Peter*, superior and substantial Degrees; and the same Degrees are predicated of *Peter*; since *Peter* is a Man, an Animal, living, a Body and a Substance. By being *in concreto*, an individual, compleat, and incommunicable Substance of an intellectual Nature. By these it is easily inferr'd, 1. That five Things are requisite to constitute a Person, *viz.* that it be a Substance, an intellectual Substance, individual, compleat, and separately subsisting. 2. That all Accidents are excluded from the Ratio of Person, all *Supposites*, which are not intellectual, all universal Substances, the Parts of a Substance, either metaphysical, as the Genus and Difference; or physical, as the Matter and Form; from it is also excluded all substantial Nature, which does not subsist by itself, but in its Suppositum; for as such

ſuch it is not incommunicable to another as to its Suppoſite. 3. What is Perſonality, which is commonly called the laſt Complement of an intellectual Subſtance. 4. What is Hypoſtaſis and Subſiſtence, which is nothing elſe than the Term of a ſubſtantial Nature, which perfects it entirely, and renders it incommunicable to another. 5. That Subſiſtence, Hypoſtaſis, Perſonality, is not the Exiſtence of the Subſtance; becauſe it's Exiſtence is not like inherent Accidents, but is diſtinguiſhed from them. Thus the Subſiſtence is diſtinguiſhed from the Exiſtence of the Subſtance, as it appears in the Example of the Humanity of Chriſt, which has its proper and created Exiſtence, though it wants its proper Subſiſtence, and ſubſiſts by another. 6. That Subſiſtence, Hypoſtaſis, Perſonality, is not an Accident ſuper-added to a particular Subſtance; becauſe of a ſubſtantial Nature and Subſiſtence, is formed a Subſtance by itſelf, which can be placed in the Category of Subſtance; but of a Subſtance and an Accident is not formed one by itſelf, but only one by Accident; therefore it is clear, that Subſiſtence, or Hypoſtaſis, or Perſonality, is not an Accident, nor an Aſſemblage of Accidents. Theſe previouſly known,

I'll paſs to the firſt Queſtion, which I propoſe to myſelf on this important Subject, which is, *If the Myſtery of the Incarnation can be proved and demonſtrated, either impoſſible or poſſible?*

I anſwer the firſt Part of this Queſtion, *viz. If it can be proved impoſſible*, in the Negative; ſince Demonſtration muſt be of Things which are true; but as there can be no true Principle from which the Impoſſibiliry of the *Incarnation* can be deduced; whereas, on the contrary, the Catholick Faith teaches, that it is poſſible; therefore that auguſt Myſtery cannot be *demonſtrated impoſſible.*

If it be objected, that the Myſtery of the *Incarnation* can be demonſtrated impoſſible, ſince it can be demonſtrated, that no Nature can be ſeparated from its Hypoſtaſis and ſubſiſt; it being demonſtrable, that a Nature is in as much Need of its Subſiſtence, for its Preſervation, as of its Exiſtence.

I'll anſwer, that far from its being demonſtable, that the contrary is plainly proved, ſince it was in the Power of God to hinder the Production of the human Subſtance, and ſubſtitute the Divine in its Stead. There is, beſides, a very great Diſparity between Exiſtence and Subſiſtence; ſince Exiſtence is the firſt and intrinſick Modus of Nature, which makes it to be formally and *actu, extra cauſam*; but the Subſiſtence does not make the Nature formally *actu*, but renders it only incommutable, that it may be ſeparately, and by itſelf, and not in another. Hence it appears, that the Nature can be very well underſtood to exiſt, though it has no Hypoſtaſis, whereby it is render'd incommutable to another.

To the ſecond Part of the Queſtion, I anſwer, that *the Myſtery of the Incarnation cannot be proved and demonſtrated poſſible, by any natural and poſitive Reaſon*; becauſe the Scripture teaches us in ſeveral Places, that this Myſtery is hidden and inenarrable. *Iſa.* liii. *Who can recount his Generation?* Which Paſſage muſt not be underſtood of the ſole eternal Generation of the Word, becauſe the antient Fathers underſtood it likewiſe of the temporal one, by his taking the human Nature; and particularly St. *Chryſoſtom*, in the Homily on the Feaſt of St. *John Baptiſt*, and *St. Leo, Serm.* 3. *de nativ. Chriſt.*

I prove my Anſwer by the Scripture, the Councils, the Fathers, and by Reaſon.

By the Scripture, *Matt.* xvi. *Fleſh and Blood have not revealed it to thee, but my Father*, &c.

By the Councils, particularly the Eleventh of *Toledo*, c. 1. *de confeſſ. fidei. The Pregnancy of the Virgin* (ſays he) *cannot be diſcovered by our Reaſon, nor proved by Example; for if it could be diſcovered by Reaſon, it could not be marvellous; and if by Example, it could not be ſingular.*

By the Fathers, eſpecially St. *Auguſtin*, in his Epiſtle to *Voluſian*, where he ſpeaks thus; *If we ſearch here with our Reaſon, it is not a marvellous Myſtery, if we aſk, for an Example, it is not ſingular; let's give ſomething to God which is above our Apprehenſion; for in thoſe Things the Reaſon of the Operation is the Power of him that operates.*

By Reaſon, becauſe if it could be naturally known, and poſitively proved, it would proceed either becauſe it could be known immediately in itſelf, or in another, which is impoſſible. Not the firſt, becauſe the Scripture inſinuates the contrary, when it ſays, that this Myſtery is hidden and inenarrable; not the ſecond, becauſe if it could be known in another, it ſhould be known in him either as in the Cauſe or in the Effect; which cannot be done in either of thoſe two Manners, and conſequently it can be neither proved poſitively, nor demonſtrated. Not in the firſt Manner, ſince there is nothing in Nature which is the natural Cauſe of that Myſtery, or which requires naturally its Diſpenſation and Conſummation. Nor in the laſt, becauſe there is no Effect purely natural, which ſeems to have naturally any neceſſary Connexion, with the Myſtery of the *Incarnation*, to ſhew poſitively that it is neceſſarily poſſible.

But notwithſtanding, the Myſtery of the *Incarnation* can be proved poſſible againſt the *Jews*, Hereticks, and Infidels, or Pagans. And this in a different Manner, according to their different Sentiments.

To prove it poſitively againſt the *Jews*, who are the moſt obſtinate of them all, though they live ſtill in Expectation of the Accompliſhment of this Myſtery. I'll make uſe of their own Arms againſt them; and ſearch in the Old Teſtament, which is their Oracle and their Guide in religious Matters, my ſtrongeſt Proofs.

I'll take the firſt Proof from *Geneſ.* xlix. where *Jacob* giving his Bleſſing to every one of his Children in particular, ſpeaks in theſe Terms, *The Scepter ſhall not depart from Judah, nor a Law-giver from between his Feet, until Shiloh come.* Whence it is eaſy to ſhew that the *Meſſiah* is come, if I can prove that *that* Prophecy has been entirely accompliſhed, for the *Jews* have never pretended that it was a falſe one; but it is certain, that this Prophecy of *Jacob* has been accompliſhed, ſince it is certain, that for theſe thouſand ſeven hundred and forty-three Years paſt, none of the *Hebrews* has governed their Republick either as a King, a Chief, or legitimate Governor; whereas on the contrary, they have always been either captive or vagrant throughout the whole World. For don't we read in *Joſephus, lib.* 14. *antiq. Jud. Olympad.* 114. that *Herod* who was a Foreigner, had been made King of the *Jews* by the *Roman* Senate, ſome Time before the Birth of our Lord *Jeſus Chriſt?* But as *Herod* being an *Idumean* born may be contradicted with ſome Appearance of Reaſon, ſince the Scripture ſays nothing of it, I am rather of Opinion, that in this Place we muſt take the Prediction of *Jacob* for the whole *Judaick* Nation, which had been preſerved in that Tribe ever ſince the Tranſmigration of *Babylon*, the other Tribes having been deſtroyed and diſperſed. Therefore the true Senſe of this Prophecy would be that the *Jews* ſhould continue to be a particular People to have Kings, Dukes, and Pontiffs to govern them according to their eccleſiaſtical and political Laws till the Birth of the *Meſſiah*.

Some pretend that this Prophecy of *Jacob* ought to be interpreted of *Nebuchadonoſor*, who was deprived of the Kingdom of *Judah*, and not of the *Meſſiah*. But this cannot be for ſeveral Reaſons; becauſe, 1. Several of thoſe Things ſaid in that Place, of him who was to be ſent, can by no Means be applied to *Nebuchodonoſor*, *v. gr. Jacob* praiſes him who was to be ſent, and calls him the Expectation of Nations. But who could believe that *Jacob* intended to praiſe the Deſtroyer and Tyrant of his People, who was beſides mortally hated by all other Nations? Likewiſe, in the ſame Place Mention is made of an Aſs, and of the Colt of an Aſs, of Wine to waſh Cloaths with, and of the Blood of the Grape to waſh the Pallium. But theſe cannot be underſtood of *Nebuchodonoſor*, nor of any other Duke or Prophet but Chriſt; who, according to the Scripture, entered *Jeruſalem*, alternately mounted on an Aſs, and on its Colt, and who waſhed his Cloaths in Blood, when he died for the Redemption of Men, &c. 2. Becauſe the Power of governing and judging the People of *Iſrael*, was not entirely taken from the Tribe of *Judah* by *Nebuchodonoſor*, but remained in it even during the Time of the Captivity of *Babylon*: For there was then a ſupreme Council called *Sanhedrim*,

Sanhedrim, which had both the civil and ecclesiastical Power, could punish the Guilty and absolve the Innocent, as the *Rabins* themselves are obliged to confess.

It may be objected to this, that we have no greater Reason to say, that Christ is come, after the Scepter was transferred from the Tribe of *Judah* to *Herod*; than when the *Maccabees* were in Possession of that Scepter, because neither *Herod* nor the *Maccabees* were of the Tribe of *Judah*, *Herod* being a Foreigner, as already observed, and the *Maccabees* of the Tribe of *Levi*; and that as it is certain that the *Messiah* did not come when the Scepter was in the Hands of the *Maccabees*, we are not to say, that he came when *Herod* received the Kingdom of the *Jews* from the *Romans*.

I answer, that there is a great Difference between *Herod* (who was neither of the Tribe of *Judah*, nor of any other of the Children of *Israel*) and the *Maccabees*, who were of the Tribe of *Levi*, between which and the Tribe of *Judah* there was a great Affinity, and which had besides this singular Privilege, that those of that Tribe could marry in that of *Judah*, which was forbidden to all the other Tribes, as may be seen in the last Chapter of *Numbers*.

The second Passage of the Old Testament, which I borrow to prove that the *Messiah* expected by the *Jews* is come, is taken from the ninth Chapter of the Prophet *Daniel*, for there the Angel *Gabriel* foretels the Coming of the *Messiah*, after seventy Weeks, which, in whatever Manner they be explained, must be elapsed; whence it follows, that the Christ, promised in that Place to the Prophet by the Angel, is come. The Words of the Prophet *Daniel* are these, *Seventy Weeks are determined upon thy People and upon thy holy City, to finish the Transgression, and to make an End of Sins, and to make Reconciliation for Iniquity, and to bring in everlasting Righteousness, and to seal up the Vision and Prophecy, and to anoint the most Holy:—Know therefore and understand, that from the going forth of the Commandment to restore and to build Jerusalem, unto the Messiah the Prince, shall be seven Weeks; and threescore and two Weeks the Street shall be built again, and the Walls, even in troublesome Times. And after threescore and two Weeks the Messiah shall be cut off, but not for himself; and the People of the Prince that shall come, shall destroy the City and the Sanctuary, and the End thereof shall be with a Flood, and unto the End of the Wars Desolations are determined. And he shall confirm the Covenant with many for one Week; and in the midst of the Week, he shall cause the Sacrifice and the Oblation to cease.*

We learn from this Text of the Scripture, that He, mentioned in it by the Angel, is the *Messiah* expected by the *Jews*; which can be proved in two Manners, *viz.* 1. Negatively, shewing, that all the Things mentioned in the Text can be attributed to no Body else but the *Messiah*: For if they could be attributed to any Body else, it would be either to *Cyrus* King of *Persia*, or to *Hyrcanus* the *Maccabee*, or to *Zerobabel*, as some *Jews* have falsly imagined. But to none of those three can be applied these Things contained in that Text: Not to *Cyrus*, because he permitted the Temple to be rebuilt, 2 *Paralip. c. ult.* Therefore it cannot be said, that by him the Abomination of Desolation mentioned in the Text, had been introduced in the Temple, and continued in it to the End; nor to *Hyrcanus*, because under him there was no Abomination of Desolation, and the Number of the seventy Weeks was not accomplished; nor lastly, to *Zerobabel*, for the same Reasons abovementioned.

2. It can be proved positively, *viz.* by shewing, that all this Text is understood, *ad literam*, of the *Messiah*, even by the *Rabins*, and other Doctors of the *Jews*.

It may be objected, that the End of the Weeks fixed by the Angel in the Prophet *Daniel*, for the coming of the *Messiah*, could not fall on that Time. We say, that the Christ promised to the *Jews*, and expected by them, came; and that therefore it can be proved by that Text, that the *Messiah* promised and expected by the *Jews*, is come.

I answer, that suppose that by those Weeks are understood Weeks of Years, *i. e.* seven Years for each Week, as they really are to be understood (since we find no other Weeks in the Scripture but Weeks of Years, and Weeks of Days; and the *Jews* themselves confess easily, that we are not to understand in this Place Weeks of Days, otherwise they would be obliged to confess likewise, that the *Messiah* is already come) it is easy to conclude that the last of those Weeks of the Angel, fell on that Time Christ was crucified; for those seventy Weeks make up the Number of 490 Years, and began the twenty-second Year of the Reign of *Artaxerxes Longimanus*, sixth Emperor of *Persia*: In which was given that publick and solemn Edict obtained by *Nehemiah*, for the Reparation of the Walls of *Jerusalem*, and for which *Nehemiah* is said to have rebuilt the Walls of the City; but from the twenty-second Year of *Artaxerxes Longimanus*, to the Time of the Passion of Christ, whom we believe the *Messiah* promised to the *Jews*, and expected by them; there were about 490 Years elapsed: Therefore it is evident, that the seventy Weeks fixed by the Angel in *Daniel*, were accomplished; and consequently that the Christ that we believe had been promised to the *Jews*, and, we say, was killed in the Middle of the last of those Weeks, and to whom we apply all that was foretold by the Angel to *Daniel*, is come.

If I be asked, why by those Weeks are not rather understood Weeks of *Olympiads*, or of *Jubilees*, or of *Centuries*? I'll answer, that I have satisfied that Question, when I have said, that neither the Scripture nor the *Jews* used those Sorts of Weeks; and had no Knowledge but of Weeks, either of Days, *Levit.* xii. *Num.* xxiii. *Deut.* xvi. or of Years, where the Celebration of the holy Year of the *Jubilee* is mentioned: *You'll reckon* (says God) *seven Weeks of Years*, i. e. seven Times seven Years, which together make up forty-nine Years, and you'll keep the fiftieth Year.

But why (say you) are those Weeks said to have began rather at *Artaxerxes* than at *Cyrus*, who, as it appears *Paralip. c. ult.* and *Esdr. lib.* 1. *c.* 1. had permitted before *Artaxerxes*, the Instauration of the Temple?

I answer, that it is not without Reason I have said, that those Weeks began in *Artaxerxes* and not in *Cyrus*, or even *Darius*'s Time; since the Angel in the above-quoted Place of *Daniel* insinuates, that they'll begin when there will be an Edict for rebuilding the Walls of *Jerusalem*, and not when there would be an Edict for repairing the Temple; which Edict for repairing the City of *Jerusalem* and rebuilding its Walls, was given by *Artaxerxes Longimanus*, not by *Cyrus*, who only permitted that the Temple should be rebuilt; which is easily confirmed by these Words of the Angel in the Passage above quoted, *The Street shall be built again, and the Walls, even in troublesome Times*; for whether those troublesome Times be understood of the great Affliction of the People, or of the Shortness of Time, they very well become the Time of *Nehemiah*, who obtained from *Artaxerxes* the Liberty to rebuild *Jerusalem*; for while he was rebuilding the Walls, the Incursions of the Enemies were so frequent, that the Workmen were obliged to work with one Hand, and have their Sword in the other; as it appears *Esd. lib.* 2. *c.* 6. where we read likewise, that the Walls were perfected in a very short Time, *viz.* in the Space of about fifty Days.

All this I have said of the seventy Weeks of *Daniel*, *viz.* that they began at the twenty-second Year of *Artaxerxes Longimanus*, and ended at the Passion of Christ, is confirmed by the Number of *Olympiads* being conformable to my Supputation: For between the twentieth Year of *Artaxerxes* and the Passion of Christ there are a hundred and twenty-two *Olympiads*, which are equivalent to seventy Weeks of Years; therefore the twenty-second Year of *Artaxerxes Longimanus* falls on the eighty-first *Olympiad*, and the Passion of Christ on the two hundred and third *Olympiad*. Observing however that the twentieth Year ought not to be reckon'd from the Time *Artaxerxes* began to reign alone, at his Father's Death; but from the Time he was proclaimed King while his Father was yet living.

If it be objected that before *Artaxerxes* a great Number of *Jews* had returned into their Country, and built some Houses; which is a Sign that the Edict mentioned in the Prophet *Daniel* is not of *Artaxerxes*: I'll answer, that it is very true, that before *Artaxerxes* some *Jews* had returned into their own Country, and even built some

ſome Houſes, but thoſe Houſes were but a Heap of Stones laid upon one another in Haſte, and without any Order, ſo that they could not properly be ſaid to have re-built the City, ſince they had not re-edified the Walls and Towers to ſhelter themſelves againſt the Inſults of their Enemies; as *Nehemiah* did by the Authority of *Artaxerxes*.

The third Place of the Scripture, whereby it can be proved that the *Meſſiah* expected by the *Jews* is come, is taken from the ſecond Chapter of the Prophet *Haggai*, *Yet once it is a little while* (ſays the Lord) *and I will ſhake the Heavens and the Earth, and the Sea and the dry Land. And I will ſhake all Nations, and the Deſire of all Nations ſhall come, and I will fill this Houſe with more Glory than the firſt was.* There is no doubt of this Place being underſtood of the coming of the *Meſſiah*; and as there the *Meſſiah* is ſaid to come after a little Time, it follows hence, that he is really come a long while ago; ſince there are more than two hundred Years elapſed from the Time of *Haggai* to ours: For from that Paſſage it eaſily appears that he was to come, and is really come after a little Time; that he was to come while the Temple was yet ſtanding, otherwiſe what is ſaid in that Paſſage could not be true, *viz.* that the Glory of the ſecond Temple would be greater than that of the firſt. But it is certain, that *that* ſecond Temple which was built after the Captivity of *Babylon*, was deſtroy'd ſeveral Centuries afterwards; therefore, *&c.*

The fourth Paſſage of the Scripture, whereby it can be proved that the *Meſſiah* promiſed to the *Jews*, and expected by them is come, is taken from the third Chapter of *Malachi*, where we read theſe Words, *Behold I will ſend my Meſſenger, and he ſhall prepare the Way before me; and the Lord whom you ſeek, ſhall ſuddenly come to his Temple, even the Meſſenger of the Covenant whom you delight in.* I prove that this Place relates to the Coming of the *Meſſiah*, either becauſe mention is made in it of his Precurſor, who is call'd Meſſenger, becauſe he was really the Meſſenger of Chriſt, as it appears from the firſt of St. *John*, Chapter ſecond; or becauſe *Jeſus Chriſt* came to the Temple of *Jeruſalem* for the firſt Time, the fortieth Day after his Nativity; and the ſecond when he was twelve Years of Age, *viz.* when he was found by his Parents diſputing with the Scribes and Doctors of the Law.

This Coming is confirmed by all theſe Paſſages and Oracles of the Prophets, which have been accompliſhed in Chriſt, whom we believe to be the *Meſſiah* promiſed to the *Jews* and expected by them. For,

1. His Origin and Birth from the Race of *David*, and from the Root of *Jeſſe*, was foretold *Iſa.* xi. and we read *Pſalm* cxxxii. that ſuch Prophecy has been accompliſhed.

2. His Nativity was foretold *Iſa.* vi. and we read it was accompliſhed from the Virgin *Mary*, Matt. i.

3. The Adoration of the *Magi* or Kings, conducted by a Star, was foretold *Iſa.* lx. and is found accompliſhed, *Matt.* ii.

4. The Name of *Nazarene*, which had been foretold, is found accompliſhed, *Matt.* ii.

5. The Coming of the Precurſor foretold, *Iſa.* xl. is ſeen accompliſhed, *Matt.* iii.

6. The Miniſtry of the Angels foretold, *Pſalm* xci. is read accompliſhed, *Matt.* iv.

7. His Converſation in *Galilee* foretold, *Iſa.* ix. is read accompliſhed, *Matt.* iv.

8. The Vocation of his Diſciples foretold, *Iſa.* viii. is ſeen accompliſhed, *Matt.* x.

9. The Operation of his Miracles foretold, *Iſa.* xxxv. is found accompliſhed, *Matt.* xi. and elſewhere.

10. His meek and modeſt Conduct foretold, *Iſa.* xlii. is ſeen accompliſhed, *Matt.* xii.

11. His parabolical Learning, or Manner of teaching in Parables foretold, *Pſalm* lxxviii. is read accompliſhed, *Matt.* xiii.

12. His great Beneficence in feeding the People, foretold *Ezek.* xxxiv. is read accompliſhed, *Matt.* xiv.

13. His Deteſtation of Hypocriſy and bad Doctrine, foretold, *Iſa.* xi. is read accompliſhed, *Matt.* xv.

14. The Inſtitution of the Auguſt Sacrament of his precious Body and Blood, foretold, *Pſalm* cx. in theſe Words, *Thou art a Prieſt for ever after the Order of Melchiſedech*, who, according to *Geneſ.* xiv. offered Bread and Wine, is read accompliſhed, *Matt.* xxvi.

His Paſſion foretold, *Iſa.* xliii. and read accompliſhed, *Matt.* xxvii.

16. His magnificent Reſurrection, foretold *Hoſea* vi. and xiii. is found accompliſhed, *Matt.* xxviii. *Mark* xvi. *Luke* xxiv. *John* xx.

17. His glorious and triumphant Aſcenſion, foretold *Pſalm* lxviii. is found accompliſhed, *Mark* xvi.

18. There is an infinite Number of Prophecies in the Old Teſtament of the promiſed *Meſſiah*, which we read accompliſhed in the New, in the Perſon of Chriſt whom we believe to be that *Meſſiah* promiſed to the *Jews*. Even *Joſephus* himſelf mentions thoſe Things which are ſaid of *Jeſus Chriſt*, *lib.* 18. *antiq. jud. c.* 5. where he recounts ſeveral of the Miracles of *Jeſus Chriſt*, which we employ to prove his Divinity, and which the *Jews* could not conſider as Prodigies, *v. gr.* the Reſurrection of *Lazarus*.

It may be objected that the *Meſſiah* promiſed to the *Jews*, was to deliver them from Servitude, which has not happened yet; and therefore is a Mark that the *Meſſiah* is not yet come.

I anſwer this by a Diſtinction, *viz.* that he was to deliver them from the Servitude of Sin, of Death, and of eternal Damnation; but not from the Servitude of Princes.

Another Objection is, that the Coming of the *Meſſiah* was to be magnificent and glorious, according to the Prophecies; whereas that of *Jeſus Chriſt* was very mean, being born in a Stable, and in want of all Things; therefore he is not the *Meſſiah* promiſed to the *Jews*.

I anſwer, that the ſecond Coming of *Jeſus Chriſt*, mentioned *Matt.* xxv. is to be magnificent, but not the firſt; ſince he is come rather to be judged and ſuffer, than to judge.

Note, That we are to prove next the Exiſtence of the Myſtery of the *Incarnation* againſt the Hereticks, in which we'll make uſe of both the Old and New Teſtament, ſince they admit both; and there are in both a great Number of Paſſages which prove the Truth of the *Incarnation*, as its having been actually accompliſhed; but as I have already employ'd againſt the *Jews* all the Proofs the Old Teſtament could furniſh me with; to avoid a Repetition I'll content myſelf with making uſe in this Place of thoſe taken from the New Teſtament.

We read expreſly in the firſt Chapter of the Goſpel of St. *John*, *that the Word has been made Fleſh*; and lower in the ſame Chapter, *The only begotten Son, who is in the Boſom of the Father, he hath declared him.* And it is ſcandalous and ridiculous to ſay, either that Chriſt is not a true God, or not a true Man; ſince nothing is more expreſs and clear in the Scripture, than both his Divinity and Humanity.

That Chriſt is a true God appears from the Beginning of the firſt Chapter of the Goſpel of St. *John* already quoted; *In the Beginning was the Word, and the Word was with God, and the Word was God.*

His being a true Man appears likewiſe from theſe Texts, *John* viii. *But now you ſeek to kill me, a Man that has told you the Truth.* And chap. x. *For a good Work we ſtone thee not, but for Blaſphemy, and becauſe that thou being a Man makes thyſelf God.* And to the *Philippians*, chap. ii. *Who being in the Form of God thought it no Robbery to be equal with God; but made himſelf of no Reputation, and took upon him the Form of a Servant, and was made in the Likeneſs of Men; and being found in Faſhion as a Man, he humbled himſelf, and became obedient unto Death*, &c. If he was not a Man and had no Fleſh, he could not have died.

Laſtly, that he is the Son of God, is evident from *Matt.* xvi. *Thou art Chriſt the Son of the living God.* Luke i. *Therefore alſo, that holy Thing which ſhall be born of thee ſhall be called the Son of God.* John xx. *But theſe are written that you might believe that Jeſus Chriſt is the Son of God.*

This is confirmed, 1. By the Authority of the antient Biſhops of *Rome*, particularly by Pope *Vigilius*, *lib.* 2. *cont. Eutych.* where explaining theſe Words of the Apoſtle to the *Philippians*, already quoted, *Who being in the Form*

Form of God, thought it no Robbery to be equal with God; but took upon him the Form of a Servant, &c. speaks thus, *It is surprising that some are afraid to say that there are two Natures in* Christ, *when St.* Paul *says that there are two Forms*. And St. *Leo, Epist.* 97. to *Leo Augustus*, expresses himself in these Words, *Therefore let* Nestorius *be anathematized, who believes that the blessed Virgin* Mary *is only the Mother of a Man, and not of God; making thereby one Person of the Humanity, and another of the Divinity*. And likewise St. *Gregory, lib.* 8. *moral.* delivers himself on that Subject, in this sublime Manner. *How could that same Christ be other from the Father, and other from the Mother? He is not other from the Father, nor other from the Mother; but is eternal from the Father, and temporal from the Mother; he who has made, and he who has been made: He himself the Author of the Work, and himself the Work of the Author; remaining one from both and in both Natures, without being confused by the Union of the two Natures, or made two by their Distinction.*

2. The same Sentiment is confirm'd, likewise, by the Councils, particularly that general one of *Chalcedon*, assembled against *Eutyches*. In the first Action thereof, Anathema is fulminated against those who should say, that there is but one Nature in Christ, resulting from the divine and the human. Whence the Fathers of the Council profess, that they believe, that the same Lord *Jesus Christ*, is as perfect in his Humanity, as he is in his Divinity, that he is truly God and truly Man, *&c.* By that of *Ephesus*, where *Nestorius* was condemned, and likewise by the second of *Constantinople, can.* 3. *Whosoever*, say the Fathers of the Council, *endeavours to introduce in the Mystery of Christ, two Subsistences, or two Persons, let him be Anathema.*

Note, That though the Possibility of the Mystery of the *Incarnation*, can be proved positively, by the Scripture, against the *Jews* and Hereticks, because the *Jews* and Hereticks admit the Scripture; it cannot be proved thus against the Pagans, who reject both the Old and New Testament as fabulous; therefore it cannot be proved against them but negatively, *viz.* by resolving the Arguments, whereby they endeavour to shew the Impossibility of that Mystery; therefore there is another Manner to attack them; which is as follows:

1. Several Absurdities, Impieties, and the Ridicule of their false Religion, and false Worship, must be shewn them, to excite within them some Scruples, and Doubts about that Religion. The better to succeed therein, it must be exposed to them, that an Idol is nothing but a Piece of Wood, of Stone, or the like, without Life; and though made with Eyes, and Ears, can neither see nor hear. But what if they were to answer, that they do not respect that Stone or Wood, but only the Persons represented thereby, *viz. Jupiter, Mars*, &c? Then they must be answered, that those Persons are unworthy of that Worship, which is only due to the true God; since they were once but mere Men, who had no Divinity at all: But on the contrary, several of them had abandoned themselves to an infinite Number of Disorders, and Crimes, *v. g.* to Theft, Ebriety, Adultery, and the like; and what is worse still, several of them had approved, and give a Sanction to those Crimes; as is plainly seen in all the Pagan Histories. Acting thus with them, they may be rendered more docile, and more sollicitous of their Salvation.

2. When the Pagans begin to doubt of their Religion, then they begin, likewise, to be capable to hear the Mysteries of ours, and the Dogma's which are proposed to them, having previously insinuated and shewed them that Christianity is free from Idolatry and Error. All our Mysteries and Dogma's are not to be proposed to them at once; but only the most essential ones, and afterwards those which are less essential, *v. g.* first, the Mystery of the Trinity; secondly, that of the *Incarnation*; and this by Degrees, according to their Capacity, and good Disposition.

3. When a Mystery is to be proposed to them, *v. g.* that of the *Incarnation*, it must be proposed to them, as probable, or agreeable to Truth, by this or the like like Argument. That must be esteemed possible, by natural Reason, and in the Judgment of prudent Persons, which cannot be refuted by any opposite Reason; or which is neither absurd, nor impossible; but the *Incarnation* of the divine Word is so; therefore it must be esteemed possible.

Note, That of several Arguments which may be used to prove the *Mystery of the Incarnation* to the Pagans, the following are the most common.

The first Argument is taken from the Miracles of Christ, related only in the Gospel, in which the Pagans have no Faith; but likewise in their own Histories; since *Plutarch*, and several other Pagan Historians, take Notice, that Christ at his coming into the World, had silenc'd the Oracles of their Gods. *Phlegon*, the Chronologer, and Freedman of the Emperor *Adrian, lib.* 13. *de temp.* mentions that extraordinary Eclipse, which happen'd at Christ's Death upon the Cross; and which *Tertullian* says in his Apologetick, was also inserted in the *Roman* Archives.

The second Argument is taken from the Manner whereby the whole World was converted to Christianity; which is also a Miracle; since it was not done by Force of Arms, nor by the wisest and most powerful; but only by twelve Men of no Reputation, most of them Fishermen; and that not by Caresses, Flattery, or Promises of Honour, Preferments, *&c.* but rather by persuading to abandon Friends, Parents, Relations, to despise Pleasure, Riches and Honours; to profess Poverty, Chastity, Humility, to suffer the greatest Injuries with Patience and Resignation, to do good to our Enemies, to avoid all Sorts of Sins; as *Pliny*, who was a Pagan Author, witnesses it, *Lib.* 10. *Epist.* 97. to the Emperor *Trajan*; which being all above the human Strength, it must be inferred, that it belonged to God alone, to use those difficult and extraordinary Means for the Conversion, not of a City or of a Nation only, but of the whole Universe.

The third Argument is taken from what has been foretold of Christ, and which we know to have been in Part accomplished: But all those Things could neither be foreseen nor foretold but by God himself, *viz.* the Devastation of *Jerusalem*, the entire Ruin of the Temple, the frequent Captivities, and innumerable Calamities of the *Jews*, the Predication of the Gospel throughout the whole World, *&c.* therefore, *&c.*

The fourth Argument is taken from the infinite Number of Martyrs, of all Ages, Sexes, and Condition; who with a marvellous Constancy, have confessed Christ amidst the most excruciating Torments.

The fifth Argument is taken from the Predictions of the Sybils.

Having thus proved the Possibility of the *Incarnation* of the divine Word, both positively and negatively, *viz.* positively against the *Jews* and Hereticks, and negatively against the Infidels; I'll pass to the *Necessity of that Mystery*, asking first, *If the Creation of the World, being supposed, the Incarnation of the second Person of the blessed Trinity had been absolutely necessary, though* Adam *had not sinned.* Which Question is to be answered in the Negative; against *Lullius*, who maintain'd that after the Creation of the World, the *Incarnation* had been absolutely necessary, tho' *Adam* had never sinned.

I prove my Negative, by observing, that there is no necessary Connection between the Creation of the World, and the *Incarnation*, since both depend of the divine Will, and we do not find in any Place of the Scripture, that the World had not been decreed and created, unless the Word had been incarnated. When as it may be said, on the contrary, that though the Mystery of the *Incarnation* had never been accomplished, the World, notwithstanding, had been perfect naturally, *i. e.* had had all the Perfections both essential and accidental due to it.

The next Question is, *the Sin of Man being supposed, if the Incarnation was necessary to reconcile him with God?*

Note, Previously to my Answer, that something may be said necessary to another, in two Manners, 1. Simply, and absolutely. 2. *Secundum quid*, which Distinction

I have explain'd in my Treatise of *God's Attributes*. These pre-observ'd,

I say, that the Sin or Fall of Man being supposed, the *Incarnation* of the Word, or any other hypostatical Union, was not absolutely necessary, to reconcile Man with God, and repair that Fault. Because God could either refuse to succour Man fallen, or if he was willing to assist him, he could have procured a Reconciliation, otherwise than by Means of the hypostatical Union, *v. g.* by an Act of a perfect Contrition, or Love of God above all Things. The first Part of my Answer, *viz.* that God could, if he would, have refused his Assistance to Man fallen, is confirmed by St. *Augustin, lib. de nat. & grat. c.* 5. *The whole Mass*, says he, *deserves Punishment, and if all were condemned to eternal Damnation, they could not be unjustly condemned.* The second Part is also supported with the Authority of St. *Gregory Nazianzen, Orat.* 9. in these Terms, *But the Saviour has done this, that's to say, has took the Form of a Servant, though, as God, he could save by his sole Will; as he has formed all Things by his sole Command.* Whence it is not surprising, if the Manner of operating the Reparation of the human Race, is not attributed in the Scripture to Necessity, at least an absolute one, but to Charity and Mercy, according to this, *Tit.* iii. *He has saved us according to his Mercy.* And *John* iii. *He has thus loved the World as to give his only Son.* A Benefit, thus granted, supposes in him who grants it, a Liberty of granting it.

For a still stronger Confirmation of this Sentiment, I say, that if the *Incarnation*, or any other hypostatical Union, had been absolutely necessary; it had been to the utmost necessary, in order to satisfy to God, to the greatest Rigour of Justice; which exact Satisfaction was not absolutely necessary for the Reconciliation of Man with God, since God, who is absolute Master, and sovereign Judge of all the Creatures, could forgive the whole Fault gratuitely, and relinquish his Right of Punishment; especially if some Repentance be supposed on Man's Side. Notwithstanding what some of the Fathers say, that Man could not have been otherwise delivered than by the *Incarnation*; for they only understand it in that Sense, and to that End, that there should be a rigorous and perfect Satisfaction; and not all Sorts of Reparation whatsoever. Add, that others of the holy Fathers say plainly, that God could have operated the Reparation of Man otherwise than by the *Incarnation*; particularly St. *Augustin, lib. de agon. Christ. c.* 1. where he speaks thus; *Those are Fools that say, that the divine Word would not have saved us, otherwise than by taking the human Nature, and being born of a Woman, and for us Men; to whom we say, that he could certainly do it: But if he had acted otherwise, that had likewise been displeasing to your Folly.* And St. *Gregory, lib.* 20. *moral. c.* 26. *Though God could succour us without dying, he would, notwithstanding, succour us in dying.*

But, however, though the *Incarnation* was not absolutely necessary, it was notwithstanding necessary, *secundum quid*, i. e. very convenient; which I prove by the Fathers and by Reason.

By the Fathers, particularly St. *Augustin, lib.* 3. *de trinit. c.* 10. where he speaks thus; *Let us shew that God, to whose Power all Things are equally subject, had other possible Means to save us; but there was no other more proper to cure our Infirmity.*

By Reason, because the *Incarnation* has render'd us the Road to Salvation, and to the eternal Beatitude very easy; which Road we should follow by the Practice of all Virtues, and by avoiding Evil and doing Good, in which we are marvellously assisted by the hypostatical Union; as it will appear by the Induction. For,

1. Nothing is clearer, *as to the Practice of Faith*; because a Man may be easily persuaded to believe, that he can become the Son of God, when he knows, that the Son of God has been made, by the *Incarnation*, the Son of Man; as St. *Augustin* insinuates it, *lib.* 11. *de Trinit. c.* 2. in these Terms, *That Man may walk with a greater Confidence in the Road of Truth, the Son of God by taking the Humanity has founded and established the Faith of that Truth.*

2. *As to the Practice of Hope*, it is apparent enough; since by the Benefit of the *Incarnation*, we have a Mediator between us and God; whom we know by Faith to be the Object of our Beatitude; as St. *Augustin* teaches it, *lib.* 13. *de Trinit. c.* 10. where he speaks thus; *Nothing was more necessary to strengthen our Hope, than to shew us how much God has loved us; and what greater Proof can any Body desire of it, than that the Son of God has not thought it beneath him to take our Nature?* And *lib.* 11. *de civit. c.* 2. he expresses himself in these Terms, *If there be a middle Way between him that aspires, and the Thing he aspires at, there is Hope of prevailing, but if there be none, and one is ignorant which Way to walk, it is needless to know where he is to go.*

3. *As to the Practice of Charity*, the Thing is, likewise, very apparent: For nothing is more capable to excite Men to the Love of God; than to know, *that God thus loved the World, as to give his only Son.* Whence St. *Augustin, lib. de catechis. rudibus, c.* 4. *There is*, says he, *no greater Invitation to love, than to be prevented by Love; and a Friend is too hard-hearted, who refuses to return Love for Love, therefore if he repented to love him, he ought not to refuse loving him again, after so great a Mystery of Love.* To this may be added, what St. *Thomas* says, that Love consists in a certain Equality; and therefore, those between whom seems to be a very great Inequality, are not fit to be united in Love: Whence it follows, that to establish Love between God and Men; it was necessary that God should be united to Man.

4. *As to the Practice of Good*, it appears clearly; for in order that Man should operate and promote Good, he must be free from the Consciousness of a past Offence; but he cannot be freed from it, with a greater Certainty, than by God made Man; since himself had said, and confirm'd it by Miracle, that he had the Power to remit Sins, *Matt.* ix. and since God made Man, has excited us by his Example to operate and promote Good. But nothing is more powerful than the Example of Christ, because the greater is the Goodness of a Person, the more efficaciously are we induced to Virtue by his Example; but no Goodness could be ever so great as is that of *Jesus Christ*; therefore, *&c.*

The *Incarnation*, is also of a great Efficacy, to engage us to avoid Evil, since by the Mystery of the *Incarnation* of the Word, Man knows so well the Excellence and Dignity of human Nature, as to be afraid of doing any Thing to disgrace it, according to St. *Augustin, lib. de verâ relig. c.* 16. and *lib.* 13. *de trinit. c.* 7.

Our next Question relating to the same Subject is, *If, at least, the hypostatical Union was absolutely necessary, for the Reparation of the human Race by a rigorous Satisfaction; or whether a pure Man, at least a just one, sufficed for it?*

Note, That before I answer this Question, we must observe, 1. That *Satisfaction* may be considered in two Manners, *viz.* either in a *wide* or *strict Sense.* 2. That there are two Sorts of *Satisfactions*, one *imperfect*, and the other *perfect.* 3. That our Question will be easily resolved, if we give the Definition of every one of the above-mentioned *Satisfactions.* Therefore *Satisfaction* taken in a *wide Sense* is *a voluntary Reddition or Return of an Equivalent, made to a Creditor by a Debtor, of his own proper Goods, which otherwise are not due.* It is said a *Reddition* or Return, either to give to understand that it is an Act of Justice, and that to another; or to insinuate that it is some body's Due properly taken, and has a Relation to something past, for which a Compensation must be made; or to distinguish it from a simple Donation, whereby something is given gratuitly. It is said *voluntary*, either because an Act of Virtue ought to be voluntary and free; or to distinguish it from a Satisfaction, whereby a Criminal satisfies for his Crime, in undergoing the Punishment inflicted by the Judge. It is said of an *Equivalent*; for that Reddition, as we have already observed, is an Act of Justice, to which it belongs to return to every one his own, and as much as has been taken. It is said, *made to a Creditor by a Debtor*, to shew that all Sorts of voluntary Reddition without Distinction, are not a Satisfaction; and that to be such it must be made to a Creditor by a Debtor. It is said of *Goods*, to insinuate thereby, that

that the Reddition of an Equivalent in Evils, is not a *Satisfaction*, but a Revenge. It is said *proper Goods*, *i. e.* of Goods entirely in the Propriety of the Debtor, and to which he has an unquestionable Right. It is said, *otherwise not due*; for if they were already due to another, at least by a Title of Justice, it would be rather a new Injury than a Satisfaction.

Satisfaction, taken in a *strict Sense*, is commonly defined *a voluntary Reddition of Honour and Respect, for the Compensation of an Injury done to another.* This Definition is easily understood by what we have said of *Satisfaction* taken in a wide Sense, from which it differs only, in that the *Satisfaction* in a wide Sense is of Things; and this *Satisfaction*, of Actions. If I be asked, whether this *Satisfaction in a strict Sense*, differs from *Restitution* and *Merit*, I'll answer in the Affirmative, that it differs from *Restitution*, for the Reasons already mentioned; and from *Merit*, because Merit does not regard formally the Compensation of an Offence, but is ordered towards a Recompense, and tends towards some Good of him that deserves, or from whom he deserves; making him from whom he deserves Debtor of Merit, according to the Value and Condition of the meritorious Act; which notwithstanding does not hinder an Action from being under different Considerations, both meritorious and satisfactory.

A *perfect Satisfaction, is that which has all the Conditions of a Satisfaction taken in a strict Sense.* And *an imperfect Satisfaction, is that which wants one or more of those Conditions:* These pre-observ'd, the first Part of my Answer to the Question is,

That *a pure Man, whether he be considered as acting by the sole Strength of Nature, or acting or suffering, by the Succours of a supernatural Grace, can satisfy neither for his Sins, nor for those of others, at least of a perfect Satisfaction.* Because a pure Man, let him be ever so efficaciously assisted by a supernatural Grace, can offer nothing to God in Satisfaction, which could adequate the Offence offered to him; the Reason is, because a mortal Sin (for we mean no other in this Place) is in some Manner, an infinite Offence; but what can be offered by a pure Man, let the Succours of a supernatural Grace be ever so great, remains always finite, and thus cannot be equivalent or sufficient to repair an infinite Offence; therefore, *&c.*

I may be asked why that *Satisfaction* made by a pure Man be always finite, and of a finite Value? To which I answer, that the Reason is, because the Value of the Satisfaction results always from the Person who makes it: And as the Person of a pure Man is always finite, hence it is that the Value of his Satisfaction be always finite. Whence it is not surprising if some of the antient Fathers were of Opinion, that the hypostatical Union was absolutely necessary for a perfect Satisfaction for our Sins; which is declared by St. *Augustin*, in *Enchir.* 108. *No Body ought to glory in his Humanity*, says he, *for we could never have been delivered by our Mediator Christ, if he had not been God.*

Note, That I have said in my Answer, 1. *At least of a perfect Satisfaction*, to insinuate thereby that a pure Man, assisted by a supernatural Grace, can satisfy imperfectly for his Sins.

The second Part of my Answer is, *that the hypostatical Union was simply necessary for the Redemption of the human Race, by a condign Satisfaction.* Which is sufficiently proved by what I have said already on that same Subject.

The next Question is, *If Christ has perfectly satisfied for the Sins of Men, as well of those who exist at this present Time, as of those who have been, and are to be?* Which Question I answer in the Affirmative. Because his Satisfaction had all the Conditions of a perfect Satisfaction: For, 1. He has return'd an Equivalent. 2. He has return'd it to another. 3. He has return'd it of his own Goods. 4. He has return'd of Goods, which otherwise were not due. I'll examine these four Conditions every one in particular.

The first Condition, *viz. that he has return'd an Equivalent*, is evident; since he has return'd much more than was sufficient to satisfy for the Sins of all Men in general, *i. e.* as well of those who exist at present, as of those who have been, who are to be, and even of those who are possible. And this appears.

1. From the Scripture, *Rom.* v. 15. *But not as the Offence, so also is the free Gift. For if through the Offence of one, many be dead; much more the Grace of God, and the Gift by Grace, which is by one Man, Jesus Christ, hath abounded unto many.* Ver. 18. *Therefore as by the Offence of one, Judgment came upon all Men to Condemnation; even so by the Righteousness of one, the free Gift came upon all Men unto Justification of Life.* We can also quote those Passages of the Scripture, where the Satisfaction of Christ is called *Emption* and *Redemption*; because in *Emption* an Equality of the commutative Justice is observed, which is, to pay as much as is due. *Tit.* ii. *Who gave himself for us, that he might redeem us from all Iniquity.* Heb. ix. *But Christ being come an high Priest of good Things to come, by his own Blood he entered once into the holy Place, having obtained eternal Redemption for us.*

If I be asked, why that Name of *Emption* and *Redemption* signifies *Satisfaction?* I'll answer, that Man is as sold by his Sin, and put under the Power of the Devil as a Servant and Captive; and Christ offering his Satisfaction has bought and redeemed him. According to this of the first to the *Corinthians*, chap. vi. *For you are bought with a great Price.* And to this other of the first of St. *Peter*, chap. i. *Forasmuch as you know that you were not redeemed with corruptible Things, as Silver and Gold, but with the precious Blood of Christ.* That this may appear in a clearer Light, we must take Notice of what St. *Jerom* observes on the third Chapter to the *Galat.* where he says, that he may be very well called Redeemer, who has acquired with a new Price what he had lost by some Accident; and he be called a Buyer, who acquires for the first Time a Property of something: Therefore Christ is said to have redeemed us to himself as God, because, before the Prevarication of *Adam* we were in his Power, and by that Prevarication have revolted against, and been delivered into the Power of the Devil; and he is said to have bought us to himself as Man, because by the same Satisfaction offered for us, he has acquired a certain Right and Power over us, which he had not before as Man.

From the Councils, particularly that of *Trent*, *Sess.* 6. *c.* 1. where the Fathers declare the Captivity of the human Race; and *c.* 2. their having been redeemed by Christ.

From the antient Fathers, particularly St. *Chrysostom*, *Hom. in Epist. ad Rom.* where by a Comparison, he explains which, and what had been Christ's Satisfaction, in these Terms; *The Passion of Christ, when compared with Sin, is with respect to it, what the Ocean is with respect to a Drop of Water; or what an Immensity of Talents of Gold, are with respect to Ten Crowns.* And St. *Augustin*, *in Enchir. c.* 49. *Christ*, says he, *has surpassed the Devil, not by an Excess of Power, but by the Truth of Justice.*

This I confirm by Reason; because every Action of Christ was of an infinite Value; which infinite Value proceeded from the Dignity of the Person of the Word, hypostatically united to human Nature; which the better to understand, we must observe, that human Nature was the Principle *Quo* of the Actions of Christ; and the divine Word the Principle *Quod*, gave the Denomination, and entire Value to those Actions. And as the Person of the Word is infinite, and identified really with the divine Nature, it is not surprising, if every Action of Christ was of an infinite Value. It is true, that Christ's Actions were finite, according to their physical Entity; and as they were vital Actions, and immanent to human Nature; but it sufficed, that they had a certain moral Infinity, as proceeding from human Nature, not consider'd precisely as such, or as sanctified by the habitual Grace, but as deified by its hypostatical, immediate, and substantial Union with the Word.

It may be asked here, *If Christ's Satisfaction was sufficient, not only to satisfy for the Sins of all Men in general, but likewise for the Punishment due to those Sins?* Which I answer in the Affirmative, and which Answer may be proved by the same Arguments I have used to shew, that

that it was sufficient to satisfy for the Sins of all Men in general. Though we ought not to believe, that more than a sufficient Price, is applied in fact to every Man in particular.

The second Condition, *viz. that Christ has return'd to another* is also evident; because to make Satisfaction to another, even according to the strictest Rules of Justice, there is nothing else absolutely required, but that he who makes the Satisfaction should have a distinct Right and Power, and a Nature freely operating, distinct from the Right, Authority, and Nature of him to whom the Satisfaction is made. But Christ considered as satisfying to God for us, has a distinct Right and Authority, and a Nature freely operating distinct from the Right, Authority, and Nature of God to whom Satisfaction is made. For he has a special Power and Property to himself on his free theandrical Action, on Accounts of their hypostatical Termination, or their Support, which is from the Word alone. For though there be two Natures in Christ, *viz.* the divine and human Nature; he notwithstanding satisfies only by the free Acts of his Humanity, which is there as a formal Principle, or Principle *Quo*; therefore Christ's Satisfaction was sufficiently to another; even according to the strictest Rules of Justice.

To this it may be objected, that no Body makes a Satisfaction to another, who makes it to himself; since there can be no perfect Justice of oneself to oneself, according to *Aristotle, lib, 5. Ethic.* but Christ in his Satisfaction, has satisfied to himself, since he has satisfied to God, and himself is one God with the Father and the Holy Ghost; therefore he cannot be said, to have sufficiently satisfied to another.

I answer, that it is true that Christ has satisfied to himself, but considered according to different free Natures, and distinct Right and Power; and not considered according to the same Nature, the same Right, and the same Power. Hence he may be said to have satisfied to another, not to himself; and even in all the Rigour of Justice. Which the better to understand, we must observe, that when one and the same *Suppositum* has two entire and free Natures; then though he be but one in Reality, he is notwithstanding accounted double virtually, and the Distinction of Rights and Powers is sufficient to establish a Title of Justice properly said. And it is certain from what we have said, that one and the same numerical Suppositum of the divine Word, terminates two different entire and free Natures; that the same Suppositum is virtually double, and that those Natures have distinct Powers and Rights, which they can dispose of at their Pleasure, so as to contract a mutual Obligation. Therefore it follows, that if Christ has satisfied to himself as God; he can also be said to have satisfied to another; for he has satisfied to himself as God, by the human Nature perfected by a divine Hypostasis; whence it happened, that Christ was together accepting, and together offering, though in different Respects; for he accepted as God, and offered by his Humanity, whereby he was inferior to himself with Respect to the divine Suppositum, and to the divine Nature.

It may be objected, besides, from *Aristotle*'s *5 Ethic. 6.* that there is no Justice properly said of the Son to the Father, because a Son is not different from his Father, but rather a Part seperated from his Father; but Christ is the true Son by Nature of the eternal Father; therefore between Christ and the divine Father, there can be no Justice taken in a strict Sense; since he is no other than the Father himself.

I answer, that though this may be true in a civil Society, especially while a Son is an Infant, and not yet emancipated; it is false, when we speak of Christ the Son of God, for the Reasons heretofore mentioned. Whence it is not surprizing if Christ be said to have satisfied to [illegible] the two other Persons of the blessed [illegible], and to have reconciled the human Race with God, according to this of the second to the *Corinthians*, Chap. v. *That God was in Christ reconciling the World to himself.*

We are certain of the third Condition, *viz. that Christ's Satisfaction was of his proper Goods*; that's to say, of Goods which were not under the Command of God, if they be considered as offered by Christ; because Christ has satisfied by satisfactory Acts of his Humanity, inasmuch as those Acts were supported by the Personality of the Word; but those theandrical Acts, thus considered, were so far the Property of the divine Word, considered as incarnated, that they were not all under the Command of any of the two other Persons. Notwithstanding that those Actions, with Regard to their Entity, are under the Authority of the three Persons. For it suffices, that under another particular Title, they be proper to Christ, and that by Reason of that Title, Christ offers them in Satisfaction for the Sins of all Men in general; for if it was otherwise, there would be no greater Reason to say that the Son of God is born, has suffer'd, and is dead; than to say it of the two other Persons. And as it is certain from the Scripture, that the Son alone was incarnated, has suffer'd alone, and is dead alone; it is likewise certain, that those Actions are not only of the Humanity, which is the formal Principle thereof, but also of the Suppositum, accomplishing and perfecting that Nature, and which is their Principle *Quod*; and there being Actions of two Suppositums, it follows that they are proper to *Jesus Christ.*

Note, That from this I'll pass to the Causes, either external or internal of the *Incarnation*; beginning by the *external Causes*, which are two in Number, *viz.* the efficient and the final. The efficient being distinguished into two, *viz.* physical and moral; of which I am to speak first.

Our first Question, on this Subject is, what could be the physical efficient Cause, either particular, or instrumental, of the Mystery of the *Incarnation?*

Note, It is not asked, in this Place, if the divine Word has a Cause, since it is certain that he has none; for though he acknowledges the Father for his productive Principle, he notwithstanding does not acknowledge him as a Cause. Neither do we want to know, if the human Nature of Christ, has an effectual Cause, since it is certain, that it has such a Cause, since Christ does not differ in that from other Men but by certain Priviliges and Gifts; but it is asked if, and which is the effectual Cause of that Union, which is between the divine Word and human Nature, in the Mystery of the *Incarnation*; if it be God alone, or if the Creature has likewise some Part in it, and in what Manner? These pre-observ'd,

I answer, *that God alone, and no Creature, can be the principal effectual Cause of the Incarnation.* Because the Work of the *Incarnation* is as much above a natural Strength, as the Work of the Creation; whence it is not surprizing, if it be attributed to God, in a most particular Manner; by the Scripture, particularly this of *Jer.* xxxi. *For the Lord has created a new Thing in the Earth; a Woman shall compass a Man.* And *Luke* i. *The Holy Ghost shall come upon thee, and the Power of the Highest shall overshadow thee.* These are the Words of the Angel *Gabriel*, answering to the Question of the blessed Virgin *Mary*, who asked him, how that could happen, that she should conceive, and be the Mother of the Son of God.

It may be asked, *If the whole blessed Trinity is the principal efficient Cause of the Incarnation?* Which I answer in the Affirmative, and which the Words of the Angel *Gabriel* seem to indicate, according to the Observation of St. *Bernard*, who says, that thereby the three Persons of the Trinity are design'd. The *Father*, by these Words, *And the Power of the Highest shall overshadow thee.* The *Son*, by these, *Therefore also that holy Thing which shall be born of thee, shall be called the Son of God.* And the *Holy Ghost*, by these, *And the Holy Ghost shall come upon thee.*

This Sentiment is also confirm'd by the Councils, particularly that of *Lateran*, under *Innocent* III. *cap. firmiter.* And likewise by the Fathers, particularly St. *Augustin, in Enchir. c.* 38. therefore, *&c.*

The physical and instrumental efficient Cause of the *Incarnation*, was the blessed Virgin alone. Because she alone has contributed to that august Mystery, as the physical Instrument of the efficient Cause thereof.

We'll ask next, *If there was a moral and meritorious*

efficient Cause of the Incarnation, either considered with Regard to its Substance or to its Circumstances?

Note, That previously to the answering this Question, we must observe, 1. That the *Incarnation* may be consider'd in two Manners; first, with Regard to the Substance or Entity which consists in the hypostatical Union of the human Nature, with the Person of the Word. Secondly, with Regard to some of its Circumstances, *v. g.* of the Place, or of Time, or of the Persons from whom the Flesh of Christ proceeded. 2. That it is not asked here, if the *Incarnation*, as well consider'd with Regard to its Substance, as to its Circumstances, can fall under Merit. These pre-observ'd,

I answer, *that neither Christ, nor any pure Creature, let him be ever so holy, has merited, in any Manner, the Incarnation, consider'd with Regard to its Substance and Entity.* Christ could not deserve it, since the Principle of Merit, does not fall under Merit. A Creature could not deserve it, since the Value of the *Incarnation* is infinite, and of an Order superior to all the created Goods, the Value thereof is always finite.

From the efficient Cause of the *Incarnation*, we'll pass to the final, asking first, *Which is the final Cause of the Incarnation, either general or particular?*

Note, That we must observe previously to an Answer to this Question, that the End of the *Incarnation* can be considered in two Manners, *viz.* either as general, or common to itself, and to several other good Works, or as particular. These pre-observ'd,

I answer, 1. *That the general End of the Mystery of the Incarnation, is the Glory of God, and the Manifestation of his Goodness:* Which seems to be insinuated by the Scripture; for it is said, *Prov.* xvi. *That God has operated all Things for himself.*

By this Mystery God's Goodness is also manifested in a marvellous Manner; in that he has thereby delivered the human Race, from the Miseries which were the fatal Consequences of the Original Sin.

The particular End of the Mystery of the *Incarnation*, was *Man's Deliverance from Sin and Misery.* Which I prove by the Scripture, the Fathers, and the Councils.

By the Scripture, *John* iii. *God has sent his Son into the World, that the World may be saved by him.* And *Gal.* iv. *When the Plenitude of Time came, God sent his Son made of a Woman, made under the Law, to save those who were under the Law.* Whereby it appears, that Man's Redemption was the final Cause of the Mystery of the *Incarnation.*

By the Councils, particularly that of *Nice*, where it is said, that the Son of God descended from Heaven for our Salvation.

By the Fathers, particularly St. *Bernard, Epist.* 190. against *Abialardus. If it is true to say that Christ did not come to save the human Race, but only to reform Manners, and to recommend Love and Charity (which is* Abailard's *Opinion) in that Manner he joins with* Pelagius, *to render the Price of the Blood of Jesus Christ, of no Effect.*

But one of the greatest and most important Questions on this Subject is, *If the Incarnation had been accomplished, if* Adam *had not sinned?*

Note, That to understand this Question well, we must know, 1. That it is not asked here, if God could if he would, have been incarnated, though *Adam* had not sinned; since no Body questions it. For, could he not apply the Work of the *Incarnation* to some other particular End, than is the Remedy of Sin? Who can say, that in that Case, the *Incarnation* had been needless? 2. That it is only asked here, if in fact Christ had come, if Man had never sinned? Our Question being of the Fact, not of the Possibility. These pre-observ'd,

I answer, that the particular, entire, and principal End of the *Incarnation*, was the Remedy of Sin and Man's Redemption. Which I prove both by the Scripture and the Fathers.

By the Scripture, *Matt.* ix. *I am not come to call the Righteous, but Sinners to Repentance.* John iii. *God has not sent his Son to judge the World, but that the World may be saved by him.*

By the Fathers, especially St. *Irenæus, lib.* 5. *advers. Hæres. c.* 14. *If the Flesh had not been to be saved, the Word of God had not been made Flesh. St.* Athanasius, *Orat.* 3. *cont. Arian. It had never happen'd that the Word had been made Flesh, if Man's Necessity had not requir'd it.* And St. *Augustin*, in several Places, particularly in his Sermon on Psalm xxxvii. where explaining these Words of the Psalmist, *The Steps of a good Man are order'd by the Lord*, speaks thus, *If thou Man would not dismiss God, God would not become a Man for thee.*

Our next Question is, *If God is come rather for the Reparation of the original, than of the actual Sin?*

Note, That it is not asked in this Place, if Christ is come only to take off the original Sin, and not the actual; since it is very certain that he came to take off both. For we read, *Tit.* ii. *That he has given himself for us to redeem us from all Iniquity*; but if he is come more particularly for the original, than for the actual Sin?

I answer, *that Christ is come more particularly for the original Sin, than for the actual; though he came, as we have already observed, to deliver Man from all Sin, as well actual as original.* Because he is come chiefly to repair that which was the greater, if not intensively, at least extensively; but as the original Sin is greater than the actual, since by such a Sin, *Adam* has rendered all his Descendants Enemies of God, Sons of Wrath, and unworthy of eternal Life; therefore it was much more convenient that Christ should come to blot out the original Sin which was common to the whole human Race, than for the actual Sin, which is not common to the whole human Society.

Notwithstanding that there is but one original Sin, and the actual Sins of Men, are without Number. Because as Sin, in our Hypothesis, is more extensively considered; we are not to have Regard to the Number of Sins; but to the Number of Subjects affected by Sin; but there is a greater Number of Subjects affected by the original, than by the actual Sin; therefore the original Sin is to be considered greater extensively.

If I be asked, *Whether Christ had come, if* Adam *had not sinned, but only his Posterity?* I'll answer, that there are various Sentiments on this Subject; for some Doctors imagine, that it is very probable Christ had came, though *Adam* had not sinned, to blot out the actual mortal Sins, if they had been committed by the Majority of Men; because it is very agreeable to his infinite Goodness, that he should not leave in the Mass of Corruption, those he had created for an eternal Felicity. Others more probably are of Opinion, that without the original Sin, Christ had not come for the actual Sins only, especially if we consider the Force of the present Decree; because there had not been so many Men infected with the actual Sin, as there have been infected with the original; and confirm their Opinion by the Example of the Angels, and say that Christ is not come for them, because they had not all sinned.

We'll ask next, *If there be two Natures in Christ,* viz. *the divine and the human; and if they be in him, without Confusion?*

I answer to the first Part of the Question, *that there are two Natures in Christ,* viz. *the divine and the human, for which Reason, Christ is a true God and a true Man.*

This I prove by the Scripture, and the Councils.

By the Scripture, which gives to Christ those two Natures, and the Properties of both. Mention is made of the divine in several Places, but most particularly where *Jesus Christ* himself says, *I and the Father are one*, and consequently equal with the Father; which cannot be understood of the Humanity, since *John* xiv. he says, that by Reason of his Humanity he is inferior to the Father: *The Father*, says he, *is greater than me:* Therefore this must be understood, by Reason of the Divinity which belongs to him properly and not metaphorically. Likewise *John* xx. where we read, that *Thomas* having seen and felt Christ, said, *My Lord, and my God*, which

which Confession was not reproved by Christ; but rather Christ answered him, *Because thou hast seen me, Thomas, thou hast believed.* And *Phil.* ii. *Who being in the Form of God, thought it no Robbery to be equal with God.* It is plain, likewise, of the human Nature, from all those Places where Christ is said to be born, that he has suffer'd, and is dead: And is called the Son of Man, and the Son of *David*, according to the Flesh; and from those, where the Parts and Properties of human Nature are attributed to Christ. As is in those Places where he is said to have *a sorrowful Soul*, Mark xiv. to have *Flesh and Blood*, Heb. i. to be *hungry*, *thirsty*, to be *fatigued.*

I prove it by the Councils, particularly that of *Chalcedon*, assembled against *Eutyches*, *Act.* 5. where they define, and confess Christ to be the same Perfect in the Divinity, and the same Perfect in the Humanity, truly God, and truly Man, the same of a rational Soul and Body, consubstantial to his Father according to his Divinity, and consubstantial to us according to his Humanity.

I prove it likewise by the Symbols, particularly that of St. *Athanasius*; *Therefore it is the right Faith*, says he, *that we should believe and confess that our Lord Jesus Christ is the Son of God, a perfect Man, subsisting of a rational Soul and a human Flesh.*

Notwithstanding, 1. These Words we read *Phil.* ii. where it is said, *That Christ was made in the Resemblance of Men, and found in Fashion as a Man*; because those Words do not import, that Christ was not a Man simply, but that he was not a Man Sinner, though he had took upon him the Form and Similitude of a Sinner.

Notwithstanding, 2. That Christ is said to be a celestial Man from Heaven; for he is not called thus, because he had took his Body from Heaven, or a Body different from ours; but either because he is begotten from all Eternity by his divine Father without a Mother; or because in Time he is begotten from a Mother without Father, by the Overshadowing of the Holy Ghost.

I answer to the second Part of the Question, *that the two aforesaid Natures, that I say to be substantially in Christ, are entire, perfect, and without Confusion.* Because this important Truth has been defined by the Council of *Chalcedon*, and by the following Councils who have subscribed to it.

From this Answer it follows, that there is not one only Nature in Christ, into which the other has been converted, or which results from the Composition of both Natures; notwithstanding that the Word is said to be made Flesh, *John* i. because he was made Flesh, not by changing what he was, but by taking what he was not (to speak the Language of St. *Gregory*) for the Word has not been made Flesh, by a Conversion of himself into Flesh, but by the Union of himself with the Flesh. For the Term *was made*, is not taken in the same Manner here, as it is to be taken, Chap. ii. where it is said, that Water was made Wine, for such Expression signifies sometimes a Mutation made, and sometimes only a Susception; as *Gal.* iii. where Christ is said, *made a Malediction for us*, because he has taken upon him a Malediction for our Sake.

Our next Question is, *Whether there be but one Person in which the hypostatical Union was made, and whether that Person is the Person of the Word?*

I answer to the first Part of this Question, *that there is but one Person in Christ, in which the hypostatical Union was made*; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, where it is said, *That Christ is God, and the Son of God*; *and likewise Man, and the Son of Man*; whence it is inferred that there is but one Person.

By the Councils, particularly those of *Ephesus*, *Chalcedon*, and the fifth of *Constantinople*, *can.* 4. and likewise by all the Symbols, but more particularly by that of the Apostles, where the only Son of God is said to be *born of the Virgin* Mary; and by that of St. *Athanasius*, where it is said, *that though Christ be God and Man, notwithstanding there are not two, but only one Christ; one, not by Confusion of Substance, but by the Unity of Person.*

I prove it by the Fathers, particularly St. *John Damascenus*, *lib.* 3. *c.* 3, 4, 5. *in our Lord* Jesus Christ, says he, *we acknowledge two Natures, and but one Hypostasis.*

I prove it by Reason, because in Christ the Divinity and Humanity constitute one whole, without being, notwithstanding, joined by a real Identity, whereby one is converted into the other, or by the Union of a Compart with its Compart; or by an accidental Union. The first is proved by what I have already said. The second is also evident, because the Divinity cannot have the Ratio of a Part, properly so called. The third is likewise certain, because there is no accidental Union between the divine Nature and the human. Therefore it remains, that the Divinity, or the divine Nature, and the human, are united substantially personally, *i. e.* in one and the same Person. Add that the other aforesaid Unions, are not proper or particular to Christ, since they are common to all the Just. But the Union of the Word with the Humanity, must be so proper, as to be convenient to no Body else.

I answer to the second Part of the Question; that *that only Person which is in Christ, is the Person of the divine Word.* Because the Scripture teaches it in several Places, or at least insinuates it, *v. g.* John xv. where Christ is called *The only Son of God.* But if I be asked, *Why that only Person which is in Christ be not the human Person?* I'll answer that the Reason is, that if it was so, the divine Nature should be terminated by the human; which cannot be; therefore it must be no other Person, than the Person of the divine Word.

We'll ask next, *If besides the divine and human Nature, and the Personality of the Word which are in Christ, there is some other Thing in him, distinct from them: Whether*, v. gr. *there is an Union, and that Union be a modal Entity.* — Here I'll explain some of the Things relating to an hypostatical Union.

To this I answer, *that in Christ, besides the Divinity and Humanity, there is no other substantial Entity, distinct from the Personality of the Word join'd together, which could be a formal Term of the unitive Action of the Humanity with the Word, nor any modal Entity.* Because in the sixth general Council, *Act.* 18. it is said, that Christ is no other Thing than the Divinity and the Humanity; therefore besides the Person of the Word, and the Humanity, Christ does not include substantially other Entities; whence consequently that modal Entity, admitted by some, unitive of the Humanity with the Word, and distinct from both, seems fictitious; for it would be multiplying Beings without Necessity; since the Personality of the Word, and the Humanity, are united to one another immediately, to constitute Christ; as the Soul and the Body are united together to constitute a Man.

It may be objected to this, 1. That what is passively indifferent to Union, or is indifferent towards being united to this or that, must be determined by something super-added, in order to its being united, and to be united with this rather than with the other; but the human Nature of Christ was indifferent, as to its being united; or as to its being united either with the Person of the Father, or of the Son, or of the Holy Ghost; therefore it must have been determined by something super-added; but nothing can be imagined super-added, besides the aforesaid substantial Manner, therefore, *&c.*

I answer, that these Extreams uniting themselves to one another, have no Need of such super-added. Besides, if for the Reason alledged in the Objection, the Humanity of Christ was determined by something super-added, in order for its Union; it should be said, likewise, that the divine Word was determined by some super-added Entity, because he was no less indifferent of himself to his Union with the Humanity, or to his Union with this or that, than the Humanity was indifferent to the Union, or to be united with the Person of the Father, or of the Son, or of the Holy Ghost. But it cannot be said, that the divine Word was determined by some super-added Entity to his Union with the human Nature: Therefore, *&c.*

It is objected, 2. That every Act has a Term; and the Union being an Act, it must have a Term; but such a Term

a Term in the *Incarnation* is not the Word, nor the Body or the Soul of Christ; therefore it is something distinct from them, which can be nothing else but the aforesaid modal Entity: Therefore, *&c.*

It is true, that an Action must have something either produced a-new or composed; but not always something produced a-new; and that must be understood of a productive Action, not of a terminative.

Our next Question is, *If Christ resulting from the Person of the Word and the Humanity united together, can be said composed of a Composition, properly so called, and whether the Person of the Word and the Humanity have in him, the Ratio of Parts properly said? And what we must think of the Person of Christ, whether it is composed?*

Note, I. That it is not so much a Question here of Christ, but of the Person of Christ, which may be considered in three Manners. 1. *In abstracto*, viz. inasmuch as it is taken for the sole Personality of the Word. 2. *In concreto*, but notwithstanding only as it terminates the divine Nature. 3. *In concreto*, as it affects the divine and the human. — II. By the Name of Composition is understood the Union of several Things distinct. But we commonly distinguish two Sorts of Composition; the first is that which has Parts properly said, *i. e.* ordain'd of themselves towards constituting some *totum*, and having a mutual Dependance on one another. The last is, that which has no Parts properly said; whence it is in the Manner of a Number, which is a Collection of several Units. These pre-observed,

My first Answer to the Question is, *that Christ is truly composed.* Which I prove by the Councils, the Fathers, and by Reason.

By the Councils, particularly the second of *Constantinople, Collat.* 8. *can.* 4. likewise *can.* 7. *Christ*, say they, has two Natures, of which he is composed. This Canon was approved in the third of *Constantinople, Act.* 4.

By the Fathers, particularly St. *Dennis, de divin. nom. c.* 1. where he speaks thus of God. *In one of their Persons, he has took entirely and truly our Infirmities, calling and uniting to himself our Humanity, whereof the simple* Jesus *is ineffably composed, and the Eternal has undergone temporal Motions.*

By Reason, because in Christ are found those Things which are requir'd, and suffice for a Composition. 1. A real Distinction between the Things compounding; for are not the Nature and the divine Person, distinguished really from the Humanity? 2. A second real Union to be, and not only acccording to some local Presence, or Place; for who can be ignorant, that the Things compounding in Christ, are united according to the personal Being? 3. That one of the Compoundings be as the Act, and the other as the Power: And are not the Things compounding, in that Manner, in Christ? For is not the Person of the Word, in Christ, in the Manner of an Act, not informing, but terminating and perfecting the Nature taken? And is not the Humanity, in the Manner of a Power, terminable by the Person of the Word, in the Ratio of the Person? Therefore, *&c.*

It is objected, 1. That if Christ was truly composed, the Compoundings would be truly Parts; but the Nature or divine Person ought not, nor can have the Ratio of a Part, since a Part includes Imperfections: Therefore Christ is not truly composed.

I answer, that for a true Composition, it is not necessary, that the Compoundings should have the Ratio of Parts, but it suffices, that they should have the three Conditions above-mentioned, *viz.* that they be really distinguished from one another, that they be united, and that they have the Ratio of Act and Power. It is certain, according to St. *Augustin, lib.* 3. *cont. Maximin. c.* 16. *That God cannot have the Ratio of a Part.*

Notwithstanding what some Fathers say, that the Divinity and Humanity are Parts in Christ; for they must be only understood of Parts improperly said; for they have said it only in that Sense, and to signify against *Eutyches*, that both Natures have remain'd immutable, and without Confusion in Christ. And that one has not been changed into the other, nor both into a third. For all Parts retain their Nature in the whole, and is not corrupted by the Society and Union of the other.

It is objected, 2. That if Christ was composed, it would follow, that he would be more perfect in the Ratio of the Composite, than either of the Compoundings separately taken; but that cannot be said: Otherwise the Person of the Word would not be infinitely perfect; since it would be supposed to have something more perfect, *viz.* Christ himself in the Ratio of the Composite: Therefore, *&c.*

I answer, that he would be more perfect extensively, but not intensively. That he would be more perfect extensively, appears from that he would have several Perfections: That he would not be more perfect intensively, is evident, from that the Perfection of the Creature, would be contained in God, either formally or eminently.

My second Answer is, *that the Person of Christ taken* in abstracto, *for the sole Personality of the Word, can in no Manner be said composite.* Because the divine Person, thus consider'd, is very simple; as I have shewed in my Treatise of *God's Attributes.*

My third Answer is, *that the Person of Christ, consider'd only as it terminates the divine Nature, is in no Manner composed:* Because there is no Composition in God from the Nature and the Personality; because the Personality is identified to the divine Nature.

My fourth Answer is, *that the Person of Christ considered as it terminates the human Nature, or as it terminates the divine and human together, can be said composed, but not of an absolute Composition in itself, but, as they speak, of a Composition from those, and of a relative Composition and with those.*

I prove the first Part of this Answer, *viz. that the Person of Christ consider'd as terminating human Nature, or as terminating the divine and human together, can be said composed.* Because Christ is said truly composed; for what is Christ but the Person of the Word, terminating the human Nature, or the Word made Flesh? Therefore, *&c.*

I prove the second Part, *viz. that that Composition is not absolute in itself*; because it does not import Parts properly said.

I prove the third Part, *viz. that that Composition is only relative*; because it is not by Reason of the Parts, but by Reason of the Number.

Note, That from this I'll pass to the hypostatical Union, asking first,

If one divine Person can take a created Nature, hypostatically, without the other Persons taking it likewise?

Which I answer in the Affirmative; and which Truth is confirmed by the Scripture, where the Word alone is said to have been made Flesh, *John* i. and likewise by the Symbols, and the Councils, acting against the *Patripatians*, who pretended, that the Father had been made Man, and had suffer'd for us; particularly that of *Toledo*, in his Confession of Faith.

We must ask next, *What the Word has took in the Incarnation?* And, 1. *If he has took in fact the human Nature, and not the Nature either superior or inferior?*

I answer to the first Part of the last Question, that the Word has took in fact the human Nature, because we read, *John* i. *The Word is made Flesh.*

I answer to the second Part, that the Word has neither took the superior nor the inferior Nature; because by the *superior Nature* is understood the *angelical*, and by the *inferior*, the *sensitive, vegetative*, or *unanimated.* But he has took neither of them, since the Apostle in the Epistle to the *Hebrews*, Chap. ii. says expressly, that he has taken the Seed of *Abraham*, not the Angels.

If it be asked here, *Whether the Humanity taken by the Word, was of the Race of* Adam, *our first Parent?* I'll answer in the Affirmative, because the Scripture insinuates it, *Luke* iii. carrying Christ's Generation from that same first Parent, through a long Series of Generations. God could create then a Man who had not descended from *Adam*, but would not, as St. *Augustin* teaches it, *lib.* 13. *de Trinit. c.* 18.

If it be asked next, *If by taking that human Nature from*

from Adam's *Race, he has took it vitiated with Sin?* I'll answer in the Negative, because he has not taken it thro' the seminal Way.

Note, That the Word, by taking the human Nature, has immediately taken a Soul, and with it Understanding and Will: He has immediately taken, likewise, a true Body, and not a phantastical one; and all, and every one of its Parts, especially the principal.

I prove the first Part of this Proposition, *viz. that he has immediately took a Soul*; because the Word in taking the Humanity, has immediately took that, without which there can be no true Man; for there can be no true Man without a rational Soul; therefore he immediately took a Soul. Which is sufficiently confirmed by these Words of Christ, *Matt.* xxvi. *My Soul is exceeding sorrowful, even to Death.* Notwithstanding what is said, *John* i. *The Word is made Flesh*, without making any Mention of the Soul, since by the Name *Flesh*, Man is often understood in the Scripture, according to St. *Augustin, lib.* 33. *quest.* 9, 80. and St. *Fulgentius, lib.* 1. *ad Trasim. c.* 17.

I have said, and *with the Soul Understanding and Will.* Because the Word has taken a Soul like ours; therefore he has took Understanding and Will, which are the natural Faculties of that Soul.

I prove the second Part of my Proposition, *viz. that the Word has immediately taken a true human Body.* Because we read, *John* i. *That the Word was made Flesh.* And *Luke*, the last Chapter, Christ speaks thus of his Body. *Handle me, and see, for a Spirit has not Flesh and Bones, as you see me have.* And because the Councils, and the Fathers insinuate the same, when they say, that Christ is a true Man, born of the Virgin *Mary*, and consubstantial to us. By this it is plainly seen, how grosly some Hereticks erred, who pretended to believe, that the Body of Christ was phantastical, or celestial; against whom St. *Augustin, lib.* 83. *quest.* 9, 14. speaks thus, *if the Body of Christ was phantastical, then Christ has deceived us; and if he has deceived us, there is no Truth: But Christ is Truth; therefore the Body of Christ is not a Phantom; otherwise it should be said, that his Nativity of the Virgin, his Passion, Death, and Resurrection, had been something phantastical and imaginary; but who can say such a Thing without Heresy and Impiety? For if Christ is not truly risen from the Dead, but his Resurrection, as well as his Death is imaginary; therefore his Predication and our Faith will be vain* (says the Apostle, 1 *Cor.* xv.) *and Christ's a perpetual Fiction, and a continual Illusion and Deceit.*

I prove the third Part, *viz. that the Word has taken immediately, all, and every one of the Parts of the human Body, as well the essential, as those which are called integrant.* Because Christ in the Scripture, and in the Councils, and likewise by the Fathers, particularly by St. *Athanasius*, in his Symbol, is called a perfect Man; which could not be, if he had not took all the aforesaid Parts: Therefore, *&c.*

I may be asked here, *If Christ had taken some of the Defects of the human Body?* To which I answer, that he had took those Defects, which are common to all Men, such as Thirst, Hunger, Pain, Weariness, Death, *&c.* but not those which proceed from some particular Causes, and are only in some Men, as the Leprosy, Fever, *&c.*

I prove the first Part, *viz. that he had taken some Defects common to all Men, and inseparable from human Nature*; (and this against the *Severians*, who denied the Passibility of Christ's Body) by the Scripture, the Councils, and the Fathers.

By the Scripture, *Isaiah* liii. *Surely he has borne our Griefs, and carried our Sorrows; he was wounded for our Transgressions.* Luke xxii. *For it was necessary that Christ should suffer, and thus enter into his Glory.*

By the Councils, particularly that of *Ephesus, Act.* 12. that of *Chalcedon, Act.* 5. that of *Lateran*, under *Martin* V. *can.* 4.

By the Fathers, particularly St. *Cyril* of *Jerusalem, Catech.* 13. in these Words; *Jesus has truly suffer'd for Men: For the Cross, is not an Appearance, nor the Redemption an Opinion; his Death is not imaginary, nor our Salvation fabulous; he was surely crucified; and we are not confounded nor deny it; but we glory in him.* The other Fathers are of the same Sentiment, particularly St. *Ambrose, lib.* 2. *de fide, c.* 4. St. *Augustin*, Epist. 46. and St. *Leo*, Epist. 10.

I prove the second Part of my Answer, *viz. that he has not taken all the Imperfections which proceed from some particular Causes, such as some Deformities of the Body and Maladies, the Root whereof is Sin.* Because there was no Sin in him.

It may be asked, *If Christ took some Defects of the Soul, such as Sin, Ignorance, and the Passions of the inferior Appetite?*

I answer, *that Christ was never infected, nor could be infected either with the original or actual Sin.* That he was never infected with Sin, I prove by the Scripture, the Councils, and the Fathers.

By the Scripture, 1 *Pet.* ii. where it is said of Christ; *That he did no Sin, neither was Guile found in his Mouth.* Heb. iv. *That he was in all Points tempted as we are, yet without Sin.* And Chap. vii. he is called *holy, harmless, undefiled, separate from Sinners*, &c.

By the Councils, particularly that of *Ephesus, c.* 10. and that of *Lateran*, under *Martin* I. *consul.* 5. *can.* 5.

By the Fathers, particularly St. *Cyril* of *Alexandria*, in his Book against the *Antropomorphites, c.* 23. calls those Fools, who affirmed that Christ could sin; if he could not sin, therefore he has not sinned.

Notwithstanding these Words, attributed by the Psalmist to Christ's Suffering, *Psalm* xxii. *My God, my God, why hast thou forsaken me? Why art thou so far from helping me, and from the Words of my Sins?* For two Reasons, 1. Because Christ does not use these Words in his Person, but in that of his Members, *viz.* Men. 2. Because in that Place he calls our Sins his, because he had rendered himself Sponsor for them, and as such was to satisfy the divine Justice, to the utmost Rigour, as St. *Ambrose, lib. de Incarnat. Domin. Sacrament. c.* 5. St. *Jerom, in Psalm* xxii. and St. *Augustin*, on the same Psalm, teach it.

And that Christ could not be affected with Sin, but was rather impeccable, appears from the Fathers, particularly St. *Athanasius, lib. de Incarnat.* where he speaks thus, *The Incarnation of the Word being deified, could not be susceptible of our Sins.* And this Impeccability of Christ, proceeded from three Causes, and was founded, 1. On the Union of the Humanity with the divine Person, whose Holiness is infinite; whence it is not surprising, if Christ's Will, which was entirely deified, was not contrary to God. 2. That Impeccability was founded, and existed from the beatifick Vision of Christ, which is incompatible with Sin. 3. From that consummate Grace, the Soul of Christ had, and which was far greater, than that the Angels and the Blessed have.

I answer, 2. That the Leaven of Sin was not taken by Christ; because that Leaven proceeds from the Original Sin, which was not, and could not be in him.

I answer, 3. That Christ did not take Ignorance, because Christ knew all Things, according to St. *Peter*, who says, *John* xxi. *Lord thou knowest all Things.* Which is not surprising, since we read, *John* i. *That he was full of Grace and Truth.* And *Col.* ii. *In him were all the Treasures of the Wisdom and Science of God.* Therefore in the sixth general Council, was approved the Letter of *Sophronius*, in which was condemned the Heresy of the *Agnoites*, who pretended that Christ knew nothing of the Day of Judgment.

Notwithstanding these Words, *Luke* ii. where it is said, *that Christ increased in Age and Wisdom*; because we can only conclude from these Words, that he discovered by degrees more and more his Wisdom to Men, or that he increased in Experience, or experimental Knowledge, but not that his Wisdom received any Increase, since he was full of it from the first Instant of his Conception.

I answer, 4. That the Soul of Christ has been truly passible, in this Sense, that it could be moved by those Affections which are called Passions in us; but however with these three Differences; the first whereof is taken from the Part of the Principle, from that those Affections in Christ were governed by Reason, and in us they often change the Deliberation of our Reason. 2. From the

the Part of the Object, from that Christ's Affections had always an Object agreeable to right Reason; and our Passions have often an Object repugnant to Reason. 3. From the Part of the Effect, because Christ's Reason has never been obstructed by Passions; and ours, is either obstructed by Passions, or entirely silenced.

Our next Question is, if the hypostatical Union of the Humanity with the divine Word, be accidental or substantial? To which I answer (against *Nestorius* who considered that Union as accidental only) *that it is substantial, and not accidental*; because where two Natures formally distinct from one another, predicate, *in concreto*, of one another, there must be necessarily a substantial Union in the Supposite; but in Christ there are two Natures formally distinct from one another, which predicate of one another *in concreto*, for Christ is God and Man, since *the Word is made Flesh*, John i. Therefore the Union is substantial, and cannot produce an accidental Union, such as the Union of Amity between two Persons, let the Amity be ever so great, since by it *Peter* cannot be said to be *Paul*, and *Vicissim*; but it is easily conceived, that by the hypostatical Union made in the Person of the Word, God is Man, and Man God.

This is confirmed, 1. By the Manner of speaking of the Councils, particularly that of *Ephesus*, in the second Anathema, of the Twelve published by St. *Cyril* and approved by the Council, expressed in these Terms; *If any Body does not confess that the Word of God the Father, united to the Flesh by Hypostasis, is one Christ with a proper Flesh, and the same is together God and Man, let him be Anathema.* And by the Council of *Chalcedon*, in the Confession of Faith, *Act.* 5. and the second of *Constantinople*, *Collat.* 8.

It is confirmed. 2. By the Manner of speaking of the antient Fathers, some of whom call this Union substantial, as St. *Gregory Nazianzen*, *Epist. ad Cledon.* and St. *Damascenus*, *lib.* 3. *de fid. c.* 3. But others call this Union according to the Hypostasis, as St. *Cyril*, *epist.* 2. *ad Nestor.* which was approved by the Council of *Ephesus*.

It may be objected, that between a principal Cause and its Instrument there is only an accidental Union; and that Christ's Flesh being only the Instrument of the Word or Divinity, as St. *John Damascenus*, *lib.* 3. *de fid. c.* 15. seems to insinuate; therefore, *&c.*

To which I answer, that it is true that the Union is only accidental, if the Instrument be separate, but not if it be joined; the Reason of this Distinction is evident from the Union of the Soul with the Body; for that Union is substantial as it appears by itself, though the Soul makes use of the Body as of an Instrument or Organ for his operating. It is true, that Christ's Flesh is as an Instrument, but not as a separate one; therefore, *&c.*

We'll ask next, *if the hypostatical Union be something created?*

Note, That from what we have said, the hypostatical Union may be considered and taken in three Manners. 1. For the unitive Action, or the Union itself. 2. For the formal Conjunction of the divine Word with the Humanity. 3. From some Relation proceeding from the Conjunction of the divine Word with the Humanity. These pre-observed,

I answer, 1. *That the hypostatical Union, taken for the Action whereby the Humanity was united with the divine Word, is something created*; because it is a certain real and transient Action of God, which is *ad extra*, and received into the Soul and Body of Christ; therefore it is something created.

I answer, 2. *That the Union, formally taken for the Conjunction of the divine Word with the Humanity, is something partly created and partly uncreated*; because that formal Conjunction is nothing else but the divine Word himself, and the Humanity, as they agree indivisibly, in the same personal Being of Christ; and one of those Extreams being uncreated, *viz.* the Person of the Word, and the other created, *viz.* the Humanity; it is therefore something partly created and partly uncreated.

I answer, 3. *That the hypostatical Union, taken for a Relation or mutual Respect, proceeding from the mutual Conjunction of both, is something partly uncreated, partly created.* For if according to the Sentiment of some Philosophers, a Relation is something super-added to the Subject, or be the Subject itself as referred to the Term, so that the Term be extrinsick to the Relation; it follows, that the hypostatical Union, taken for such a Relation, is partly something created, and partly something uncreated; for if such a Relation be considered in Christ's human Nature, it will be something created; but if it be considered on the Part of the divine Word it will be something uncreated.

Note, That from this I'll pass to the *Communication of the Idioms*; explaining, 1. What is understood by the *Communication of Idioms*, and whether they are to be admitted in Christ by the hypostatical Union. 2. I'll make some Remarks on that Subject, and, 3. Propose some Rules; therefore,

I'll ask, 1. *What is understood by the Communication of Idioms, and whether they are to be admitted in Christ?*

To which I answer, *that the Communication of Idioms can be defined the Predication* in concreto, *of the divine and human Nature of the Properties of both, and of their Supposite.*

It is said, 1. *A Predication in concreto*, because a Predication *in abstracto* would be false and impossible, for the Divinity is not Humanity; and *in abstracto*, signifies that some Nature existing as separated from the Supposite.

It is said, 2. *Of the divine and human Nature respectively of one another*, because those two Natures in Christ can very well predicate of one another *in concreto*; for we can very well say God is Man, and Man is God.

It is said, 3. *And of the Properties of both Natures*, because likewise the Properties of both can be predicated *in concreto*; thus Man can be said eternal, and God mortal.

It is said, 4. *And of the Supposite of those Natures*, because both Natures can very well be predicated of Christ as well as their Properties. Thus this Predication is just, Christ is God; likewise Christ is a Man, Christ is immortal, and Christ is passible.

I'll ask, 2. *If the Communication of Idioms is to be admitted in Christ?* which I'll answer in the Affirmative. Which is an Article of Faith, and which I prove by the Scripture, attributing to God those Things which are proper either to the divine or to the human Nature: As when it is said *John* iii. *And no Man has ascended up to Heaven but he that came down from Heaven, even the Son of Man which is in Heaven.* And *Luke* i. *Therefore also that holy Thing that shall be born of thee, shall be called the Son of God.*

I prove it, 2. By the Councils, particularly that of *Ephesus*, in the Anathema's published by *Cyril*, and approved by the Council, whereby the *Nestorians*, denying the *Communication of Idioms*, were condemned. And there is declared that Christ can be said, and is surely a true God and a true Man.

I prove it, 3. By the Fathers, particularly St. *Leo*, *Epist.* 83. *ad palestin.* where he speaks thus, *It is no Matter from what Substance he be named, since inseparably the Truth of the Person remaining, he is the same; and the Son of Man for the Flesh, and the Son of God for his same Divinity with the Father.*

I prove it, 4. Because in Christ is a mutual Predication, *in concreto*, of those Natures, *viz.* of the divine and of the human, likewise of the Properties of both, and of their Suppositum, as St. *John Damascenus* insinuates, *lib.* 3. *de fide Christ. c.* 3.

From what I have said, it is easily understood in what Sense must be taken those Things which Christ sometimes says of himself, and in which appears some Contradiction; *v. gr.* as when he says, *John* xiii. *The Father is greater than me:* And he says, *John* x. *The Father and Me are one.* In these Words there is no Contradiction, if in the first Place, Christ be understood to have spoke of himself, according to the human Nature; and in the last, to have spoke according to the Divine.

Note, 1. That though some Propositions, pertaining to the Mystery of the *Incarnation*, can be admitted, in a logistical Rigour; it is, notwithstanding, safer to abstain from them: Because when we speak of that Mystery,

ſtery, we are by no Means to favour the Hereticks; who often take Occaſion from our Manner of Speaking, to maintain their Errors with more Obſtinacy. Therefore we muſt avoid, as much as poſſible, having any Expreſſions common with the Hereticks: Whence though the following Expreſſions are true in ſome Senſe, and uſed by ſome of the Fathers, *viz. Chriſt is a Creature*; *Chriſt has begun to be*; *Chriſt is God's Servant*; and the like; becauſe the *Arians* uſed the ſame Expreſſions to attack the Divinity of the Son; it is better to abſtain from them, or not uſe them, but with ſome Reduplication of human Nature; ſaying, *v. gr. Chriſt as Man is a Creature*; *as Man has begun to be*; *as Man is God's Servant.*

Note, 2. That ſome Propoſitions of the Fathers are not ſo much to be taken according to the Signification of the Words, as according to the Senſe thereof, which was true and orthodox; as it appears by the Example of thoſe, who ſaid that the Son of God had aſſumed Man; for they did take the Term Man *in concreto*, for Humanity *in abſtracto.*

As to the Rules relating to the *Communication of Idioms*, it may be aſked, *Which are thoſe Rules of the Fathers, whereby we can be directed in the Communication of Idioms?*

To which I anſwer, that thoſe Rules are the following ones, becauſe ſome of them are propoſed by the Fathers, and others are commonly received by the Theologians. The firſt whereof is this, that *of all the Names propoſed for the Perſon of Chriſt, or of the Divine Word, all thoſe can be predicated* in concreto, *which ſignify either the divine or human Nature, or their Attributes and Properties.* Becauſe ſuppoſed that the Names *in concreto* ſignify that which has a Form ſignified by ſuch Names; and ſuppoſed that Chriſt includes in himſelf the divine and human Nature, with their Properties, it is not ſurpriſing if both Natures and their Properties, by whatever Term they be expreſſed, can be predicated of Chriſt, *in concreto.* Thus it can be ſaid of Chriſt, what *Peter* has ſaid of him, *Acts* i, *This is the Lord of all.* And what the ſame Apoſtle ſaid, *He has ſuffered for us, and carried our Sins in his Body upon the Croſs.*

The ſecond Rule is, that *no Property of the human Nature, even* in concreto, *can be predicated of the Perſon of the Divine Word, with a Reduplication of the Divinity*; *nor any Property of the divine Nature, can be predicated of the human Nature, even* in concreto, *with a Reduplication of the Humanity*; whence it cannot be ſaid, that Chriſt, as God, has ſuffered and is dead; nor ought we to ſay of Chriſt, that as Man he is omnipotent, eternal, *&c.* becauſe it would follow hence, that the Natures, or their Properties, are confuſed in Chriſt.

The third Rule is, that *no Predicate including formally the human Perſon, or excluding the divine, is to be attributed to Chriſt*; v. gr. it muſt not be ſaid that Chriſt is a pure Man, or that he be different from God: Becauſe thoſe, or the like Propoſitions, would ſignify either that the Perſon of Chriſt is not divine, or that there are two Perſons in him, which is contrary to Truth; therefore, *&c.*

Note, That from this I'll paſs to another very eſſential Point, which is concerning the *Will*, and *Liberty of Chriſt*; aſking firſt,

If, and how many Wills, there was in Chriſt? To which I anſwer, that *there were two Wills, properly ſaid, in Chriſt*, viz. *the divine and the human Will*; which I prove by the Scripture, the Councils, Fathers, and by Reaſon.

By the Scripture, *Luke* xxii. *Father, if thou be willing, remove this Cup from me*; *nevertheleſs not my Will, but thine be done.* John v. *I ſeek not mine own Will, but the Will of the Father which has ſent me.* It appears clearly from theſe Words, that there were two Wills in Chriſt, *viz.* one which he ſaid to be his, and was diſtinct from that of the Father; and the other which he ſaid to be his Father, and which was common between the Father and him; ſince all thoſe Things which are eſſential in the Father, are common to all the Perſons. Whence it is not ſurprizing if Chriſt ſays to his Father, *Luke* xv. *Father, all that I have is thine*, &c.

By the Councils, particularly the ſixth General, *Act.* 10. *fid. profeſſ.* in theſe Words; *We ſay that there are two natural Wills in Chriſt, and two natural Operations, indiviſibly, inconvertibly, and without Confuſion.* Likewiſe by the Council of *Lateran* under *Martin* I. *can.* 11. where it was defined againſt the *Monothelites*, that there were two Wills in Chriſt.

By the Fathers, particularly St. *Ambroſe, lib.* 19. *in Luk.* where he ſpeaks thus; *When he ſaid, not my Will, but thine be done*; *he referred his to Man, and that of his Father to Divinity.*

By Reaſon, becauſe Chriſt was perfect God and perfect Man, and conſequently had two Wills, ſince each intellectual Nature has its proper Will.

From what I have ſaid it may be inferred, that thoſe erred with Regard to this Duality of Wills. 1. Thoſe who imagined that Chriſt was but a pure Man, and as ſuch attributed to him no other but the human Will. 2. Thoſe who pretended that Chriſt was only a phantaſtical Man, and thus diveſting him of the human Nature, deprived him at the ſame Time of the human Will. 3. The *Monothelites*, who had for a ſtrenuous Aſſerter of their Errors *Macharius* of *Antioch*, who being examined on his Profeſſion of Faith, anſwered thus in the ſixth general Council, *Act.* 8. *Was I even to be cut into Pieces and thrown into the Sea, I would not ſay, that there are two Wills, or two natural Operations in the Diſpenſation of the Incarnation of our Lord Jeſus Chriſt.*

It may be aſked here, *If in Chriſt, beſides the human Will, there was that Will which is imperfect, and is commonly called the Will of Senſuality, or the ſenſitive Appetite?*

Which I anſwer in the Affirmative; becauſe Chriſt had the human Nature; and conſequently what belongs to it, obſerving however that ſuch a Will is called by Participation: Whence it follows, that in Chriſt there was only one human and rational Will, exiſting in him, together with the divine Will.

We'll aſk next, *If Chriſt's Will was a Free Will, properly ſaid, even with Reſpect to the Works commanded by the Father?*

Note, 1. That there are three Sorts of Wills, *viz.* of *Nature*, of *Grace*, and of *Glory.* By the *firſt* we are free not only from Coaction, but likewiſe from Neceſſity, according to this, 1 *Cor.* ii. *Not having Neceſſity, but having the Power of his Will.* By the *ſecond*, we are free from the Servitude of Sin, according to this, *Rom.* vi. *Delivered from the Slavery of Sin, you are made the Servant of Juſtice.* By the *third*, we are delivered from the Miſeries of this Life, according to this, *Rom.* viii. *The Creature itſelf will be delivered from the Servitude of Corruption, and admitted to the Freedom of the Children of God.*

Note, 2. That it is Queſtion here of the Liberty of Nature, whereby he that is free is delivered from Neceſſity, and is a Faculty agreeable to the intellectual Nature, which is ſubject neither to an outward Violence, nor to an inward Inclination; but by it every Thing required to act, preſuppoſed, will, can act or not act, or act the Thing oppoſite, at Pleaſure.

Note, 3. That the Neceſſity oppoſite to Liberty, may be conſidered double, *viz.* one of Coaction, and the other of Inclination. The Neceſſity of Coaction, is an outward Induction of ſome Violence; but ſuch a Neceſſity cannot find Place in the Willing, becauſe all Motion of the Will, is a certain Inclination of the Will towards ſomething. But all Violence is againſt the Inclination of the Thing, ſince that is called violent, the Principle whereof is outward, without any Concurrence, but rather a Reluctancy from the Part of him to whom Violence is offered. But the Neceſſity of Inclination, is a certain inward Induction, determining the Will to ſome certain Thing; ſo that it is neceſſary to ſuppoſe the Thing, toward which the Will is thus inclined.—This Neceſſity of Inclination can alſo be conſidered double, *viz.* one natural, and the other adventitious.—The natural, is the Appetite itſelf of a convenient Good, which is in the Will in the ſame Manner as the natural Inclination towards the Beatitude. But the adventitious is a neceſſary Appetite happening to the intellectual Nature from ſome

ſome outward Form, ſuch is the Inclination of the Bleſſed of loving God neceſſarily, through a conſummate Charity, becauſe ſeen intuitively, for a Bleſſed who ſees God clearly cannot hate him, or deſiſt from loving him. Theſe pre-obſerved.

I anſwer, 1. *That Chriſt's Will was free of a Freedom properly ſaid, that's to ſay, as well of a Freedom from Coaction, as of a Freedom from Neceſſity*; becauſe that Will is free of a Freedom properly ſaid, which is capable of Election, ſince Election is a proper Act of an undeterminate Will; but ſuch was Chriſt's Will, as we may learn from the Paſſages of the Scripture, and of the Fathers I am going to quote; therefore, *&c.*

From the Paſſages of the Scripture, *Iſa.* vii. *Butter and Honey ſhall he eat, that he may know to refuſe the Evil and chuſe the Good.* John x. *No Man takes my Life from me, but I lay it down of myſelf: I have Power to lay it down, and I have Power to take it again.* Hebr. xii. *Who for the Joy that was ſet before him, endured the Croſs, deſpiſing the Shame.* It may be eaſily inferred from theſe Words, that there was in Chriſt that Liberty free from Neceſſity, ſince ſomething is ſaid to be in our Power when we have ſuch a Liberty towards it, as of two Things propoſed, to reject one and accept the other.

From the Paſſages of the Fathers, particularly St. *Jerom*, on theſe Words of *Iſa.* liii. *He has been offered, becauſe he would*; *for*, ſays he, *he has not ſuffered the Croſs by being neceſſitated to it, but of his own Free-Will.* From St. *Leo, lib.* 3. *de paſſ. Chriſt. c.* 2. where he ſpeaks thus; *All the Outrages, Ignominies, Pains, and Vexations, which the Fury of the Impious has offered to our Lord, he has ſuffered them, not through Neceſſity but of his own Will.* Likewiſe from St. *Gregory, lib.* 24. *moral. c.* 2. in theſe Words, *He has willingly, and without the leaſt Neceſſity, ſubmitted himſelf to our Death.*

This is confirmed from that Chriſt was capable of Merit and Obedience; ſince it appears from the Scripture that he merited in fact, and became obedient to Death; therefore it follows, that he had a Will free from Neceſſity, ſince without ſuch a Will he could not have merited, nor be properly obedient.

It may be objected, that Chriſt was impeccable, and Impeccability was inconſiſtent with that Liberty properly ſaid, which is free from Neceſſity; therefore that Chriſt's Will was not free of that Liberty which is from Neceſſity.

I anſwer, that Chriſt's Impeccability could be very well reconciled with his Liberty; becauſe, though Chriſt, by reaſon of Impeccability, was not free towards obſerving or not obſerving in general the Precepts impoſed on him by the Father, *v. gr.* the affirmative Precept, whereby he was obliged to redeem the human Race by his Death; he was notwithſtanding free to obſerve it, or not obſerve it in the Species or in the Individual, *v. gr.* he was free to accept the Death commanded by the Father, at ſuch an Hour, ſooner or later, with an Exceſs of Charity greater or ſmaller, by a Motive of ſuch or ſuch Virtue, *viz.* either by a Motive of Religion, or of Patience, or of Fortitude, or of Obedience, or the like. Thus it appears that the Liberty from Neceſſity in Chriſt was not abſolutely incompatible with his Impeccability.

Our next Queſtion is, *If the human Will of Chriſt was entirely conformed to the divine Will in the Thing willed?*

Note, 1. That Chriſt's human Will may be conſidered in two Manners. 1. As imperfect and ſenſitive, and thus it is nothing elſe but the ſenſitive Appetite itſelf, the Property whereof is to deſire the ſenſible Good, and avoid and fly from the ſenſible Evil. 2. As rational, and thus is nothing but that natural Faculty of the Soul which flows from it, the Property whereof is to proſecute Good and avoid Evil.

Note, 2. That the rational Will may be conſidered in two Manners, 1. As Nature; 2. As Reaſon. It is conſidered as Nature, when conſidered as an appetitive Faculty proſecuting Good, neceſſarily by itſelf, and not freely, and flying from Evil, or any Thing elſe which is not agreeable; or is an appetitive Faculty proſecuting the Good, agreeable to Nature itſelf and to the Senſes, and flying through an Inſtinct of Nature from all that is not agreeable to them. As when, *v. gr.* by ſuch an Inſtinct it deſires Health, Life, and the like, or when it flies from Illneſs and Death; for theſe Goods are agreeable to Nature, and theſe Evils are diſagreeable to it. But Will is conſidered as Reaſon, when conſidered as an appetitive Faculty, chuſing a Means freely with Regard to the End, or when conſidered as an appetitive Faculty, proſecuting honeſt Good, according to the Judgment of the Underſtanding.

Note, 3. That all human Will may be conſidered as conformable to the divine in three Manners: 1. Only in the material Object, *viz.* by willing the ſame Thing God wills, but not by the ſame Motive; thus the *Jews* were willing that Chriſt ſhould ſuffer, as God was willing he ſhould; but God was willing by a Motive of Charity, and the *Jews* by one of Hatred. 2. In the formal Object only, and not in the material, *viz.* by willing ſome other Thing than God wills, though by the ſame Motive. Thus a Father is willing that his Son ſhould live to be ſaved, whom God would have him die for the ſame Reaſon, left Malice ſhould deprave his Underſtanding. 3. In the material and formal Object together, *viz.* by willing the ſame Thing God wills, and by the ſame Motive; thus God was willing that Chriſt ſhould ſuffer for the Redemption of the human Race, and Chriſt was willing to ſuffer for the ſame Reaſon.

Note, 4. That the Conformity of the human Will with the divine, can be explained in another Manner, by ſaying, that the created Will can be conformable to the divine in three Manners, 1. Effectively, *viz.* when he wills the ſame Thing, the divine Will is willing it ſhould will. 2. Materially, *viz.* when it wills the ſame Object God wills. 3. Formally, *viz.* when it wills by the ſame Motive the divine Will is willing.

Note, 5. That Chriſt's human Will may be conſidered either as efficacious or inefficacious. Theſe pre-obſerved,

I anſwer, 1. *That Chriſt's human Will conſidered as Reaſon, and as efficacious, has always been conformed ſubjectively, materially, and formally, to the divine Will.* Which I prove by the Scripture, the Fathers, and by Reaſon.

By the Scripture, which inſinuates it, *Pſalm* xl. in theſe Words, *In the Volume of the Book it is written of me; that I delight to do thy Will, O my God.* John iv. *My Meat is to do the Will of him that ſent me.* And chap. vi. *For I came down from Heaven not to do my own Will, but the Will of him that ſent me.*

By the Fathers, particularly St. *Auguſtin, Tract.* 19. *in Joan. c.* 5. towards the End; *I do not ſearch my Will, not mine*, ſays he, *not my proper Will, not of the Son of Man, not my Will which ſhould reſiſt to God.*

By Reaſon, becauſe if all, and every one ought to conform his Will to the divine Will, and ſhould pray every Day, that God's Will be done on Earth as it is in Heaven, and cannot be excuſed from that Conformity but through Ignorance; how much more ought Chriſt, who is the Holy of Holies, and to whom God's Will was known, be conform to it, even under Pain of Prevarication, of which he was not capable, ſince he was impeccable.

I'll confirm and explain in particular, how Chriſt's efficacious human Will was effectively, materially, and formally, conform to the divine. It was effectively conform to the divine, becauſe the human Will of Chriſt would all that God was willing ſhe ſhould will. It was conform materially, or in the material Object, becauſe it would the very ſame Thing God would. And laſtly, it was conform formally, becauſe by the ſame Motive the divine Will would ſomething, the efficacious human Will of Chriſt, would have it.

I anſwer, 2. *That the inefficacious human Will of Chriſt, or the Will of Senſuality, and likewiſe the rational Will conſidered as Nature, or as natural, was always effectively conform to the divine Will, but not always conform materially.*

I prove the firſt Part, *viz. that ſuch a Will was always conformable effectually to the divine*; becauſe ſuch a

Will in Christ, would what the divine Will wanted it should will. If it be objected, that such a Will wanted to avoid Death, though the divine Will was willling that Christ should suffer and die. I'll answer, that that Nolition of the human Will, was effectually conformable to the divine, from that God who is Author of Nature, permitted such a Nolition; which St. *John Damascenus* insinuates, *lib.* 2. *ortodox. fid. c.* 15. by saying, *that human Nature was moved in Christ by its proper Motions.*

I prove the second Part, *viz. that the inefficacious, sensitive, and natural Will, or the rational consider'd as Nature, was not always conformable to the divine*; because it would something different from what the divine Will would; as it appears from that the divine Will would that Christ should suffer and die, to redeem the human Race; and the sensitive and natural Will of Christ wanted to avoid it, as disagreeable to Nature, and to the Senses; as is evident from *Matt.* xxvi. *Let this Cup pass from me; nevertheless not as I will, but as thou wilt.* And *Luke* xxii. *Nevertheless not my Will, but thine be done.* Whence St. *Augustin* speaks thus, *lib.* 3. *cont. Maxim. c.* 19. *In what Christ says, not what I will, but what you will, he shews, that he would something different from what his Father would.*

I prove the third Part, *viz. that the inefficacious, sensitive, and natural Will of Christ, could not be conformable to the divine Will*; because it could will a Motive different from the Motive whereby the divine Will could will something.

But, say you, if such a Thing was, there had been a Contrariety of Wills in Christ; which cannot be said: Therefore, *&c.*

I deny it, since a Contrariety properly said, cannot be but between two efficacious Wills.

Note, That from this I'll pass to the Consideration of those Things which the Son of God incarnated, has carried in the Nature united to him, and of what happened to him at his Coming into the World, and while he lived in it, and at his going out of it, and after he had quitted it, beginning by his Conception: Therefore,

I'll ask, 1. *If Christ can be said conceived; of what Matter his Body was formed; and whether his Flesh can be said to descend from* Adam, Abraham, *and* David?

I answer to the first Part of this Question, *that Christ can be truly said conceived*; because we read it in formal Terms, in the Symbol of the Apostles, *viz. that he was conceived of the Holy Ghost*; or, which is the same Thing, his Body was formed by the Operation of the Holy Ghost.

I answer to the second Part, *that Christ's Body was formed of the purest Blood of the blessed Virgin?* Because this is affirmed by St. *John Damascenus, lib.* 3. *c.* 2. when he says, *that the Son of God had formed to himself, of the purest Blood of the Virgin, a Flesh animated by a rational Soul.* This Sentiment being confirmed by this Passage, *Luke* i. *The Holy Ghost shall come upon thee, and the Power of the Highest shall overshadow thee.* By this *Gal.* iv. *God has sent his Son made of a Woman:* Therefore, *&c.* Because, as St. *Thomas* observes, *p.* 3. *q.* 31. *art.* 4. and 5. Christ is said to be made of a Woman, to accomplish thereby the Diversity of human Generation: For the first Man was made of Earth, without Man and Woman: *Eve* was produced from Man without a Woman: All others are produced of Man and Woman: But this fourth Manner of Conception was left for Christ, that he should be formed of a Woman without a Man.

It may be objected, that if Christ had been conceived of a Woman, he had been unclean, according to *Job* xv. *Can a Man be justified when compared to God, or appear clean, when born of a Woman?* But in Christ nothing is or can be unclean, since he is himself the Wisdom of God, of whom it is said, *Wis.* vii. *He incurs nothing spotted*; therefore it does not appear, that he was conceived, or that it was even decent he should be conceived of a Woman.

I answer, that Christ had been unclean perhaps, if he had been conceived in the sensual Pleasures, or by the usual Copulation of a Man with a Woman, but not as he was conceived by the Operation of the Holy Ghost. The Reason of this is contained in what we read *Acts* x. *What God has created, must not be called common*, i. e. *unclean*; but the Conception of Christ is the Work of God, therefore it is not unclean. Whence St. *Augustin, lib. cont. quinq. hæres. c.* 5. introduces him speaking thus; *What can offend thee, in my Nativity? I am not conceived by a sensual Cupidity? I had made the Mother from whom I am born. If the Sun by his Rays can dry the Filth of Cloaca's, and is not defiled by it, how much more the Radiancy of the Eternal Light, can purify wherever it appears, and not be defiled.*

I answer to the third Part, *that Christ's Flesh is derived from* Adam; because the Son of God, as the Apostle teaches it, *Heb.* ii. *Has taken the Seed of Abraham*, which Seed descended from *Adam:* Therefore, *&c.*

Notwithstanding, 1. This, 1 *Cor.* xv. *The first Man from the Earth, terrestrial, and the second from Heaven, celestial.* Because this Place does not import, that Christ is to be said from Heaven, as to the Matter of his Body; but either as to his formative Virtue, or as to his Divinity.

Notwithstanding, 2. That those who descend from *Adam* have sinned in him, *Rom.* v. or should have sinned in him; because this is only true of those, who descend from *Adam* thro' the seminal Way, whereby Christ is not descended from *Adam.*

I answer to the fourth Part, *that Christ's Flesh descended from* Abraham *and* David; because the Scripture insinuates it, when it says, that it was promised to both, that the *Messiah* should descend from them. Whence it is not surprizing, if Christ, *Matt.* i. is called *The Son of David, the Son of Abraham.*

We'll ask next, *Which was the active Principle of Christ's Conception, if it was the Holy Ghost, and him alone, and whether the same Holy Ghost can be called the Father of the Son?*

To the first Part of this Question, I answer, *that the whole Trinity was the active Principle of the Formation of Christ's Body; which, notwithstanding, by some Appropriation, is attributed to the Holy Ghost.*

I prove the first Part of this Answer, *viz. that the Formation of the Body of Christ is attributed to the whole Trinity*; because that Formation is a Work *ad extra*, which is common to the whole Trinity, as St. *Augustin* teaches it, *lib.* 1. *de Trinit. c.* 4. and 5.

I prove the second Part, *viz. that the Formation of the Body of Christ, is notwithstanding attributed by some Appropriation to the Holy Ghost*; because, according to St. *Thomas*, that Work which is of Love and Mercy is attributed to the Holy Ghost, as the Works of Power are attributed to the Father, and those of Wisdom to the Son; though they be Works common to the whole Trinity; but Christ's Conception, or, which is the same, the Formation of his Body, is an Act of Love, as is evident from *John* iii. where it is said that *God so loved the World that he gave his only begotten Son:* Therefore it is not surprising if it *be attributed to the Holy Ghost.*

I answer to the second Part of the Question, that *though Christ, in that Sense above-mentioned, be conceived of the Holy Ghost; he, notwithstanding, cannot be said the Son of the Holy Ghost; nor the Holy Ghost be called the Father of Christ:* Because, in this Place, he is properly said a Son, who proceeds perfectly semblable in Nature to his productive Principle; but Christ does not proceed perfectly semblable in Nature to the Holy Ghost, as it appears by itself: Therefore, *&c.* Notwithstanding that he is rightly called the Son of *Mary*; because he proceeds from her as administring the Matter, in the Similitude of the Species; but Christ does not proceed from the Holy Ghost, as administring something to his Substance in the Similitude of the Nature; therefore he cannot be said his Son.

It may be asked here, *If the blessed Virgin, contributed in something actively to the Conception of Christ's Body?* To which I answer in the Negative; because she only administred the Matter, and operated nothing but before the Conception, *viz.* in preparing the Matter for it.

Our next Question is, *At what Time, and in what Manner and Order, Christ's Conception was made? whether*

ther in the first Instant of the Conception, the Body of Christ was formed and animated, and was taken by the Word?

I answer, 1. That Christ's Body was formed in an Instant; according to St. *Gregory, lib.* 18. *moral. c.* 36. in these Words, *The Angel announcing, the Holy Ghost coming, the Word was presently in the Womb, and the Word was presently made Flesh in the Womb.* Either because the active Principle of that Conception, *viz.* the Holy Ghost, or the whole Trinity, has an infinite Power whereby the Matter could be immediately disposed to a due Form; or because the Word in the first Instant of the Conception, took the Body, already formed; therefore it follows, that such a Body was formed in the first Instant of the Conception.

It is objected, that the Conception could not be made without a local Motion, whereby the purest Blood of the blessed Virgin, was to flow to the Place proper for the Generation; therefore it was not made in an Instant, since a *local* Motion imports a Succession.

I answer, that such a local Motion was the Preamble of the Conception, but not the Conception itself; which to understand better, we must observe, 1. That in the Conception, or Formation of Christ's Body, three Things may be consider'd, 1. The local Motion of the Blood to the Place of the Generation. 2. The Formation of the Body from such a Matter. 3. The Increase, whereby it is carried to some perfect Quantity; according to this, *Luke* ii. *He increased in Age and Wisdom*; and consequently, we must observe, 2. That the first and third, could not be done in an Instant, since they have a Succession; but that it is false, that the second could not be done in an Instant.

I answer, 2. *That the Body of Christ was animated in the first Instant of the Conception*; either because St. *John Damascenus, lib.* 3. *c.* 2. insinuates it, when he says, *That the Flesh was made at once, the Flesh of the Word of God at once, and the Flesh animated with a rational and intellectual Soul, at once.* Or for the Reasons heretofore alledged; for there is no Comparison between the Body of Christ and other Bodies.

I answer, 3. *That the Body of Christ, in the first Instant of the Conception, was assumed by the Word.* Which I prove by the Fathers, and by Reason.

By the Fathers, particularly St. *Augustin, lib. de fid. ad petrum. c.* 18. *Believe for certain, that the Flesh of Christ was not formed in the blessed Virgin, before he was taken by the Word.*

By Reason, because, if the Flesh of Christ had been conceived before it was taken by the Word, it had had some Hypostasis, besides the Hypostasis of the Word of God, which is against the Truth of the *Incarnation*: Therefore, *&c.*

It is objected, 1. That the Body must have been formed before it was taken, for what is not, cannot be taken; therefore it was not taken in the same Instant it was formed.

I deny the Antecedent of this Antimema, for the Reasons above-mentioned.

It is objected, 2. That in all Things generated, the imperfect precedes in Time the perfect; but the Body of Christ is something generated, therefore it did not arrive in the first Instant to the last Perfection, which was its Union with the Word of God; but it was first conceived, and then taken.

I answer, that in all Things generated distinct from the Body of Christ, the imperfect is before the perfect, with Respect to Time; but not absolutely. Because in the Mystery of the *Incarnation*, there is no Ascent of something pre-existing Proficient, towards the Dignity of the hypostatical Union, as *Photinus* pretended; but a Descent, inasmuch as the perfect Word of God has taken to himself the Imperfection of our Nature; according to this, *John* vi. *I am descended from Heaven.*

We'll ask next, *If Christ's Conception, ought to be said natural, or miraculous?*

Note, 1. From St. *Ambrose, lib. de Incarnat. c.* 6. that several Things are found in the Mystery of the *Incarnation*, according to Nature, and beyond Nature; and to understand better, which was in him according to Nature, and above Nature,

Note, 2. That Christ's Conception can be considered in two Manners, 1. From the Part of the Matter. 2. From the Part of the Form, and from that of the Agent, *i. e.* God operating. These pre-observ'd,

I answer, *that Christ's Conception from the Part of the Matter, was natural; but from the Part of God operating, was absolutely supernatural and miraculous.*

I prove the first Part, *viz. that it was natural from the Part of the Matter*; because the Matter administered by the blessed Virgin was her own Blood.

I prove the second Part of my Answer, *viz. that Christ's Conception from the Part of God's acting was absolutely miraculous, and supernatural*; because we judge of every Thing more according to the Form, than according to the Matter; and more according to the Agent, than according to the Patient; therefore God who is the Agent in this Mystery, acting supernaturally, gives Occasion to the Conception of Christ, being called supernatural absolutely, and natural *secundum quid.*

It is objected, 1. That Christ, by his Conception, is called the Son of Man, but he cannot be truly called thus, unless his Conception be natural; therefore Christ's Conception is simply natural.

To which I answer, that he cannot be called the Son of Man, unless his Conception be natural, from the Part of the Matter administered by the blessed Virgin; but not from the Part of the Agent.

With Regard to Christ's Conception, it may be asked, 1. *If that Body, taken by the Word, was passible and mortal, and why he took such a Body?*

I answer, that it seems that Christ's Body should not have been passible and mortal, 1. Because Christ had not sinned in our first Parent, and was not subject to any Sin. 2. Because he enjoy'd the beatifick Vision; though he would that his Body should be passible and mortal, to recommend thereby his extream Charity, and give an illustrious Example of it.

It may be asked, 2. Why from the Beginning, and the Instant of his *Incarnation*, the Word took the Body of an Infant, and not that of a Man perfect; and why he would be shut up in the Womb of his Mother, during nine Months?

I answer, that it was for the Reason alledged by St. *Paul, Heb.* ii. to become semblable in all Things to his Brethren, and to give them an Example of Mortification and Patience.

Note, That from Christ's Conception, I'll pass to his Nativity, and examine all the Circumstances which have attended it.

I'll ask first, *How many Nativities are to be attributed to Christ?* To which I'll answer, *that two Nativities are to be attributed to him, one eternal, whereby he proceeds eternally from his Father; and the other temporal, whereby he is born, in a certain Period of Time, of his Mother.* Which I prove by the Scripture, the Councils, Fathers, and by Reason.

By the Scripture, which mentions both *Nativities*; for it is spoke of the Eternal, *Psalm* cx. in these Words, *Before the Morning I have begotten thee from the Womb.* And of the Temporal, *Matt.* i. *The Generation of Christ, was thus*, &c. And *Matt.* ii. *Jesus being born in Bethlehem*, &c.

By the Councils, particularly that of *Chalcedon*, in the first Action, where it is said, that though the Son of God wanted no second *Nativity*, he notwithstanding was born in the Flesh, for us and for our Salvation, uniting to himself the Humanity, according to its Substance.

By the Fathers, particularly St. *John Damascenus, lib.* 1. *c.* 7. where he expresses himself thus, *We confess two Nativities of Christ, one eternal, which is from the Father; and one from the Mother, in the latter Times, for us.*

By Reason, because there are two Natures in Christ, one whereof he has received from his eternal Father, and the other from his Mother in a Period of Time.

It

It is objected, that in Christ there is only one Person, and therefore one Nativity; because the Nativity belongs to the Person, not to the Nature.

I answer, that the Nativity is of the Person as of a Subject, and of the Nature as of a Term: For as the Motion is diversified according to the Diversity of Terms, and in the double Nativity of Christ, a double Motion is considered, if not a Motion properly said, at least a Motion according to our Manner of conceiving, in the eternal Nativity of Christ; hence it is that a double Nativity is established in Christ.

It may be asked here, *If, as we admit a double Nativity in Christ, we admit likewise a double Filiation?* Which I answer in the Affirmative, from the Part of the Cause; and in the Negative from the Part of the Subject. The first Part of my Answer is evident, because there is a double Cause, *viz.* a double Nativity and consequently a double Filiation; and likewise the second Part, because there is but one Subject, *viz.* the Person, which is the Subject of the two Nativities.

We'll ask next, *If Christ in his temporal Nativity, had the blessed Virgin for his Mother, and whether she must be called Mother of God?*

To the first Part of the Question I answer, *That Christ in his temporal Nativity, had the blessed Virgin for his Mother.* I prove it by the Scripture, the Fathers, and by Reason.

By the Scripture, *Matt.* i. *When his Mother Mary was espoused to Joseph*, &c.

By the Fathers, particularly St. *Gregory Nazianzen, Orat. de Christ. nativit.* in these Words, *If any Body does not believe that Mary is the Mother of God, he is besides the Divinity.*

By Reason, because Christ did not bring along with him a Body from Heaven, but took it from the Virgin his Mother.

It is objected, that the blessed Virgin did not concur actively to the Generation of Christ, but only by administring the Matter; for which she cannot be called the Mother of Christ, otherwise the Wood should be called the Mother of a Bed, or of a Door; therefore, *&c.*

I answer, that there is a great Disparity between the blessed Virgin, and Things inanimated, because Paternity, Maternity, and Filiation, do not belong to any other Generation but to that of Things living.

It is objected, 2. That Christ was born by a Miracle, of the Virgin *Mary*, but a miraculous Generation does not suffice to establish a Maternity or Filiation, for we do not say that *Eve* was the Daughter of *Adam*; therefore, *&c.*

I answer, that it was miraculous from the Part of the Operation of the Holy Ghost, but not from the Part of the blessed Virgin, because Christ is born a Man of a Woman, and in the due Time of a Conception, as St. *John Damascenus* teaches it, *lib.* 3. *c.* 7. in these Words, *The temporal Nativity, whereby Christ is born for our Salvation is in some measure like ours, because he is born a Man of a Woman, and in the due Time of a Conception; but above ours, because not of Seed, but of the Holy Ghost, and of the Virgin Mary, above the Law of Conception.* Therefore that Nativity was natural from the Part of the Mother, but miraculous from the Part of the Operation of the Holy Ghost; whence the blessed Virgin is the true and natural Mother of Christ.

I answer to the second Part, *That the blessed Virgin can be truly called the Mother of God:* Which I prove by the Scripture, the Councils, and the Fathers.

By the Scripture, *Luke* i. *That holy Thing which shall be born of thee shall be called the Son of God.* Whence her Cousin *Elizabeth* saluted her as Mother of God, in the same Place lately quoted, *Whence is this to me*, said she, *that the Mother of my Lord should come to me?* Which is also witnessed by the Apostle, *Gal.* iv. when he says, *That God sent his Son made of a Woman, made under the Law.* For by these Words it appears, that he who is the Son of the blessed Virgin, as conceived and born of her, is likewise the Son of God, and is consequently God. This had been already foretold by *Isa.* vii. in these Terms, *Behold a Virgin shall conceive and bear a Son, and shall call his Name Emanuel.*

By the Councils, particularly that of *Chalcedon*, which expresses itself in these Terms, *Christ is God, let the holy Mary be written Mother of God*; he who does not think so is a Heretick; turn the *Nestorians* out of Doors. Likewise in the sixth and seventh general Council, and in that of *Lateran* under *Martin* I.

By the Fathers, particularly St. *Gregory Nazianzen, Orat. de Christ. nativit.* St. *Peter Chrysologus*, Serm. 146.

By Reason, because she who has truly generated God, is to be called Mother of God; but the blessed Virgin *Mary* has truly generated God, since she has generated Christ, who is a true God and a true Man; therefore she is to be called *Mother of God.*

Note, That I'll examine in this Place some Circumstances which accompanied Christ's Nativity, *viz.* the Place, Time, Manner, *&c.*

I ask first, *If Christ was born in Bethlehem, as in a convenient Place?* Which I answer in the Affirmative.

I prove that he was born in *Bethlehem* or about *Bethlehem*, because the Scripture witnesses it expressly, *Mat.* ii. in these Words, *Jesus being born in Bethlehem of Judea, in the Days of Herod the King*; which had been foretold by the Prophet *Micah*, chap. v. in these Words, *And thou Bethlehem Ephrata, thou art little in the Thousands of Judah, from thee will come forth to me, he who is to be the Ruler in Israel.* But that he was not born in that City, but only in its Neighbourhood, is understood from what we read, *Luke* ii. *Because there was no Room for them in the Place.*

I prove that he was born there as in a convenient Place, 1. Because he was made of the Seed of *David* according to the Flesh, as we read, *Rom.* i. whence he should be born in *Bethlehem*, that from the Place of his Nativity should be proved the Promise made to *David*, *Psalm* cxxxii. *Of the Fruit of thy Body will I set upon thy Throne.* 2. As St. *Gregory* observes, *Homil.* 8. *in Evangel. Bethlehem* is interpreted the House of Bread; but Christ says himself, *John* vi. *I am the living Bread who have descended from Heaven.*

I ask secondly, *If Christ was born in a convenient Time?* Which I answer in the Affirmative, because God himself had appointed that Time.

I ask thirdly, *If Christ was born without his Mother suffering the least Pain in the Delivery?* Which I answer likewise in the Affirmative, because St. *Augustin* is of that Sentiment, *Serm.* 14. *de nativit.* where he speaks thus to the blessed Virgin, Mother of God; *Thou hast not been found in the Conception without blushing, nor found in the Delivery with Pain.*

From this I'll pass to the *Circumcision of Christ*, and ask, *If Christ was really circumcised, and ought to have been circumcised?*

I answer the first Part of the Question in the Affirmative, and prove it by the Scripture, *Luke* ii. *And when eight Days were accomplished for the Circumcision of the Child*, &c.

I answer, 2. *That it was very convenient that Christ should be circumcised*, for the following Reasons. 1. To shew thereby the Truth of his human Flesh against the *Manicheans*, who denied the Reality of his Body, and against the *Apollinarists*, who pretended that Christ's Body was consubstantial to the Divinity, and also against the *Valentinians*, who affirmed that he had brought his Body from Heaven. 2. To approve the Institution of the *Circumcision*, to recommend by his Example the Virtue of Obedience, for which, to conform to the Precept, he was circumcised the eighth Day. 3. To prove that he was of the Race of *Abraham*, to whom the Circumcision had been commanded, in Sign of the Faith of the Coming of the *Messiah.* 4. Lest if he had not been circumcised, the *Jews* had refused to receive him. 5. To not reject the Remedy whereby the Flesh of Sin was purified; since himself was come in the Similitude of the Flesh of Sin. 6. That by loading himself with the Burthen of the Law, he should deliver others from that Burthen.

The next Question which offers to me, is, *If Christ's Nativity ought to have been manifested, and whether it was convenient it should be manifested to those to whom it was manifested?*

To which I answer, 1. That Christ's Nativity was and

and ought to have been manifested, but not to all without Distinction, at least at the Beginning, but only to some designed by God.

I prove the first Part of my Answer, *viz. That Christ's Nativity was manifested*, because God revealed it by the Angels to the Shepherds, and by the Star to the Magi.

I prove the second Part, *viz. that it ought to have been manifested*; because it was necessary that it should prove profitable, otherwise Christ had been born in vain; but it could not have proved profitable unless it had been manifested, at least to some; therefore, *&c.*

I prove the third Part, *viz. That it ought not to have been manifested, at least at first, to all without Distinction*, either because if it had been manifested to all from the Beginning, Man's Redemption had not been accomplished by the Sacrifice of the Cross; for we read, 1 *Cor.* ii. *That if they had known they had never crucified the Lord of Glory*; or because if Christ's Nativity had been manifested to all from the Beginning, the Merit of Faith whereby Men are justified, had been vastly diminished; because that Faith is the Argument of Things which do not appear, *Hebr.* xi.

I prove the fourth Part, *viz. That the Nativity of Christ ought to have been manifested to some*; because the Order of the divine Wisdom requires, that God's Gifts and his Secrets should not be known to all equally and together; but immediately to some, and by them derive to others.

I answer, 2. *That Christ's Nativity was conveniently manifested to those to whom it was manifested at the Beginning*, viz. *to the Shepherds and to the Magi*; because all that is done by God's Order is conveniently done; and because by the Manifestation made to the aforesaid Persons, Christ was manifested to Persons of every Condition, because he was come to save Men of all Ranks and Conditions, according to the Apostle, *Coloss.* iii. *Where there is neither Greek nor Jew* (*viz.* in Christ) *Circumcision nor Uncircumcision, Barbarian, Scythian, bond nor free, but Christ is all and in all.*

If it be asked, *what was that Star which appeared to the Magi?* I'll answer, that it was not one of those Stars created from the Beginning, but that it was newly created for that Purpose: Which I prove by the Fathers, and by several Reasons.

By the Fathers, particularly St. *Augustin, lib.* 2. *cont. Faust. c.* 5. where he speaks thus; *It was not one of those Stars created at the Beginning*, which observe their Course according to the Order prescribed by the Creator; *but at the Novelty of a Virgin being delivered of a Child, a new Star appeared.* And by St. *Leo, Serm.* 1. *de Epiphan. The Light of a new Star*, says he, *appeared to three Magi of the East, which being brighter than all the other Stars, attracted the Eyes and the Minds of all the Beholders, to give to understand that such an unusual Thing did not appear without Cause.*

I prove it by the following Reasons; 1. Because it moved in a new Manner, for it was carried from North to South. 2. It appeared after a new and unusual Manner, since it appeared not only in the Night but likewise in Day-time, which is not common to other Stars. 3. It did not appear always, but was sometimes hidden; since when the Magi came to *Jerusalem* it hid itself, and shewed itself again after they had left *Herod.* 4. Because it had not a continual Motion, but conformed itself to that of the Magi, as to their Time of March, or of Rest.

Note, That from this I'll pass to the Purification of the blessed Virgin, and to the Presentation of Christ in the Temple.

I'll ask, 1. *If the Virgin Mother of God, accomplished the Law of the Purification?* To which I answer in the Affirmative, and prove it by the Scripture, *Luke* ii. *And when the Days of her Purification according to the Laws of Moses were accomplished*, &c.

Note, That though the blessed Virgin was not obliged to accomplish the Law of the Purification, she would notwithstanding come to the Temple to accomplish it, and that conveniently. She was not obliged, *&c.* because she had not conceived from the Seed of Man. It was notwithstanding convenient for her to accomplish the Law of the Purification, because as the Plenitude of the Grace of the Son was descended to the Mother, it was proper that the Mother should conform herself to the Humility of the Son, who would submit himself to the Ceremonies of the Law, though he was not subject to it.

I'll ask next, *If Christ was presented to the Temple; if that Presentation was convenient, and which were the principal Circumstances of it?*

I answer to the first Part of the Question, *That Christ was presented to the Temple, and that it was convenient he should*; which I prove by the Scripture, particularly that he was presented in the Temple, *Luke* ii. *They brought him to Jerusalem to present him to the Lord, as it is written in the Law of the Lord, every Male that openeth the Womb shall be called holy to the Lord. And to offer a Sacrifice according to that, which is said in the Law of the Lord*, &c.

I prove, *that it was convenient that Christ should be presented in the Temple*; because suppose that Christ of his own Accord, and without any Obligation, would submit himself to the Law of the Circumcision, it was convenient he should submit himself to that of the Presentation.

Note, That of several Circumstances which could be observed in Christ's Presentation, I'll only take Notice here but of two, the first whereof is taken from the Person of *Simeon*, and the other from that of *Anne.*

As to the first Circumstance taken from the Person of *Simeon*, it is said of him, that Christ born was manifested to him, according to the Promise of the Holy Ghost, that he should not die before he had seen the *Messiah*, expected for the Consolation of *Israel*; and in fact, among several Children who had been brought to the Temple, *Simeon* enlightened by a celestial Light, discovered Jesus, took him in his Arms, blessed him; and foretold that he would be the Ruin and Resurrection of several, and a Sign of Contradiction.

If I be asked, *who was that Simeon, and if a Priest or a Laick?* I'll answer, that in all Probability he was a Laick; for if he had been a Priest, the Scripture had mentioned it.

As to the second Circumstance, taken from the Person of *Anne*, it is said of her, that at the very Hour Christ was brought into the Temple to stand before the Lord, she also came into it, and knowing him by a divine Inspiration, she spoke several marvellous Things of him.

Note, That our next Reflections will be on the Baptism of Christ.

Our first Question on this Subject is, *If Christ was baptized of the Baptism of John, and whether it was convenient, in what Place, and at what Time he was baptized?*

To the first Part of the Question I answer, *That Christ was baptized of the Baptism of John, and that it was convenient he should.*

I prove the first Part of this Answer, *viz.* that he was baptized, because that's expressly mentioned in the Scripture, *Matt.* iii. *Then came Jesus from Galilee to Jordan unto John, to be baptized of him.*

I prove the second Part, *viz. that it was convenient that Christ should be baptized*, for three Reasons. The first is taken from that he would not be purified himself, but would purify the Waters; that by the Contact of Christ's Flesh, which was not infected with Sin, they should have the Virtue of Baptism, and should serve afterwards for those who were to be baptized, as St. *Ambrose* observes, *lib.* 2. *c. ult. in Luk.* The second Reason is touched by St. *Chrysostom*, who says on the fourth Chapter of St. *Matthew*, in his perfect Work, *That tho' himself was not a Sinner, he notwithstanding took the Similitude of the Flesh of Sin? for though himself wanted no Baptism, nevertheless the carnal Nature wanted it in others.* The third Reason was, to give an Example of Virtue to others.

I answer to the second Part of the Question, *That Christ was baptized in the thirtieth Year of his Age; and that it was a convenient Time for it.*

I prove the first Part of this Answer, *viz. That he was baptized in the thirtieth Year of his Age*, by the Scripture, *Luke* iii. *And Jesus himself began to be about thirty Years of Age.*

It is objected, that in Christ there is only one Person, and therefore one Nativity; because the Nativity belongs to the Person, not to the Nature.

I answer, that the Nativity is of the Person as of a Subject, and of the Nature as of a Term: For as the Motion is diversified according to the Diversity of Terms, and in the double Nativity of Christ, a double Motion is considered, if not a Motion properly said, at least a Motion according to our Manner of conceiving, in the eternal Nativity of Christ; hence it is that a double Nativity is established in Christ.

It may be asked here, *If, as we admit a double Nativity in Christ, we admit likewise a double Filiation?* Which I answer in the Affirmative, from the Part of the Cause; and in the Negative from the Part of the Subject. The first Part of my Answer is evident, because there is a double Cause, *viz.* a double Nativity and consequently a double Filiation; and likewise the second Part, because there is but one Subject, *viz.* the Person, which is the Subject of the two Nativities.

We'll ask next, *If Christ in his temporal Nativity, had the blessed Virgin for his Mother, and whether she must be called Mother of God?*

To the first Part of the Question I answer, *That Christ in his temporal Nativity, had the blessed Virgin for his Mother.* I prove it by the Scripture, the Fathers, and by Reason.

By the Scripture, *Matt.* i. *When his Mother Mary was espoused to Joseph*, &c.

By the Fathers, particularly St. *Gregory Nazianzen, Orat. de Christ. nativit.* in these Words, *If any Body does not believe that Mary is the Mother of God, he is besides the Divinity.*

By Reason, because Christ did not bring along with him a Body from Heaven, but took it from the Virgin his Mother.

It is objected, that the blessed Virgin did not concur actively to the Generation of Christ, but only by administring the Matter; for which she cannot be called the Mother of Christ, otherwise the Wood should be called the Mother of a Bed, or of a Door; therefore, *&c.*

I answer, that there is a great Disparity between the blessed Virgin, and Things inanimated, because Paternity, Maternity, and Filiation, do not belong to any other Generation but to that of Things living.

It is objected, 2. That Christ was born by a Miracle, of the Virgin *Mary*, but a miraculous Generation does not suffice to establish a Maternity or Filiation, for we do not say that *Eve* was the Daughter of *Adam*; therefore, *&c.*

I answer, that it was miraculous from the Part of the Operation of the Holy Ghost, but not from the Part of the blessed Virgin, because Christ is born a Man of a Woman, and in the due Time of a Conception, as St. *John Damascenus* teaches it, *lib.* 3. *c.* 7. in these Words, *The temporal Nativity, whereby Christ is born for our Salvation is in some measure like ours, because he is born a Man of a Woman, and in the due Time of a Conception; but above ours, because not of Seed, but of the Holy Ghost, and of the Virgin Mary, above the Law of Conception.* Therefore that Nativity was natural from the Part of the Mother, but miraculous from the Part of the Operation of the Holy Ghost; whence the blessed Virgin is the true and natural Mother of Christ.

I answer to the second Part, *That the blessed Virgin can be truly called the Mother of God:* Which I prove by the Scripture, the Councils, and the Fathers.

By the Scripture, *Luke* i. *That holy Thing which shall be born of thee shall be called the Son of God.* Whence her Cousin *Elizabeth* saluted her as Mother of God, in the same Place lately quoted, *Whence is this to me*, said she, *that the Mother of my Lord should come to me?* Which is also witnessed by the Apostle, *Gal.* iv. when he says, *That God sent his Son made of a Woman, made under the Law* For by these Words it appears, that he who is the Son of the blessed Virgin, as conceived and born of her, is likewise the Son of God, and is consequently God. This had been already foretold by *Isa.* vii. in these Terms, *Behold a Virgin shall conceive and bear a Son, and shall call his Name Emanuel.*

By the Councils, particularly that of *Chalcedon*, which expresses itself in these Terms, *Christ is God, let the holy Mary be written Mother of God*; he who does not think so is a Heretick; turn the *Nestorians* out of Doors. Likewise in the sixth and seventh general Council, and in that of *Lateran* under *Martin* I.

By the Fathers, particularly St. *Gregory Nazianzen, Orat. de Christ. nativit.* St. *Peter Chrysologus*, Serm. 146.

By Reason, because she who has truly generated God, is to be called Mother of God; but the blessed Virgin *Mary* has truly generated God, since she has generated Christ, who is a true God and a true Man; therefore she is to be called *Mother of God.*

Note, That I'll examine in this Place some Circumstances which accompanied Christ's Nativity, *viz.* the Place, Time, Manner, *&c.*

I ask first, *If Christ was born in Bethlehem, as in a convenient Place?* Which I answer in the Affirmative.

I prove that he was born in *Bethlehem* or about *Bethlehem*, because the Scripture witnesses it expresly, *Mat.* ii. in these Words, *Jesus being born in Bethlehem of Judea, in the Days of Herod the King*; which had been foretold by the Prophet *Micah*, chap. v. in these Words, *And thou Bethlehem Ephrata, thou art little in the Thousands of Judah, from thee will come forth to me, he who is to be the Ruler in Israel.* But that he was not born in that City, but only in its Neighbourhood, is understood from what we read, *Luke* ii. *Because there was no Room for them in the Place.*

I prove that he was born there as in a convenient Place, 1. Because he was made of the Seed of *David* according to the Flesh, as we read, *Rom.* i. whence he should be born in *Bethlehem*, that from the Place of his Nativity should be proved the Promise made to *David*, *Psalm* cxxxii. *Of the Fruit of thy Body will I set upon thy Throne.* 2. As St. *Gregory* observes, *Homil.* 8. *in Evangel.* *Bethlehem* is interpreted the House of Bread; but Christ says himself, *John* vi. *I am the living Bread who have descended from Heaven.*

I ask secondly, *If Christ was born in a convenient Time?* Which I answer in the Affirmative, because God himself had appointed that Time.

I ask thirdly, *If Christ was born without his Mother suffering the least Pain in the Delivery?* Which I answer likewise in the Affirmative, because St. *Augustin* is of that Sentiment, *Serm.* 14. *de nativit.* where he speaks thus to the blessed Virgin, Mother of God; *Thou hast not been found in the Conception without blushing, nor found in the Delivery with Pain.*

From this I'll pass to the *Circumcision of Christ*, and ask, *If Christ was really circumcised, and ought to have been circumcised?*

I answer the first Part of the Question in the Affirmative, and prove it by the Scripture, *Luke* ii. *And when eight Days were accomplished for the Circumcision of the Child*, &c.

I answer, 2. *That it was very convenient that Christ should be circumcised*, for the following Reasons. 1. To shew thereby the Truth of his human Flesh against the *Manicheans*, who denied the Reality of his Body, and against the *Apollinarists*, who pretended that Christ's Body was consubstantial to the Divinity, and also against the *Valentinians*, who affirmed that he had brought his Body from Heaven. 2. To approve the Institution of the *Circumcision*, to recommend by his Example the Virtue of Obedience, for which, to conform to the Precept, he was circumcised the eighth Day. 3. To prove that he was of the Race of *Abraham*, to whom the Circumcision had been commanded, in Sign of the Faith of the Coming of the *Messiah.* 4. Lest if he had not been circumcised, the *Jews* had refused to receive him. 5. To not reject the Remedy whereby the Flesh of Sin was purified; since himself was come in the Similitude of the Flesh of Sin. 6. That by loading himself with the Burthen of the Law, he should deliver others from that Burthen.

The next Question which offers to me, is, *If Christ's Nativity ought to have been manifested, and whether it was convenient it should be manifested to those to whom it was manifested?*

To which I answer, 1. That Christ's Nativity was, and

and ought to have been manifested, but not to all without Distinction, at least at the Beginning, but only to some designed by God.

I prove the first Part of my Answer, *viz. That Christ's Nativity was manifested*, because God revealed it by the Angels to the Shepherds, and by the Star to the Magi.

I prove the second Part, *viz. that it ought to have been manifested*; because it was necessary that it should prove profitable, otherwise Christ had been born in vain; but it could not have proved profitable unless it had been manifested, at least to some; therefore, *&c.*

I prove the third Part, *viz. That it ought not to have been manifested, at least at first, to all without Distinction*, either because if it had been manifested to all from the Beginning, Man's Redemption had not been accomplished by the Sacrifice of the Cross; for we read, 1 *Cor.* ii. *That if they had known they had never crucified the Lord of Glory*; or because if Christ's Nativity had been manifested to all from the Beginning, the Merit of Faith whereby Men are justified, had been vastly diminished; because that Faith is the Argument of Things which do not appear, *Hebr.* xi.

I prove the fourth Part, *viz. That the Nativity of Christ ought to have been manifested to some*; because the Order of the divine Wisdom requires, that God's Gifts and his Secrets should not be known to all equally and together; but immediately to some, and by them derive to others.

I answer, 2. *That Christ's Nativity was conveniently manifested to those to whom it was manifested at the Beginning*, viz. *to the Shepherds and to the Magi*; because all that is done by God's Order is conveniently done; and because by the Manifestation made to the aforesaid Persons, Christ was manifested to Persons of every Condition, because he was come to save Men of all Ranks and Conditions, according to the Apostle, *Coloss.* iii. *Where there is neither Greek nor Jew* (*viz.* in Christ) *Circumcision nor Uncircumcision, Barbarian, Scythian, bond nor free, but Christ is all and in all.*

If it be asked, *what was that Star which appeared to the Magi?* I'll answer, that it was not one of those Stars created from the Beginning, but that it was newly created for that Purpose: Which I prove by the Fathers, and by several Reasons.

By the Fathers, particularly St. *Augustin, lib.* 2. *cont. Faust. c.* 5. where he speaks thus; *It was not one of those Stars created at the Beginning*, which observe their Course according to the Order prescribed by the Creator; *but at the Novelty of a Virgin being delivered of a Child, a new Star appeared.* And by St. *Leo, Serm.* 1. *de Epiphan. The Light of a new Star*, says he, *appeared to three Magi of the East, which being brighter than all the other Stars, attracted the Eyes and the Minds of all the Beholders, to give to understand that such an unusual Thing did not appear without Cause.*

I prove it by the following Reasons; 1. Because it moved in a new Manner, for it was carried from North to South. 2. It appeared after a new and unusual Manner, since it appeared not only in the Night but likewise in Day-time, which is not common to other Stars. 3. It did not appear always, but was sometimes hidden; since when the Magi came to *Jerusalem* it hid itself, and shewed itself again after they had left *Herod.* 4. Because it had not a continual Motion, but conformed itself to that of the Magi, as to their Time of March, or of Rest.

Note, That from this I'll pass to the Purification of the blessed Virgin, and to the Presentation of Christ in the Temple.

I'll ask, 1. *If the Virgin Mother of God, accomplished the Law of the Purification?* To which I answer in the Affirmative, and prove it by the Scripture, *Luke* ii. *And when the Days of her Purification according to the Laws of Moses were accomplished*, &c.

Note, That though the blessed Virgin was not obliged to accomplish the Law of the Purification, she would notwithstanding come to the Temple to accomplish it, and that conveniently. She was not obliged, *&c.* because she had not conceived from the Seed of Man. It was notwithstanding convenient for her to accomplish the Law of the Purification, because as the Plenitude of the Grace of the Son was descended to the Mother, it was proper that the Mother should conform herself to the Humility of the Son, who would submit himself to the Ceremonies of the Law, though he was not subject to it.

I'll ask next, *If Christ was presented to the Temple; if that Presentation was convenient, and which were the principal Circumstances of it?*

I answer to the first Part of the Question, *That Christ was presented to the Temple, and that it was convenient he should*; which I prove by the Scripture, particularly that he was presented in the Temple, *Luke* ii. *They brought him to Jerusalem to present him to the Lord, as it is written in the Law of the Lord, every Male that openeth the Womb shall be called holy to the Lord. And to offer a Sacrifice according to that, which is said in the Law of the Lord*, &c.

I prove, *that it was convenient that Christ should be presented in the Temple*; because suppose that Christ of his own Accord, and without any Obligation, would submit himself to the Law of the Circumcision, it was convenient he should submit himself to that of the Presentation.

Note, That of several Circumstances which could be observed in Christ's Presentation, I'll only take Notice here but of two, the first whereof is taken from the Person of *Simeon*, and the other from that of *Anne.*

As to the first Circumstance taken from the Person of *Simeon*, it is said of him, that Christ born was manifested to him, according to the Promise of the Holy Ghost, that he should not die before he had seen the *Messiah*, expected for the Consolation of *Israel*; and in fact, among several Children who had been brought to the Temple, *Simeon* enlightened by a celestial Light, discovered Jesus, took him in his Arms, blessed him; and foretold that he would be the Ruin and Resurrection of several, and a Sign of Contradiction.

If I be asked, *who was that Simeon, and if a Priest or a Laick?* I'll answer, that in all Probability he was a Laick; for if he had been a Priest, the Scripture had mentioned it.

As to the second Circumstance, taken from the Person of *Anne*, it is said of her, that at the very Hour Christ was brought into the Temple to stand before the Lord, she also came into it, and knowing him by a divine Inspiration, she spoke several marvellous Things of him.

Note, That our next Reflections will be on the Baptism of Christ.

Our first Question on this Subject is, *If Christ was baptized of the Baptism of John, and whether it was convenient, in what Place, and at what Time he was baptized?*

To the first Part of the Question I answer, *That Christ was baptized of the Baptism of John, and that it was convenient he should.*

I prove the first Part of this Answer, *viz.* that he was baptized, because that's expressly mentioned in the Scripture, *Matt.* iii. *Then came Jesus from Galilee to Jordan unto John, to be baptized of him.*

I prove the second Part, *viz. that it was convenient that Christ should be baptized*, for three Reasons. The first is taken from that he would not be purified himself, but would purify the Waters; that by the Contact of Christ's Flesh, which was not infected with Sin, they should have the Virtue of Baptism, and should serve afterwards for those who were to be baptized, as St. *Ambrose* observes, *lib.* 2. *c. ult. in Luk.* The second Reason is touched by St. *Chrysostom*, who says on the fourth Chapter of St. *Matthew*, in his perfect Work, *That tho' himself was not a Sinner, he notwithstanding took the Similitude of the Flesh of Sin? for though himself wanted no Baptism, nevertheless the carnal Nature wanted it in others.* The third Reason was, to give an Example of Virtue to others.

I answer to the second Part of the Question, *That Christ was baptized in the thirtieth Year of his Age; and that it was a convenient Time for it.*

I prove the first Part of this Answer, *viz. That he was baptized in the thirtieth Year of his Age*, by the Scripture, *Luke* iii. *And Jesus himself began to be about thirty Years of Age.*

I prove the second Part, *viz. that it was a convenient Time for it*; because Christ was baptized as being to begin from that Time to preach and teach, for which a perfect Age is required; and the Age of thirty is considered as a perfect Age. For at thirty *Joseph* took the Government of *Egypt*, Gen. xli. at thirty *David* began to reign, 2 *Sam.* vii. at thirty *Ezekiel* began to prophetize, *Ezek.* i, *&c.*

I answer to the third Part of the Question, *that Christ was baptized in the River* Jordan, *and that it was convenient he should.*

I prove the first Part of this Answer, *viz. that Christ was baptized in the River* Jordan, by the Scripture, *Mark* i. *Christ was baptized by John in the River Jordan.*

I prove the second Part, *viz. that it was convenient he should be baptized in the River* Jordan; because by the Baptism received in that River, is signified the Entrance into the Kingdom of God, by Christ's Baptism; for thro' the *Jordan* the Children of *Israel* enter'd the Land of Promise, whereby the Kingdom of Heaven is signified, into which Christ's Baptism introduces Men. Whence it is said, *John* iii. *Except a Man be born of Water and of the Spirit, he cannot enter into the Kingdom of God.*

Note, That we'll examine next the Manner of Christ's living.

Our first Question on this Subject is, *If Christ lived according to the Law of* Moses, *and if it was convenient he should?*

I answer to the first Part of this Question, *that Christ lived according to the Law of* Moses; which I prove by the Scripture, *Matt.* v. *I am not come to destroy the Law, but to fulfil it.* Which St. *Chrysostom* explaining, *Hom.* 16. *in Matt.* speaks thus, *He has fulfilled the Law, first by transgressing none of the Precepts of the Law, and secondly, by justifying by Faith, what the Law could not by the Letter.*

I answer to the second Part, *that it was convenient Christ should accomplish the Law of* Moses, *and live according to that Law.* Because by observing it, he appear'd to approve it, and that it had a Report to him; and because he left thereby no Occasion to the *Jews* of calumniating him; and because he thus testified, that he was come to deliver Men from the Servitude of the Law, according to this, *Gal.* iv. *God sent forth his Son made of a Woman, made under the Law, to redeem them that were under the Law.*

Note, That from this I'll pass to the *Doctrine of Christ.*

I'll ask first, *If it was convenient that Christ, as well by himself, as by his Apostles, should preach first, the Salvation to the* Jews? Which I answer in the Affirmative, and which I prove by the Scripture, *Matt.* xv. *I am not sent but unto the lost Sheep of the House of* Israel; and by the following Reasons.

1. Because Christ would shew thereby, that the Promises made to the *Jews*, and not to the *Gentiles*, were accomplished; according to this, *Rom.* xv. *I say that Jesus Christ has been the Minister of the Circumcision*, i. e. the Apostle of the *Jews*, *for God's Truth, to confirm the Promises of the Fathers.*

2. Because it was agreeable to a just Order and Œconomy, that Christ's Doctrine should be proposed to the *Jews* first, as already the nearest to God, by their Faith and Worship, and afterwards transmitted to other Nations; for that Reason St. *Jerom* on St. *Matthew*, Chap. xv. *I am not sent but unto the lost Sheep of the House of Israel*, speaks thus; *he does not say that he is not sent to the* Gentiles, *but that he is sent first to* Israel. Whence we read in the last Chapter of *Isaiah*; *and I will send of those that are saved*, viz. of the *Jews*, *to the Nations, and they shall announce my Glory to the Nations.*

3. Because Christ would, thereby, take off all Occasion for the *Jews* to calumniate him.

4. Because by his Passion, and the Victory of his Cross, he has gained a Power and Empire over the *Gentiles*, according to this of the Apocalypse, Chap. ii. *He that overcometh, to him will I give Power over the Nations.* Therefore it is not suprizing if, before his Passion, he would not have his Doctrine preached to the *Gentiles*, but only said to his Disciples after his Passion, *Go ye, and teach all Nations*, &c.

Note, That from Christ's Doctrine I'll pass to his Miracles.

My first Question on this Subject is, *If, and by what Virtue Christ has operated his Miracles, and when, and if it was convenient he should operate them; whether thereby he has sufficiently proved his Divinity?*

To the first Part of the Question I answer, *that Christ has operated a great Number of Miracles*; John xi. *What do we? for this Man does many Miracles.*

I answer to the second Part, *that it was convenient Christ should operate Miracles*; to shew that the Doctrine he preached was of God, and that himself was God; whence himself says, *John* x. *Though ye believe not me, believe the Works.* And Chap, v. *For the Works which the Father has given me to finish, bear witness of me.* The general Reason of this is, that Things of Faith exceed the human Reason, and cannot be proved by human Reason, but want to be proved by a divine Virtue.

I answer to the third Part, *that all the Miracles Christ operated, were operated by a divine Virtue.* Because in Miracles is found a certain Mutation of the Order of Nature; which cannot be changed but by a divine Virtue; whence Christ himself says, *John* xiv. *But the Father that dwelleth in me, he does the Works.* And St. *Leo*, *Epist.* 10. *c.* 4. says, that as there are two Natures in Christ, one divine, which shines with Miracles, and the other human, which is oppressed by Injuries; one of them, notwithstanding, acts with the Communication of the other, *viz.* inasmuch as the human Nature is the Instrument of the divine Act, and the human Act itself receives its Virtue from the divine Nature.

I answer to the fourth Part, *that Christ began but after his Predication to operate Miracles.* Because his first Miracle was operated at *Cana* of *Galilee*, which was done but after he had began to preach; therefore, *&c.* add to this, that Christ operated Miracles to confirm his Doctrine, and to shew that there was a divine Virtue within him.

I answer to the fifth Part, *that Christ's Miracles proved sufficiently his Doctrine.* As it appears from the Scripture, *John* v. where Christ speaks thus; *For the Works which the Father has given me to finish, bear Witness of of me.* The Reason is, that the Miracle he operated, surpassed all human Virtue, whence the Blind, to whom he restored his Sight, said, *John* ix. *Since the World began, was it not heard, that any Man opened the Eyes of one that was born blind. If this Man were not of God, he could do nothing.*

If it be objected, that this Reason is not sufficient to prove that *Jesus Christ* was God, because others, besides him, had done several Things which surpassed a human Virtue; I can add, that the Miracles which Christ operated, were done in a particular Manner, *viz.* by his proper Virtue, and not by praying as others did. Whence ir is said, *For there went Virtue out of him, that healed them all.* Therefore it is not surprizing if he operated so many Miracles.

Note, That from this I'll pass to *Christ's Transfiguration.*

I ask, *If Christ was really transfigurated, and whether it was convenient he should be transfigurated?*

Note, That by the Name of *Transfiguration*, is understood that State, in which by a Redundancy of the divine Light of the Soul of Christ, over his Body, his Face appear'd radiant as the Sun, and his Cloaths white as Snow; these pre-observ'd,

I answer to the first Part of my Question, *that Christ was truly transfigurated.* Because expressly witnessed by the Scripture, *Matt.* xvii. where it is said, *that Christ was transfigurated before them*, viz. before his Apostles, *Peter*, *James*, and *John.*

I answer to the second Part, *that it was convenient that Christ should be transfigurated before them*; because it was convenient that those to whom he had foretold his future Passion, should be encouraged to it, by a Prospect of the End, to which that Passion was the Way; and he would, by his Example, instruct us to mind the Reward promis'd to those who suffer with Patience and Resignation.

Note,

Note, That there are often some little Questions made on *Christ's Transfiguration*, which it is necessary to resolve here.

It is asked first, *If it was convenient to have Witnesses of the Transfiguration, and who they were?*

To which I answer, *That Moses, Elias, with Peter, James, and John, were proper Witnesses of the Transfiguration*; because, suppose that Christ would be transfigurated to shew his Glory to Men, and engage them to desire it, it was convenient he should have those for Witnesses of his Transfiguration, and thus shew them that he not only would glorify those that belonged to the New Testament, designed by the Apostles above-named, but likewise those who pertained to the Old, designed by *Moses* and *Elias*: Therefore it is not surprising, if, some Days before his Passion, the Multitude which preceded and followed him, cried to him, *Matt.* xxi. *Hosanna*, as desiring their Salvation from him, whom they considered as the Saviour of all.

It is asked, 2. *If it was convenient that the Voice of the Father should be heard in the Transfiguration?*

Which I answer in the Affirmative; because the Scripture witnesses that it was heard, and to design the Adoption of the Children of God, by some Conformity of the Image with the Prototype; which Conformity is considered as double. The first is made by Grace in the Baptism, and is imperfect, at least respectively, and the second by Glory, and is perfect, according to this of 1 *John* iii. *Now are we the Sons of God, and it does not yet appear what we shall be; but we know that when he shall appear, we shall be like him; for we shall see him as he is.* In the Baptism we acquire Grace, and in the Transfiguration we have a Sight of the future Glory; therefore, &c.

It is asked, 3. *If the Apostles were so frightened when they heard the Voice of the Father, that they fell on their Faces?*

I answer, that this happened to give to understand, that the Excellency of the Glory shewn in that Case, exceeded all mortal Sense and Faculty, according to this of *Exod.* xxxiii. *No body shall see me, and live*; whence St. *Jerom* says, *ad Matt.* xvii. *That the human Fragility cannot bear the Sight of a greater Glory.*

Note, That from this I'll pass to the Passion of Christ.

My first Question on this important Subject is, *If it was necessary that Christ should suffer, at least for the Salvation of Men; and whether another Manner had not been more convenient to operate that Salvation than by Christ's Passion?*

To the first Part of this Question I answer, *That it was not absolutely necessary Christ should suffer, even for Man's Salvation*; either because Christ could have come in an impassible Flesh, or God could have saved Men in another Manner, than by Christ's Passion, as St. *Augustin* shows it clearly, *lib.* 13. *de Trinit. c.* 10. in these Words, *That Manner whereby God would deliver us by the Mediator of God and Men, Jesus Christ, we assert to be good and agreeable to the divine Dignity; but let's shew likewise, that God had some other Manner of doing it if he would, since his Power is no way limited.* This Sentiment is confirmed, *Isa.* xxxiii. *Christ has been offered, because himself would.* Whence it appears, that he was not forced to suffer from the Part of his Father, by whom it was decreed that Christ should suffer.

I answer to the second Part, *That though as I have said in the preceding Answer, it was not absolutely necessary that Christ should suffer, even for Man's Salvation; it notwithstanding can be said, that it was necessary of a Necessity of Conveniency, the End supposed, which may be considered either from our Part, or from the Part of Christ, or from that of God.* This I prove by three Reasons founded on the Scripture, and answering to the aforesaid three Ends.

For, 1. It is certain, that by the Passion of Christ we have been delivered according to this of *John* iii. *Even so must the Son of Man be lifted up, that whosoever believes in him should not perish, but have eternal Life.* 2. Because Christ by the Humility of his Passion, has merited the Glory of his Exaltation; whence it is written in *Luke*, the last Chapter, *Was it not necessary that Christ should suffer and thus enter into his Glory?* 3. Because by Christ's Passion has been accomplished what God had decreed with Regard to him, and what was figurated in the Old Testament, *Luke* xxii. *The Son of Man goes according to what has been decreed.* And in the last Chapter, *These are the Words which I spake unto you, while I was yet with you, that all Things must be fulfilled which were written in the Law of Moses, and in the Prophets, and in the Psalms concerning me.*

I answer to the third Part, *that it was not only convenient to Mercy but even to Justice, that Man should be delivered by Christ's Passion.*

I prove, 1. *That it was convenient to God's Mercy that Man should be delivered by Christ's Passion*; because as Man could not by himself satisfy for the Sins of the whole human Race, God gave him his Son to satisfy for him, according to this of *Rom.* iii. *Being justified freely by his Grace, through the Redemption that is in Jesus Christ, whom God has set forth to be a Propitiation through Faith in his Blood.* It cannot be added that this was still a greater Effect of God's Mercy, than if he had forgiven Sins without a Satisfaction, according to this of *Ephes.* ii. *But God who is rich in Mercy, for his great Love wherewith he loved us, even when we were dead in Sins, has quickned us in Christ.*

I prove, 2. That it was convenient or agreeable to God's Justice, that Man should be delivered by Christ's Passion; because thereby an entire Satisfaction has been made for the Sins of the human Race, and consequently Man has been delivered by the Justice of Christ.

It may be asked in this Place, *If there was a more convenient Manner of procuring Man's Deliverance, than by Christ's Passion?*

Which I answer in the Negative, according to the Sentiment of St. *Augustin, lib.* 13. *de Trinit. c.* 10. because the more a Manner is convenient to obtain an End, the more Expedients thereby concur towards obtaining that End; and Man being delivered from Sin by the Passion of Christ, besides that End, *viz.* the Deliverance from Sin, there are several Things pertaining to our Salvation, which concur to it; as appears by the following Enumeration of them.

1. By that Manner of delivering Man from Sin, he has known how much God loved him, and is excited to love him in his Turn; which Love is explained by the Apostle, *Rom.* v. *But God commends his Love towards us, in that while we were yet Sinners Christ died for us.*

2. Because by that Manner of delivering Man, he has given us an Example of great Humility, Obedience, and of all other Virtues which Christ practised in his Passion; as it appears from the first of St. *Peter* ii. *Because Christ also suffered for us, leaving us an Example, that ye should follow his Steps.*

3. By that Manner of delivering Man, he has not only delivered him from Sin, but has likewise merited for him the justifying Grace and everlasting Glory.

4. That Manner of delivering Man has rendered his Dignity greater, from that as Man had been conquered and deceived by the Devil, Man should also in his Turn conquer the Devil; and as Man had deserved Death, Man in dying should conquer Death; according to the first to the *Corinthians* xv. *But Thanks be to God, which gives us the Victory through our Lord Jesus Christ.*

5. By this Manner of delivering Man, a Man has a greater Obligation to keep himself free from Sin, especially when he must reflect, that he has been redeemed by the Blood of Christ; according to this of the first Epistle to the *Corinthians*, chap. vi. *For you are bought at a great Price, therefore glorify God in your Body*, &c.

Our second Question on this Subject is, *If Christ suffered in a convenient Place, and at a convenient Time?*

I answered to the first Part of this Question, that Christ suffered in a convenient Place, since he suffered in *Jerusalem*, which was the most convenient Place for his Passion; not only because the Scripture says it, *Luke* xix. *It is not convenient that a Prophet should perish out of Jerusalem.* Not only for the Testimony of St. *Augustin, lib. vet. & nov. testam. quest.* 55. but likewise for several other Reasons, and particularly,

1. Because *Jerusalem* was the Place chosen of God for to offer the Sacrifices which were the Types of the great Sacri-

Sacrifice of Christ's Passion: Whence the venerable *Bede* in an Homily on *Palm-Sunday*, towards the Beginning says, *That the Hour of the Passion approaching, the Lord would approach the Place of the Passion, viz.* Jerusalem, *where he arrived six Days before the Passover*, i. e. *the tenth Moon, according to the Precept of the Law, the Paschal Lamb was carried to be sacrificed.*

2. Because the Virtue of the Passion was to be diffused throughout the whole World, and therefore it was convenient he should suffer in the Middle of the Earth, which is supposed the Situation of *Jerusalem*, that City being called the Umbilic of the Earth; according to *Psalm* lxxiv. *For God is my King of old, working Salvation in the midst of the Earth.*

3. Because *Jerusalem* was a very convenient Place for his Humility; for as he had chosen the most shameful Kind of Death, he could also die with more Confusion in *Jerusalem*, which was a very famous and populous Place than any where else: Whence St. *Leo, Serm.* 1. *de Epiph.* says, *that he who had took the Form of a Servant, had chosen Bethlehem for his Nativity, and Jerusalem for his Passion.*

I may be asked in this Place, if it had not been more convenient that Christ should have suffered in the Temple where the Sacrifices were offered, or at least within the City, than without the City on Mount *Calvary?* Which I answer in the Negative for the three following Reasons.

1. That the Truth should answer to the Figure; for the Bullock and the Goat, for the Sin-Offering, *Levit.* xvi. were burnt without the Camp: Therefore the Apostle speaks thus, *Hebr.* xiii. *For the Bodies of those Beasts whose Blood is brought into the Sanctuary by the High-Priest for Sin, were burnt without the Camp. Wherefore Jesus also, that he might sanctify the People with his own Blood, suffered without the Gate.*

I answer to the second Part of the Question, *that God suffered in a convenient Time*: Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, which insinuates that he suffered when his Hour was come, *John* xiii. *When Jesus knew that his Hour was come, that he should depart out of this World unto the Father.*

By the Fathers, particularly St. *Augustin, Tract.* 8. *in Joan.* where he speaks thus, *His Hour came, not of Necessity, but of Will.* And *lib. quæst. vet. & nov. testam. The Saviour did all Things in their proper Places and Times.*

By Reason, because the Passion of Christ was subject to his Will, and his Will was governed by the Wisdom of God, who disposes all Things with Conveniency and Suavity, *Wisdom* 8.

It may be asked, if it had not been more convenint for him to die in an old Age, than to suffer so young; since thereby he had had more Time to enlighten the World with his Light; according to this of *John* ix. *As long as I am in the World I am the Light of the World.*

I answer in the Negative, and this for two Reasons, 1. To make us value more his Dilection for giving up his Life for us, while he was in the Flower of his Age; 2. To give us to understand, that we were all to rise from the Dead in the same perfect State, himself the Premises of a future Resurrection, did rise, according to this of *Ephes.* iv. *Till we all come in the Unity of the Faith, and of the Knowledge of the Son of God in a perfect Man, and in the Measure of the Fulness of Christ's Age.*

Note, That from this I'll pass to the Effect of the Passion of Christ, and to the Manner that Effect was operated.

I'll ask, *What was the Effect of Christ's Passion? if it was*, 1. *Our Deliverance from Sin, from the Power of the Devil, and from Punishment.* 2. *Our Reconciliation with God, and the Opening of the Gates of the Kingdom of Heaven*; *and* 3. *Christ's Exaltation?*

I answer to the first Part of the Question, *that by the Passion of Christ we are delivered from Sin, the Power of the Devil, and from the Guilt of the Pain*; because the Scripture affirms it expresly, *Rev.* i. *Unto him that loved us, and washed us from our Sins in his own Blood.* If it be asked how that happened? I'll answer, that the Passion of Christ is in three different Manners the proper Cause of the Remission of Sins, *viz.* 1. By exciting us to Charity, whereby we obtain the Remission of our Sins; according to this of *Luke* vii. *Her Sins are remitted, because she has loved much.* And that the Passion of Christ excites us to Dilection may be learned from these Words, *Rom.* v. *For God commends his Love in us, in that while we were yet Sinners he died for us.* 2. By Manner of Redemption. 3. By Manner of Efficiency, inasmuch as the Flesh which has suffered was the Instrument of the Divinity to banish Sin from the World.

I answer to the second Part, *that Man, by Christ's Passion, was delivered from the Power of the Devil*; because Christ himself insinuates it sufficiently in the Scripture, *John* xii. *Now shall the Prince of this World be cast out.*

I answer to the third Part, *that Man was by Christ's Passion freed from the Pain of Sin.* 1. Directly, because Christ's Passion was not only a sufficient, but even a superabundant Satisfaction for the Sins of all the human Race. 2. Indirectly, because Christ's Passion was the Cause of the Remission of Sin.

Christ's Passion was also the Cause of our Reconciliation with God, according to the Scripture, *Rom.* vi. *We are reconciled to God by the Death of his Son.* If I be asked how that happens? I'll answer, that it happens from that it removes Sin whereby Men are made Enemies of God, and are hated by him; according to this of *Wisdom* xiv. *The Impious and his Impiety are both hated of God.* And *Psalm* vii. *You have hated all those who operated Iniquity.* Because if it be true that the Effect of a Sacrifice is to appease God, certainly Christ's Passion must have appeased him, since it was a Sacrifice very acceptable to God.

It is objected, that what is rather capable to excite God's Indignation against him, cannot be the Cause of their Reconciliation; that such was the Passion of Christ, whereby Men killed the only Son of God; therefore, *&c.*

I answer, that Christ's Charity was greater than the Iniquity of those who killed him; and consequently his Passion was more capable to appease God, than to provoke him to Wroth.

Christ's Passion has opened to us the Gates of the Kingdom of Heaven; which I prove by the Scripture and by Reason.

By the Scripture, *Hebr.* iv. *Christ assisting as the Pontiff of future Happiness, has entered Heaven by his proper Blood, the eternal Redemption being found.* And chap. x. *We have Faith in the Entrance of the Saints through the Blood of Christ.*

By Reason; because he has delivered us as well from our proper, as from the common Sin, whereby the Gates of Heaven were shut against us; according to this of *Isa.* xxxv. *And it shall be called the Way of Holiness, the Unclean shall not pass over it.* Which is figurated to us by what we read, *Genes.* iii. that God after the Sin of *Adam* had placed a Cherubim holding a flaming Sword at the Gate of the Garden of *Eden.*

Christ by his Passion merited also to be exalted, according to this of *Philip.* ii. *He humbled himself, and became obedient unto Death, even the Death of the Cross; wherefore God also hath highly exalted*, &c.

We'll ask next, *how Christ's Passion operated our Salvation; whether by Manner of Merit, Satisfaction, Sacrifice, and Redemption; and likewise by Manner of Efficiency?*

To which I answer, *that Christ's Passion operated our Salvation, in those five Manners mentioned in the Question.*

1. He operated it by Manner of Merit; because he merited Grace to himself and to us: For he not only merited it to himself as a private Person, but likewise as the Chief of the Church; that it should be diffused throughout all the Members.

Notwithstanding, 1. That the Principle of the Passion of Christ was *ab intrinseco*, and the Principle of Merit must be *ab extrinseco*, because it suffices that he has suffered it voluntarily, for its Principle to be said *ab extrinseco.*

Notwithstanding, 2. That Christ, in the first Instant of his Conception, merited Salvation to himself and to us; because that did not hinder his Passion from having some Effects, the preceding Merits had not.

2. *Christ's Passion has caused our Salvation by Manner of Satisfaction, and even a superabundant one*; because Christ

Christ suffering by a Motive of Charity and Obedience, has really given more than the Compensation of the Offence requir'd, considering the Excess of his Charity, the Dignity of the Life he laid down in Satisfaction, and the Violence of the Torments he suffer'd.

Notwithstanding that Christ had committed no Sin, yet it ought not to be inferred hence, that he has not satisfied for Men whose Chief he was, and with whom he composed a Kind of mystical Person.

3. *Christ's Passion has caused our Salvation by Manner of a Sacrifice*; because Christ's Passion, as we have already observ'd, was a true Sacrifice, very agreeable to God, and therefore very capable to appease his Wrath. *The antient Sacrifices of the Saints*, St. *Augustin* observes, *lib.* 10. *de civit. c.* 6. *were various Signs of this Sacrifice, which was represented by several, as one Thing is announced by several Words.*

4. *The Passion of Christ operated our Salvation, by Manner of Redemption*; because it was a super-abundant Satisfaction for our Sins, and for the Guilt of the human Race.

5. *The Passion of Christ has operated our Salvation, by Manner of Efficiency*; if not as a principal, at least as an instrumental Cause thereof. Because, according to the Apostle, 1 *Cor.* i. *For the Preaching of the Cross is made unto those who are saved, the Power of God*; but the Power of God operates sufficiently our Salvation; therefore the Passion of Christ has operated sufficiently our Salvation, *i. e.* as an efficient Cause, but not as a principal one, since God alone is the principal Cause of our Salvation. But as the instrumental Cause, the Humanity of Christ being the conjoined Instrument of the Divinity; whence it follows, that Christ's Action, and all his Sufferings, have operated only instrumentally our Salvation, by the Power of the Divinity.

Note, That from Christ's Passion I'll pass to his *Death*.

I'll ask first, *If Christ died in Reality, whether it was convenient he should die, and whether his Death operated something towards our Salvation.*

To the first Part of this Question I answer, *that Christ really died, and that it was convenient he should die.*

I prove the first Part of this Answer, *viz. that Christ really died*; by the Scripture, *Matt.* xxvii. where it is said, *that he yielded up the Ghost*, i. e. he yielded up voluntarily, preventing thereby the Office of the Executioner; as we learn it from St. *Ambrose* on St. *Luke*; *What is yielded*, says he, *is voluntary*; *and what is lost is of Necessity.*

I prove the second Part of my Answer, likewise, by the Scripture, *John* xvii. *It is expedient that a Man should die for the People, lest a whole Nation should perish.* Which *Caiaphas* said prophetically, according to the Evangelists, and that for several Reasons.

1. That Christ by his Death, should make Satisfaction for the human Race, which had been condemned to die for *Adam*'s Sin, according to this, *Gen.* ii. *For in the Day that thou eatest thereof, thou shalt surely die.* St. *Peter* speaks thus of that Satisfaction, in his first Epistle, Chap. iii. *Christ died once for our Sins.*

2. Lest if he had avoided Death, he had been thought to have had a phantastical Body, and to have vanished after he had been seen for some Time upon Earth.

3. To deliver Man from the Fear of Death; whence it is said, *Heb.* ii. *He was also Partaker of Flesh and Blood, that by Death he might destroy him, that had the Power of Death; that is the Devil. And deliver them, who, through Fear of Death, were all their Life-time subject to Bondage.*

4. That dying corporally, he should leave us the Example of dying spiritually to Sin.

5. Lastly, that by rising from the Dead, he should shew the Power whereby he had conquered Death, and give us the Hope of our future Resurrection, according to the Apostle, 1 *Cor.* xv. *Now if Christ be preached, that he rose from the Dead, how say some among you, that there is no Resurrection from the Dead?*

To the second Part of the Question I answer, that Christ's Death, considered either *in fieri*, i. e. in his Passion, or *in facto esse*, i. e. in the Separation of the Soul from the Body, has operated something for our Salvation.

I prove the first Part of my Answer, *viz. that the Death of Christ considered* in fieri, *operated something towards our Salvation*; by what we have heretofore said, that the Passion of Christ was the Cause of our Salvation.

I prove the second Part, *viz. that Christ's Death considered* in facto esse, *contributed, likewise, something towards our Salvation, if not by Manner of Merit, at least by Manner of Efficiency*; because by Christ's Death, the Death of the Soul, caused by Sin, has been destroyed within us; and likewise that of the Body. That the Death of the Soul has been destroy'd by Christ's Death, appears from this, *Rom.* iv. *Who was delivered for our Offences.* And that the Death of our Body was likewise destroy'd by Christ's Death, is evident from this other of the same Apostle, 1 *Cor.* xv. *Death is swallowed up in Victory.*

Our next Question is, *If after Christ's Death, a Separation was made of his Divinity from his Soul and Body; and whether Christ, during the three Days of his Death, was a true Man, and his Body the same in Number alive and dead?*

To the first Part of this Question, I answer, *that the Divinity of Christ has been separated neither from his Soul, nor from his Body, during the three Days of his Death.*

I prove the first Part of this Answer, *viz. that the Divinity of Christ was not separated from his Body during the three Days of his Death*; by the Fathers and by Reason.

By the Fathers, particularly St. *John Damascenus*, *lib.* 3. *c.* 27. who expresses himself in these Terms, on that Subject. *Though Christ is dead as a Man, and his blessed Soul separated from his undefiled Body; his Divinity, notwithstanding, remain'd inseparable from both.*

By Reason, because what's granted by God's Grace, is never revoked without a Fault, since we read, *Rom.* xi. *That the Gifts and the Vocation of God, are without Repentance*; but the Union of the Divinity with the human Nature in Christ, was granted by Grace; but as it is certain, that there never was any Sin in Christ, the Union of the Divinity with his Flesh, could never be dissolved.

I prove the second Part of my Answer, *viz. that the Divinity was not separated from the Soul of Christ, during the three Days of his Death.* Because if it was not separated from his Body, much less from his Soul, which, in some Measure, can be said more intimately united to the Divinity than the Body.

To the second Part of the Question, I answer, *that Christ was not a true Man during the three Days of his Death.* Because there is no true Man where the Soul is not united to the Body, since the Humanity is a certain Composite of Soul and Body; but during the three Days of Christ's Death, the Soul was not united to the Body, but was rather separated from it: Therefore, *&c.*

I answer to the third Part of the Question, *that Christ's Body was the same in Number alive and dead, though not the same entirely.*

I prove the first Part of my Answer, *viz.* that it was the same numerically; because the Body of Christ was the same divine Suppositum living and dead: Therefore the Body of Christ was the same numerically alive and dead.

I prove the second Part of my Answer, *viz. that the dead Body of Christ was not the same entirely with his living Body*; because his dead Body had not all that is essential to a living Body; since it had no Life, which is the Essence of a living Body.

Note, That from this I'll pass to Christ's *Burial.*

I'll ask on this Subject, *If Christ was buried after his Death, and if it was convenient he should be buried?*

I answer to the first Part of this Question, *that Christ was truly buried*; because the Scripture expressly witnesses it, *Matt.* xxvii. where it is said, *that Christ's Body was wrapped in a clean Linen Cloth.* And *Matt.* xxvi. where we read, that Christ himself had insinuated that such a Thing would happen, by this he says of *Mary Magdalen, For in that she has poured this Ointment on my Body, she did it for my Burial.* And in the Symbol of the Apostles, Christ is expressly said to be *buried.*

I answer to the second Part, *that it was convenient Christ should be buried*; because Christ wanted thereby to prove the Truth of his Death; for no Body is buried,

ried, unless his Death be evident; whence it is not surprising, if *Pilate*, before he granted that Christ should be buried, wanted to know if Christ was really dead. 2. To give, by his Example, to those who are buried, Hope of their Resurrection; according to this of *John* v. *When the Dead shall hear the Voice of the Son of God; and they that hear shall live.*

Our next Question is, *If Christ descended into Hell; into what Hell, and how long he remain'd there?*

I answer to the first Part of the Question, *that really Christ descended into Hell*; which I prove by the Scripture, and the Symbol of the Apostles.

By the Scripture, *Eph.* iv. *Now that he ascended, what is it but he also descended first into the lower Parts of the Earth?* By the Symbol of the Apostles, *he descended into Hell.*

It may be asked here, *Which was that Hell into which Christ descended?*

To which I answer, that it is very probable, that it was not the Hell of the damned Souls, but only that of the Just; and that he remain'd there till the Day of his Resurrection.

I prove the first Part of this Answer, *viz.* that it is very probable Christ did not descend into the Hell of the Damned, because it is very probable that he who was the true Light, the Light of the World, would not descend into a Place, which is called, *Job* x. *A Land of Darkness, and of the Shadow of Death, without any Order, and where the Light is as Darkness.* Besides, his sole Presence had been capable to change entirely the Nature of the Place; by making of it a Place of Light and Felicity, from one of Darkness and Torments it is appointed to be.

I prove the second Part, *viz.* that it is probable he descended into the Hell of the Just, and there remain'd till the Day of his Resurrection, because it was convenient his Soul should be there, as long as his Body was in the Sepulchre.

I answer to the second Part of the first Question, on this Subject, *that it was convenient Christ should descend into Hell*; for three Reasons.

1. Because Christ was come to bear our Pain, and to deliver us from our Pains, according to this of *Isaiah* liii. *Surely he has borne our Griefs, and carried our Sorrows.* And as Man had not only incurred the Death of the Body, but likewise his Descent into Hell; therefore as it was convenient that Christ should die, and thereby deliver us from Death; it was likewise convenient he should descend into Hell, and thereby deliver the Just detain'd there, and us likewise from descending into it; whence it is said in *Hosea*, *O Death I will be thy Plague; O Hell I will be thy Destruction.*

2. Because it was convenient that the Devil being vanquished, Christ should deliver those he had vanquished from Hell, where they were detained. According to this, *Zech.* ix. *As for thee also, by the Blood of thy Covenant, I have sent forth thy Prisoners out of the Pit.*

3. That as he had shewed his Power on Life and Death, while upon Earth, he should, likewise, shew it in Hell, by visiting and enlightening that Place, and commanding the Gates thereof to be open'd. According to this, *Psalm* xxiv. *Lift up your Heads, O ye Gates, and be ye lift up ye everlasting Doors, and the King of Glory shall come in.* Which Words are thus explain'd by the *Glossa*, *Princes of Hell resign your Power, whereby, till now, you have detain'd Men Prisoners*, &c.

We'll ask next, *Why Christ descended into Hell, if it was to deliver the Saints from thence, if to deliver those who were damn'd, and likewise the Children who had departed this Life with the Original Sin?*

To the first Part of the Question, I answer, *that Christ descended into Hell, to deliver the Just still detained there, though they had made Satisfaction for their Sin.* Because the Scripture witnesses it, in the Passage of *Zechariah* above-quoted. And St. *Augustin* says, *Serm.* 2. *de resurrect. That Christ descended into Hell, and did break its Gates and Bolts, to set at Liberty all the Just, detain'd there by the Original Sin.*

It may be objected that St. *Augustin*, *Epist.* 59. says, *that he could not find of what Advantage the Descent of Christ into Hell had been to the Just existing in* Abraham's *Bosom, and that it had been of any Service to him, if he had delivered them from Pains*; therefore it is a Sign that Christ did not descend into Hell to deliver the Just.

I answer that St. *Augustin* in this Place, speaks against some who believed, that the antient Fathers and the Just, before the Arrival of Christ into Hell, suffered Pains; to whom he answers thus, in refuting their Sentiment; *I do not see in what Manner* Abraham's *Bosom, into which* Lazarus *was received, can be understood susceptible of Pains.* Therefore when he adds afterwards, that he could not find of what Advantage the Descent of Christ into Hell could be to the antient Just, it must be understood as to delivering them from Torments, because there were none in *Abraham*'s Bosom; which, notwithstanding, did not hinder Christ's Descent into Hell, from being of some Service to them with Regard to the Acquisition of Glory.

To the second Part of the Question I answer, *that Christ by his Descent into Hell, did not deliver those who were damned*; because by that Descent he only delivered those he found united to him by a Faith perfected by Charity, which Faith takes off Sin; which was not the Case of those who were damned, therefore, *&c.* or to the utmost it can be said, that they are to be visited at the Day of Judgment, and then rather to be more solemnly condemned, than deliver'd: According to this of *Zephaniah* i. *I will search Jerusalem with Candles, and punish the Men that are settled on their Lees.*

I answer to the third Part (which Answer I submit to the Judgment of the Church) *that Christ descending into Hell, delivered the Children who were departed from this Life, defiled with the Original Sin.* Because if I may be allowed to speak according to the advantageous Notion I have of the infinite Charity of Christ; whereby he was entirely actuated during the whole Course of his mortal Life, I imagine that his Descent into Hell had the same Effect, with Regard to those innocent Creatures, who had no Guilt of their own, the salutary Waters of the Baptism have had since, and the Circumcision, which was the Type thereof, had before the Preaching of the Gospel; for what could have been more contrary to his infinite Mercy, than to deprive of the Benefit of his *Incarnation*, those who were necessarily guilty of another's Guilt, while he extended that Benefit to those who themselves had so often, and so attrociously offended?

Note, That after I have treated of the Things which pertain to Christ's Humiliation, *viz.* of his Passion, Death, Burial, and the like; I must treat next of those which pertain to his Exaltation, *viz.* of his Resurrection, Ascension, *&c.* beginning by his Resurrection.

I'll ask first, *If, and by what Virtue Christ rose from the Dead, and whether his Resurrection was necessary?*

To the first Part of this Question I answer, *that truly Christ rose from the Dead*, because the Scripture witnesses it expressly, *Matt.* xxviii. *He is risen, as he said. Mark* xvi. *He is risen, he is not here. Luke* xxiv. *The Lord is risen indeed.* And *John* xxi. *When he rose from the Dead.* 1 *Cor.* xv. *But now is Christ risen from the Dead, and become the first Fruits of them that slept.* That Resurrection was foretold by Christ himself. *Matt.* x. *They'll deliver him to the Gentiles to be mocked, and scourg'd, and crucified, and he'll rise the third Day.*

I answer to the second Part of the Question, *that Christ rose from the Dead not by a human, but by his own proper divine Virtue*; according to the Scripture, 2 *Cor.* xiii. *For though he was crucified through Weakness, yet he lives by the Power of God.* And Christ himself insinuates it, *John* x. *No Man takes my Life from me, but I lay it down of myself; I have Power to lay it down, and I have Power to take it up again.*

Note, That by these Words *proper Virtue*, I do not pretend to exclude the Operation of the other Persons, since the Resurrection of Christ from the Dead is an Act *ad extra*, which is common to the whole Trinity; therefore it is said, *Acts* ii. *That God raised up Christ.* And *Rom.* viii. *Who has raised Jesus from the Dead, has vivified him*, &c. But will only give to understand that Christ's Resurrection is not from him as a Man, or

or by a human Virtue; but is from him as God, or by a divine Virtue which is in him, since he is both God and Man.

Note, also, That from what I have said in this Proposition, it may be inferred that Christ was the Cause of his Resurrection, by his divine Virtue.

I answer to the third Part of the Question, *that it was necessary that Christ should rise from the Dead*; according to the Scripture, *Luke* xxiv. *The Son of Man must be delivered into the Hands of sinful Men and be crucified, and the third Day rise again*; and for the five following Reasons.

1. That the divine Justice may be made apparent, for to it belongs to exalt those who humble themselves for the Love of God; according to this of *Luke* xiv. *Whosoever humbles himself shall be exalted.*

2. To confirm our Faith of Christ's Resurrection; for Christ having said that he would rise after three Days, if he had not risen he had been considered as an Impostor: Whence the Apostle speaks thus, 1 *Cor.* xv. *If Christ is not risen from the Dead, our Preaching is vain, and our Faith is vain.*

3. To heighten our Hope; for don't we hope to rise from the Dead, when we see Christ our Chief rising from the Dead? According to this of the Apostle, 1 *Cor.* xv. *Now if Christ preached that he rose from the Dead, how say some among you, that there is no Resurrection of the Dead?* Which is confirmed by this *Job* xix. *For I know that my Redeemer liveth, and therefore I shall rise from the Earth at the latter Day, and this my Hope resteth in my Bosom.*

4. For the Regulation of our Conduct.

5. For the Compliment of our Salvation.

We'll ask next, *When Christ rose from the Dead, and whether he was the first and sole Mortal who rose from the Dead?*

To the first Part of this Question I answer, *that Christ rose from the Dead the third Day, and that it was convenient he should*; because the Scripture witnesses expresly in the Passages above-quoted, that he rose the third Day. As to its being convenient he should have risen the third Day, there can be no Doubt of it, since the Truth of his Divinity required that his Resurrection should not be deferred to the End; and the Truth of his Humanity and Death required also, that there should be an Interval between his Death and his Resurrection, lest if he had rose immediately after his Death, the Truth of that Death had been questioned, and consequently that of his Resurrection.

I answer to the second Part, *that Christ rose the first of all Mortals, at least of a perfect Resurrection*, viz. *of that which excludes the Necessity and Possibility of dying*; either because the Scripture witnesses it, 1 *Cor.* xv. or because he was the first that rose to an immortal Life, in which consists a perfect Resurrection; according to this of *Rom.* vi. *For Christ rising from the Dead dies no more.*

I have said, *at least of a perfect Resurrection*, to give to understand, that if it be a Question of the Imperfect, several have arose before Christ, *viz.* the Son of the Widow of *Naim*, the Daughter of the Ruler *Jairus*, and *Lazarus*, whom Christ himself rose before his Death, as it appears from the Scripture.

Our next Question is, *In what Manner Christ rose, whether with a true, entire, and glorious Body, reserving, notwithstanding, the apparent Cicatrices?*

To the first Part of the Question I answer, that *Christ rose with the same Body he had before his Death, and not with a fantastical one.* Because if he had not rose thus, his Resurrection had not been a true one; since a true Resurrection is nothing else but the Reunion of the same Body with the same Soul: For if the Body had been fantastical, the Resurrection had only been apparent, and not true. And Christ, to show that he had rose in his true Body, said to his Disciples, *Luke* xxiv. *Handle me, and see, for a Spirit has not Flesh and Bones, as ye see me have.*

I answer to the second Part, that *Christ's Body rose entire*, because his Resurrection was perfect; notwithstanding that it was of another Glory, for it suffices that it was of the same Nature.

I answer to the third Part, that *the Body of Christ rose glorious*; because the Scripture witnesses it expresly, *Philip.* iii. *Who shall change our vile Body, that it may be fashioned like unto his glorious Body.* And for the three following Reasons.

1. Because the Resurrection of Christ is the Cause and Exemplary of our Resurrection, 1 *Cor.* xv. Therefore if the Saints are to rise in a glorious Body, the Body of Christ rose glorious.

2. Because his Body had been humbled in his Passion, in his Death, and in his Sepulchre; therefore it was convenient it should be exalted in his Resurrection.

3. Because it was convenient that the Glory of the Soul of Christ, which, to accomplish the Mystery of our Redemption, had been eclipsed by his Passion and Death, should after his Resurrection appear with some Lustre on his Body.

It may be objected, that a glorified Body is incorruptible; and that Christ's Body could not be incorruptible, since it was palpable. For *what is palpable*, says St. *Gregory*, *Homil.* 26. *in Evang. must be corruptible*; therefore Christ's Body did not rise glorious.

I answer, that though his Body was palpable, it had notwithstanding something above the common Condition of a human Body, whereby it was render'd incorruptible, *viz.* a Redundancy of Glory on his Body, according to the Sentiment of St. *Augustin*, who says, *Epist.* 56. that *God has made the Soul of so potent a Nature, that from the Plenitude of its Beatitude, reflects on the Body a Plenitude of Health*, i. e. of Incorruption; whence St. *Gregory* says, that the Body of Christ, after his Resurrection, *was of the same Nature, but of another Glory.*

I answer to the fourth Part, that *the Body of Christ, though it rose glorious, rose, notwithstanding, with the Cicatrices of the Wounds; and that it was convenient it should rise in that Manner.*

That *he rose with the Cicatrices of the Wounds he received in his Passions*, appears from the Scripture, *John* xx. where Christ says to St. *Thomas, reach hither thy Finger, and behold my Hands; and reach hither thy Hand, and thrust it into my Side.*

That *it was convenient Christ should rise with the aforesaid Cicatrices*, is evident from five Reasons, 1. That Christ should be hence glorified: For the venerable *Bede* says, on the last Chapter of St. *Luke*, that Christ did not preserve his Cicatrices out of an Impossibility of curing them, but wore them in perpetual Remembrance of the Victory he had gained. 2. To strengthen the Heart of his Disciples in the Faith of his Resurrection. 3. To be heard always of his Father, when he should plead for us, by shewing what Kind of Death he had suffered for us. 4. That by his Death he should insinuate to those he had redeemed, what he had done to accomplish their Redemption, to excite them thereby to suffer something patiently in their Turn. 5. To convince his Enemies that they are justly condemned.

Notwithstanding what is said, 1 *Cor.* xv. that *the Dead shall rise incorruptible*; because those Cicatrices do not import any Imperfection, or Defect; but are rather an Increase of Glory; since they are the Marks of Power.

We'll ask next, *If Christ's Resurrection be the Cause of ours, and of our Salvation?*

To the first Part of this Question, I answer, that *Christ's Resurrection is the Cause and Exemplary of the Resurrection of Bodies*; because it has an effective instrumental Power, and acts by the Power of the Divinity; and because what is first in any Gender is a Rule for the others; but Christ's Resurrection is the first in the Gender of a perfect Resurrection; according to this of the Apostle, 1 *Cor.* xv. *But now is Christ risen from the Dead, and become the first Fruits of them that slept. For since by Man came Death, by Man came also the Resurrection of the Dead*; because the Word of God is the Principle of the human Vivification; according to what himself says, *John* v. *For as the Father raises up the Dead and quickeneth them, even so the Son quickneth whom he will.*

To this it may be objected, that if Christ's Resurrection was the Cause of ours, it would be either a meritorious or an efficient, or an exemplary Cause; but it is neither, 1. Because Christ was no longer in the Way, and therefore could not merit, since none but those who are on their Journey through this World can merit. 2. Because Christ's

Christ's Resurrection had neither a corporal nor spiritual Contact to the Dead: Not a corporal one, because of the Distance of the Place, and Time; nor a spiritual Contact by Faith and Charity, since the *Pagans* will rise from the Dead; whence it can in no Manner be said the efficient Cause of our Resurrection. 3. Because God does not want to raise the Dead, to look on an Exemplary placed *ad extra*; therefore the Resurrection of Christ was not the exemplary Cause of our Resurrection; and therefore, *&c.*

I answer, that Christ's Resurrection is not, properly speaking, the meritorious Cause of ours; but that it is, notwithstanding its efficient and exemplary Cause.

1. It is its efficient Cause, because Christ's Humanity, according to which he rose from the Dead, is the Instrument of the Divinity, and operates with his Power; for to that Virtue belongs the Quickning of the Dead.

But how can it be understood, say you, *that that same Virtue extends itself as well towards the Resurrection of the Bad, as towards that of the Good?*

To which I answer, that it can be easily understood, if we consider that the primary Cause of the human Resurrection is the divine Justice; from which Christ, as the Son of Man, has the Power to administer Judgment; since all Men, good and bad, without Distinction, are submitted to Christ's Judgment.

2. The Resurrection of Christ is the exemplary Cause of ours; because what is most perfect, is the Original of what is less perfect in its Manner; but Christ's Resurrection is most perfect; therefore it is the Original of our Resurrection, not that God wants an Original, but because it is necessary that on our Part we should be conform to Christ's Resurrection; according to this of *Phil.* iii. *Who shall change our vile Body that it may be fashioned like unto his glorious Body.*

Note, That I must resolve in this Place some small Questions relating to the Manifestation of Christ's Resurrection.

It is asked, 1. *If Christ's Resurrection was presently manifested, or must have been manifested to all, or only to some particular Persons?*

I answer, that it was not presently manifested to all without Distinction, but only to some certain Persons selected for that Purpose; that by them it should be manifested to others; according to this of *Acts* x. *Him God raised up the third Day, and shewed him openly, not to all the People, but unto Witnesses chosen before of God.*

I answer, 2. That it was convenient that Christ's Resurrection should be manifested at first, but to those only chosen of God, and by them to others, because this Manner of acting in the Manifestation of supernatural Things is common to God, in the Sentiment of St. *Denis, lib. de celest. hierarch. c.* 1. *This is*, says he, *the Law divinely instituted, that they should be immediately revealed to Superiors, and by their Means communicated to Inferiors; as it appears in the Œconomy established among the celestial Intelligences.*

It may be asked, 2. *If Christ rose in the Absence of his Disciples, and whether it was convenient he should rise in the Absence of all his Disciples?*

I answer, 1. *That Christ arose from the Dead in the Absence of all his Disciples*; because we read in the last Chapter of St. *Mark*, that *Mary Magdalen* came first to the Sepulchre, and learned from the Angel that he was risen from the Dead.

I answer, 2. *That it was convenient Christ should rise in the Absence of his Disciples*; because, in that he observed the Order which God had established, which is, that what was above Man's Apprehension, should be revealed to them by Angels; according to St. *Denis, de celest. hierarch. c.* 4. and it is certain that Christ rising from the Dead, did not return to a Life commonly known to Men, but to an immortal Life, and conform to God; according to this of *Rom.* vi. *For that he lives to God*; therefore Christ's Resurrection should not have been immediately seen by Men.

It may be objected to this, that it was convenient those should see Christ's Resurrection who were to witness it; according to this of *Acts* iv. *And with great Power gave the Apostles witness of the Resurrection of the Lord Jesus*; therefore it was convenient they should see the Resurrection.

I answer, that the Apostles could testify of Christ's Resurrection as Eye-witnesses, because they had seen alive him whom they knew to be dead.

It may be asked, 3. *If Christ appeared to his Disciples in another Form?*

Which I answer in the Affirmative, because the Scripture witnesses it expressly, *Mark* xvi. *After that he appeared in another Form to two of them as they walked*, &c. Though notwithstanding we must not say that Christ's Apparition was fictitious, because Christ does not deceive.

It may be asked, 4. *If, and how long Christ conversed with his Disciples, and must have conversed with them?*

I answer, 1. That Christ conversed sometimes with his Disciples after his Resurrection; which we learn from the first Chapter of the *Acts of the Apostles.*

I answer, 2. That his Conversation with them was not continual; because it is said, *John* xx. that eight Days afterwards he appeared to his Disciples.

I answer, 3. That Christ ought not to have conversed continually with his Disciples, lest he should appear to have returned to the same Life he had before, whence he says to them, *Luke* xxiv. *These are the Words which I spake unto you while I was yet with you*, i. e. as the venerable *Bede* observes, *while I was in the same mortal Flesh you are in.*

Note, also, That from this I'll pass to *Christ's Ascension.*

My first Question, on this Subject, is, *If, and according to what Nature Christ ascended into Heaven, and whether it was convenient he should ascend into Heaven?*

To the first Part of this Question, I answer, that *Christ ascended truly into Heaven.* Because Christ himself witnesses it, *John* xx. in these Words: *I ascend unto my Father and your Father, and to my God and your God.* And we read *Mark* xvi. *So then after the Lord had spoken unto them, he was received up into Heaven, and sat on the right Hand of God.*

I answer to the second Part, that *Christ ascended into Heaven according to his human Nature, and not according to the divine, though he ascended into it by a divine Virtue.* Because he ascended according to that Nature, to which it belongs to ascend; but it only belongs to the human Nature to ascend, not to the divine; because the divine Nature, as well in itself as from itself, is exalted in such a Manner that it cannot be raised higher; and because the Ascension into Heaven imports a local Motion, which is not at all agreeable to the divine Nature.

I have said, *though he ascended by a divine Virtue*, because Christ did not ascend into Heaven by the Virtue of his Humanity. Whence St. *Augustin, Serm. de ascens. Dom.* which is the 176 in Order, says, that what he was *crucified in was from us, and from him that he ascended into Heaven.* In this Sense St. *Thomas* says, that it can be said that Christ ascended into Heaven according to his divine Nature.

To the third Part of the Question, I answer, that *it was convenient Christ should ascend into Heaven.* Because it was convenient that he should be in a Place proportioned to the Condition, and to the immortal and incorruptible Life he began after his Resurrection: Therefore it was convenient he should ascend into Heaven, since the Place inhabited by us Mortals is not proportioned, its being a Place of Generation and Corruption.

This Sentiment is confirmed, from that Christ ascending into Heaven has not entirely abandoned us, since he is always present to us by his Divinity, according to this of the last Chapter of St. *Matthew, I am with you always, even unto the End of the World.* For, notwithstanding by his Ascension the Faithful have been deprived of his corporal Presence, it suffices that we can say that he has not entirely abandoned us.

Our next Question is, *If and in what Sense Christ can be said to have ascended into Heaven by his proper Virtue?*

Note, 1. That we can consider two Virtues in Christ, answering to his two Natures, *viz.* one divine, and the other human.

Note, 2. That the human Virtue can be considered either as purely natural, and proceeding from natural Principles,

Principles, or as a Virtue of Glory distinct in Christ from the divine Virtue.

Note, 3. That it is asked here, if Christ not only ascended into Heaven by his proper Virtue, in that Sense that he ascended by his divine Virtue; but likewise that he ascended by his human Virtue, if not natural, at least that Virtue which is said of Glory?

I answer, 1. *That in that Sense Christ can be said to have ascended into Heaven by his proper Virtue, because he ascended by his divine Virtue.* This Answer wants no clearer Explication, since it appears from what we have said already on this Subject, that the divine Virtue pertained no less to Christ, than the human Virtue, since he was both God and Man.

I answer, 2. *That Christ can be said to have ascended into Heaven, by his proper human Virtue, not the natural, but that of Glory.* Not by a *natural Virtue*, because such an Ascension surpasses that Virtue. But by *that of Glory*, because that Virtue was agreeable to it, derived from his blessed Soul to his Body, by which Virtue, the Body was instantly where the Soul wanted it to be.

From what I have said it may be inferr'd, that Christ ascended in two Manners into Heaven by his proper Virtue, 1. By a divine Virtue, and, 2. By the Virtue of a blessed and glorified Soul, moving the Body at Pleasure.

Note, That from this I'll pass to the *Mission of the Holy Ghost.*

I'll ask, *If Christ promised his Disciples to send them the Holy Ghost, and whether he accomplished his Promise, when, and how, and with what Circumstances?*

Note here, in few Words, that there can be considered two Sorts of Mission in divine Things, one active, and the other passive. The active is nothing else but the Production of the divine Person we suppose sent, with some Habitude of the same Person to some certain Term, in which he begins to be in some new Manner, such as he was not before.

2. That the Mission, especially the passive, can be considered either as visible or as invisible; I'll explain both Missions in my Treatise of the *Trinity*, as properly belonging to it; these pre-observ'd,

I answer to the first Part of the Question, *that Christ promised his Disciples to send them the Holy Ghost*; because witnessed in several Places of the Scripture, *John* xiv. *And I will pray the Father, and he shall give you another Comforter; even the Spirit of Truth.* Chap. xvi. *If I go I'll send him to you.*

I answer to the second Part, *that Christ, fifty Days after his Resurrection, and ten after his Ascension, sent the Holy Ghost he had promised, who came on the Disciples while they were assembled together, and descended on them in the Manner of a Wind, and under the Form of fiery Tongues.* Because we read that it happen'd thus, *Acts* ii. in these Words, *And when the Day of Pentecost was fully come, they were all with one Accord in one Place, and suddenly there came a Sound from Heaven, as of a rushing mighty Wind, and it filled all the House where they were sitting. And there appeared unto them cloven Tongues, like as of Fire, and it sate upon each of them: And they were all filled with the Holy Ghost, and began to speak several Languages, as the Spirit gave them Utterance.*

It may be asked with Regard to the Manner and Circumstances of the Holy Ghost, *Why he descended on the Day of Pentecost, in which a Feast was celebrated among the Jews, in Memory of the Promulgation of the Law on Mount Sinai, fifty Days after that of the Passover?*

I answer that this happened to insinuate, that Christ was come to imprint his Law on the Mind of Men, *i. e.* the Law of Grace he had preached, the old Law being but the Figure thereof; whence it happen'd, that the same Day the old one was given, the new was promulgated, tho' in a different Manner; for the old Law was promulgated, amidst Thunder and Lightenings, because it was a Law of Fear, threatning Death; was promulgated on Mount *Sinai*, and given on two Tables of Stone, because given to obdurate Men, whose Hearts were harder than Stones; but, on the contrary, the new Law was imprinted with Sweetness, on the carnal Hearts of Men.

It is asked, 2. *Why the Holy Ghost came so suddenly.*

I answer, that he descended in that Manner, to give us to understand, that the Holy Ghost visits us when he pleases, and not when we please, and therefore we should be always prepar'd to receive him. The Reason why he bloweth when he pleases, *John* iii. because he bloweth of a pure Mercy.

It is asked, 3. *Why he came in Manner of Wind, and even of a violent one, and with Noise?*

I answer, 1. That the Holy Ghost came in the Manner of Wind, to give to understand, that as Wind cools; and separates the Corn from the Straw; likewise the Holy Ghost temperates the Heat of our Concupiscence, and purifies our Soul of the least Sin and Imperfection.

I answer, 2. That that Wind was vehement; because the Holy Ghost wanted to signify thereby, with what Zeal we should apply ourselves to the Practice of all the Christian Virtues; to which he does not force nor necessitate our Will, but only attracts it with Sweetness, that it may consent freely. For a Man excited by divine Inspiration, is like a Ship on the Sea, which runs full sail towards the Place of its Destination.

I answer, 3. That that Wind was with Noise, to give to understand, that the Holy Ghost operates great Miracles in the Elect, and by the Elect, which are heard throughout the whole World.

It is asked, 4. *Why it is said, that that Wind filled the House where the Disciples were assembled?*

I answer, that it is said for several Reasons, 1. To give to understand, that the Holy Ghost gives the Grace with a far greater Plenitude in the new Law, than he used to give it in the old one. 2. That the Holy Ghost descending into our Soul, fills all its Faculties.

It is asked, 5. *Why the Holy Ghost descended in Form of Tongues?*

I answer, that he descended in that Form to signify, that as the Tongue makes a Difference between Sweetness and Bitterness, likewise by him we make a Difference between Good and Evil.

It is asked, 6. *Why those Tongues were fiery?*

I answer, that this happen'd for several Reasons, but more particularly to give to understand, that as Fire has the Faculty to purify, to light, to heat, to ascend upwards, to unite itself, and to transform into itself, all it is united with; likewise the Holy Ghost produces all those Effects in our Soul. For 1. It purifies it, by consuming all its Imperfections. 2. He illuminates our Understanding, that it may be more certain of the Truth, than if we were to see it with our Eyes. 3. He inflames our Heart with the Fire of Charity towards God and our Neighbours. 4. He raises our Heart from the Earth, that our Conversation may be in Heaven. 5. He unites himself so intimately with our Soul, and unites it so intimately with him, that it is but one same Spirit with him.

We'll ask next, *Which were the Motives, and the End of the Descent of the Holy Ghost?*

I answer, 1. That there were three principal Motives of the Descent of the Holy Ghost.

The first Motive is taken from the infinite Charity of the Father, which as it had excited him to send his only Son to be our Redeemer, *John* iii. it likewise excited him to send the Holy Ghost to sanctify our Souls.

The second is taken from the Merits of Christ, who by his Passion and Death obtained us that Gift.

The third is taken from our Miseries and Wants, which moved the Father to send us the Holy Ghost.

I answer, 2. That the Holy Ghost was sent by the Father and the Son, particularly for these Ends, 1. To be our Protector, Advocate, and Comforter, after Christ, 2. To be our Master and Doctor after Christ. 3. To let the Apostles know, inwardly, what Christ was, that they should afterwards witness it to the whole World. 4. To reprimand the World for their Sins.

1. That he was sent to be our Protector, Advocate, *&c.* after Christ, Christ himself witnesses it by his Promise, *John* xiv. *I'll pray the Father, and he'll send you another Comforter*, i. e. another Protector, who will be always ready to assist you in your Necessities. A Consolator, who will relieve you in your Afflictions; and an Advocate who will intercede for you.

2. That he was sent to be our Master and Doctor,

Christ himself witnesses it likewise, when he says, *John* xiv. and xvi. *When that Spirit shall come whom my Father will send in my Name, he'll teach you all Truth*; at least all that's necessary for your Perfection and Salvation.

3. That he was sent *to witness inwardly to the Apostles what Christ was, that they should afterwards witness it to the whole World*, is evident from that the Holy Ghost was sent to teach, and to bear the same Testimony which Christ had bore of himself, while he conversed with them, and they should be so well convinced of the Truth as to be ready to suffer all Sorts of Torments, and even die in its Defence.

4. *That he came to reprimand the World of their Sins*, is witnessed by the Scripture, *John* xvi. *And when he is come he will reprove the World of Sin, and of Justice, and of Judgment*, i. e. He will cause that the Apostles, and all those on whom he shall descend, shall reprove the World, 1. Of Sin, or of that they do not receive his Faith, nor observe his Law. 2. They'll reprove of Justice, *i. e.* bearing Testimony of the Life and Doctrine of Christ, and of the Holiness of his Law. 3. Lastly, of Judgment, shewing Man what Sentence Christ pronounces against Sin, and against the Devil.

Note, That I'll conclude this Treatise by some Observations on the *general Resurrection* of the Body, and on the *Universal Judgment*.

I'll ask, first, *If there is to be a general Resurrection of the Bodies before the universal Judgment, how, and when it will happen?*

To the first Part of the Question I answer, *that there is to be a general Resurrection of the Bodies before the universal Judgment*, i. e. *of all Men, as well of the Elects as of the Reprobates.*

I prove the first Part of this Answer, *viz. that there is to be a general Resurrection of the Bodies*, &c. By the Scripture and by Reason.

By the Scripture, *Job* xix. *For I know that my Redeemer liveth, and that I am to rise from the Earth, and to be environed with my Skin.*

By Reason, because the Members must be conform to their Chief; but Christ who is our Chief, rose from the Dead and lived, therefore we must rise from the Dead and live.

I prove the second Part of the Answer, *viz. that the Resurrection will be of all Men, good and bad, without Distinction.* By the Scripture, *John* v. *All that are dead shall hear the Voice of the Son of God, and shall come forth; they that have done Good unto the Resurrection of Life; and they that have done Evil unto the Resurrection of Damnation.*

To the second Part of the Question I answer, *that the general Resurrection is to be supernatural*, because it is not to be made according to Nature, a Regress from the Privation to the Habit; but Death is the Privation of Life: Therefore the Resurrection, which consists in the Return from Death to Life, is not natural, but absolutely supernatural and miraculous.

From what I have said it may be inferred, that the general Resurrection is to be attributed to God, according to this of 1 *Thess.* iv. *For the Lord himself shall descend with a Shout, with the Voice of the Archangel, and with the Trumpet of God.* By that Trumpet St. *Thomas* understood the Voice of the Son of God, mentioned *John* v. which notwithstanding does not hinder, as the same Doctor observes, but he may use the Ministry of Angels, in those Things which are to be as Preparations to the Resurrection. Hence it appears, that as the Soul was immediately created of God, it will be likewise immediately re-united to the Body by him.

It may be inferred, 2. That the Resurrection precisely considered, as the Union of the Soul with the Body, is to be made in an Instant; which is insinuated, 1 *Cor.* xv. *We shall all rise, in a Moment, in the twinkling of an Eye, at the last Trumpet*, &c. and the Reason is, that God is to make use then of his infinite Virtue; but successively it is to be made, as to what belongs to the Ministry of the Angels, so quickly, that the Time will be imperceptible: *Ezekiel* insinuates that Succession, Chap. xxxvii. *And the Bones*, says he, *came together, Bone by Bone. And when I beheld, lo, the Sinews and the Flesh came up upon them, and the Skin covered them above; and there was no Breath in them.*

I answer to the third Part of the Question, that *it is certain that the general Resurrection is to be at the End of the World; but that it is not certain when that End of the World will be.*

That the *general Resurrection is to be at the End of the World*, is inferred from these Words of *Job*, c. xiv. *So Man lies down, and rises not, till the Heavens be no more, they shall not awake*; nor be *raised out of their Sleep.* Here we must observe two Things, 1. That by that Sleep, must be understood the Sleep of Death. 2. That the Heavens are not to be destroyed in the Manner *Job* understands it, but at the End of the World.

That it is not certain when that End of the World is to be: We learn it from the Scripture, *Matt.* xxiv. where it is said, that it is hidden from the Angels, and from the Apostles, tho' they knew more of their divine Master's Secrets than any Body else.

Our next Question on this Subject is, *If the Bodies of the Good and of the Bad are to rise entire, and with all that was of the Truth of human Nature; likewise at what Age and in what Sex they are to rise?*

I answer to the first Part of this Question, *that the Bodies are to rise entire, and with all their Members*; either because they are perfect Works of God, or because the other Members are much more of the Truth of human Nature than the Hair; but the Hair is to be restored in the Resurrection, according to St. *Luke* xi. *Not one Hair of your Head shall perish*; therefore, *&c.*

I answer to the second Part, *that we'll all rise young*; according to the Apostle, *Ephes.* iv. *Till we all come in a perfect Man, and in the Measure of the Plenitude of Christ's Age*; but Christ rose in a youthful Age, as St. *Augustin* teaches it, *lib.* 22. *de civit. c.* 15. therefore we'll rise in that Age. Which Sentiment I confirm by this Observation, that as Man was created without any Defect of Nature, likewise the human Nature will rise without any Defect; because God's Works are perfect as well in the Resurrection as in the Creation.

It may be asked perhaps, *If it would not be more convenient Man should rise in an old Age, which is far more venerable and more worthy of Respect?*

Which I answer in the Negative, because that Age does not borrow its Venerability from the Condition of the Body, which is then attended with several Defects, but from the Wisdom of the Soul, which is supposed acquired by a long Experience. But the Elects will claim the Respect due to old Age, by the Plenitude of the divine Wisdom their Soul will be inebriated with.

I answer to the third Part of this Question, *that every one shall rise according to their Sex*; because God will repair in Man in the Resurrection, what he made him in the Creation; but in the Creation he made him Male and Female; therefore he'll repair both Sexes in the Resurrection, according to St. *Augustin*, *lib.* 22. *de civit. c.* 17. *Those think better, who believe that both Sexes will rise.*

We'll ask next, *If in the risen Bodies of the Elect will be those Perfections*, viz. *Impassibility, Subtilty, Agility, and Light, and which?*

Note, 1. That the Name of Perfection can be considered in two Manners, 1. In general, for any Perfection, either of the Soul or of the Body; as well natural as supernatural; in that Manner the Quickness of the Genius, the Vivacity of Memory, Beauty, Strength, Grace, and all the Virtues either infused or acquired, are called Perfections. 2. In a more strict Sense, for the Perfections acquired by Art, as Fencing, Reading, *&c.*

2. It is easily inferred from what I have said, that it is Question here of the Perfections of a glorious Body, flowing from the Soul; and that is asked if a glorious Body has those four Perfections, *viz. Impassibility, Agility, Quickness*, and *Light*; which Question I'll answer by explaining those four Perfections in the following Order.

I answer, 1. *That the Bodies of the Elect will be impassible*; because there will be in them a certain supernatural Quality, flowing from the blessed Soul, inherent to the glorious Body, and excluding from it all corruptive Passion. Whence it is not without Reason that the Apostle St.

St. *Paul* says, 1 *Cor.* xv. that the Body sown in Corruption shall rise in Incorruption; and that sown in Weakness shall rise in Power.

It may be asked, with Regard to the Impassibility of the Bodies of the Elects, *if it is to be equal in all?*

To which I answer, that it is to be equal in all, if it be considered in itself; for thus consider'd, it imports only a Privation, or Negation, which will be equal in all: But consider'd according to the Cause, it is not to be equal; the Reason of this is, because its Course is the Authority of the Soul over the Body, which proceeds from that the Soul itself enjoys God without Mutation, and that Fruition will be greater in one than in the other: Therefore, *&c.*

It may be asked, 2. *Whether the Impassibility excludes Sensation* in actu, *from the glorious Bodies?*

To which I answer in the Negative; because, according to *Aristotle, lib.* 1. *de anim. text.* 19. the Animated is distinguished, by the Sensation and Motion, from the Inanimated; but there is a Motion *in actu* in the Blessed: Therefore there will be in them a Sensation *in actu*, whence it is said, *Rev.* i. *All Eyes shall see him*

From this Answer it is inferred, that it is very probable, that after the Resurrection, there will be, in the Blessed, all the Senses *in actu*; because the Power joined with the Action is more perfect, than when it is not joined; therefore as human Nature is to be in the greatest Perfection, in the Blessed, it follows hence, that all the Senses will be *in actu* in them.

I answer, 2. That *there will be likewise, in a glorious Body, after the Resurrection, that Perfection called Subtilty*; because, in a glorious Body, there will be a supernatural Quality flowing from the blessed Soul on the Body, and rendering it penetrative of another Body, and co-existing with it in the same Place; therefore there will be in it a Subtilty which consists in that aforesaid Quality. All which is insinuated by the Apostle, 1 *Cor.* xv. where he says, that that Body which is sown animal shall rise spiritual; not that in fact it will be changed into something spiritual, but into something, in some measure semblable to a Spirit, because it will surpass all kind of corporeal Subtilty.

From this Answer, may be learned the Reason why Christ entered into the Room where the Disciples were assembled, though the Doors were shut, *&c.*

It may be asked, *If that Subtilty renders a glorious Body impalpable?* Which I answer in the Negative; because after his Resurrection Christ's Body was still palpable, as Christ himself insinuates it in the last Chapter of St. *Luke, Feel and see, for a Spirit hath neither Flesh nor Bones.* Whence St. *Gregory, lib.* 14. *moral. c.* 19. says, that *Eutyches* had erred, in that he pretended that our Body after the Resurrection should be impalpable.

It may be asked, 2. *If a Blessed has in his Power to hinder a glorious Body from being felt by another glorious Body?* Which I answer in the Affirmative; because that belongs to it from a divine Virtue.

I answer to the third Part of the Question, *that there will be in the glorious Bodies that Perfection called Agility*; because in them there will be a supernatural Quality flowing from the blessed Soul on the Body, and rendering it mobile with Celerity in all the Difference of Positions; according to this of *Isa.* xl. *They'll take the Wings of Eagles and will fly.* But though a glorious Body is to move with that Celerity, we must not imagine that its Motion is to be made in an Instant, otherwise the Body moved would be at the same Instant, in the Term from which, and in the Term to which, and in all the intermediate Places, which cannot be said, since Motion imports a Succession; therefore, *&c.*

It may be asked, with Regard to the aforesaid Agility, *If the glorious Bodies would be moved thereby without Trouble?* Which I answer in the Affirmative; because the Scripture insinuates it, *Isa.* xl. *They shall run and not be weary, and they shall walk and not faint.* St. *Gregory, homil.* 34. says, that they shall run within God, wherever they'l be sent. Whence consequently, those who are to run will not be deprived of the beatifick Vision.

I answer to the fourth Part of the Question, *that in the risen Bodies there will be a Radiancy*; because in them there will be a supernatural Quality flowing from the Soul on the Body, which will render it luminous and diaphan, like a fine Glass, whereby will be seen the marvellous Harmony subsisting between the inward Parts of the Body. It is by reason of this Perfection, the Scripture says, that *the Just shall shine like the Sun in the Kingdom of their Father.*

It can be inferred, 1. From what I have said of this Perfection, that where there will be a greater Glory of the Soul, there will be a greater Radiancy of the Body; and thus the Glory of the Soul will be known in the glorious Body; as the Colour of a Body contained in a Glass Vessel is easily seen through it.

2. That the Glory of a Body will not deprive it of its Nature, but rather perfect it: Whence the Colour due to a Body according to the Nature of its Parts shall remain in it, though with the Addition of the Radiancy of the Soul.

Our next Question is, *If the Bodies of the Reprobates shall rise with their Defects, and with Passibility and Corruption?*

To the first Part of this Question I answer, *that some Defects shall remain in the risen Bodies of the Reprobates, but not all.*

Some of their Defects shall remain, at least those Defects which proceed naturally in a human Body from natural Principles; such as Ponderosity, Passibility and the like. Notwithstanding this, 1 *Cor.* xv. *That the Dead shall rise uncorruptible*; for it must be only understood that they'll rise without any Diminution of their Members, lest there should be something in the Reprobates which could hinder in them the Sense of the Torments, or at least hinder the Pain from being universal in the Body, in which it would not be universal if a Member was wanted.

All the Defects will not remain in them; because those will not remain in them which proceeded only from Corruption, and Debility of Nature, or of the natural Principles, such as all Sorts of Diseases, *&c.* For if there was in them some Disease, it would hinder, or at least diminish the Sense of the Pain, inasmuch as it would debilitate the Organs.

I answer, 2. *That the Bodies of the Damned are to be uncorruptible*; because the Scripture insinuates it, *Rev.* ix. *And in those Days shall Men seek Death and shall not find it; and shall desire to die, and Death shall flee from them.*

I prove this by Reason, because Corruption is a certain Specie of Mutation; but after the Resurrection there will be no more Mutation, since the Principle of Motion will be wanted, *viz.* the Motion of the Heavens, which Philosophers consider as the first Alterrative: Whence it is not surprizing if the Motion of the Heavens failing, the Corruption is also to cease in the Bodies of the Damned, though composed of Contraries. The *Pagan* Philosophers have not known this Cessation of the Motion of the Heavens; whence it is not surprizing if they imagined that all Bodies composed of Contrary tends naturally towards Corruption. This serves to the divine Justice, that the Damned living perpetually, may be perpetually punished.

I answer, 3. *That the Bodies of the Damned will remain eternally passible, though they are never to be consumed by the Fire*; because it is so decreed by God, that the Body which has co-operated with the Soul towards committing Sin, should be perpetually punished with her, and consequently remain passible.

Note, That as the universal Judgment is to follow immediately the general Resurrection; it is proper I should give my Pupil Theologian some Instructions with Regard to it, that he may be capable to confute those who have the Impiety to deny both the Resurrection and Judgment.

My first Question on this dreadful Subject is, *If, and at what Time, and in what Place the universal Judgment is to be; and whether in it, it will be argued by vocal Locution?*

I answer to the first Part of the Question, *that there will be an universal Judgment.* Because the Scripture insinuates it, by these Words of Christ, *Matt.* xii. *The Men of Nineveh shall rise in Judgment with this Generation and shall condemn it.* Likewise, *John* v. *And shall come forth, they that have done Good, unto the Resurrection*

of

of Life; and they that have done Evil unto the Resurrection of Damnation.

I answer to the second Part of the Question, *that the Time of the universal Judgment is unknown, and uncertain.* Because the Scripture witnesses it expresly, *Matt.* xiii. in these Words, *No Body knows of the Day or Hour, neither the Angels, nor the Son, except the Father.*

If I be asked, *In what Sense the Son is said not to know it?* I'll answer, that the Son is said not to know it as Man, but not as God.

I answer to the third Part of the Question, *that tho' we are not certain of the Place of the universal Judgment, it is notwithstanding probable that it will be in the Valley of* Jehosaphat. According to this, *Joel* iii. *I will also gather all Nations, and will bring them down into the Valley of Jehosaphat, and will treat with them there.* And because it is probable, that in his second Coming he'll descend into a Place near the Mount of *Olives*, whence he ascended into Heaven, as it is inferred from this, *Acts* i. *This same Jesus which is taken up from you into Heaven, shall so come, in like Manner as ye have seen him go into Heaven*; but the Valley of *Jehosaphat* is very near the Mount of *Olives*: Therefore, *&c.*

It may be objected, that the Valley of *Jehosaphat*, is not sufficient to contain so innumerable a Multitude of Men; therefore that it is not probable that the universal Judgment is to be in that Valley,

I answer, that it is very true, that the Valley of *Jehosaphat* is too narrow to contain all the human Race, otherwise than by a Miracle; which Christ can operate on that Occasion.

I answer to the fourth Part of the Question, *that it is very probable the universal Judgment will be made mentally, and not by a vocal Location.* Because if a vocal Location was requir'd in the universal Judgment, either with Regard to the Discussion, or the Accusation of the Bad, and the Commendation of the Good, or with Regard to the different Sentences which are to be pronounced, it would take much more Time than is convenient, according to the Sentiment of St. *Augustin, lib.* 20. *de civit. c.* 4. Therefore, *&c.*

This Sentiment of mine is confirm'd, by that the Accusation, Defence, *&c.* is to be made mentally; therefore the Sentence which is to be agreeable to the Accusation, Defence, *&c.* is to be pronounced mentally; which I infer from this Passage, *Rom.* ii. *Their Conscience also bearing witness, and their Thoughts the mean while accusing, or else excusing one another. In the Day when God shall judge the Secrets of Men by Jesus Christ.*

I have said *very probable*, to insinuate thereby, that it is not certain of a physical Certitude.

JUDAISM.

JUDAISM, is the Profession of the Doctrine, and the Observance of the religious Rites and Ceremones, which the *Jews* had received immediately from Heaven.

Note, That the compleat System of *Judaism* being contained in the Books of *Moses*, which are in every Body's Hands; I'll content myself with giving here a Description of the different Sects the antient *Jews* were divided into; and of their different Principles; and likewise of the different Sects of the modern *Jews*.

Judaism was antiently divided into several Sects; the principal whereof were the *Pharisees*, *Sadducees*, and *Essenians*.

The Sect of the PHARISEES (so called, say some, because separated from the rest by the Austerity of their Life, by their professing a greater Degree of Holiness, and more religious Observation of the Law) was formed in *Judea*, long before the Birth of *Jesus Christ*; and had for Authors *Sammai* and *Hillel*, according to St. *Jerom*, *in c.* 8. *Isaiah*, who speaks of it on the Report of the *Nazareans*, without having examined it.

The Austerities of the *Pharisees* are almost incredible. They fasted the second and fifth Day of the Week, and abstain'd from the Use of Wine, and of all that had Life. They used to put Thorns at the Bottom of their Gowns, that in walking they should prick their Legs. They laid on Boards two or three Feet broad, on which they put small Stones to hinder them from sleeping long. They wore very hard Belts or Girdles; and mutilated themselves to keep Continence.

It is true, that all these Mortifications were not practised, either by all, or always. They not only paid the Tenth, they were obliged to by the Law of God; but paid besides the Thirtieth, and Fiftieth of all their Fruits. They acquitted themselves exactly of all the Sacrifices commanded by the Law; and added to them several voluntary ones. Their Assiduity to Prayers was also marvellous; but their excessive Pride and Supineness, corrupted all those good Actions, for they had no other View than to gain thereby the Reputation of Saints, and render themselves Masters of the Minds of the People, who are always easier excited to Admiration and Respect, by an outward Appearance of Piety and Mortification, than by a solid Virtue.

In fact, they had acquir'd such an Authority, says *Josephus*, *lib.* 17. *de antiquit. c.* 3. that the last Kings of *Judea* were afraid to disoblige them, and were often obliged to make Use of the Ministry of the *Pharisees* to maintain themselves. They always requir'd the first Place in the publick Feasts and Assemblies. It was offending them mortally, to refuse to hear them as infallible Masters. They had nothing else in their Mouths but the Law of God, which they had entirely corrupted by their Traditions; and made use of its Authority only to disguise their Ambition and Avarice, which were like the two Poles on which turn'd round all the Actions of their Life.

For their Doctrine, at least in the latter Days, it was mixed with strange Errors; they attributed all Things to Destiny, though they endeavour'd to reconcile it with the Freedom of the Actions of the human Will. They believed, with *Pythagoras*, the Transmigration of Souls; though they admitted it only for those of a religious Life. — In the judiciary Astrology they followed all the Dreams of the *Gentiles*. St. *Epiphanius* observes, that they had changed all *Greek* Terms of that Art into *Hebrew*.

The SADDUCEES boasted of being descended from *Sadoc*; but St. *Epiphanius* will have them to have taken their Rise from one *Dositheus*, a *Samaritan* Sectary; and *Tertullian* is of the same Opinion. St. *Jerom*, and other Authors add, that the *Sadducees* came near the *Samaritans* in many Things; particularly in this, that they allowed no Books of Scripture, but the five Books of *Moses*. Father *Serrarius*, a Jesuit, has also embraced this Opinion, as seeming to be supported by the Authority of *Josephus*. But *Josephus* says only this, that they admitted all that was written, *i. e.* all the Books of Scripture; intimating hereby, that they disowned the unwritten Traditions of the *Pharisees*. In effect, St. *Epiphanius* is forced to own, that the *Sadducees* were *Jews*, not *Samaritans*; inasmuch as they assisted at the Worship and Sacrifices of the Temple at *Jerusalem*; whereas the *Samaritans* sacrificed on Mount *Gerizim*.

The *Sadducees* denied the Existence of spiritual Substances, the Immortality of the Soul, and the Resurrection of the Bodies. They observed the Precepts of the Law to enjoy the temporal Advantages it promised; and to avoid the Punishments it ordered against the Transgressors. They rejected Fatality or Fate, granting to Free-Will an absolute Power to do Good. Their Number was but small; but their Quality made amends for it: For *Josephus* says, that the Persons the most remarkable, either for their Wit or their Rank, professed that Doctrine. There was be-

tween

tween them and the *Pharisees* an irreconcileable War. But if in their Dogma's the *Sadducees* were more impious than the *Pharisees*; at least they had not so much Pride, nor so much Hypocrisy in their Manners; and did not shew themselves so cruel Enemies of *Jesus Christ*.

The ESSENIANS are thought by some to have been among the *Jews*, what the most austere Monks are, or were, among *Christians*.

In effect, the *Essenians* seem to have been true *Pythagorean* Philosophers, in every Thing that related to their Manner of living. For they greatly affected Solitude and Retirement, and avoided all Conversation with Women, to devote themselves more entirely to the contemplative Life. *Pliny*, in his natural History, says of them, that living in a perfect Continence, and their Number but of those whom the Calamities of this Life obliged to embrace their Sect, formed an eternal Multitude.

Philo divided them into two Branches or Sects; the one who married, and the other who lived in Celibacy. *Josephus* seems likewise to have taken Notice of these two Sorts of *Essenians*; and also *Serrarius*, who has wrote very amply on the Subject. The first are those whom he calls *Practici*, and who lived in Community: The second those called *Theoretici*, who lived in Solitude, and led a Life of pure Contemplation. He adds, that *Josephus* only makes mention of the first; passing untouched over the contemplative Kind, whom *Philo* calls *Therapeutæ*, and who were principally found in *Egypt*.

Grotius will have the *Essenians* the same with the antient *Hasidim* or *Hasidei*, thus called, according to *Philo*, from their singular Piety, Humility, and Devotion. Among these, *Gale* observes, it was that the *Hebrew* Philosophy chiefly flourished.

Porphiry is very prolix in his Praises of the *Essenians*. He represents them as Despisers of Pleasure, Riches, Glory, and Delicacy, and strenuous Retainers to Continency, Austerity, Study, *&c.* He adds, they decline Marriage, and adapt and educate other People's Children in Religion, and Philosophy: They are all on a Level, hold every Thing in common, neither buy nor sell, *&c.* By long Habit they arrived at such a Degree of Patience, that *Porphiry* assures us, Flames and Tortures had not the least Effect on them. They scorned to intreat their Torturers; nor ever shed a Tear; but would smile under their Agonies, *&c.* As to their Learning, *Philo*, in his Treatise, that *every good Man is free*, tells us, that they despised Logick, as useless to the acquiring of Virtue: Physick they left to the Sophists and Disputers, as judging it to transcend the human Faculties; and applied themselves wholly to Morality.

Eusebius holds, that the *Esseni* called *Therapeutæ*, were real *Christians*, or *Jews* converted by St. *Mark*. In effect, St. *Jerom* says, that in the Time of that Apostle, the Faithful lived, as the Monks since have endeavour'd to live, in a perfect Community of Goods, which was the Cause that among them no Body could call himself neither poor nor rich.

But let it be how it will of these different Sentiments on the *Essenians*, what surprizes me most is, that before *Pliny*, the Authors who have spoke of those who professed excellent Morals, have said nothing at all of those *Essenians*, who should have been as much known then as the *Brachmans* and the *Gymnosophistes*, whom they mention. *Josephus* speaks of them but in the Reign of old *Herod*; and Cardinal *Baronius* is surprized that in the Gospel they are not mentioned with the *Pharisees*, *Sadducees*, and *Herodians*. I am of Opinion, that it may be easily answer'd, that this Sect of the *Essenians*, according to the Testimony of St. *Epiphanius*, was one of the four which had Course among the *Samaritans*, with whom the *Jews* had no Commerce; so that as no *Pharisees* were found in *Samaria*, it is not surprizing if there was no *Essenians* in *Jerusalem*.

Besides these three principal Sects, there were others in *Judea* of less Note; particularly that of the SAMARITANS, which was an antient Sect among the *Jews*, still subsisting in some Part of the *Levant* under the same Name. Its Origin was in the Time of *Reboboam*; under whose Reign a Division was made of the People of *Israel*, into two distinct Kingdoms; one of these Kingdoms, called *Judea*, consisted of such as adhered to *Reboboam*, and the House of *David*; the other retain'd the antient Name of *Israelites*, under the Command of *Jeroboam*. — The Capital of the State of those latter, was *Samaria*; and hence it was they were denominated *Samaritans*.

Salmanassar, King of *Assyria*, having conquer'd *Samaria*, led the whole People Captive into the remotest Parts of his Empire, and filled their Place with Colonies of *Babylonians*, *Cutheans*, and other Idolaters. These finding themselves daily destroy'd by wild Beasts, desir'd an *Israelitish* Priest to instruct them in the antient Laws and Customs of the Land they inhabited. This was granted them; and they thenceforth ceased to be incommoded by any Beasts. However, with the Law of *Moses* they still retain'd somewhat of their antient Idolatry. The Rabbins say, they adored the Figure of a Dove on Mount *Gerizim*.

The *Samaritans* did not sacrifice in the Temple of *Jerusalem*, and had no Communication with the *Jews* for the Ceremonies of the Law. They denied the Resurrection of the Dead, and of all the canonical Scriptures, received but the five Books of *Moses*. — They were divided into four Branches, *Essenians*, *Sabeans*, *Gorthænians*, and *Dosithæans*; and had all something different, either for the Solemnity of their Feasts, or the Use of Meats. The last abstain'd from the Use of all Things animated for their Food; and observed so superstitiously the Sabbath, that they remained in the same Place and the same Posture where that Day surprized them, without moving till the next Day. They never married but once, and several kept Celibacy during their whole Life. *Dositheus* their Founder, having been refused among the *Jews* the Rank he pretended to, sided with the *Samaritans*, consider'd by them as Hereticks. But being unwilling yet to embrace their Sect, he invented a new one. To give it more Authority, he retired into a Cave, where, by an Abstinence too long continued, he kill'd himself in a Manner equally ridiculous and impious.

The *Sabeans* had changed the Time order'd by the Law of God, for the Celebration of the principal Solemnities of the Passover, of the Pentecost, and of the Tabernacles; for they celebrated the first at the Beginning of Autumn, the second towards the latter End of the same Season, and the last in the Month of *March*.

As for the modern *Samaritans*, some among the most learned of the *Jew* Doctors own, that they observe the Law of *Moses*, more rigidly than the *Jews* themselves. They have a *Hebrew* Copy of the Pentateuch, differing in some Respects from that of the *Jews*, and wrote in different Characters, commonly called *Samaritan Characters*; which *Origen*, St. *Jerom*, and other Fathers and Criticks, antient and modern, take to be the primitive Character of the antient *Hebrews*; tho' others maintain the contrary. The Point of Preference, as to Purity, Antiquity, *&c.* of the two Pentateuchs, is also disputed by the modern Criticks.

The *Samaritans* are now few in Number; tho' it is not very long, since they pretended to have Priests, descended directly from *Abraham*. They were chiefly found at *Gaza*, *Neapolis* (the antient *Sichem*) *Damascus*, *Cairo*, &c. They had a Temple or Chapel on Mount *Gerizim*, where they performed their Sacrifices.

Joseph Scaliger being curious to know their Usage, wrote to the *Samaritans* of *Egypt*, and to the High Priest of the whole Sect, who resided at *Neapolis*. They returned two Answers to *Scaliger*, dated in the Year 998, of the Hegira of *Mahomet*. These Answers never came to the Hands of *Scaliger*. They are now in the King of *France*'s Library, and have been translated into *Latin* by Father *Morin*, Priest of the Oratory; and printed in the Collection of Letters of that Father in *England*, 1682, under the Title of *Antiquitates Ecclesiæ Orientalis*.

In the first of these Answers, wrote in the Name of the Assembly of *Israel* in *Egypt*, they declare that they celebrate the Passover every Year, on the fourteenth Day of the first Month, on Mount *Gerizim*; and that he who then

then did the Office of High Priest, was called *Eleazar*, a Descendant of *Phineas*, Son of *Aaron*. — At present they have no High Priest.

In the second Answer, which is in the Name of the High Priest *Eleazar*, and the Synagogue of *Sichem*, they declare that they keep the Sabbath in all the Rigour wherewith it is enjoin'd in the Book of *Exodus*; none of them stirring out of Doors, but to the Synagogue. They add, that on that Night they do not lie with their Wives; that they begin the Feast of the Passover with the Sacrifice appointed for that Purpose in *Exodus*; that they sacrifice no where else but on Mount *Gerizim*; that they observe the Feasts of Harvest, the Expiation, the Tabernacles, *&c.* They add further, that they never defer Circumcision beyond the eighth Day; never marry their Nieces, as the *Jews* do; have but one Wife; and in fine do nothing but what is commanded in the Law: Whereas the *Jews* frequently abandon the Law to follow the Inventions of their Rabbins.

At the Time when they wrote to *Scaliger*, they reckon'd 122 High Priests; affirm'd that the *Jews* had no High Priests of the Race of *Phineas*; and that the *Jews* belied them in calling them *Cutheans*, whereof they are descended from the Tribe of *Joseph* by *Ephraim*.

The Truth is, the *Jews* impose Abundance of Things on the *Samaritans*. They frequently confound them with the *Sadducees*, as if they were infected with their Errors. Rabbi *Benjamin*, who lived in the 12th Century, confirms the best Part of what we have said of the *Samaritans*: He observes, they had Priests of the Tribe of *Aaron*, and who never married with any but those of the same Tribe: That they sacrificed on Mount *Gerizim*, where they had an Altar of Stones, raised by the *Israelites* after passing over *Jordan*. He adds, that they are of the Tribe of *Ephraim*; that they change their Habit to go to the Synagogue, and wash e'er they put it on.

The NAZAREANS made also a Sect a-part, and were different from the other *Jews* either for the Sacrifices, or for the canonical Books, or for the Use of Meats, abstaining from all Animals, as reputing them unclean.

The *Herodians* bore that Name, because, according to some, they said that the old *Herod* was the *Messiah* promised by the Prophets, because the Scepter had failed in the House of *Judah*, when he came to the Crown. For my Part, I am rather of Opinion, that they were Persons entirely in *Herod*'s Interest, and his Partisans, who with him defended the Tributes, imposed upon the *Jews* by the *Romans*, against the *Galileans*, who maintained that it was not agreeable to the Law of *Moses* to pay them.

The HEMEROBAPTISTS were *Jew* Sectaries, who baptized themselves every Day, and at all Seasons of the Year; making Holiness consist in daily Ablutions. They followed the Opinions of the *Pharisees*, except that with the *Sadducees* they denied the Resurrection of the Dead. Mention is made of them in the Gospel of St. *Mark*, though they are not named. It is they who reproach our Lord, that his Disciples did not wash their Hands, before they took their Refection. Which was the Cause that he reproached them that they were religious Observers of that Sort of Superstition, and neglected God's Commandments.

At present there are but two Sects among the *Jews*, *viz.* the *Caraites* and the *Rabbinists*.

The CARAITES, is a Sect among the *Jews*, who admit of no Rules of Religion, but the Law written by *Moses*, exclusive of all Allegories, Traditions, and the like.

Leo of *Modena*, a Rabbin of *Venice*, observes, that of all the Heresies among that People, before the Destruction of the Temple, there is now none left but that of *Carraim*, a Name derived from *Micra*, which signifies the pure Text of the Bible; because of their keeping to the Pentateuch, observing it to the Letter, and rejecting all Interpretations, Paraphrases, and Constitutions of the Rabbins.

Aben Ezra, and some other Rabbins, treat the *Caraites* as *Sadducees*, but *Leo de Juda* calls them more accurately *Sadducees Reform'd*; in Regard they believe the Immortality of the Soul, Paradise, Hell, Resurrection, which the antient *Sadducees* denied. He adds, however, that they were doubtless originally real *Sadducees*, and sprung from among them.

M. *Simon*, with more Probability, supposes them to have risen hence, that the more knowing among the *Jews* opposing the Dreams and Reveries of the Rabbins, and using the pure Text of the Scripture to refute their groundless Traditions, they had the Name *Carraim* given them; which signifies as much as the barbarous Latin *Scripturarii*, i. e. People attached to the Text of the Scripture. The other *Jews* give them the odious Name *Sadducees*, from their Agreement with those Sectaries on the Head of Traditions.

Scaliger, *Vossius*, and *Spanheim*, rank the *Caraites* among the *Sabeans*, *Magi*, *Manichees*, and *Mussulmen*, but by Mistake: *Wolfgang*, *Fabricius*, &c. say, the *Sadducees* and *Esseni* were called *Caraites*, in Opposition to the *Pharisees*: Others take them for the Doctors of the Law, so often mention'd in the Gospel; but these are all Conjectures. *Josephus* and *Philo* make no Mention of them; which shews them to be more modern than any of those Authors. In all Probability this Sect was not form'd, till after the Collection of the second Part of the *Talmud*, or the *Gemara*; perhaps not till the compiling the *Mischna* in the third Century. — The *Caraites* themselves pretend to be the Remainder of the ten Tribes led Captive by *Salmanassar*.

Wolfius, from the *Memoirs of Mardocheus*, a *Caraite*, refers their Origin to a Massacre among the *Jewish* Doctors, under *Alexander Jannæus* their King, about one hundred Years before Christ: For *Simeon*, Son of *Schetach*, and the Queen's Brother, making his Escape into *Egypt*, there forged his pretended Traditions; and at his Return to *Jerusalem*, published his Visions; interpolating the Law after his own Fancy, and supporting his Novelties on the Notices which God he said had communicated by the Mouth of *Moses*, whose Depositary he was: He gained many Followers; and was opposed by others, who maintain'd, that all which God had reveal'd to *Moses* was written. Hence the *Jews* became divided into two Sects, the *Caraites* and the *Traditionaries*: Among the first, *Juda*, Son of *Tebbai*, distinguished himself; among the latter, *Hillel*. *Wolfius* reckons not only the *Sadducees*, but also the Scribes, in the Number of *Caraites*. But the Address of the *Pharisees* prevailed against them all; and the Number of *Caraites* decreased: *Anan* indeed, in the eighth Century, retrieved their Credit a little, and Rabbi *Schalmon* in the ninth. Matters went pretty well with them till the fourteenth, but since that Time they have been on the declining Hand.

The *Caraites* are but little known; their Works coming only into very few Hands, even among the greatest *Hebraists*. *Buxtorf* never saw more than one; *Selden* two; Mr. *Trigland* says, he has recovered enough to speak of them with Assurance; he asserts, that soon after the Prophets had ceased, the *Jews* became divided on the Subject of Works and Superrerogation; some maintaining their Necessity from Tradition; whilst others keeping close to the written Law, set them aside; and it was from these last, that *Caraitism* commenced. He adds, that after the Return from the *Babylonish* Captivity, the Observation of the Law being to be re-established, there were several Practices found proper for that End; and these once introduced, were looked upon as essential, and appointed by *Moses*; which was the Origin of *Pharisaism*; as a contrary Party, continuing to keep close to the Letter, founded *Caraitism*.

The modern *Caraites*, *Leo* of *Modena* observes, have their Synagogues and Ceremonies; pretending to be the sole proper *Jews*, or Observers of the Law of *Moses*; calling the rest by the Term *Rabbanim*, or *Followers of Rabbins*. These hate the *Caraites* mortally, refusing to ally, or even converse with them, and treating them as *Mamzerim* or Bastards; because of their rejecting the Constitutions of the Rabbins, relating to Marriages, Repudiations, Purifications of Women, *&c.* This Aversion is so great, that if a *Caraite* would become a Rabbinist, he should never be received by the other *Jews*.

The

The *Caraites* however do not absolutely reject all Kind of Traditions, but only such as do not appear well grounded. *Selden*, who is very express on this Point, in his *Uxor Hebraica*, observes, that besides the mere Text, they have certain Interpretations which they call *Hereditary*, and which are proper Traditions. Their Theology only seems to differ from that of the other *Jews*, in that it is purer and clearer of Superstition: They give no Credit to the Explications of the *Cabbalists*, chimerical Allegories, nor to any Constitutions of the *Talmud*, but what are conformable to the Scripture, and may be drawn from it by just and necessary Consequences: Of these we shall give three notable Instances.

The first relating to the *Mezouzot*, or Parchments, which the *Jews* tie at all the Gates thro' which they use to pass. The second regarding the *Thephillin*, or Philacteries, mention'd in the New Testament; and the third the Prohibition of eating Milk, with Flesh. The two first the *Jews* pretend are formally ordain'd in *Deuteronomy*, where it is said, *Thou shalt bind them as a Sign on thy Hands, and they shall serve thee as Frontlets* (Head-stalls) *between thy Eyes; thou shalt write them on the Posts of thy House.* The *Caraite Aaron*, in his Comment on these Words, maintains, that they are not to be taken literally, as the Rabbins do, but figuratively; as intimating, that the *Jews*, whether entring or going out, should be always mindful of them. For the *Thephillin*, the *Caraites* rally the Rabbinists on their praying with their Philacteries, or Tongues of Leather fasten'd to their Forehead, comparing them to bridled Asses. This Passage the *Caraites* interpret figuratively; and in their Interpretation agree with St. *Jerom*, who takes Notice of the Delusion of the *Parisees*, *In writing the Decalogue on Parchment, rolling it up, and tying it to their Forehead with Thongs, to have it always before their Eyes.* For the third Point, the Rabbins say it is commanded in that Text, *Thou shalt not seethe a Kid in his Mother's Milk*; but the *Caraites* get clear of it by explaining this Passage by another, *Thou shalt not kill the Mother when with Young*; which is natural. Nor have the *Jews* any Thing to object against this Interpretation, but its being that of their Doctors. Thus the *Caraites* exempt themselves from an infinite Number of Ceremonies and Superstitions, which the Rabbins have established among the *Jews*.

Yet in many Things they retain all the Superstitions of the Rabbins. *Shupart*, in his Treatise *De Secta Carraeorum*, treating of their Dogma's, observes, that they are in all Respects as precise and ceremonious as the most rigid Traditionary, in what relates to the Observation of the Sabbath, Passover, Feast of Attonement, of Tabernacles, *&c.* That they observe Prayers and Fastings; and wear the *Zitzit*, or Pieces of Fringe, on the Corners of their Garments. They hold that all Sin is effaced by Repentance; in which they differ from the Rabbins, who hold that some are only effaced by Death. As for Circumcisions, they do not believe it necessary, with the Traditionaries, that there be Blood shed; add that when a Child dies before he be eight Days old, the Rabbinists circumcise him after he is dead, that he may not appear uncircumcised at the Resurrection; whereas the *Caraites*, when they perceive the Child in Danger, chuse rather to circumcise him ere the eighth Day. In Matter of Divorce the *Caraites* agree with the other *Jews*; and observe the same Rules and Restrictions in the killing and dressing of Beasts; but differ from them in the Kind of legal Impurities and Pollutions.

Pocoger observes of the *Caraites* in *Lithuania*; that they are very different, both in Aspect, Language, and Manners, from the Rabbinists, wherewith their Country abounds. Their Mother Tongue is the *Turkish*; and this they use in their Schools and Synagogues. In Visage they resemble the *Mahometan Tartars*. Their Synagogues are placed North and South; and the Reason they give for it is, that *Salmanassar* brought them Northward. So that in praying, to look to *Jerusalem*, they must turn to the South. He adds, that they admit all the Books of the Old Testament; contrary to the Opinion of many of the Learned, who hold, that they reject all but the Pentatench.

Caleb, a *Caraite*, reduces all the Differences between them and the Rabbinists to three Points. 1. In that they deny the oral Law to come from *Moses*, and reject the *Cabbala*. 2. In that they abhor the *Talmud*. 3. In that they observe the Feasts, as the Sabbaths, *&c.* much more rigorously than the Rabbins do. To this may be added, that they extend the Degrees of Affinity, wherein Marriage is prohibited, almost to Infinity.

There are still some *Caraites* subsisting in *Poland*, *Russia*, *Constantinople*, and other Places of the *Levant*.

The Rabbinists, who beside the Text of the Scripture, received the Traditions of the Antients and follow the *Talmud*.

Note, That the *Talmud* is a Compilation of Expositions of the Duties imposed on the *Jews*, either in Scripture or by Tradition, or by Authority of their Doctors, or by Custom, or even by Superstition; to speak more plainly still, it is the Course of Cases of Conscience, or of moral Theology, wherein the Duties are explained, and the Doubts cleared, not by Reasoning, but generally by Authority, by the Custom of the Nation, and by the Decisions of the most approved of the antient Doctors.

The *Talmud* consists of two general Parts: The one called *Mischna*, and the other *Gemara*. — The *Mischna* contains the Text; and the *Gemara* contains the Commentaries; so that the *Gemara* is, as it were, a Glossary on the *Mischna*; which *Mischna* consists of various Traditions of the *Jews*, and of Explanations of several Passages of Scripture. The *Jews* maintain, that it was compleated, and reduced into a Body, by Rabbi *Juda*, in the second Century, to prevent the Memory of their Traditions from perishing. But the Generality of the Learned, scarce allow it of such Antiquity; and bring it several Centuries lower.

The *Gemara* (of the *Chaldee* גמר *Gemar*, or *Ghemar*, to finish, perfect, or compleat any Thing) is usually called simply *Talmud*. In this Sense we say there are two *Gemara's* or *Talmuds*; that of *Jerusalem*, and that of *Babylon*; though in Strictness, the *Gemara*, as we have already observed, is only an Explication of the *Mischna*, given by the *Jewish* Doctors in their Schools; much as the Commentaries of our School Divines on St. *Thomas*, or the Master of the Sentences, are an Explication of the Writings of those Authors.

A Commentary, M. *Tillemont* observes, was wrote on the *Mischna*, by one *Jochanan*, whom the *Jews* place about the End of the second Century: But Father *Morin* proves from the Work itself, wherein Mention is made of the *Turks*, that it was not wrote till the Time of *Heraclius*, about the Year 620: And this is what is called the *Gemara*, or *Talmud* of *Jerusalem*, which the *Jews* do not use or esteem much, by Reason of its Obscurity. They set a much greater Value on the *Gemara* or *Talmud of Babylon*, began by one *Asa*; discontinued for 73 Years, on Occasion of the Wars with the *Saracens* and *Persians*, and finished by one *Josa*, about the Close of the seventh Century.

Though the Name *Talmud*, in its Latitude, includes both the *Mischna* and the two *Gemara's*; yet is it properly that of *Asa* and *Josa* alone, which is meant under that Name. — This the *Jews* prize above all their other Writings, and even set it on a Level with Scripture itself. In effect they conceive it as the Word of God, derived by Tradition from *Moses* and preserved without Interruption to their Time. — Rabbi *Jehuda*, and afterwards R. *Jochanan*, R. *Asa*, and R. *Josa*, fearing the Traditions should be lost in the Dispersion of the *Jews*, collected them into the *Mischna* and *Gemara*. We find the *Gemara* stuffed with Dreams and Chimera's; a deal of Ignorance, and a World of impertinent Questions and Disputations; the Style very coarse.

Rabbi Moses, Son of *Maiemon*, has made an Abridgment of the *Talmud*, which *Scaliger* prefers to the *Talmud* itself; as being purged of many of the Fables wherewith the other is full. It is a System of the Laws and Customs of the *Jews*, both their civil and the common Law, and the best of their Traditions.

About the Year 1236, a *Jew* of *Rochel* in *France*, well versed in the *Hebrew*, becoming a Christian, made

made a Journey to Pope *Gregory* IX. and discovered to him a Number of Errors in the *Talmud*: These the Pope sends in 39 Articles to the Archbishops of *France*, with a Letter appointing them to seize the Books of the *Jews*; and to burn all such as should contain those Errors, in Consequence of which Order, about twenty Cart-loads of those *Hebrew* Books were burnt. He wrote to the same Effect to the Kings of *France*, *England*, *Arragon*, *Castile*, &c. His Successor *Innocent* IV. giving Commission to his Legate *Eudes de Chateauroux* to examine the *Talmud*, and other *Jewish* Books more carefully, and to tolerate such Errors as were not contrary to the Christian Religion; the Legate wrote to the Pope, that to tolerate them was to approve them; and the 15th of *May*, 1248, he condemned them juridically to the Flames.

The *Rabbinists* are divided into two other Sects, *viz.* pure *Rabbinists*, who explain the Scripture in its natural Sense by Grammar, History, and Tradition; and *Cabbalists*, who to discover hidden mystical Senses, which they suppose God to have couched therein, make use of the *Cabbala*.

Note, That the *Cabbala*, *Cabala*, *Kabbala*, *Kabala*, *Cabalistica*, &c. (in *Hebrew* קבלה *Kabbalach*, from the Verb קבל *Kibel*, to receive by Tradition, or from Father to Son) is a mysterious Kind of Science, delivered by Revelation to the ancient *Jews*, and transmitted by oral Tradition to our Times; serving for Interpretation of the Books both of Nature and Scripture.

Cabbala then primarily denotes any Sentiment, Opinion, Usage, or Explication of the Scripture transmitted from Father to Son; in which Sense the Word *Cabbala* is not only applied to the whole Art, but also to each Operation performed according to the Rules of that Art. Thus it is, *Rabbin Jac. Ben Ascher*, sirnamed *Baal Hatturim*, is said to have compiled most of the *Cabbala's* invented on the Books of *Moses* before his Time.

As to the Origin of the *Cabbala*, the *Jews* believe, that God gave to *Moses* on Mount *Sinai*, not only the Law, but also the Explication of that Law; and that *Moses* after his coming down, retiring to his Tent, rehearsed to *Aaron* both the one and the other. When he had done, *Aaron* standing on the Right-Hand, his Sons *Eleazer* and *Ithamar*, were introduced to a second Rehearsal: This over, the 70 Elders that composed the Sanhedrim were admitted; and lastly, the People, as many as pleased: To all which *Moses* again repeated both the Law and Explication, as he received them from God. So that *Aaron* heard it four Times, his Sons thrice, the Elders twice, and the People once. Now of the two Things which *Moses* taught them, the Law and the Explanation, only the first was committed to Writing, which is what we have in *Exodus*, *Leviticus*, and *Numbers*; as to the second, or the Explication of those Laws, they were contented to impress it well in their Memory to teach it their Children, they to theirs, &c. Hence the first Part they call simply the Law, or the written Law; the second, the oral Law or *Cabbala*.

Some Rabbins however, pretend their Fathers received the *Cabbala* from the Prophets, who received it from the Angels. *Rabbi Abr. Ben Dior* says expresly, that the Angel *Raziel* was *Adam*'s Master, and taught him the *Cabbala*, that *Japhiel* was *Shem*'s Master; *Tsedekiel*, *Abraham*'s; *Raphael*, *Isaac*'s; *Pelial*, *Jacob*'s; *Gabriel*, *Joseph*'s; *Meratron*, *Moses*'s; *Malathiel*, *Elias*'s, &c.

Among these Explications of the Law, which in Reality are little else but the several Interpretations and Decisions of the Rabbins on the Law of *Moses*: Some are mystical, consisting of odd abstruse Significations given to a Word, or even to the Letters whereof it is composed: Whence by different Combinations, they draw Meanings from Scripture very different from those it seems naturally to import. The Art of interpreting Scripture after this Manner, is called more particularly *Cabbala*; and 'tis in this last Sense the Word is more ordinarily used among us.

This *Cabbala*, called also *artificial Cabbala* (to distinguish it from the first Kind, or simple Tradition) is divided into three Sorts, *viz. Gematria*, *Notaricon*, and *Themurah*.

GEMATRIA, is a geometrical or arithmetical Method of explaining Words, whereof there are two Kinds: The first bearing a more immediate Relation to Arithmetick; and the latter to Geometry.

The first consists in taking the numerical Value of each Letter in a Word or Phrase; and giving it the Sense of some other Word, whose numerical Letters, taken in the same Manner, make the same Sum. For it is to be observed that neither the *Hebrews* nor *Greeks* have any other numerical Figures, besides the Letters of the Alphabet.

Thus a *Cabbalist* taking the two first Words in *Genesis*, בראשית ברא, and by Addition getting the Sum total of all the Numbers, signified by those Letters, find that these two Words signify the same as those other three, בראש : תשגה גברא for as to the first; ב, 2; ר, 200; א, 1; ש, 300; י, 10; ת, 400; ב, 2; ר, 200; and א, 1; which together make 1116. And as to the latter, ב, signifies 2; ר, 200; א, 1; ש, 300; ה, 5; ג, 50; ש, 300; ה, 5; ג, 50; ב, 2; ר, 200; and א, 1: which summed up, yield the same Number 1116.

Whence the *Cabbalists* conclude, בראשית ברא, *in the Beginning he created*: signifies the same Thing as תשגה גברא בראש, *it was created at the Beginning of the Year*; and accordingly the received Opinion of the *Cabbalists*, is, that the World was created at the Beginning of the Month *Thisri*, which was antiently the first Month in the Year; and answers to our first Month in Autumn, *viz. September*.

So again in the Prophecy of *Jacob*, *Gen.* xlix. 10. the Words יבא שלה are understood of the Messiah; by Reason they make the same Number with משיח, which signifies the *Messiah*.

The second Kind of *Gematria* is much more obscure and difficult, and accordingly less *used*; *it* is employed in seeking for abstruse and hidden Interpretations in the Dimensions and Parts of the Buildings mentioned in Scripture, by dividing, multiplying, &c. those Measures by each other. Of this we shall give an Example from some Christian Cabbalists.

The Scripture says, that *Noah*'s Ark was 300 Cubits long, 50 wide, and 30 high: Now the *Cabbalist* takes the Length for the Basis of his Operations; 300 in the *Hebrew* is expressed by the Letter ש; which Length divided by the Height 30, gives the Quotient 10, the *Hebrew* Character whereof is י, to be placed on the right Side of ש. He then divides the same Length by the Width 50; the Quotient whereof 6, is expressed by a ו; which being placed on the left Side of ש makes, together with the other two Letters, the Name JESUS ישוע. Thus by the Rules of the *Cabbala* it appears that there is no Salvation, but in *Jesus Christ*; as at the Deluge no Person was saved but those in the Ark.

After the same Manner is the same Name ישוע, in the Dimensions of *Solomon*'s Temple. But it is rather an Injury than an Advantage to the Christian Religion, to support it by such frivolous Evidences.

NOTARICON, according to Rabbi *Nathan*, in his great *Aruch*, is when a single Letter is taken for Sign of a Thing, *i. e.* for a whole Name. He adds, that the Word comes from the Latin *Notarius*, a Person who writes in Notes, or Short-hand. And R. *Elias Levita* gives the same Account in his *Thesbites*, except that in lieu of one Letter for a Word, he mentions two or three.

But after all neither the one nor the other seems alone sufficient; for as a single Letter frequently makes a Word, so in the *Notaricon*, a whole Word sometimes stands for a single Letter.

There are therefore two principal Kinds of *Notaricon*; the first is, when by Apharesis or Apocope, the first or last Letters of several Words are joined to make a single Word or Phrase; which therefore is of two Kinds, the one initial, the other final; and each is done several Ways, *viz.* either by taking the Letters the common Way, or backwards; though there is also a third Kind made, as the Rabbins call it, by Leaps, *i. e.* by skipping over some Letters.

first of these Kinds, which the Rabbins call *Rasche Theboth*, appears very antient; and is supposed by some, well versed in the *Hebrew*, to have taken its Origin from the *Psalms*, and other Places of the Scripture, proceeding alphabetically, *i. e.* the first Verse beginning with א, the first Letter of the Alphabet; the second with ב, the second Letter, *&c.*

The second Kind is also very common, and called *Sophe Theboth*, i. e. the End of Words. For Instance, by telling the last Letters of the Words, מה שמן מהרי, *mihi quodnam nomen est, quodnam?* they find the Name of God, *Jehovah*. This becomes still more puerile, when they take the Letters backwards.

The third Kind is more modern, more gross, and perplexed: Here a Letter gives a whole Word, instead of a Word only giving a Letter; so that a Word shall furnish a whole Phrase. Thus for an Example is the first Word of *Genesis*, בראשית, *Bereschit*, is found, he created the Heaven and the Earth, the Sea, the Abyss, *&c.*

The fourth Kind of *Cabbala*, called THEMURAH, *q. d.* changing, consists in changing, and transposing the Letters of a Word; which is done various Ways. 1. By separating them, and thus, *v. g.* from *Bereschit*, i. e. *in principio*, they make בראשית, i. e. *posuit fundamentum*; just as in playing with Words, we sometimes separate *sum-mus*, *ter-minus*, *sus-tinea-mus*. 2. By transposing the Letters, and ranging them in a different Manner; thus from the same Word *Bereschit*, they make *a-betisery*, the first of *Tizri*; and because this is taken from the first Word in the History of the Creation of the World, they thence conclude, the World was created on the first Day of the Month *Tizri*. 3. By taking one Letter for another, with Respect to the different Relations they acquire in considering the Alphabet different Ways: Thus dividing the *Hebrew* Alphabet of twenty-two Letters into two Parts, and taking the first of either of these Moieties for the first of the other, the second for the second, *&c.* By this Means of *Tabeal*, an unknown Name mention'd in *Isaiah*, they form *Remla*, the Name of a King of *Israel*. Another Manner of changing the Letters is, by taking the Alphabet two Ways, first in the common Way, then backwards; and changing mutually the two first Letters, then the two second, *&c.* By this Means of לבקמי, *the Hearts of those who rise against me*, they make כשדים, *the Chaldeans*; and thence conclude, that those God here speaks of are *Chaldeans*. These two last Kinds are also called שדוך, Association, Combination.

The *Cabbala*, hitherto spoke of, may be called *speculative Cabbala*, in Opposition to the following, which may be called *practical Cabbala*; and which is applied to the Use, or rather Abuse, which Visionaries and Enthusiasts make of the Text of the Scripture, for discovering Futurity, by the Study and Consideration of the Combination of certain Words, Letters, and Numbers in the sacred Writings. All the Words, Terms, magick Figures, Numbers, Letters, Charms, *&c.* used in the *Jewish* Magick, as also in the hermetical Science, are comprized under this Species of *Cabbala*. But 'tis only the Christians that call it by this Name, on Account of the Resemblance this Art bears to the Explications of the *Jewish Cabbala*; for the *Jews* never use the Word *Cabbala* in any such Sense, but ever with the utmost Respect and Veneration.

There are Visionaries among the *Jews*, who believe, that *Jesus Christ* wrought his Miracles by Virtue of the Mysteries of the *Cabbala*. Some learned Men are of Opinion, that *Pythagoras* and *Plato* learn'd the *Cabbalistical Art* of the *Jews* in *Egypt*; and fancy they see evident Foot-steps thereof in their Philosophy: Others, on the contrary, say it was the Philosophy of *Pythagoras* and *Plato*, that first furnished the *Jews* with the *Cabbala*. Be this as it will, it is certain, that in the first Ages of the Church, most of the Hereticks gave into the vain Notions of the *Cabbala*; particularly the *Gnostics*, *Valentinians*, and *Basilidians*. Hence arose the ΑΒΡΑΞΑΣΑΣ, and the Multitude of Talismans wherewith the Cabinets of the Virtuosi's are stock'd.

It has been observed that *Judaism*, of all other Religions, is that which is the most rarely abjured. In the 18th of *Edward* I. the Parliament granted a fifteenth for the Expulsion of *Judaism*.

In *England*, formerly, the *Jews* and all their Goods belonged to the chief Lord where they lived, and he had such absolute Property over them, that he might sell them; for they had not Liberty to remove to another Lord without Leave. *Matt. Paris* tells us, that *Henry* III. sold the *Jews* to Earl *Richard* his Brother, for a Term of Years, that *Quos Rex excoriaverat comes evisceraret*, i. e. that those the King had only excoriated or fleeced, should be unbowelled by the Earl.

They were distinguished from the Christians both living and dying, for they had proper Judges and Courts wherein their Causes were tried, and they wore a Badge on their Breast over their Cloaths, in Shape of a Table, and were fined if they stirr'd abroad without it. They were never buried in the Country, but brought up to *London*, and interr'd without the Walls. At present the *Jews* in *England* have no other Badges to distinguish them from the Christians than their immense Riches. They enjoy all the Privileges of a Christian Subject, few excepted, only for Form Sake, and which are of little or no Signification. It is true, that they behave with a great deal of Decency, Circumspection, and are very good Subjects; encouraging Commerce, in which most of them are well vers'd.

They have two Synagogues in *London*, one for the *Portuguese*, *Italians*, &c. and the other for the *Dutch Jews*. That of the *Portuguese* is the finest; and their Ceremonies perform'd with a greater Decency.

There are but very few *Jews* in *France*, considering the vast Extent of the Kingdom. They have no Synagogue at *Paris*, and no where else in *France* but at *Metz*.

They enjoy several very great Privileges in the States of the Great Duke of *Tuscany*; and have a very rich Synagogue at *Leghorn*, where, in my Opinion, their divine Service and Ceremonies are performed with more Decency, and a greater Appearance of Piety, than in any other Synagogue I have seen. They told me, that it had been honoured with the Presence of one of the late Kings of *Denmark*, and shewed me a Bible he had kissed through Respect. They have no other Marks of Distinction throughout *Italy*, but a Piece of yellow Tape, which they wear at their Button-Hole, except in the Pope's Dominions, where they wear a yellow Hat. At *Avignon*, where I was 1727, they entertained us once after the Service was over, with a Kind of *Mottet*, or Anthem in Musick, which was prettily executed. For my Part, all those I have conversed with on my Travels, have always behaved with a great deal of good Manners, and Complaisance; and have dealt with me, with all the Honesty and Justice, I could have expected from a Man of the greatest Probity among us Christians.

KEBER.

KEBER (for כפר, *cafbar*, which in the *Chaldee*, *Syriack*, and *Arabick*, signifies to deny) is the Name of a Sect among the *Persians*, who for the Generality are rich Merchants. Though they inhabit the Middle of *Persia*, and are found in great Number in the Suburbs of *Ispahan*, yet it is not known whether or no they are originally *Persians*, as having nothing in common with the other *Persians*, but the Language. They are distinguished by their Beard, which they wear very long, and by their Dress, which is quite different from the rest.

They are, in effect, Heathens, but are in great Reputation

tation for the Regularity of their Lives. Some Authors say they adore Fire, in Imitation of the antient *Persians*; but this is contradicted by others: They believe the Immortality of the Soul, and have something like what the Antients taught of Hell, and the Elysian Fields.

When any of them die, they let loose a Cock in his House, and drive it out into a Field; if a Fox seizes it and bears it off, they make no doubt but the Soul of the Defunct is saved. If this first Experiment does not satisfy them, they have Recourse to a second which is conclusive; they carry the Carcase into the Burying-Ground and prop it against the Wall with a Fork: If the Birds peck out the right Eye, they look on him as one of the Predestinated, and bury him with a great deal of Ceremony, letting him down gently into the Grave; but if the Birds begin with the left Eye, they conclude him a Reprobate, and throw him headlong into a Ditch.

There is another religious Sect in *Persia*, called the *Gebres*, different from the *Keber*, who appeared to have been *Persians* converted to Christianity, and who being afterwards left to themselves, mingled their antient Superstitions with the Truths and Practices of Christianity; and so formed themselves a Religion apart.

The *Gebres* or *Gabres*, pretend they derive their Religion from one *Azer*, a Frank by Nation, and by Profession a Sculptor: This Man coming to *Babylon*, where he then dwelt, married a Maid of the Country, called *Dogdon*; who, after a Visit which she received from the Angel, was filled with a divine Light, and soon afterwards found herself with Child. The Astrologers at the same Time perceiving that the Child would be a great Prophet, and the Founder of a new Religion; *Neabrout* the Prince then reigning, was advised hereof; who gave immediate Orders for all the Women with Child to be put to Death, throughout the Empire. The Order was executed immediately; but the Mother of the future Prophet shewing no Token of Pregnancy, escaped; and was at length happily delivered of a Son called *Ebrahim Zer Atauht*.

After his Birth new Dangers arose; the King being informed thereof, had him brought before him, and drawing his Sabre would have slain him with his own Hand, but his Arm grew motionless upon the Spot. Upon this a huge Fire was lighted, and the Child cast into the same; but he rested therein as on a Bed of Roses. He was afterwards delivered from other Kinds of Death by a Sort of Flies which infested the Kingdom; one whereof entring the King's Ear rendered him frantick, and at length killed him.

Cha-Glochtes his Successor, made the like Attempts on the Child, but was so struck with the Miracles which he saw him work, that he began to adore him, as all the rest of the People already did.

At length, after a great Number of Miracles, the Prophet disappeared. Some held he was translated into Heaven, Body and Soul: Others, that he found an Iron Coffin near *Bagdat*, where shutting himself up, he was carried away by the Angels.

After he was in Possession of Paradise, God sent them, through his Means, seven Books; which contained all the Matters of Religion; and afterwards seven more of the Explanation of Dreams; and lastly, seven of Medicine. *Alexander the Great* burnt the first seven, by reason no Body understood the Language, and kept the other fourteen for his own Use.

After his Death, some of the Priests and Doctors among the *Gabres* retrieved as much as their Memory would allow them of the lost Books; and composed a large Volume still extant among the modern *Gabres*; tho' they understand nothing either of the Words or the Character.

Throughout the whole, we may discern the Marks and Traces of Christianity, though grievously defaced: The Annunciation, the Magi, the Massacre of the Infants, our Saviour's Miracles, *&c.* This Sect is dispersed throughout the whole Empire of *Persia*.

Note, That the *Turks* call the Christians *Gebres*, q. d. Infidels or Heathens, or Gentiles: The Word *Gabre* among the *Turks* having the same Signification as Pagan or Infidel among the Christians; and denoting any Thing not Mahometan..

LAPIDARY.

LAPIDARY, is an Artificer, who cuts precious Stones.

There are various Machines used in the cutting of precious Stones, according to the Quality of the Matter to be cut.

To cut and form a *Diamond*, which is extreamly hard, and for that Reason esteemed the most valuable of all precious Stones, the *Lapidaries* use a Wheel of soft Steel, turned by a Kind of Mill, with Diamond Dust, tempered in Oil of Olives; which serves likewise to polish it.

From the different Manner of cutting them, *Diamonds* borrow their different Appellations of *Roses*, *Brilliants*, *Table*, &c.

To give to a *Diamond* the Form of a Rose, it must be made quite flat underneath, and its upper Part cut into divers little Faces, usually Triangles, the uppermost whereof must terminate in a Point.

A *Brilliant Diamond* is formed by cutting it in Faces both a-top and bottom, making its Table, or principal Face a-top, flat.

The Table *Diamond* is that which has a large square Face a-top.

The *Diamond* being a very hard Stone, the Process in cutting it is longer than that of any other precious Stone. The whole Secret of the Art consists in observing a just Symmetry in the Formation of the Faces, whereby the Lustre of the Stone is more or less heightened; for if they are too large, that Lustre is dull or languishing, and if too small, it is too confuse, and the Stone does not play, by so agreeable a Variety of Colours. It consists likewise in the Polishing, that there should be neither Clouds, Flaws, nor Scratches on the Stone. The Artist is not absolutely obliged to wait assiduously on his Work especially in the cutting of the Stone; for when he has fixed it he may leave it if he pleases, to turn on the Wheel, if his Affairs calls him somewhere else, provided he be there at a due Time to change Sides, and to supply the Wheel with new Diamond-Dust.

Oriental *Rubies*, *Saphires*, and *Topazes* are cut, and formed on a Copper Wheel with Oil of Olive, and Diamond-Dust: They are polished on another Copper Wheel with Tripoly and Water.

Emeralds, *Hyacinths*, *Amethysts*, *Garnets*, *Agats*, and other Stones less hard, are cut on a leaden Wheel with Smalt and Water, and polished on a Tin Wheel with Tripoly.

These Wheels are fixed on a Table, with a Handle to them, by means whereof the Artist turns the Wheel round with his Left-Hand, holding with the Right the Stone upon it, having before besmeared it over with his Composition. The Stone is fixed with Cement, at the End of a Sort of Scewer, that the Artist may easier lay hold of it.

Turquois, of the old and new Rock, *Lapis*, *Girasole*, and *Opal*, are cut and polished on a wooden Wheel with Tripoly.

LAPIDARY, is also used for a Virtuoso skilled in the Nature, Kinds, *&c.* of precious Stones; or a Merchant who deals in them; which Art or Skill being also of a very great Advantage to those who buy Jewels, that they may not be imposed upon by Knaves and Cheats, who but too often deal in those Commodities, deserves being taken Notice of in this Place; therefore I'll begin by Diamonds, and go through all the other precious Stones according to their Excellency,, Value, *&c.*

A rough *Diamond*, muſt be choſen uniform of a good Shape, tranſparent, not quite white, and free of Flaws and Shivers. Black, rugged, dirty, flawey, veiny Stones, and all ſuch as are not fit for cutting, are moſt commonly pounded in a ſteel Mortar for that Purpoſe; and when pulverized they ſerve to ſaw, cut, and poliſh the reſt. Shivers are occaſioned in *Diamonds* by this, that the Miners to get them more eaſily out of the Vein, which winds between two Rocks, break the Rock with huge Iron Leavers, which ſhakes and fills the Stones with Cracks and Shivers.

The Antients had two miſtaken Notions with Regard to the *Diamond*; the firſt, that it became ſoft, by ſteeping it in hot Goat's Blood: And the ſecond, that it is malleable, and bears the Hammer. Experience ſhews the contrary; there being nothing capable of mollifying the Hardneſs of this Stone; though its Hardneſs be not ſuch that it will endure being ſtruck at Pleaſure.

The Goodneſs of *Diamonds* conſiſts in their Water, or Colour, Luſtre and Weight. The moſt perfect Colour, and moſt eſteemed at preſent, is the white. The yellow has been a long while in Vogue, and our Anceſtors eſteemed a black Caſt, which they imagined contributed much to heighten the Luſtre of the Stone.

The Water called *Cæleſtis* is the Worth of all, and yet is ſomewhat difficult to diſcover in a rough *Diamond*. The only infallible Way is to examine it in the Shade of ſome tufted Tree.

In *Europe* the *Lapidaries* examine the Goodneſs of their rough *Diamonds*, their Water, Points, *&c.* by Day light; in the *Indies* they do it by Night; in order to which, a Hole is made in the Wall a Foot ſquare, and therein a Lamp placed with a thick Wick, by the Light whereof they judge of the Stone, holding it in their Fingers.

As to their diſtinguiſhing of *Diamonds* from other Stones, Dr. *Wall* in the *Philoſophical Tranſactions*, ſeems to have found an infallible Method. A *Diamond* with an eaſy ſlight Friction in the Dark, with any ſoft animal Subſtance, as the Finger, Woollen, Silk, *&c.* appears luminous in its whole Body: Nay if you keep rubbing for ſome Time, and then expoſe it to the Eye, it will remain ſo for ſome Time. If the Sun be 18 Degrees below the Horizon, holding up a Piece of Bays, or Flannel ſtretched tight between both Hands, at ſome Diſtance from the Eye; and another rubbing the other Side of the Bays or Flannel pretty briſkly with a *Diamond*, the Light is much more vivid and pleaſant than any other Way. But what Dr. *Wall* judges moſt ſurprizing is, that a *Diamond* being expoſed to the open Air in View of the Sky, gives almoſt the ſame Light of itſelf, without rubbing, as if rubbed in a dark Room: But, if in the open Air you put the Hand, or any Thing a little over it, to prevent its immediate Communication with the Sky; it gives no Light, which is a diſtinguiſhing Criterion of a Diamond.

Diamonds are only found in the *Eaſt-Indies*, and that only in the Kingdom of *Golconda*, *Viſapour*, *Bengal*, and the Iſland of *Borneo*.

There are four Mines, or rather two Mines and two Rivers, whence Diamonds are drawn. The Mines are, 1. That of *Raolconda*, in the Province of *Carnatica*, five Days Journey from *Golconda*, and eight from *Viſapour*: It has been diſcovered about 200 Years. 2. That of *Gani* or *Coulour*, ſeven Days Journey from *Golconda* Eaſtwardly. It was diſcovered 120 Years ago by a Peaſant, who digging in the Ground found a natural Fragment of 25 Carats. 3. That of *Scumelpour*, a large Town in the Kingdom of *Bengal*, near the *Diamond* Mine. This is the moſt antient of them all; it ſhould rather be called that of *Goual*, which is the Name of the River, in the Sand whereof theſe Stones are found. Laſtly, the fourth Mine, or rather the ſecond River, is that of *Saccudan* in the Iſland of *Borneo*.

In the Neighbourhood of the *Diamond-Mine* of *Raolconda*, the Earth is ſandy, and full of Rocks and Copſe. In theſe Rocks are found ſeveral little Veins of half, and ſometimes a whole Inch broad, out of which the Miners with a Kind of hooked Irons, draw the Sand or Earth, wherein the *Diamonds* are, breaking the Rocks when the Vein terminates, that the Track may be found again, and continued. When a ſufficient Quantity of Earth or Sand is drawn forth, they waſh it two or three Times to ſeparate the Stones therefrom. The Miners work quite naked, except for a thin Linnen Cloth before them; and beſides this Precaution, have likewiſe Inſpectors to prevent their concealing of Stones: Which however maugre all this Care, they frequently find Means to do, by watching Opportunities when they are not obſerved, and ſwallowing them down.

In the *Diamond-Mine* of *Gani* or *Coulour*, are found a great Number of Stones from 10 to 40 Carats, and even more; and it was here that famous *Diamond* of *Aureng-Zeb* the Great Mogul, which, before it was cut, weighed 793 Carats, was found. The Stones of this Mine are not very clear; their Water is uſually tinged with the Quality of the Soil, being black where it is marſhy, red where it partakes of red, ſometimes green and yellow, if the Ground happens to be of thoſe Colours. Another Defect of ſome Conſequence is a Kind of Greaſineſs appearing on the *Diamond* when cut, which takes off part of its Luſtre. There are uſually no leſs than 60,000 Perſons, Men, Women and Children at work in this Mine.

When the Miners have found a Place where they intend to dig, they level another ſomewhat bigger in the Neighbourhood thereof, and incloſe it with Walls about two Foot high, only leaving Apertures from Space to Space, to give Paſſage to the Water. After a few ſuperſtitious Ceremonies, and a kind of Feaſt, which the Maſter of the Mine makes the Workmen to encourage them, every one goes to his Buſineſs, the Men digging the Earth in the Place firſt diſcovered, and the Women and Children carrying it off into the other walled Ground. They dig 12 or 14 Feet deep, and till ſuch Time as they find Water: Then they ceaſe digging, and the Water thus found ſerves to waſh the Earth two or three Times, after which it is let out at an Aperture reſerved for that End. This Earth being well waſhed and well dried, they ſift it in a Kind of open Sieve or Riddle, much as we do Corn in *Europe*, then thraſh it and ſift afreſh; and laſtly, ſearch it well with the Hands to find the *Diamonds*. They work naked as in the Mine of *Raolconda*, and are watched after the ſame Manner by Inſpectors.

From the *Diamond-Mine* of *Soumalpour*, or the River *Goual*, are brought our fine Diamond Points or Sparks, called *natural Sparks*. They never begin to ſeek for *Diamonds* in this River till after the great Rains are over, that is, after the Month of *December*, and they uſually even wait till the Water is grown clear, which is not before *January*. The Seaſon at hand 8 or 10,000 Perſons of all Ages and Sexes, come out of *Soumelpour*, and the neighbouring Villages. The moſt experienced among them ſearch and examine the Sand of the River, going up it from *Soumelpour* to the very Mountain whence it ſprings. A great Sign that there are *Diamonds* in it is, the finding of thoſe Stones which we *Europeans* call Thunder-Stones. When all the Sand of the River, which at that Time is very low, has been well examined, they proceed to take up that wherein they judge *Diamonds* likely to be found; which is done after the following Manner: They dam the Place round with Stones, Earth, and Faſcines, and lading out the Water, dig about two Feet deep: The Sand thus got is carried into a Place walled round on the Bank of the River. The reſt is performed after the ſame Manner as at *Coulour*, and the Workmen watched with equal Strictneſs.

We are but little acquainted with the *Diamond-Mine* of the Iſland of *Borneo*, or River of *Succudan*; the Queen who reigns in that Part of the Iſland, not allowing Strangers to have any Commerce in theſe Stones; tho' there are very fine ones to be bought at *Batavia*, brought thither by Stealth. They were antiently imagined to be ſofter than thoſe of the other Mines, but Experience ſhews they are in no Reſpect inferior to them.

Beſides theſe four *Diamond-Mines*, there have been two others diſcover'd; one of them between *Coulour* and *Raolconda*, and the other in the Province of *Carnatica*; but they were both cloſed up almoſt as ſoon as they were diſcovered: That of *Carnatica*, by Reaſon the Water of the *Diamonds* was always either black or yellow; and the other on Account of their cracking and flying in Pieces when cut and ground.

The fineſt *Diamonds* now in the World are that of the Great *Mogul*, weighing 279 Carats; and that of the Great Duke of *Tuſcany*, weighing 139 Carats; and that known in *France*, under the Name of *Grand Sancy*, which is one of the Crown Jewels, weighing 106 Carats, whence its Name *Sancy*, which is a Corruption of *Cent Six*, that is 106.—*Tavernier*, by a Rule which he had made for eſtimating the Value of *Diamonds*, computes that of the Great *Mogul* at 11723278 *French* Livres, equivalent to 779244 Pounds Sterling, and that of the Duke of *Tuſcany*, at 2608335 Livres, or 195374 Pounds Sterling.

The following is a Rate, or Manner of eſtimating the Value of *Diamonds*, drawn up by a Perſon well verſed in ſuch Matters, and which for its Curioſity, as well as the Uſe it may be of to Perſons who deal in *Diamonds*, we judge will not be unacceptable.

Table of DIAMONDS.

DUTCH CUT.

A Diamond *weighing One Grain is worth from,*

Grains.		*lib.*	*Sh.*		*lib.*	*Sh. Ster.*
1	—	1	0	to	1	1
1½	—	1	16	to	1	17
2	—	2	15	to	3	0
2½	—	3	12	to	3	15
3	—	4	15	to	5	0
4	—	7	17	to	8	0
5	—	15	0	to	15	15
6	—	22	0	to	25	0
7	—	30	0	to	34	0
8	—	42	0	to	45	0
9	—	60	0			
10	—	75	0			
12	—	112	0	to	120	0
15	—	187	0	to	220	
19	—	330	0	to	380	0
24	—	450	0			
30	—	700	0	to	735	0
40	—	1500	0	to	1800	0
50	—	3500	0	to	4500	0
60	—	4500	0	to	5620	0

It muſt be obſerved, however, that Defects in the Water, or Shape, red, or black Spots, Shivers, and other Failings, frequently found in theſe Stones, reduce the Price by one Third, and ſometimes more.

As to brilliant *Diamonds* of very ſmall Cut, the Price is always leſs by one Third, than that of *Diamonds* of a larger Cut, though the Weight is the ſame: The Reaſon is, that the latter ſhew themſelves a great deal more, when ſet in their Collets, than the former.

Attempts have been made to produce artificial *Diamonds*, but to no Purpoſe; though a *Lapidary* told me, a long while ago, that he had changed by the Fire, other Stones, ſuch as Sapphires, into *Diamonds*; which Fire takes off the Colour of the Stone, and renders it harder; provided the Artiſt knows how to manage the Degree of Heat, for if it be too great it breaks the Stone.

The fictitious *Diamonds* made in *France*, called *Temple Diamonds*, on Account of the Place at *Paris*, where they are fabricated; fall vaſtly ſhort of the genuine ones for Hardneſs; but I have ſeen ſome of them, the Luſtre whereof eclipſed that of the genuine *Diamonds*. Myſelf had one once which was valued for its Beauty at 1000 *French* Crowns, and excelled in Luſtre a real one of 60 Carats.

Lapidaries uſually diſtinguiſh three Kinds of RUBIES, the *Raky*, *Balaſs*, and *Spinell*; ſome add a fourth Kind, *viz.* the *Rabeelle*. It is the different Degree of Colour which makes their different Value and Beauty. The *Balaſs Ruby* is of a crimſon Colour with a Caſt of Purple: The *Spinell Ruby* is of a bright roſy red.

It is ſaid the Inhabitants of *Pegu* have the Art of Heightening the Redneſs and Brilliant of *Rubies*, by laying them in the Fire, and giving them a proper Degree of Heat.

The *Ruby* is formed in a ſtony Subſtance, or Marcaſite of a Roſe Colour, called *Mothe of Ruby*; it has not all its Colour and Luſtre at once; but comes to it by Degrees. At firſt it grows whitiſh, and as it approaches to Maturity, becomes red. Hence we have white *Rubies*, others half white, half red, and others blue and red, called *Sapphire Rubies*.

When a *Ruby* exceeds 20 Carats, it may be called a *Carbuncle*, the Name of an imaginary Stone, whereof the Antients and Moderns have given us ſo many Deſcriptions.

They have ſeveral Manners of counterfeiting *Rubies*; and have carried this Imitation to that Length, that the moſt able *Lapidaries* are ſometimes overſeen.

Furetiere aſſures us, that there have been *Rubies* in *France* of 240 Carats. *Tavernier* tells us, he ſaw one in the *Indies* of 50 Carats, which he had a Mind to have bought. He adds, that the King of *France* has finer and larger *Rubies* than any in the Poſſeſſion of the Great *Mogul*.

There are but two Places in the Eaſt where the *Ruby* is found; the Kingdom of *Pegu*, and the Iſle of *Ceylon*.—The Mine in *Pegu*, where it is found in greateſt Plenty is in the Mountain *Capelan*, 12 Days Journey from *Siren*, the Reſidence of the King of that Country. The fineſt *Rubies* brought hence, do not exceed three or four Carats; the King reſerving all the larger to himſelf.

In *Ceylon*, the *Rubies* are found in a River, which deſcends from the Mountains towards the Middle of the Iſland: Some few are alſo found in the Ground. The *Rubies* of *Ceylon* are uſually brighter and more beautiful than thoſe of *Pegu*; but they are rare; the King of *Ceylon* prohibiting his People to gather them or traffick with them.

There are *Rubies* alſo found in *Europe*, particularly in *Bohemia* and *Hungary*; eſpecially the former, wherein is a Mine of Flints of divers Sizes, which upon breaking, are ſometimes found to contain *Rubies* as fine and hard as any of the eaſtern ones.

The Value of *Rubies*, from one Carat, or four Grains, to ten Carats, is thus given us in the *Dictionaire de Commerce*, from a good Hand.

		l.	*s.*	*d.*
A *Ruby* of one Carat, is worth		1	15	0
—— Of two Carats,	——	9	00	0
—— Of three Carats,	—	22	10	0
—— Of four Carats,	——	33	15	0
—— Of five Carats,	——	45	00	0
—— Of ſix Carats,	—	67	10	0
—— Of ſeven Carats,	—	84	00	0
—— Of eight Carats,	—	106	00	0
—— Of nine Carats,	—	150	00	0
—— Of ten Carats,	—	216	00	0

The SAPPHIRE is tranſparent, yet exceedingly hard, ſo as ſcarce to bear being engraven.

Different Colours bears different Kinds thereof; the deepeſt Blues being eſteemed Males, and the whiteſt Females. The *Sapphires* of *Pegu* are the moſt eſteemed. They are found in the ſame Mines with the Rubies. There are ſome alſo brought from the Kingdoms of *Calecut*, *Cananor* and *Ceylon*; from which laſt Place we ſhould be furniſhed with Abundance, if the King of the Iſland did not prohibit all Commerce thereof with Foreigners.

The ſoft *Water-Sapphires* of *Bohemia* and *Sileſia*, are of ſome Account, tho' far inferior to the oriental ones, both in the Brightneſs of their Blue, and the Firmneſs of their Texture.

Many People value the *Sapphire* beyond the *Ruby*, and give it the ſecond Place among precious Stones, *viz.* that next the Diamond; others give that Place to the Ruby.

Some rank the Cat's Eye, *Oculus Cati*, in the Number of *Sapphires*. This is a Gem remarkable for a fine Diverſity of Colours, as well as for its Hardneſs, which bears a Poliſh equal with that of a true *Sapphire*.

The TOPAZ is tranſparent, its Colour a beautiful Yellow, or Gold Colour: It is very hard, and takes a fine Poliſh. It is the true Chryſolite of the Antients, and is found in ſeveral Parts of the *Indies*, in *Ethiopia*, *Arabia*, *Peru*, and *Bohemia*.

The oriental *Topazes* are moſt eſteemed; their Colour borders on the Orange: Thoſe of *Peru* are ſofter, but their

their Colour much the ſame: The Yellow of thoſe of *Bohemia* is a little blackiſh; they are the ſofteſt of all, and their Poliſh the coarſeſt. Thoſe of *Madagaſcar* were in much Eſteem, but are now held good for little.

Tavernier mentions a *Topaz* in the Poſſeſſion of the Great *Mogul*, weighing 157 Carats, which coſt 20300 *l.* Sterling; and *Bætius de Boot*, in his Treatiſe of precious Stones, affirms to have ſeen in the Cabinet of the Emperor *Rodolphus*, whoſe Phyſician he was, a *Topaz* above three Foot long, and ſix Inches broad. Probably it may be ſome Marble, a little tranſparent, of a *Topaz* Colour. The fineſt *Topaz* I have ſeen, is at the Abbey of St. *Bertin*, at St. *Omer*.

The *Topaz* is eaſily counterfeited; and there are fictitious ones, which to the Eye do not come behind the natural ones.

Some ſay it takes its Name *Topaz* from an Iſland in the Red Sea, of the ſame Name, where it was firſt found by *Juba*, King of *Mauritania*; but it was known to the *Hebrews* before, as it appears from the 118th Pſalm.

The EMERALD is a very green and tranſparent Stone, and as to Hardneſs, next to the Ruby.

Pliny reckons twelve Sorts of *Emeralds*; and denominates each from the Provinces or Kingdoms, where he ſuppoſed them to be found; as *Scythian*, *Bactrian*, *Egyptian*, *Perſian*, &c. but the modern Naturaliſts and Jewellers, only know of two Kinds, *viz. Oriental* and *Peruvian*. And if we may credit *Tavernier*, in his Treatiſe of colour'd Stones, found in the *Indies*, inſerted in the ſecond Volume of his Voyages, thoſe two ſhould be further reduced to one, *viz.* the *Peruvian*.

In effect, he maintains that there is not, nor ever was any Mine of *Emeralds* in the *Eaſt-Indies*; and that all that are there found, were brought from *Peru* by the Way of the *South-Sea*; which was a Method of Commerce, carried on by the *Peruvians*, before the Diſcovery of *America* by the *Spaniards*. But as the Point of ſuch Commerce is not ſufficiently proved, we muſt keep to the antient Diviſion.

The *Oriental Emerald* is harder, more brilliant, and tranſparent than the *Peruvian*; which has generally Clouds found in it, and ſparkles leſs. Beſides that there are ſuch Quantities brought from *Peru*, by the Way of *Carthagena*, that they are much ſunk in Value and Reputation. They talk likewiſe of *Emeralds* found in *Cyprus*, and even in *England*; but they are very inconſiderable; if indeed there be any true ones at all.

Some Authors hold *Emeralds* to be taken out of Iron Mines; and *Pomet* aſſures us, he had one to which the Iron Ore was ſtill ſticking. To which all we have to ſay is, that it could not be a *Peruvian*, by Reaſon there is no Iron Mine in the Country.

The *Emerald* is ſuppoſed to grow more and more perfect in the Mine like the Ruby; and to arrive at its Greenneſs by ſlow Degrees, as the Fruit comes to Maturity by Degrees. It is a common Opinion that the *Emerald* grows in the Jaſper; and it is certain there are ſome Jaſpers ſo perfectly green, that many have taken them for *Emeralds*.

But the proper Matrix, or Marcaſite of this Stone, is the *Preme*, which is held among the coarſer precious Stones; being hard, tranſparent, half Opake, and uſually intermix'd with yellow, green, white, blue, &c.

We read in Authors of ſeveral *Emeralds* of incredible Magnitude: *Roderigo de Toledo* tells us, that when the *Saracens* took that Town, King *Tarik* had for his Share of the Plunder, a Table 365 Foot long, and all of a Piece, which he maintains to be an *Emerald*. After this, the Reader will not wonder at that pretended to have been ſeen by *Theophraſtus*, in a Temple in *Egypt*, four Cubits long, and three broad; nor even at an Obelik of *Emerald*, forty Foot high; *Si credere fas eſt*.

In the *Dictionaire de Commerce*, we have a very curious and accurate Eſtimate of the Value of the different Kinds of *Peruvian Emeralds*; which the Reader will not be diſpleaſed to find tranſcrib'd here.

The firſt and coarſeſt Sort of rough *Emeralds*, called *Plumes*, for grinding, are worth 27 Shillings Sterling, the Mark, or 8 Ounces. The Demi-Morillons, 8*l.* Sterling, *per* Mark. Good Morillons, which are only little Pieces, but of fine Colour, from 13 *l.* to 15 *l.* *per* Mark. *Emeralds*, larger than Morillons, and called *of the third Colour*, or *Sort*, are valued at from 50 *l.* to 60 *l.* *per* Mark. *Emeralds*, called *of the ſecond Sort*, which are in larger and finer Pieces than the preceding, are worth, from 65 *l.* to 75 *l.* *per* Mark. — Laſtly, thoſe of the firſt Colour, otherwiſe called *Negres Cartes*, are worth from 110 *l.* to 115 *l.*

Emeralds ready cut, or poliſhed and not cut, being of good Stone, and a fine Colour, are worth,

	l.	*s.*	*d.*
Thoſe weighing one Carat, or four Grains,	0	10	0
——— Of two Carats,	1	7	0
——— Of three Carats,	2	5	0
——— Of four Carats,	3	10	0
——— Of five Carats,	4	10	0
——— Of ſix Carats,	7	10	0
——— Of ſeven Carats,	15	00	0
——— Of eight Carats,	19	00	0
——— Of nine Carats,	23	00	0
——— Of ten Carats,	33	00	0

HYACINTH is thus called from its Reſemblance of the purple Flower, named *Hyacinth*, or the Violet. Though this, it muſt be obſerved, holds of the antient, rather than the modern *Hyacinth*, which is uſually of a deep reddiſh yellow, approaching a Flame Colour, or the deepeſt Amber. The antient ſeems to have been a different Stone, of a purple Colour, tending to blue.

There are four Sorts of *Hyacinths*; thoſe intermixed with a Vermilion Colour; thoſe of a Saffron Colour; thoſe of an Amber Colour; and laſtly thoſe of a white, intermixed with a ſlight red.

Hyacinths, again, are diſtinguiſhed into *Oriental* and *Occidental*. The *Oriental* comes from *Calicut*, and *Cambaya*, and are equal in Hardneſs to the *Oriental Amethyſt*. The *Occidental* are found in *Bohemia* and *Portugal*, which are a Degree ſofter.

The Stone graves or cuts fine, and would be more uſed for Seals, &c. but that the Graving frequently coſts more than the Stone.

AMETHYST is a precious Stone of a Violet Colour, bordering on Purple.

There are divers Sorts of *Amethyſts*; the *Oriental* which is the hardeſt, the ſcarceſt, and moſt valuable, is of a Dove Colour; the *German* which is of a Violet Colour; and the *Spaniſh* which has the Colour of a Panſy.

There are ſome *Oriental*, alſo, of a purple Colour, and others white, and like the *Diamond*. There are alſo beautiful ones in the *Pyreneans*, and in the Mountains of *Auvergne*.

Amethyſts are dug in a Hill named St. *Sigminont*, two Leagues from *Vich*, in *Catalonia*. They find the Stones by following a Vein of reddiſh or black Earth, or a Vein in the Rock, ſo colour'd: They are all hexangular, and pointed like cryſtal.

There are three Sorts; the beſt are the deepeſt Violet, others are almoſt quite white; and ſome few tinctured of yellow. Sometimes there is a great Number ſticking together, like the *Briſtol* Stones; but theſe are never good: The beſt are found looſe in the Chinks of the Rock, in a fat, reddiſh or yellowiſh Earth. They rake out this Earth with long narrow Knives which enter the Chinks, and then crumble it with their Fingers to feel for the Stones.

The *Amethyſt* is not extremely hard, but may be cut with a leaden Wheel, ſmeared with Emery moiſtened in Water. It is poliſhed on a Pewter Wheel with Tripoly; it is eaſily engraven on, either in Creux or Relievo.

The *Beryl*, is a tranſparent Stone or Gem, brought from *India* of a light or pale green Colour, inſomuch that ſome have repreſented it as of two Colours, the one green, the other pale.

The *Beryl* of the Antients is the ſame with what in latter Times, has been denominated *Aqua Marina*, by reaſon of its Azure or Sea-green Colour.

The *Beryl* differs from the *Chryſoberil*, which is ſomewhat paler, and partakes more of the yellow, and from the *Chryſoprufus*, which partakes more of the Green.

Some Authors take the *Beryl* for the Diamond of the Antients; this is certain, the ableſt modern Jewellers have

ſometimes miſtaken the one for the other.

The *Beryl* is ſometimes found in Pieces large enough to form fine Vaſes. It is ſaid there are many of them in *Cambaya*, *Martaban*, *Pegu*, and *Ceylon*.

The CORNELIAN, is a precious Stone ordinarily red, bordering on Orange, called alſo *Sardius*, or the *Sardian Stone*. It is but little tranſparent, cuts eaſily; and we find moſt of the fine Gravings of Antiquity, whether in Relievo or indented, are on this Stone. It bears the Fire admirably.

The fineſt *Cornelians* are thoſe brought from near *Babylon*, the next are thoſe of *Sardinia*, the laſt thoſe of the *Rhine*, *Bohemia*, and *Sileſia*. To give theſe Stones the greater Luſtre, in ſetting them they lay a Piece of Silver Leaf underneath.

The principal Uſe made of *Cornelians* is in Seals, by reaſon they grave well, and take a fine Poliſh.

GRANATE, popularly called *Garnate*, is a precious Stone of a high red Colour, thus called from the Reſemblance it bears of the Kernel of a Pomegranate.

Granates are either *oriental* or *occidental*; the firſt are brought from divers Parts of the *Eaſt-Indies*, the ſecond from *Spain*, *Sileſia*, and *Bohemia*.

Thoſe from the *Eaſt* are diſtinguiſhed by their Colour into three Kinds; the firſt of a deep browniſh Red, like black clotted Blood; of which Kind there are ſome as big as an Hen's Egg. The ſecond are nearly of the Colour of a a Hyacinth, with which it were eaſy to confound them, but for their ſuperior Redneſs. The laſt, having a Mixture of a Violet with their Red, are called by the *Italians*, *Rubini della rocha*.

The *occidental Granates* are of divers Reds, according to the Places they are found in. Thoſe of *Spain* imitate the Colour of the Kernels of a Pomegranate: Thoſe of *Bohemia* have a golden Caſt with their Red, glittering like a live Coal: Thoſe of *Sileſia* are the darkeſt of all, and ſeldom thoroughly tranſparent.

Of the *occidental Granates* thoſe of *Bohemia* are the moſt valued: Some even give them the Preference to the oriental Kind. They are found near *Prague*; not in any particular Mines, but are picked up by the Peaſants in the Fields from among the Sands and Pebbles.

The AGAT, is a precious Stone, partly tranſparent, and partly opake, uſually diverſified with a Variety of Colours, Veins, Spots, *&c.* ſometimes exhibiting Figures, or Appearances of natural Objects.

There are various Kinds of *Agats*; which according to their different Colours, Degrees of Tranſparency, *&c.* have different Names. The Principal may be reduced to theſe four, *viz.* the *Onyx*, *Calcedony*, the *Black*, and the *German* Agats.

The *Agat* has ordinarily a reddiſh Teint, but is finely variegated with Spots and Stains, many of which ſeem very naturally to repreſent Woods, Rivers, Trees, Animals, Fruits, Flowers, *&c.* *De Boot* mentions one of the Size of a Nail, wherein a Biſhop with his Mitre was very well repreſented: Turning it a little, a Man and a Woman's Head were ſeen in his Place. One *Gautier* a Benedictine Monk of the Congregation of St. *Vanne* in *France*, whom *Stimulus Carnis* ſpurred on to change here his Religion for a Petticoat, tells me, that they have an Agat at their Abby of *Montier-Ramey*, on which *Mary Magdalen* in the Poſture of a Penitent, with a Death's Head in her Hand, is extremely well repreſented.

The *Sardians*, and *Sardonyx Agats* are very valuable; the latter is of a Sanguine Colour, and is divided into Zones, which ſeem to have been painted by Art. *Pliny*, *Strabo*, and *Cicero* ſay, that *Polynate*'s Ring was a *Sardonyx*.

Authors alſo ſpeak of *Roman* Agats, *Egyptian* Agats, *Onyx* and *Sardonyx* Agats, *&c.* The Antients mention a red *Agat*, ſpotted with Points of Gold, found in *Candia*, and called *Sacred*, as being a Preſervative againſt the Poiſon of Vipers, Scorpions, and Spiders. *Pliny* has a whole Chapter of the Virtues of *Agats*.

Agats have always been eſteemed for Seals, as being a Stone that no Wax will ſtick to.

M. *du Fay* a *Frenchman*, has given the Art of ſtaining *Agats* with divers beautiful Colours. The Figures and Ramifications of *Agats*, whether natural or artificial, may be diſcharged with *Aqua fortis*.

The ONYX, is a Kind of precious Stone, accounted a Species of opake *Agat*. It is of a dark horny Colour, in which is a Plate of a bluiſh White, and ſometimes of Red; the ſeveral Colours appearing as diſtinct as if laid on by Art.

There are ſome brought from *Arabia*, mixed with a browniſh Hue; which after taking off one Lay or Zone, ſhews another underneath of a different Colour. Whence they take the Name *Memphitis*, or *Camehuia*, q. d. another Stone.

White Zones or Girdles, are eſſential to an *Onyx*.

The *Sardonyx*, is a Kind of precious Stone, partaking partly of the *Sardian*, and partly of the *Onyx*.

It is ſemi-tranſparent, and reddiſh bordering on White, ſomewhat like the Nail of the Hand: In ſome the Red inclines to a Yellow. It is brought from the *Eaſt-Indies*, *Arabia*, and *Bohemia*; it was anciently much uſed for fine Veſſels.

The TURCOIS, or TURQUOIS, is a precious Stone of a blue Colour, ordinarily opake, but ſometimes a little tranſparent.

There are *Turcoiſes* both oriental and occidental, of the new Rock and the old. The oriental partakes more of the blue Tincture than the Green, and the occidental more of the Green than the Blue. Thoſe of the old Rock are a deep Blue, and thoſe of the new Rock more whitiſh, and do not keep their Colour.

The oriental Ones come from *Perſia*, the *Indies*, and ſome Parts of *Turky*; and ſome even ſuppoſe that it is hence they derive their modern Name *Turcois*. The Occidental are found in various Parts of *Europe*, parti- *Germany*, *Bohemia*, *Sileſia*, *Spain*, and *France*.

Turcoiſes all grow of a round or oval Figure; they cut eaſily, and beſides Seals, which are frequently engraved on them, ſome are formed into Crucifixes, or other Figures near two Inches high; though *de Boot* miſtakenly affirms, that none have been known to exceed the Bigneſs of a Walnut.

The *Turcois* is eaſily counterfeited, and that ſo perfectly that it is impoſſible to diſcover the Deceit, without taking it out of the Collet.

The *Turcois*, M. *Reaumur* obſerves, is one of the ſofteſt of precious Stones, its Hardneſs ſcarce exceeding that of a Chryſtal, or a tranſparent Pebble; though ſome are much harder than others; and ſtill the harder, *cæteris paribus*, the more valuable, by reaſon of the Vivacity of the Poliſh, which is always proportionable to the Hardneſs.

Roſnel a Jeweller, and the Author of a ſcarce Treatiſe, called *Mercure Indian*, eſtimating the ſeveral precious Stones, ſets a hard *Turcois*, whoſe Blue is neither hard nor deep, on the Foot of the moſt perfect Emeralds, that is on a level with a Diamond. Thoſe with any Defect he only values a *French* Crown the Carat.

Tavernier aſſures us, that there are but two Mines of *Turcois* known in all the Earth, and they are both in *Perſia*; the one called the *Old Rock*, near a Town called *Necabourg*, three Days Journey to the North-Eaſt of *Mecbed*; the other called the *New Rock*, is five Days Journey. The latter, he adds, are but little valued; and the King of *Perſia* has for many Years prohibited the digging in the former for any but himſelf. M. *Reaumur* takes the *old Rock* to be now exhauſted; in effect, the common Diviſion of *Turcoiſes* into the *old Rock* or oriental, and *new Rock* or occidental, is very arbitrary and precarious. All the beſt and moſt perfect, grow where they will, in *India* or *Europe*, are reckoned among the former, and the reſt among the latter.

Near *Simere*, in the lower *Languedoc* in *France*, are ſeveral conſiderable Mines of *Turcoiſes*; but the blue Colour admired in the *Turcois* is not natural to theſe Rocks; the prevailing Colour being ſometimes white, and ſometimes much like that of Tripoly of *Venice*. Other precious Stones are dug out of the Mine with all their Colour, to the Force hereof nothing can be added, though it may frequently be diminiſhed, as we ſee Fire bring down the too deep Colour of the Saphire, and quite take away that of a deep Saphire. Theſe *Turcoiſes* on the contrary, are naturally whitiſh or yellowiſh, of a Colour as common as that of a Free-Stone; and by oppoſing them for ſome Time to the Action of the Fire, they aſſume a blue Colour.

To

THE GREAT SEAL OF ENGLAND.
THE SEAL OF THE PREROGATIVE COURT OF THE ARCHBISHOP OF CANTERBURY
GEORGIUS II. DEI GRATIA MAG. BRITANNIÆ FRANCIÆ ET HIBERNIÆ REX FIDEI DEFENSOR.
THE SEAL OF THE LORD MAYORS CO
DOMINE DIRIGE NOS
The SEALS of the Several Counties in ENGLAND and WALES.
Buckinghamshire
Berkshires
Bedfordshire
Cornwall
Cumberland
Cambridgshire
Cheshire
Dorsetshires
Derbyshires
Essex
Glocestershires
Hartfordshires
Herefordshire
Huntingtonshire
Leicestershire
Lincolnshires
Lancashires
Middlesex
Norfolk
Northamptonshire
Northumberland
Oxfordshires
Shropshires
Somersetshires
Southamptonshire
Staffordshire
Suffolk
Surry
Wiltshire
Worcestershire
Warwickshire
Westmorland
Yorkshire
Lancaster
Chester
Ely
Wales
Brecknockshire
Cardiganshire
Carmarthanshire
Carnarvenshire
Glamorganshire
Flintshires
Haverford West
Montgomeryshire
Radnorshire
Pembrokeshire
Londons
Oxford

To give them that Colour, they dry them awhile in the Air, then heat them gradually in a Furnace made after a particular Manner. If they be heated too haſtily, the Humidity between the Lamince of the Stone, wanting Time to evaporate all, will ſeparate into Scales or Flaws. Some of the Stones require a greater Degree of Heat, to bring them to their Colour, than others; and even in large Pieces, ſeveral Parts, ordinarily, require ſeveral Degrees of Heat.

On this Account a World of Care is to be taken in the heating them; for the Fire, which gives them their blue by Degrees, if they be expoſed beyond a certain Degree, takes it away again.

The great Defect of all *Turcoiſes* is, that in Time they loſe their blue Colour, and become green, and then ceaſe to be of any Value.

The OPAL is a precious Stone of various Colours, changeable according to the different Poſition of the Stone to the Light.

In it are ſeen the red of the Ruby, the Purple of the Amethyſt, the green of the Emerald; beſides yellow, blue, and ſometimes black and white. When the Stone is broke, moſt of theſe Colours diſappear; which ſhews that they ariſe by Reflection from one or two principal ones.

Its Form is always either round, or oval; its prevailing Colour white. Its Diverſity of Colours makes it almoſt of equal Value with a Sapphire or Ruby.

Tavernier ſays, that there are Mines of *Opal* in *Turky*. Other Authors, antient and modern, ſay, *Cyprus*, *Arabia*, *Egypt*, *Bohemia* and *Hungary*, produce it; whence it is diſtinguiſhed into two Kinds, *Oriental* and *Occidental*; they poliſh it with Tripoly. *Pliny* and *Solinus* mention a Species of *Opal*, called *Exacontalithus*, which had ſixty Colours.

In the *Philoſophical Tranſactions*, M. *Colepreſſe* gives us an Account of the Manner of counterfeiting *Opal*, as practiſed at *Haerlem*. He ſays the Counterfeit is very lively, and thinks it only performed by the Degrees of Heat, which produce the Colours. When the Compoſition is melted, they take out ſome on the Point of an Iron Rod, which being cooled, either in the Air or Water, is colourleſs or pellucid; but being put into the Mouth of the Furnace on the ſame Rod, and there turned by the Hand for a ſmall Space, has its little Bodies ſo variouſly poſited in divers Parts of the ſame Piece, that the Light falling on them, being variouſly modified thereby, repreſents the ſeveral Colours ſeen in the natural *Opal*. He adds, the Colours may be deſtroyed and reſtored, according to the various Motions of its Particles, by Heat.

Note, That the Art of cutting precious Stones is very antient; but, like other Arts, its Original was very imperfect: The *French* have ſucceeded in it the beſt; and the *Lapidaries* of *Paris*, who have been a Corporation ſince the Year 1290, have carried it, eſpecially cutting Diamonds called Brilliants, to its utmoſt Perfection.

LAW.

LAW, conſidered with reſpect to itſelf, is commonly defined the Rule, or Regulation of the human Acts, whereby we are directed to do what is right, and omit what is wrong: Which with reſpect to the Legiſlator, can alſo be defined a right Reaſon of commanding, and forbidding, according to *Tully*, *lib.* 1. *de legib.* or a rational Rule, commanding what's honeſt, and forbidding the contrary. For the Precepts of the *Law* are of two Sorts; the one which commands Good, and are called *Poſitive* or *Affirmative*, as *Thou ſhalt love God*; and the other forbidding Evil, called *Negative*, as *Thou ſhalt not kill.*

Note, That the Etymology of *Law* is either from *Legendo*, Reading; or from *Eligendo*, Chooſing; or from *Ligando*, Tying, Obligating.—It may be deduced from *Legendo*, Reading; for though it is not eſſential to the *Law* that it ſhould be written, according to *Juſtinian*'s Inſtitutions, *c.* 25. *q.* 2. and to *Ariſtotle*, *lib.* 10. *Eth. c.* 9. where he expreſſes himſelf in theſe Words; *Whether the Laws be written, or not written, it does not ſeem to matter much:* The *Law*, notwithſtanding, is moſt commonly written, that every Body may read in it what he is to do, or to avoid.—It may alſo be derived from *Eligendo*, Chuſing; becauſe *Law* is like a certain choſen Rule, or Form of Living. This Etymology is that of *Tully*, *lib. de leg.* Laſtly, it may be derived from *Ligando*, Tying or Obliging; becauſe it obliges the Subjects to its Obſervance.

Note, alſo, That *Law*, in general, is called by five different Names, viz. *Right*, *Precept*, *Command*, *Statute*, *Conſtitution*.

1. It is called *Right*, becauſe it eſtabliſhes Juſtice and Equality in Things; according to St. *Auguſtin*, *lib.* 1. *de arbit. c.* 5. *That does not ſeem to me to be Law*, ſays he, *which is not juſt.*

2. It is called *Precept*, becauſe it expreſſes the Authority of the Legiſlator.

3. A *Command*, becauſe it ought to command the Execution.

4. A *Statute*, becauſe it muſt be conſtant and firm.

5. A *Conſtitution*, becauſe often ſeveral meet together to make and eſtabliſh the *Law*.

All *Law* is either *natural*, or *poſitive*.—The *natural* is immutable; and the *poſitive* ſubject to Alterations and Changes.

The *natural Law* is conſidered either in God or in us. In God it is called *eternal Law* or *eternal Order*. In us it is either called *right Reaſon* or *natural Light*; or retains ſimply the Name of *natural Law* or *Order*.

The *poſitive Law*, is that eſtabliſhed by the Free-Will of a Legiſlator; and the different Alterations or Changes thereof, are called by different Names by the *Roman* Juriſconſultes. For among them the Law is defined, *lex rogatur*, when it is made, becauſe there was no Law made unleſs aſked by the People. It is *abrogated*, *abrogatur*, when entirely aboliſhed; *derogated*, *derogatur*, when Part thereof was taken off; *ſubrogated*, *ſubrogatur*, when Additions were made thereunto; and *abrogated*, *abrogatur*, when ſome Changes were made in it.

The *poſitive Law* is either divine or human; the firſt is from God, and the latter from Men.

The *divine Law* is contained in the Old and New Teſtament; whence it is either antient or new.

The *old* or *antient Law*, is that given to the *Hebrews*, by the Miniſtry of *Moſes*, or as the Apoſtle expreſſes himſelf, *Gal.* iii. 19. *It was ordained by Angels in the Hand of a Mediator.*

The *new Law* is called the *Law of the Goſpel*, or of the New Teſtament, is that brought to all Men by Chriſt, Author of the *New Teſtament*.

The *human Law*, is that made and eſtabliſhed by Men; and this is either *eccleſiaſtical* or *civil*.

The *eccleſiaſtical Law*, before the Reformation by *Luther* and *Calvin*, conſiſted, and conſiſts ſtill among the Catholicks, in the Canons of the general Councils, the Sentiments of the Fathers, and the Conſtitution of the Popes, called decretal.

The *Civil Law* conſiſts in the Conſtitutions of a Republick, or in the Edicts of Emperors, and Kings, in the Deciſions of a Senate, or of the Canons, in the Anſwers of prudent Men, and in a long Cuſtom, approved by the unanimous Conſent of the People. This ſeems to be the general Diviſion of all *Laws*.

As to the Matter ſubject to *Law*, it is the *Right itſelf*, or what is juſt, or what is acted or omitted juſtly. Though *Jus*, or *Right*, is alſo taken for the Art itſelf,

or

or Science of the *Law*. And in that Sense is defined by *Celsus*, *lib.* 1. *ff. rit.* 1. *leg.* 1. *The Art of the Good and Just.*

Therefore *Right* taken for the Matter subject to *Law*, is divided in the same Manner as the *Law* itself, *viz.* different is the *natural Right*, which Nature has taught us, and which is immutable; different is the *Right of Nations*, which is religiously observed, at least among the best civilized Nations; different is the *positive Right*, and this is either divine or human, which is, besides, either *Ecclesiastical* or *Civil.*

It may be asked in this Place, if *Promulgation*, or publick Notice, be essential to a *Law?*

Which I answer in the *Negative*, with Regard to the *natural Law*, and in the *Affirmative*, with Regard to the *positive Law.*

That the *natural Law* wants no *Promulgation*, is evident from its very Name, for it is called *natural*, for no other Reason, than it is naturally known to us, God having imprinted it on the Mind of all Men, without Exception.

But the *positive Law* wants *Promulgation*, since it cannot be otherwise known to us, but by a publick Notice, whereby the Will of the Legislator is made known to those who are to observe that *Law*; for the Precept of the *Law* is nothing else but the *Intimation*, or publick Notice given by a Superior to an Inferior, that he may act accordingly.

Having thus spoke of *Law* in general, I must enter into a more particular Detail of the different Divisions and Sub-Divisions thereof, beginning by the *Eternal Law.*

Every Body agrees, that the *Eternal Law* is the Source of all others, and the first Rule of all our Actions. For it is nothing else but an *Eternal Order*, or the immutable Decree of the supreme Wisdom, wherein is contain'd all that's to be done or avoided; *For the Eternal Law*, says St. *Augustin*, *lib.* 22. *cont. Faust. c.* 27. *is the divine Reason, or God's Will commanding to preserve the natural Order, and forbidding to disturb it.* That natural Order, mentioned in this Place by St. *Augustin*, *is that*, says he himself, *lib.* 2. *de ordin. c.* 10. *whereby all Things are done, which God has established.* Therefore the *Eternal Law* is an immutable Reason, to which all that is done rightly and justly is agreeable, and all that is done wrong disagreeable.

If it be asked here, *if the Eternal Law be different from Providence?* I'll answer in the *Affirmative.* 1. Because Providence relates only to particular Things in an Individual, since other is the Providence with Regard to *Peter*, and other that with Regard to *Paul.* But *Law* regards a Commonality; for there is no *Law* made for every particular Individual. 2. Because *Law* includes a Will of obliging, and Providence, not.

The *natural Law*, which is also called *right Reason*, *natural Light*, and *natural Order*, is the *Eternal Law* itself, or a certain Participation of the *Eternal Law*, in a rational Being, whereby he is made capable to distinguish between Good and Evil.

Note, That the *natural Law* is not taken by the Juris-consults in the same Manner the Theologians take it. For the Juris-consults, or Lawyers, call *natural Law*, that which Nature has taught all Kinds of Animals without Distinction, such as their Conservation, Procreation, the Education of Children, *&c.* But the Theologians call *natural Law*, that which God has imprinted on Man's Mind.

That this *natural Law* is imprinted in our Minds, is evident from that every Body understands what is good, and what is bad.

This was the Sentiment of the most eminent Fathers of the Church, and of the greatest Philosophers.

Among the Fathers, St. *Augustin*, *lib.* 2. *confess. c.* 4. speaks thus, *Thy Law, O Lord, is written in the Hearts of Men, which Iniquity has not, and never will blot out.*

The primary Precepts of the *natural Law*, or rather the whole Foundation thereof, is to love God above all Things, and our Neighbours for his Sake; because the *Eternal Order* has prescribed, first, that we should love God above all Things, and our Neighbours for his Sake; the Truth whereof will soon be discover'd, if we will reflect, that we have all been created by an omnipotent God; and therefore Order requires,

1. That we should love God above all Things, and express continually our Gratitude for the many Favours we receive daily from him.

2. If we love God as we ought, because Order requires it; we must, likewise, love Men, who have the same Origin with us, have been formed by the same Creator and for the same End, and enriched by him with the same natural Gifts.

It may be asked in this Place, *If the natural Law be equally known, and approved by all as right and just?*

Note, That before I answer this Question, we must observe, 1. That by the Name of Principle is understood that whereby something is done, or known; whence it appears, that there are two Principles, *viz.* one of the Thing, and another of Cognition.

2. That there is a first Principle of Cognition, because as in the Motion, there is the first immobile Mover; likewise with Regard to Reason (which is a certain Motion) it is necessary to establish a Principle known by itself, by Reason whereof all Things are known.

3. That the first Principle, known by itself, in a *speculative Reason*, is this, *that it is impossible for something to be and not be, together, and at the same Time.* And in a *practical*, this, *Good is to be embraced, and Evil avoided.*

4. That from the first and general practical Principle, are derived all the other Precepts of the *natural Law*, v. g. that we must love God, injure no Body, *&c.*

5. That some of the Precepts of the *natural Law*, are more universal and known than others, the more they come near the first Principle, and are less known the more they recede from it; as it appears from the Scheme of the Precepts deduced from the first, and are drawn from one another as Conclusions, as in the following Series of the Scheme.

Evil must be avoided.
Injury is to be offer'd to no Body.
No Thieving.
No giving to Usury.

6. That there are two Sorts of Ignorance, one vincible, and the other invincible. These pre-observ'd,

I answer, 1. That the first Principle, and other universal Precepts, known by themselves of the *natural Law*, cannot be unknown of an invincible Ignorance.

I answer, 2. That the Precepts of the *natural Law*, deduced with a great Difficulty, and by an unevident Consequence, from the Precepts of the Decalogue, can be sometimes unknown to several, of an invincible Ignorance. Because several Philosophers, who have applied themselves seriously to discover Truth, have erred with Regard to those Precepts, believing, *v. g.* that Usury was lawful, as well as an officious Lie, to save one's own Life, or that of some Body else; therefore much more other Men, who have not their Knowledge.

It may be asked, *if the natural Law can be changed?*

Note, That it is asked here, if the *natural Law* can be changed in the three following Manners. 1. So that in fact it may be changed according to itself. 2. So that it may be entirely blotted out, by a certain Abrogation, from Man's Memory. 3. By the Addition of some new Precept. 4. By the Substraction of some. These pre-observ'd,

I answer, 1. That the *natural Law*, with Respect to the first Principles, is immutable; but can be changed, sometimes, with Respect to the Conclusions drawn from the first practical Principles. Because in the Practice, the Conclusions do not always depend from certain practical Principles, but from the various Circumstances of Places, Times, and Persons. In this Sense, Lawyers say, that in the *Law* the Definitions are very dangerous. For Example; though we are obliged to return every one his own, a Case, notwithstanding, may occur, in which it is not to be return'd, *v. g.* if the Proprietor thereof design

design to make Use of it to the Detriment of the Republick.

I answer, 2. That the natural Law cannot be blotted out from the human Mind, with Regard to the first Principles, but can sometimes with Regard to the Conclusions deduced from the first Principles: Because, sometimes the human Understanding is so blinded, either by false Opinions, or by his Passions, or by a continual Habit of sinning, that he mistakes often Evil for Good, and Falshood for Truth.

I answer, 3. That the natural Law can be changed by the Addition of some other Precept; because the Precepts of the natural Law are common, and cannot be so soon applied to particular Circumstances; whence it is necessary to add some particular Laws adapted to certain Persons, Places, and Times, and thereby determine the common Precepts. For Example, that common Precept, *God is to be worshipped or served*, does not determine when he is to be worshipped, but is determined by other Precepts of the positive divine *Law*, in both Testaments, *v. g.* by the particular Precepts of the Sacrifices, Prayers, Sacraments, *&c.*

I answer, 4. That the *natural Law* cannot be changed, by manner of Substraction, at least with Regard to the first Precepts in that Sense, that something which was before according to the *natural Law*, be no longer so. Because, though it be entirely immutable with Regard to the first Principles, as we have already observed, it notwithstanding can be changed with Regard to the Conclusions, if not in all, at least in several; for some particular Causes hindering the Observance of such Precepts.

From what I have said it may be inferred, that the *natural Law* can neither be abrogated, nor one derogate to it; because the Obligation of the *natural Law* proceeds from the Nature of Things itself, which cannot be changed; notwithstanding that by the Law of Nations, Servitude, and the Division of Goods have been introduced; because neither Liberty nor the Community of Goods are of a natural preceptive Right, but only of a permissive one; and therefore the Law of Nature leaves it indifferent, whether Goods be proper or common.

Our next Question is, *If Dispensation has Place in the natural Law?*

Note, 1. That it is not Question here of the first and most universal Precepts of the *natural Law*; since every body knows that they are indispensable; but that it is Question of those, which, with Respect to the most universal and first Principles, are as Conclusions deduced evidently from them; such are the Precepts of the Decalogue.

2. That of the Precepts of the *natural Law*, some are Affirmative, and command the Action always, but not for all Times, such is this Precept, *God is to be served*; and others Negative, which forbid the Action always, and for all Times; so that there is not one Moment where the forbidden Action is allowed; such is the Precept which forbids Blasphemy and Perjury.

3. That the negative Precepts of the natural Law either oblige simply always, and in all Circumstances, such are those which forbid Falshood, Perjury, Blasphemy, Idolatry, *&c.* or not oblige always and for all Times, but only in certain Circumstances, so that they do not oblige, if those Circumstances be changed; such is the fifth Precept of the Decalogue, *Thou shalt not kill*; for it only obliges under these Circumstances, *viz.* that it is not lawful to kill a Man with one's own private Authority, unless forced to do it in one's own Defence; but it does not oblige not to kill a Man by a publick Authority, or in one's own Defence, and if one's Life cannot be safe otherwise. These pre-observed,

I answer, 1. *That a Man cannot dispense in the natural Law*; according to *Lactantius*, *lib.* 1. *de divin. instit. c.* 8. *To that Law*, says he, *it is not permitted to prerogate, nor lawful to derogate something from it; neither can it be entirely abrogated, or we dispensed from it, either by the Senate or by the People*: Because, if according to that Maxim of *Law* in *c.* 6. *An Equal has no Authority over his Equal*, much less an Inferior over his Superior; whence it follows that a Man who is Inferior, cannot dispense with the Law of God who is his Superior.

I answer, 2. *That God himself cannot dispense with the natural Law*; because suppose, as it is true, that the *natural Law* be nothing else but a Copy of the eternal Law, that Copy cannot be blotted out in a sound human Understanding; unless the Abolition and Mutation be first in the divine Understanding, which it is an Impiety and an Absurdity to imagine. And because God cannot grant to a private Person to dispense with a *Law* remaining in Force with Regard to himself.

It may be objected to this, that God dispensed first with *Hosea*, that he might commit Fornication, *Hosea* i. Secondly with the *Israelites*, that they might rob the *Egyptians*. *Exod.* xiii. Thirdly, with the Patriarchs in the Polygamy: Therefore God can dispense in the *natural Law*.

I answer to the first Part of this Objection, that God did not allow *Hosea* to commit Fornication, but only to take for his Wife a Woman which had been a Fornicatrice, which was not against the Law of Nature; therefore he did not dispense, since that is lawful to every Body.

As to the second Part, God did not permit the *Israelites* to carry away what belonged to others, but only what was their own Property, by the Donation God had made of it to them; because, as sovereign Lord of all, he had transferred the Property of the Goods of the *Egyptians* to the *Hebrews*.

To the fourth I answer, that *Polygamy* is not against the Law of Nature, since it answers the End of the Creation, which is the Multiplication of the human Race.

We'll ask next, *If the natural Law admits of Interpretation?*

Note, 1. That there are two Sorts of Interpretations, one called simple, and the other by *Epicky* or Equity. The *Law* wants the first Sort of Interpretation, that the Sense thereof may be understood. But the *Law* is said to want the second, when it wants to be amended and corrected, in a Case where it would be against Justice and the Intention of the Legislator to observe it. If I be asked, what is properly *Epicky*? I'll answer, that it is the Virtue whereby a Man, without Regard to the Letter of the Law, follows what is most agreeable to Justice, common Utility, and the Intention of the Legislator.

2. That the *natural Law* may be considered in two Manners; 1. According to itself; 2. As it is carried by some positive *Law*. These pre-observed,

I answer, 1. That a simple Interpretation can have Place in the natural *Law*, whether considered according to itself, or likewise as included in some positive Law; because the Precepts of the *natural Law* being not all equally clear, nor all equally easy to be understood; it happens hence, that some of them want Interpretation, whereby their true Sense may be known.

I answer, 2. That the *natural Law* considered in itself, admits of no Interpretation by *Epicky*; because that *Law* which wants no Amendment, admits of no such Interpretation; but the *natural Law* considered in itself wants no Amendment; because as it is founded on right Reason it cannot fail, or if it fails, it must be confessed that it is not right Reason, nor consequently a *Law*.

From the natural Law I'll pass to the *Law of Nations*, and ask first, *what is the Law of Nations, and whether it pertains to the natural Law?*

I answer, 1. That *the Law of Nations is that which natural Reason has established among Men, and which is observed almost by all Men.*

1. It is called *Law*, because it has the Property of a *Law*, which is that it should be entirely just.

2. *Which the natural Reason or Light has established among Men*, because through the Exigency of their Affairs, Men of almost all Nations have established it.

2. *And which is observed by almost all Men*; because almost all Nations observe that *Law* to which they have almost all given a Sanction.

If I be asked, which are those Precepts which have been made, and are kept by almost all Nations? I'll answer, that the principal of them are *Manumissions*, *War*, the Difference *made between Nations*, *the Condition of Kingdoms*, *the Difference of Government*, *the Partitions of Lands*

Lands, Buildings, Commerce, Emptions, Venditions, Locations, Conductions, &c.

I answer, 2. *That the Law of Nations pertains rather to the positive than to the natural Law*; because established and calculated by Men for the Security of the Civil Society; for it differs from the natural Law, in that the Institution of the natural Law does not depend of Men, and is not said to be in Force among almost all Men, but among all without Restriction.

From what I have said it may be inferred, that the *Law of Nations* differs from the natural Law in four Manners: 1. Because the Object of the Law of Nature is a necessary Good or a necessary Evil: When as the Object of the *Law of Nations* depends entirely of Men's Will, *v. g.* it depends of Men's Will, that there should be or not, a Partition or Property of Goods and Power. 2. Because the natural Law properly said cannot be changed; when as the Law of Nations is not only mutable, but has been changed in fact, *v. g.* with Regard to Servitude or Slavery, which is not suffered among Christians. 3. Because the Law of Nature is absolutely common to all Nations, notwithstanding, that in some Places perhaps it is not observed, through Ignorance: But the *Law of Nations*, though very common, can notwithstanding be confined within narrower Limits, at the Nation's Pleasure.

Note, That from the natural Law, I'll pass to the divine.

Note, also, That God had created Man to his Image and Resemblance, had given him a Mind adorned with Reason, inclinable of its Nature to Good, and to be entirely directed by his Free-Will. He had received from his Creator but one *Law*, the Observance whereof was so easy, that nothing was forbidden thereby but the Fruit of the Tree of Good and Evil; but conquered by the external Suggestion of the Woman, not by the internal one of the Concupiscence, which was not yet within him; he violated God's first Commandment, by tasting of the forbidden Fruit. Hence the corrupted Source of all our Evils. Hence the Concupiscence began to revolt against Reason, and to exercise its tyrannical Empire on all Men born from those first Prevaricators; a glaring Example whereof we have in their first Children. *Cain* inflamed with Jealousy, as if the whole Universe was too narrow to contain them both, killed his Brother *Abel*. Their Posterity carried Impiety to a supreme Degree; so that in *Noah*'s Time all Flesh had corrupted its Way, nor could the raging Flames of Man's Concupiscence be extinguished, but by opening the Cataracts of Heaven, and lacerating the very Bosom of the Deep, to blot out by an universal Deluge, to the minutest Lineaments of the Face of the Earth, so much disfigured by Men's Iniquities. But the human Race was scarce repaired by *Noah*'s Children, but they returned to their Vomiting, and having neglected the Worship of the true God, they had the sacrilegious Ingratitude to offer their Vows, and lift up their Eyes and Hands to Idols.

The Number of Men being prodigiously increased, they began to think of dividing the Earth between them; but before their Separation, the Tower of *Babel*, or of *Confusion*, began by their sacrilegious Presumption, was interrupted by a more potent Authority. There began the Confusion of Languages, and the Division of the common Tongue into several: So that they being thereby deprived of that Commerce which united them together, some of them departed to inhabit some other Parts of the Earth; but though separated from one another, as well by the Distance of the Places, as by the Diversity of Language; they notwithstanding agreed in the Perpetration of all Kinds of Enormities. But God, *who is rich in Mercy*, selected to himself from among them some Persons, and among the rest *Abraham*, who was chosen by him in a special Manner to be Father of the Faithful; from whom descended the *Hebrews*, whom *Moses* delivered from the Captivity of *Egypt*; but this *stiff-neck'd People*, as they are called in the Scripture, very little grateful for the continual Favours they had received from God's munificent Hand, and following rather the effrenate Motions of Nature vitiated by *Adam*'s Sin, than the Dictates of their Reason, preferred the Creatures to the Creator, and rebelled often against their Conductor. Then, by the Example of the Gentiles, committed all Sorts of Crimes against the Law of Nature, where, to revive that Law, almost entirely extinct among the *Jews* as among the *Pagans*, and to strengthen Reason against the natural Cupidity, the Law of Nature was to be renewed by a positive one, contained in the ten Commandments given to *Moses* on Mount *Sinai*; in which ten Commandments was included all that was necessary to regulate their Conduct and reform their Manners: So that the Decalogue is nothing else but the natural Law put in Writing.

But as the People was frightened at God's Presence, they desir'd *Moses*, that as their Embassador, he should return to God, where he received the judicial Laws, in which are contained all that related to the Administration of Justice among the *Jews*; but as it would be needless to transcribe here all those Laws, since they can be found in *Exod.* xxi. xxii. xxiii. I'll content myself to mention here the Principal.

An *Hebrew* Slave bought with Money, shall serve six Years, and afterwards be free; but if on his own Accord he remains in Servitude, he shall have his Ears bored, and serve for ever.

He that kills a Man designedly shall be put to Death, and be sent into Exile if he does it by Accident.

He that smites his Father shall surely be put to Death.

If a Man smites his Servant or his Maid, so that he or she die of the Blow, he shall be surely punished.

If a Man hurts a Woman with Child, so that her Fruit departs from her, and yet no Mischief follows, he shall be surely punished according as the Woman's Husband will lay upon him; and he shall pay as the Judges determine. And if any Mischief follow, then he shall give Life for Life, Eye for Eye, Tooth for Tooth, Hand for Hand, Foot for Foot, *&c.* In this Place is established the general Law *Talionis*, whereby it was decreed, that the Punishment should be the same with the Offence. Which *Law Talionis*, passed into that of the twelve Tables, as it appears from the Institutions of *Justinian, lib.* 4. *Tit.* 4.

If a Thief, breaking a House in the Night, be wounded in doing it, and dies afterwards of his Wound, there shall no Blood be shed for him. But if the Sun be risen upon him, there shall be Blood shed for him; for as St. *Augustin* says, *quæst.* 84. *in Exod. It is easy to see that he came to rob, not to be killed.* Therefore the *divine Law* decreed in this Place, that every Man should be the Executor of Justice against a nocturnal Thief. Which *divine Law* was likewise transmitted into that of the twelve Tables; for by that Law it was lawful to *repel Force by Force*; as related by *Tully* in an Oration for *Milo*. And *Florentinus*, *leg.* 3. *de Instit. & Jure*, says, that such a Law makes Part of the Law of Nations. But he who infers hence, that at present one can defend his Property, by the Death of those who attempt to rob him of it, is mistaken, for that is entirely forbidden. And in the very same Institutions of the *Roman* Law, *lib.* 4. *tit.* 3. *paragraph* 2. when it is said, *That he who shall kill a Thief in the Attempt, shall not lay under an Action of Injuries*, these Words are added, *provided he cannot avoid the Danger otherwise.* Even by the Law of Christ it is not allowed to have a premeditated Design to kill our Enemy in our own Defence.—At present let's return to the Narrative of the Laws of the *Jews*.

If a Man debauch a Maid, that is not betrothed, he shall surely endow her to be his Wife. If her Father refuses to give her unto him, the Ravisher shall pay her Dowry.

Whosoever lies with a Beast shall surely be put to Death. He that sacrifices to Idols shall perish. Not to afflict any Widow or fatherless Child. Not to sue a Debtor who is poor, nor oppress him by Usury. Not to receive the Raiment of the Poor for a Pledge.

Not curse the Prince of the People.

Offer all the First-born to God.

Bring back the Flock of one's Enemy, if met going astray; and help his Ass if fallen under her Burthen.

Not kill the Innocent and Just, nor take Gifts, *for the Gift blinds the Wise, and perverts the Words of the Righteous*, &c.

Besides these *moral* and *judicial* Precepts of the old Law, there were also ceremonial, which were all entirely abrogated, together with the Law, itself at Christ's Death, when the *new Law*, or the *Law of the Gospel* was put in Force.

With Regard to this new Law we'll ask, *what it is, and how many Precepts it has?*

I answer, 1. That the *new Law*, or the *Law of the Gospel*, is defined *a divine positive Law, given to all Men by their Legislator Christ.*

It is called *Law*, because the Definition of Law is proper to it.

It is called *positive*, to distinguish it from the eternal and natural Law.

It is said *given to all Men*, to distinguish it from the old Law given only to *Abraham* and his Posterity.

It is said by *Christ*, because Christ himself calls his Precepts in several Places of the Scripture, the Precepts of the new Law.

I answer, 2. *That there are three Sorts of Precepts of the new Law*, viz. *moral Precepts, the Precepts of Faith, and the Precepts of the Sacraments*; which can be proved by the Scripture. For *Matt.* v. vi. Christ explains the moral Precepts of the Decalogue. And *Matt.* ix. forbids Divorce, and the Libel of Repudiation, and decrees that the conjugal Knot should be indissoluble.

As to the *Precepts of the Sacraments*, it is said, *John* iii. *Except a Man be born of Water and of the Spirit he cannot enter into the Kingdom of God.* And *John* vi. *Except you eat the Flesh of the Son of Man, and drink his Blood, you have no Life in you.*

As to the *Precept of Faith* it is said *Mark* xvi. *But he that believes not shall be damned.*

Note, That there is this Difference between these three Kinds of Precepts; that the moral Ones being of the natural Law, were not instituted by Christ, but only explained, and vindicated from the Errors they had been involved in by Men's Malice. But that the sacramental were instituted by Christ, to supply the Place of the old Ones abrogated by him. That the Precepts of Faith were not instituted anew, but only from implicit were made more clear; so that we are obliged at present to believe some Precepts explicitly, which, in the old Law they believed only implicitly; such as the Nativity, Passion, and Death of Christ, and all the other Mysteries, which are only believed obscurely by the *Jews*, and are at present believed expresly by the Christians.

Note, also, That the *human Law*, next to the divine, is to fall under our Consideration.

Note, again, That if we had always been govern'd by our Reason, and it had never been disturbed by our Passions, we should not have wanted human Laws to inflict Punishments against Delinquents, and the Refractories to divine and natural Law; all Attentives to our respective Duties, adhering to Good, and averse to Evil, observing a certain Equity towards ourselves, and a Benevolency towards others, we should be actuated by no other Motive than that of Love of Virtue and good Order. But Men's Minds, agitated by various Affections, and darkned by Errors, deviate from the right Way of Reason and Simplicity, to follow the most intricate and obliquous Passes. Extravagantly infatuated with their own pretended Merit, they behave themselves towards others with Haughtiness and Injustice, envying their Fortune, jealous of their Merit, and great and noble Actions, rejoicing at their Adversities, perfidious, Calumniators, Plunderers, false, always ready to offend them, and almost never to do them good. Therefore *human Laws* were necessary, which establishing Punishments should maintain the natural and divine Law, correct the Delinquents, keep Rebels in Awe, and contain all in their Duties; for if there was no Fear of Punishment, the most sacred and wholesome Laws are neglected by the Indolent, infringed by the Wicked, and despised by the Audacious.

——Sic omnia fatis
In pejus ruere, ac retro sublapsa referri.

Non aliter, quam qui adverso vix flumine lembum
Remigiis subigit, si brachia forte remisit,
Atque illum in præceps prono rapit alveus amne.

Therefore the human Laws are established by those who have Power to do it, to give a greater Authority to the natural Law, that no Body should either omit it, or violate unpunished.

There are two Sorts of human Laws, *viz.* the ecclesiastical and the civil.

The *ecclesiastical Law*, is that established by ecclesiastical Legislators. The Power of making *Laws* has been granted to the Church, *viz.* to the sacred Councils, and to the Bishops who are the Successors of the Apostles, whom every Faithful is obliged to obey, according to Christ's Command, who speaks thus to the Apostles, *Luke* x. 16. *He that hears you hears me, and he that despises you despises me.* Therefore the Apostle St. *Paul* being at *Miletum*, assembled all the Prelates of the Church of *Ephesus*, to whom he spoke thus, *Acts* xx. 28. *Take Heed therefore unto yourselves, and to all the Flock, over which the Holy Ghost hath made you Overseers, to feed the Church of God, which he has purchased with his own Blood.* But this Authority would be vain, if what can contribute towards the Edification of the Church, and has been established with the Consent, and received by the Generality of the Faithful, was transgressed by some without Fear of Punishment. Hence the same Apostle St. *Paul* says, 1 *Cor.* iv. 21. *What will ye? shall I come unto you with a Rod, or in Love, and in the Spirit of Meekness?* And he confirmed it in the Name of Christ, by the Excommunication of the incestuous *Corinthian*, in the following Chapter, ver. 3. *For I verily as absent in Body, but present in Spirit, have judged already, as though I were present, concerning him that has done this Deed; in the Name of our Lord Jesus Christ, when ye are gathered together, and my Spirit with the Power of our Lord Jesus Christ, to deliver such an one unto Satan, for the Destruction of the Flesh, that the Spirit may be saved in the Day of the Lord Jesus.* He afterwards forgave the same Man repenting of his Sin, 2 *Cor.* ii. 10. in these Words; *To whom ye forgive any Thing, I forgive also; for if I forgave any Thing, to whom I forgave it, for your Sake, I forgave it in the Person of Christ*, i. e. in the Name, and the Authority of Christ, whose Person I represent, and who said to his Apostles, *Matt.* xviii. 18. *Verily I say unto you, whatsoever you shall bind on Earth, shall be bound in Heaven; and whatsoever ye shall lose on Earth, shall be loosed in Heaven.* I confess, that the Punishment was inflicted by the Apostle on the Incestuous, for his having sinned against the divine, not the human Law; but it is certain that several Things are decreed by the Apostles, which were contained neither in the natural, nor the divine Law. For in the first Council, *viz.* that of *Jerusalem*, *Acts* xv. a Law was made, that the Gentiles converted to the Christian Faith, should abstain from Blood, and from Flesh suffocated, which was not commanded by the divine Law. And that Law remained in Force in the Church, as long as the Reasons which had engaged the Apostles to make it, subsisted, according to St. *Augustin*, *lib.* 32. *cont. Faust. c.* 13. Likewise St. *Paul*, 1 *Tim.* iii. 2. forbids that the Bigames should be promoted to Episcopacy; which notwithstanding is not found written in the divine Law. And by their Example several Things have been established in the Church, by what we call the Canons of the Apostles, by the Councils, and by the Constitutions of the Popes, which are not at all mentioned in the divine Law.

But however we must make a very great Difference between the Things which have been defined relating to Faith, and those which regard the Discipline only. For the Sanctions of the first Kind, whereby no new Articles of Faith are made, but only those which God has revealed as pertaining to Faith, are declared, are not subject to Changement or Mutation, or are irreformable, as *Tertullian* speaks, *lib. de virgin. veland. c.* 1. But the Decrees of the last Kind, the first Causes thereof failing, and new ones happening, are subject to Reformation.

As the *ecclesiastical Laws* are taken, Part from the Scripture, Part from the Councils, Part from the Writings of the Fathers, and Part from the Constitutions of the Popes; *Latin* and *Greek* Authors have given at different

different Times, ſeveral different Collections of them, before the Compilation of the canonical Laws, in *French* called *Droit canon*, and in Latin *canonicum jus*; ſuch as it is received in the *Roman* Church, contained in three Volumes, and in ſix Collections.

The firſt Volume contains a Collection of the antient Canons, and conſequently the old eccleſiaſtical Law, *Jus antiquum*, which was in Force in the Church for the Space of eleven Centuries. This Collection was called by *Gratian*, the Author thereof, *Concordantia Diſcordantium Canonum*, having applied himſelf, not only to collect the ſacred Canons, but likewiſe by means of a ſcholaſtical Learning, in which he was very well verſed, to reconcile thoſe between which there was a ſeeming Contradiction. This Collection is, notwithſtanding its firſt Appellation, commonly called *Decretum Gratiani*, the Decree of *Gratian*, i. e. a Compilation of the Church's Decrees made by *Gratian* towards the Year 1151, under Pope *Eugenius* III. *Gratian* was a *Genoeſe*, and by Profeſſion a Benedictine Monk.

This Decree of *Gratian* is divided into three Parts. The firſt Part contains a hundred and one Diſtinctions, and each Diſtinction has its particular Canons. In the firſt twenty Diſtinctions it is treated of the Law itſelf, and of the different Sorts of Law, and of the natural and poſitive Law, of the divine and human Law, of the civil and eccleſiaſtical Law, of the Parts whence the eccleſiaſtical Law ariſes, *viz.* the Canons of the Councils, the Sentiments of the Fathers, and the Decrees of the Popes. In the following Diſtinctions is explained all that regards the Eccleſiaſticks; where it is treated of thoſe who are admitted into the Clergy, into the Orders, and into the Dignities of the Church; of the Primacy of the Church of *Rome*, and of the reſpective Rank of all the other patriarchal Churches; of the Ordinations of Clerks, and of the Impediments of Ordinations, of the Virtues proper to the Clergy, of the Vices they are to abhor, and laſtly of the univerſal Hierarchy, and of the different Degrees of the eccleſiaſtical Juriſdiction.

The ſecond Part of the Decree contains thirty-ſix Cauſes; thus called becauſe they are propoſed as ſo many Suits of Law to be pleaded and judged. Each Cauſe is divided into Queſtions and Canons. In the thirtieth Cauſe, *quæſt.* 3. is concluded a Treatiſe of *Penitence*, contained in ſeven Diſtinctions. Therefore all this ſecond Part of the Decree is of the eccleſiaſtical Judges, who ſhould be all very well verſed in the Science of Morality, ſince they are obliged by their Office to reſolve all the moſt intricate Doubts, and difficult Queſtions propoſed to them on that Subject.

The firſt Cauſe containing ſeven Queſtions, treats of *Simony*, the greateſt of all the Crimes an Eccleſiaſtick can be guilty of, whereby, by the Example of *Simon Magus*, *Acts* viii. 18. ſomething ſpiritual, or annexed to the ſpiritual, is bought or ſold. The following Cauſes, as far as the ſixteenth, treats of criminal Judgments, *viz.* of Accuſations, Witneſſes, of the Manner of judging Biſhops, of the Juriſdiction of Biſhops over their Clerks, of the Defects of Ordination, of the Clerks Goods and Eſtates, of the Tithes, of Funerals, of Uſury, *&c.*

Afterwards *Gratian* paſſes to the Monks, from the ſixteenth Cauſe to the twenty-firſt, where he treats of the Right of Patronage, of the State of the Monks and Monaſteries, *&c.* The twenty-firſt Cauſe is of the Life and Honeſty of Clerks; the reſt of the Cauſes treats of the Crimes which are common between Eccleſiaſticks and Laicks. Therefore the twenty-ſecond Cauſe is of the Crime of Falſhood and Perjury; the twenty-third of Homicide and War; the twenty-fourth of Herely; the twenty fifth of not violating the Privileges of the Church; the twenty-ſixth of Sacrilege. Laſtly, from the twenty-ſeventh Cauſe to the End, he treats of Judgments, of Matrimony, inſerting, as we have obſerved already, in the thirty-third Cauſe, *quæſt.* 3. a Treatiſe of Penitence divided into ſeven Diſtinctions.

The third Part of the Decree is called *of the Conſecration*, and has ſeven Diſtinctions, the firſt whereof is of the Conſecration of Churches, and of the Celebration of Maſſes; the ſecond of the Euchariſt; the third of the Feaſts celebrated throughout the whole Year; the fourth of Baptiſm; the fifth of the Confirmation and Faſt.

The ſecond Volume of the *Canon Law*, contains five Books of Decretals of Pope *Gregory* IX: or a Collection of Epiſtles whereby ſomething is decreed, particularly of thoſe written from the Year 1150 to 1230, with an Addition of the Decrees of the Councils, particularly of the ſecond and third General of *Lateran*; and likewiſe of ſome Sentiments of the Fathers omitted by *Gratian*. This Collection was digeſted by *Raymond de Pennafort*, of the Order of the Dominican, Chaplain, and Penitentiary to Pope *Gregory* IX.

There was then five Collections of Decretals, called the *antient Decretals*; the firſt four whereof were of *Antony Auguſtin*, and the fifth of *Innocent Ciron*. Of theſe five Collections, and ſome Epiſtles of *Gregory* IX. was formed the *Gregorian* Compilation; in which the Compiler *Raymond* has not related the antient Decretals at length, but has curtailed ſeveral of them.

The Order obſerved in the Decretals of *Gregory* IX. is this: The firſt Book containing 43 Titles, having began by the Doctrine of the Trinity, and the Expoſition of ſeveral Sorts of Laws, he treats of the Judges, or Prelates of the Church, of the Eccleſiaſticks, and of their Ordination. The Second, containing 30 Titles, treats of pleading all Cauſes in general, and of the judicial Order to be obſerved in Civil Matters. The Third, compoſed of 50 Titles, is of the eccleſiaſtical Affairs. The Fourth, containing 21 Titles, treats of Matrimony; and in it are included the eccleſiaſtical Cauſes of the Laicks, which are to be pleaded at a Biſhop's Court. Laſtly, the Fifth, containing 41 Titles, conſiſts in the criminal Judgments, in the eccleſiaſtical Cenſures, *&c.* which is all expreſſed in the following Verſe:

Judex, judicium, clerus, ſponſalia, crimen.

The third Volume of the *eccleſiaſtical Law*, includes the four remaining Collections, *viz.* the ſixth Book of Decretals, the *Clementines*, the Extravagantes of *John* XXII. and the common Extravagantes.

The ſixth Book of Decretals, which had been compiled, particularly by *William* Archbiſhop of *Embrun*, and by ſeveral other learned Men, was publiſhed by *Boniface* VIII. in the Year 1298. it is called the *ſixth*, becauſe added to the five of *Gregory* IX. It contains the Epiſtles written by *Gregory* IX. after his Compilation, of the following Popes, and of *Boniface* himſelf; beſides the Decrees of the two general Councils of *Lyons*. This Book is divided into five ſmaller, in the ſame Order, and with the ſame Titles, obſerved in the *Gregorian* Collection.

Clement V. a *Frenchman*, born in *Aquitaine*, compoſed the fourth Collection, of his own Epiſtles, and of the Decrees of the Council of *Vienne*, celebrated in the Year 1311; which, notwithſtanding, not himſelf, but *John* XXII. alſo born in *Aquitaine*, publiſhed under the Title of *Clementines*.

The fifth Collection, contains the *Extravagantes* of the ſame *John* XXII. to the Number of twenty.

The ſixth and laſt Collection, includes the *common Extravagantes* of other Popes: Thoſe decretal Epiſtles of *John* XXII. and of other Popes, are called *Extravagantes*, becauſe they are not included in the Body of the canonical Law.

To all theſe may be added the four Books of Inſtitutions of the canonical Law, written by *John Paul Lancelot*; which are of no publick Authority, no more than all the reſt.

Note, That all theſe Collections, or Compilations of the *canonical Law*, are of no Force in *France*, no further than they are agreeable to the Liberties and Cuſtoms of the *Gallican* Church.

Likewiſe new Briefs, Bulls, *&c.* of the *Roman* See, can be of no Force in the Kingdom, but when they are introduced by the King's Edict, examined and approved by the Parliament of *Paris*, and received by the Clergy of *France*.

The *Gallican* Church has alſo eccleſiaſtical Laws proper to herſelf, compoſed of the antient Inſtitutes of the univerſal Church; of the *Pragmatick Sanction*, promulgated by the Moſt Chriſtian King *Charles* VII. in the Year 1438; and of the *Concordats*, between *Leo* X. and *Francis* I. King of *France*, in the Year 1515.

The *Germans* have, likewiſe, their *Concordats*, concluded

cluded between *Nicholas* V. Pope, and the Emperor *Frederick* III. in the Year 1447.

In *England*, since the Reformation, the *canon Law* has been much abridged and restrained; only so much of it obtaining, as is consistent with the Common and Statute Laws of the Realm, and the Doctrine of the established Church.

Besides those Laws or canonical Constitutions, which compose almost all the written *Canon Law* of the *Roman* Church, there occur in particular Churches some particular Customs, not written; which being not derogatory to the natural Laws, nor contrary to the Maxims of a Christian Life, are to be observed, not only by the Inhabitants of these Places, but likewise by Foreigners. Therefore Custom is to be observed as a Law, as far as it is not contrary to Truth and Equity.

Note, That from the canon Law I'll pass to the Civil.

The CIVIL LAW, is that made by a civil Legislator, *viz.* either a Prince or a Republick, and which all the Subjects of that Prince or Republick are obliged to obey. For good Order cannot suffer that the Inferiors should not obey their Superiors in Things calculated for the publick Good.

Therefore those who command others, have a Right to call to an Account those who despise their Laws; which is confirmed by the Apostle, *Rom.* xiii. 1. *Let every one be obedient to the superior Power; for there is no Power but from God:* Therefore he who resists Power, resists God's Ordinance. And to shew the Enormity of the Crime of those who resist a legitimate Authority, in Things which are not contrary to Reason, the publick Good, *&c.* He adds, *and those who resist acquire their Damnation.*

From which Expressions it is easy to understand, that the *Civil Law* is political, and temporal with Regard to the Object and the Things commanded; but that the Obligation arising from it, is internal and spiritual; and that the Observance thereof cannot be despised with a safe Conscience; but every one, either Clerk, Foreigner, or Stranger, is under the Direction of those Laws: Likewise a Traveller, while he stays in a Place, makes Part, at least a transitory and temporary one of the Society of those among whom he lives; and consequently must submit himself to the Laws, Customs, and Usages of the Place, as far as it is not repugnant to the natural or divine Law. Whence this Proverb,

Dum fueris Romæ, Romano vivito more.

For there has been no Nation nor People ever so great Barbarians, which had not their own particular Laws.

First, we have seen the civil Precepts which God himself had dictated to the *Jews*. Then we know that the most antient People, and particularly among the *Greeks*, have digested and reduced into Writings their Civil Laws, such were those of *Solon*, *Licurgus*, and others, which all flow from the natural Law; and perhaps are taken in part from the Law of *Moses*. But the *Romans* have excelled in that all other Nations. For they have not only encouraged and cultivated the Art of conquering other Nations, but likewise of governing them by just and wholesome Laws, which *Virgil* insinuates, *lib.* 6. *Æneid.* in these elegant Verses.

Excudent alii spirantia mollius æra:
Tu regere imperio populos Romane memento.

Therefore besides the Laws of *Romulus*, and of the other Kings, which were in Force while the Royal Authority lasted; they took Care, after the Expulsion of the King, to make Laws agreeable to the republican Government they had established among them, to keep the Citizens under a just and reasonable Subjection, to compose their Differences, *&c.* To that Effect, they sent about the Year 300 of the Foundation of *Rome*, three Deputies to *Athens*, and to the other Cities of *Greece*, to collect the Laws of those People, and bring them to *Rome*. These being return'd three Years afterwards, seven other Men, eminent for their extraordinary Merit, were joined to them, to make a Choice of those Laws, and who digested them into ten Tables, to which soon after, by reason that some of those Laws were defective, were added two more Tables: So that those twelve Tables became afterwards the Source of all the private and publick Laws. Those Compilers were called *Decemviri*; whence the Laws of the twelve Tables were also called *decemviral Laws.*

It is great Pity this System of Laws should have perished, through the Injuries of Time; we have now nothing of it but a few Fragments dispersed in divers Authors. *J. Gothofred* has collected them together, and we have them in *Rosinus*, and some other Authors. The *Latin* is very old and barbarous, and remarkably obscure.

Next to these Tables were what was properly called *Laws*, which were Ordinances of the whole Body politick: The *Plebiscita*, made by the *Plebeians*; the *Senatusconsulta*, by the Senate. Then next were the *Edicts* of the Pretors, whence proceeded a Right called the *honorary Right*. These Edicts having been collected into one Body, that Body was called the *perpetual Edict*.

The Face of the Republick being changed, and the Empire deferred to one Person only; there ensued several Constitutions of the Emperors, which during very near 500 Years, *i. e.* from *Augustus* to *Justinian*, increased in a surprizing Manner.

Of these Constitutions of the Emperors, from *Adrian* to *Constantine*, were composed two Codex's, in the Time of *Diocletian*, one by *Gregory*, and the other by *Hermogenes*, both private Persons. The Emperor *Theodosius* the Younger, gave the third Codex, digested by eight prudent Persons, in which he included the Constitutions of the Emperors, from *Constantine* to himself.

At last the Emperor *Justinian* perfected quite the *Roman* Jurisprudence. For in the Year of Christ 528, he appointed some illustrious Persons to free the *Gregorian*, *Hermogenian*, and *Theodosian* Codex's of their too tedious Prolixity, and to compose of them another under the Name of *Justinian*. Agreeable to the Emperor's Expectations they perfected the *Justinian* Codex, which he approved and confirmed by an imperial Constitution, given in the Year 529.

Afterwards, he caused to be comprised into a single Work, all the antient Laws divided into fifty Books, which Work was called the *Digest*, or *Pandects*.

Then he published an Epitome of the *Civil Law*, distributed into four Books, for the Use of young Students in the Law, and which he called, *The Epitome of the Institutions of the Civil Law.*

But as he found that several Things were omitted in the Codex, or not treated with that Accuracy he desir'd, he caused it to be corrected in several Places, and would afterwards give a second Edition thereof more correct than the first, and this is, *Repetitæ prelectionis codex*; which we read in the Body of the Civil Law.

The *Novellæ* were soon added to it, or 168 new Constitutions. So that the whole Body of the Civil Law consists of four Collections, *viz.* the four Books of *Institutions*, fifty Books of *Digests* or *Pandects*, twelve Books of the Codex, and 186 Novels. From which Novels were extracted short Sentences, which in the Division of the *Codex*, were inserted in several Places thereof, and are called *Authenticæ*, because confirmed by the Authority of the Emperor.

But as the fifty Books of *Digests* or *Pandects*, with the *Glossa*, could not be contained in one Volume, Booksellers have divided them into three, calling the first Volume the *antient Digest*; because it was published first, the second *Infortiate*, because it gives a clearer, and more ample Knowledge of the Law; and the third the *new Digest*, because published last.

Each Book of the *Pandects* and *Codex* is divided into Titles, and the Titles into Laws, and the Laws into Paragraphs. Therefore when some Law of the *Digests* or *Pandects* is quoted, the Name of the Digest is signified by the majuscule Letter D. And of the *Pandects*, by a *Greek* π with a Circumflex, in Place whereof the Printers substitute a double *ff*. For Example, if any Body wants to quote the third Paragraph of the first Law of the first Title of the *Digests* or *Pandects*, which has for Title *de Justitiâ & Jure*, he'll say, the *natural Right is what Nature has taught all Animals*, from *lib.* 1. *paragra.* 3. D. or *ff. de Justitiâ & Jure*, i. e. the first Law, third Paragraph of the *Digest* or *Pandect*, Title *de Justitiâ & Jure.*

And in the Codex, *L. nemo* 2. *cod. de Sacrosanct. Ec.*

i. e.

i. e. the Law which begins at this Word *nemo*, which is the second Law in the Codex, Title *de Sacrosanctis ecclesiis*. This Title is the second of the first Book. If the *Authentica* is quoted, it must be said, *Authen. cassa, cod. de Sacrosanctis Ecclesiis*, &c. The *Novels* are quoted by their proper Names, and the Chapters thereof are indicated. The Institutions of the Civil Law are commonly quoted by Paragraphs and Titles.

Though the *Roman* Civil Law was composed with so much Art and Care by *Justinian*'s Order, as well of the Answers and Observations of the most learned Lawyers, as of the Constitutions of the Emperors, it notwithstanding was not presently approved by the succeeding Emperors, nor pleaded at the Bar. But its Authority increased by Degrees, as it began to be more known among Mankind. And at last began to be observed by almost all Nations, either in the whole or in Part. At present it is of a great Authority in almost all *Europe*, where it is simply called *Law*.

For though there be scarce any Kingdom or Province in *Europe* which has not its particular Use and Customs; in them notwithstanding the *written Law*, i. e. the *Roman Law*, is a Rule whenever the customary, or common Law is deficient. Which is rightly observed by *Obertus de Orto*, a Lawyer of *Milan*, *lib.* 2. *de Feudis. Tit.* 1. in these Words, *An experienced Lawyer, if a Case arises, which is not contained in the common Law, can very well have Recourse to the written Law.*

In *France*, there are some Provinces where the *written Law* is in Force, as in *Lionnois*, *Provence*, &c. and others follow their antient Customs, as *Britanny*, *Normandy*, &c. which, notwithstanding by the Constitutions of *Charles* VII. *Anno.* 1454. must be put in Writing, and approved by the superior Courts; to take off all Occasion of Variation, which arose from the Diversity of Opinions; and the Judges should be more certain of what they were to follow in their Judgments. Almost every where, notwithstanding, the *Roman Law*, is considered as a certain common Rule; for it contains the true and genuine Principles of natural Equity and Justice; and we cannot find any where else better Precepts and Definitions of the Jurisprudence: Therefore it will not be improper to give here a Kind of Abridgment of the Institutions of *Justinian*, since those Institutions are like the Elements of the *Roman* Jurisprudence, which our Pupil, Jurisconsulte or Lawyer, should learn first, if he designs to become a learned one; and not be contented with rendering himself perfect, only in the Querks of the *Law*, which but too often renders odious and very oppressive, one of the most honourable Professions of the Civil Society.

The *Institutions of Justinian* are divided into four Books, each whereof contains various Titles, each Title being besides divided into *Beginning* and *Paragraphs*.

From the First Book.

The *First Book*, having given the Definition of Justice and Jurisprudence, and exposed the different Kinds of Laws, treats of Persons, of which it reckons several Divisions.

Title I. *Of Justice and Law.*

Justice, is *a constant and perpetual Will of giving every one his own.*

It is said, *a constant and perpetual Will*, to indicate thereby the Habit of the Will, for a constant and perpetual Will is not without Habit. It is added, *to give every Body his own*, because the Object of Justice is to give every Body his own.

Jurisprudence is the Art or Science of the Law; in which Sense it is defined the *Art of Good and Just.*

Law, is either publick or particular. That *Law* is called publick, which relates to the State of a Republick or Kingdom; as the sacred Law, the Law of War and Peace. Among the *French* the *Salic Law*, which excludes the Females from the Throne. Likewise in *Germany* those *Laws* which relate to the Election of an Emperor, are publick Laws, &c.

Those are called particular Laws, which have for Object the Utility of every Individual; and of these only *Justinian* treats, and which he says he has collected from the natural and Civil Laws, and from the Laws of Nations.

Title II. *Of the Natural and Civil Laws, of that of Nations.*

Natural Law is defined in this Title, *a Law which Nature has taught all Animals*: Or which is common to Men and Beasts; though Beasts are justly considered deprived both of Reason and of Law; but when Beasts do by a natural Instinct what Men do by Reason, they are said to do it by the *natural Law*. In Proof thereof we bring the Copulation of the Male and Female, the bringing up their Progeny, &c.

The *Law of Nations*, is that *used by human Creatures*, according to *Ulpianus*, *leg.* 1. *ff. de Just. & Jure.* and this is either primary or secondary.

That is called *primary*, which natural Reason has established among Men; to which belongs Religion, the Love for our Country, and Parents, &c. And this *Law* is in fact the *natural Law*, because it properly belongs to no other but rational Creatures: And it is thus called by the Emperor *Justinian*, *lib.* 2. *instit. titul.* 1. *parag.* 11.

The *secondary*, is that which *has been established according to the Exigency of human Affairs*; and whereby almost all Contracts have been introduced in the Civil Society, as *Emption*, *Vendition*, *Location*, *Conduction*, *Society*, *Depositum*, *Mutuum*, and an almost infinite Number of others.

The *Civil Law*, is that which a free People have established for themselves. And this is either written or not written, or *customary*; though the customary Law is at present written in most Parts of *Europe*, particularly in *France* and *England*.

Title III. *Of the Right of Persons.*

Justinian begins in this Title, to treat of Persons; and says the first Division of Persons to be this, that all Men are either free or Slaves.

Liberty, taken for the State or Condition of Man, as it is taken here, is *the natural Faculty every one has to do what he pleases, unless he be hindered from it either by Violence, or by Law*, from *l.* 4. *ff. de Stat. homin.*

It is said, a *natural Faculty*, because all Men are born free; but *Servitude* has been introduced by the Law of Nations; for after War was introduced among them, Captivity or Servitude followed soon, which was countenanced by the Civil Law, and thereby it happened, that some were brought under the Sovereignty of others, who obtained a Power of Life and Death over them, against Nature, and the primary *natural Law.*

It is said, *whereby one does what he pleases*; for the Effect of Liberty is to do what one will. Hence this Sort of Liberty is defined by *Cicero*, *pared.* 5. *The Power of living as one wills.* The same *Tully*, *lib.* 1. *de off.* says, that *the Property of Liberty is to live as you will.*

It is added, *unless hindered from it by Violence and Law.* For a Man free can be hindered by these two Things, *Violence* and *Law*, from doing what he pleases; though thereby he is not made a Slave, but still remains free. Which *Servius* insinuates against the 28th Verse, of the first Eclogue of *Virgil*, in these Words, *Otherwise a Slave says, I desire my Liberty, and otherwise an Ingenuus* (i. e. he who is free as soon as he is born,) *for the first desires to be delivered from his Servitude, and the last will have his Liberty to act as he pleases.*

Therefore a Man free is sometimes hindered from doing what he pleases though he remains free. As a Man tied Neck and Heels by Thieves, does not become a *Slave*, though he cannot do what he pleases. Much less do we lose our natural Liberty, when forbidden by the *Law* to do certain Things. For as *Cicero* says, *Orat. pro cluent. We are thereby made Slaves of the Law that we may become free.*

Servitude is defined, *leg* .4. *lib.* 4. *ff. de Stat. hom. A Constitution of the Law of Nations, whereby one is brought under a foreign Power against Nature.* It is said, *a Constitution of the Law of Nations*, and likewise of the Civil Law; because Slaves, among the *Romans*, were either born so or made such. They were born of Servants; but were made by the Law of Nations, *viz.* by Captivity; or by the Civil Law, when a Man above twenty Years

of Age suffered himself to be sold for a certain Price.

Slaves were thus denominated from that the Emperors used to sell or keep their Captives, and not kill them; whence they were also called *Mancipii*, because they were taken by the Enemies, and not killed.

There was no Difference in the Condition of Slaves; but the Free were either *Ingenui*, or *Libertini*.

An *Ingenuus*, was he, who was free as soon as he was born; or was born of a Mother which was free; for, in that Case, the Child followed the Condition of his Mother.

A *Libertus*, was a Slave set free by *Manumission*; which *Manumission* was an Act whereby a *Slave* was set at Liberty, or out of Bondage; which was effected in several Manners, some more solemn than the others.

The solemn Manners were three, *viz.* the *Vindicta*, *Census*, and *Testament*.—The *Vindicta* was when the Slave was led before the Pretor, and that Magistrate laid his Wand, called *Vindicta*, on his Head; thus called *Vindicta*, from one *Vindicius* a Slave, who having discovered a Conjuration of some young Noblemen against the Republick, was made free, and a *Roman* Citizen. —The *Census* was when, with his Master's Consent, a Slave had his Name entered in the *Census*, or publick Register of the Citizens; to which succeeded the Manumission made, in the Church, on Christian Slaves, before the Assembly of the Faithful; till Slavery was entirely abrogated among Christians.—Lastly, the *Manumission* by Testament, was when the Master gave the Slave his Freedom by his Testament.

It was not necessary, that the Pretor should be on his Tribunal to perform the Ceremony of *Manumission*: He did it any where indifferently, in his House, in the Street, going to bathe, *&c.* he laid the Rod on the Slave's Head, pronouncing these Words, *Dico eum Liberum esse more Quiritum:* I declare him a Freeman after the Manner of the *Romans*. This done, he gave the Rod to the Lictor, who struck the Slave with it on the Head; and afterwards with his Fist on his Face and Back: And the Notary, or Scribe, entered the Name of the new Freedman in the Register, with the Reasons of his *Manumission*.

The less solemn Manners of *Manumission* were also three; viz. *among Friends*, when a Master *manumitted* his Slave in the Presence of his Friends.—By the Table, *per Mensam*, when a Master admitted his Slave to his Table.—By Epistle, *per Epistolam*, where a Master granted by Letters to his Slave, that he should live free.

There were three different Conditions of *Liberti*, or *Manumitted*. For some of them were made *Roman* Citizens, and enjoyed all the Rights and Privileges of the City of *Rome*; as the *Right of Marriage*, the *Right of making a Testament*, and the Right *Patriæ Potestatis*, *&c.* Others were called *Latini Juniani*, because of the Law *Junia Norbana*, made by *M. Julius Silanus*, and *L. Norbanus Coss.* they enjoyed the same Right the *Latins* enjoyed before the War of *Italy*, to whom the *Jus Latii* had been granted, whereby they traded with the *Romans*, but did not enjoy the Rights or Privileges of the City, but were considered as Strangers. Others were *Deditii*, whose Condition was worse, as being semblable to those People, who having promised Fidelity to the Republick, revolted afterwards from it, and returned to it again, to enjoy an imaginary Liberty. *Justinian* abolished entirely those different Classes of *Libertini*; as is evident from Tit. 5. of this Book.

TITLE VIII. *Of those who are of their own, or of another's Right.*

The second Division of Persons is into those, who are of their own Right, and are called *Patres-Familias*, whether arrived at the Age of Puberty or not; and into those who are of another's Right; whether they be under the Authority of a Master, as Slaves abovementioned, or under the paternal Jurisdiction, as Children.

TITLE IX. *Of the paternal Power or Jurisdiction.*

Paternal Power, is a Right, which, by the *Roman* Law, a Father has on his Children, whether born of a lawful Marriage, or legitimated, or adopted. Every Body knows what Children, born of a lawful Marriage, are: If they be born of a Concubinage, they are called *natural*, not legitimate, because not acknowledged by the Laws; but they can be legitimated by a subsequent Matrimony: And those who were called *adoptive*, among the *Romans*, who were not Children by Nature, but only by Adoption.—There are two Sorts of Adoption; one was called *Adrogation*, whereby a Person who was his own Master, was taken by another into the Relation of a Son: The other, whereby a Son who was not his own Master, passed under the Jurisdiction of an adoptive Father: This Adoption was made before the Pretor, and the first at an Assembly of the People, in the Times of the Common-wealth, and afterwards by a Rescript of the Emperor.

Great was the Authority of the Father over his Children, by the Law of the twelve Tables: Therefore *Justinian* says, in this Place, *that none have so great an Authority over their Children, as the* Roman *Citizens had.* For the Law of the twelve Tables is this: *Let the Authority of Fathers over their Children be a supreme one: let them have the Liberty to sell or kill them. If a Father sells thrice his Son, let the Son be free from his Father.*

Hence it happened, that, in the old *Roman* Law, the *Emancipation* of Children, was made by three imaginary Venditions, and as many Manumissions; which was not done without some Formalities: For the Father, accompanied by a Friend, called *Fiduciarius Pater*, Father in Trust, brought his Son before the Pretor; whom he sold to the *Pater Fiduciarius*, being confident that his Son would recover his former Liberty: Therefore the Father in Trust, in the Presence of five Witnesses, bought the Son from his natural Father, giving him for Form-sake, one or two Crowns, and thus the same came under his Jurisdiction, who presently manumitted him. Being manumitted, and falling again in the Power of his natural Father, he was sold a second Time, and manumitted again by the *Fiduciarius*; which Ceremony was repeated for the third Time; so that after the third Mancipation, and Manumission, the Son became entirely his own Master.

But these Formalities were afterwards abolished; to which succeeded, 1. The *Anastasian Emancipation*, made by a Rescript from the Prince, as ordered by the Emperor *Anastasius*, *leg.* 5. *cod. de Emancip.* and afterwards the *Justinian* Emancipation, made before a Magistrate, as decreed by *Justinian*, *leg.* 6. *cod. eadem Tit.*

From this it is understood, that Emancipation, in the *Roman* Law, was an Act, whereby a Father gave up the Power and Authority he had over his Son, though yet under the Age of Puberty, and wanting a Tutor.

Among the *French*, *Emancipation* is an Act whereby a Minor, who has lost either his Father or Mother, or both, with the Advice of his near Relations, and by the Prince's Authority known to the Judges, is freed from the Jurisdiction of a Tutor, and enjoy the *Usufruit* of his Revenues, under the Authority of a Curator, till being full 25 Years of Age, he becomes entire Master of all his Possessions.

There were other Manners, besides the Emancipation, whereby in the *Roman* Law a Son was freed from the Authority of his Father, *viz.* the great Preferments of the Son; the civil Death of the Father or of the Son; or the *greatest* and *middle Diminution of the Chief*, not *the less*.

The Diminution of the Chief, is called the *Mutation of a former State*; of which there are three Sorts, *viz.* the *greatest*, *middle*, and *less*. The *less Diminution of the Chief*, was only a Change of Family, without Loss of Liberty and of Right of *Burgoisy*, as it happen'd to adoptive Sons, who passed into another Family. The *middle Diminution of the Chief* was the Loss of the Right of a Citizen, and consequently of a Family, but not of Liberty, as it happen'd to those who were transported for Malversation.

The *greatest Diminution of the Chief*, was the Loss of Liberty, and consequently of the Right of a Citizen, and of one's Family, as it happen'd to those who being above 20 Years of Age, suffer'd themselves to be sold, to have Part of the Price; or who became *Servi-pœnæ*, i. e. who were condemned to the Mines, or exposed to the Beasts, for their Crime.

But however, the paternal Jurisdiction, was rather suspended than taken away by Captivity, because of the

Right

Right of *Postliminy*. For when a Father return'd to the *Postliminy*, he was imagined to have been always in the City; those who were taken by the Enemies, and being afterwards set at Liberty, returned into the City, were said to have return'd to the *Postliminy*.

Note, That *Postliminium*, *Postliminy*, among the *Romans* was the Return of one who had gone to sojourn elsewhere, or had been banished, or been taken by the Enemy, to his own Country and State. It was thus called, according to *Aul. Gellius*, from *Post*, after, and *Limen*, Threshold, *q. d.* a Return to the same Bounds or Threshold: Though others, after *Amm. Marcellinus*, will have it so denominated, because Persons were restor'd into the House through a Hole in the Wall, *Post Limen*, not by going over the Threshold, which was esteemed ominous. *Postliminium* was also a Law or Action, whereby one recovered an Inheritance, or other Matter that had been lost, from a Stranger or Enemy.

Note also, That there was this Difference between Transportation and Relagation, that those who were transported, lost their Right of Citizens, and became Strangers, retaining, notwithstanding, these Privileges, which are of the Law of Nations; therefore they could sell, buy, and make all the other Contracts which are of the Laws of Nations, as well as the *Roman* Citizens. But they had not the Right of making a Testament, of marrying, nor of a paternal Jurisdiction, *&c.* but the Banished remained still *Roman* Citizens, and enjoyed all the Privileges of the City. Hence *Ovid* speaks of the Sentence of *Augustus*, whereby he was banished, in the following Terms, *Trist. lib.* 2. *Eleg.* 1.

Adde quod editum, quamvis immite minaxque:
Attamen in pœnæ nomine lene fuit.
Quippe relegatus, non exul dicor in illo:
Parcaque fortunæ sunt tibi verba meæ.

TITLE X. *Of Nuptials.*

Nuptials, or *Marriage*, is the *Conjunction of Man and Woman, importing an inseparable Custom of Life.* That *Conjunction* is rather of the Minds than of the Bodies, *for the Consent, not the Cohabitation, makes the Marriage.*

In the *Roman Civil Law*, four Things are required for a legitimate Marriage.

1. That the contracting Parties should be *Roman* Citizens; for antiently neither Strangers, such were those who had only the Right *Latii*, nor Servants, could contract among them, a legitimate Marriage. But by the Canon Law, all Men, either Citizens, or Strangers, either Free, or Slaves, contract a legitimate Marriage, because God makes no Difference between the Free and the Slave, according to St. *Paul*, *Gal.* iii. 28.

2. It is required that the Men should be in the Age of Puberty, and the Women capable to bear a Man; or that the Men should be 14 Years of Age accomplished, and the Women 12 accomplished.

3. They must have the Consent of the Parents, in whose Power they are; *for civil and natural Reason, persuades that such a Thing is required.* In this the Edicts of the Kings of *France* confirm the *Roman* civil Law. But the Canon Law does not require that Consent of Parents; as may be seen, *Lancelot*, *lib.* 2. *instit. Juris. can. Titul.* XI. *Paragrap.* 1.

4. It is required that the contracting Parties should abstain from forbidden and nefarious Nuptials, such as those contracted between those join'd by *Affinity* or *Consanguinity*.

Consanguinity is the Relation or Kin-ship, between Persons of the same Blood, or sprung from the same Root.

Affinity is a Relation contracted between one of two Parties married, and the Kindred of the other Party.

There are two Lines of *Consanguinity*, viz. one *Right* and the other *collateral*.

The *right Line* is that, in which one has begot another; and which is either of the ascending, in which, reckoning from the Son, we ascend to the Father, Grandfather, *&c.* or of the descending, in which we descend from the Father to the Son, to the Grandson, to the great Grandson, *&c.*

The *collateral Line*, is of those who come side-wise.

In the *right Line*, v. g. Marriage is prohibited, *in infinitum*, between the Father and the Daughter, Grand-daughter, *&c.* It is prohibited, likewise, between Persons, some of whom take the Place of Parents, with Respect to others; as no Body is allowed to take for his Wife, his Mother in Law, Grandmother in Law, *&c.* because they take the Place of Mothers.

In other Persons, who are in the *collateral Line*, the *Degree* or Distance of one Person from the other, must be distinguished.

In the *civil Law*, these *Degrees* are differently computed, from what they are in the *Canon Law*.

In the *civil Law* there are as many *Degrees* as *Generations*; reckoning by the Number of Persons issued from the same Stock, each Person sprung therefrom making one *Degree*; ascending from the Person generated to the common Stock, and descending from the common Stock to the other Person generated. For Example, if *Titius* has begot *Mævius* and *Sempronius*, these two, *viz. Mævius* and *Sempronius*, who are Brothers, are said to be in the second *Degree*; for *Mævius* is begotten by *Titius* the common Father of both, there's one *Degree*. *Titius* has begot *Sempronius*, there's another *Degree*; and for that Reason the Son of *Mævius* and the Daughter of *Sempronius*, are in the fourth *Degree*; for the Son of *Mævius* is begotten by *Mævius*, there's one *Degree*; *Mævius* by *Titius*, their common Father, there's the second; then *Titius* has begot *Sempronius*, there's the third; and *Sempronius* has begot his Daughter, there's the fourth.

In the *Canon Law* the Generations are only reckoned from one Part, descending from the common Father to the Person begotten, or ascending from the Person begotten to the common Stock. Whence Brothers and Sisters, according to the *Canon Law*, are in the first *Degree*; the Children of Brothers and Sisters, in the second, *&c.* therefore in the aforesaid Example, *Titius* begot *Mævius* and *Sempronius*; then *Mævius* had a Son, and *Sempronius* a Daughter. If an Ascent be made from one Part, *viz.* from the Son of *Mævius* to *Titius* the common Stock, or a Descent from *Titius* to the Son of *Mævius*; or from the other Part to the Daughter of *Sempronius*, there will occur only two Generations, and consequently two Degrees.

Therefore, by the *civil Law*, the Cousin-Germans, *i. e.* the Children of Brothers or Sisters, being in the fourth Degree, cannot contract Marriage.

But in the *Canon Law*, not only Cousin-Germans cannot contract Marriage, but not even Nephews and Nieces; because the Nephews and Neices of Cousin-Germans, are only in the fourth Degree, according to the *Canon Law*, by which Law Marriage is forbidden in the collateral Line, as far as to the fourth Degree inclusively, *i. e.* including the Degree within the Prohibition.

What I have said of *Consanguinity*, may be said likewise of *Affinity*; for Example, if *Titius* marry *Arabella*, he cannot, after her Death, marry her Cousin, within the fourth Degree inclusively. Where it must be observ'd, that though by the *civil Law*, Affinity be dissolv'd, by the Death of one of the Parties contracted, as it appears from *Parag. Sacrum.* 7, *Institut. de nupt.* it, notwithstanding, remains by the *Canon Law*.

Children born of Fornication, are called *natural*, or *spurious*, and not *legitimate*, because the Laws do not acknowledge them, as already observed; but they are legitimated by a subsequent Marriage.

There are other Persons forbidden to marry by the *civil Law*, as a Tutor cannot marry his Pupil, while he is her Tutor.

Note, That in *England*, and in several other Parts, the Woman, with all her moveable Goods, immediately upon Marriage, passes wholly *in potestatem viri*, into the Power and Disposal of the Husband. In *Germany*, they have a Kind of Marriage called *Morganatick*, wherein a Man of Quality contracting with a Woman of inferior Rank, he gives her the Left Hand in lieu of the Right, and stipulates in the Contract, that the Wife shall continue in her former Rank

Rank or Condition, and that the Children born of them shall be of the same, so that they become Bastards as to Matters of Inheritance, though legitimate in Effect; they cannot bear the Name or Arms of the Family.

None but Princes, and great Lords of *Germany*, are allowed this Kind of Marriage. The Universities of *Leipsick* and *Jena*, have declared against the Validity of such Contracts; maintaining, that they cannot prejudice the Children, especially when the Emperor's Consent intervenes in the Marriage.

The *Turks* have three Kinds of Marriages, and three Sorts of Wives; *legitimate*, *Wives in Kebin*, and *Slaves*. They marry the first, hire the second, and buy the third.

The *Roman Law* speaks of second Marriages in very hard and odious Terms; *Matre jam secundis nuptiis funestata, lib. 3. c. de secund. nuptiis.* By these Laws it was enacted, that the Effects of the Husband or Wife deceased should pass over to the Children, if the Survivor should marry a second Time. By the Law, *Hac edictali, cod. de sec. nup.* the Survivor, upon marrying a second Time, could not give the Person he married a Portion more than equal to that of each of the Children. In the primitive Church, the Respect to Chastity was carried so high, that a second Marriage was accounted no other than a lawful Whoredom, or a Species of Bigamy.

Note also, That Marriage, *Maritagium*, in Law, signifies not only the lawful joining of Man and Wife, but also the Right of bestowing a Ward, or a Widow in Marriage; as well as the Land given in Marriage. *Duty of Marriage* is a Term used in some antient Customs, signifying an Obligation on Women to marry. To understand this, it must be observed, that old Maids, and Widows about sixty, who held Fees in Body, or were charged with any personal or military Services, were antiently obliged to marry, to render those Services to the Lord by their Husbands; or to indemnify the Lord, for what they could not do in Person. And this was called *Duty*, or *Service of Marriage*.

TITLE XIII. *Of Tutorage or Guardianship.*

Persons are said to be their own Masters, or *sui Juris*, which are neither under a paternal Jurisdiction, nor subject to a Master. And these are either under Tutorage, or under Curatorship, or free from either of the three Conditions.

Tutorage, *Tutla*, is defined an Office or Power, given or granted by the Law, to take Care of a Person, yet too young to take Care of himself: It is called an Office or Power in a free Chief, and could be said, likewise, on a free Chief, *i. e.* the Power in a free Chief to take Care and protect another free Person, who through the Imbecility of his Age cannot defend himself. And in this *Tutorage* differs from Curatorship, that a Tutor is first given to the Person, then to his Effects; but a Curator is only given to the Effects, not to the Person.

It is added, *given and allowed by the civil Law*, because by the *Roman Law* there are three Kinds of Tutorage. 1. *Testamentary*, when, for Example, a Father gives his Children, still Minors, a Tutor, by his Testament. 2. *Legal*, which is given by the Law to the nearest Relation. 3. *Dative*, which is appointed by the Magistrate.

Therefore the *Legal Tutorage* is given or deferred by the Law of the twelve Tables; the *Testamentary* is permittted; and the *Dative* descends from the *Attilian Law*, and others.

But in all customary Provinces, as *France*, &c. all *Tutorages* are *dative* and *elective*; and though the Father has by Testament nominated the next Relation to his Pupil, yet is not that Nomination of any Force, unless the Choice be confirmed by that of the Magistrate, *&c.*

By the *Roman Law*, *Tutorage* expires at 14 Years of Age; but in *France*, not till 25 Years. A Minor quits his *Tutorage*, and becomes free by Marriage; in which Case a Curator is given him.

By the Custom of *Normandy*, the Father is the natural *Tutor* of his Children. A Person nominated *Tutor*, either by Testament or by the Relations of the Minor, may decline that Office if he has five Children alive; if he has any other considerable *Tutorage*; if he be under 25 Years of Age; if he be a Priest or a Regent in an University; or if he has any Law-Suit with the Minor, and if he be poor or infirm.

The Marriage of a Pupil, without the Consent of his *Tutor*, is invalid. *Tutors* may do any Thing for their Pupils, but nothing against them; and the same Laws which put them under a Necessity of preserving the Interest of the Minors, put them under an Incapacity of hurting them.

TITLE XXII. *Of Curators.*

A Tutor being given to a Person by Reason of the Imbecility of his Age, is never given but to those under the Age of Puberty; therefore when they are arrived at the Age of Puberty, the *Tutorage* ends, by the *Roman* Law; then those who before were called *Pupils*, and under *Tutorage*, are called *Minors*; and *Curators* are given them to take Care of their Affairs and Interests; till they be 25 Years of Age accomplished; at which Time they are declared *Majors*, and become entire Masters of all that belongs to them.

In *France*, *Tutorage* lasts, till a Minor be 25 Years of Age, unless he obtains, when about eighteen, Letters from the Prince, whereby he is freed from the Authority of a Tutor, or emancipated, and enjoys, under the Authority of a *Curator*, the *Usufruit* of his Estate.

Sometimes, as well by the *Roman* as the *French* Law, *Curators* are given by Reason of the Imbecility of the Body, or of the Mind, to Prodigals, and to all others who are uncapable of managing their own Affairs.

From the SECOND BOOK.

Note, That hitherto I have treated of Persons, now I must treat of Things.

TITLE I. *Of the Division of Things, and of acquiring a Right to them.*

All Things are either in the Patrimony, or in the Power of particular Persons; or out of Patrimony.

Those out of the Patrimony of particular Persons, or on which particular Persons have no particular Claim or Right, are all the Things which are in common, all publick Things, the Things of an University, Things belonging to no Body.

Common Things, the Property whereof belongs to no Body, but by the natural Law, and the Law of Nations, can be used by every Body; as the Air, running Water, the Sea, the Sea-shore, wild Beasts, Fishes, *&c.*

Those Things are called publick, the Property whereof belongs to some particular Nation, but the Use of them is by the Law of Nations, common to every Body, as a River, a Sea-port, *&c.*

The Things of an University, are those the Property whereof belongs to an University or College, and the Use of them to all those who are of that University or College, as Theatres, Gardens, Baths, *&c.*

The Things which are of no Body, are the Things of divine Right; which regularly can be made the Property of no Body; and these are either sacred, religious, or holy.

Those Things are called sacred, which are consecrated to God by Bishops, as Churches, Altars, and Vessels dedicated to the divine Service, *&c.* which, by the Canon Law cannot be alienated, but in Case of an extreme Necessity, or for the Use of the Church, *viz.* to redeem the Captives, to feed the Poor, *&c.*

Among the *Romans*, by the civil Law, a religious Thing was a Place where some Body had brought a dead Corpse, either of his proper Will, if it was his own Place, or with the Consent of the Lord of the Place, if it was not his own Property. By the Canon Law a Place is not accounted religious, unless it has been consecrated by a Bishop, or by a Priest appointed by him; of this Kind are the Places, where the Dead are buried.

Holy Things are those, which, by some Sanction, are protected against the Injuries of Men; as the Walls, Gates, and Laws of a City.

In the Patrimony of Particulars, there are Things, the Right whereof is acquired to Particulars.

Right is the Faculty of disposing of a Thing, unless the

the Law, or a Convention hinders it.

There are ſix Manners of acquiring a Right, by the Law of Nations, *viz.* Occupation, Acceſſion, Specification, Confuſion, the Perception of Fruits from a foreign Thing.

Occupation, is whereby a Thing becomes the Property of the Perſon who takes Poſſeſſion of it firſt.

To *Occupation* belongs the Acquiſition of wild, but not of domeſtick Beaſts; the Acquiſition of Things gained in War; Things found, and Things conſidered as abandoned, or forſaken.

Therefore wild Beaſts, Birds and Fiſhes, as ſoon as by Hunting, Fowling, and Fiſhing, they are fallen into the Hands of any Body, they begin to be his; but if any of them eſcape you, after you have taken them, they are no more yours, but return into the Poſſeſſion of their former Maſter: It is aſked, if a wild Beaſt, being wounded as to be eaſily taken, becomes yours from that Time? To which it is Anſwer, that it is no more yours than when it eſcapes after it has been taken.

Bees are alſo wild of their Nature: Therefore Bees which ſit in your Trees, are no more yours than the Birds which build their Neſt in it: Therefore a Swarm of Bees, which flies from your Hive, is underſtood to be yours no longer than it keeps in your Sight, and it is eaſy to follow it; otherwiſe it becomes the Property of him who is in Poſſeſſion of it.

Peacocks, Pigeons, and Harts, are alſo wild of their Nature; and after they are gone, they are ſo far underſtood to be yours, till they have a Mind to return, *i. e.* till they have not forgot their Cuſtom of returning. But Hens and Geeſe are not wild of their Nature; therefore though theſe Animals are ſometimes frighten'd out of your Sight, they are, notwithſtanding, underſtood to be yours; and he who detains them is accounted guilty of Theft.

By the Law of Nations, we acquire in War not only the Things belonging to the Enemies, but likewiſe the Enemies themſelves; who, becauſe taken by the Hands, are called captive.

By *Invention* are acquired, by the natural Right, the Things which have never been the Property of any Body, as are precious and other Stones found on the Sea-ſhore.

And if a Treaſure be found in a Place, which is the Patrimony of the Perſon who has found it, the whole Treaſure belongs to him. It is the ſame if it be found by Accident, in a ſacred or religious Place. But if it be found on the Ground of another, or in a publick or fiſcal Place, and that by Accident, without any premeditated Deſign, Half thereof belongs to the Finder, and the other Half to the Lord of the Place, or to the City, or to the Fiſc, or to the Prince, according to the *Civil Roman Law*, in this Title, *parag.* 39.

Note, That Treaſure is defined by the Juriſconſulte *Paul*, *Leg. nunquam.* 31. *ff. de acquirend. rerum. Domin. Some old Depoſition of Money, ſo entirely forgotten, that no Body has a Right to it.* Then he adds, *for thus it becomes the Property of him who has found it, becauſe it has no other Maſter. Otherwiſe if any Body through Avarice, or Fear, to keep it ſafer, has hid ſomething under Ground, it is not a Treaſure; and he who carries it away commits a Theft.*

The Acquiſitions of Things given up for loſt, is when the Proprietor thereof has ſo entirely forgot them, that he does not rank them among his Goods; whence they belong to him who finds them.

The ſecond Manner of acquiring Things by the natural Law, or the Law of Nations, is called *Acceſſion*, whereby the Maſter of the Principal becomes likewiſe Maſter of the Acceſſory.

There are two Kinds of *Acceſſions*, viz. one *natural*, which happens without the Concurrence of Man; and the other *artificial*, which ariſes from Man's Induſtry.

To the *natural Acceſſion*, are referred Procreation, Alluvion, an Iſland borne on a River, and the Mutation of the Bed of a River. Therefore what's born of Animals which are your Property, is acquired to you by the natural Law.

Likewiſe, what's added to your Field by Alluvion, is alſo yours by the ſame Law; which Alluvion is a gradual Addition or Accreation made along the Sea-ſhore, or Banks of large Rivers.

The Civil Law places *Alluvion* among the lawful Means of Acquiſition, and defines it to be a latent imperceptible Accreation. When any conſiderable Portion of Ground is torn away at once by an Inundation, and joined to ſome neighbouring Eſtate, this is not acquired by Law of *Alluvion*; but may be claimed again by the former.

An Iſland borne in the Middle of the Sea, is ſaid to belong to the firſt who takes Poſſeſſion thereof: If it be borne in the Middle of a River it is divided between thoſe which have Eſtates bordering on both Sides of the River. But if the Eſtate of one of the Parties is nearer, the whole Iſland belongs to him.

If a River changes Beds, the old Bed is acquired to thoſe who have Eſtates near it, according to the Extent of the Eſtate.

To the *artificial Acceſſion* are referred *Inedification*, *Intexture*, *Implantation*, *Sation*, *Writings*, *Pictures*.

As to what relates to *Edification*, *all that is edified or built on a Ground falls to that Ground*, i. e. that the Lord of the Ground is Lord of the Edifices built on that Ground. If any Body, knowing it, builds on his own Ground with Materials belonging to another, an Action is given againſt him, which is called *de tigno juncto*, not to have the Materials returned, becauſe the Law of the twelve Tables forbids the taking of the *Tignum* which any Body has joined to its Property, to not deſtroy the Edifices, but to oblige the Guilty to pay double the Value; but if he has done it, thinking thoſe Materials his own, and not knowing that they belonged to another, he'll only be condemned to pay the juſt Value. By *Tignum* in the Law of the twelve Tables, are underſtood all the Materials of a Building.

By *Intexture*, the Purple of another wove in your Cloaths, becomes yours by Acceſſion. Likewiſe by *Implantation*, the Plant which ſhoots forth its Roots in your Ground, becomes yours; the ſame muſt be ſaid of Seed ſowed in a Field, and of Letters written on Paper, which though they be Gold, become notwithſtanding the Property of him to whom the Paper belongs; but not of the Cloth on which a Picture is painted, becauſe the Value of the Picture exceeds that of the Cloth.

The third Manner of acquiring ſomething by the natural Law is called *Specification*; whereby if any Body, through Ignorance and Inadvertency, has made ſomething of the Materials of another, or Part of it of his own Materials, and the other Part of the Materials of another, becomes the Maſter of that Thing, provided the Materials cannot be returned to their former State. As if any Body, without knowing it, has made Wine of the Grapes of another, or Part of his, and Part of thoſe of another, which cannot be returned to their former State of Grapes, he becomes Maſter of that Wine, by paying the Value of the Grapes to the Maſter thereof: But if the Thing can be returned to its former State, *viz.* a Veſſel of Gold, which can be returned to its former State, the Maſter of the Matter is Maſter of the Veſſel.

The fourth Manner of acquiring ſomething by the natural Law, is *Confuſion* and *Mixture*; whereby the Materials of two Proprietors, either by their mutual Agreement or by Accident, being mixed together, become common to both; *Confuſion* is ſaid of liquid Things, *viz.* Wine, and *Mixture* of dry Things, as Corn.

The fifth Manner is, *the Perception of Fruits*, from ſomething belonging to another; as when ſome Body buys an Eſtate for a Perſon whom he thought Maſter thereof, though he is not; the Fruits he gathered while he remained in Poſſeſſion are his by the natural Law, for his Trouble of cultivating the Ground. But the ſame cannot be ſaid of him who knows that he is in Poſſeſſion of an Eſtate, which belongs to another, for he is obliged to return the Fruits as well as the Ground; whether thoſe Fruits be natural, *viz.* that grow without being cultivated, or any other human Induſtry, as Apples, Pears, *&c.* or Fruits of Induſtry, which will not grow without being cultivated, as Corn, Grapes, *&c.* whether they be hanging yet on the Root or the Tree, or they be gathered and extant, or gathered and conſumed; for he to whom pertains the *Uſufruit* of an Eſtate, is no otherwiſe rendered Maſter of thoſe Fruits than as he gathers them himſelf; and therefore though he die, while the

Fruits are ripe, but not gathered yet, the Fruits do not belong to his Heirs, but are acquired to the Ground-Landlord.

Lastly, the sixth Manner of acquiring something by the natural Law, is *Tradition*; for nothing is more agreeable to natural Equity, than to ratify or confirm the Will of a Person, who desires to transfer his Property to another. *Tradition* is properly of a moveable Thing, *viz.* of a Book, of a Horse, *&c.* to which *quasi-tradition* is equivalent, which is of a Thing immoveable, as of a Found, Houses, *&c.* *Quasi-tradition* can also have Place in Moveables, which *quasi-tradition* is made by *Fiction of short Hand*, or by *Symbol*.

Fiction of short Hand, is when an Act which should have been done is hidden; as when a Person, who has lent you something, sells it afterwards to you; though he does not receive it from you, to return it to you again; for as soon as it suffers it should be yours, you become the Proprietor thereof; as well as if he had received it, and delivered it to you afterwards.

Quasi-tradition is made by a Symbol, when a Person having sold Goods deposited in a Warehouse, transfers the Property thereof, by delivering the Key of the Warehouse to the Purchaser.

Title II. *Of Things corporal and incorporal.*

There is another Division of Things, in Things corporal, *viz.* which can be handled, whether they be moveable, as a Horse, Gold, *&c.* or immoveable, as a House, Land, *&c.* and in Things incorporal, which cannot be handled, and consist in the Law, as Inheritance, *Usufruit*, Obligations in whatever Manner contracted. Among these may be ranked the Rights of urbane and rustick Houses, which are also called *Services*: For besides the *Servitude* heretofore mentioned, whereby a Person is obliged to obey all the Commands of another, there is another Sort of Servitude, which is called a Right, whereby the Property of another is subservient to us or to our Property. Whence it is either *real*, when subservient to our Property, or *personal* when subservient to us.

The *real* or *prædial Servitude*, is either *urbane* or *rustick*.

The *Urbane* is that due from a Building or a House, in whatever Place situated, either City or Country, to an urbane Building. The *Rustick* is that due from a Building either *rustick* or *urbane*, to a rustick one.

An *urbane* Building, is that built for the Dwelling of a Man, either in Town or Country.

A *rustick*, is that designed for a rustick Service, whether built in Town or Country.

Rustick Services, are a Passage through which one has a Right to pass and repass through another's Ground alone, and without either Horse, or Vehicle, as Cart, Coach, *&c.* *Action*, whereby a Man has a Right to pass through another's Ground, with a Horse, or Vehicle. A *Road*, which is a Right of passing through another's Ground, with a Horse, or Vehicle, and carrying Arms, or a Staff. *Aquæducts*, or a Right of conveying Water through another's Ground, *&c.*

Urbane Services, are the Right of fixing a Prop in a Neighbour's Wall; the *Right of Spout*, whereby a Neighbour is obliged to suffer that the Rain of his Neighbour's House should fall on his; the *Right of Drain*, whereby my Neighbour is obliged to suffer that the Water of my House should empty itself through his; the *Right of not carrying higher*, whereby my Neighbour is forbidden carrying his House or Building higher, lest he should offuscate my Prospect, *&c.*

Title IV. *Of Usufruit.*

Personal Services are *Usufruit*, *Use*, and *Habitation*.

Usufruit, is the Use or Enjoyment of any Lands or Tenements; or the Right of receiving the Fruits and Profits of an Inheritance, or any other Thing, without a Power of alienating, or changing the Property thereof.

It is called the *Use* or *Enjoyment*, to distinguish *Usufruit* from bare Use: For we make Use of Things belonging to others for our Necessity only; but we enjoy them for our Commodity, and Pleasure; though without the Power of alienating or diminishing the Found; for as an *Usufructuary* is not the Proprietor of the Thing, it must take Care that it should not be impaired.

When the *Usufructuary* dies, the *Usufruit* returns to the Proprietor. The Dowry or Jointure of a Widow, is only an *usufructuary* Due; that is, she only enjoys the *Usufruit* thereof, and cannot dispose of the Principal.

All mutual Presents between Man and Wife, only import the *Usufruit* of the Goods of the first that dies, to the Profit of the Survivor.—The Incumbents of Benefices are only *Usufructuary*.—An *Usufructuary* has full Right over the Coppice; but cannot fell Timber-Trees.

Title V. *Of Use, and Habitation.*

Use, is a Right of using another's Property, but not to enjoy it, whereby *Use* is less than *Usufruit*.

Use imports a Trust and Confidence reposed in a Man for the holding of Land; that he to whose Use or Benefit the Trust is intended, shall reap the Benefits thereof.

A Deed consists of two principal Parts: The *Premises*, which include all that come before the *Habendum*, or Limitation of the Estate; and the *Consequent*, which is the *Habendum* itself; wherein are two Limitations, the one of the Estate, or Property, the Party shall receive by the Deed; the other of the *Use*, expressing to or for what *Use* and Benefit he shall have the same.

Uses, say some, were invented in *England*, upon the Statute of *Westminster*, *quia emptores terrarum*; before which Time no such *Uses* were known. And because, in Course of Time, many Deceits got footing, by settling the Possession in one Man, and the Use in another: It was enacted, *Anno* 27 *Henry* VIII. that the Use and Possession of Lands should stand united, or that the Possession should be given to him who had the *Use*.

Habitation, is a Right of inhabiting Houses belonging to others, which Right is not transferable.

All these personal Services are ended in several Manners, but particularly by the natural or civil Death of the Person.

Title VI. *Of Usucaptions, and long Prescriptions.*

We have seen already the Manners of acquiring by the natural Law; now we must learn the Manner of doing it by the civil Law.

Of these Manners one is universal, as Inheritance; and other Particulars, as Usucaption, Donation, Legacy, *&c.*

Usucaption, is an Acquisition of the Property of a Thing, by a Possession and Enjoyment thereof for a certain Term of Years prescribed by Law.

Some make a Difference between *Prescription* and *Usucaption*, maintaining that the latter is only used with Regard to Moveables, and the former with Regard to Immoveables. But there is no essential Difference between them; and accordingly *Prescription* and *Usucaption*, are generally held Synonima's.

Five Things are required to an *Usucaption* or long *Prescription*.

1. *Honesty*, which the Civil Law requires only at the Beginning of the *Usucaption*; and the Canon Law for the whole Time: Whence a dishonest Possessor is not capable of *Usucaption*.

2. A just Title, as Emption, Donation, Legacy, *&c.*

3. That the Thing be not vicious, such as are Things stolen, or possessed by Force, *&c.*

4. That the Possession be continual, *i. e.* not interrupted by litigious Disputes or other Manner.

5. A due Time, or that prescribed by the Laws, *viz.* three Years for Moveables; ten Years for Persons present, or on the Spot, and twenty for the Absent. Ecclesiastical Goods suffer Prescription no sooner than forty Years.

Tourrill calls *Prescription* a Penalty imposed by the Law upon Negligence; and adds, that Possessors who have no other Title to plead but *Prescription*, are only legal Usurpers.

In Effect, however, the Law of *Prescription* does not punish the Indolence of Proprietors, but only interprets their Silence for their Consent; presuming that a Man who neglects to assert his Right for a long Series of Years, gives it up.

There are some of the Lawyers who doubt, whether Time and unjust *Prescriptions* be any legitimate Means of

of acquiring? Others, more favourable, call it the *Patroness of Mankind*; as being a general Presumption, under which the Law will have Men live in Peace.

In common Law, *Prescription* is usually understood of a Possession from Time immemorial, or beyond the Memory of Men; as when my Ancestors, or his from whom I have an Estate, have enjoyed and used it all the Time whereof any Memory remains.

But in the civil Law, and even in the *English* common Law, there are *Prescriptions* of a much shorter Date. — *Prescriptions* of forty Years, exclude all Actions whatever.

The Custom of *Paris*, as I have already observed of the fifth Thing required to *Usucaption*, allows of a Prescription of ten Years, if the Parties be present, and twenty if absent, in favour of peaceable Possessors of an Inheritance, if they have any Title, however controverted; and of thirty Years in favour of those who possess without any Title at all.

In *Normandy*, a *Prescription* of thirty Years peaceable Possession, is equivalent to a Title, to Immoveables; and for Moveables and personal Actions, a Prescription of thirty Years suffices.

In *France*, a Prescription of twenty Years is admitted against all Crimes except Duelling, which was excluded by a Declaration of the Year 1679. in Matters of Adultery, five Years suffice, *i. e.* provided there have been a Discontinuance of Prosecution all that Time.

By the Statutes of *England*, a Judge or Clerk convicted of false entering Pleas, *&c.* may be fixed within two Years; but those elapsed, he prescribes against the Punishment of the Statute.

The Crime of a Maintenance or Embracery, whereby Perjury is committed by a Jury, must be prosecuted within six Days, otherwise the Parties prescribe.

There is no prescribing against a Man's Lord; no *Prescription* avails to take off any Servitude or Tenure: A Title is always required there.

The Author of the History of the Inquisition observes, that no Time of *Prescription* avails in Matters of Heresy; even Death itself does not secure the Suspected from the Researches of that tremendous Court.

Title VII. *Of Donations.*

Donation, is a mere Liberality, which, without the least Obligation, is exercised towards another; and this is either occasioned by Death, or is made between Persons living.

Donation occasioned by Death, proceeds from the Apprehension of Death, and is like a Legacy; whence, the Danger of Death being over, or the Donor repenting of what he has done, or the Donee happening to die before the Donor, the *Donation* is void.

Donation between the Living, is made without any Thought of Death; which, according to the Custom of *Paris*, if it exceeds fifty Pence, must be insinuated, *i. e.* register'd. It is not revoked, unless the Donor happens to have Children afterwards, or the Donee becomes extremely ungrateful.

A *Donation* to be valid and compleat, supposes a Capacity both in the Donor and the Donee; and requires Consent, Acceptance, and Delivery.

There is another Kind of *Donation*, called on Account of Marriage; and made by a Husband to his Wife, in Gratitude for the Portion she has brought to him. This is like what the Successors of the Emperor *Justinian* called *Hypobolon*, i. e. an Increase of Dowry, or what at the Husband's Death is given to the Widow, above her Portion.

Title VIII. *Of those who are permitted to alienate, or are not permitted.*

He that has a just and uncontroverted Right to a Thing, can alienate it, *i. e.* can transfer his Right to another; though a Husband who is Master of his Wife's Jointure, cannot alienate it without Consent. Likewise Minors, though Masters of their own Estates, cannot alienate them without the Consent of their Tutors.

Title IX. *Of those whereby Acquisitions are made.*

We acquire a Right to a Thing, not only by ourselves, but likewise by our Children and Servants, who are under our Jurisdiction, and even by our Attornies. Children notwithstanding, and Servants, are allowed a *Peculium*, by the *Roman* Law, *i. e.* a small Stock which they may acquire by their own Industry, without any Advance or Assistance from their Father or Master, but merely by their Permission.

Servants are allowed but one Kind of *Peculium*; but that of Children is of four Kinds, *viz. profectitious*, which they acquire from the Effect, or on Occasion of the Father; *adventitious*, that acquired by Donation, or the Succession of the Mother; *Castrense*, which is acquired in the Army; *quasi-castrense*, which is acquired either at the Bar, or in some publick Office.

A Father has the Property and *Usufruit* of the profectitious *Peculium*, the Use only of the adventitious, and nothing in the *Castrense*, and *quasi-castrense*.

Title X. *Of ordering Testaments.*

Inheritance, is the Means of acquiring an universal Right; for it is a Succession to the universal Right the Deceased was possessed of; and this is either by Testament, or by a Person dying intestate.

A *Testament* is a solemn and authentick Act, whereby a Person declares his Will, as to the Disposal of his Estate, Effects, *&c.*

A *Testament* has no Effect till after Death, and is always revocable till then: As *Testaments* are Acts, of all others, the most subject to Deceits, Surprize, *&c.* it was necessary to use all Kinds of Precautions to prevent the Wills of the Deceased from being eluded, and the Weakness of dying Persons from being abused.

The most antient *Testaments* among the *Romans*, were made *vivâ voce*, the Testator declaring his Will in the Presence of seven Witnesses: These they called *nuncupative Testaments*; but the Danger of trusting the Will of the Dead to the Memory of the living, soon abolished them, and all *Testaments* were ordered to be put in Writing; before seven Witnesses all *Roman* Citizens, and of Age of Discretion, who should affix their Sign and Seal to them.

The *French* Legislators thought *Holographical Testaments*, i. e. *Testaments*, wrote wholly with the Testator's Hand, an abundant Security; but the *Roman* Law more severe, did not admit *Testaments* without further Solemnity.

The easiest and most favourable, is the 21st Law in the Code *de Testamentis*, which permits such as are unwilling to trust the Secret of their Testaments to others, to write it with their own Hand, and to close it in the Presence of seven Witnesses, declaring to them that it is their Testament, after which it is to be signed by the seven Witnesses.

Yet the military Testaments were not subject to so many Formalities: The Soldier was supposed too much employed in defending the Laws, to be subject to the Trouble of knowing them.

Add, that Testaments wherein Fathers disposed of their Estates among their Children, had particular Privileges, and were dispensed from most of the ordinary Formalities.

In *England*, a Testament can't be put in Force, before it has been proved before the ecclesiastical Judges, delegated by the Bishop, who is Ordinary of the Place where the Party dies; which is called the *Probate* of a Will or Testament.

The Ordinary is known by the Quantity of Goods the Deceased has out of the Diocese wherein he departed; for if all his Goods be in the same Diocese, then the Bishop of the Diocese, or the Archdeacon, according as their Composition leads, has the *Probate* of the Testament. If the Goods be dispersed in several Dioceses, so that there be any Sum of Note, *bona notabilia*, as five Pounds, out of the Diocese where the Party lived; then is the Archbishop of *Canterbury*, the Ordinary, by Prerogative.

This *Probate* may be made two Ways, either *in common Form*, or *per Testes*. The Proof, *in common Form*, is only by the Oath of the Executor, or Party exhibiting the Will, who swears upon his Belief, that the Will exhibited by him, is the last Will and Testament of the Deceased.

The Proof, *per Testes*, by Witnesses, is when over and besides

besides his own Oath, he also produces Witnesses, or makes other Proofs to confirm, that it is the last Will of the Deceased; and this in the Presence of such as may pretend some Interest in the Goods of the Deceased; or at least in their Absence, after they have been lawfully summon'd to see such a Will proved, if they think fit.

The latter Course is commonly taken when there is Fear of Strife, or Disputes about the Deceased's Goods; for some hold, that a Will proved in common Form only, may be called in Question any Time within 30 Years after.

Where a Will disposes of Lands and Tenements of Freehold, it is now frequently proved by Witnesses in Chancery.

TITLE XII. *Of those who are not allowed to make a Testament.*

All those who are not forbid, can make a *Testament*; Slaves, Children under the Jurisdiction of their Father, Lunaticks, *&c.* are forbid.

TITLE XIII. *Of Disinheritance of Children.*

Parents can disinherit their Children for just Causes, which are fourteen in Number, contain'd in the following Verses:

Bis septem causis exheres filius esto.
Si patrem feriat; si maledicat ei.
Carcere conclusum si negligat, aut furiosum,
Criminis accuset; vel paret insidias.
Si dederit damnum grave: si nec ab hoste redemit;
Testarive vetet: se societve malis.
Si mimos sequitur; vitietque cubile paternum.
Non Orthodoxus: filia si meretrix.

i. e. A Son can be disinherited for fourteen Causes; if he strikes his Father; if he curses him; if he neglects him while in Prison, or when he is furious. If he accuses him of a Crime; if he sets Ambuscades for him; if he has done him some great Injury; if he keeps bad Company; if he is a Gamester; if he defiles the paternal Bed; if he is not orthodox; if a Daughter is a Prostitute.

TITLE XIV. *Of the Institution of Heirs.*

The *Institution of an Heir*, is to appoint a Successor to the whole Right which the Deceased was possessed of, *Leg.* 24. *ff. de verb. signif.* by the *Roman Laws*, either Free-Men or Slaves can be instituted Heirs; either one or several. If several, the Inheritance is to be divided between them. Therefore, in an Inheritance, as in a Pound, there are twelve Parts, called *Ounces*. Whence he who is Heir to the whole, is called Heir *ex asse*; he that is only entitled to an half, Heir *ex semisse*, &c. therefore an *Ounce* is the twelfth Part of an Inheritance; *sextans*, or the sixth Part of an Inheritance, contains two Ounces; *quadrans*, or the fourth Part, contains three Ounces; *triens*, or the third Part, contains four Ounces; *quincunx*, five; *semis*, six; *septunx*, seven; *bes* (as *bis*, i. e. two Thirds) has eight Ounces; *dodrans* (to which a fourth is wanted) nine Ounces; *dextans* (which wants a sixth) ten Ounces; *deunx* (to which it wants an Ounce) eleven; *as*, contains twelve Ounces.

If two are instituted Heirs; one of a half, and the other of a fourth, the fourth Part remaining, should be distributed between both at the Rate of every one's Portion, because the Law does not suffer, that he who is Heir to a Part be disinherited of a Part, *lib.* 7. *ff. de regul. Juris.* on the contrary, if four Heirs were instituted, one for a half, and three for three Portions of the Inheritance; as there are more Heirs instituted, than there are Portions in the Inheritance; something should be taken from every one's Portion, in Proportion to the Portion.

In *France* there is no Institution of Heirs; for in the Custom of *Paris*, *art.* 318. *He that's Dead provides for the Living*, i. e. delivers all his Goods to his nearest Heir, who by his Death becomes Possessor thereof.

There are two principal Kinds of Heirs, *apparent* and *presumptive*.

Heir apparent is he on whom the Succession is so settled, that he cannot be set aside, without altering the Laws of Succession.

Heir presumptive is the next Relation, or Heir at Law to a Person, who is to inherit of him *ab intestato*; and who, it is presumed, will be Heir: Nothing but a contrary Disposition of the Testator being able to prevent him.

Heir, in common Law, is he who succeeds by Right of Blood, to any Man's Land or Tenements in Fee. For nothing passes in common Law (in *England*) *jure Hæreditatis*, by Right of Inheritance, but Fee.

By common Law, therefore, a Man cannot be Heir to Goods or Chattels; for *hæres dicitur ab hæreditate*, it is the Inheritance denominates the Heir.

Every Heir having Lands by Descent, is bound by the Acts of his Ancestors, if he be named; it being a Maxim, that *qui sentit commodum, sentire debet & onus.*

Moveables or Chattels immoveable, are given by Testament to whom the Testator thinketh fit; otherwise they lie at the Disposition of the Ordinary; to be distributed as he in Conscience likes best.

The last Heir is he to whom Lands come by *Escheat*, for Want of lawful Heirs; which, in many Cases, is the Lord whereof they are held, but in others the King.

TITLE XV. *Of Substitutions.*

Substitution is a Disposition of a Testator, whereby he substitutes one Heir to another, who has only the *Usufruit*, and not the Property of the Thing left him.

Substitution is a Kind of fiduciary Inheritance, in Regard the immediate Inheritor has only the Use or Produce of the Thing; the Body thereof being substituted and appropriated to certain Persons, who are likewise to have the *Usufruit* in their Turns, but never the Property.

Substitution is either common or pupillary. Common Substitution is of any Testator to any Heir instituted such, *viz.* in this Manner; *Let* Titius *be the Heir*; *or if* Titius *be not the Heir*, Mævius *must*.

Pupillary Substitution, is of a Father alone to his Children under the Age of Puberty, who either are not the Heirs, or if they be the Heirs, die within the Years of Puberty: As when a Father says, *Titius* my Son shall be my Heir; but if my Son is not to be my Heir, or is to be my Heir, but dies before he is Master of the Estate; then *Seius* must be my Heir.

There is another Sort of *Substitution*, called exemplary, made by Parents of both Sexes, to Children, as well those who are arrived at the Age of Puberty, as those who are under it, and likewise to those who are emancipated, or disorder'd in their Senses, *&c.*

In *France*, Substitutions are made not only by Testament, but likewise by Contract of Marriage; whereby some Goods pass to the Descendants of a certain Family, *viz.* to the Heirs Male, so that they have only the *Usufruit*, while the Substitution lasts, but cannot alienate the Property, which Substitution only holds to the fourth Generation, according to the Constitution of *Orleans*, *art.* 59.

Among the *Romans* there was Abundance of the fiduciary Heirs; who enjoyed Inheritances, till they return'd them into the Hands of the right Heir: And the Reason why they did not likewise restore the Fruits, or that the Fruits were not deemed to make a Part of the Inheritance, but only of the Thing, was, that the Fiduciary or Trustee was obliged to run the Risque, and to stand the Charge of the Culture of the Land. But this was rather *fidei Commissio*, than a Substitution.

Substitution answers to Remainder in the *English* common Law: For Remainder is an Estate limited in Lands, Tenements, or Rents, given to a Person at second Hand, to be enjoyed after the Decease of another; to whom the same is given immediately, or at first Hand.

A Man grants Lands to one for Term of Life, the Remainder to another for the Term of his Life, which Remainder may be either for a certain Time, or in Fee simple, or Fee Tail.

Spelman makes the Difference between a Remainder and Reversion to consist in this; that by a Reversion after the appointed Term, the Estate returns to the Donor or his Heirs, as the proper Fountain; whereof by Remainder, it goes to some third Person, or Stranger.

Glanville observes, that Bishops and Abbots, in Regard

gard their Baronies are the King's Alms, cannot give any Part thereof by Way of Remainder.

TITLE XVII. *In how many Manners a Testament can be invalidated.*

A Testament is invalidated in three Manners, *viz.* by a posterior one, made according to Law, and without any Defects; or for *Want of Heirs*, or *per querelam inofficiosi Testamenti.*

TITLE XVIII. *Of an inofficious Testament.*

A Testament is called inofficious, whereby Parents, against all Sentiments of Humanity, disinherit their Children without a just Cause; in which Case, *querela inofficiosi Testamenti*, is given to Children, in *France*, or an *Action in rem*, against the Heir appointed by the Testament, to have it concealed.

This *Querela* ceases, if a legitimate Portion be left to the disinherited. That legitimate Portion, is, by the antient *Roman* Law, a fourth Part of the Portion he had had of an Intestate. But by the new Law it is a third, if there be four Children or less; and a half if there be more. *Authent. novissim. Cod.* this Title,

Quatuor aut infrà damnatis Jura trientem:
Semissem vero dant natis quinque vel ultrà.

TITLE XIX. *Of the Quality and Difference of Heirs.*

By the *Roman* Law an Heir is called *necessary*, who is obliged to accept the Inheritance, whether he wills or not. Such were the Slaves; for they were instituted Heirs by their Masters, who were unsolveable, that rather in their Name, than in that of the Deceased, the Inheritance should be sequestrated from the Creditors, lest the Reputation of the Deceased should suffer.

A voluntary Heir is he who can renounce the Inheritance, and this is either *his*, or a *Stranger*.

The Heir called *his*, is he who is in the Power of the Testator, and is the nearest in Blood, as a Son or a Daughter; and likewise a Grandson and a Granddaughter, if they be in the Power of their Ayeul. — All others are Strangers.

Voluntary Heirs, in *France*, are entitled to two singular Privileges or Benefits, *viz.* the *Right of Deliberating*, and the *Benefit of Inventory*, *Benefice d'Inventaire*.

That's called *Right of Deliberation*, whereby a certain Time is granted to the Heir, to deliberate if it be expedient for him to accept the Inheritance, or rather to renounce it; but in the Interim, he must not meddle with any of the Effects of the Succession.

An *Inventory* is a Catalogue of all the Effects of the Succession, by the Benefit whereof, the Heir is not obliged to pay any Debt, but as far as there are *Assites* or Effects in the Succession to pay those Debts.

TITLE XX. *Of Legacies.*

A *Legacy* is a certain Donation left by the Deceased, which the Heir is obliged to pay.

The *Falcidian Law*, made by *Falcidius*, Tribune of the People, forbids that any Body should bequeath in Legacies, more than three Parts of the Inheritance; that one Fourth whereof at least may remain to the Heir or Heirs.

In the Custom of *Paris*, and of the other Provinces of *France*, where a Difference is made between proper Goods, or Goods acquir'd before Marriage, and those acquir'd in Marriage, by the Husband and Wife jointly; one can bequeath in Legacies, only the fifth Part of his own proper Goods or Estate; so that it is necessary that the four other Parts remain to the Heir, *art.* 295. *consult. Paris.*

TITLE XXI. *Of Fidei-Commissionary Inheritances.*

Fidei-Commissum, in the *Roman* Law, is the appointing an Heir, or bequeathing a Legacy to a Person on this Condition, that he surrender the Inheritance or Legacy to another Person, for whom the same is originally meant: Or it is an Inheritance left in Trust with any one, for the Use of another.

Fidei-Commissa were much used among the *Romans*. In the *French* Law the Thing is become odious; as being ordinarily no other than an Expedient in Favour of Persons to whom the Law forbids any Thing to be given. In order to this, some trusty Friend is chosen to be made legal Heir, under a tacit Agreement to deliver the Inheritance to the Person incapacitated by Law. But of latter Times the same Expedient has come in Use in *England*, with Regard to Persons capable of inheriting; to whom the Testator, for particular Reasons, does not care to leave the Inheritance directly.

As it happen'd that the *Fidei-Commissioners* did not always faithfully restore what was trusted to them, *Augustus* took proper Measures to oblige them thereto: To this End a Pretor was erected, whose Business was restrained to the single Matter of *Fidei-Commissions*.

As a Testament was null without the Institution of an Heir, and it frequently happening that the *Fidei-Commissioner* refused to accept the Trust, upon which the Testament fell to the Ground; to engage somebody to accept it out of the Consideration of Advantage, the *Pegasian Senatus-Consultum* decreed, that the *Fidei-Commissioner* should be at Liberty to retain a fourth of the *Fidei-Commission*.

From the THIRD BOOK.

TITLE I. *Of Inheritance left by an Intestate.*

Intestate is a Person who dies without making a Will, or has not made it according to Law, or that he had made is concealed, or null, or is made without the Institution of an Heir.

By the Law of the twelve Tables, the Inheritances of *Intestates*, pertains in the first Place to their Heirs; such as a Son, a Daughter, *&c.* in the second Place, to Cousins in the Masculine-Line: In the third Place, the Pretor calls near Cousins, those in the Feminine-Line. But *Justinian* abolished those Distinctions between Cousins, *&c. Novel.* 118. *c.* 4.

Therefore according to the Law of *Novels*, the Descendants from an *Intestate* succeed, *Novel.* 118. *c.* 1. and that Succession is either *in capita*, or *in stirpes*.

The Succession, *in capita*, is when an Inheritance falls according to the Number of the Persons. In this Manner Children of the first Degree succeed, *viz.* Sons and Daughters, without any Exception of Sex.

Succession, *in stirpes*, is made by Right of Representation; as if a Father dying leaves a Son alive, and Children of another Son deceased; the Children shall represent their deceased Father, and divide the Inheritance equally with their Uncle; because the nearest in the descending Line, never exclude those more distant in the other descending Line.

If there are no Descendants, the Succession belongs to the Ascendants; so that the nearest Relation always excludes the more distant, *ead. Novel. c.* 2.

For Want of Descendants, the collateral are admitted to the Succession; and first German-Brothers, *in capita*; with these are called the Children of German-Brothers, *in stirpes*; who, if they be alone, divide likewise the Inheritance, *in capita*, *ead. novel. c.* 3.

After German-Brothers, and their Children, come Brothers related on one Side only; and likewise the Children of those Brothers deceased. If there be neither Brothers, nor Brothers Children, come the next Relations; and of these, those equal in Degree, are equally admitted; so that the nearest related, excludes a more distant Relation. *Ibid.*

These failing, likewise, the Wife succeeds her Husband, *Leg.* 1. *cod. unde. Vir & Uxor.* For Want thereof the vacant Inheritance falls to the *Fisc*.

The Customs are different in some of the Provinces of *France*, with Regard to Successions, *ab intestati*.

In the *English* Law there are two Kinds of *Intestates*: The one *de facto*, which are those who make no Will at all; the others *de jure*, called also, *quasi intestati*, which are those who make a Will, but it is null and void, either from the Executors refusing to act, or from some other Cause; in which Case they are judged to die as *Intestate*, *quasi intestati*.

The *Executor* of a Testament is a Person nominated by the Testator, to take Care to see his Will and Testament executed or performed; and his Effects disposed of according to the Tenor of the Will.

An *Executor* is either *universal*, as having the Charge and Disposal of the whole; or only *particular*, entrusted with

with ſome particular Branch thereof.

By the *French* Law, an Executor ſhould be poſſeſs'd of all the Moveables of the Deceaſed, during one Year; at the End whereof he is to account for them. To the Validity of a Teſtament, it is not neceſſary there be an Executor nominated therein.

Executor de ſon tort, or of his own Wrong, is he who takes on him the Office of an Executor, by Intruſion, not being conſtituted thereto by the Teſtator, or Deceaſed, nor authorized by the Ordinary to adminiſter.

TITLE XIV. *Of Obligations.*

Obligation is an Act, whereby a Perſon engages or binds himſelf, or is bound by another to do ſomething; as to pay a Sum of Money.

There are three Kinds of *Obligations*, *natural*, *civil*, and *mixt*.

Natural Obligations are found on the mere Bond of natural Equity, without any civil Neceſſity, and without producing any Action of Conſtraint. For Example, I am obliged by a natural Obligation, to ſerve the Perſon who has ſerved me when I wanted his Aſſiſtance; but that gives him no Action againſt me, whereby he can compel me to it. — Such are the Obligations a Minor is under.

Civil Obligation is that ſupported on civil Authority alone, and which induces a Conſtraint, without any Principle or Foundation on natural Equity. Such is the *Obligation* on a Man condemned unjuſtly.

Mixt Obligation, or an *Obligation*, both natural and civil, is that which being founded on natural Equity, is further confirmed and enforced by civil Authority.

All *Obligations* ariſe from Contracts, or Quaſi-Contracts; and from Crimes, or Quaſi-Crimes.

Contract is a Kind of *Convention*; and *Convention* is a mutual Conſent of two, or more Parties, who promiſe and oblige themſelves voluntarily to do ſomething. It is alſo called *Paction*, *Pact*, or *Covenant*; unleſs you rather chuſe to ſay, that *Pact* or *Covenant* is that which reſults from *Paction* or *Convention*.

Therefore *Convention* or *Pact*, is like the Genus, which is attributed to the Species. For *Convention*, if it has not a particular Name from the civil Law, nor a Cauſe, it retains the general Name of *Convention* or *Pact*; and produces only a natural *Obligation*, i. e. which has its Origin from the Faith given, and natural Equity; which though it does not produce an Action of Conſtraint; it notwithſtanding is of no leſſer Force with a Man of Probity, than a civil Obligation. But if the *Convention* has either the Name or the Cauſe, it is called a *Contract*, and produces an Obligation efficacious to act.

Therefore a *Contract* is a Convention which has either the Name or the Cauſe. Whence one is *nominate*, and the other *innominate*.

An *innominate Contract* is that which has only the Cauſe, and not a *ſpecial Name*. The Cauſe is a Donation or a Deed. As if two have agreed between themſelves of ſomething, and the Convention has took its Beginning from the Donation or Deed of one of them, the *Contract* is *innominate*, whence enſues an Action on him who has neither given nor done, what had been agreed to give or to do. Such a *Contract* is reduced to four Chiefs; *viz. do ut des*, I give that you ſhould give; *do ut facias*, I give that you ſhould do; *facio ut des*, I do that you may give; *facio ut facias*, I do that you ſhould do.

That *Contract* is called *nominate*, which has a proper Name from the civil Law; ſuch are theſe, *Leg.* XII. *Tab. Mutuum*, *Commodatum*, *Reward*, *Emption-Vendition*, *Location-Conduction*, *Society*, and *Mandatum*. For as the Uſe of theſe Sorts of *Contracts* is ſo very frequent, that the civil Society, it ſeems, cannot ſubſiſt without them, the civil Law has given them a proper Name and Force, to produce *Obligation* and *Action*.

I muſt ſpeak firſt of *Obligations* ariſing from a Contract; and treat afterwards of thoſe which ariſe from a *Quaſi-Contract*; and likewiſe from Crimes and Quaſi-Crimes.

Contracts are made in four Manners, either *re*, or by *Words*, or by *Writings*, or by *Conſent*.

TITLE XV. *In what Manner an Obligation is contracted*, re.

Contracts are performed *re*, in which the Invention of a Thing is neceſſary; and are *Mutuum*, *Commodatum*, *Depoſitum*, *Reward*.

Mutuum is a *Contract* whereby we transfer our Right to ſomething to another; upon Condition that he ſhall return another Thing of the ſame Quantity, Nature, and Value, on Demand. For Example, I have given you, by a *Mutuum*, a Meaſure of Corn, or of Oil, not upon Condition, that you ſhould return it in Number, but only in Specie; whence *Mutuum* is properly of thoſe Things which conſiſt in Weight, Number, and Meaſure, or the Uſe thereof is the Conſumption of the Things; and of which the one ſupplies the Place of the other. Of that Kind are Corn, Wine, Oil, *&c.* Money is not conſumed directly by itſelf, but only indirectly, in as much as it is given for the Price of the Things which are conſumed.

Therefore the *Mutuum* muſt be gratuite, *i. e.* without Reward or Intereſt; nothing being Return but the Thing itſelf which was given, or the Value thereof; which is called the *Capital* or *Principal*. For *Mutuum* ſuppoſes always a Kind of Indigence, in the Perſon to whom the Thing is lent or deliver'd; and proceeds from a Motive of Charity, or Humanity. For, *v. g.* we do not give, by a *Mutuum*, Wine, or Corn, or Money, to thoſe who want none of thoſe Things, but only to thoſe who want them. Therefore they who exact ſomething for the *Mutuum*, offend againſt the *natural Law*, becauſe they take Advantage of one's Indigency. This was the Sentiment of the Pagans themſelves, who were not at all ignorant of this Principle of the *natural Law*.

Quod tibi non fieri cupias, ne feceris ulli.

Hence it is that *Ariſtotle*, *lib.* 1. *Politic. c.* 10. teaches us, that this Way of getting Money is abhorred by Nature itſelf. And *Cato*, *apud Cicer. lib.* 2. *de officiis*, at the End, is of Opinion, that Uſury is no leſs againſt Nature, than Murder. *Plutarch* exclaims much againſt this Sort of Commerce, in his little Commentary, *de Ære alieno*.

What the Pagans had declared to be againſt the Law of Nature; appears to be likewiſe fulminated by the divine Law, from ſeveral Paſſages of the Scripture, *Exod.* xxii. 25. *If thou lend Money to any of my People that is poor by thee, thou ſhalt not be to him as an Uſurer, neither ſhalt thou lay upon him Uſury.* Levit. xxv. 36. *Take thou no Uſury of him or Increaſe.* Pſalm xv. among the Perfections of a Man of Probity, theſe are reckoned, Ver. 5. *He that putteth not his Money to Uſury.* Pſalm lv. 11. this is attributed to the unjuſt Man, *Uſury and Guile depart not from his Streets.* Ezek. xviii. 17. God ſays, that *it is neceſſary the Juſt ſhould not receive Uſury nor Increaſe.* And xxii. 12. he reproves the City of *Jeruſalem* in theſe Terms, *Thou haſt taken Uſury and Increaſe, and thou haſt greedily gained of thy Neighbours by Extortion.*

But in a more particular Manner, Chriſt gives this Precept to the Chriſtians who are obliged to conſider all Men as their Brethren, *Luke* vi. 35. *And do good, and lend, hoping for nothing again, and your Reward ſhall be great.*

A Cuſtom, notwithſtanding, had prevailed among the *Romans*, to ſay nothing of other Nations, not to give their Money ſo much by a Mutuum, but to put it at a certain Rate, in the Hands of the Rich, from whom, beſides the principal, they received an Intereſt, as we learn from *Horace*, *Ep.* 1. *lib.* 2.

Cautos nominibus certis expendere nummos.

Which Cuſtom prevail'd likewiſe, under the Chriſtian Emperors, to *Juſtinian*'s Time. As it appears from the Titles of the Digeſts, and of the Code of *Juſtinian*, *De Uſuris*.

For though Money be ſterile, and cannot produce of itſelf other Money, it notwithſtanding can become fecund in the Hands of a ſkilful Merchant; and as it can be conſumed, at leaſt indirectly, *viz.* in buying either

Food

Food or Raiment; it can likewise produce other Money in the Commerce.

But the most common of those Usuries, was thus established by the *Roman* civil Law, that one should receive One *per Cent.* in every Month, for the Interest of his Money; for the *Romans* called in every Month the Principal and Interest; and then placed it again for the next following Month, according to the same *Horace*, *Epod.* 2. towards the End.

Hæc ubi loquutus fæneratur Alphius,
Jamjam futurus rusticus,
Omnem relegit idibus pecuniam,
Quærit Calendis ponere.

This Sort of Interest, which was exacted every Month, produced every Year Twelve *per Cent.* Therefore it is reduced in our Manner of Reckoning, to almost an Eighth: Since eight Times twelve is 96, all the other Interests were regulated according to that of one *per Cent.*

But after the Emperor *Justinian*'s Time, all Kinds of Usuries were forbidden, by the canonical Law, among Christians, as it appears 2 *Part. decret. grat. causa* 14. *quest.* 3. and in the whole Title of the Decretale of *Gregory* IX. *De Usuris*; and elsewhere. This same Law has been received and put in Force throughout all the Dominions of the Most Christian Kings; as it appears evidently from the Constitutions of our Kings, *viz.* St. *Louis*, *Philip* IV. *Louis* XII. *Charles* IX. and *Henry* III. and by an Arrest or Decree of the Parliament of *Paris* made the twenty-sixth of *July*, 1565.

But if I buy of you a Pension for a certain Sum of Money, according to the Taxation of the Prince, so as to be deprived of the Liberty of calling back that Sum, while, on the contrary, you have that of returning it to me when you please, and thereby free yourselves of the Trouble of paying me my Pension, such as are the Contracts, whereby Sums of Money are placed in the Town-House of *Paris*, and elsewhere; whereby the Person who places thus his Money, acquires an Annuity, resigning, at the same Time, his Claim to the Capital; then there is no Usury committed; since it is rather an Emption, than a Mutuum, as declared by *Martin* V. *Extravagant. commun. lib.* 3. *Tituli.* 5. *de empt. & vendit. c. Regimini* 1. and this Jurisprudence is followed by the Christian Princes.

But though it is not licit to take Interest from a Mutuum, as it is a Mutuum, it is notwithstanding licit to do it, either when there is no Usury, or by Reason of some Damage resulting from it.

For 1. If any Body suffers some Damage by the Mutuum given, *v. g.* if he cannot repair his House which is ready to fall, or which is fell: If he cannot pay a Debt, and has been condemned by the Judge not only to pay the Principal, but likewise the Charges of the Suit; he is permitted to receive something above the Principal, to repair the Damages he has suffer'd.

2. If one has a favourable Occasion to place his Money to Advantage, *viz.* in a lawful Commerce, or to buy an Estate, or any Thing else of that Nature; as there is then no Usury, he can, with a just Cause, desire something above the Principal from his Mutuum; provided there be no Deceit in it; for if they deceive Men, they cannot deceive the sovereign Judge.

Besides the *Mutuum* there is a *Promutuum*, viz. when something is paid which was not due; and this therefore is to be return'd as if it was a *Mutuum*.

Commodatum, or *Commodate*, is a Contract whereby something is given for a certain Time; for a certain End, *&c.* on Condition, that the Time expired, and the End over, of restoring again the same Individual.

The *Commodate* is a Kind of Loan: There is this Difference, however, between a Loan and a *Commodate*, that the latter is *gratis*, and does not transfer the Property; the Thing must be return'd in Essence, and without Impairment; so that Things which consume by Use or Time, cannot be Objects of a *Commodate*, but of a Loan, in Regard they may be return'd in Kind, though not in Identity.

Precarium has an Affinity with the *Commodate*, which can be recalled whenever one pleases, without any Regard to Time.

Depositum, *Deposite*, is a Thing put in the Hands of another to be kept *gratis*.

The *Civilians* divide *Depositum* into *simple* and *judiciary*.

Judiciary Deposite, is that whose Property is contested between several Persons, and deposited in the Hands of a third Person, by Decree of a Judge; and this is called *Sequestration*; which Sequestration is either *voluntary* or *necessary*. *Voluntary Sequestration*, is that which is done by Consent of both Parties. *Necessary Sequestration* is that which the Judge doth by his Authority, whether the Parties will or not.

Note, That in the civil Law, *Sequestration* is the Act of the Ordinary, disposing of the Goods and Chattels of one Deceased, whose Estate no Man will meddle with. A Widow is also said to *sequester*, when she disclaims having any Thing to do with the Estate of her deceased Husband. Among the Catholicks, in Questions of Marriage, where the Wife complains of Impotency in the Husband, she is to be sequester'd into a Convent, or the Hands of Matrons, till the Process be determined.

Sequestration is also used for the Act of gathering the Fruits of a Benefit void, to the Use of the next Incumbent. In the Time of the civil Wars, *Sequestration* was used for a seizing of the Estates of Delinquents, for the Use of the Commonwealth.

Simple Deposite, is either *voluntary* or *necessary*. *Necessary* is that done in Case of Hostility, Shipwreck, Fire, *&c.* Innholders are responsible for the Baggage brought to them, as being a *necessary Deposite*.

Depository, in the *French* Law, is a Person entrusted as Keeper, or Guardian of any Thing.

Ordinary Depositaries, are not to warrant the Thing left with them, in Case it be lost or stolen. They are only to answer for a Fraud, or Breach of Faith; not for Negligence. But a *necessary Depositary*, as an Innkeeper, is accountable for a Theft or Robbery, if there have been any Negligence in the Case; and even by the *English* Law, whether there were any Negligence or not; which is extremely just, since that specious Pretext of Negligence, would uphold several flagrant Robberies.

Pignus, *Gage*, or *Pledge*, is a Contract, whereby a Thing is given to a Creditor for Security of his Debt, upon Condition that the Debt paid, he shall return the Pledge.

TITLE XVI. *Of Verbal Obligations.*

Antiently Contracts were made by Words of Mouth, which were called Stipulations, from *stipulare*, to stipulate, to confirm; as *Justinian* observes, in this Title, at the Beginning.

Therefore *Stipulation* is a solemn Discourse, whereby one being asked if he will give, or do the Things he is asked, answers: For to stipulate is nothing else but to ask one to promise us something. The Stipulations were made in this Manner: You answer for it? I answer; you promise? I promise, you'll do it? I'll do it. In our Time, those Sorts of Stipulations are not only contracted by Words of Mouth, but are also consigned in Writing, in the Hands of a publick Notary; and we can stipulate, not only by ourselves, but likewise by our Attornies.

The *Stipulation* can be made in any Language, provided the Questions and Answers be understood; and must be of our own, not of another's Property.

TITLE XXI. *Of Fide-Jussores.*

Fide-Jussor, is a Surety; or one that obliges himself in the same Contract, for the greater Security of the Creditor, or Stipulator. Therefore a *Fide-Jussion*, is a verbal Obligation; whereby, he that takes the Obligation of another upon him, remains Obligee as the principal Debtor.

The *Fide-Jussor* not only obliges himself, but likewise his Heirs, *&c.* All those who can oblige themselves, can be *Fide-Jussores*. The Senatus-consultum *Velleianum*, forbids Wives taking upon them the Obligation of another. If there be several *Fide-Jussores*, as many as there are, are obliged to discharge the Obligation; therefore the

the Creditor can claim the Debt from whom he pleases: But by the Epistle of the Emperor *Adrian*, the Creditor is compelled, when he has begun a Suit for the Recovery of his Debt, to sue each of them for his Quota; which is called the Benefit of Division. Besides, from *Novel.* 4. *Justin*, *c.* 1. the *Fide-Jussores* have the Benefit of *Order*, or *Excussion*, whereby the Creditor must call to account the principal Debtor, and examine his Faculties, before he can come upon him.

TITLE XXIV. *Of Emption and Vendition.*

Having treated of the Contracts made either *Re*, or Words; there remains to treat of those made by Consent or Agreement alone, *viz.* to the Substance whereof are required neither Words, nor Writing, nor the Delivery of the Thing; and these are *Emption-Vendition*, *Location-Conduction*, *Society*, and *Mandatum*.

Emption-Vendition, is a Contract made by Consent alone, whereby the Buyer may have a certain Thing from the Seller for such a Price; which Price must be certain, and consist of Money: For when a Thing is given for another, it is not *Emption-Vendition*, but only *Permutation*.

In this Sort of Contracts, there should be no Craft used to induce the Buyer to buy what otherwise he had not bought.

When the *Emption-Vendition* is contracted, *i. e.* when the Seller and Buyer have agreed on the Price, whether it be put in Writing or not, the Buyer is obliged to bear the Risques of the Merchandize, though it be not yet delivered to him, unless there be some Fraud on the Part of the Seller; or he has engaged himself to keep the Merchandize safe, till the Delivery thereof. Whence, if by the Overflowing of a River, an Estate, or Part thereof is swallowed up, the Buyer is obliged to bear the Loss, though not yet in Possession; likewise, if by the Decrease of the Water, or otherwise, an Increase happens to the Estate, it is to the Advantage of the Buyer; since he that runs the Risque, must also enjoy the Benefit.

Sacred, or religious Places, were not suffer'd to be bought, among the *Romans*, i. e. if those who bought them knew them to be such; for then the Contract was void; but it is a heinous Crime among Christians, to buy spiritual Things, or annexed to spiritual, as the Gifts of the Holy Ghost, Ordination, or Benefices, which is Simony, or the Crime of *Simon Magus*.

There are several other Manners of acting against Justice and Equity in *Emption* and *Vendition*; for there are some who sell Merchandizes either spoiled or damaged; or who sell at a Price far exceeding the just Value of the Thing. Some taking Advantage of the Necessity of the Seller, under-value his Goods, tho' they sell them afterwards themselves at a vast Price.

There is another Sort of *Emption-Vendition*, which is very criminal, and which took its Origin in *Spain*, where it is called *Mohatra*; and is this: A Person wanting Money, takes in Trust of a Merchant, Merchandizes at an excessive Price, which he sells at a vile Price, but for ready Money, to the same Merchant. This Method of *Emption-Vendition*, was condemned by a Decree of *Innocent* XI. given the second of *March*, 1671.

TITLE XXV. *Of Location-Conduction.*

Location-Conduction, is a Contract by which any Thing is let out, on Rent. *Location* and *Conduction* are relative Terms, and are used as well for the Action of him that lets, as for that of him who takes on that letting.

Tacit-Location, is when the Person who takes, continues on the Premises beyond the Term of his Lease; which by the civil Law he is allowed to do, at least for the Space of a Year, on the same Terms.

Emphyteusis, has an Affinity with *Location-Conduction*, and is the letting out of poor barren Lands for ever, or at least for a long Term of Years on Condition of the Tenant's cultivating, meliorating, or mending them; and paying a certain yearly Consideration.

Emphyteuses are a Kind of Alienations, differing from Sales, in that they only transfer the *Dominium utile*, the Benefits of the Ground, not the Property, or Fee simple. Among the *Romans*, they were at first temporary; afterwards perpetual.

The 20th Canon of the Council of *Carthage*, prohibits the Bishops seizing the Church *Emphyteuses* out of the Hands of private Persons, unless they have been three Years without paying Rent.

TITLE XXVI. *Of Society.*

Society is a Contract or Agreement between two or more Persons, whereby they bind themselves together for a certain Time, and agree to share equally in the Profits or Losses which shall accrue in the Affairs for which the Society or Copartner-ship is contracted.

The *English* have several very considerable Societies of this Kind; as the Merchant Adventurers, the *Turkey*, *East-India*, *Muscovy*, *Eastland*, *Greenland*, *Spanish*, *African*, *South-Sea*, and *Hudson's-Bay* Company.

By the *Roman* Law the social Contract needs no other Solemnity, but the sole Consent of Parties, without any Writing at all: But among us, Articles of Copartner-ship are required. There is no Contract wherein Probity is more required than in Society; in as much as the Laws pronounce those null, that are made contrary to Equity, and with Design to deceive.

The *French* distinguish three Kinds of mercantile *Societies*; *ordinary Society*, called also *collective* and *general*; *Society in commendam*, or *Commandity*; and *anonymous Society*, called also *momentary* and *inconnüe*.

The first is, where several Merchants act alike in the Affairs of the *Society*, and do all under their collective Names, which are publick and known to every Body.

Society in commendam, &c. is that between two Persons, one of whom only puts his Money into the Stock, without doing any other Office of a Copartner; the other, who is called the *Complementary of the Society*, dispatching all the Business under his own Name. This *Society* is very useful to the State; in as much as all Kinds of Persons, even Nobles, and Men of the Robe, may contract it; and thus make their Money of Service to the Publick: And those who have no Fortune of their own to trade withal, hereby find Means of establishing themselves in the World, and of making their Industry and Address serviceable.

Anonymous Society, is that where all the Members are employed, each particularly in the common Interest, and each accountable for Profits, *&c.* to the rest; but without the Publick being inform'd thereof; so that the Seller has only an Action against the particular Buyer, no other Name appearing. It is also called *momentary*, because frequently made on particular Occasions, and ceasing with them; as in the making a Purchase, the selling any Commodity, *&c.*

Of this we distinguish three Kinds: *Society by Participation*, which is usually formed by Letters from one City to another, where Merchandize is to be bought or sold. The second is when two or three Persons agree to buy up the whole of some Commodity, in any Country; to sell it again at their own Price; and the third is, when three or four Persons make a Journey together, to buy and sell the same Commodity. Besides Merchants, People of Quality, *&c.* are admitted into these *anonymous Societies*.

The Profit and Loss must be so equally divided in a Society, that every Member should receive, or bear his Share of both, in Proportion to the Interest he has in it. For a Society cannot be formed, where one has all the Profit or Gain, and the other bears all the Loss; which Kind of Society, is called *Leonian*, *Leg.* 29. *ff. pro Socio*, in Allusion to the Fable of *Æsop*, where the Lion divided the Prey with the Fox, in such a Manner that he retain'd almost the whole for himself.

A Society contracted with a View of monopolizing, one or several Commodities, is unlawful. For *Monopoly* is an unlawful Kind of Traffick, when one or more Persons make themselves sole Masters of any Commodity, Trade, Manufacture, or the like, with Design to enhance its Price; those who have Occasion for it, being obliged to purchase it at their Hands, and on their own Terms. These are by the Law 6. *ff. de extraord. nimin.* entirely excluded from the Benefit of Commerce, and are besides banished or condemned to the publick

publick Works: And *Lex unica jubemus cod. de monop.* ſpeaks thus againſt them, *And if any Body has the Preſumption to exerciſe Monopoly, he ſhall forfeit his Eſtate, and be condemned to perpetual Baniſhment.*

TITLE XXVII. *Of the Mandate.*

Mandatum, Mandate, is a Contract whereby a Perſon undertakes to manage the Affairs of another *gratis*; and this is either on account of the Perſon who commands alone, or on his Account and on that of another; or on his Account, and on that who receives the *Mandate*; but in whatever Manner it may be done, he that accepts the *Mandate*, muſt carefully anſwer the Ends propoſed by him who gives it; for he was free to accept the *Mandate*, but when he has once accepted it, he muſt execute it, provided it be not againſt good Manners.

Theſe are all the Kinds of Contracts contained in *Juſtinian*'s Inſtitutes; ſome whereof are of the Law of Nations, or introduced by the Law of Nations, *viz.* the *Mutuum, Commodate, Depoſite, Pledge, Emption-vendition, Location, Conduction, Society, Mandate*, and others of the *Civil Law*, as all Sorts of Stipulations.

Beſides, there are ſome which are only obligatory on one Side, as the *Mutuum*; and others on both Sides, as the *Commodate, Depoſite*, &c. when they are obligatory on one Side only, but one of the contracting Parties has a Right of Action againſt the other, *v. g.* in the *Mutuum*, an Action is granted only to him, who has given the *Mutuum* againſt him who has received it, to oblige him to return it. The Action ceaſes, if any Body gives Money to a Child under Age: For by the *Macedonian* Senatus Conſultum, mentioned *inſtit. lib.* 4. *tit.* 7. *par.* 7. it is forbidden to give a *Mutuum of Money* to a Minor; and if it be given, an Action is not granted againſt him, even after his Father's Deceaſe. To let thoſe know, who by a dangerous Example, feed the Luxury of young Perſons, that they are to expect no Redreſs from the Law.

If the Contract obliges both Parties, an Action is granted to both, a direct one to one of them, and a contrary to the other, *v. g.* a *direct Action* is granted to him that has given the *Commodate*, to force him who has received it, to return it; and a *contrary Action* is granted to him who has received it, againſt him who has given it, for his Indemnification: The ſame is to be ſaid of the *Depoſite, Mandate*, &c.

TITLE XXVIII. *Of Obligations ariſing from a Quaſi-contract.*

An Obligation ariſes not only from a Contract, but likewiſe from a *Quaſi-contract*, v. g. if I tranſact the Affairs of a Perſon abſent, without his Knowledge or his Order, I ſeem as if I had contracted with him; whence follows an Action of Affairs tranſacted, *direct* and *contrary*; a direct one given to the Maſter whoſe Affairs I have tranſacted to bring me to an Account; and a *contrary* one to me who have tranſacted the Affairs againſt him whoſe Affairs I have tranſacted, for the Expences, and other neceſſary Charges that I have been at for him during my Adminiſtration. Likewiſe a Tutor is underſtood to have contracted with his Pupil, whoſe Tutorage he has adminiſtred. Whence a direct Action is given to the Pupil on his Tutor; and a contrary one to the Tutor on his Pupil. Likewiſe if a Thing be common to ſeveral without a previous Society, *viz.* if a Thing be given to them, or bequeathed by Teſtament, they ſeem as having contracted between themſelves. Hence ariſes an Action, called the *communi dividendo*, whereby one aſks againſt the other that the Thing ſhould be divided: The ſame may be ſaid of a common Inheritance, which is to be divided between ſeveral Perſons; for to every one of the Heirs is granted an Action againſt the Co-heirs, *familiæ erciſcendæ*, for the Partition of the Inheritance; and the Heir is obliged to the Legatees by a *Quaſi-contract*.

An Action is taken off in ſeveral Manners, but particularly by paying the Debt, or by *Novation*, i. e. by the Tranſfuſion or Tranſlation, of the former Debt into another Obligation, either natural or civil.

From the FOURTH BOOK.

TITLE I. *Of Obligations ariſing from Crimes.*

Obligations are ſaid to ariſe from Crimes, which arise either from Theft, or Rapine, or Injury, or Damage.

Theft, is *unlawfully and feloniouſly taking away, in View of Gain, either the Thing itſelf, or the Eaſe or Poſſeſſion thereof, contrary to the natural Law.*

When it is ſaid the taking away, it is underſtood of moveable and perſonal Goods, it muſt be likewiſe a felonious taking away, becauſe without a Deſign of unjuſtly taking away another Man's Goods againſt the Owner's Will, it is no Theft. And this is admitted not only with Reſpect to the Proprietor, or Maſter of the Things, but likewiſe with Reſpect to him who has only the Uſe thereof: Therefore a Depoſitary who makes uſe of the Depoſite, a Creditor who makes uſe of his Pledge, *&c.* otherwiſe than it agrees, *&c.* commits a Theft contrary to the natural Law.

Theft is divided in *England* into Theft or grand Larceny, properly ſo called, and petty Theft, or petty Larceny; the former whereof is of Goods above the Value of 12 *d.* and is deemed Felony; the other, which is of Goods under that Value, is not Felony.

Open Theft, from the Perſon, or in Preſence of the Owner, is properly called Robbery.

TITLE II. *Of Goods taken by Force.*

Is the violent taking away by Fraud moveable Goods, againſt which an Action is given, called *vi bonorum raptorum*; which, within the Year, is of the Quadruple, and after the Year, of the Simple.

TITLE III. *Of the Aquilian Law.*

The *Aquilian Law* was made by *Aquilius Gallus*, Tribune of the People; according to *Ulpianus, leg.* 1. *ff. ad leg. Aquil.* Whence it is more properly called *Plebiſcitum*: This Law contained three Chiefs.

The firſt Chief was this; If any Body killed a Man maliciouſly, or a Beaſt of the Flock, he was condemned to make Satisfaction to the Maſter thereof, to the utmoſt ſuch a Thing could produce in one Year.

That Perſon is underſtood to kill maliciouſly, who has no Right to do it; therefore he who killed a Thief, who way-lay'd him, was not liable to an Action of Injury, *v. g.* if he could not otherwiſe avoid the Danger.

Neither is he who by Accident kill a Man or Beaſt, ſubject to this Law, provided it is not his own Fault, *viz.* if any Body exerciſing himſelf in Shooting, kill your Servant; if he be a Soldier who kills him, in a Field where Forces uſe to exerciſe, he is not guilty: But if it be another Perſon, he is guilty.

Ignorance renders likewiſe a Man guilty, *v. g.* if a Quack kill a Man by his Ignorance in the Profeſſion he pretends to, and by adminiſtring other Remedies than thoſe which are proper for his Malady, he is guilty of Murder; by the Name of Phyſician are underſtood here Apothecaries and Surgeons; for antiently Phyſicians, not only preſcribed, but likewiſe compoſed their Remedies, cured Wounds, cupped, *&c. leg. qua actione.* 7. *parag. ultim. ff. ad leg. Aquil. leg.* 4. *ad leg. Cornel. de Sicariis.*

The ſecond Chief of the *Aquilian Law* being already obſolete in *Juſtinian*'s Time, was not publiſhed by him.

The third Chief relates to all other Kinds of Damages whatever; as if one wounded the Servant, or Beaſt of another, or ſpoiled his Wine, or otherwiſe deſtroyed ſomething elſe belonging to him, he who did the Damage was obliged to reſtore to the Maſter the full Value of the Thing damaged, within thirty-two Days reckoning backwards.

TITLE IV. *Of Injuries.*

Injury, in a general Senſe, ſignifies any Thing contrary to Juſtice and Equity, that is, any Wrong or Damage done to a Man's Perſon, Reputation, or Goods.

Injury is done either by Deeds, or Words, or Writings. It is done by Deeds, when one puſhes another, or beats him, or tears his Cloaths, or enters his Houſe by Force, or attacks the Virtue of a married Woman, or of a Maid, *&c.* It is done by Words when one inſults another.

ther, or calumniates him to take away his Reputation, &c. By Writings, when any Body publishes an infamous Libel against another.

A Man suffers Injury not only in himself, but likewise in his Wife, Children, Servants, and in all those related to him.

By the *Roman Law* the Action for an Injury was annual, that is, no Reparation could be required after the Expiration of a Year. By the Law of the twelve Tables, where the Injury was the breaking of a Limb, the injured Person might demand *Talionem*, that is, that he might break the same Limb of the Criminal.

For the breaking of a Bone, there were considerable pecuniary Punishments assigned: For other Injuries, only twenty Asses were decreed, which the Poverty of those Times thought a sufficient Penalty: But the Prætors afterwards finding that too slender a Satisfaction, in lieu thereof, appointed the injured Person to set a Rate on the *Injury*, which they afterwards increased or lessened as they thought good; which Practice is followed in our Times, regulating the Satisfaction on the Cause, Person, Time, Quantity, Quality, and Event. Sometimes the Offender is only condemned to retract himself, and to beg Pardon on his Knees, of God, of the Judge, and of the Persons injured.

TITLE V. *Of Obligations arising from Quasi-crimes.*

Quasi-crime, is the Action of a Person who does Damage, or Evil involuntarily; but is committed either through Ignorance, Impudence, and sometimes for the Fact of another: Of which there are four Examples in this Title.

The first is when a Judge, through Imprudence, pronounces a wrong Sentence, making thereby the Cause his own, *i. e.* is forced to take the Cause to himself, and defend it against the adverse Party.

The second is, *de dejectis & effusis*, viz. when something is thrown from one's House which hurts the Passengers.

The third, when something is put or hanged up in a thoroughfare, which can be offensive.

The fourth, when a Theft is committed, or some other Damage is done in a Ship or Stable, by those employed either in the Ship or the Stable.

TITLE VI. *Of Actions.*

As *Law* relates to Persons, Things, and Actions, there remains to me to explain the third Object of the Law which consists in *Actions*.

Action, is a Right of demanding and pursuing in a Court of Judicature what is any Man's Due.

It is called *Right*, i. e. a Remedy of the Law: Then *of pursuing in a Court of Judicature*, i. e. in the Disquisition of a just Cause, from the Part of the Actor and of the Culpable before a Judge, in order to put an End to Lawsuit.

Actions are divided, by *Justinian*, into two general Kinds; *real*, or those against the Thing; and *personal*, or those against the Person. —For whoever brings an Action, either does it against one obnoxious to him, in respect either of Contract, or Offence; in which Case arise *Actions* against the Person, which require the Party to do or give something; or he does it against one not obnoxious, yet with whom a Controversy is risen touching some Matter; as if *Caius* holds a Field, which *Julius* claims as his Property, and brings his *Action* for the same.

In common *Law*, from the two Classes of *real* and *personal Actions*, arises a third, called a *mixed Action*, which regards both the Person and Thing.

Real Action, is that whereby the Defendant claims Title to Land, or Tenements, Rents, or Commons, in Fee-Simple, Fee-Tail, or for Life.

Note, That *Fee* is an Estate, or Lands and Tenements which we hold in perpetual Right, on Condition of an Acknowledgment of Superiority in a higher Lord.

Fee-Simple, is that whereof we are seized to us and our Heirs for ever.

Fee-Tail, is that whereof we are seized, with Limitation to us, and the Heirs of our Body. —*Fee-Tail* is of two Kinds, *general* and *special*. —*Fee-Tail general*, is where Land is given to a Man, and the Heirs of his Body: So that if a Man seized of such Land by such Gift, marry one or more Wives, and have no Issue by them, and at length marry another, by whom he hath Issue, this Issue shall inherit the Land. —*Fee-Tail special*, is where a Man and his Wife are seized of Lands to them, and to the Heirs of their two Bodies; where in Case the Wife dye without Issue, and he marry another by whom he has Issue, this Issue cannot inherit the Land. —This *Fee-Tail special* has its Origin from the *Stat.* of *Westm.* 2. *c.* 1. Before that Statute, all Land given to a Man, and his Heirs, either general or special, was reputed in the Nature of a *Fee*; and therefore so firmly held to him, that any Limitation notwithstanding, he might alienate it at Pleasure. For Redress of which Inconvenience, the Statute provides, that if a Man gives Land in *Fee*, limiting the Heirs to whom it shall descend, with a Reversion to himself, and his Heirs, for the Default of such former Heirs; that the Form and Meaning of such Gift shall be observed.

But *real Actions*, formerly so numerous and considerable, as Writs of Right, of Entry, &c. with their Appendages, as grand Cape, petit Cape, Receipt, View, Aid-Prayer, Voucher, Counter-Plea of Voucher, Counter-Plea of Warranty, and Recovery of Value, are now much out of Use; by reason of the usual Admixture of personal Matters therewith, which change them into mix'd *Actions*.

Personal Action, is that which one Man has against another, on Account of a Contract for Money, or Goods; or of an Offence done by him, or some other Person for whose Fact he is answerable.

Mix'd Action, is that laid indifferently for the Thing detained, or against the Person of the Detainer; being thus called, because it has a mixed Respect both to the Thing and to the Person. —Others better define it, a Suit given by Law, to recover the Thing demanded, and Damages for the Wrong done: Such is Assize of novel Disseisin, which if the Disseisor makes a Feoffment to another, the Disseisee shall have against the Disseisor, and the Feoffee, or other Tertenant, to recover, not only the Land, but the Damages also. —And the like in *Action* of Waste, *Quare impedit*, &c.

Note, That *Disseisin* is an unlawful disposessing a Man of his Land, Tenement, or other immoveable, and incorporal Right. —*Disseisin* is of three Sorts, *viz. simple Disseisin*, committed by Day, without Force and Arms; and *Disseisin by Force*, when several Persons have a Right to Lands, as common Heirs, and one entring first, keeps out the others; that Person is called *Deforceor*, who differs from *Intruder*, in that a Man becomes *Intruder* by a wrongful Entry only into Lands void of a Possessor; whereof a *Deforceor* holds out the rightful Heir. —And *fresh Disseisin*, which is a *Disseisin* made by him who once before was found and adjudged to have disseised the same Man of his Lands or Tenements; for which there lies a special *Writ*, called a *Writ of Redisseisoin*: or a *Writ* given by the Statute of *Westminster*, for him who having recovered Lands or Tenements, by *Præcipe quod reddat*, upon Default of Reddition, is again disseised by the former Disseisor: This last *fresh Disseisin*, is called *post Disseisin*. —*Wrongful Force*, makes no Descent in in Law. —*Assizes*, are called *Writs of Disseisin*, which lie against Disseissor in any Case; whereof some are termed *little Writs of Disseisin*, as being vicontial, that is, suable before the Sheriff in the County Court, because determinable by him without Assize. —*Disseisor*, is he who disseiseth, or puts another out of his Land; as *Disseisee* is he who is so put out.

Actions, are also divided into *civil* and *penal*. —*Civil Action* is that which only tends to the Recovery of what, by Reason of a Contract, or other like Cause, is a Man's Due. —As if a Person, by *Action*, seek to recover a Sum of Money formerly lent, &c.

Penal Action, aims at some Penalty upon the Party sued; either corporal, or pecuniary. Such is the *Actio Legis Aquiliæ*, in the Civil Law; and in *England*, the next Friends of a Man, feloniously slain, or wounded, shall

ſhall purſue the Law againſt the Offender, and bring him to condign Puniſhment.

Action, is alſo diſtinguiſhed, as it lies for the Recovery either of the ſimple Value of the Thing challenged, or of the double, triple, quadruple, *&c.* Thus a *Decies tantum* lies againſt Embracers; and againſt Jurors that take Money for their Verdict, of either or both Parties.

Note, That a *Decies tantum*, is a *Writ* ſo called from its Effect, which is to recover ten Times as much as the Juror, or Embracer took.

Embracer is he, who when a Matter is in Trial between Party and Party, comes to the Bar with one of the Parties, (having received ſome Reward ſo to do) and ſpeaks in the Cauſe, or privately labours the Jury, or ſtands there to overlook, awe, or put them in Fear. The Penalty hereof is 20*l.* and Impriſonment at the Juſtices Diſcretion.

To this Claſs alſo belong all *Actions* on a Statute that puniſhes an Offence by Reſtitution, or Fine, proportionable to the Tranſgreſſion.

Action, again, is divided into prejudicial, called alſo *preparatory* and *principal*.

Prejudicial Action, is that which ariſes from ſome Queſtion, or doubtful Point in the principal one. As if a Man ſues his younger Brother for Land deſcended from his Father; and it be objected he is a Baſtard: This Point of Baſtardy muſt be tried, before the Cauſe can proceed: Whence the *Action* is termed, *Præjudicialis, quia prius judicanda*.

Action, again, is either *anceſtrel*, or *poſſeſſory*.—*Anceſtrel Action*, is that which we have by ſome Right deſcending from our Anceſtors.—*Poſſeſſory*, ſometimes alſo called *perſonal Action*, is that which hath its Beginning in, and from ourſelves.

Action upon the Caſe, is a general Action given for the Redreſs of a Wrong done any Man without Force, and not eſpecially provided for by the Law: This, of all others, is now moſt in Uſe. Where there ariſes an Occaſion of Suit, that has neither a fit Name, nor certain Form already preſcribed; the Clerks of the Chancery, antiently, conceived a proper Form of *Action*, for the Thing in Queſtion, which was called an *Action upon the Caſe*; by the Civilians, *Actio in factum*.

Action upon the Statute is a *Writ*, or Action brought againſt a Man, upon an Offence againſt a Statute, whereby an Action is given that did not lie before. Thus, where one commits Perjury to the Prejudice of another, he who is damaged ſhall have a Writ upon the Statute, and a Cauſe accordingly.

Action popular, only differs from an Action upon the Statute, in that where the Statute gives the Suitor *Action* to the Party grieved, or otherwiſe to one ſingle Perſon certain, it is called *Action* upon the Statute; and where the Authority is given by the Statute to every one that will ſo ſue, it is an *Action popular*.

Perpetual Action, is that whoſe Force is not determined by any Period or Term of Time.—Of this Kind were all Civil Actions among the antient *Romans*, viz. ſuch as aroſe from Laws, Decrees of the Senate, and Conſtitutions of the Emperors; whereas *Actions* granted by the Pretor died within the Year.

We have have alſo *perpetual* and *temporary Actions* in *England*, all being perpetual which are not expreſly limited.

Divers Statutes give Actions, on Condition they be purſued within the Time preſcribed.—Thus the Statute of 1 *Edward* VI. gives *Actions* for three Years after the Offence committed, and no longer. And the Statute of 7 *Henry* VIII. *c.* 3. does the like four Years; and that 31 *Eliz. c.* 5. for one Year and no more.

But as by the Civil Law no *Actions* were ſo perpetual, but that by Time, they might be preſcribed againſt, ſo in the *Engliſh* Law, though *Actions* be called *perpetual*, in Compariſon of thoſe that are expreſly limitted by Statute; yet is there a Means to preſcribe againſt real Actions, after five Years, by a Fine levied, or a Recovery ſuffered.

Action of a *Writ*, is when a Perſon pleads ſome Matter, whereby he ſhews that the Plaintiff had no juſt Cauſe to have the *Writ* be brought, though it be poſſible he might have another Writ or *Action* for the ſame Matter. Such Plea is called a *Plea to the Action of the Writ*.—When by the Plea it appears, that the Plaintiff has no Cauſe of any *Action* for the Thing demanded; it is call'd a *Plea to the Action*.

All *Actions* of Debt, on the Caſe, for Account (except ſuch as concern Merchandize) Treſpaſs, Retinue, Trover, and Replevin, ſhall be brought within ſix Years after the Cauſe of Action, and not after.—*Actions* of Treſpaſs and Aſſault, Battery, Wounds, and Impriſonment, within four Years after the Cauſe of Suit; and *Actions* of Slander, within two Years after the Words ſpoken, and not after.

But the Right of *Action* in thoſe Caſes is ſaved to Infants, Feme-coverts, Perſons *non compos mentis*, and ſuch as are under Impriſonment or beyond Sea; ſo as they commence their Suits within the Time limited, after their Impediments are removed, *&c.* and where the Plaintiff's Judgment is reverſed for Errors, or a Verdict paſſes for him, and it is given againſt him in Arreſt of Judgment, *&c.* in ſuch Caſe the Plaintiff may commence a new Action within a Year after ſuch Judgment reverſed, or given againſt the Plaintiff, *&c. Stat.* 21. *Jac.* 1.

The Statute of *Limitations* is not pleaded to an Account current, but only to an Account ſtated: And the Exception in the Statute as to Account concerning Merchandiſe, extends to Accounts current only between Merchants; for when an Account is ſtated and ballanced, Debt lies, and the Action muſt be brought within ſix Years. 1 *Mod.* 70. 268.

If the Conſideration of a Promiſe is executory, or Money is to be paid on the Requeſt of the Plaintiff, *&c.* it is not material when the Promiſe was made, but when the Cauſe of Action did ariſe, which may be pleaded by the Defendant. And where Words ſpoken are actionable only in Reſpect of the ſpecial Damage, which happens after the Speaking; in ſuch Caſe, if the Damage is ſeven Years afterwards, it is no Bar: But where Damage ariſes on the firſt ſpeaking of the Words, the *Action* is to be brought within two Years, as required by the Statute, otherwiſe the Party will be barred, *Sid. Rep.* 95.

A freſh Promiſe will revive an Action, barrable by the Statute of Limitations; and ſo it is of an Acknowledgment, becauſe that is Evidence of a Promiſe.—And a *Writ* of *Latitat* taken out, entered, and filed, and continued, is an Avoidance of the Statute; for it is a Demand, and a good bringing of an Action, within the Time limited by the Statute.

If a Plantiff is beyond Sea, when the Cauſe of Action doth accrue, he may bring his Action at his Return; but if the Defendant be gone beyond Sea, and the Plaintiff here, he muſt file an Original againſt the Defendant, and continue it till he returns; and if he do not file an Original, or outlaw the Defendant, the Statute of *Limitations* will bar him, 2 *Salk.* 420. But the Law is now altered, by Statute 4 *&* 5 *Ann. c.* 16.

Actions may be brought againſt all Perſons, whether attainted of Treaſon or Felony, convict Recuſants, outlawed, and excommunicate Perſons, *&c.*—But a Man attainted of Treaſon or Felony, a recuſant Convict, an Outlaw, excommunicated Perſon, Convict of *Præmunire*, an Alien, Enemy, *&c.* cannot bring an *Action*, till Pardon, Reverſal, Abſolution, *&c.* though Executors or Adminiſtrators being outlawed may ſue in the Right of the Teſtator or Inteſtate, not their own Right; and it has been held that an Alien born, has Capacity to ſue perſonal *Actions*, but not real *Actions*.

But to enter into a more particular Detail of Actions, I'll begin by *Action of Debt*.

Action of Debt, lieth where a Man oweth to another a certain Sum of Money, upon Bond, Bill, or other Action or Contract, or on a Leaſe reſerving Rent, *&c.* and the Debtor will not pay the Debt at the Day agreed, then the Creditor, or Landlord of ſuch Perſon, ſhall have *Action* of Debt againſt him for the ſame.

Note, That *Debt* is a Thing due to another, whether it conſiſt of Money, Goods, or Services. We meet with different Kinds of *Debts*: *Active Debts*, are those whereof a Perſon is Creditor: *Paſſive Debts*, those whereof he is Debtor.—There are alſo *real Debts*, for

sonal Debts, and *mixed Debts*. *Chirographical Debt*, in the *French* Law, is that due by Virtue of a Note, or Writing under one's Hand, and not proved in Judicature. *Hypothecary Debt*, is that due in Virtue of some Contract or Judgment. *Prædiatory Debt*, is that arising from an Alienation of Lands, *&c.* the whole whereof has not been paid. *Privileg'd Debt*, is that which must be satisfied before all others; as the King's Tax, *&c.* By the *English* Law, Debts due to the King are to be satisfied in the first Place in all Cases of Executorship, and Administratorship; and till the King's Debt be satisfied, he may protect the Debtor from the the Arrest of any Creditor.

An *Action of Debt*, is sometimes grounded upon an Act of Parliament, Judgment, Statute, *&c.* sometimes on a Writing, as an Obligation, Covenant, or other Speciality, Accounts stated, *&c.* and sometimes without Writing, as upon verbal Contracts, Receipts, Escapes of Persons, Amerciaments in a Court-Leet, or Court-Baron, *&c.* and if Money be due upon a Speciality, *Action of Debt* only lies; for no other Action may be had for it.

The *Action of Debt* must be brought by, and in the Name of the Party to whom the Debt is due, if he be living; and after his Death, of his Executors or Administrators, *&c.* and it is to be brought against the Party that originally ow'd the Debt, or after his Death, against his Executor who has taken upon him the Executorship, or if there be no Executor, against the Administrator of the Deceased, *&c.* but it lies not against Executors upon a simple Contract made by the Testator.

If the Debt be above 40 *s.* the Action will lie in the *Kings-Bench*, or *Common-Pleas*, or other superior Courts that have Jurisdiction: And if the Debt be under that Sum, the proper Courts are the *County Court*, *Court Baron*.

Debt lieth against the Husband for Goods sold, and delivered to the Wife. — If a Woman sole be indebted, and then takes Husband, it becomes the Debt of the Husband and Wife, and both are to be sued for it in Action of Debt.

A Wife cannot in Strictness bind her Husband by Contract for Necessaries, to charge him without his Assent; but usually if she buys Goods for herself, as Apparel, *&c.* or for her Family, the Contracts are allowed; and the Husband is bound to maintain his Wife in Necessaries, except it be in Case of an Elopement. As a Man is not bound by his Wife's Contract, without Notice and Assent; so he is not bound by her Receipt for his Money: And Necessaries for the Wife, for which the Husband is chargeable in *Action of Debt*, must be according to his Degree and Estate.

In Actions of Husband and Wife, Damage is to be laid only to her Husband: And in Actions against them, Execution must be awarded against him. A Wife may be indicted without her Husband for her own Offence, and be fined, *&c.* as she may sue, and be sued in Court-Christian without him.

Note, That Court-Christian is the Ecclesiastical or Bishop's Court, in Contra-distinction to civil Courts, which are called King's Courts, *Curia Regis*.

If a Man has a Servant known to be such, and he sends him to Market to buy or sell, his Master shall be charged in Debt: But if the Servant makes a Contract in his Master's Name, the Contract will not be binding, unless it were by the Commandment or Assent of the Master. And where a Servant borrows Money in his Master's Name without Order; or if he buys Things in his own Name, the Master shall not be charged, except the Thing bought comes to his Use, and he have Notice of it.

It has been adjudged, that where a Servant usually buys Goods for his Master, upon Trust or Credit, and takes up Things in his Master's Name, but for his own Use, the Matter is liable in an *Action of Debt*; but it is not so, where the Master usually gives him ready Money: And if a Master gives a Servant Money to buy Goods for him, and he converts the Money to his own Use, and buys the Goods on Trust, yet the Master is answerable, as the Goods come to his Use, otherwise he is not. Also a Note under the Hand of a Servant or Apprentice, shall bind his Master, where he is allowed to deliver out Notes, though the Money is never applied to the Master's Use: But if he is not allowed or accustomed to deliver out Notes, his Note shall not bind the Master, if the Money be not applied to the Use of the Master.

An Infant is liable to pay for his Meat, Drink, Cloaths, Physick, Teaching, and other Necessaries; but if he enters into a Bond for it, or comes to an Account, an *Action of Debt* shall not lie against him upon the Account stated, and he may avoid the Bond by pleading *infra Ætatem*, 18 *Ed.* IV.

Infants are not obliged to pay for Cloaths, but where it is averred for their own Wearing, and that they were convenient and necessary for them to wear according to their Estate and Degree. An Infant may buy, but cannot borrow Money to buy Necessaries; for the Law will not trust him with Money, but at the Peril of the Lender, who must lay it out for Necessaries, or see it thus laid out.

A *Demand must be made*, before an Action be brought, in all Debts, except it be by Bond; yet where there is a Debt or Duty, which the Law makes payable on Demand, no Demand need be made; but when there is no Duty till Demand, a Demand must be had to make the Debt. The bringing an *Action of Debt* for Money due on a Bond, is a Demand, in Law, of the Debt.

The Obligor, or his Servant, *&c.* may tender the Money due on a Bond to save a Forfeiture; and it shall be adjudged a good Performance, if made to the Person of the Obligee, though refused by him. But if the Obligor be afterwards sued for the Debt, he must plead that he is still ready to pay it, and tender the Money in Court. It is otherwise if a collateral Thing is to be done, as where one is to deliver a Horse, *&c.* for if the Obligor offers to do it, and the Obligee refuseth it, the Obligation will be discharged for ever.

In Debt on single Bill, the Defendant may plead Payment (before the Action brought) in Bar; and pending an Action on Bond, *&c.* the Defendant may bring in Principal, Interest, and Costs, and the Court shall give Judgment to discharge the Defendant.

If several Persons are bound severally in a Bond; the Obligee may bring Action of a Debt against all the Obligors together, or all of them apart (*but not against some jointly, and not the rest*) and have several Judgments and Executions; but he shall have Satisfaction but once; and if it be of one only, the rest are discharged. *Dyer* 9. — *In a joint Obligation, in Case one be sued, he is not obliged to answer, except the rest are also sued. Ibid.* 310.

Action of Account, is a Writ or Action, which lies against a Bailiff, or Receiver, *&c.* who by Reason of their Offices and Businesses, are to render Account but refuse to do it.

A Person may have a Writ of Account against a Man as Bailiff or Receiver, as if one receives Money for my Use, I shall have Account against him as Receiver, *&c.* So if a Man enters into Land for my Use, and receives the Profits thereof, I shall have an Account against him as Bailiff.

If a Person receives Money due to me upon an Obligation, or for Rents owing unto me, I may either have *Action of Account* against him, as my Receiver; or Action of Debt, or on the Case, as owing me so much Money that he has received.

The Statute of Limitation does not bar a Merchant from bringing *Actions of Account* for Merchandize at any Time; tho' all other *Actions of Account* are within the same. And by the 13 *Stat. Ed.* I. *c.* 11. in *Actions of Account*, Auditors are to be assigned, and if the Accomptant be found in Arrear, the Auditors may commit him to Prison, there to remain till he makes Agreement with the Party; but if he be charged with more Receipts than he ought, or be not allowed reasonable Expences, he may sue out of the Chancery, a Writ *ex parte talis*, directed to the Sheriff, to take four Mainpernors to bring in his Body before the Barons of the Exchequer, at a certain Day, and to warn the Lords to appear at the same Time, *&c.* The Auditors are Judges of Record, though what may be pleaded in Bar to the Action, shall not be permitted to be pleaded before the Auditors; the Plaintiff or Defendant may join Issue, *&c.* before Auditors, which shall be certified to the Court, and there tried: And the

the Auditors may grant a further Day to the Defendant to account; but if the Defendant is remiss, they must certify the Court that he will not account.

The usual Pleas in these Actions are *quod nunquam fuit Receptor, plene computavit*, &c. And the Judgment is, *quod computet*; on which the Defendant is taken by *Capias ad computandum*; if two Persons are adjudged jointly to account, and one discharges himself upon the Account, it shall be a Discharge to the other. It is no Plea in an Accomptant that he was robbed; but he may plead it was without his Default or Negligence, and it will be good.

Action of Detinue, is an Action for Recovery of Goods or Chattels, lent and deliver'd to another to keep, or to deliver over to a third Person, who refuseth to re-deliver them.

Action of Detinue, lieth for any Thing certain and valuable, wherein one may have a Property or Right; as for a Horse, Cow, Sheep, Cloath, Houshold-stuff, Jewels, Plate, Bags of Money seal'd, Chests of Money lock'd, Sacks of Corn, Loads of Wood, *&c.* and for Boxes of Charters or Writings, *&c.* But it must be laid so certain, as the Thing detain'd may be known and recover'd; and therefore for Money out of a Bag, or Corn out of a Sack, *&c.* it lieth not, because the Money or Corn cannot in this Case be distinguished from another Man's Corn or Money; so that the Party must have an Action on the Case, *&c.* Yet *Detinue* may be brought for a Piece of Gold of the Price of 25 *s.* though not for 25 *s.* in Money; for here is a Demand of a certain particular Piece.

If Goods are taken out of the Possession of a *Feme Sole*, and she marries and dies, the Husband shall not have *Detinue*, except he be made Executor to the Wife; but where there is a Divorce between a Man and his Wife, after the Divorce she may bring *Detinue* for the Goods given with her in Marriage; so she shall have it for a *rationable Part. Boner.* where the Custom gives the Writ.

If a Man bargain and sell Goods, upon Condition to be void if he pays the Bargainee a certain Sum of Money at a Day; now if he pays the Money, he may have *Detinue* for the Goods, tho' they come not to the Bargainee's Hands by Bailment, but by the Bargain and Sale.

In *Actions of Detinue*, he that brings the Action ought to have a Right to, or a Property in the Thing demanded, or he must be chargeable over to some other for the same; the Thing is to be once in the Possession of the Defendant, which is not to be alter'd by Act of Law, as Seizure in Execution, *&c.* and the Nature of the Thing must continue without Alteration, to entitle this Action; so that if Leather be made into Shoes, *&c.* the Writ of *Detinue* will not lie. To bring *Action of Detinue*, the Plaintiff must set forth the Thing deliver'd, and Time when, to what Use it was deliver'd, and the Time appointed for Re-delivery, with its Value, *&c.*

The Defendant cannot wage Law upon a *Detinue* of Writings, concerning the Inheritance of Lands, nor of an Indenture of Lease for Years; but in *Detinue* upon Bailment, *per auter mains*, he may wage his Law, because the (Debt, *&c.*) *Destinct*, is the Ground of the Action. Also the Defendant may wage his Law in *Detinue*, in almost all Cases, touching Goods and Chattels; to prevent which, the Practice now is to bring *Trover* for such Goods, *&c.* where the Conversion changes the *Detinue* to Action of the Case, and the Defendant cannot wage his Law, *&c.*

Trover and *Conversion* is a special Action of the Case, which a Man may have against one, who having found any of his Goods, refuseth to deliver them upon Demand; or if another has in his Possession my Goods, by Delivery to him, or otherwise, and he sells or maketh Use of them without my Consent, this is a *Conversion* for which *Trover* lies.

If a Defendant comes to the Possession of Goods by finding, Denial is a *Conversion*; but if he had them by Delivery, it is only Evidence of *Conversion*; and in both Cases the Defendant has a lawful *Conversion*, either by finding or Delivery, and where the Possession is lawful, there must be a Demand and Refusal, to make a *Conversion*; though if the Possession was tortious, as if the Defendant takes away the Plaintiff's Hat, *&c.* the very Thing is a sufficient Proof of the *Conversion*, without any Thing further.

After Demand and Refusal, if the Defendant tenders the Goods, and the Plaintiff refuses to receive them, that will go only in Mitigation of Damages, and the Plaintiff may have *Trover* still; for *Trover* and *Conversion* lies for Goods, though they come into the Possession of the Plaintiff before the Action brought, which does not purge the Wrong, or make Satisfaction for the Detainer, *&c.*

A Plaintiff may chuse to have his Action against the first Finder of the Goods, *&c.* or any other who gets them afterwards; and an Executor may bring this Action for the Goods of the Testator.

A Man puts out Cattle to Pasture, and then sells them, the Buyer may have *Trover* against the Farmer, *&c.* if he refuses to let them go till paid for; and his Remedy must be by Action for the Money due to him for depasturing the Cattle; for he may not detain them for a Debt, as in Case of an Inn-keeper or Taylor, *&c.* for Things in their Custody.

In Action of *Trover*, the Plaintiff surmises that he lost such and such Goods, and that the Defendant hath found them, and converted them to his own Use at such a Place; but the losing is but a mere Suggestion and not material; but if the Plaintiff deliver'd the Goods to the Defendant, or if they were taken in the Plaintiff's Presence, *&c.* this Action lies if there be a *Conversion*, which is the Point of the Action, and therefore it must be particularly alledged.

The Defendant may plead not guilty in *Trover* and *Conversion*, and gives in Evidence, that he restrained the Goods, and detained them till he was paid; but he cannot plead, especially that he took the Goods, or that he detain'd them, *&c.* for he ought to plead Not guilty, to the Wrong supposed, and give the Matter in Evidence. It is said to be allowable in two Cases, to plead specially, where you may plead the general Issue, *viz.* when the Defendant in his Plea, does admit some Colour of Action to be in the Plaintiff, but shews some special Matter to avoid it: Or where he pleads Matter of Law, which admits the Fact, but is not proper for a Jury, though it amounts to Not guilty; as a Release pleaded is a Bar in Law, yet may be given in Evidence, *&c.* and in other Cases, there may be a good Plea in Justification.

In this Action the Things, their Nature and Value are to be shewn, and the Time and Place, when and where the Plaintiff was possessed of them, and how they came to the Defendant with the *Conversion*.

Action of Slander, is an Action brought for defaming a Person in his Reputation, and lies for Words spoken which affect a Man's Life, Liberty, Office, Trade, or that which tends to Loss of Preferment in Marriage, Service, *&c.* or to his Disinheritance, or which occasion any particular Damage.

There are many Branches or Divisions of this *Action*, which is no more than an Action on the Case for Words, *&c.* and where any Words are maliciously spoken of another, for which, if true, they would touch his Life, or he might be punished; as to call one *Traitor*, *Robber*, *Felon*, &c. Action lies.—To say of another Person he has committed or spoke Treason, hath forged the Great Seal, or that he is a Coiner of false Money, *&c.* are actionable: But not for calling a Man Rebel, because it may be in a Commission of Rebellion.—For saying of another that he has killed or concealed the Murder of such a Man, Action lies; but the Defendant may shew that the Party is or was alive at the speaking of the Words, and then no Action lies thereon.

To charge a Man with Sacrilege or Church-robbing, or with having committed Robbery on the Highway; so to call one *House-robber*, *Horse-stealer*, &c. and to charge him with having stolen Goods, *&c.* as well concerning petit Larceny, where the Value of the Goods is under 12 *d.* As for grand Larceny, when they exceed that Value, Action lies: But Words must import a certain Charge of Felony, and not be of cutting and taking away standing Corn, Apples from Trees, Wood, *&c.*—This *Action* will generally lie for calling a Man Thief; unless something of Qualification be coupled to prove the Thing to be no Felony; and for charging him to be

be a *Maintainer of Thieves*, *Receiver of stolen Goods*, &c. So for Conspiracy to indict a Person falsly and maliciously of Felony, or other Offence on his Acquital, *&c.* though if upon Trial it appears that there was probable Cause for the Indictment, no Action lies.—To say one is a *Pirate* or *Maintainer of Pirates*, is actionable; and so it is to say of one that he did *burn a dwelling House*, or a *Barn with Corn*, &c.—Calling a Person generally *Rogue*, *Knave*, *&c.* or say he will prove him to be a Rogue, except it be in such an Affair, *&c.* it will bear no Action.

To charge a Man with a *Rape*, or that he did ravish, or was guilty of *ravishing E. B.* or say he should have been hanged for a *Rape*, &c.—And charging a Person with *Sodomy*, or *Buggery*, &c. being very penal by the Law, are actionable. If one says to another thou art a *buggering Rogue*, and I could hang thee; or if a Man says, I know myself and I know you, I have never committed *Sodomy*, Action lies.

To say a Man has *forged a Lease*, *Release*, *Obligation*, &c. or that he is a *Forger of false Deeds*, this Action will lie.—And to say of a Person he *has perjured himself*; that *he would prove him perjured*; or that he was forsworn in the Court of Chancery, King's Bench, *&c.* are actionable: But not to call a Person forsworn Man, unless it be said in a Court of Record. If a Man says, he gave another Money for forswearing himself, or calls him perjured Knave, Action lies: And this Action may be brought where the Words charge the Party with Subornation of Perjury, *&c.*

Such Words as charge a Person with *Bribery*, *Extortion*, *Maintenance*, &c. all which are punishable by the Common and Statute Laws, and affects a Man's Liberty and Estate, is actionable.

To say an *Alehouse-keeper keeps a Bawdy-house*, Action lies; but to say of an Inn-keeper, that he harbours Rogues, *&c.* it is not actionable, for his House is common to all Guests: But to say, that he harbours none but Rogues, Thieves, *&c.* and keeps his House for no other Use, must be actionable; since it deters others from resorting thither.

For calling a Man *Whore-master*, or a *Woman Whore*, no Action lies; for these are merely spiritual Slanders: But calling a Woman Whore in *London*, is actionable by the Custom of the City. And to say of a Man that he is a common Whore-master, that he lay with a certain Woman, *&c.* or that he is a drunken Fellow, and worth nothing, *&c.* by which he loses his Marriage, this Action lies.—Also to say that a Woman has a Bastard, or is with Child; that she lay with *A. B.* or that a certain Person has the Use of her Body, *&c.* whereby she loseth her Marriage, is actionable; though not without special temporal Damage, an Action at common Law.

Defamation by Libel, as by scandalous Writing, Signs, *&c.* is actionable: And Printing or Writing may be libellous, though the Scandal is not charged in direct Terms, but ironically; or though there be only the first and last Letter of the Name, if the Jury will find it to point out a particular Person.—Sending an abusive Letter to one, without publishing it, is no *Libel*; but if it be any Ways dispersed; or if a Man writes a Letter, containing scandalous Matter against another, and send it to a third Person, this may be a *Libel*.—If one reads a *Libel* it is no Publication; but if he repeats the same in the Hearing of others, it is; though if it be read or repeated in Mirth, without any malicious Purpose of Defamation, it is no Offence: So if one takes a Copy of the *Libel*, and doth not deliver it to others, *&c.*—The Contriver, Procurer, and Publisher of a *Libel*, knowing it to be such, are punishable; as are also Booksellers who sell *Libels*, although they know not the Contents.

A Libeller shall be punished, although the Party of whom the Words be spoken be dead; and though the Matter of the *Libel* is true; for it is not material whether it be true or false, if the Prosecution be by Indictment or Information: But in Action of the Case, one may justify that it is true.

Note, That a *Libel* is a Writing, containing Injuries, Reproaches, or Accusations against the Honour and Reputation of any Person, particularly of a Superior or Governor. *Platina* is of Opinion, that a Writing, how injurious soever it is, cannot be called a *Libel*, if the Author's Name be to it.—*Libellers* among the antient *Romans* were punished with Death, but in after Times they were only whipped. *Augustus* ranked *famosos libellos*, defamatory *Libels*, among the Crimes *Læsæ Majestatis*, of High-Treason.—F. *Baldwin* has published a Comment on the imperial Laws against *Libels*.—Scandalous Pictures are reckoned among *Libels*.

A *Libel*, the Lawyers say, may be either *in scriptis*, or *sine scriptis*: *In scriptis*, when a Writing is composed or published to another's Disgrace, which may be done either *verbis* or *cantilenis*; as where this is maliciously repeated or sung in the Presence of others; or else *traditione*, when the *Libel* or any Copy of it is delivered out to scandalize the Party.—A *Libel sine scriptis* may be twofold. 1. *Picturis*, as to paint the Party in a shameful or ignominious Manner: Or, 2. *Signis*, as to fix a Gallows or other ignominious Signs, at the Door of the Party, or elsewhere.—The Punishment of Libels in *England*, is putting the Criminal in the Pillory, Whipping, Fining, *&c.*

As to the Slander of Persons by Words, though scandalous Words be spoken before a Man's Face or behind his Back, by Way of Affirmation or Report, of Opinion or Dream, in Earnest or Jest, when sober or drunk, *&c.* they are actionable: It is the same if the Words are spoke directly or indirectly, or obliquely; and although they are uttered in any Language, if understood by the Hearers; and Words may be actionable in one County that are not so in another, by different Acceptation, *&c.* But where Words may receive a double Interpretation, they shall be taken in *mitiori sensu*, so as no Action shall lie: And if the Defendant can make Proof of the Words, he may plead special Justification; though if the Plea be not made good, Damages will be aggravated.

In *Action of Slander*, the Nature of the Words must be observed, the Manner of speaking them, the Time and Place, when and where spoken, and before whom, and the Damage thereby to the Plaintiff; what his Credit was, and how impaired, with the aggravating Circumstances.—It matters not whether the Plaintiff doth in his Declaration set forth all the circumstantial Words as they are spoken, so as he shew the very Words as they are actionable; wherein he must be very careful, for a little Variance may vitiate all; and such as doubt the Words, do sometimes charge the Defendant with speaking them variously at several Times, and several Ways, that in one of the Charges they may hit upon the very Words, or the Substance of them: But then the Jury are to assess Damages only for the Words that are found to be spoken.

When the Words are utterly uncertain in themselves, no *Innuendo*, or Averment, can make them good; but otherwise it is, if it may be known what Person the Speaker did intend: And if the Declaration be laid, that the Defendant *dixit* the Words, and say not of the Plaintiff, it is nought.—If a Slander concerns Life or Member, an Office, Trust, Calling, *&c.* the Plaintiff need not aver any particular Damage; in other Cases he must aver it specially.

To these *Actions* the Defendant may plead the general Issue, not guilty; or if the Plaintiff declares on some of the Words only, when altogether are not actionable, he may set them forth at large as he spoke them, and *traverse* or justify the whole, or plead not guilty to the Words alledged, as the Case shall require.

Note, That *Traverse* denotes the Denial of some Matter of fact, alledged to be done in a Declaration or Pleading; upon which the other Side coming and maintaining that it was done, Issue is joined for the Cause to proceed to Trial.

Action of Scandalum Magnatum, is of a superior Nature to the ordinary Action of Scandal on the Case, for Slander of a Nobleman, *&c.* and it is laid, *tam pro Domino Rege*, *quam pro seipso*, the Thing being supposed to concern the Credit of great Men, who act by his Authority; and as the Plaintiff may bring this Action in the Name of the King, and in his own Name, he shall recover Damages, and the Defendant is to be otherwise punished.

Note,

Note, That *Scandalum Magnatum* denotes a Scandal or Wrong done to any high Perſonage of the Land, as Peers, Prelates, Judges, or other great Officers, by falſe or ſlanderous News or Tales, whereby any Debate or Diſcord between them and the Commons, or any Scandal to their Perſon might ariſe.

The *Action of Scandalum Magnatum*, is founded on Statute of *Weſtminſter*, 1. *c.* 33. 2 *R.* II. *c.* 5. and 12 *R.* II. *c.* 11.—Some are of Opinion, that the Words in the Caſe of *Scandalum Magnatum*, ſhall be taken in the worſt Senſe, to preſerve the Honour of great Perſons; but moſt of thoſe who are really great Men, are ſo far above the ſcandalous Words ſpoken againſt them by ſcurrilous Fellows, who ſeldom do it with any other View than that of diverting the Rabble, that they think it infinitely beneath them to take the leaſt Notice of it: Therefore we ſeldom ſee any Action of *Scandalum Magnatum* brought.—Judge *Atkins* held, that an Action would not lie for Words of a trivial Nature; the Statute mentioning only great Scandals, *whereby Diſcord might ariſe*, &c.

Action of Treſpaſs, lies for any Wrong or Damage, which is done with Force and Arms by one Perſon to another; ſometimes againſt the Perſon of a Man, and ſometimes againſt his Goods and Lands, *&c.* and herein the Plaintiff ſhall recover Damages according to the Wrong done him; and the Defendant, in Strictneſs of Law, is to pay a Fine to the King, for the Writ always ſuppoſes the Wrong to be done *Vi & Armis, & contra Pacem, &c.*

Treſpaſſes againſt a Man's Perſon, are of ſeveral Kinds; *viz.* by *Menacing* or *Threatening* to hurt another; *aſſaulting* or *Setting* upon one, to beat him.—*Battery*, where any Perſon does unlawfully beat another.—*Maiming* of a Man, whereby he loſes the Uſe of his Limbs or Members.—And by *Impriſonment*, where a Perſon is reſtrained of his ordinary and lawful Liberty.

If one threatens to beat or kill me, or lies in wait to do it, ſo I dare not follow my Buſineſs as at other Times, and I have any Loſs thereby, I may have Action of Treſpaſs; but not when he threatens only to ſue or arreſt me, *&c.*—If the Threatening be, that he will do me ſome bodily Miſchief, this is an Aſſault.

If a Perſon in Anger lifts up or ſtretches forth his Arm, and offers to ſtrike another; or holds up any Staff or Weapon to ſtrike at him, being within his Reach; or thruſts or puſhes a Man, caſts Stones at him, though he be not hit; throws Wine in his Face, or on his Cloaths, *&c.* theſe are Treſpaſſes and Aſſaults in Law, for which Action lies: Though if one ſtrikes at another, at a great Diſtance; or if it be at a Perſon near; or if he throws Stones at him, *&c.* merrily or accidentally; and not purpoſely, no Action will lie.

To hold a Man by the Arm, is an Aſſault if not a Battery; for the leaſt touching of another in Anger is a Battery; and though Battery may not be committed by offering to ſtrike, or attempting to beat, but generally a Stroke may be actually given, yet if one comes to the Aid of another who is beating a third Perſon, though he does not touch him, he is guilty of Battery; and throwing Drink, *&c.* in a Man's Face is a Battery, if it be not done by Accident.

If a Perſon be beaten by another, he may return it in his Defence, and plead that the other's Battery was occaſion'd by his own Aſſault; and a Man may juſtify an Aſſault in Defence of his Perſon, or Goods; or of his Wife, Father, Mother, Maſter, *&c.* for the Maintenance of Juſtice.

In Caſes of Aſſault; for the Aſſault of the Wife, Child, or Servant, the Huſband, Father, and Maſter, may have *Action of Treſpaſs*: And where any one is aſſaulted or beaten, and he hath no Witneſſes to prove the ſame, the Party may bring an Information in the Crown Office, *&c.* A Man and his Wife may have this Action together, for any the leaſt Beating of the Wife: But if it be ſuch a Beating, as thereby he loſes her Company, or Service, he himſelf may have it.

A Huſband may bring Action of Treſpaſs, for Aſſault and debauching or laying with his Wife; and *de uxore raptâ & abductâ cum bonis viri*, where the Wife is taken away by an Adulterer with the Huſband's Goods, *&c.* though Treſpaſs, *quod cepit & abduxit*, lies not for the Father for taking and carrying away any of his Children, except it be a Son or Daughter who is Heir. For taking away or beating a Man's Servant, Treſpaſs may be brought; but the Plaintiff muſt declare *per quod ſervitium amiſit*, without which it is no Damage to the Maſter.

As to *Maihem*, if it deprives the Perſon of the Uſe of any of the Members of his Body, as his Leg, Hand, Finger, Eye, Fore-Teeth, *&c.* he may have this *Action*, or an Appeal of *Maihem*, and recover Damages, according to the Hurt or Injury; but if the Hurt be ſmall, the Action of Treſpaſs, Aſſault and Battery, is the only Remedy.

He that commands or procures a Battery to be done, is a Principal; and not only he that does the Wrong, but he who is acceſſary to it before or after the Thing done, may be charged as Principal by this Action.

Action of Treſpaſs for falſe Impriſonment, lieth when a Man is impriſoned, and there is no juſt Cauſe for his Impriſonment; or where he that impriſons him has no good Authority to do it; or if having Authority he does not purſue it; if he arreſts at a forbidden Time, or Place.—And yet where any Man is duly impriſoned by ſome legal Warrant, tho' in a falſe or feigned Suit, and no Money be due, *&c.* he ſhall have *Action of Treſpaſs* and falſe Impriſonment.

Entry into a Houſe, againſt the Will of the Owner, is Treſpaſs.—Action of Treſpaſs lies, where a Perſon makes an Entry on the Land of another, and does Damage.—And Treſpaſs, *Vi & Armis*, does lie for him that hath the Poſſeſſion of Goods, or of a Houſe or Lands, if he be diſturbed in his Poſſeſſion.

In general, Treſpaſs may be brought for breaking a Man's Cloſe or Ground; for driving a Cart and Horſes over the Ground of another Perſon, where there is no Way for it; for chaſing Cattle, whereby they die, or are injured; for taking away Pails, and breaking off Fences of Land, or breaking the Doors, Windows, *&c.* of a Houſe; for fiſhing in another Man's Pond, and for breaking the Pond; for eating the Corn of another with Cattle; for digging in any Man's Coal Mines, and carrying away the Coal; for plucking up Garden-Roots and Herbs; for tearing a Bond, *&c.* All Perſons, Male or Female, Infants, *&c.* that do any ſuch Wrong, may be ſued in this Action.

In all Treſpaſſes there ought to be a voluntary Act and a Damage. If the Defendant in a Treſpaſs, *Quare clauſum fregit*, diſclaims any Title to the Land, and the Treſpaſs is unvoluntary or by Negligence, he may be admitted to plead a Diſclaimer and Tender of Amends before the Action brought, *&c.* and if it be found for the Defendant, the Plaintiff ſhall be barred. Where a Defendant juſtifies for a Treſpaſs, he muſt confeſs it; and a Defendant ſhall never be excuſed in Treſpaſs, unleſs it be upon an inevitable Neceſſity. If there be only a Force in Law, the Party muſt be required to go out of the Land, *&c.* before Hands may be laid on him as a Treſpaſſer; but it is otherwiſe where there is an actual Force.

If the Defendant makes the Place where the Treſpaſs was done material by his Plea, he muſt ſhew it with great Certainty.

A Man may have an Action of Treſpaſs for divers *Treſpaſſes*, and one Action of *Treſpaſs* may be brought for a *Treſpaſs* committed in ſeveral Towns or Pariſhes, if they are in one and the ſame County, for elſe they cannot receive one Trial, as they are local Cauſes of Action, triable in the County where they are done.—If divers Actions of *Treſpaſs* are brought for the ſame Cauſe, the Defendant may get them joined into one, if brought to vex him; but the *Treſpaſſes* muſt not be of ſeveral Natures, which may not be tried in one Action. *Treſpaſſes* continued may be laid with a *Continuando diversis diebus, & vicibus*; but Things muſt lie in Continuance, and where Treſpaſſes are alledged with a Continuance which cannot be continued, the Evidence ought to be to the firſt Act only. And the beſt Way to declare for ſuch *Treſpaſſes* which lie in Continuance, is for the Plaintiff to ſet forth that the Defendant between ſuch a Day and ſuch a Day cut ſeveral Trees, *&c.* and not to lay a *continuando Tranſgreſſionis* from ſuch a Day to ſuch a Day, and

and upon ſuch Declaration the Plaintiff may give in Evidence a cutting, on any Day within thoſe Days.

Perſons maliciouſly maiming, wounding, or hurting any Cattle, deſtroying any Plantation of Trees, or throwing down Incloſures, ſhall forfeit treble Damages in *Action of Treſpaſs*. But in *Treſpaſs*, if the Jury give not 40 *s.* Damages, the Plaintiff ſhall have no more Coſts than Damages, except the Title comes in queſtion, ſomething of the Plaintiff's be carried away, or the Battery be well proved.—The Plaintiff, where the *Treſpaſs* is wilful and malicious, ſhall recover Damages and full Coſts; by the 8th and 9th of *H.* III. *c.* 11.—And where in Aſſault the Defendants are acquitted, they ſhall have Coſts, unleſs the Judge certifies Cauſe for making them Defendants.

A Court, which is not a Court of Record, cannot hold Plea of *Treſpaſs vi & armis.*—*Treſpaſs quare vi & armis* will lie in *B. R.* be the Damages what they will: But in Writs of *Treſpaſſes* upon the Caſe, the Words *vi & armis* muſt not be inſerted, though returnable in the Court of *B. R. &c.*

The *Action of Covenant lies*, where one is bound by a Covenant in a Deed, entered into by two or more Perſons to do or not do ſome Act or Thing agreed betwixt them, when he has broke the ſame; and herein commonly the Party damnified ſhall only recover Damages for the Breach, except in real Actions.

A Covenant is either expreſſed in the Deed or implyed by Law, as by the Words *Demiſe* or *Grant* of a Thing, the Law doth imply that the Leſſee or Covenantee ſhall quietly enjoy, *&c.*

Covenants are real concerning the paſſing of Lands; or perſonal where a Man covenants with another to build a Houſe, or to ſerve him, *&c.* And a *Covenant* may be conditional; if a Servant covenants to ſerve me a Year, and I covenant to pay him a Sum of Money for it, he may have *Action of Covenant* though he don't ſerve me; but then I may compel him to ſerve the Time agreed. It is otherwiſe if I covenant to pay him a Sum of Money if he ſerves me a Year, which is a conditional *Covenant.*

All *Covenants* between a Leſſor and a Leſſee, are *Covenants* in Law or expreſs *Covenants*; and where there is an expreſs *Covenant* in a Deed for quiet Enjoyment, the implied *Covenant* is gone. In a *Covenant* the loſt Words which are general ſhall be reſtrained and expounded by the former which are ſpecial and particular; and a latter *Covenant* cannot be pleaded in bar to a former.

Covenants between Perſons muſt be to do what is lawful, or they will not be binding; but if ſome *Covenants* in a Deed are good and lawful, and others not; thoſe againſt Law are void, and the others ſtand good.—If the Thing to be done be impoſſible, the *Covenant* is void.

No Duty nor Cauſe of *Action* ariſes upon a Covenant till it is broken; if *Covenants* perpetual are once broke, and an Action is brought, and Recovery thereupon, upon a new Breach a *Scire Facias* ſhall be had on that Judgment, and the Plaintiff need not bring a new Writ of *Covenant.*

In *Covenants* the Plaintiff muſt have Recourſe to the Deeds or Writings, and the Circumſtances of Time, Place, *&c.* and obſerve what particular *Covenant* it is beſt to inſiſt on, to lay the Breach right; alſo the Declaration muſt ſet forth how the Plaintiff comes to be entitled to what is demanded.

In Deeds of *Covenant* ſometimes a Clauſe for Performance with a Penalty is inſerted; and other Times, and more frequently Bonds are given and entered into for the Performance, with a ſufficient Penalty ſeparated from the Deed; which laſt being ſued, the Jury muſt fine the Penalty; but on *Covenants* Damages only.

Covenants are generally taken more ſtrongly againſt the Covenantor, and for the Covenantee, *&c.*

Action of Ejectment, is an Action where one makes a Leaſe to another for Terms of a Year; and a Third ouſts the Leſſee, then ſuch Leſſee ſhall have this Action againſt the Perſon that ouſted him, and recover his Term and Damages.

Note, That *ouſted* in the antient *Engliſh* Law-Books is being removed or put out of Poſſeſſion.

The *Action of Ejectment* partakes of the Nature both of a real and perſonal Action; for both the Lands and Damages are recovered thereon.

The Plaintiff in *Ejectment* is a mere nominal Perſon, and a Truſtee for the Leſſor, and if he releaſes the Action he may be committed for the Contempt: And where Attornies have made Perſons Leſſees in Ejectment, who were not in Being, or known to the Defendants, they have been adjudged to pay Coſts, *&c.*

Ejectment ought to be brought for a Thing that is certain; as if it be of a Manor, *Manerium de* A. *cum pertinentiis in*, &c.

In *Ejectment*, if it appears that the Plaintiff was ejected before the Leaſe was made, it is ſufficient; though no certain Day be alledged in which it was done; for the Day is not material, being before the Action brought: But the Time of Entry of the Plaintiff muſt be ſhewn in the Declaration, that it may appear he was not a Diſſeiſor, by entring on the Land before the Commencement of his Term, *&c.*

No Arreſt is to be made in this *Action*, as commonly proſecuted; only a Declaration feigning a Leaſe for Years to him that would try the Title, and caſual Ejector or Defendant is delivered to the Ejector, who ſerves a Copy thereof on the Tenant in Poſſeſſion, and gives Notice at the Bottom for him to appear and defend his Title, or that the feigned Defendant will ſuffer Judgment by Default, *&c.* To this Declaration the Tenant appears by Attorney, and conſents to a Rule to be Defendant in the Place of the caſual Ejector, *&c.* and if he does not appear in due Time, and enters into ſuch Rule, on Affidavit of Service of the Declaration, the Court orders Judgment to be pronounc'd againſt the caſual Ejector, and thereby the Tenant is ouſted of his Poſſeſſion, *&c.*

Assize, is a Writ or Action, directed to the Sheriff for the Recovery of Poſſeſſion of Things immovable, whereof a Man's ſelf or Anceſtors have been diſſeized.

Littleton and others ſuppoſe theſe Writs of *Aſſize* to have given the Denomination to the *Aſſizes*, or Courts ſo called, and aſſign ſeveral Reaſons of the Name of the Writ; as,

Firſt, becauſe ſuch Writs ſettle the Poſſeſſion, and right him that obtains by them. *Secondly*, becauſe originally they were executed at a certain Time and Place appointed; for by the *Norman* Law, the Time and Place muſt be known forty Days before the Judges ſit; and by the *Engliſh* Laws there muſt be fifteen Days Preparation, except they be tried in the ſtanding Courts at *Weſtminſter.*—But it is more natural to ſuppoſe the Writs denominated from the Courts; and that they were called *Aſſizes*, becauſe antiently tried at ſpecial Courts of *Aſſizes*, ſet and appointed for that Purpoſe. Though of later Days, they are diſpatched at the general *Aſſizes*, along with the Commiſſion of *Oyer* and *Terminer*, &c.

This Writ is as well of Things corporeal or incorporeal Rights, being of four Sorts, *viz.*

Aſſize of novel Diſſeiſin, which lies where a Tenant in Fee-ſimple, Fee-tail, or for Life, is lately diſſeized of his Lands or Tenements, Rent-ſervice, Rent-ſeek, or Rent-charge, Common of Paſture, common Way, *&c.*

An *Aſſize* muſt be of an actual Freehold, not a Freehold in Law; and if Leſſee for Years or Tenant at Will be ouſted, the Leſſor or he in Remainder may have Aſſize, becauſe the Freehold was in him at the Time of the *Diſſeiſin.*

The Court of Common-Pleas or King's-Bench, may hold Plea of Aſſizes of Land in the County of *Middleſex*, by Writ out of Chancery; in other Counties ſuch Pleas muſt be tried at the Court of Aſſizes; and in theſe Actions the Land, Damages, and Coſts are recovered.

In Aſſize when the Party purchaſes the Writ, he ought to find Sureties in the Chancery; and the Plaintiff muſt prove his Title, then his Seiſin, and Diſſeiſin.—The Plaintiff need not be ſo certain in Aſſize as in other Writs, for the Judgment is to recover *per viſum recognitorum*; and if the Recognitors may put the Demandant in Poſſeſſion, it is well enough: An *Aſſize* ſhall never abate for Want of Form; and it is not needful to make ſo exact a Title againſt Pernors of Profits, as againſt a Tenant.

The Demandant in *Aſſize* may abridge his Plaint after the Jury are charged, before Verdict; and if the Tenant pleads an ill Bar, the Plaintiff is not bound to anſwer it, but

but may make a Title at large, and pray the *Assize*, &c.

An *Assize* was formerly to be arraigned in *French*; and first the Plaintiff's Counsel prays the Court, that the Defendant may be called, whereupon he is called accordingly; and on his appearing, his Council demand *Oyer* of the Writ of *Assize*, and the Return of it, which is granted; and then he prays Leave to imparl to a short Time after, and the Jury are adjourned to that Day: At the Day given by the Court the Defendant is again called, and upon his Appearance he pleads to the Assize, and on this an Issue is joined between the Parties, and the Jury are sworn to try the Issue, the Council proceeding to give them their Evidence. After the Trial the Court gives Judgment, and the Plaintiff is to have a Writ of Seisin, *&c.*

In this Action the Defendant shall not essoin nor cast a Protection, or pray in Aid of any but the King, vouch any Stranger or Party to the Writ, unless he enters presently into the Warrant, *&c.* And where the Assize concerns the King and his Prerogative, the Judges may be prohibited to proceed therein by Writ, *De non ulterius prosequendo Rege inconsulto.*

Assize of Mort d'Ancestor, lies where my Father, Mother, Brother, Uncle, *&c.* dies seized of Lands, Tenements, Rents, *&c.* held in Fee-simple; and after their Death a Stranger abates.—It is good as well against the Abettor as any other in Possession: But lieth not against Brothers or Sisters, where there is Privity of Blood between the Person prosecuting and them; and it must be brought within the Time limited by the Statute of Limitations, or the Right may be lost by Negligence.—This Writ of Assize is brought and prosecuted in like Manner, as Assize of *Novel Disseisin.*

Assize of Darrein Presentment, lies where I, or my Ancestor have presented a Clerk to a Church, and after the Church becomes vacant by Death, or otherwise, a Stranger presents his Clerk to the same Church, in my Disturbance.

This *Assize* doth not lie for one Copartner against the other; for if they cannot agree, the Ordinary ought to admit the Presentee of the eldest.

These three *Assizes* were instituted by *Henry* II. in the Place of Duels; which till then had obtained on these Occasions.

Quare impedit, is a Writ which lies for him who has purchased an Advowson, against him that disturbs him in the Right thereof, by presenting a Clerk thereto when the Church is void.

It differs from the Assize of *Darrein Presentment*, in that it lies for him who is the Purchaser himself.—Where a Man may have the Assize, he may have this Writ.

The Writ *Quare impedit* is to be brought a Month after the Avoidance, and by it a Patron may be relieved, not only in his Presentation to a Church, but to a Chapel, Prebend, Vicarage, *&c.* And this Writ lies for a Donative, Deanary, *&c.* but not for any mere Office of the Church.

In *Quare impedit*, the Writ must be brought in that County where the Church is; the Patron and Incumbent are to be named in it, the one as he may be dispossess'd of his Patronage, and the other of his Presentation, and it is usual likewise to make the Bishop a Defendant, to prevent Lapse where the Church is void *pendente lite.*—The special Matter must be set forth in the Declaration, and it is not sufficient for the Plaintiff to say, that he, or such Persons from whom he claims, were seized of the Advowson of the Church; but he must alledge a Presentation made by one of them; for if he does not, the Defendant may demur to the Declaration; and the Defendant is to make his Right appear, by joining the last Presentation to his own Title.

Formedon, is a Writ which lies for him who has Right to Lands or Tenements by virtue of any Entail, arising from the Statute of *Westminster*, *c.* 1.

There are three Kinds of *Formedon*, viz. a *Formedon in the Descender*, *Formedon in the Reverter*, and *Formedon in the Remainder.*

Formedon in the Remainder, lies for the Recovery of Lands, *&c.* given to one and the Heirs of his Body; or to a Man and his Wife, and the Heirs of their two Bodies; or to a Man and his Wife being Cousins to the Donor in frank Marriage, and afterwards alienated by their Donee. After his Decease, his Heir shall have this Writ against the Tenant or Alienee.

Fitz. Nat. Br. fol. 211, &c. makes three Sorts of *Formedons* in the Descender; the first is that now expressed: The second for the Heir of a Coparcener that aliens and dies: The third he calls *insimul tenuit*; which lies for a Coparcener, or Heir in Gavel-kind, before Partition against him to whom the other Coparcener or Heir has alienated, and is dead.

Formedon in the Remainder, lies where a Man gives Land in tail, the Remainder to another in tail; and afterwards the former Tenant in tail dies without Issue, and a Stranger abates; then he in Remainder shall have this Writ.

Formedon in Reverter, lies for the Donor or his Heirs (whose Lands is entailed to certain Persons, and their Issue, with Condition for Want of such Issue to revert to the Donor and his Heirs) against him to whom the Donee alienates, after the Issue extinct, to which it was entailed.

In a Writ of *Formedon* the Demandant must make his *Descent* by all who did hold the Estate, otherwise the Writ will abate, and the Demandant should always be made Son and Heir, or Cousin and Heir, to him that was last seized of the Tail; but the surest Way is to make every Man named in the Writ Son and Heir therein, and it is not material whether they were seized or not, altho' they are named Heirs.

The Writ of *Formedon* is now almost obsolete, being rarely brought, except in some special Cases where it cannot be avoided.

Writ of Partition, lies for dividing of Lands descended by the common Law, among Parceners or Coheirs where there are two at least; and Partition may be made by joint Tenants, and Tenants in common, *&c.*

Partition is also made four other Ways, whereof three are by Agreement, the fourth by Compulsion.

The first *Partition by Agreement* is, when the Parceners divide the Land equally themselves into so many Parts as there are Coheirs.

The second is, when each chuses some of their Friends to make the Division for them.

The third is by drawing Lots thus; having first divided the Land into so many Parts as there are Persons, they write every Part separately in a distinct Scroll, and wrapping it up throw each into a Hat, or such like Thing, out of which each one draws according to his Superiority; and so the Land is separately allotted.

The fourth *Partition* which is by Compulsion, is when one or more of the Heirs, by reason of the Refusal of some other, sues out a Writ of *partitione faciendâ*; by Force thereof they shall be compelled to divide.

In *Kent*, where their Land is of Gavel-kind Nature, they call their *Partition* shifting.

Note, That *Gavel-kind* is a Tenure or Custom, whereby the Lands of the Father are equally divided at his Death, among all his Sons; or the Land of the Brother among all his Brethren, if he have no Issue of his own. This Custom which antiently obtained throughout *England*, is still of Force in the greatest Part of *Kent*, *Urchenfield* in *Herefordshire*, and elsewhere, though with some Difference: But by the Statutes 34 and 35 *Henry* VIII. all *Gavel-kind* Lands in *Wales* are made descendible to the Heir, according to the Course of common Law. In an antient Book of Record in *Christ-Church*, *Canterbury*, in the Time of *H.* VIII. the *Saxons* are said to have held all their Lands, either by Writing or without: The first was called *Bockland*, whose Owners were Men whom we now call Freeholders; the second was called *Folkland*, the Owners whereof were of servile Condition, and *ad voluntatem Domini.* Now the Inheritance or Freehold did not in those Days descend to the eldest Son, but to all alike, which in *Saxon* was called *Landescyftan*, and in *Kent* *to shift Lands*: Whence came the Custom *Gavel-kind*, and the Reason why it was retained in *Kent* more than in other Places was, that the People of *Kent* upon the *Norman* Invasion, could not be reduced to surrender to the Conqueror, but on these Conditions, that they

they ſhould retain their antient Country Cuſtoms, without any Infringement or Diminution, and eſpecially that called *Gavel-kind*.

The Lands held under this Denomination deſcend equally, and are divided Share and Share alike, among the male Children, and in Defect of theſe among the Females. They are of Age, or qualified to take the Lands upon them at the Age of fifteen; and may then give, vend, or alienate the ſame to any Perſon, without the Conſent of the Lord: And Children here inherit their Father's Lands, though convicted of Felony, Murder, *&c.*—The Tenants in *Gavel-kind* are *to do Fealty*, and to be in the Tuition of the next a-kin, who is next Heir after them, till fifteen Years of Age, to pay Acknowledgment to the Lord for the Land, *&c.*

Note, alſo, that *Fealty* is an Oath taken, at the Admittance of every Tenant to be true to the Lord, of whom he holds his Land.—*Fealty* is uſually mentioned as ſynonimous with Homage; but it differs from it, as Homage conſiſts in taking an Oath, when the Tenant comes to his Land, and is done but once; being an Obligation which is permanent, and binds for ever, which Fealty does not.—They differ alſo in the Manner of the Solemnity; for the Oath of Homage is taken by the Tenant kneeling; but that of *Fealty* is taken ſtanding, and includes ſix Things, which are included in the Words, *incolume, tutum, utile, honeſtum, facile, poſſibile.*

Incolume, that he do no bodily Injury to the Lord: *Tutum*, that he do him no ſecret Injury in any Thing, which is for Defence, as in his Houſe or Cattle: *Honeſtum*, that he do him no Injury in his Reputation: *Utile*, that he do not damage him in his Poſſeſſions: *Facile* and *Poſſibile*, that he make it eaſy and not difficult for the Lord to do any Good, which otherwiſe he might do.

He that holds Lands by this only Oath of *Fealty*, holds it in the freeſt Manner; for all, even thoſe that have Fee, hold *per fidem & fiduciam*, that is, by Fealty at the leaſt.

This *Fealty* is alſo uſed in other Nations, as in *Lombardy* and *Burgundy*.—Indeed as the very firſt Creation of this Tenure grew from the Lord for his Followers, ſo did it bind the Tenant to Fidelity; as appears by the whole Courſe of the Feuds, and the Breach thereof is Loſs of the Fee.

Hottoman, in his Commentary *de verbis feudalibus*, ſhews a double *Fealty*; one General to be performed by every Subject to his Prince; the other Special required only of ſuch, as in reſpect of their Fee, are tied by this Oath to their Lords.—We read of both in the *Grand Cuſtomary* of *Normandy*, &c.

Fealty ſpecial, is performed in *England*, either by Freemen or Villains: The Form of both, ſee *Anno Edward* II. in theſe Words: When a Freeman ſhall do *Fealty* to his Lord, he ſhall hold his Right-Hand upon a Book, and ſhall ſay thus; 'I Hear you my 'Lord *R.* that *J. P.* ſhall be to you both faithful and 'true, and ſhall hold my Fealty to you, for the 'Land that I hold of you, on the Terms aſſigned; ſo 'help me God and all his Saints.'—When a Villain ſhall do *Fealty* to his Lord, he ſhall hold his Right-Hand over the Book and ſay thus; 'Hear you my Lord *A.* 'that *J. P.* from this Day forth, unto you ſhall be 'true and faithful, and ſhall owe you *Fealty*, for the 'Land that I hold of you in Villainage, and ſhall be 'juſtified by you in Body and Goods, ſo help me 'God and all his Saints.'

Dower, is that Portion of Lands or Tenements which a Widow enjoys for Term of Life from her Huſband, in caſe ſhe ſurvives him, and which at her Death deſcends to her Children.

Among the *Goths* the *Dower* was only the tenth Part of her Huſband's Eſtate; among the *Lombards* a Fourth, among the *Romans* and *Sicilians* a Third: Which is the Rate which ſtill obtains in *England*, and amongſt moſt other Nations.

The *Engliſh* Law-Books diſtinguiſh five Kinds of *Dower*, viz. *Dower per legem communem*; *per conſuetudinem*; *ex aſſenſu Patris*; *ad oſtium Eccleſiæ*; and *de la plus belle.*

Dower by the common Law, is a third Part of ſuch Lands, as the Huſband was ſole ſeized of in Fee during the Marriage; which the Wife is to enjoy during her Life; and for which there lies a Writ of Dower.

Dower by Cuſtom, gives the Wife in ſome Places half her Huſband's Lands, ſo long as ſhe lives ſingle; as in Gavel-kind; and as Cuſtom may enlarge, ſo may it abridge *Dower*, and reſtrain it to a fourth Part.

In *Dower ex aſſenſu Patris*, and *ad oſtium Eccleſiæ*, the Wife may have ſo much *Dower* as ſhall be aſſigned and agreed upon; but it ought not to exceed the third Part of the Huſband's Lands. If this be done before Marriage it is called a *Jointure*.

Dower de la plus belle, by this ſhe is endowed with the faireſt and beſt Part of her Huſband's Eſtate.

There are three Things to entitle *Dower*, *viz.* Marriage, Seiſin, and the Death of the Huſband. It is much favoured in Law, being for the Benefit of Widows; wherefore the Wife of one *non compos mentis*, of an Ideot, Outlaw, or one attainted of Felony, may be endowed; but not of a Perſon attainted of Treaſon, nor the Wife of an Alien, Jew, *&c.* and a Wife may be endowed of the principal Meſſuage (not being a Caſtle) Lands, *&c.* and of a third Part of a Reverſion, expectant on a Term of Years, and the Rent reſerved thereon:—Alſo ſhe ſhall be endowed of a Seiſin in Law, as well as a Seiſin in Deed; as where Lands deſcended to the Huſband before Entry the Wife ſhall have her *Dower* therein, though it be not reduced to an actual Poſſeſſion.

At common Law the *Dower* is aſſigned by the Sheriff, by the King's Writ, or by the Heir, *&c.*—And by the antient Law of *England*, by *Magna Charta*, a Woman was to continue a whole Year in her Huſband's Houſe for the Aſſignment of her *Dower*; but by that Statute a Widow ſhall immediately after her Huſband's Death, have her Marriage Inheritance, and remain in his chief Houſe 40 Days, within which Time a Dower is to be aſſigned her of the third Part of all his Land.

In Action of *Dower*, the firſt Proceſs is *Summons* to appear; and if the Tenant do not appear, nor caſt an Eſſoign, a grand *Cape* lies, to ſeize the Land, *&c.*—But on the Return of the Summons, the Attorney for the Tenant or Defendant may enter with the Filazer, that the Tenant enters and prays View, *&c.* Then a *Writ of View* goes out, whereby the Sheriff is to ſhew the Tenant the Land in Queſtion; upon the Return of which Writ, the Tenant's Attorney takes a Declaration, and puts in a Plea, which is generally *ne unques ſeiſi*, *&c.* that the Huſband was never ſeiſed of any Eſtate whereof the Wife can be endowed; and when Iſſue is joined, you muſt proceed to Trial as in other Actions.—Upon Trial, the Jury are to give Damages for the meſne Profits from the Death of the Huſband, if it be found that he died ſeiſed, *&c.* for which Execution ſhall be made out; and then there goes a Writ to the Sheriff to give Poſſeſſion of a third Part of the Land.

A *Writ of Replevin*, or *replegiari facias*, lieth where one doth diſtrain another's Cattle or Goods, for Rent, Service, Damage Feaſant, *&c.* having firſt given Security to the Sheriff, that on the Delivery of the Thing diſtrained, he will proſecute the Action againſt the Perſon who made the Diſtreſs.

In the Statute 24 *Henry* VIII. we read of *Canes replegiari*, Hounds *replevied*, in a Caſe between the Abbot of *St. Albans* and *Geoffrey Childwic.*

Goods may be *replevied* two Ways; *viz.* By *Writ*, which is that uſed by the Common Law; and by *Plaint*, which is that by the Statute Law, for the more ſpeedy having again the Cattle and Goods; and is brought in the Sheriff's Court.

Diſtreſſes are to be reaſonable, and not taken on the Highway, or driven out of the Country, *&c.* And if any Perſon ſhall diſtreſs another, on Purpoſe to injure him, he ſhall pay treble Damages.—By Statute, when a Diſtreſs is taken in the Day-time, for Rent due, if on Notice thereof, with the Cauſe of Taking, *&c.* the Owner do not *replevy* the ſame in five Days, the Perſon diſtreſſing may, with the Sheriff, Conſtable, *&c.* cauſe the Diſtreſs to be appraiſed by two ſworn Appraiſers, when

whom ſuch Sheriff, &c. ſhall ſwear to appraiſe the Goods truly, &c. and may afterwards ſell the ſame to ſatisfy the Rent and Charges, leaving the Overplus with the Sheriff, &c. (if any) for the Owner's Uſe.

If Notice be not given in Writing of the Things diſtrained, and for what you diſtrain them, they may not be ſold by the Statute; but the Diſtreſs is to be retained till *Replevin* or Satisfaction. And where a Man, whoſe Goods are diſtrained, thinks himſelf wronged, and would have the Goods or Cattle reſtored, he may obtain them by *Replevin*; but if he be only deſirous of a reaſonable Satisfaction for them, he may have an Action of Treſpaſs, or Trover, &c.

A *Replevin* ought to be certain, in ſetting forth the Number, and Kinds of Cattle diſtrained, or it will not be good; becauſe if it be uncertain, the Sheriff will not know how to make Deliverance of the Cattle, if a Writ be directed to him to do it. And in a Declaration in *Replevin*, for taking of Cattle, if the Time and Place, when and where taken, be not named, the Declaration is nought for Uncertainty.

The Plaintiff, on laying his *Replevin* in the *Detinet*, has his Goods again, and Damages for the taking; but if it is laid in the *Detinuit*, he ſhall only recover for the wrongful taking; for that Word being in the Preter-perfect Tenſe, implies, that the Sheriff had his Goods again.

Action of Waſte, lies where any Deſtruction is made in Houſes, Lands, Woods, &c. by Tenants for Life, or Years, to the Damage of the Heir, or him in Reverſion or Remainder; and the Action is brought for Recovery of the Thing waſted and Damages.

Title XIII. *Of Exceptions.*

Exception is a Stop or Stay to an Action; which Term is uſed indifferently both in the civil, and common Law; and in each, *Exceptions* are divided into *Dilatory* and *Peremptory*.

A *peremptory Exception*, is that which is abſolute, final, and determinate; not to be alter'd, renewed, or reſtrained.

Exception, in a general Senſe, includes all the Kinds of Defence, or Vindication, which a Perſon againſt whom a Proceſs is brought, makes Uſe of to prevent, or retard its Effect.

The *Civilians* reckon three Kinds of *Exception*, viz. *declinatory*, whereby the Authority of the Judge or Court is diſallowed; *dilatory*, intended to defer or prevent the Thing coming to an Iſſue; and *peremptory*, which are proper and pertinent Allegations, founded on ſome Preſcriptions that ſtand for the Defendant; as want of Age, or other Quality in the Party; or other Matter that may be decided, without entering into a full Diſcuſſion of the Merits of the Cauſe.

Title XIV. *Of Replications.*

Replication, is that which the Plaintiff replies to the Defendant's Anſwer in Chancery, and which is either *general* or *ſpecial*. The *ſpecial* is grounded upon Matter ariſing out of the Defendant's Anſwer, &c. The *general* is ſo called from the general Words therein uſed.

Note, That the *Law of England* conſiſts of three Parts: 1. The *Common Law*, which is the moſt antient and general *Law* of the Realm. 2. *Statutes*, or Acts of Parliament. 3. *Particular Cuſtoms.*

The *Common Law of England*, is derived from the *Engliſh*, *Saxons*, and *Danes*, and was antiently divided into three Parts, *viz.* the *Mercian Law*, the *Weſt-Saxon Law*, and the *Daniſh Law*.

Thoſe called *Mercian Laws*, are commonly ſaid to have been compoſed by *Martia*, Queen of the *Britons*, from whom there was a Province called *Provincia Merciorum*. Many Laws were alſo publiſhed by *Ethelred*, King of *Kent*, by King *Ina*, and *Offa*; but *Alfred*, who ſubdued the whole Kingdom, having reviſed all the Laws of his Predeceſſors, retained thoſe which he thought proper, and aboliſhed the reſt; whence he is called *Anglicarum Legum Conditor*; and theſe Laws were called *Weſt Saxene-laga*.

But the Kingdom being afterwards ſubdued by the *Danes*, they introduced another Law, called *Dane-laga*, by which their People were govern'd; and they being afterwards deſtroy'd, *Edward the Confeſſor*, out of the former Laws, compoſed that, now called the *Common Law*; for which Reaſon he is called by *Engliſh* Hiſtorians, *Anglicarum Legum Reſtitutor*.

Theſe Laws were only general Cuſtoms, obſerved thro' the Nation, and for that Reaſon, were called *common*; and perhaps alſo, *Leges omnibus in commune reddidit*: To be obſerved by all, with ſuch Amendments as were afterwards to be made.

William the Conqueror did not exact many new Laws, but confirmed the old, *viz.* St. *Edward*'s Laws; and abrogated none that any Ways concern'd Compoſitions, or Mulcts of Delinquents: But unfortunately brought along with him from *Normandy*, the litigious Spirit of that Nation; which has been ſince cultivated, and much improved in this Land, to the Oppreſſion of its Inhabitants.

The *Common Law* is alſo called *Lex non ſcripta* (not but moſt of them are wrote in the old *Norman* Dialect) but becauſe it cannot be made by Charter, or Parliament; for thoſe are always Matters of Record, whereas *Cuſtoms* are only Matters of Fact, and are no where but in the Memory of the People, and of all Laws, are the beſt for the *Engliſh*; for the written Laws, made by King and Parliament, are impoſed upon the Subjects before any Probation or Trial, whether they are beneficial to the Nation, or agreeable to the Nature of the People, except where they are firſt made temporary, and for their experienced Uſefulneſs afterwards, made perpetual; but Cuſtoms bind not till they have been try'd and approved Time out of Mind.

Beſides the *Common Law of England*, in general, there are in ſeveral Parts of it, certain Cuſtoms and common Uſages, which have the Force of *Common Law* among thoſe People, to whoſe Property they belong; as *Borough Engliſh*, a Cuſtom ſo called, as not being in Uſe out of *England*; where the youngeſt Son, or for Want of Sons, the youngeſt Brother is to inherit; the eldeſt being ſuppoſed to have learned the Father's Trade, and the youngeſt the leaſt able to ſhift for himſelf.

Where the *Common Law* is ſilent, there are *Statute Laws*, made by the ſeveral Kings of *England*, with the Advice and Conſent of both Houſes of Parliament.

For the Adminiſtration of theſe Laws, there are ſeveral Courts of Judicature, *viz.* the *Chancery*, *Exchequer*, *King's Bench*, and the Court of *Common Pleas*.

CHANCERY.

The Chancery is the grand Court of Equity and Conſcience, inſtituted to moderate the Rigour of the other Courts, that are tied to the ſtrict Letter of the Law; for as far as I can underſtand, and know by Experience, Law is not always founded on Juſtice, Equity, and Conſcience; and what's Law, is often very unjuſt.

The Judge of this Court is the Lord High Chancellor, who is the firſt Perſon of the Realm, next after the King and Princes of the Blood, in all civil Affairs. He is the chief Adminiſtrator of Juſtice next the Sovereign.

All other Juſtices are tied to the ſtrict Law, but the Chancellor has an abſolute Power to moderate the Rigour of the written Law, to govern his Judgment by the Law of Nature and Conſcience, and to order all Things *Secundum æquum & bonum*. Accordingly, *Staumford* ſays, the Chancellor has two Powers, the one abſolute, the other ordinary; meaning, that though by his ordinary Power he muſt obſerve the ſame Form of Procedure as other Judges, yet in his abſolute Power he is not limited by any written Law, but by Conſcience and Equity.

The Offices of Lord Chancellor and Lord Keeper, are by the Statute 5 *Eliz.* made the ſame Thing; till that Time they were different, and frequently ſubſiſted at the ſame Time in different Perſons: Sometimes the Lord Chancellor had a Vice-Chancellor, who was Keeper of the Seal.

The Keeper was created *Per traditionem magni ſigilli*, but the Lord Chancellor by Patent; though now that he has the Keeper's Office, he is created in like Manner by giving him the Seal. The Chancellor is likewiſe Speaker of the Houſe of Lords.

Though the Lord Chancellor be the ſole Judge of the

the Court of *Chancery*, yet in Matters of much Difficulty he ſometimes conſults the other Judges; ſo that this Office may be diſcharged by one who is not a profeſſed Lawyer, as antiently it commonly was. He has twelve Aſſiſtants, or Coadjutors, antiently called *Clerici*, as being in Holy Orders, now Maſters in *Chancery*, the firſt whereof is the Maſter of the Rolls.

The Maſter of the Rolls, is a Patent Officer for Life; who has the Cuſtody of the Rolls and Patents, which paſs the Great Seal, and of the Records of the Chancery.

In the Abſence of the Lord Chancellor or Keeper, he alſo ſits as Judge in the Court of *Chancery*, and is called by Sir *Edward Coke*, his Aſſiſtant.

At other Times he hears Cauſes in the Rolls Chapel, and makes Orders and Decrees. He likewiſe has the Aſſiſtance of the other Maſters in *Chancery*; but all Hearings before him are appealable to the Lord Chancellor.

He has alſo his Writ of Summons to Parliament, and ſits next to the Lord Chief Juſtice of *England*, on the ſecond Woolpack. He has the Keeping of the Parliament's Rolls, and the Rolls Houſe for his Habitation; has alſo the Cuſtody of all Charters, Patents, Commiſſions, Deeds, Recognizances, which being made of Rolls of Parchment, gave Riſe to the Name. Antiently he was called *Clerk of the Rolls*.

In his Gift are the ſix Clerks in *Chancery*, the Examiners, three Clerks of the Petty-Bag, and the ſix Clerks of the Rolls Chapel, where the Rolls are kept.

The Maſters of *Chancery*, are uſually choſen out of the Barriſters of the common Law, and ſit in *Chancery*, or at the Rolls, as Aſſiſtants to the Lord Chancellor, and Maſter of the Rolls.

To them is alſo committed interlocutory Reports, ſtating of Accompts, taxing Coſts, *&c.* and ſometimes by Way of Reference, they are empower'd to make a final Determination of Cauſes.

They have, Time out of Mind, had the Honour to ſit in the Houſe of Lords, tho' they have neither Writs nor Patents to empower them, but as Aſſiſtants to the Lord Chancellor, and Maſter of the Rolls. They had antiently the Care of inſpecting all Writs of Summons, which is now perform'd by the Clerk of the Petty-Bag. When any Meſſage is ſent from the Lords to the Commons, it is carried by the Maſters of *Chancery*. Before them Affidavits are made, and Deeds and Recognizances acknowledged.

Beſides theſe, who may be called *Maſters of Chancery ordinary* (being twelve in Number, whereof the Maſter of the Rolls is reputed the Chief) there are alſo *Maſters of Chancery extraordinary*, appointed to act in the ſeveral Counties of *England*, beyond ten Miles Diſtance from *London*, by taking Affidavits, Recognizances, *&c.* for the Eaſe of the Suitors of the Court.

For the Equity Part of the Court of *Chancery* are ſix Clerks, who have each under him about fifteen more, in the Nature of Attorneys of the Court; two chief Examiners, for examining Witneſſes, who have each five or ſix Clerks a-piece; one principal Regiſter, who has four or five Deputies; Clerk of the Crown, who makes out Writs, Commiſſions, *&c.* Warden of the Fleet; Serjeant at Arms, who bears the Mace before the Chancellor, and the Uſher and Crier of the Court.

The *Six Clerks* are Officers of great Account, next in Degree below the 12 Maſters, whoſe Buſineſs is to enroll Commiſſions, Pardons, Patents, Warrants, *&c.* which paſs the great Seal. They were antiently *Clerici*, and forfeited their Places if they married: They are alſo Attorneys for Parties in Suits depending in the Court of Chancery.

Under them were formerly ſixty Clerks, who with the Under-Clerks did the Buſineſs of the Office; which Number was afterwards increaſed to ninety. At preſent the Number is indefinite; an Order having been made, for reducing them to their antient Number of ſixty; by not filling up the Vacancies that may happen by Death, *&c.* till they are fallen to that Standard.

The *Examiners* are two Officers, whoſe Buſineſs is to examine on Oath, the Witneſſes produced on both Sides, upon ſuch Interrogatories, as the Parties to the Suit do exhibit for the Purpoſe.

The *Clerk of the Crown*, is an Officer, who by himſelf, or Deputy, is continually to attend the Lord Chancellor or Lord Keeper, for ſpecial Matters of State, by Commiſſion, or the like, either immediately from his Majeſty, or by Order of his Council, as well ordinary as extraordinary. All general Pardons, upon Grant of them at the King's Coronation, or in Parliament; the Writs of Parliament, with the Names of the Knights, Citizens, and Burgeſſes, are alſo returned into his Office; beſides which he has the making of ſpecial Pardons, and Writs of Executions upon Bonds of Statute-ſtaple forfeited.

To the Common Law Part, in *Chancery*, belongs the twenty-four Curſitors, and their Clerks, who make out original Writs; Clerks of the Petty-Bag; Clerks of the Hanaper; Comptroller of the Hanaper; Clerk of Appeals; Clerk of the Faculties; Sealer; Chafe-Wax; Clerks of the Patents, of Preſentations, Diſmiſſions, Licenſes to alienate, Enrollments, Protections; Subpæna's, Affidavits, *&c.*

The *Curſitors*, alſo called *Clerks of the Courſe*, are twenty-four in Number; making a Corporation of themſelves. To each of them are allotted ſeveral Shires; in which Shires they make out ſuch original Writs, as are by the Subject requir'd.

Clerk of the Hanaper, is an Officer, whoſe Buſineſs is to receive all Money due to the King for the Seals of Charters, Patents, Commiſſions, and Writs: As alſo Fees due to the Officers for enrolling and examining the ſame. He is obliged to attend on the Lord Chancellor, or Lord Keeper, daily in Term-Time, and at all Times of Sealing.

Comptroller of the Hanaper, is an Officer attending the Lord Chancellor daily in Term and Seal Time. He is to take all Things ſealed from the Clerk of the Hanaper, incloſed in Bags of Leather, and to note the juſt Number and Effect thereof; to enter them in a Book, with all the Duties belonging to the King and other Officers for the ſame, and ſo charge the Clerk of the Hanaper with them.

The Proceedings of the Court of *Chancery*, are either *Ordinary*, like the other Courts, according to the Laws, Statutes, and Cuſtoms of the Nation, by granting out Writs, remedial or mandatory, Writs of Grace, *&c.* or *Extraordinary*, according to Equity and Conſcience, by Bills, Anſwers, and Decrees, to examine Frauds, Combinations, Truths, ſecret Uſes, *&c.* to ſoften the Severity of the common Law, and reſcue Men from Oppreſſion; to relieve them againſt Cheats, unfortunate Accidents, Breaches of Truſt, *&c.*

Bill in Chancery, is a Declaration in Writing, expreſſing a Wrong or Grievance which the Complainant has ſuffered by the Party complained of; or elſe ſome Offence committed by him againſt ſome Law or Statute of the Realm. This Bill is addreſſed to the Lord Chancellor; and contains the Fact complain'd of, the Damages ſuſtained, and the Petition of Proceſs againſt the Defendant for Redreſs.

The Defendant puts an Anſwer to this Bill, wherein he muſt endeavour to refute Article by Article, all the Points of Accuſations, exhibited againſt him by the Plaintiff in his Bill.

Decrees in Chancery, are the Determinations or Sentences of the Lord Chancellor, upon full hearing and weighing the Merit of the Cauſe.

Acts of the Court of *Chancery*, are iſſued Writs or Summons's for Parliaments, and Convocation, Edicts, Proclamations, Charters, Protections, Patents, ſafe Conducts, Writs of *Moderata Miſericordia*.

Here alſo, are ſealed and enrolled Letters Patent, Treaties, and Leagues, Deeds, Writs, Commiſſions, *&c.*

A *Proclamation*, is an Inſtrument diſpatched by the King, with the Advice of his Privy-Council, whereby the People are advertiſed of ſomething which his Majeſty thinks fit for them to know; and whereby they are ſometimes required to do certain Things.

Proclamations have the Force of Laws, but then they are ſuppoſed to be conſiſtent with the Laws already in being; otherwiſe they are ſuperſeded.

A *Charter* in *Chancery*, is an Inſtrument or written Evidence, under the Great Seal of *England*, whereby the King makes a Grant to a Perſon or Community.

One of the moſt celebrated Charters in the World, and

whom ſuch Sheriff, &c. ſhall ſwear to appraiſe the Goods truly, &c. and may afterwards ſell the ſame to ſatisfy the Rent and Charges, leaving the Overplus with the Sheriff, &c. (if any) for the Owner's Uſe.

If Notice be not given in Writing of the Things diſtrained, and for what you diſtrain them, they may not be ſold by the Statute; but the Diſtreſs is to be retained till *Replevin* or Satisfaction. And where a Man, whoſe Goods are diſtrained, thinks himſelf wronged, and would have the Goods or Cattle reſtored, he may obtain them by *Replevin*; but if he be only deſirous of a reaſonable Satisfaction for them, he may have an Action of Treſpaſs, or Trover, &c.

A *Replevin* ought to be certain, in ſetting forth the Number, and Kinds of Cattle diſtrained, or it will not be good; becauſe if it be uncertain, the Sheriff will not know how to make Deliverance of the Cattle, if a Writ be directed to him to do it. And in a Declaration in *Replevin*, for taking of Cattle, if the Time and Place, when and where taken, be not named, the Declaration is nought for Uncertainty.

The Plaintiff, on laying his *Replevin* in the *Detinet*, has his Goods again, and Damages for the taking; but if it is laid in the *Detinuit*, he ſhall only recover for the wrongful taking; for that Word being in the Preter-perfect Tenſe, implies, that the Sheriff had his Goods again.

Action of Waſte, lies where any Deſtruction is made in Houſes, Lands, Woods, &c. by Tenants for Life, or Years, to the Damage of the Heir, or him in Reverſion or Remainder; and the Action is brought for Recovery of the Thing waſted and Damages.

Title XIII. *Of Exceptions.*

Exception is a Stop or Stay to an Action; which Term is uſed indifferently both in the civil, and common Law; and in each, *Exceptions* are divided into *Dilatory* and *Peremptory*.

A *peremptory Exception*, is that which is abſolute, final, and determinate; not to be alter'd, renewed, or reſtrained.

Exception, in a general Senſe, includes all the Kinds of Defence, or Vindication, which a Perſon againſt whom a Proceſs is brought, makes Uſe of to prevent, or retard its Effect.

The *Civilians* reckon three Kinds of *Exception*, viz. *declinatory*, whereby the Authority of the Judge or Court is diſallowed; *dilatory*, intended to defer or prevent the Thing coming to an Iſſue; and *peremptory*, which are proper and pertinent Allegations, founded on ſome Preſcriptions that ſtand for the Defendant; as want of Age, or other Quality in the Party; or other Matter that may be decided, without entering into a full Diſcuſſion of the Merits of the Cauſe.

Title XIV. *Of Replications.*

Replication, is that which the Plaintiff replies to the Defendant's Anſwer in Chancery, and which is either *general* or *ſpecial*. The *ſpecial* is grounded upon Matter ariſing out of the Defendant's Anſwer, &c. The *general* is ſo called from the general Words therein uſed.

Note, That the *Law of England* conſiſts of three Parts: 1. The *Common Law*, which is the moſt antient and general *Law* of the Realm. 2. *Statutes*, or Acts of Parliament. 3. *Particular Cuſtoms*.

The *Common Law of England*, is derived from the *Engliſh*, *Saxons*, and *Danes*, and was antiently divided into three Parts, *viz.* the *Mercian Law*, the *Weſt-Saxon Law*, and the *Daniſh Law*.

Thoſe called *Mercian Laws*, are commonly ſaid to have been compoſed by *Martia*, Queen of the *Britons*, from whom there was a Province called *Provincia Merciorum*. Many Laws were alſo publiſhed by *Ethelred*, King of *Kent*, by King *Ina*, and *Offa*; but *Alfred*, who ſubdued the whole Kingdom, having reviſed all the Laws of his Predeceſſors, retained thoſe which he thought proper, and aboliſhed the reſt; whence he is called *Anglicarum Legum Conditor*; and theſe Laws were called *Weſt Saxene-laga*.

But the Kingdom being afterwards ſubdued by the *Danes*, they introduced another Law, called *Dane-laga*, by which their People were govern'd; and they being afterwards deſtroy'd, *Edward the Confeſſor*, out of the former Laws, compoſed that, now called the *Common Law*; for which Reaſon he is called by *Engliſh* Hiſtorians, *Anglicarum Legum Reſtitutor*.

Theſe Laws were only general Cuſtoms, obſerved thro' the Nation, and for that Reaſon, were called *common*; and perhaps alſo, *Leges omnibus in commune reddidit*: To be obſerved by all, with ſuch Amendments as were afterwards to be made.

William the Conqueror did not exact many new Laws, but confirmed the old, *viz.* St. *Edward*'s Laws; and abrogated none that any Ways concern'd Compoſitions, or Mulcts of Delinquents: But unfortunately brought along with him from *Normandy*, the litigious Spirit of that Nation; which has been ſince cultivated, and much improved in this Land, to the Oppreſſion of its Inhabitants.

The *Common Law* is alſo called *Lex non ſcripta* (not but moſt of them are wrote in the old *Norman* Dialect) but becauſe it cannot be made by Charter, or Parliament; for thoſe are always Matters of Record, whereas *Cuſtoms* are only Matters of Fact, and are no where but in the Memory of the *People*, and of all Laws, are the beſt for the *Engliſh*; for the written Laws, made by King and Parliament, are impoſed upon the Subjects before any Probation or Trial, whether they are [illegible] to the Nation, or agreeable to the Nature of the People, except where they are firſt made temporary, and for their experienced Uſefulneſs afterwards, made perpetual; but Cuſtoms bind not till they have been try'd and approved Time out of Mind.

Beſides the *Common Law of England*, in general, there are in ſeveral Parts of it, certain Cuſtoms and common Uſages, which have the Force of *Common Law* among thoſe People, to whoſe Property they belong; as *Borough Engliſh*, a Cuſtom ſo called, as not being in Uſe out of *England*; where the youngeſt Son, or for Want of Sons, the youngeſt Brother is to inherit; the eldeſt being ſuppoſed to have learned the Father's Trade, and the youngeſt the leaſt able to ſhift for himſelf.

Where the *Common Law* is ſilent, there are *Statute Laws*, made by the ſeveral Kings of *England*, with the Advice and Conſent of both Houſes of Parliament.

For the Adminiſtration of theſe Laws, there are ſeveral Courts of Judicature, *viz.* the *Chancery*, *Exchequer*, *King's Bench*, and the Court of *Common Pleas*.

CHANCERY.

The Chancery is the grand Court of Equity and Conſcience, inſtituted to moderate the Rigour of the other Courts, that are tied to the ſtrict Letter of the Law; for as far as I can underſtand, and know by Experience, Law is not always founded on Juſtice, Equity, and Conſcience; and what's Law, is often very unjuſt.

The Judge of this Court is the Lord High Chancellor, who is the firſt Perſon of the Realm, next after the King and Princes of the Blood, in all civil Affairs. He is the chief Adminiſtrator of Juſtice next the Sovereign.

All other Juſtices are tied to the ſtrict Law, but the Chancellor has an abſolute Power to moderate the Rigour of the written Law, to govern his Judgment by the Law of Nature and Conſcience, and to order all Things *Secundum æquum & bonum*. Accordingly, *Staumford* ſays, the Chancellor has two Powers, the one abſolute, the other ordinary; meaning, that though by his ordinary Power he muſt obſerve the ſame Form of Procedure as other Judges, yet in his abſolute Power he is not limited by any written Law, but by Conſcience and Equity.

The Offices of Lord Chancellor and Lord Keeper, as by the Statute 5 *Eliz.* made the ſame Thing; till that Time they were different, and frequently ſubſiſted at the ſame Time in different Perſons: Sometimes the Lord Chancellor had a Vice-Chancellor, who was Keeper of the Seal.

The Keeper was created *Per traditionem magni ſigilli*, but the Lord Chancellor by Patent; though now that he has the Keeper's Office, he is created in like Manner by giving him the Seal. The Chancellor is likewiſe Speaker of the Houſe of Lords.

Though the Lord Chancellor be the ſole Judge of the

the Court of *Chancery*, yet in Matters of much Difficulty he ſometimes conſults the other Judges; ſo that this Office may be diſcharged by one who is not a profeſſed Lawyer, as antiently it commonly was. He has twelve Aſſiſtants, or Coadjutors, antiently called *Clerici*, as being in Holy Orders, now Maſters in *Chancery*, the firſt whereof is the Maſter of the Rolls.

The Maſter of the Rolls, is a Patent Officer for Life; who has the Cuſtody of the Rolls and Patents, which paſs the Great Seal, and of the Records of the Chancery.

In the Abſence of the Lord Chancellor or Keeper, he alſo ſits as Judge in the Court of *Chancery*, and is called by Sir *Edward Coke*, his Aſſiſtant.

At other Times he hears Cauſes in the Rolls Chapel, and makes Orders and Decrees. He likewiſe has the Aſſiſtance of the other Maſters in *Chancery*; but all Hearings before him are appealable to the Lord Chancellor.

He has alſo his Writ of Summons to Parliament, and ſits next to the Lord Chief Juſtice of *England*, on the ſecond Woolpack. He has the Keeping of the Parliament's Rolls, and the Rolls Houſe for his Habitation; has alſo the Cuſtody of all Charters, Patents, Commiſſions, Deeds, Recognizances, which being made of Rolls of Parchment, gave Riſe to the Name. Antiently he was called *Clerk of the Rolls*.

In his Gift are the ſix Clerks in *Chancery*, the Examiners, three Clerks of the Petty-Bag, and the ſix Clerks of the Rolls Chapel, where the Rolls are kept.

The Maſters of *Chancery*, are uſually choſen out of the Barriſters of the common Law, and ſit in *Chancery*, or at the Rolls, as Aſſiſtants to the Lord Chancellor, and Maſter of the Rolls.

To them is alſo committed interlocutory Reports, ſtating of Accompts, taxing Coſts, *&c.* and ſometimes by Way of Reference, they are empower'd to make a final Determination of Cauſes.

They have, Time out of Mind, had the Honour to ſit in the Houſe of Lords, tho' they have neither Writs nor Patents to empower them, but as Aſſiſtants to the Lord Chancellor, and Maſter of the Rolls. They had antiently the Care of inſpecting all Writs of Summons, which is now perform'd by the Clerk of the Petty-Bag. When any Meſſage is ſent from the Lords to the Commons, it is carried by the Maſters of *Chancery*. Before them Affidavits are made, and Deeds and Recognizances acknowledged.

Beſides theſe, who may be called *Maſters of Chancery ordinary* (being twelve in Number, whereof the Maſter of the Rolls is reputed the Chief) there are alſo *Maſters of Chancery extraordinary*, appointed to act in the ſeveral Counties of *England*, beyond ten Miles Diſtance from *London*, by taking Affidavits, Recognizances, *&c.* for the Eaſe of the Suitors of the Court.

For the Equity Part of the Court of *Chancery* are ſix Clerks, who have each under him about fifteen more, in the Nature of Attorneys of the Court; two chief Examiners, for examining Witneſſes, who have each five or ſix Clerks a-piece; one principal Regiſter, who has four or five Deputies; Clerk of the Crown, who makes out Writs, Commiſſions, *&c.* Warden of the Fleet; Serjeant at Arms, who bears the Mace before the Chancellor, and the Uſher and Crier of the Court.

The *Six Clerks* are Officers of great Account, next in Degree below the 12 Maſters, whoſe Buſineſs is to enroll Commiſſions, Pardons, Patents, Warrants, *&c.* which paſs the great Seal. They were antiently *Clerici*, and forfeited their Places if they married: They are alſo Attorneys for Parties in Suits depending in the Court of Chancery.

Under them were formerly ſixty Clerks, who with the Under-Clerks did the Buſineſs of the Office; which Number was afterwards increaſed to ninety. At preſent the Number is indefinite; an Order having been made, for reducing them to their antient Number of ſixty; by not filling up the Vacancies that may happen by Death, *&c.* till they are fallen to that Standard.

The *Examiners* are two Officers, whoſe Buſineſs is to examine on Oath, the Witneſſes produced on both Sides, upon ſuch Interrogatories, as the Parties to the Suit do exhibit for the Purpoſe.

The *Clerk of the Crown*, is an Officer, who by himſelf, or Deputy, is continually to attend the Lord Chancellor or Lord Keeper, for ſpecial Matters of State, by Commiſſion, or the like, either immediately from his Majeſty, or by Order of his Council, as well ordinary as extraordinary. All general Pardons, upon Grant of them at the King's Coronation, or in Parliament; the Writs of Parliament, with the Names of the Knights, Citizens, and Burgeſſes, are alſo returned into his Office; beſides which he has the making of ſpecial Pardons, and Writs of Executions upon Bonds of Statute-ſtaple forfeited.

To the Common Law Part, in *Chancery*, belongs the twenty-four Curſitors, and their Clerks, who make out original Writs; Clerks of the Petty-Bag; Clerks of the Hanaper; Comptroller of the Hanaper; Clerk of Appeals; Clerk of the Faculties; Sealer; Chafe-Wax; Clerks of the Patents, of Preſentations, Diſmiſſions, Licenſes to alienate, Enrollments, Protections; Subpæna's, Affidavits, *&c.*

The *Curſitors*, alſo called *Clerks of the Courſe*, are twenty-four in Number; making a Corporation of themſelves. To each of them are allotted ſeveral Shires; in which Shires they make out ſuch original Writs, as are by the Subject requir'd.

Clerk of the Hanaper, is an Officer, whoſe Buſineſs is to receive all Money due to the King for the Seals of Charters, Patents, Commiſſions, and Writs: As alſo Fees due to the Officers for enrolling and examining the ſame. He is obliged to attend on the Lord Chancellor, or Lord Keeper, daily in Term-Time, and at all Times of Sealing.

Comptroller of the Hanaper, is an Officer attending the Lord Chancellor daily in Term and Seal Time. He is to take all Things ſealed from the Clerk of the Hanaper, incloſed in Bags of Leather, and to note the juſt Number and Effect thereof; to enter them in a Book, with all the Duties belonging to the King and other Officers for the ſame, and ſo charge the Clerk of the Hanaper with them.

The Proceedings of the Court of *Chancery*, are either *Ordinary*, like the other Courts, according to the Laws, Statutes, and Cuſtoms of the Nation, by granting out Writs, remedial or mandatory, Writs of Grace, *&c.* or *Extraordinary*, according to Equity and Conſcience, by Bills, Anſwers, and Decrees, to examine Frauds, Combinations, Truths, ſecret Uſes, *&c.* to ſoften the Severity of the common Law, and reſcue Men from Oppreſſion; to relieve them againſt Cheats, unfortunate Accidents, Breaches of Truſt, *&c.*

Bill in Chancery, is a Declaration in Writing, expreſſing a Wrong or Grievance which the Complainant has ſuffered by the Party complained of; or elſe ſome Offence committed by him againſt ſome Law or Statute of the Realm. This Bill is addreſſed to the Lord Chancellor; and contains the Fact complain'd of, the Damages ſuſtained, and the Petition of Proceſs againſt the Defendant for Redreſs.

The Defendant puts an Anſwer to this Bill, wherein he muſt endeavour to refute Article by Article, all the Points of Accuſations, exhibited againſt him by the Plaintiff in his Bill.

Decrees in Chancery, are the Determinations or Sentences of the Lord Chancellor, upon full hearing and weighing the Merit of the Cauſe.

Acts of the Court of *Chancery*, are iſſued Writs or Summons's for Parliaments, and Convocation, Edicts, Proclamations, Charters, Protections, Patents, ſafe Conducts, Writs of *Moderata Miſericordia*.

Here alſo, are ſealed and enrolled Letters Patent, Treaties, and Leagues, Deeds, Writs, Commiſſions, *&c.*

A *Proclamation*, is an Inſtrument diſpatched by the King, with the Advice of his Privy-Council, whereby the People are advertiſed of ſomething which his Majeſty thinks fit for them to know; and whereby they are ſometimes required to do certain Things.

Proclamations have the Force of Laws, but then they are ſuppoſed to be conſiſtent with the Laws already in being; otherwiſe they are ſuperſeded.

A *Charter* in *Chancery*, is an Inſtrument or written Evidence, under the Great Seal of *England*, whereby the King makes a Grant to a Perſon or Community.

One of the moſt celebrated Charters in the World, and

and the greateſt in *England*, of which the *Engliſh* Nation has always been very jealous, ever ſince it was firſt granted to them, is that called *Magna Charta*.

MAGNA CHARTA, is the *Great Charter* of Liberties, granted in the ninth Year of *Henry* III. and confirmed by *Edward* I.

Magna Charta, may be ſaid to derive its Origin from *Edward the Confeſſor*, who granted divers Liberties and Privileges both Civil and Eccleſiaſtical by Charter; the ſame with ſome others were alſo granted and confirmed by King *Henry* I. by a celebrated great Charter now loſt. And his Succeſſors King *Stephen*, King *Henry* II. and King *John* confirmed, or re-enacted the ſame; but that laſt Prince violating his *Charter*, the Barons took up Arms, and his Reign ended in Blood. *Henry* III. who ſucceeded him, after having procured an Inquiſition to be made by twelve Men in each County what the Liberties of *England* were in the Time of King *Henry* I. granted a new *Charter*, being the preſent *Magna Charta*; which he ſeveral Times confirmed, and as often broke again: Till in the 37th Year of his Reign, he came to *Weſtminſter-Hall*, where in the Preſence of the Nobility and Biſhops, with lighted Candles in their Hands, *Magna Charta* was read, the King all the while laying his Hand on his Breaſt, and at laſt ſolemnly ſwearing faithfully and inviolably to obſerve all Things therein contained, as he was a Man, a Chriſtian, a Soldier, and a King. Then the Biſhops extinguiſhed their Candles, throwing them on the Ground, crying, *Thus let him be extinguiſhed and ſtink in Hell who violates this Charter.*

Magna Charta, is the Baſis of the *Engliſh* Laws and Liberties: It was thought to be ſo beneficial to the Subject, and a Law of ſo great Equity in Compariſon of thoſe which were formerly in uſe, that King *Henry* for the granting it had the fifteenth Penny of all the moveable Goods both temporal and ſpiritual. Sir *Edward Coke* obſerves, *Magna Charta* has been above thirty Times confirmed.

Note, That the Reaſon of its being termed *magna* or Great, is either becauſe of the Excellency of the Laws and Liberties therein contained, or becauſe there was another Charter, called *Charta de foreſta*, eſtabliſhed with it, which was the leſſer of the two; or becauſe it contained more than any other *Charters*, or in regard of the Wars and Troubles in the obtaining of it; or of the great and remarkable Solemnity in the denouncing Excommunications againſt the Infringers of it.

Patents, or *Letters Patent*, are the King's Letters, ſealed with the Great Seal; ſerving to convey the Title or Property of ſome Grant, Favour, Privilege of a new Eſtabliſhment, or the like. They have their Name becauſe delivered open, *ut pateant omnibus*, by way of Contradiſtinction from *Letters de Cachet*, which are ſealed.

Court of EXCHEQUER.

The *Court of* EXCHEQUER, is a Court wherein are tried all Cauſes relating to the King's Treaſury or Revenue; as touching Accounts, Diſburſements, Cuſtoms, Fines, *&c.*

It conſiſts of ſeven Judges, *viz.* the Lord Treaſurer, the Chancellor of the *Exchequer*, the Lord Chief Baron, and three other Barons of the *Exchequer*, with one Curſitor Baron.

The *Chancellor of the Exchequer*, is an Officer ſuppoſed by ſome to have been created for qualifying Extremities in the *Exchequer*. He ſometimes ſets in that Court and the Exchequer-Chamber, and with the reſt of the Court orders Things to the King's beſt Benefit. He is always in Commiſſion with the Lord Treaſurer, for letting Lands accruing to the Crown by Diſſolution of Abbies, and otherwiſe: He has Power with others to compound for Forfeitures on penal Statutes, Bonds, and Recognizances entered into by the King. He has a great Authority in managing the Royal Revenue, and in Matters of Firſt-Fruits.

The Barons of the *Exchequer* are Judges, to whom the Adminiſtration of Juſtice is committed in Cauſes between the King and his Subjects, touching Matters belonging to the *Exchequer*, and the King's Revenue.

They are called Barons, becauſe Barons of the Realm were uſed to be employ'd in that Office.

Their Office is alſo to look to the Accompts of the King; to which End they have Auditors under them; as well as to decide Cauſes relating to the Revenue, brought by any Means into the *Exchequer*. So that of late they have been conſtantly Perſons learned in the Law; whereas formerly they were *Majores & diſcretiores in regno, ſive de clero eſſent ſive de curiâ*. The Lord Chief Baron is the principal Judge of the Court.

The Court of *Exchequer* is divided into two; the one of Law, the other of Equity.

All judicial Proceedings, according to *Law*, are ſtiled *coram Baronibus* only; but the Court of Equity held in the Exchequer-Chamber, is *coram Theſaurario, Cancellario & Baronibus*, before the Treaſurer, Chancellor, and Barons.

For a long Time after the Conqueſt, there ſet in the *Exchequer* both ſpiritual and temporal Barons of the Realm, but of later Times there have ſate in their Places other Judges, who, though no Peers of the Realm, yet retain the original Denomination.

The common Opinion of *Engliſh* Hiſtorians is, that this Court was erected by *William the Conqueror*, ſoon after his having obtained the Kingdom; and that it took its Form from the *Eſchequier* or *Scaccarium*, eſtabliſhed in *Normandy* long before that Time. In effect, the two *Exchequers* have this in common, that the *Norman* was the ſupreme Court of that Dutchy, or a general Aſſize whereat all the great Lords attended, to judge finally of all Concerns of the greateſt Importance, and was ambulatory: And that the *Engliſh* Exchequer was a Court of the higheſt Juriſdiction, that the Acts thereof were not to be examined by any of the ordinary Courts; that it was the Repoſitory of the Records of all the other Courts, and that it was to be held in the King's Court, and before him; and that it was concerned in the Prerogative as well as the Revenue of the Crown.

The immediate Profits of the Crown, as of *Franchiſes*, Lands, Tenements, Hereditaments, Debts, Duties, Accounts, Goods, Chattels, all Diſburſements, Seizures, and Fines impoſed on the Subjects, *&c.* are within the Juriſdiction of the *Exchequer*. And the King's Attorney may exhibit Bills for any Matter concerning the King in Inheritance or Profits; ſo alſo may any Perſon who finds himſelf aggrieved in any Cauſe proſecuted againſt him, on behalf of the King, or any Patent by Grant of the King, exhibit his Bill againſt the King's Attorney, to be relieved by Equity in this Court.

To this Court belong two Officers, the King's *Remembrancer* Office, and that of the Lord Treaſurer's *Remembrancer*; whoſe Buſineſs is to put the Lord Treaſurer and Juſtices of the Court in Remembrance of ſuch Things as are to be called upon, and dealt in for the King's Benefit.

The King's *Remembrancer* enters into his Office, all Recognizances taken before the Barons, for any of the King's Debts, for Appearance, or for obſerving Orders, and makes out Proceſſes againſt the Collectors of Cuſtoms, Subſidies, and Fifteenths, for their Accounts.—All Informations upon penal Statutes, are entered in this Office, and there all Matters upon *Engliſh* Bills, in the Exchequer-Chamber remain.—He makes the Bills of Compoſition upon penal Laws, takes the Statement of Debts, has delivered into his Office all manner of Indentures, Fines, and other Evidences whatſoever, that concern the aſſuring of any Lands to the Crown: He every Year, *in craſtino animarum*, reads in open Court the Statute for Election of Sheriffs, and gives them their Oath; and reads the Oath of all the Officers of the *Exchequer* when they are admitted.

The Lord Treaſurer's *Remembrancer*, is charged to make Proceſſes againſt all Sheriffs, Echeators, Receivers, and Bailiffs, for their Accounts: Proceſs of *fieri facias*, &c. Extent for any Debts due to the King, either in the Pipe or with the Auditors, and Proceſs for all ſuch Revenues as are due to the King, by reaſon of his Tenures. He alſo makes Record, whereby it appears whether Sheriffs, or other Accomptants, pay their Proffers due at *Eaſter* and *Michaelmas*. He makes another Record, whether Sheriffs or other Accomptants keep their Days of Prefixion: All Eſtates or Fines, Iſſues, and Amercia-

ments, set in any of the Courts of *Westminster*, or at the Assizes or Sessions, are certified into his Office, and are by him delivered to the Clerk of the Estreats, to write Process upon them.

There is a third *Remembrancer*, called *of the First-Fruits*, who takes all Compositions and Bonds for First-fruits and Tenths; and makes Process against such as do not pay the same.

The Lower *Exchequer*, called also the *Receipt of the Exchequer*, is the Place wherein the King's Revenue is received and disbursed. The principal Officers whereof are the Lord Treasurer, a Secretary of the Treasury, a Chancellor of the *Exchequer*, two Chamberlains of the *Exchequer*, an Auditor of the Receipts of the *Exchequer*, four Tellers, a Clerk of the Pells, an Usher of the Receipt, a Tally-cutter, *&c.*

The *Lord Treasurer*, called also *High-Treasurer*, is the third great Officer of the Crown; under whose Charge and Government is all the King's Revenue kept in the *Exchequer*. He receives the Office by Delivery of a white Staff to him from the King, and holds it during the King's Pleasure; antiently he received it by Delivery of the Golden Keys of the Treasury. He has the Check of all the Officers, any way employed in collecting Imposts, Customs, Tributes, or other Revenues of the Crown. He has the Gift of all the Customers, Comptrollers, and Searchers of Places in all the Ports of *London*, and the Nomination of the Escheators in every County.

He alone, or others in Commission with him, letteth Leases of all the Crown Lands, gives Warrants to certain Persons of Quality to have their Wine Custom-free, *&c.* The antient Salary was 383 *l.* but of late is said to have been 8000 *l.* The Office of Lord Treasurer is now in Commission.

The two *Chamberlains* keep a Controulment of the Pells, of the Precepts and Exitus, and have certain Keys of the Treasury and Records; they also keep the Keys of that Treasury, where the Leagues of the King's Predecessors and divers antient Books, as *Domesday-Book*, and the *Black Book* of the *Exchequer* remain.

Note, That *Domesday* or *Domes-day-Book*, *Liber judiciarius vel sensualis Angliæ*, the judicial Book, or Book of the Survey of *England*, is a most antient Record made in the Time of *William the Conqueror*, upon a Survey or Inquisition of several Counties, Hundreds, Tithings, *&c.* Its Name is formed from the Saxon *Dom*, Doom, Judgment, Sentence, and *Day*, which has the same Force; so that *Domesday* is no more than a Reduplicative, importing Judgment.—The Drift or Design of the Book is to serve as a Register, by which Sentence may be given in the Tenures of Estates; and from which that noted Question, whether Lands by antient Demesne or not, is still decided; its Contents are summed up in the following Verses:

Quid deberet fisco, quæ quanta tributa,
Nomine quid census, quæ vectigalia quantum
Quisque tenetur feodali solvere jure,
Qui sunt exempti, vel quos angaria damnat,
Qui sunt vel glebæ servi, vel conditionis,
Quove manumissus patrono jure ligatur.

This Book is still remaining in the *Exchequer* fair and legible, consisting of two Volumes, a greater and a less; the greater comprehending all the Counties of *England*, except *Northumberland*, *Cumberland*, *Westmoreland*, *Durham*, and Part of *Lancashire*; which were never surveyed; and except *Essex*, *Suffolk*, and *Norfolk*, which are comprehended in the lesser Volume, which concludes with these Words: *Anno millessimo octogesimo sexto ab incarnatione Domini, vigesimo vero Regis Wilhelmi, facta est descriptio non solum per hos tres comitatus, sed etiam alios.* It is called *Liber Judicialis*, by reason a just and accurate Description of the whole Kingdom is contained therein; with the Value of the several Inheritances, *&c.* It was begun by five Justices assigned for that Purpose in each County, in the Year 1081, and finished in 1086. *Camden* calls it *Gulielmi librum Censualium*, King *William*'s Tax-Book.

Antiently there were many *Dome-Books* in *England*. We are told by *Ingulphus*, that King *Alfred* made a like Register with that of *William the Conqueror*. It was begun upon that Prince's dividing his Kingdom into Counties, Hundreds, Tithings, *&c.* when an Inquisition being taken of the several Districts, it was digested into a Register, called *Domboc*, q. d. the Judgment-Book, and reposited in the Church of *Winchester*; whence it is also called the *Winchester Book*, and *Rotulus Winton*. And upon the Model of this *Domboc* it is, that the *Doom-Day* of the *Conqueror* was formed.

That of King *Alfred* referred to the Time of King *Ethelred*. And that of the *Conqueror* to the Time of *Edward the Confessor*: The Entries being thus made, *C. Tenet Rex Gulielmus in Dominico, & valet ibi ducatæ*, &c. T. R. E. *valebat*, q. d. it was worth so much *Tempore Regis Edwardi*, in the Time of King *Edward*.

There is a third *Domboc*, or *Dooms-Day Book*, in *Quarto*, differing from the other in *Folio*, father in Form, than Matter. It was made by Order of the same Conqueror; and seems to be the most antient of the two.

A fourth Book there is in the *Exchequer*, called *Dooms-Day Book*; which tho' a very large Volume, is only an Abridgment of the other two. It has Abundance of Pictures, and Gilt-Letters at the Beginning, which refer to the Time of *Edward the Confessor*.

The *Black Book* of the *Exchequer*, is said to have been composed in 1175, by *Gervais* of *Tilbury*, Nephew of King *Henry* II. and divided into several Chapters. Herein is contained a Description of the Courts of *England*, as it then stood, its Officers, their Ranks, Privileges, Wages, Perquisites, Power, and Jurisdiction: The Revenues of the Crown, both in Money, Grain, and Cattle.—Here we find that for one Shilling, as much Bread might be bought, as would serve a hundred Men a whole Day; that the Price of a fat Bullock was only twelve Shillings, and a Sheep four.

Auditors of the Exchequer, are Officers who take the Accounts of those who collect the Revenue, Taxes, *&c.* raised by Parliament; as also of the Sheriffs, Echeators, Collectors, Tenants, and Customers, and set them down and perfect them.

Auditors of Prest, or *Imprest*, are Officers in the *Exchequer*, who take and make up the great Accounts of *Ireland*, *Berwick*, the Mint, Customs, Wardrobe, first Fruits, naval and military Expences, and of all Moneys impressed to any Man for the King's Service.

Auditor of the Receipts, is an Officer of the *Exchequer*, who files the Tellers Bills, and makes an Entry of them, and gives the Lord Treasurer a Certificate of the Money received the Week before, who presents the Estimate or Ballance to the King. He makes Debentures to every Teller, before they receive any Money, and takes their Accounts. He keeps the Black Book of Receipts, and the Treasurer's Key of the Treasury; and sees every Teller's Money locked up in the new Treasury.

There are four *Tellers of the Exchequer*, whose Business is to receive all Monies due to the Crown, and thereupon to throw down a Bill through a Pipe in the Tally-Court, where it is received by the Auditor's Clerks, who attend there to write the Words of the said Bill upon a Tally, and then deliver it to be enter'd by the Clerk of the Pells, or his Clerk. The Tally is then split or cleft by the two Deputy Chamberlains, who have their Seals, and whilst the Senior Deputy reads the one Part, the Junior examines the other Part with the other two Clerks.

Note, That Authors are divided as to the Origin of this Court of *Exchequer*; *Du Cange* is of Opinion, it came from a chequer-wrought Carpet, covering the great Table in that Court; or from the Pavement of the Court, which was chequer-wise: Others from the Accomptants in this Office using Chequers or Chess-Boards in their Computations. *Nicod*, from the Court being composed of Persons of different Qualities, as the Pieces or Partitions in a Chess-Board: Others, by Reason People pleaded here, ranged as it were in Battle array, as they do at Chess. *Menage*, after *Pithou*, &c. derives the Word from the German

man *Schicken*, to send; by Reason this Court succeeded those Commissioners, called in antient Titles, *Missi Dominici*. *Skinner*, &c. derive it from *Schatz*, which signifies Treasure; whence *Polydore Virgil* also writes it *Scattarium*, instead of *Scaccarium*. Lastly, *Somner* derives it from *Schakcen*, to ravish; which, according to him, is the Character of the Treasury.

COURT OF KING'S BENCH.

KING'S BENCH, *Bancus Regius*, is a Court or Judgment-Seat, so called, in Regard the King is supposed to sit in Person as Judge of the Court, and may do so whenever he pleases; for which Reason, all Writs and other Processes in this Court, are made returnable *coram nobis*, i. e. before the King himself; and not *coram justiciariis nostris*, as in the Form in the *Common Pleas*.

The Judges of this Court, are the Lord Chief Justice, and three other puisne Justices.

The Chief Justice is constituted by Writ, and is to hold *quamdiu se bene gesserit*, and so cannot be displaced without some great Misdemeanor; though formerly the Chief Justice, and other inferior Judges, were made only *durante bene placito*, and accordingly were turn'd out at the King's Pleasure.

The Salary of the Lord Chief Justice, used to be but 1500 *l. per Annum*. but it is now 500 *l. per* Term. He presides under his Majesty in this Court, but when the Court divides, in giving Judgment upon any special Argument, he hath but one Voice; so that if the Opinion of the Court should be equally divided, the Matter must rest till one of the Judges shall see just Reason to alter his Opinion. He is to attend the Lords in Parliament, though he has no Vote, unless he be a Peer himself, but is to give his Opinion and Advice to the House by Virtue of a Writ of Assistance; and is frequently, therefore, consulted by them, both in making and repealing Laws, and in altering or explaining them. He makes a Return of all Writs of Error in Parliament, directed to this Court, and with his own Hand delivers the Writ of Error, and a Transcript of the Proceedings in the Cause into the House of Lords.

The three puisne or inferior Judges of this Court, go the Circuits, and are in Commission of *Oyer* and *Terminer* at the *Old-Bailey*. Their Salary is 375 *l. per* Term, to which they, as well as the Chief Justice, are entitled, though they happen not to sit one Day in Court in the Term, unless they give their Assent so slightly, as on a *scire facias*, to be charged with Negligence: These also hold by *quamdiu se bene gesserint*.

There are several Officers belonging to this Court, as two chief Clerks or Prothonotaries, who are supposed to enter all the Pleadings and Judgments between Party and Party; although this is done by an Entring-Clerk under them; and all Writs of *Latitat*, *Non Omittas*, Bills of *Middlesex*, *Habeas Corpus*, &c. are subscribed with the Names of these chief Clerks.

The Secondary acts as Master of the Office on the Pleas Side, and is the chief Clerk's Deputy; his Business is to examine any Person, who is to be sworn an entring Clerk, or Attorney at large, whether he be duly qualified, and to present him to the Chief Justice. He also signs all Judgments, and gives Costs upon them; and the Court upon any Motion, in Relation to the irregular Practice of any Clerk or Attorney, generally refers the Examination thereof to him. He also takes all Affidavits in Court (unless on the Crown-side) and the Acknowledgment of all Deeds in Court.

The chief Clerk, or Prothonotary, has also a Deputy, who keeps the Stamp for signing all Writs and Processes of this Court; and with him are kept the Remembrances of all Records, whereby any Record may be easily found, if the Term wherein it was enter'd be known, *&c.* Likewise all common Writs return'd, Postcas and Writs of Error, and common or special Bails, after they are accepted, are filed in his Office.

The Office of the *Custos Brevium*, is to file all original and other Writs, whereon you proceed to Outlawry: He examines and seals all Records of *nisi prius*, for Trials at the Assizes in several Counties, and hath several Clerks under him for making up Records throughout *England*; but many Times the Plaintiff's Attorney, *&c.* dispatches this Business, paying a Fee of 6 *s.* 6 *d.* for every Press of sixty-six Lines. This Officer also files all Warrants of Attorney, is Clerk of the Essoins, and of the Treasury.

The two Clerks of the Papers receive all special Pleas, Demurs, and other Pleadings, and make up the Paper-Books thereof; which the Attorney for the Plaintiff most commonly speaks for, and afterwards gives a Rule on the Side of the Book for the Defendant's Attorney to bring them again, to be entered within four Days, or Judgment to go by Default: They read in Court Affidavits, Records, and Proceedings.

The Clerk of the Declarations, is an Officer of the Court, who files all Declarations after they are engrossed in Parchment, and continues them on the Back from the Term you declare, till Issue is joined, *&c.*

The Signer and Sealer of Bills, keeps a Book of Entry of the Names of the Plaintiffs and Defendants, in all Bills of *Middlesex*, &c. and the Defendants therein enter their Appearance with him, in whose Office Search may be made for any Writ or Appearance.

The Clerk of the Rules takes Notes of all Rules and Orders made in Court on the Plea-side, and afterwards draws them up, and enters them in a Book at large, for which he has 8 *d.* Fee, and for the Copy of each Rule 4 *d.* if in Term, and double out of Term; and he, or the Clerk of the Papers, files all Affidavits used in Court, and makes Copies of them at 4 *d. per* Sheet; also with him are given all Rules of Course, as on a *Cepi Corpus*, *Habeas Corpus*, for Procedendo's, Postea's, Writs of Inquiry, *&c.*

The Clerk of the Bails and Postea's, files the Bail-Pieces, and marks the Postea's, *&c.* and he, or his Deputy attends in the King's Bench Office for that Purpose. With this Officer you file all Affidavits of Service of Process for common Bail, when the Defendant does not appear.

The Clerk of the Errors allows all Writs of Error, and makes Superfedeas's, whereupon and into what County you please. He likewise makes Transcripts of Records, to be carried into the Exchequer-Chamber or the House of Lords.

The Clerk of the Docquets enters the Judgments, Issues, and Proceedings, and keeps Docquets of them, so that with him you may find if any Judgment be enter'd, *&c.* and he keeps a Book for entering Commitments and Surrenders, and another for general Issues.

The *Filazers* in this Court, which ought to be one for each County, make the Mesne Process after the Original, in suing to the Outlawry, and have the Benefit of all Copies thereof, and Entries made thereupon. There has of late been but one Person chiefly concern'd in this Office, who is *Filazer* and *Exigenter* for *London* and *Middlesex*; and when you sue by Original, Affidavit of your Debt is to be filed with him, and here you enter the Appearance, give Bail, *&c.*

The Marshal of the *King's Bench*, has the Custody of all Prisoners, who are sued in *Banco Regis*, and by himself or Deputy, ought always to attend in Court to receive such Prisoners as are committed. And every Person sued here, is supposed by the Declaration to be in his Custody; for till the *Stat.* 4. and 5. *W.* and *M.* if one were arrested in the Country, and remain'd in Prison there for Want of Bail, he was first to be removed by *Habeas Corpus* to the Custody of the Marshal, before the Plaintiff could declare against him.

The Cryer of the Court, makes Proclamations of summoning and adjourning the Court, calls Nonsuits, and swears Jurymen, Witnesses, *&c.*

For managing, conducting, and pleading Causes in the Court of *King's Bench*, are appointed Sollicitors, Attorneys, and Counsellors at Law.

An *Attorney* is a Person appointed by another to do something in his Stead, particularly to sollicit and carry on a Law-Suit.

Attorneys in common Law, are much the same with Procurators, Proctors, or Syndicks in the civil Law.

Attorneys are properly those who sue out Writs or Processes, or commence, carry on, and defend Actions or other Proceedings, in the Name of other Persons in any of the Courts of common Law. They are distinguished from Sollicitors, who do the like Business in Courts of Equity; as the Chancery, Equity-Court in the Exche-

Exchequer, Chamber-Court of the Dutchy, &c.

None are to be admitted to act, either as the one or the other, without having served a Clerkship of five Years, taking the Oath provided in that Case, and being enrolled. Judges of the said Courts of Law to examine into the Capacity of the *Attorneys*, and those of the Court of Equity the Capacity of the Sollicitors. 2 *Geo.* II. *c.* 23.

Antiently those of Authority in Court, had it in their Power, whether or no to suffer Men to appear, or sue by another than themselves; as appears from *Fitz. de nat. brev.* in the Writ *Dedimus potestatem de Atturnato faciendo*; where it appears that Men who were driven to procure the King's Writs, or Letters Patent, were obliged to appoint *Attorneys* for them. But it is since provided by Parliament, that it shall be lawful to appoint an *Attorney*, without such Circuition; as appears by several Statutes, 20 *H.* III. *c.* 10.—6 *Ed.* I. *c.* 8. &c.

There is a great Diversity of Writs in the Table of the Register, wherein the King commands the Judges to admit of *Attorneys*; whereby there arose so many unskilful *Attorneys*, and so many Mischiefs thereby, that for restraining them it was enacted, 4 *Hen.* IV. *c.* 18. that the Judges should examine them, and displace the Ignorant; and again 33 *Hen.* VI. *c.* 7. that there should be a certain Number of *Attorneys* in *Norfolk* and *Suffolk*.

Attorney is either *General* or *Special*.

Attorney General is he who is appointed to manage the Affairs or Suit of a Community; or rather, who is appointed to conduct all the Suits in general, whether of a Community, or a particular Person.

Such is the *Attorney General* of the King, who is the same as *Procurator Cæsaris* in the *Roman* Empire. To him come Warrants for making out Patents, Pardons, &c. He is at the Head of managing all Law-Affairs of the Crown, either in criminal Prosecutions, or otherwise; especially in Matters of Treason, Sedition, &c. In all Courts he pleads within the Bar; but when a Privy-Counsellor, he cannot plead in any Court, but on the King's Affairs, without obtaining a Privy Seal for so doing.

Attorney Special, is he who is employ'd in one or more Causes particularly specified.

If any Person who has been convicted of Forgery, or wilful and corrupt Perjury, or common Barretry, shall practise as an *Attorney*, Sollicitor, or Agent, in any Suit or Action brought in any Court of Law, upon Complaint before the Judge, where such Suit shall be depending, if it appears to the said Judge on Examination in open Court, that such Person has offended contrary to this Act, the Judge may cause the Offender to be transported to the Plantations for seven Years, by Ways, and under such Penalties as Felons. *Stat.* 12. *Geo.* I. *c.* 29.

No *Attorney*, or Sollicitor, shall maintain any Action for Fees, at Law or in Equity, till one Month or more after he shall have delivered to the Party charged therewith, or left for him at his Dwelling House, &c. a Bill of such Fees, in a common legible Hand, and in the *English* Language (except Law Terms and Names of Writs) and in Words at length, the Times and Sums excepted, subscribed with the proper Hands of such *Attorney* or Sollicitor; and on Application of the Party chargeable by such Bill to the Lord Chancellor, or to a Judge of any of the Courts, in which the Business, or the greatest Part, shall have been transacted, and Submission to pay the Sum, that on Taxation shall appear to be due, the Judges, &c. are to refer the Bill to the proper Officer to be taxed, without any Money being brought into Court for it, and though no Action be commenced, &c. And if the *Attorney* having due Notice, shall not attend the Taxation, the Officer may proceed to tax the Bill *ex parte* (pending which Reference no Action shall be brought) and on Settlement of the Bill, the Party shall forthwith pay the whole Sum found justly due thereon, which shall be a full Discharge; and in Default, shall be liable to an Attachment, or such other Process, as he was liable unto, &c.

And if it shall appear that the Attorney has been paid more than his Bill, he shall forthwith refund the Overplus, or be likewise liable to an Attachment: And the respective Courts are to award the Costs of Taxation, to be paid according to the Event thereof, *viz.* if the Bill taxed be less by a sixth Part than the Bill delivered, the Attorney is to pay the Costs of the Taxation; but if it shall not be less, the Court, &c. shall charge the Attorney or Client, in regard to the Reasonableness or Unreasonableness of such Bills.

Note, That Attorneys are sometimes guilty of *Barratry* and *Champarty*. A *Barrator* in Law is a common Mover, or Maintainer of Suits, Quarrels, or Parties, either in Court or elsewhere.—*Barrators* are punished by Fine and Imprisonment, bound to their good Behaviour, &c. and being of the Profession of the Law, shall be disabled to practise, 34 *Edw.* III.—An Attorney is in Danger of being convicted of *Barratry*, for maintaining another in a groundless Action, to the commencing whereof he was no way privy, &c. and a common Sollicitor who sollicites Suits, is a common *Barrator*, and may be indicted. By Statute no Person shall take upon him any Business in Suit, to have Part of the Land or Thing sued for, which is called *Champarty*; nor shall any one upon any Covenant give up his Right to another in such Case, on pain that the Taken shall forfeit to the King so much of his Lands and Goods as amounts to the Value of the Part of the purchased, &c. for such Maintenance, *Stat.* 28. *Edw.* I. *c.* 11.—And Attorneys convicted of *Champarty*, shall suffer three Years Imprisonment, and be fined at the King's Pleasure, by 33 *Edw.* I. If any Attorney undertakes or follows a Cause to be paid in gross, when the Thing in Suit is recovered, if he prevail therein, this has been held *Champarty*.—Persons as move Pleas and Suits as their own are Champarters.

Counsellor at Law, in *French* called *Avocat*, is a Person learned in the Law, retained by the Client to plead his Cause in a Court of Judicature. This is a very noble Profession seldom followed, but by Persons of Birth and Merit. In *France*, all the chief Magistrates, as the Lord Chancellor, *Presidents a mortier*, &c. must have been received *Avocats* in some of the Parliaments of the Kingdom, and even pleaded at the Bar, before they can be promoted to any of those eminent Posts.

Counsellors at Law, may alledge any Thing which is informed them by their Clients, if pertinent to the Matter; and need not examine whether it be true or false; for it is at the Peril of him who informs them: But after the Court hath delivered their Opinion of the Matter depending before them, the Council at the Bar ought not to urge any Thing further in that Cause. In *France* a Judge seldom suffers a Counsellor to plead uncovered; but orders him, soon after he has begun to plead, to put on his Cap.

The Fee of a Counsellor is *honorarium quiddam*, not *mercenarium*, as that of an Attorney or Sollicitor; and it hath been therefore questioned, whether an Action of Debt does lie for his Fee, unless it be upon a special Retainer; though in my Opinion, and according to Reason and Justice, he should be paid, according to the Ability of the Client who employs him; since on his Learning and Eloquence, depends almost the whole Success of the Cause.

No *Counsellor* shall set his Hand to a frivolous Plea, &c. And as Counsellors have a special Privilege to practise the Law, they are punishable for Misbehaviour by Attachment.

The first Process in the Court of *King's-Bench*, and in almost all the other Courts of Judicature, is the Arrest, which is a Restraint of a Man's Person, obliging him to be obedient to the Law, by Command of some Court or Office of Justice; therefore none shall be arrested for Debt, Trespass, &c. in any civil Action, but by virtue of a Precept or Commandment, out of the Courts of *Westminster*, or other Courts.

By *Magna Charta* no Person shall be arrested or restrained of his Liberty, but either by Order of a Court of Record, by lawful Warrant, or the King's Writ.—And Writs express Arrest, by the Word *Capias*, to take hold of a Man; for an Officer must actually lay hold of a Person, besides saying, He arrests him, or it will be no lawful Arrest.

If a Bailiff arrests a wrong Person, as one Man for another,

man *Schicken*, to ſend; by Reaſon this Court ſucceeded thoſe Commiſſioners, called in antient Titles, *Miſſi Dominici*. *Skinner*, &c. derive it from *Schatz*, which ſignifies Treaſure; whence *Polydore Virgil* alſo writes it *Scattarium*, inſtead of *Scaccarium*. Laſtly, *Somner* derives it from *Schakcen*, to raviſh; which, according to him, is the Character of the Treaſury.

COURT OF KING'S BENCH.

KING'S BENCH, *Bancus Regius*, is a Court or Judgment-Seat, ſo called, in Regard the King is ſuppoſed to ſit in Perſon as Judge of the Court, and may do ſo whenever he pleaſes; for which Reaſon, all Writs and other Proceſſes in this Court, are made returnable *coram nobis*, i. e. before the King himſelf; and not *coram juſticiariis noſtris*, as in the Form in the *Common Pleas*.

The Judges of this Court, are the Lord Chief Juſtice, and three other puiſne Juſtices.

The Chief Juſtice is conſtituted by Writ, and is to hold *quamdiu ſe bene geſſerit*, and ſo cannot be diſplaced without ſome great Miſdemeanor; though formerly the Chief Juſtice, and other inferior Judges, were made only *durante bene placito*, and accordingly were turn'd out at the King's Pleaſure.

The Salary of the Lord Chief Juſtice, uſed to be but 1500 *l. per Annum*. but it is now 500 *l. per* Term. He preſides under his Majeſty in this Court, but when the Court divides, in giving Judgment upon any ſpecial Argument, he hath but one Voice; ſo that if the Opinion of the Court ſhould be equally divided, the Matter muſt reſt till one of the Judges ſhall ſee juſt Reaſon to alter his Opinion. He is to attend the Lords in Parliament, though he has no Vote, unleſs he be a Peer himſelf, but is to give his Opinion and Advice to the Houſe by Virtue of a Writ of Aſſiſtance; and is frequently, therefore, conſulted by them, both in making and repealing Laws, and in altering or explaining them. He makes a Return of all Writs of Error in Parliament, directed to this Court, and with his own Hand delivers the Writ of Error, and a Tranſcript of the Proceedings in the Cauſe into the Houſe of Lords.

The three puiſne or inferior Judges of this Court, go the Circuits, and are in Commiſſion of *Oyer* and *Terminer* at the *Old-Bailey*. Their Salary is 375 *l. per* Term, to which they, as well as the Chief Juſtice, are entitled, though they happen not to ſit one Day in Court in the Term, unleſs they give their Aſſent ſo ſlightly, as on a *ſcire facias*, to be charged with Negligence: Theſe alſo hold by *quamdiu ſe bene geſſerint*.

There are ſeveral Officers belonging to this Court, as two chief Clerks or Prothonotaries, who are ſuppoſed to enter all the Pleadings and Judgments between Party and Party; although this is done by an Entring-Clerk under them; and all Writs of *Latitat*, *Non Omittas*, Bills of *Middleſex*, *Habeas Corpus*, &c. are ſubſcribed with the Names of theſe chief Clerks.

The Secondary acts as Maſter of the Office on the Pleas Side, and is the chief Clerk's Deputy; his Buſineſs is to examine any Perſon, who is to be ſworn an entring Clerk, or Attorney at large, whether he be duly qualified, and to preſent him to the Chief Juſtice. He alſo ſigns all Judgments, and gives Coſts upon them; and the Court upon any Motion, in Relation to the irregular Practice of any Clerk or Attorney, generally refers the Examination thereof to him. He alſo takes all Affidavits in Court (unleſs on the Crown-ſide) and the Acknowledgment of all Deeds in Court.

The chief Clerk, or Prothonotary, has alſo a Deputy, who keeps the Stamp for ſigning all Writs and Proceſſes of this Court; and with him are kept the Remembrances of all Records, whereby any Record may be eaſily found, if the Term wherein it was enter'd be known, *&c.* Likewiſe all common Writs return'd, Poſteas and Writs of Error, and common or ſpecial Bails, after they are accepted, are filed in his Office.

The Office of the *Cuſtos Brevium*, is to file all original and other Writs, whereon you proceed to Outlawry: He examines and ſeals all Records of *niſi prius*, for Trials at the Aſſizes in ſeveral Counties, and hath ſeveral Clerks under him for making up Records throughout *England*; but many Times the Plaintiff's Attorney, *&c.* diſpatches this Buſineſs, paying a Fee of 6 *s.* 6 *d.* for every Preſs of ſixty-ſix Lines. This Officer alſo files all Warrants of Attorney, is Clerk of the Eſſoins, and of the Treaſury.

The two Clerks of the Papers receive all ſpecial Pleas, Demurs, and other Pleadings, and make up the Paper-Books thereof; which the Attorney for the Plaintiff moſt commonly ſpeaks for, and afterwards gives a Rule on the Side of the Book for the Defendant's Attorney to bring them again, to be entered within four Days, or Judgment to go by Default: They read in Court Affidavits, Records, and Proceedings.

The Clerk of the Declarations, is an Officer of the Court, who files all Declarations after they are engroſſed in Parchment, and continues them on the Back from the Term you declare, till Iſſue is joined, *&c.*

The Signer and Sealer of Bills, keeps a Book of Entry of the Names of the Plaintiffs and Defendants, in all Bills of *Middleſex*, &c. and the Defendants therein enter their Appearance with him, in whoſe Office Search may be made for any Writ or Appearance.

The Clerk of the Rules takes Notes of all Rules and Orders made in Court on the Plea-ſide, and afterwards draws them up, and enters them in a Book at large, for which he has 8 *d.* Fee, and for the Copy of each Rule 4 *d.* if in Term, and double out of Term; and he, or the Clerk of the Papers, files all Affidavits uſed in Court, and makes Copies of them at 4 *d. per* Sheet; alſo with him are given all Rules of Courſe, as on a *Cepi Corpus*, *Habeas Corpus*, for Procedendo's, Poſtea's, Writs of Inquiry, *&c.*

The Clerk of the Bails and Poſtea's, files the Bail-Pieces, and marks the Poſtea's, *&c.* and he, or his Deputy attends in the King's Bench Office for that Purpoſe. With this Officer you file all Affidavits of Service of Proceſs for common Bail, when the Defendant does not appear.

The Clerk of the Errors allows all Writs of Error, and makes Superſedeas's, whereupon and into what County you pleaſe. He likewiſe makes Tranſcripts of Records, to be carried into the Exchequer-Chamber or the Houſe of Lords.

The Clerk of the Docquets enters the Judgments, Iſſues, and Proceedings, and keeps Docquets of them, ſo that with him you may find if any Judgment be enter'd, *&c.* and he keeps a Book for entering Commitments and Surrenders, and another for general Iſſues.

The *Filazers* in this Court, which ought to be one for each County, make the Meſne Proceſs after the Original, in ſuing to the Outlawry, and have the Benefit of all Copies thereof, and Entries made thereupon. There has of late been but one Perſon chiefly concern'd in this Office, who is *Filazer* and *Exigenter* for *London* and *Middleſex*; and when you ſue by Original, Affidavit of your Debt is to be filed with him, and here you enter the Appearance, give Bail, *&c.*

The Marſhal of the *King's Bench*, has the Cuſtody of all Priſoners, who are ſued in *Banco Regis*, and by himſelf or Deputy, ought always to attend in Court to receive ſuch Priſoners as are committed. And every Perſon ſued here, is ſuppoſed by the Declaration to be in his Cuſtody; for till the *Stat.* 4. and 5. *W.* and *M.* if one were arreſted in the Country, and remain'd in Priſon there for Want of Bail, he was firſt to be removed by *Habeas Corpus* to the Cuſtody of the Marſhal, before the Plaintiff could declare againſt him.

The Cryer of the Court, makes Proclamations of ſummoning and adjourning the Court, calls Nonſuits, and ſwears Jurymen, Witneſſes, *&c.*

For managing, conducting, and pleading Cauſes in the Court of *King's Bench*, are appointed Sollicitors, Attorneys, and Counſellors at Law.

An *Attorney* is a Perſon appointed by another to do ſomething in his Stead, particularly to ſollicit and carry on a Law-Suit.

Attorneys in common Law, are much the ſame with Procurators, Proctors, or Syndicks in the civil Law.

Attorneys are properly thoſe who ſue out Writs or Proceſſes, or commence, carry on, and defend Actions or other Proceedings, in the Name of other Perſons, in any of the Courts of common Law. They are diſtinguiſhed from Sollicitors, who do the like Buſineſs in Courts of Equity; as the Chancery, Equity-Court in the Exche-

Exchequer, Chamber-Court of the Dutchy, &c.

None are to be admitted to act, either as the one or the other, without having served a Clerkship of five Years, taking the Oath provided in that Case, and being enrolled. Judges of the said Courts of Law to examine into the Capacity of the *Attorneys*, and those of the Court of Equity the Capacity of the Sollicitors. 2 *Geo.* II. *c.* 23.

Antiently those of Authority in Court, had it in their Power, whether or no to suffer Men to appear, or sue by another than themselves; as appears from *Fitz. de nat. brev.* in the Writ *Dedimus potestatem de Atturnato faciendo*; where it appears that Men who were driven to procure the King's Writs, or Letters Patent, were obliged to appoint *Attorneys* for them. But it is since provided by Parliament, that it shall be lawful to appoint an *Attorney*, without such Circuition; as appears by several Statutes, 20 *H.* III. *c.* 10.—6 *Ed.* I. *c.* 8. &c.

There is a great Diversity of Writs in the Table of the Register, wherein the King commands the Judges to admit of *Attorneys*; whereby there arose so many unskilful *Attorneys*, and so many Mischiefs thereby, that for restraining them it was enacted, 4 *Hen.* IV. *c.* 18. that the Judges should examine them, and displace the Ignorant; and again 33 *Hen.* VI. *c.* 7. that there should be a certain Number of *Attorneys* in *Norfolk* and *Suffolk*.

Attorney is either *General* or *Special*.

Attorney General is he who is appointed to manage the Affairs or Suit of a Community; or rather, who is appointed to conduct all the Suits in general, whether of a Community, or a particular Person.

Such is the *Attorney General* of the King, who is the same as *Procurator Cæsaris* in the *Roman* Empire. To him come Warrants for making out Patents, Pardons, &c. He is at the Head of managing all Law-Affairs of the Crown, either in criminal Prosecutions, or otherwise; especially in Matters of Treason, Sedition, &c. In all Courts he pleads within the Bar; but when a Privy-Counsellor, he cannot plead in any Court, but on the King's Affairs, without obtaining a Privy Seal for so doing.

Attorney Special, is he who is employ'd in one or more Causes particularly specified.

If any Person who has been convicted of Forgery, or wilful and corrupt Perjury, or common Barretry, shall practise as an *Attorney*, Sollicitor, or Agent, in any Suit or Action brought in any Court of Law, upon Complaint before the Judge, where such Suit shall be depending, if it appears to the said Judge on Examination in open Court, that such Person has offended contrary to this Act, the Judge may cause the Offender to be transported to the Plantations for seven Years, by Ways, and under such Penalties as Felons. *Stat.* 12. *Geo.* I. *c.* 29.

No *Attorney*, or Sollicitor, shall maintain any Action for Fees, at Law or in Equity, till one Month or more after he shall have delivered to the Party charged therewith, or left for him at his Dwelling House, &c. a Bill of such Fees, in a common legible Hand, and in the *English* Language (except Law Terms and Names of Writs) and in Words at length, the Times and Sums excepted, subscribed with the proper Hands of such *Attorney* or Sollicitor; and on Application of the Party chargeable by such Bill to the Lord Chancellor, or to a Judge of any of the Courts, in which the Business, or the greatest Part, shall have been transacted, and Submission to pay the Sum, that on Taxation shall appear to be due, the Judges, &c. are to refer the Bill to the proper Officer to be taxed, without any Money being brought into Court for it, and though no Action be commenced, &c. And if the *Attorney* having due Notice, shall not attend the Taxation, the Officer may proceed to tax the Bill *ex parte* (pending which Reference no Action shall be brought) and on Settlement of the Bill, the Party shall forthwith pay the whole Sum found justly due thereon, which shall be a full Discharge; and in Default, shall be liable to an Attachment, or such other Process, as he was liable unto, &c.

And if it shall appear that the Attorney has been paid more than his Bill, he shall forthwith refund the Overplus, or be likewise liable to an Attachment: And the respective Courts are to award the Costs of Taxation, to be paid according to the Event thereof, *viz.* if the Bill taxed be less by a sixth Part than the Bill delivered, the Attorney is to pay the Costs of the Taxation; but if it shall not be less, the Court, &c. shall charge the Attorney or Client, in regard to the Reasonableness or Unreasonableness of such Bills.

Note, That Attorneys are sometimes guilty of *Barratry* and *Champarty*. A *Barrator* in Law is a common Mover, or Maintainer of Suits, Quarrels, or Parties, either in Court or elsewhere.—*Barrators* are punished by Fine and Imprisonment, bound to their good Behaviour, &c. and being of the Profession of the Law, shall be disabled to practise, 34 *Edw.* III.—An Attorney is in Danger of being convicted of *Barratry*, for maintaining another in a groundless Action, to the commencing whereof he was no way privy, &c. and a common Sollicitor who sollicites Suits, is a common *Barrator*, and may be indicted. By Statute no Person shall take upon him any Business in Suit, to have Part of the Land or Thing sued for, which is called *Champarty*; nor shall any one upon any Covenant give up his Right to another in such Case, on pain that the Taken shall forfeit to the King so much of his Lands and Goods as amounts to the Value of the Part of the purchased, &c. for such Maintenance, *Stat.* 28. *Edw.* I. *c.* 11.—And Attorneys convicted of *Champarty*, shall suffer three Years Imprisonment, and be fined at the King's Pleasure, by 33 *Edw.* I. If any Attorney undertakes or follows a Cause to be paid in gross, when the Thing in Suit is recovered, if he prevail therein, this has been held *Champarty*.—Persons as move Pleas and Suits as their own are Champarters.

Counsellor at Law, in *French* called *Avocat*, is a Person learned in the Law, retained by the Client to plead his Cause in a Court of Judicature. This is a very noble Profession seldom followed, but by Persons of Birth and Merit. In *France*, all the chief Magistrates, as the Lord Chancellor, *Presidents a mortier*, &c. must have been received *Avocats* in some of the Parliaments of the Kingdom, and even pleaded at the Bar, before they can be promoted to any of those eminent Posts.

Counsellors at Law, may alledge any Thing which is informed them by their Clients, if pertinent to the Matter; and need not examine whether it be true or false; for it is at the Peril of him who informs them: But after the Court hath delivered their Opinion of the Matter depending before them, the Council at the Bar ought not to urge any Thing further in that Cause. In *France* a Judge seldom suffers a Counsellor to plead uncovered; but orders him, soon after he has begun to plead, to put on his Cap.

The Fee of a Counsellor is *honorarium quiddam*, not *mercenarium*, as that of an Attorney or Sollicitor; and it hath been therefore questioned, whether an Action of Debt does lie for his Fee, unless it be upon a special Retainer; though in my Opinion, and according to Reason and Justice, he should be paid, according to the Ability of the Client who employs him; since on his Learning and Eloquence, depends almost the whole Success of the Cause.

No *Counsellor* shall set his Hand to a frivolous Plea, &c. And as Counsellors have a special Privilege to practise the Law, they are punishable for Misbehaviour by Attachment.

The first Process in the Court of *King's-Bench*, and in almost all the other Courts of Judicature, is the Arrest, which is a Restraint of a Man's Person, obliging him to be obedient to the Law, by Command of some Court or Office of Justice; therefore none shall be arrested for Debt, Trespass, &c. in any civil Action, but by virtue of a Precept or Commandment, out of the Courts of *Westminster*, or other Courts.

By *Magna Charta* no Person shall be arrested or restrained of his Liberty, but either by Order of a Court of Record, by lawful Warrant, or the King's Writ.—And Writs express Arrest, by the Word *Capias*, to take hold of a Man; for an Officer must actually lay hold of a Person, besides saying, He arrests him, or it will be no lawful Arrest.

If a Bailiff arrests a wrong Person, as one Man for another,

another, where there are ſeveral of the Name, *&c.* it will be falſe Impriſonment; for which Damages ſhall be recovered: And ſo it is if he arreſts a Man without Warrant, or after the Return of the Writ be paſt.

If Bailiffs demand more than their juſt Fees, when offered them, and detain a Perſon thereupon, it is falſe Impriſonment: Alſo when they take Fees not warranted by Law, it is Extortion; which by the common Law is puniſhed by Fine, and Impriſonment, on Indictment and by Statute they ſhall render treble Value and Damages.—And by this laſt Statute, the Bailiff's Fee for an Arreſt is no more than 4*d.* the Sheriff's 20*d.* and the Gaoler is to take for a Commitment but 4*d.* And Bailiffs can't legally take any Thing but what is allow'd by the Statute, 23 *Hen.* VI. and ſubſequent Acts.

Attorneys, *&c.* maliciouſly cauſing any Perſon to be *arreſted*, where there is no Cauſe of Suit, the Proſecutors ſhall ſuffer ſix Months Impriſonment, and before diſcharged pay treble Damages: 8 *Eliz. c.* 2.—No Attorney ſhall procure blank Warrants from Sheriffs for *Arreſt*; and a Defendant lawfully delivered from an *Arreſt*, ſhall not be arreſted again at the ſame Time, at the Suit of the ſame Plaintiff: Attorneys offending therein ſhall be expunged out of the Roll, and otherwiſe puniſhed. *Ord. cur. Mich.* 15 *Car.* II.

No Bailiff, or other Officer, ſhall carry any Perſon under *Arreſt* to any Tavern, Ale-houſe, *&c.* or private Houſe, without his Conſent, ſo as to charge him with any Wine, Beer, Ale, or other Liquor, but what he ſhall freely call for.

By the Statute 12 *Geo.* I. *c.* 29. *for Prevention of vexatious Arreſts*, if the Debt or Cauſe of Action be under 10*l.* on any Writ or Proceſs iſſuing out of a ſuperior Court, or do not amount to 40*s.* on Proceſs out of an inferior Court, the Defendant ſhall not be arreſted, but be ſerved perſonally with a Copy of the Proceſs; and if he does not appear at the Return thereof, or within four Days after, the Plaintiff, on Affidavit made of ſuch Service, which is to be filed in the proper Court *gratis*, may enter a common Appearance for the Defendant, or file common Bail, and proceed as if the Defendant had entered it.—And where the Bailiff's Cauſe of Action is 10*l.* or upwards, or 40*s.* in an inferior Court, Affidavit is to be made and filed of ſuch Cauſe of Action, before ſome Judge or Commiſſioner of the Court, out of which the Writ iſſues, or before the Officer iſſuing it, for which 1*s.* only beſides Stamps ſhall be paid; and the Sum mentioned in the Affidavit ſhall be indorſed on the Back of the Proceſs, for which the Sheriff or Officer ſhall take Bail, and no more: And if ſuch Affidavit and Indorſement be made, the Plaintiff ſhall not arreſt the Defendant's Body, but is to proceed as above.

Warrants to make Arreſts, ſhall not be delivered out by Sheriffs, *&c.* till they actually have the Writ, under the Penalty of 10*l.* *Stat.* 6 *Geo.* I. *c.* 21.—And Sheriffs and Under-Sheriffs being ſerved with a Rule peremptorily to return any Writ iſſuing out of this Court, or to bring in the Body of the Defendant within ſix Days; if the ſame be not done in the ſaid Time, the Court of *King's Bench* will iſſue an Attachment againſt them, without a further Rule.

The firſt Thing a Defendant is obliged to do, when he is arreſted on any Proceſs, out of the Courts at *Weſtminſter*, is to enter an Appearance, *i. e.* to engage himſelf to anſwer the Action entered againſt him; which is done, if in the *King's Bench*, by filing either of common or ſpecial Bail, if the Action be by *Bill.*—If it be by *Original*, the Appearance muſt be with the Filazer of the County where the Arreſt was.

Note, That *Bail*, in Law, is the ſetting at Liberty one arreſted, or impriſoned upon an Action, either Civil or Criminal, under Sureties taken for his Appearance at a Day and Place aſſigned.—It is called *Bail*, becauſe hereby the Party confined is *Baillé*, delivered into the Hands of thoſe who bind themſelves for his forthcoming.—*Manwood* diſtinguiſhes between *Bail*, and *Mainpriſe*, thus: That he who is *mainpriſed*, is ſaid to be at large, and to go about at his Liberty, without Ward, till the Time of Appearance; whereas he who is let to *Bail* to two or more Men, is always accounted by Law, to be in their Ward and Cuſtody for the Time; and they may, if they pleaſe, actually keep him in Priſon.

Common Bail, is that given in Actions of ſmall Prejudice, or ſlight Proof; in which Caſes any nominal Sureties are taken, as *John Doe* and *Richard Roe*: This being no other than a Form of Appearance.

Special Bail, is given in Caſes of greater Moment, where it is required that the Sureties be Subſidy-Men at the leaſt, and according to the Value of the Matter in Queſtion.—It was enacted ſome Years ago, in Compaſſion to the Poor (as pretended) that no Perſons ſhould be held to ſpecial *Bail*, in any Action brought for leſs than 10*l.*—This is obſerved as to Writs iſſued out of the Courts of *Weſtminſter-Hall*: But the *Marſhalſea* Court continues to *arreſt*, and hold to *bail* for Actions exceeding 40*s.*—What better are the Poor of this Metropolis for this Proviſion, which has indeed taken them out of bad Hands, but left them to be graſped to Death by worſe!—If there be any Exception in the Act in Favour of that Court, it was doubtleſs more owing to the Degree of Favour in which the ſuperior Officers of ſuch Court ſtood with certain great Perſons in Parliament, than to any real Reaſon there could be for it. *Seaſonable Obſervat. on the Declenſ. of Trade*, p. 76.

Appearance, in the *Common Pleas*, muſt be entered with the Filazer there; but if it be by Bill, with the Prothonotary.

In Actions of Battery, Treſpaſs, Slander, *&c.* though the Plaintiff is like to recover large Damages, *ſpecial Bail* is not to be had, unleſs in ſpecial Caſes by Order of the Court: Nor is it required in Actions of Covenant, except it be to pay Money, becauſe the Damages are uncertain till Declaration, *&c.* or in Action of Account, till Judgment *quod computet*; nor on Bonds with collateral Conditions; or againſt Heirs, Executors, or Adminiſtrators, if they have not waſted the Teſtator's Goods.

Where a Cauſe is removed by *Habeas Corpus*, if the *Bail below* offer themſelves to be *Bail above*, they ſhall be taken, not being excepted againſt below; unleſs the Cauſe comes out of *London*.

When a Cauſe is removed out of an inferior Court, the Plaintiff or his Attorney are to enter a *Caveat* with the Juſtices for good Bail; and the Attorney for the Defendant muſt give Notice to the Plaintiff of the Time when the Bail ſhall be put in, and of the Names of the ſaid Bail, and where they live, *&c.* that the Plaintiff's Attorney may except againſt the Bail if he thinks fit.

Special Bail, taken before a Judge, or by Commiſſioners in the Country, when accepted, is to be filed: And *Bail* is not properly ſuch until it is filed, when it is of Record; but it ſhall be accounted good 'till queſtioned, and diſallowed.—Common *Bail-pieces* are filed in the Office with the Clerk of the common Bails.

There are divers Sorts of *Bail pieces*: 1. A common *Bail-piece*, where the Defendant is ſerved with a Copy of the Proceſs; this is uſed merely to bring the Defendant into Court. 2. A ſpecial *Bail-piece*, on a *Capi Corpus*, or Arreſt returned, when the Defendant is actually arreſted, and the Sheriff has taken a Bail-Bond. 3. A *Bail-piece* on a *Habeas Corpus*, when the Defendant lives at a Diſtance, and the Cauſe is removed out of an inferior Court: This Bail is put in on the Return of the Writ, and not before. 4. *Bail-pieces* taken before Commiſſioners.

Theſe *Bail-pieces* are written on a ſmall ſquare Piece of Parchment, but cut ſloping at the Bottom, in a Secretary-Hand: And if it be common Bail, it muſt have a double Six-penny Stamp; and if ſpecial, it is to be ſtamp'd with double Twelve-penny Stamps.

A Perſon in Execution is not bailable, unleſs there be an *Audita Querela* brought.

Note, That *Audita Querela*, is a Writ which lies againſt him, who having taken a Statute Merchant, or a Recognizance in the Nature of a Statute-Staple, or a Judgment, or a Recognizance of another; and craving, or having obtained Execution of the ſame from the Mayor and Bailiffs, before whom it was entered, at the Complaint of the Party who entered the ſame, upon

upon Suggestion of some just Cause, why Execution should not be granted; as a Release, or other Exception.—This Writ is granted by the Lord Chancellor, upon View of the Exception suggested, to the Judges of either Bench, willing them to grant Summons to the Sheriff of the County where the Creditor is, for his Appearance at a certain Day before them.

Next to the Defendant putting in Bail to the Action, follows the *Declaration* of the Plaintiff; which is the Act of shewing in Writing the Grief and Complaint of the Demandant or Plaintiff against the Defendant, where he is supposed to have received some Wrong, which is to be afterwards made out and proved.

The Plaintiff's *Declaration* ought to be plain and certain, as it compels the Defendant to make Answer to it, otherwise the Jury would be at a Loss in giving their Verdict, and the Judges uncertain to their Judgment, *&c.* for they all depend on the Certainty and Sufficiency of the *Declaration*. It must set forth the Plaintiffs and Defendants Names; the Cause or Matter of the Complaint, in what Manner the Action did arise, the Time and Place the Injury was done, and the Damage thereby sustained.

The *Declaration* is an Exposition of the Writ, with the Addition of Time, Circumstances, *&c.* and must be true and clear, for the Court is not to take Things in it by Implication; but it is not necessary to set forth Matters of Fact therein, as in a Bill in Chancery, *&c.* because they are to be tried by Jury.

In an Action of Debt upon a Bond, the Plaintiff must alledge a Place where the Bond was made, or his *Declaration* will be ill; for the Jury should come from the Place. If Action of the Case be brought on an Assumpsit, the Plaintiff is to declare upon the whole Promise made, and not on Part of it, or upon the Trial he will be nonsuited.—In *Covenant* there needs no more of the Deed to be mentioned in the *Declaration*, than only so far as in the *Covenant* where the Breach is to be assigned. And in *Slander*, no more Inducement is required than is necessary. But for *Words*, the *Declaration* must lay them expresly and positively, not *to the Effect following*, &c. and it is safest that they be laid *falso & malitiose*, &c. though when *malitiose* has been omitted it has been held good, if the Words themselves were malicious and slanderous.—In Actions upon general *Statutes* that the Defendant *has committed such an Act, against the Form of the Statute in such Case made and provided*, is enough without reciting the whole Act; but particular Statutes must be treated at large; and an attested Copy produced at the Trial.

It is good to lay sufficient Damages in all *Declarations*. In *Debt* it has been usual to double the Debt or Damages. In Case, to lay double the Amount of the Injury received. For *Slander*, to double if not more, the Damage arising from the Words, as they affect a Man's Life or Reputation, *&c.* For *Battery*, very large Damages are commonly laid, though not always recovered. And for *Trespass*, in Proportion to the Trespass committed. In *Waste*, &c. where treble Damages are incurred by Statutes, the Damages are to be laid singly, which the Court are to treble.

In general you must lay the Damages according to the Value of the Thing demanded in the Action, and the Heinousness of the Offence. Damages shall not be given for that which is not contained in the Declaration; and only for what is materially alledged: But greater Costs may be given than the Damages laid, unless the Jury find under 40 *s.* in Actions of *Trespass on the Case*, &c. In an Action upon the Case, the Jury may find less Damages than the Plaintiff lays in his Declaration, though they cannot bring in more; if they do, it will be Error; yet the Costs may be encreased beyond the Sum mentioned in the *Declaration* for Damages; and the Plaintiff may release Part of the Damages.

If there are two Counts in the *Declaration* for Things of the same Kind, and they are not averred to be different, it is not good. Where a Declaration is bad, and the Defendant demurs thereto, the Plaintiff may set it right in a second Action; but if the Defendant pleads in Bar, and do not take Advantage of it, and the Plaintiff proceeds to Issue, if the Right is found for the Defendant, the Plaintiff is *estopped* by the Verdict from bringing a new Action; and so it is if he had demurred to the Plea in Bar.

Note, That *Estoppel*, from the French *Estouper oppilare*; to stop, is an Impediment or Bar of Action, growing from a Man's own Act or Deed, against which a Man is forbidden by Law to speak, though it be to say the Truth. *Goddard* defines an *Estoppel* to be any Bar or Hindrance to one to plead the Truth; and extends it not only to the Impediment given by his own Act, but by another's also. There are three Kinds of *Estoppels*, viz. by *Matter of Record*, by *Matter in Writing*, and by *Matter in pais*.

If a *Declaration* be defective in Matter of Form only, and the Defendant takes no Exception against it, but pleads to Issue thereon, and there a Verdict is had for the Plaintiff, the Defendant cannot afterwards take Advantage of this Defect, which is help'd by the Verdict. —Though if the *Declaration* is insufficient in Matter of Substance, the Verdict will not help it.

A defective *Declaration*, is sometimes aided by the Statutes of *Jeofails*, &c. but Uncertainty in a *Declaration* in Matter of Substance, is not helped by Statutes, after Verdict; as in Case of Trespass for taking Fish, where their Number or Nature are not set forth.—By Statute it is ordained, that a Count or *Declaration* shall be good, if it hath Matter of Substance, though the Terms are not properly apt and proper.

Note, That *Jeofaile*, or *Jeofayle*, a Compound of two *French* Words, *J'ai failli*, I have failed; is used in a legal Sense. When the Parties to any Suit have, in Pleading, proceeded so far that they have joined Issue, which shall be tried, or is tried by a Jury; and this Pleading, or Issue, is badly joined, so that it will be Error if they proceed.—In this Case, one of the Parties might, by their Council, shew it to the Court, as well after Verdict given, as before the Jury was charged: But this occasioning great Delays in Suits; for the Redress thereof several Statutes were made, *viz.* 32 *Hen.* III. *c.* 30. by which it was enacted, 'That if the Jury have once passed upon the Issue, 'though afterwards there be found a *Jeofaile* in the 'Pleading, yet shall Judgment be given according to 'the Verdict of the Jury.' Other Statutes have also been made relating to the same Thing, in the Time of Queen *Elizabeth* and King *James* I. and yet the Fault not mended.

The Plaintiff's Attorney may amend his *Declaration* in Matter of Form, after a general Issue pleaded, before Entry thereof; without paying Costs, or giving any Imparlance; but if he amends in Substance, he must pay Costs or give *Imparlance*; and after a special Plea pleaded, though he would give an *Imparlance*, he is to pay Costs.

Note, That *Emparlance*, or *Imparlance*, is a Desire, or Petition in Court, of a Day to consider, or advise what Answer the Defendant shall make to the Action of the Plaintiff.—The Civilians call it *Petitio inducia-rum.*—*Kitchin* mentions *Imparlance general*, and *special*: The first seems to be only that made in one Word, or in general Terms: *Imparlance special*, is where the Party requires a Day to deliberate.—*Briton*, also, uses *Imparlance* for the Conference of a Jury upon a Cause committed to them.

Declarations grounded on original Writs, if they are faulty cannot be mended. But a *Declaration* grounded upon a *Bill* (as most *Declarations* in this Court are) is amendable, if the Bill be not actually filed; which is rarely done: Though where any *Declaration* is delivered to the Defendant's Attorney, if the Plaintiff does afterwards amend his *Declaration*, and tender another Copy with the Amendments, the Defendant is not obliged to receive it, except the Master of the Office, a Judge, or the Court orders him to do it.

A Plaintiff has two Terms to exhibit his *Declaration* against the Defendant, that Term being reckoned one wherein the Writ was returnable; and if no *Declaration* comes in before the Rising of the Court, the last Day of the second Term, on a Rule of Court given, the

the Plaintiff shall be nonsuited, and the Defendant sign a *Non Pros.* whereupon he shall have Costs.

The Defendant answers to the Plaintiff's Declaration, by a *Plea*.

All *Pleadings* are either *General* or *Special*.

A *General Plea*, is commonly made on a little Piece of two-penny stamp'd Paper, without Council's Hand, having only the Defendant's Attorney's Name to it.—As in *Debt* on Contract, *he owes nothing*.—In *Debt* by Bond, *'tis not his Deed*, or *he paid it at the Day*. In *Action of the Case*, upon a Promise, *he has not promised*.—In *Trespass*, *Not guilty*.—And in *Covenant*, *Performance of Covenants*, &c.

A *Special Plea* is drawn up in Form, setting forth the Matter pleaded at large, with an apt Conclusion to the Declaration or Action; and must be signed by Council, or it will not be received. The Defendant's Attorney is to pay the Plaintiff's Attorney, for entering the Plea; and a foreign Plea is to be engrossed on Parchment, and sign'd by Council, and be put upon the Oath of the Defendant that it is true.

Special Pleas, in Answer to the Plaintiff's Declaration, are divided into two Kinds; *Pleas in Abatement*, and *in Bar*; and every *Plea* must be pleaded either *in Bar* to the Action brought, or *in Abatement* of the Writ upon which the Action is framed; or it is but a Discourse, and not a *Plea*.

A *Plea in Abatement*, is temporary, and very often merely dilatory; for it does not destroy the Action, but stops the Cause for a while, till the Defect is removed; as when there is some Fault in the Writ or Declaration, for Misdemeanor of the Defendant, where the Plaintiff is excommunicate, *&c.*

A *Plea in Bar*, is an Objection to the Plaintiff's Action, shewing Cause why he ought not to have the same: It is either peremptory and perpetual; or it is temporary, and bears only for a Time. If the Defendant pleads a general Release, *&c. in Bar*, it will destroy the Plaintiff's Action for ever.

In good Order of *Pleading*, a Person must plead, 1. To the Jurisdiction of the Court. 2. To the Person, first of the Plaintiff, then of the Defendant. 3. To the Writ. 4. To the Action of the Writ. 5. To the Account or Declaration. 6. To the Action itself, in Bar thereof.—A *Plea* to the Jurisdiction, is called a *foreign Plea*, because it alledges, that the Matter ought to be tried in another Court, *&c.*—*Pleas* to the Person have been formerly six, *Villenage*, *Outlawry*, *Excommunication*, *the Party an Alien*, *out of Protection*, *and professed in Religion*, but the last is now no *Plea*. The *Plea to the Writ*, &c. is for Variance between the Writ and Record, Death of Parties, Misnomer, Jointenancy, *&c.* and may be to the Writ and Bill, or Count together.—*Pleas* to the Count or Declaration, are Variance between the Writ and the Count, Speciality of Record, Uncertainty, *&c.* and all those are properly *Pleas* in Abatement. *Plea* to the Action of the Writ, is where one pleadeth such Matter which shews that the Plaintiff had no Cause to have the Writ brought.—And the *Plea in Bar* to the Action itself, is when the Defendant pleadeth a *Plea*, which is sufficient to overthrow the Action of the Plaintiff.

All *Pleas* are to be succinct, without unnecessary Repetitions, and be direct and pertinent to the Case, not by Way of Argument or Rehearsal: And the *Plea* of every Man shall be taken most strongly against himself. A *Plea* must directly answer the Charge in the Declaration; and if it doth not answer all the Matter therein, the Plaintiff shall have Judgment as for Want of a *Plea*. Every *Plea* ought to be single and certain, and not be double, or contain a Multitude of distinct Matter to one and the same Thing, whereto several Answers are required, which will not be allowed; nor where the Defendant pleads two Matters, each being a sufficient Bar to the Action, unless one depends upon the other, *&c.* A *Plea* is not good, where there is double Matter, because no certain Issue can be taken: Though a *Plea* is not double which contains divers Matters, if it would not have answer'd the whole Declaration of the Plaintiff, without alledging all these Matters in it, and which are necessary in the Defendant's Defence.

A Defendant pleading the general Issue, ought to plead so, that the whole Matter in Question may be tried: And where *Pleading* amounts to no more than the general Issue, that only shall be enter'd. If the Defendant is not obliged to plead a *special Plea*, he may plead the general Issue proper to the Action, and give the special Matter in Evidence: And in many Cases *general Pleadings* are allowed, to avoid Tediousness and Multiplicity, and the Particulars shall come on the other Side. All necessary Circumstances implied, need not be expressed in the Plea; but when any special or substantial Matter is set forth, it must be specially answered.

The Law requires in every *Plea* two Things, *viz.* Matter sufficient, and that it may be expressed according to the Forms of Law. Bonds and Deeds are to be pleaded with a *Profert hic in curiâ*, &c. Also in pleading a Tender, at the putting in of the *Plea*, the Money is to be brought into Court, or the *Plea* will not be accepted; but the Plaintiff shall sign Judgment. A Man cannot plead any Thing afterwards, which he might have pleaded at first; but Surplusage shall never make the Plea vicious, except where it is contrary to the Matter before.

Averment in pleading, usually signifies an Offer of the Defendant to make good, or justify an Exception pleaded in Abatement, or *Bar* of the Plaintiff's Action.—The Word also sometimes signifies the Act as well as the Offer of justifying the Exception.

Averment is two-fold, *General* and *Particular*.

General Averment, is the Conclusion of every *Plea* to the Writ, or in Bar of Replications or other Pleadings (for Counts, or Avowries in Nature of Counts, need not be averred) containing Matter affirmative, and ought to be with these Words, *Hoc paratus est verificare*.

Particular Averment, is when the Life of a Tenant for Life, or Tenant in Tail, is *averred*, &c. An *Averment* contains as well the Matter as the Form thereof.

Demurrer, is a Kind of Pause or Stop, put to the Proceeding of any Action, upon some difficult Point, which must be determined by the Court, before any further Progress can be had therein.

In every Action, the Controversy is either as to Fact or to Law; the first decided by the Jury, the second by the Judge. Now if any Thing turn up in the Cause so rare and difficult, that the Judge cannot pronounce upon it, a *Demurrer* or Stop is made, and a Time taken, either for the Court to consider and agree of it among themselves; or otherwise for the Judges to meet in the Exchequer Chamber, there, after hearing Council on both Sides, to determine what is Law.—This *Demurrer* is expressed in the *English* Records, by *moratur in lege*.

In Common Law, the Defendant sometimes *demurreth* to the Plantiff's Declaration; and sometimes the Plaintiff *demurreth* to the Defendant's Plea, by averring that it is not a sufficient Plea in Law.

In *Chancery*, the Defendant *demurreth* to the Plaintiff's Bill, averring it to be defective in such and such a Point; and demands the Judgment of the Court thereupon, whether he shall be compelled to make any further Answer thereunto.

By the Statute 4 *&* 5 *Ann. c.* 16. upon a *Demurrer* joined in any Court of Record, the Judges shall give Judgment as the Right and Matter in Law shall appear, without regarding any Imperfection or Defect in any Writ, Pleading, or Process; except those which the Party demurring shall set down as Causes of his *Demurrer*, &c. so as sufficient Matter appears, whereupon the Court may proceed to Judgment; and no Exception shall be taken for Default of entring *Pledges* upon a Bill or Declaration, or not alledging the bringing into Court of any Deed mentioned in the Pleadings, Letters testamentary, or of Administration; nor for Omission of *Force and Arms*, and *against the Peace*; or *this he is ready to aver*, or *as by Record*, &c. but the Court shall give Judgment, unless they are sued for Cause.

A *Replication* is an Exception or Answer made, by the Plaintiff to the Defendant's *Plea*; it is to contain Certainty, and not vary from the Declaration, but must pursue and maintain the Cause of the Plaintiff's Action; otherwise it will be a Departure in Pleading, and going to another Matter. When the *Replication* doth not confess and avoid, nor traverse the Matter of the *Bar*, it is not good, and the Defendant may *demur* to it: And if the Bar is nought and the *Replication* likewise, the Plaintiff

tiff shall never have Judgment. A *Replication* being entire, and ill in Part, is ill in the whole; and where a Title doth not appear till set forth in the *Replication*, and that is insufficient, there Judgment shall be had for the Defendant for the ill *Replication*.—Sometimes a faulty Plea in Bar is made good by *Replication*; and sometimes the *Replication* is made good by a *Rejoinder*; but if it wants Substance, 'tis not helped.

Note, That the *Replication* is particularly that which the Plaintiff replies to the Defendant's Answer in Chancery, and which is either *general* or *special*. The *special* is grounded upon Matter arising out of the Defendant's Answer, *&c.* The *general* is so called, from the general Words therein used.

The Defendant's Answer to the Plaintiff's *Replication*, is called *Rejoinder*; and it ought to be a sufficient Answer thereto, and follow and enforce the Matter of the Bar pleaded.—The Defendant is not to *rejoin* upon such Words as are not contain'd in the *Replication* or Plea; and if the Defendant departs from his Plea pleaded in Bar, the *Rejoinder* is not good, because this is uncertain, and to say and unsay, which the Law doth not allow. When the Defendant in his *Rejoinder* pleads new Matter, he must conclude, and *this he is ready to aver*; that the Plaintiff may have Liberty to come in with a *Surrejoinder*, and answer to it.

Therefore the *Surrejoinder* is a second Defence of the Plaintiff's Declaration, and answers the Rejoinder of the Defendant.

If the Defendant makes an Answer to the Plaintiff's *Surrejoinder*, that is called a *Rebutter*; and the Plaintiff's Answer thereto is called a *Surrebutter*, but the Parties seldom go so far in Pleading; and after all these there may be a Demurrer.

Note, That the Order in the Court of Chancery is thus: First the Defendant puts in an Answer to the Plaintiff's Bill, which is sometimes also called an *Exception*: The Plaintiff's Answer to this, is called a *Replication*; and the Defendant's Answer to that, a *Rejoinder*; answering to what the Civilians call *Duplicatio*.

Where a Person is arrested upon any Writ returnable *before three Weeks of* Easter, or *one Month of* St. Michael, *&c.* if the Defendant appears and puts in Bail, and the Plaintiff declares before the Essoin-Days of those Terms, then the Defendant is to plead the same Term: But if the Declaration be not deliver'd till after the Essoin-Days, the Defendant has Time to plead, till two Days before the Essoin-Day of the next Term, so as to enter. And it is observed, when the Plaintiff has declared, if his Clerk does not call for an Answer, nor enters the Action in three Terms after the Defendant's Appearance, the Plaintiff may be *nonsuited*: Though the Defendant is not obliged to plead till the third Term, where a Copy of the Declaration is not received before the Essoin-Day of the second Term.

When the Defendant has pleaded, if it be a general Issue, the Issue is made up, and the Plaintiff's Attorney may give Notice of Trial.

An *Issue* in Law is the Point of Matter depending in Suit, whereupon the Parties join, and put their Cause to the Trial of the Jury.

Issue is either *general* or *special*.

General Issue seems to be that whereby it is referred to the Jury, to bring in their Verdict, whether or no the Defendant has done any such Thing as the Plaintiff lays down to his Charge. For Example, if it be an Offence against any Statute, and the Defendant pleads Not guilty; this being put to the Jury, is called the *general Issue*. So if a Man complains of a private Wrong, which the Defendant denies, and pleads no Wrong, nor Disseisin; and this he refers to the Jury, it is likewise the *general Issue*.

Special Issue, is that wherein special Matters being alledged by the Defendant in his Defence, both Parties join on this Point, and so go to a Demurrer, if it be *Quæstio juris*; or to a Trial by the Jury, if it be *Quæstio facti*; as in Assault and Battery, where the Defendant pleads that the Plaintiff struck first.

There must be in every *Issue*, an Affirmative and Negative; and the Negative should be as broad and full as the Affirmative, to make the *Issue*.

If there are several Things in a Declaration, upon which an *Issue* may be join'd, and if it is joined in any of them, it will be good; and an Affirmative, and implied Negative, may make an *Issue*.

All *Issues* are to be certain and single, and joined upon the most material Thing in the Cause, that all the Matter in Question may be tried.

An *Issue* must be joined in such a Court that has Power to try it, otherwise it is not well join'd: And where *Issue* is not join'd, there cannot be a good Trial, nor ought Judgment to be given. And in an Action for Damages, according to the Loss which the Plaintiff has sustained, every Part ought to be put in *Issue*.—In Action upon the Case for Service done for a Time certain, the Defendant is to put in Issue all the Time alledged in the Declaration. The Place should not be made Part of the Issue, in a transitory Action; as it must in real and mixed Actions: But where it is material and a Part of the Issue, there the Jury cannot find the Fact in another's Place: Though upon the *general Issue* pleaded, the Jury may find all local Things in another County.

In *real Actions*, Causes grown *to Issue*, are tried by a Jury of twelve Men of the County where the Cause of Action arises; and in criminal Cases, *Issues* ought to be tried in the County where the Offence was committed; but this hath had some Alteration by Statute.

As one of the greatest Privileges of an *Englishman*, is to have his Cause tried by Juries, *i. e.* by twenty-four, or twelve Men, sworn to enquire of a Matter of Fact, and declare the Truth upon such Evidence as shall be delivered them, touching the Matter in Question: Those Juries are to be Freemen, indifferent, and not out-lawed or infamous. Aliens, Men attainted of any Crime, ought not to serve on Juries; and Infants, Persons 70 Years old, Clergymen, Apothecaries, *&c.* are by Law exempted from serving upon Juries.

Jurors impannelled shall be next Neighbours, most sufficient, and less suspicious; or the Officer that returns them shall forfeit double Damages: And if a Juror takes any Thing of either Party to give his Verdict, he shall forfeit ten Times as much as taken, or suffer a Year's Imprisonment.—Also Issues are to be levied on Jurymen for Non-Appearance; but on a reasonable Excuse, proved by the Oaths of two Witnesses, the Issues for Default may be discharged.

By Statute, the Qualification of Jurors is declared to be 10 *l.* *per Annum* Freehold, and of Talesman 5 *l.* a Year.

The late Statute, *For better regulating Juries*, exacts that Lists of Jurors qualified, according to former Laws, are to be made from Rates of Parishes, and yearly fixed on Doors of Churches, *&c.* twenty Days before *Michaelmas*, that so Notice may be given of Persons omitted, or inserted by Mistake; and returning Officers wilfully omitting Freeholders qualified, or inserting others, shall forfeit 20 *s.*

The Sheriffs on the Return of Writs of *scire facias*, are to annex a Pannel of Names and Additions of a competent Number of Jurors named in the Lists, not less than forty-eight, or more than seventy-two (without Direction of the Judges) who shall be summon'd to serve at the Assizes, *&c.*

In criminal Cases, the Juries are to be chosen *(not packed up)* out of the same Class or Rank, with the Accused; and if he be a Foreigner, he may demand a Jury half Foreigners, and half *Englishmen*.

There are ordinarily thirty-six impannelled, whereas, in criminal Cases, the Person accused, has the Liberty to challenge, or set aside twenty-four, and to pick out twelve at his Pleasure.—These twelve are present at the Trial, after which they withdraw into a Chamber by themselves, where they are to be shut up without Fire or Candle, Victuals or Drink, till such Time as they agree in their Verdict, and declare unanimously, that the Defendant is either guilty of the Charge laid against him, or Not guilty. Upon which the Judge passes the Sentence prescribed by the Law.

In *England* there are three Sorts of Trials, *viz.* one by *Parliament*, another by *Battle*, and a third by *Assize*, or *Jury*.

The Trial by *Assize* (let the Action be civil or criminal, publick or private, personal or real) is referred for the Fact to a Jury, and as they find it, so passes the Judgment.

This Jury is not only used in Circuits of Justices Errant, but also in other Courts and Matters of Office; but though it appertains to most Courts of the common Law, yet it is most remarkable in the half Year Courts of the Justices Errant, commonly called the *great Assizes*, and in the Quarter-Sessions: And in them it is most ordinarily called a *Jury*; in other Courts it is usually called an *Inquest*; and in the Court-Baron a *Jury of the Homage*.

In the *general Assize*, there are usually many Juries, because there are a great many Causes, both civil and criminal, commonly to be tried; whereof one is called the *Grand Jury*, and the rest the *Petit-Juries*; of which it seems there should be one in every Hundred.

Grand Jury consists of twenty-four good and substantial Gentlemen, or some of the better Sort of Yeomen, chosen indifferently by the Sheriff of the whole Shire, to consider of all Bills of Indictment, preferred to the Court; which they do either approve, by writing upon them *Billa vera*; or disallow by endorsing *Ignoramus*.

Such as they do approve, if they touch Life and Death, are further referred to another Jury, to be considered of, because the Case is of much Importance; but others of lighter Moment, are upon their Allowance, without more ado, fined by the Bench; except the Party traverses the Indictment, or challenge it for Insufficiency; or remove the Cause to a higher Court by *Certiorari*; in which two former Cases, it is referred to another Jury, and in the latter, transmitted to a higher Bar. And presently upon the Allowance of this Bill, by the grand Inquest, a Man is said to be *indicted*: Such as they disallow, are delivered to the Bench, by whom they are forthwith cancelled or torn.

Petit Jury consists of twelve Men at least, and are impannelled as well upon criminal, as upon civil Causes: Those that pass upon Offences of Life and Death, bring in their Verdict, either Guilty or Not guilty; whereupon the Prisoner, if he be found guilty, is said to be *convicted*, and receives Judgment or Condemnation, or otherwise is acquitted and set free.

Those that pass upon civil Causes real, are all, or so many as can conveniently be had, of the same Hundred where the Land or Tenement doth lie, being four at least; and they, upon due Examination, bring in their Verdict, either for the Demandant or Tenant.

The Answer of the Jury given to the Court, concerning the Matter of Fact in any Cause, committed by the Court to their Trial and Examination, is called *Verdict*, from *vere dictum*, q. d. *dictum veritatis*, the Dictate of Truth.

A *Verdict* is either *general* or *special*.

General Verdict, is that which is brought into the Court in like general Terms, as the general Issue: As in Action of Disseisin, the Defendant pleads no Wrong, no Disseisin. — Then the Issue is general, whether the Fact be wrong or not; which being committed to the Jury, they, upon Consideration of the Evidence, come in and say, either for the Plaintiff, *that it is a wrong Disseisin*; or for the Defendant, *that it is no Wrong, no Disseisin*.

Special Verdict, is when they say at large, that such and such a Thing they found to be done by the Defendant; declaring the Course of the Fact, as in their Opinion it is proved; and as to the Law, upon the Fact proving the Judgment of the Court.

This *Special Verdict*, if it contains any ample Declaration of the Cause from the Beginning to the End, is called a *Verdict at large*.

The *Verdict* must answer the Issue in all Things, or it will not be good; but if the Jury find the Issue and more, it is good for the Issue, and void for the rest; and where they find a Point in Issue, and a superfluous Matter over, that shall not vitiate the *Verdict*.

If a Juryman withdraws from his Fellows, or keeps them from giving their *Verdict*, without assigning any Reason, he shall be fined; but not if he differs from them in Judgment: And if Jurors eat or drink at the Cost of him for whom they give their *Verdict*, before they are agreed; or cast Lots whether they shall find for the Plaintiff, or Defendant; or if they send for a Witness, after gone from the Bar, and he repeats his Evidence again; and where a *Verdict* is given contrary to the Evidence, and against the Directions of the Court, &c. in all those Cases the *Verdict* may be set aside.

When a *Verdict* is found for the Plaintiff, and he will not enter it, the Defendant on Motion may compel him to do it, or he may enter it himself; and after any *Verdict* is returned in Court, it cannot be amended. On Return of *Verdicts*, in all civil Cases, given at the Assizes, to the Courts above, the Judges there give Judgment for the Party for whom it is found.

The *Judgment* is the End of the Law; it is the Determination or Sentence of the Court upon the Suit. Also Judgment may be given on Default, Confession, Demurrer, and upon Trial of the Issue.

A *Judgment* given contrary to the Verdict found in the Cause, is not good; for it is to be warranted by the Verdict.

Judgments are not only to be signed by a Judge, but enter'd on Record, before which they are no *Judgments*; and the Plaintiff's Attorney, after the *Postea* is brought into Court, if the Rule for that Purpose is out, may enter *Judgment* for his Client, by the Course of the Court. Though if *Judgment* be enter'd for more than the Plaintiff's Demands in his Declaration, or of any Thing mention'd therein, it is erroneous.

Four Days are allowed in the King's Bench to move in Arrest of *Judgment*, and the Defendant hath all the Term wherein a Verdict was given, to speak any Thing to arrest it, if the Plaintiff has not given a four Days Rule, and signed his Judgment; afterwards it is too late, and he is put to his Writ of Error.

Judgment may be stayed or arrested for Want of Notice of Trial; where the Plaintiff before the Trial treated the Jury; if the Record differs from the Deed pleaded; or for some material Defect in Pleading, &c. But no Council ought to move in Arrest of *Judgment*, except the Roll wherein the Judgment is enter'd be in Court: And here all Matters of Fact must be made out by Affidavit.

A *Nonsuit* is where a Man brings an Action, and doth not appear and prosecute it with Effect, or upon Trial refuseth to stand a Verdict; then he becomes nonsuited, which being recorded, the Defendant recovers his Costs against him: And the Effect of a *Nonsuit* is to set the Matter at large; whereon the Plaintiff may commence his Action again, and proceed upon a new Declaration.

When a *Judgment* is signed, an *Execution* may be taken immediately upon it; which *Execution* is the obtaining Possession of the Things recovered by that Judgment.

If the *Execution* be not issued within a Year and a Day after the Judgment has been signed, when there is no Fault in the Defendant, as Injunction, Writ of Error, &c. there must be a *Scire facias* to revive the Judgment; but where the Plaintiff sueth out any Writs of *Execution* within the Year, he may continue them afterwards.

If a Person arrested in the Court of King's Bench, puts in Bail, and the Plaintiff recovers, if the Defendant doth not surrender himself, Execution may be taken out against the Principal, or Bail; though if the Plaintiff takes the Bail, he shall never after take the Principal in *Execution*: If two Persons be Bail, although one is in *Execution*, the Plaintiff may take the other; but if the Principal be in *Execution*, he cannot meddle with the Bail. And Writ of *Scire facias* issues against the Bail, after Process against the Principal is returned, *Non est inventus*.

There are two Sorts of *Executions*; one *final*, another with a *quousque*, as only tending to an End.

Execution final, is that which maketh Money of the Defendant's Goods, or extendeth his Lands, and delivers them to the Plaintiff; for this the Party accepts in Satisfaction; and this is the End of the Suit, and all that the King's Writ commands to be done.

Execution with a *quousque*, is that which only tends to an End; as in the Case of a *Capias ad Satisfaciendum*, &c. This is not final, but the Body of the Party is to be taken, to the Intent and Purpose to satisfy the Plaintiff; and

and his Imprisonment is not absolute, but till he doth satisfy; so that the Body is but a Pledge for the Debt.

Note, That the *Capias ad Satisfaciendum*, is a judicial Writ, which issues out of the Record of a Judgment, where there is a Recovery in the Courts at *Westminster* of Debt, Damages, *&c.* to take the Body of the Party in *Execution*, till Satisfaction be made. It is usual to take out this Writ when the Defendant has no Lands nor Goods, whereof the Debt recovered may be levied; and where the Body is taken upon a *Capias ad Satisfaciendum*, and the Writ returned and filed, it is an absolute and perfect Execution against the Defendant; and no other Execution can be against his Lands or Goods: Though this is unless the Defendant escapes, or dies in Execution, *&c.* for where a Person dies in Execution, his Lands and Goods are liable to satisfy the Judgment; and a new Execution may issue. An Execution may be stayed, or set aside, as irregular and erroneous, by Supersedea's, *&c.*

To redress a false Judgment, given in any Court of Record, having Power by Charter of Prescription to hold Plea of Debt or Trespass above 40*s.* a *Writ of Error* lies; which is returnable in the *King's Bench*. And if upon the Transcript of the Record sent into that Court, it appears to the Court that there is Error in the Record or Process, or in giving of Judgment, then the Judgment is reversed; but if there appear to be none, then is the Judgment affirmed with double Costs.

A *Writ of Error* lies out of Chancery upon all Judgments given in the *King's Bench*, when the Suit is by Bill (unless the King is Party thereto) returnable in the Exchequer Chamber before the Judges of the *Common Pleas*; and Barons of the Exchequer, *&c.* who may examine the Errors, and reverse or affirm the Judgment. And after the Errors are examined, and Judgment affirmed or reversed, the Record is sent back to the *King's Bench*, to proceed and award Execution. But if the Suit is by *Original*, or on *a qui tam*, &c. where the King is Party, Writ of Error lies only to the Parliament.

A Judgment given in the *Common Pleas* is to be reversed by a *Writ of Error*, made returnable in the *King's Bench*; and Error shall not be brought in Parliament: Though where a Writ of Error is brought in B. R. upon a Judgment given in C. B. and the Judgment is reversed or affirm'd, the Party griev'd may have a *Writ of Error*, returnable in Parliament.

Erroneous Judgment, in the Court of *Exchequer*, is to be examined by the Lord Chancellor, *&c.* with some of the Justices, and such other grave Persons as they think fit; and if any Error be found, they shall correct the Rolls, and send them into the *Exchequer*, there to make Execution, *&c.*

The *Writ of Error*, may not be brought in the *Exchequer-Chamber*, upon a Judgment in B. R. but in Actions of Debt, Detinue, Trespass on the Case, Covenant, or Ejectment, which are the Actions mention'd in *Stat.* 27. *Eliz. c.* 8. and that Statute is only to relieve on the Merit of the Cause, as it stood on the first Judgment; and there can be no new *Writ of Error*, after that Judgment is affirmed or reversed; so that if the Merits of the first Judgment be examined before a *Scire facias* is brought, the *Exchequer-Chamber* having executed their Authority, can do nothing in it. And the Court of *Exchequer-Chamber* have not any Power but to reverse or affirm the Judgment, *&c.* for they cannot make Exception.

The Reversal in the *Exchequer-Chamber*, is *res judicata*; no *Writ of Error* lies on such Judgment, except in Parliament, and it is to be by six Judges at least. But it has been resolved, that Errors in Fact cannot be assigned in the *Exchequer-Chamber*; yet by some Authorities, they may be assigned as Errors in Law: And according to later Resolutions, the Court of *Exchequer* may by Virtue of this Statute, reverse Judgments for Errors in fact.

Writ of Error cannot be brought on any Record which is not a Judgment: It lies not on an interlocutory Judgment, but it must be a final Judgment after Verdict, *&c.*

A *Writ of Error* may not be had to reverse a Judgment by Default, before a Writ of Enquiry of Damages issues, and is executed, that the Verdict of the Jury, and interlocutory Judgment, may be made a perfect final Judgment, upon which alone the Writ of Error is to be brought. But on Judgment by Default in Ejectment, it lies before a *Writ of Inquiry* of Damages, and Judgment thereupon; because in this Case the Judgment already is perfect to recover the Term. Where a Judgment is pleaded in Bar of another Action, *&c.* and Judgment given on the Plea, Writ of Error may be had to reverse the second Judgment.

Note, That the Punishment of him, who being called into Law, and lawfully sought, does (after an original Writ, and three Writs of *Capias*, *Alias*, and *Pluries*, returned by the Sheriff, with a *non est inventus*, and an Exigent with a Proclamation, awarded thereupon) contemptuously refuses to appear, is an Outlawry.

He must also be called at five County Court-Days, a Month between each one; and if he appears not in that Time, *pro ex lege tenebitur*, *cum Principi*, *non obediat*, *nec legi*, *& ex tunc ex legabitur*, i. e. he shall be pronounced to be out of the King's Protection, and deprived of the Benefit of the Law. The Effect of which is, if he be outlawed at the Suit of another, in a civil Cause, he shall forfeit all his Goods and Chattels. And then according to *Bracton*, he may perish without Law.—A Minor, or a Woman cannot be outlawed.—All suing to Outlawry, in civil Actions, is practised only when a Defendant is not easy to be taken, or hath not sufficient Estate in the Country to be summoned; if where the Party is well known, is sufficient, and may be arrested, the Plaintiff outlaw him, he shall be order'd to reverse it at his own Charge, on Motion, and Affidavit made of the Matter.

Court of COMMON PLEAS.

Sir *Edward Coke* is of Opinion, that the Court of *Common Pleas* was constituted before the Conquest, and was not created by *Magna Charta*, at which Time there were *Justiciarii de Banco*, &c.

There are four Judges of this Court, created by Letters Patent, of whom the Chief is a Lord by his Office; and is called *Dominus Justiciarius Communium Placitorum*, *vel Dominus Justiciarius de Banco*. And the Seal of the Court is committed to the Custody of the Chief Justice.

The Lord Chief Justice, with his Assistants, hear and determine all common Pleas in civil Causes, as distinguished from the King's Pleas: And the Jurisdiction of this Court is general, like that of B. R. and extends itself throughout *England*. It holds Pleas of civil Actions at common Law, between Subject and Subject, as well Actions real, as personal and mixed; and it seems to have been the only Court for all real Causes: But this Court cannot regularly hold Plea in any Action real or personal, *&c.* but by Writ out of Chancery, returnable here; except it be by Bill, for or against an Officer, or other privileged Person of the Court.

All Actions belonging to this Court, come thither, either by Original, or Arrest, and Outlawries; or by Privilege or Attachment, for or against privileg'd Persons; or out of inferior Courts, not of Record, by *Pone*, *Recordare*, *Accedas ad Curium*, Writ of false Judgment, *&c.* And Actions popular, *Decies tantum*, of Champarty, Maintenance, *&c.* are also cognisible by this Court; as are Actions, penal of Debts, *&c.* upon any Statute. And besides Jurisdiction for Punishment of its Officers and Ministers; the Court of *Common Pleas*, may grant Prohibitions to temporal and ecclesiastical Courts, *&c.*

The Officers of this Court are, the *Custos Brevium*, *Prothonotaries*, *Secundaries*, *Clerk of the Warrants*, *Clerk of the Essoins*, *Filazers*, *Clerk of the Seal*, *Exigenters*, *Clerk of the Outlawries*, *Clerk of the Juries*, *Clerk of the Treasury*, *Clerk of the Errors*, *Chirographer*, *Clerk of the King's Silver*, *Clerk of the Inrolments*, a *Proclamator*, *Cryer*, *Tipstaves*, and the *Warden* of the *Fleet Prison*.

The *Custos Brevium*, is the chief Clerk in this Court, whose Office is in the King's Gift: He receives and keeps all Writs, and puts them upon Files; every Return

turn by itself; and at the End of each Term receives of the Prothonotaries all the Records of the *Nisi Prius*, called the *Posteas*.

The Writs are first brought in by the Clerks of the Assize of every County to the Prothonotary who entered the Issue in that Matter, to enter Judgment. Four Days after the Return the Prothonotary enters the Verdict and Judgment thereupon, into the Rolls of the Court, and then delivers them over to the *Custos Brevium*.

The *Custos Brevium* also makes Entry of Writs of Covenant, and Concords on Fines; and makes Copies and Exemplifications of all Writs and Records in his Office, and of all Fines levied; the Fines, when engrossed, are divided between the *Custos Brevium* and Chirographer, the former keeping the Writ of Covenant and the Note, the latter the Concord and Foot of the Fine.

The *Prothonotaries* enter and inroll all Declarations, Pleadings, Assizes, Judgments, and Actions; they also make out all judicial Writs, as the *Venire facias* after Issue joined; *Habeas Corpus* for bringing in of the Jury; Distringas Jurator, Writs of Execution and Seisin, of Supersedeas, of Privilege, *&c.* They inroll all Recognizances acknowledged in that Court, all common Recoveries; make Exemplifications of Record, *&c.*

The *Secondaries* are assistant to the Prothonotaries in the Execution of their Offices; and they take Minutes, and draw up all Orders and Rules of Court. Here are three *Clerks of the Judgments*, one under each Prothonotary.

The *Clerk of the Warrants*, enters all Warrants of Attorney for the Plaintiffs and Defendants in Suits; and inrols all Deeds of Indenture of Bargain and Sale, which are acknowledged in Court, or before any Judge out of the Court: And it is his Office to estreat into the Exchequer all Issues, Fines, and Amercement, which grow due to the King in this Court, for which he has a standing Fee, or Allowance from the Crown.

The *Clerk of the Essoins*, keeps the *Essoin-Roll*, or enters *Essoins*: He also provides Parchment, cuts it into Rolls, marks the Number on them, delivers out all the Rolls to every Officer, and receives them again when written.

The *Filazers*, are Officers in the Court of Common-Pleas, so called because they file the Writs, whereon they make out Process.

There are fourteen *Filazers* in the several Divisions, and Counties of *England*. They make out all Writs and Process upon original Writs, issuing out of the Chancery, as well real, as personal and mixed, returnable in that Court.

In Actions merely personal, where the Defendants are returned summoned, they make out Pones or Attachments; which being returned and executed, if the Defendant appears not, they make out a Distringas, and so *ad infinitum*, or till he does appear.

If he be returned *nihil*, then Process of *capias infinite*, if the Plaintiff will; after the third *Capias*, the Plaintiff may proceed to Outlawry, in the County where his Original is grounded, and have an Exigent with Proclamation.

The *Filazers* likewise make out all Writs of View in real Actions, where the View is prayed, and upon Replevin's and Recordari's Writs of *retorn habendo*, second Deliverance, and Writs of Withernam.—In real Actions, Writs of *grand* and *Petit cape* before Appearance.

They enter all Appearances and special Bail, upon any Process made by them: They make the first *Scire facias* upon special Bails, Writs of Habeas Corpus, *Distringas super vicecomitem vel Balivum*, and *Duces tecum*; and all Supersedeas's upon special Bail or Appearance, *&c.* Writs of Habeas Corpus *cum causa*, upon the Sheriff's Return that the Defendant is detained with other Actions; Writs of Adjournment of a Term, in case of Pestilence, War, or publick Disturbance.

The *Clerk of the Seal*, is an Officer that seals all Writs, judicial and ministerial, and also of mesne Process made by the Filazers; likewise Writs of Outlawry and Supersedeas, and all Patents and Exemplifications, and takes certain Fees for the same, for which he is accountable to the Master of this Office, and the Lord Chief Justice of the Court.

The *Exigenters*, are four Officers who make out all Exigents and Proclamations, in all Actions where the Process of Outlawry lies, and have for every common *Exigent* 1 *s.* and for every ordinary Proclamation 6 *d.* but if longer than ordinary, they take in Proportion to their Length.

The *Clerk of the Outlawries*, is Servant to the Attorney General, for making out the *Capias ut lagatum*, on return of the Exigent after Outlawry, and the Name of the Attorney-General is to be to every one of these Writs; and 1 *d.* only is paid for sealing this Writ, because it is supposed to be at the King's Suit; whereas 7 *d.* is paid for the Seal of every other Writ.

The *Clerk of the Juries*, is an Officer who makes out the Writs called *Habeas Corpus*, and *Distringas*, for the Appearance of Juries, either in Court or at the Assizes; after the Pannel is returned upon the *Venire facias*.

The *Clerk of the Treasury*, has the Charge of keeping the Records of the Court, and makes up and seals all Records of *Nisi Prius*: He makes all Exemplifications of Records lodged in the Treasury, and Copies of Issues, Imparlances and Judgments, and of all Informations and Recognizances on Record there; and he has the Fees due for all Searches. He is Servant to the Chief Justice, and is said to be removeable at Pleasure; but all other Officers of this Court are for Life: And there is an Under Clerk of the Treasury for Assistance, who hath some Fees and Allowances; also an Under-keeper that keeps the Keys of the Treasury-Door, *&c.*

The *Clerk of the Errors*, transcribes and certifies into the King's-Bench the Tenor of the Records of the Cause or Action, upon which the Writ of Error, made by the Cursitor, is brought there to be determined.

The *Chirographer*, is an Officer who engrosses Fines, acknowledged in that Court, into a perpetual Record (after they have been examined, and passed by other Officers) and writes and delivers the Indentures thereof to the Party. He makes two Indentures, one for the Buyer, the other for the Seller; and a third indented Piece, containing the Effect of the Fine, and called *the Foot of the Fine*; and delivers it to the *Custos Brevium*. The same Officer also, or his Deputy, proclaims all Fines in Court every Term, and endorses the Proclamations on the Back-side of the Foot; keeping withal the Writ of Covenant, and the Note of the Fine.

The *Clerk of the King's Silver*, is an Officer to whom every Fine is brought, after it has been with the *Custos Brevium*, and by whom the Effect of the Writ of Covenant is entered in a Paper-Book; and according to that Note all the Fines of that Term are also recorded in the Rolls of the Court.

The *Clerk of the Enrolments*, is an Officer under the three elder Judges of the Court of Common Pleas, and removable at their Pleasure.

In prosecuting Suits in the *Common Pleas*, first instructions are drawn for common or special Writs, and delivered to the Filazer of the County; and here the *Præcipe* and *Pone* serves both for the *Original* and the *Capias*; and if you set down the Return of your *Capias*, the Filazer of Course takes Care for the Original.

Note, That a *Precipe* or *Præcipe quod reddat*, is a Writ of great Diversity both as to Form and Use, extending as well to Writs of Right, as to other Writs of Entry and Possession. It is sometimes called *a Writ of Right close*, as when it issues out of the Court of Chancery close; sometimes a *Writ of Right patent*, as when it issues out of Chancery patent, or open to any Lord's Court, for any of his Tenants deforced against his Deforceor.

Pone, is a Writ whereby a Cause depending in the County or other inferior Court, is removed to the *Common Pleas*, or sometimes the King's-Bench.

Pone, per vadium, is a Writ commanding the Sheriff to take Surety of one for his Appearance at a Day assigned.

If it be an Action of Debt, the *Precipe* for a special Writ runs thus:

Somerset. Command *C. D.* late of *B.* in your County.

ty, that he render to *A. B.* twenty Pounds, which he owes to, and unjustly detains from him.

Returnable in fifteen Days from the Feast of *Easter*.

T. Vaughan.

On any Speciality, as Bond, *&c.* or if it be upon an Indenture, you must draw your *Precipe*, with the *Alias Dict.* as it is literally therein: And when the Action is bailable, the Plaintiff must make an Affidavit of the Debt, being ten Pounds, or above, according to the Statute 12 *George* I. Also where the Cause of Action is Debt, and requires Bail, it has been held the best Way to take out an *ac etiam capias*, the Original to which is always a bare *clausum fregit*; and when you come to Judgment thereon, you may file a new Original to warrant such Judgment.

But if the *Capias* be special, by *Precipe quod reddat*, &c. and there should be any Mistake, either in the Name *Alias Dictus*, or Sum, it may be pleaded in Abatement; and a new Original will not cure it, but you are obliged to discontinue your Action, paying Costs, and to begin *de novo*.

All *Precipe's* that he renders, *&c.* are fineable; and so are the special *Capias's*; and to avoid the Fine, you may draw a *Pone* for a *Capias*, only in Debt.

If the Defendant lives in the Country, as for Instance in *Somersetshire*, and the Cause of Action arises in *London*, and therefore you would try the Cause there; in this Case you must make out a *Testatum* into the County where the Party lives, by which it is suggested, that a *Capias* had before been taken out in *London*, and that a Sheriff there made a Return thereto, that the Defendant was not to be found in their Baliwick, *&c.* and when the Defendant is taken, he is to put in Bail with the Filazer of *London*, to answer to the Plaintiff upon the Writ made out there.

Note, That a *Testatum* is a Writ in personal Actions, where, if the Defendant cannot be arrested on a *Capias* in the County where the Action is laid, but is returned *non est inventus* by the Sheriff, this Writ shall be sent into another County, where such Person is thought to be, or to have wherewithal to satisfy the Demand. It is called *Testatum*, because the Sheriff has before testified, that the Defendant was not to be found in his Balliwick.

If a Defendant be within a Liberty, which the Sheriff cannot enter upon a *Capias*, you may get the Filazer of the County to make out a Writ *non omittas*, directed to such Liberty where the Defendant resides, without having a *Capias* first from him; and the Method for Expedition's Sake now is to make the *non omittas* at once, suggesting the Matter as if it had been done; so the *Capias* and Writ of *non omittas* are made out at the same Time, and you return the *Capias* yourself.

Note, That a *Non omittas* is a Writ, which lies where the Sheriff having delivered a Writ or Process to a Bailiff of a Franchise, in which the Party it is to be served on dwells, and the Bailiff having refused or neglected to serve it, upon the Sheriff returning that he delivered it to the Bailiff, this second Writ shall be directed to the Sheriff, charging him to enter the Franchise, and execute the King's Command either by himself or Officer.

Appearances upon Writs in the *Common-Pleas*, must be entered with the Filazer, or the Defendant shall forfeit 5 *l.* but on Writs of Privilege, both common Appearances and special Bail, are entered upon the Prothonotary's Remembrance.

If the Cause of Action be under 10 *l.* (on Writs out of this or any other superior Court) and the Plaintiff shall proceed by way of Process against the Defendant, if such Defendant does not appear at the Return of the Process, or in four Days after, it shall be lawful for the Plaintiff, upon Affidavit being made and filed in the proper Court, of the personal Service of such Process, to enter a common Appearance for the Defendant, and to proceed thereon, *&c.* And there is to be a Notice on such Process, for the Defendant to appear at the Return, *&c.* and a Defendant not appearing then, or within eight Days after it, Affidavit of the Service of the Process to be made before any Judge or Commissioner of the Court, or the Officer for entring Appearances; Stat. 12 *Geo.* I. and 5 *Geo.* II.

The Plaintiff must make Oath of his Debt, or Cause of Action, when 10 *l.* or above, before the issuing of the Writ, and the Sum sworn must be endorsed thereon; for which Sum, and no more, Bail is to be taken.

In Actions of Debt, *&c.* it has been observed, that the Reason of Bail is upon a Supposition of the Law, that the Defendant flies to the Judgment of the Law; which is grounded upon his not appearing at first, *&c.* and when a Man is taken on a *Capias*, he shall not be discharged till he gives Bond to appear; except the Plaintiff or his Attorney consent to an Appearance without Bail.

On a *Habeas Corpus* or *Cepi Corpus*, where special Bail is required, the Bail is not to be taken without Consent of the Plaintiff; and upon Writs of *Habeas Corpus* directed to the Courts of *London* and *Westminster*, which are returnable *immediate*, the Defendant may be bailed, giving Notice of the Names of the Bails, and before what Judge he intends to put it in; but it must be in eight Days, and Exception is to be taken within twenty Days.

If special Bail put in by the Defendant in any Suit, be excepted to, the Defendant shall perfect his Bail within four Days after Exception taken; in default whereof the Plaintiff may proceed upon the Bail-Bond: And in all Cases where Bail shall be filed on Writs of Error, such Bail shall likewise be perfected within the like Times, or in default thereof the Clerk of the Errors of this Court shall *non-pros* such Writ of Error. In Cases wherein Bail-Bonds shall be taken by the Sheriffs, if the same Bail be put in above, the Plaintiff may except against such Bail, and it shall not stand good and absolute.

Where Bail-Bonds are taken in *London* and *Middlesex*, they shall not be put in Suit till four Days after the Appearance-Day of Returns of Writs; nor in any other Country till after eight Days.

If the Defendant puts not in Bail when required, the Plaintiff is to get the Sheriff to assign over his Bail-Bond, and take out his *Capias* upon it, (directed to the Coroner if the same Sheriff be an Officer) but that Writ, 'tis said, requires only an Appearance: And if the Plaintiff be nonsuited, and then commences a new Action for the same Cause, he shall not have special Bail in the new Action, though he might have insisted upon it in the First.

The Method to put in Bail in the *Common Pleas* in *London* or *Middlesex*, is not by filing a Bail-piece, but it is done by an Entry in the Filazer's Book; though the Filazers vary a little in the Manner thereof.

In *London* you call upon the Filazer and give him Notice when the Bail are ready, and then he will attend with you at the Judge's Chamber, and there the Bail enter into a Recognizance.

In taking Bail to Actions, depending in the Court of *Common Pleas*, before Commissioners in the Country; first a Copy of the Writ on Parchment is to be brought to the Commissioner taking it, on which the Recognizance or Bail-piece must be drawn and engrossed, and then the Bail is taken before such Commissioners: And the Affidavit of the due taking of every such Bail, shall be made, either before some Judge of *C. P.* to whom the Bail shall be transmitted, or before some Person who shall have Power to take Affidavits in Matters and Causes depending in this Court.

All Bails taken by any Commissioner within the Distance of 40 Miles from the Cities of *London* and *Westminster*, are to be transmitted to the Lord Chief Justice of the *Common Pleas*, or to one of the Justices of the said Court, within ten Days after the Taking thereof: And all Bails taken by any Commissioner above the Distance of 40 Miles from *London* and *Westminster*, shall be transmitted within 20 Days after the Taking, unless all the said Justices shall be in their Circuits, and then as soon as any of them shall be returned to *London* out of his Circuit.

The Plaintiff in any Action before the End of the next Term, after the Return of the Process, ought to declare against the Defendant; but it is now usual for the Plaintiff,

tiff, after the Return of the Writ, to have two Terms to make out his Declaration; and if the Plaintiff doth not declare within that Time, the Defendant upon a Rule given, may sign a *Non-pros*, and have Costs, usually, 1 *l.* 6 *s.* 8 *d.* for Recovery whereof Execution may be taken out, or Action brought.

If the Defendant appears the first Term, and give no Rule to declare, his Attorney the second Term may be compelled to accept of a *Declaration* with Imparlance; but if the Plaintiff declares not the second Term, tho' the Defendant gives no Rule, the Plaintiff may be nonsuited at the End of the second Term, upon a Continuance entered by *Dies Datus*. If the Day to appear, be upon the first Return of any *Hilary*, or *Trinity* Term, no Imparlance will be granted, without Consent or Rule of Court: And after Rules to declare are out, no Nonsuit shall be had for Want of a *Declaration*, unless the Plaintiff's Attorney be first called on for his *Declaration*.

Declarations to be delivered, with Notice to plead in four Days in *London* or *Middlesex*; and in other Counties, above 20 Miles off, within eight Days, *&c.*

If any Plaintiff shall declare against any Person in Custody of the Warden of the *Fleet*, or of any Sheriff, *&c.* and does not further proceed to Judgment within three Terms after the Declaration delivered, inclusive of the Term wherein delivered; or if a Plaintiff having obtained Judgment in this Court against any Prisoner, shall not charge him in Execution thereupon, within two Terms next after the Judgment had, including the Term in which the said Judgment shall be signed, the Defendant in Prison may be discharged out of Custody, by Supersedeas allowed by one of the Justices of this Court, if Cause be not shewn by the Plaintiff why he had not proceeded, upon Notice given by the Defendant's Attorney, and Oath made thereof, *&c.*

The Plaintiff having declared, and given Rules for Answer, the Defendant is to deliver his Plea to the Plaintiff's Attorney; and if he be not to be found, or refuseth it, 'tis to be left in the Office to save a Judgment.

In every Plea, except to a *Scire facias*, it is necessary that the Defendant should come and defend the Force and Injury laid to his Charge, to make him a Party to the Matter in Variance; that is to such a Charge, which the Plaintiff has given Pledges that he will maintain against him: But in a *Scire facias*, the Defendant is not in Law a Party to the Suit till he appears, nor is there any Wrong or Injury against him; and when he appears, he may plead by *venit* and *dicit* only.

Note, That *Scire facias* is a judicial Writ, most commonly used to call a Man to shew Cause to the Court whence it issues, why Execution of a Judgment passed, should not be made out?—This Writ is not granted till a Year and a Day be elapsed after a Judgment given.—*Scire facias* upon a Fine, lies only after a Year and a Day after the Fine levied: Otherwise it is the same with the Writ of *Habere facias seisinam*, which is a judicial Writ, which lies where a Man has recovered Lands in the King's Court, directed to the Sheriff, commanding him to give him the Seisin thereof. This Writ sometimes also issues out of the Records of a Fine, directed to the Sheriff of the County, where the Lands lie; commanding him to give to the Cognizee, or his Heirs Seisin of the Land, whereof the Fine is levied. The Writ lies within the Year after the Fine or Judgment, upon the *Scire facias*; and may be made in divers Forms.

If in any Action the Defendant *pleads* a *general Plea* or *Issue*, as is most usual, there is no more requisite, but that the Attorney for the Defendant do put his Hand to the Plaintiff's Attorney's Docket Book; and that being done, the Plaintiff's Attorney is to draw up the *Plea*, and make a Copy of the Issue, and deliver it to the Defendant's Attorney, who must receive it, and pay for entring his *Plea*; and then they usually give Warning for Trial. But if the Defendant pleads specially, the Plea is to be under a Serjeant's Hand, and given to the Plaintiff's Attorney; also if the Plaintiff replies specially, or the Defendant demurs to a Declaration, it is the same.

The Rules to plead must be entered in the Prothonotary's Office, that the Plaintiff's Attorney declares in, by the Secondary there, for which he is paid 16 *d.* And if the Defendant on Rule to answer, do not plead before the Rule is expired, the Attorney for the Plaintiff may afterwards enter up Judgment by *Nil dicit*; and the Defendant on pleading any general Issue, may (after Rule given) nonsuit the Plaintiff, if he doth not enter his Issue; and thereupon he may get Costs signed by the Prothonotary, and enter up Judgment. After a *respondeas ouster*, on Demurrer and Judgment, and Rule given, the Defendant is to plead forthwith, or the Prothonotary will sign Judgment: In other Cases it has been adjudged a standing Rule, that the Prothonotary must receive a *Plea* left in the Office at any Time before Judgment signed, tho' the Rule to plead be out.

By Order *Mich.* 1 *Geo.* II. where special Writs are made returnable, the first Return in *Hilary* or Trinity Term, or the first or second Return in *Easter* and *Michaelmas* Term, unless the Defendant pleads in four Days after the Appearance of the Return, Judgment will be entered by Default, *&c.* And by Order *Mich.* 3 *Geo.* II. upon all Process sued out of this Court returnable the first or second Return of any Term, if the Plaintiff declares in *London* or *Middlesex*, and the Defendant lives within twenty Miles of *London*, the Defendant shall plead within four Days after such Declaration delivered, without any Imparlance: And in case the Plaintiff declares in any other County, or the Defendant lives above twenty Miles from *London*, the Defendant shall plead within eight Days after the Declaration delivered, without any Imparlance; and in Default of pleading as aforesaid, the Plaintiff may sign his Judgment. Also the Declarations delivered pursuant to this Rule, must be delivered with Notice to plead at such Times accordingly.

Oftentimes where the Plaintiff's Action is just and right, the Defendant's Attorney, without any pleading, will yield to a Judgment, either by *non sum informatus*, or Confession, so that the Plaintiff will stay Execution, till a Time agreed upon: This may be done on the Declaration, upon which Judgment you may get Costs taxed by the Prothonotary, and the Defendant will be thereby saved in his Person and Charges.

But if the Attorney for the Defendant pleads to the Action, then you may join Issue, and go to Trial by *Nisi Prius*, at the next Assizes for the County.

Note, That *Nisi Prius* is a Writ judicial, which lies in Cases where the Jury being impannelled and returned, before the Justices of the Bank, one of the Parties requests to have such Writ, for the Ease of the Country, whereby to will the Sheriff to cause the Inquest to come before the Justices in the same Country at their coming thither. It is called a Writ of *Nisi Prius*; and its Effect is, that the Sheriff is hereby commanded to bring to *Westminster* the Men impannelled at a certain Day, before the Justices, *Nisi prius justic. Domini Regis ad assisas capiendas venerint*, that is, unless the Justices go before that Day into such County to take Assizes.

Note, also, That before I conclude this Treatise, I must give a short Description of all the different Writs, Bills, Process, *&c.* made use of, to arrest the Body of the Defendant, *viz.* of a *Capias*, *alias Capias*, *Pluries facias*, *Latitat*, *Special latitat*, *Bill of Middlesex*, *Non omittas*, &c.

A *Capias*, is a Writ or Process, which is of two Sorts, who before Judgment, called *Capias ad respondendum*; granted in an Action personal, when the Sheriff upon the first Writ of Distress, returns *Nihil habet in balliva nostro.*—The other is a Wit of Execution after Judgment, which is also of various Kinds; as *Capias ad satisfaciendum*, *Capias pro fine*, *Capias ut lagatum*, &c.

Capias ad satisfaciendum, is a Writ of Execution after Judgment, lying where a Man recovers in an Action personal, as for Debt, Damage, *&c.* in which Cases this Writ issues to the Sheriff, commanding him to take the Body of him against whom the Debt is recovered, who is to be kept in Prison till he makes Satisfaction; and if not in a Condition to do it, and lies at the Mercy of

of an implacable and barbarous Plaintiff, as there are but too many of them in *England*, till he dies of Want and Misery.

Capias conductos ad proficiscendum, is an original Writ, which lies by the common Law against any Soldier who has covenanted to serve the King in War, and appear not at the Time and Place appointed. It is directed to two of the King's Serjeants at Arms, to arrest and take him wherever he may be found; and to bring him *coram concilio nostro*, with a Clause or Assistance.

A *Bill* of *Middlesex*, is a Writ which is to have a treble six-penny Stamp, and to be signed by the Keeper of the *Bill of Middlesex Office* in *New Inn*; for which the Fee is Six-pence in Term-Time, and Ten-pence in the Vacation; and on the Back of the Writ must be indorsed the Attorney's Name that sues it out, and the Day of the Month and Year when done; also a Note is to be made in Paper for the Office.

A *Latitat*, is a Writ whereby all Men in personal Actions are called originally to the *King's Bench*.—It has this Name, as supposing the Defendant lurks, lies hid, and cannot be found in the County of *Middlesex*, to be taken by Bill; but he is gone to some other County, to the Sheriff whereof this Writ is directed.

Habeas Corpus, is a Writ, which a Man indicted and imprisoned for any Crime, or Trespass, before the Justices of the Peace, or in a Court of Franchise; having offered sufficient Bail, which is refused, tho' the Cause be bailable, may have out of the *King's Bench*, thereby to remove himself thither, on his own Costs, to answer the Cause at the Bar thereof.

The Order in this Case is, first to procure a *Certiorari* out of *Chancery*, directed to the said Justices, for removing the Indictment into the *King's Bench*; and upon that to procure this Writ to the Sheriff, for causing his Body to be brought at a certain Day.

Note, That I have mentioned several of these *Writs*, or Process, in different Places throughout this Treatise, I'll conclude it by taking Notice of the *Essoin-Days*, *Terms*, and *Returns of Writs*.

Terms, are the several Times or Seasons of the Year, wherein the Tribunals, or Courts of Judicature are open to all who think fit to complain of Wrong, or to seek their own by due Course of Law, or Action.

In Contra-distinction to these, the rest of the Year is called Vacation.

Of these Terms there are four in every Year; during which Time, Matters of Justice are dispatched, *viz.*

Hilary Term, which, at *London*, begins the 23d Day of *January*; or if it be on *Sunday*, the next Day after, and ends the 12th of *February* following.

Easter Term, which begins the *Wednesday* Fortnight after *Easter*, and ends the *Monday* next after *Ascension* Day.

Trinity Term, beginning the *Friday* next after *Trinity Sunday*, and ending the *Wednesday* Fortnight after.

Michaelmas Term, which begins the 23d of *October*, and ends the 28th of *November* following.

Each of these *Terms* have also their *Returns*.

Note, That *Returns*, *Return-Days*, or Days in Bank, are certain Days in each Term, particularly set apart for the several Kinds of Proceedings, in any Cause to be determined.

Hilary Term has four *Returns*; viz. *Octabis Hillarii*, eight Days after Hillary Day: *Quindena Hillarii*, fifteen Days: *Crastina Purificationis*, the Day after the Purification: And *Octabis Purificationis*, eight Days after, inclusive.

Easter Term has five *Returns*; viz. *Quindena Paschæ*, fifteen Days after Easter: *Tres Paschæ*, three Weeks after: *Mense Paschæ*, the Day-Month after Easter: *Quinque Paschæ*, the Day five Weeks from Easter: And *Crastino Ascensionis Domini*, the Day after Ascension Day.

Trinity Term has four *Returns*; viz. *Crastino Trinitatis*, the next Day after Trinity: *Octabis Trinitatis*, eight Days after, inclusive: *Quindena Trinitatis*, fifteen Days after: And *tres Trinitatis*, three Weeks after.

Michaelmas Term, has six *Returns*; viz. *Tres Michaelis*, three Weeks after Michaelmas: *Mense Michaelis*, the Day-Month after Michaelmas: *Crastino Animarum*, the Day after All-Souls: *Crastino Martini*, eight Days after, inclusive: And *Quindena Martini*, fifteen Days.

The first *Essoin Day* (which is the fourth Day inclusive before what is commonly called the first Day) is accounted the first of every Term; and on that Day one of the Judges always sits to take *Essoins*, &c. and the four Days in Term are first, the Day of *Essoin*; second, of *Exceptions*; third, *Return* of Writs; fourth, the Day of *Appearance*, called the *quarto die post*, (or fourth Day after) whereon the Court sits.

Note, That *Essoin*, or *Essoign*, is an Excuse for him, who being summoned to appear and answer to an Action real, or to perform Suit to a Court Baron, *&c.* cannot attend by Reason of some legitimate Hindrance. The Causes which serve to *essoin*, are divers; yet may be reduced to five Heads: The first is *Essoin de ultra mare*, when the Party is beyond Sea: The second is *De terra sancta*, when on an Expedition in the *Holy Land*: The third, *De malo veniendi*, when he is infirm of Body and cannot come; which is also called the *common Essoin*: The fourth, *Essoin de malo lecti*, when the Defendant is sick a-bed: The fifth *De servitio Regis*, when he is in the King's Service. *Horn* mentions several other *Essoins* touching the Service of the King celestial, *&c.*

Every Term begins on the fourth Day after the first Return thereof, and ends the *quarto die post*, of the last Return; unless either of them fall on a *Sunday*, in which Case the Term begins or ends on the *Monday* after; except only *Trinity Term*, the *Essoin Day* of the first Return whereof, being on a *Monday*, the fourth Day regularly is the *Thursday* following; but that being *Corpus Christi Day*, and no juridical Day, the *quarto die* is held on the *Friday*. Although the *Essoin Day* falls on a *Sunday*, yet the fourth Day after is computed from that Day, as from any other, and is to be the *Wednesday* following; and when the *Essoin Day*, *Return*, *Brevium*, or *Exception* Days, happen on a *Sunday*, the same are to be kept on the *Monday* next following; and in such Case the *Exception* and *Return* Days are included in one, *viz.* the *Tuesday*.

In the several Terms, the first *Essoin Day* of *Michaelmas Term*, is always on the 20*th* of *October*. Of *Hilary Term*, on the 20*th* of *January*. Of *Easter Term*, on the *Sunday-Fortnight* after *Easter*. And of *Trinity Term*, on the *Monday* or Morrow of *Trinity Sunday*. And in each Return throughout the respective Terms, are the several Days before mention'd, *viz.* the *Essoin Day* (being the Day mentioned in Writs) the *Exception* Day, the *Return* Day, and the Day of *Appearance*, which is the last of the *Return*, &c.

It is observable, that on whatever Day of the Week any Term begins, it is a good Day to make all Processes by Bill returnable upon *prox post*, every other Return of such Term, except the last Return: But *St. John Baptist*'s Day, when it falls in *Trinity Term*, and all *Non juridical Days*, must be avoided, because they are no Days in Court, *viz.* every *Sunday* in any Term; the Feast of *All Saints* and *All Souls*, in *Michaelmas Term*; the *Purification*, in *Hilary*; and the *Ascension*, in *Easter Term*, &c. All Processes in the King's Bench upon Bill of *Middlesex*, *Latitat*, *Alias*, *Pluries*, &c. best before and after Judgment, must be returnable at Days certain, and may be so made upon any Day in Term (which is a *juridical Day*) next after any of the before mentioned returns.

The Process returnable in B. R. is returnable at a Day certain, naming the Day of the Week, *&c.* in this Manner: *Before us at* Westminster, *on* Thursday *next*, *after the Morrow of the* Purification *of the Blessed* Mary, *&c.* But if the Process be by Original, then 'tis *before us on the Morrow of the* Purification, *&c.* (not naming the Place or Day of the Week) *wheresoever we shall be in* England: And all Writs returnable wheresoever in this Court, are grounded upon Originals out of Chancery; or on Writs of Error out of the Common Pleas, and inferior Courts.

In C. B. the Writs being by Original, are not returnable on a Day certain; but only *before our Justices at* Westminster, *from the Day of* St. Michael *in three Weeks*, &c. Yet where the Action here is not by Original,

ginal, but ſome other Writ; as *Attachment of Privilege*, by Bill againſt privileg'd Perſon, *Prohibitions*, &c. ſuch Writs all Proceſſes thereupon, are returnable, and have Continuance to Days certain: As *on* Tueſday *next after three Weeks of* St. Michael.

Note, That an *Attachment*, in the Senſe we take it here, is an Apprehenſion of a Man by his Body, to bring him to anſwer the Action of the Plaintiff. — *Lombard* makes this Difference between an *Arreſt* and an *Attachment*; that an *Arreſt* proceeds out of an inferior Court, by Precept only, and an *Attachment* out of a higher Court, either by Precept or Writ; and that a Precept to arreſt, has theſe formal Words, *Duci facias*, &c. and a Writ of *Attachment* theſe, *Præcipimus tibi quod attachies talem, & habeas eum coram nobis.* — The Word is formed of the French *Attacher* to faſten, tye.

Original Writs, are thoſe ſent out of the high Court of Chancery, to ſummon the Defendant in a perſonal, or Tenant in a real Action, either before the Suit begins, or begin the Suit thereby.

In the fortunate Days of Man's primitive Innocency, this monſtrous Dedalus of Laws, of ſo many different Manners of Proceedings in the Courts of Juſtice, of ſo many different Terms, which even thoſe who have invented them, can ſcarcely underſtand, was entirely unknown, and nothing but the Depravity of our Manners, our Ambition, Avarice, &c. were capable to bring forth theſe hideous Offsprings, hatched up for the Devaſtation of Man's Fortune, and to rob him of his Liberty.

LOGIC.

LOGIC, is the Art of guiding well one's Reaſon in the Knowledge of Things, as well for one's Inſtruction, as for that of others.

This Art conſiſts in the Reflections Men have made on the four principal Operations of the Mind, viz. *Perception*, *Judgment*, *Ratiocination*, and *Method*.

We call *Perception*, or *Apprehenſion*, the ſimple View we have of Things which offer themſelves to our Mind, or whereby we only conceive a Thing, without Affirmation or Negation; as when we conceive the Sun, the Earth, a Tree, a Round or Square, the Thought, a Being, without forming any expreſs Judgment thereof.

We call Judgment the Act of our Mind, whereby the Ideas which agree together are joined by an Affirmation; and thoſe which diſagree are ſeparated by a Negation, or whereby one is affirmed, or denied of the other; as when I have the Idea of God, the Idea of Good, and the Idea of Lyar, I can join the Idea of Goodneſs with the Idea of God, and remove from him the Idea of a Lyar; in judging that Good is good, and that God is not a Lyar.

We call *Ratiocination* the Act of our Mind, whereby a Judgment is formed of ſeveral preceeding ones; as having judged that true Virtue muſt be referred to God, and that the Virtue of the Pagans was not referred to God, we conclude that the Virtue of the Pagans was not a true Virtue.

We call *Method* the Action of our Mind, whereby having on the ſame Subject, *viz.* the human Body, various Ideas, various Judgments, and various Reaſonings, it diſpoſes them in the moſt proper Manner, to diſcover that Subject.

All this is done naturally, and ſometimes better by thoſe who have never learned any of the Rules of *Logic*, than by thoſe who have learned them.

Therefore this Art does not conſiſt in learning how to make theſe Operations, ſince Nature itſelf teaches it, in giving us our Reaſon; but how to reflect on our natural Actions, which ſerves us to three Things.

The firſt is, of being ſure that we make a good Uſe of our Reaſon, becauſe the Conſideration of the Rule engages us to make a new Attention to it.

The ſecond is, to diſcover with leſs Difficulty, the Errors or Imperfections which may be found in the Operations of our Mind, becauſe it often happens that one diſcovers by the natural Light alone, that a Reaſoning is falſe, and one does not diſcover notwithſtanding the Reaſon why it is falſe; as thoſe who do underſtand Painting, can be choked at ſome Imperfections in a Picture, though they cannot explain that Imperfection that offends them.

The third is, to give us a more perfect Knowledge of the Nature of our Mind, by the Reflections we make on its Actions; which is more excellent in itſelf, were we to conſider but the ſingle Speculation thereof, than the Knowledge of all corporal Things, which are infinitely beneath the ſpiritual.

If none but ourſelves had ever been concerned in the Reflections we make on our Thoughts, it had ſufficed to conſider them in themſelves, without inveſting them with Words or any other Signs; but as we cannot communicate our Thoughts to one another, without accompanying them with external Signs; and that even this Habit is ſtrong; when we think by ourſelves, Things never offer themſelves to our Mind but with the ſame Words we cloath them when we ſpeak to others. It is neceſſary to conſider in the *Logic* the Things joined with Words, and the Words joined with the Things.

From all we have ſaid on this Subject, it follows that *Logic* can be very well divided into four Parts, according to the divers Reflections made on theſe four Operations of the Mind; therefore I'll divide it into four Parts. The firſt ſhall contain *the Reflections on Ideas*, or on *the firſt Act of the Mind called Conception.* The ſecond *the Reflections which Men have made on their Judgments.* The third, *Ratiocination.* The fourth, *Method.*

THE FIRST PART.

Of Ideas.

Note, That as we cannot have any Knowledge which are from us, but by means of the Ideas which are within us, the Reflections which can be made on our Ideas are perhaps the moſt important Subject in the *Logic*, becauſe it is the Foundation of all the reſt.

Thoſe Reflections can be reduced to five Chiefs or Heads, according to the five Manners of conſidering the Ideas. The *firſt*, according to their Nature and Origin. The *ſecond*, according to the principal Difference of the Objects they repreſent. The *third*, according to their Simplicity or Compoſition, where I'll treat of the Abſtractions and Preciſions of the Mind. The *fourth*, according to their Extent or Reſtriction, *i. e.* their Univerſality, Particularity, Singularity. The *fifth*, according to their Clearneſs and Obſcurity, or their Diſtinction and Confuſion.

1. *Of Ideas according to their Nature and Origin.* The Word *Idea* is of the Number of thoſe which are ſo clear that they cannot be explained by others, becauſe there are none clearer and more ſimple.

But all that can be done to hinder one from being deceived with Regard to it, is to mark the falſe Signification which could be given to that Word, in confining it to that ſingle Manner of conceiving Things, made by the Application of our Mind to the Images painted in our Brain, called Imagination. For as St. *Auguſtin* obſerves, Man, ever ſince *Adam*'s Prevarication, has ſo accuſtomed himſelf to conſider none but corporal Things, the Images whereof enter through our Senſes into our Brain, that moſt of them believe they cannot conceive a Thing, which they cannot imagine, *i. e.* repreſent it to themſelves under a corporal Image, as if there was within us but that Manner of thinking and conceiving; whenas one can't reflect on what paſſes in our Mind, without diſcovering that we conceive a great Number of Things without any of thoſe Images; and without perceiving the Difference between Imagination and pure Intellection. For when, for Example, I imagine

gine to myself a Triangle, I not only consider it as a Figure terminated by three right Lines, but consider besides those three Lines, as presented by the Strength and inward Application of my Mind; and this is properly what is called Imagination, that if I want to think of a Figure of a thousand Angles, it is true that I conceive it a Figure composed of a thousand Sides, as easily as I conceive that a Triangle is a Figure composed of three Sides only; but I cannot imagine the thousand Sides of that Figure, nor, in some measure, consider them as present with the Eyes of my Mind.

It is true notwithstanding, that the Custom we have of making use of our Imagination, when we think of corporal Things, is often the Cause that in conceiving a Figure of a thousand Angles, we represent to ourselves confusedly some Figure; but it is evident that the Figure represented then by the Imagination, is not a Figure of a thousand Angles; since it differs in no Manner from what I should represent to myself, if I was to think of a Figure of ten thousand Angles, and is of no Service to discover the Properties which make no Difference of a Figure of a thousand Angles from all other Polygons.

Therefore I cannot imagine a Figure of a thousand Angles, since the Image I should paint of it in my Imagination, would represent to me all other Figures of a great Number of Angles, as soon as that of a thousand Angles; and notwithstanding, I can conceive it clearly and distinctly; since I can demonstrate all the Properties thereof, as that all its Angles together are equal to 1996 right Angles; and therefore there is a great Difference between Imagination and Conception.

This is still clearer by the Consideration of several Things we conceive clearly, though they be in no manner of the Number of those which can be imagined. For what can we conceive more clearly than our Thought when we think? And notwithstanding it is impossible to imagine our Thought, or to paint any Image thereof in our Brain: Neither can the *Yes* and the *No* have any in it. He that judges that the Earth is round, he that judgeth that it is not round, have both the same Thing painted in their Brain, *viz.* the Earth and Roundness, but one adds Affirmation to it, which is an Act of his Mind, which he conceives without any corporal Image; and the other a contrary Action, which is Negation, which is still less capable of an Image.

When then we speak of Idea, we do not call by that Name the Images painted in our Fantasy, but all that is in our Mind, when we can say truly that we conceive a Thing in whatever Manner we conceive it. Whence it follows, that we can express nothing by our Words, when we understand what we say, but that it is certain from that very Thing, that we have within us the Idea of the Thing signified by our Word, though that Idea be sometimes clearer and more distinct, and sometimes more obscure and confuse. For there would be a Contradiction in saying that I know what I say in pronouncing a Word, and that notwithstanding I conceive nothing else in pronouncing it but the Sound of the Word. And this shews the Falshood of two very dangerous Opinions, advanced by two very modern Philosophers.

The first is, *that we have no Idea of God*; for if we had none, in pronouncing the Name God, we should conceive nothing else of him but these three Letters, G, o, d, and an *Englishman* would have nothing more in his Mind, in hearing the Name of God pronounced, than if entring a Synagogue, and entirely ignorant of the *Hebrew*, he should hear pronounced in Hebrew *Adonaii*, or *Elohah*. And when Men have assumed the Name of God, as *Caligula* and *Domitian*, they had committed no Impiety, since there is nothing in those Letters or two Syllables *Deus*, but what can be attributed to a Man, if no Idea was joined to it. Whence it follows that a *Dutchman* is not accused of Impiety for calling himself *Louis Dieu*, Louis God. In what then consisted the Impiety of those Princes, but that in leaving to that Word *Deus*, Part at least of its Idea, as is that of an excellent and adorable Nature, they appropriated to themselves that Name with that Idea.

But if we had no Idea of *God*, on what could be founded all that we say of him? As that there is but one that he is eternal, omnipotent, infinitely good, infinitely wise; since nothing of all this is included in that Sound *God*, but only in the Idea we have of God, and which we have joined to that Sound. And it is for no other Reason we refuse the Name of God to the false Divinities of the Pagans; not because that Word cannot be attributed to them, if it was taken materially, since the Pagans have attributed it to them; but because the Idea which is within us of a supreme Being, and which Use has joined to that Word of God, belongs to the true God alone.

The second of these false Opinions is what Mr. *Locke* has said, *That Reasoning can be nothing else but an Assemblage and Concatenation of Words by this Word* is; *whence it should follow, that by Reason we conclude nothing at all with Regard to the Nature of Things, but only with Regard to their Appellations; that's to say, that we see, simply, if we assemble Right or Wrong the Names of Things, according to the Combinations we have been pleased to make with Regard to their Significations.* To which the same Author adds, *If that be, as it can be, the Reasoning shall depend of Words, the Words of our Imagination, and Imagination shall depend perhaps, as I believe, of the Motion of the corporeal Organs; and therefore our Soul will be nothing else but a Motion in some Parts of an organical Body.*

It is to be supposed, that this is only an Objection contrary to the Sentiment of the Author who proposes it; but as if it was taken in the Affirmative, it would tend towards destroying entirely the Immortality of the Soul, it is necessary to shew the Falsity thereof, which is not very difficult: For the Combinations this Philosopher speaks of, can be nothing else but an Agreement Men have enter'd into, to take Sounds for Signs of the Ideas we have in our Mind. So that if besides the Names, we had not within us the Ideas of Things, that Combination had been impossible; as it is impossible by any Combination whatever, to make one born blind understand the Signification of the Word red, green, blue, *&c.* because as he has not those Ideas, he cannot join them to any Sound.

Besides, the different Nations having given different Names, even to the clearest and most simple Things, as to those which are the Objects of Geometry, they could not have the same Reasonings with Regard to the same Truths, if Reasoning was nothing but an Assemblage of Words by the Word *Est*. And as it appears by those different Words, that the *Arabs*, for Example, have not agreed with the *French* in giving the same Significations to Sounds, neither could they agree in their Judgments and Reasonings, if their Reasonings depended on that Combination.

Lastly, there is a great Equivocation in that Word *Arbitrary*, when it is said that the Signification of the Words is *arbitrary*. For it is true, that it is a Thing arbitrary to join such an Idea to such a Sound, rather than to another; but *Ideas* are not Things arbitrary, and which depend of our Fancy, at least those which are clear and distinct. And to shew it evidently, is, that it would be ridiculous to imagine, that real Effects could depend of Things partly arbitrary. For when a Man has concluded by his Reasoning, that the Iron Axis which runs through two Mill-Stones, could turn, without making the under Stone turn, if being round, it should run through a round Hole; but that it could not turn without making the upper Stone turn likewise, if being square it was fastened in a square Hole of that upper Stone, an Effect which he pretended follows infallibly; and therefore his Reasoning has not been an Assemblage of Names, according to a Combination, depending entirely of Man's Fancy, but a solid and effectual Judgment of the Nature of Things, by the Consideration of the Ideas he has in his Mind of those Things; which Men have been pleased to mark by certain Names. Therefore we see well enough what we understand by the Word *Idea*; at present I must speak of their *Origin*.

The Origin of Ideas has been a long Time disputed among Philosophers: The *Peripateticks* maintain, that external Objects emit Species which resemble them all around; and that these Species striking on our Senses, are by them transmitted to our Understanding; that being

being material and ſenſible, they are rendered intelligible by the active Intellect; and are at length received by the paſſive.

Others are of Opinion, that our Souls have of themſelves the Power of producing Ideas of Things we would think upon; and that they are excited to produce them by Impreſſions which Objects make on the Body; though theſe Impreſſions are not Images in any Reſpect like the Objects that occaſioned them. And in this it is that Man is made after the Image of God, and that he partakes of his Power; for as God made all Things out of nothing, and can reduce them to nothing when he pleaſes, ſo Man can create as many Ideas as he pleaſes, and annihilate them when he has done.

Mallebranche and his Partiſans aſſert, that God has in himſelf the Ideas of all the Beings he has created; that thus he ſees all Things, in conſidering his own Perfections to which they correſpond; and that as he is intimately united to our Soul by his Preſence, our Mind ſees and perceives Things in him, which repreſent created Beings; and that it is thus we come by all our *Ideas:* He adds, that though we ſee all ſenſible and material Things in God, yet that we have not our Senſations in him. When we perceive any ſenſible Object, in our Perception is included both a Senſation and a pure Idea. The Senſation is a Modification of the Soul, and it is God who cauſes it in us; but for the Idea joined with the Senſation it is in God.

The *Carteſians* diſtinguiſh three Kinds of *Ideas:* The firſt *innate*; ſuch is that we have of God as of a Being infinitely perfect. The ſecond *adventitious*; which the Mind receives in Proportion as bodily Objects preſent themſelves to our Senſes; ſuch is the Idea of Body, Sound, Figure, Light, *&c.* The third are *factitious*; which are thoſe which the Mind forms, by uniting and aſſembling the *Ideas* which it already had, and theſe are called *complex.*

Mr. *Locke* is of Opinion, that all our *Ideas* are owing to our Senſes; and that all innate, created, and factitious *Ideas*, are mere Chimera's. Our Mind, he ſhews, has not abſolutely any *Ideas* beſides thoſe preſented to it by the Senſes, and thoſe which it forms by its own Operations, on thoſe others which the Senſes furniſh: So that a Man deſtitute of one of his Senſes would never have any *Idea* belonging to that Senſe; and ſuppoſing him deſtitute of all the Senſes, he would never have any *Idea* at all; external Objects having no other Way of producing *Ideas* in him, but by Means of Senſation; he would have no *Idea*, not even of Reflection, becauſe in wanting all Senſation, he wants that which ſhould excite in him the Operation of his Mind, which is the Object of his Reflection.

Therefore, that Authors pretend, that is, is plain, that there is no *innate Idea*; no general Truth, or firſt Principle inherent in the Soul, and created with it; no immediate Object of the Mind before it had perceived external Objects by Means of the Senſes, and reflected on that Perception. Thoſe *Ideas* only ſeem to be *innate*, becauſe we find we have them as ſoon as we come to the Uſe of Reaſon; but are, in Effect, what we formed from the *Ideas* wherewith the Mind was inſenſibly fill'd by the Senſes. Thus when the Mind is employ'd about ſenſible Objects, it comes by the *Ideas* of bitter, ſweet, yellow, hard, *&c.* which we call *Senſation*; and when employed about its own Operations, perceiving and reflecting on them as employed about the *Ideas* before got by Senſation, we get the Ideas of Perception, Thinking, Doubting, Willing, *&c.* which we called *inward Senſation*, or *Reflection*; and theſe two, *viz.* external material Things as the Objects of Senſation, and the Operations of our own Mind as the Objects of Reflection, are the only Originals, whence all our Ideas have their Riſe. That when we have conſidered theſe, and their ſeveral Modes and Combinations, we ſhall find they contain our whole Stock of *Ideas*; inſomuch, that the Underſtanding does not ſeem to have the leaſt Glimmering of any Ideas, that it did not receive from one of thoſe Sources.

And thus far the Mind appears merely paſſive, as not having it in its Power to chuſe whether it will have theſe firſt Beginnings or Materials of Knowledge, or not: For the Objects of Senſe will obtrude their *Ideas* upon the Mind, and the Operations of the Mind will not let us be without ſome (however obſcure) Notion of them.

Though this Sentiment of Mr. *Locke* be common with ſeveral other modern Philoſophers, I dare ſay that it is very abſurd, and equally contrary to Religion, and to true Philoſophy: For to ſay nothing but what's clear, we conceive nothing more diſtinctly than our own Thought, and there is no Propoſition clearer than this; *I think, then I exiſt*; but we could not have any Certitude of this Propoſition, if we did not conceive diſtinctly what it is *to be*, and what it is *to think*, and we are not to be aſked to explain thoſe Terms, ſince they are of the Number of thoſe which are ſo well underſtood by every Body, that it would be rendering them obſcure, to attempt to explain them. Therefore if it be undeniable that we have within us the Ideas of *Being* and of Thinking, I aſk through what Senſe they have entered? Are they luminous or coloured, to have entered through the Sight? Of a grave or acute Sound, to have entered through the Hearing? Of a good or bad Smell, to have entered through the Odorat? Of a good or bad Taſte, to enter through the Taſte? Cold or hot, hard or ſoft, to have entered through Feeling? If it be ſaid that they have been formed of other ſenſible Images, we ſhould be told likewiſe which are thoſe other ſenſible Images, whereof it is pretended that the Ideas of *Being* and Thinking have been formed, and how they have been formed of thoſe other ſenſible Images, if by Compoſition or Ampliation, or Diminution, or Proportion; if nothing reaſonable can be anſwered to all this, it muſt be concluded, that the *Ideas* of *Being* and Thinking draw, by no Means, their Origin from the Senſes; but that our Soul has of itſelf the Faculty to form them, though it happens often that it is excited to do it by ſomething that ſtrikes the Senſes: As a Painter can be excited to paint a Picture, by the Money promiſed to him, though it cannot be ſaid that the Picture draws its Origin from the Money.

Therefore it is falſe that our *Ideas* proceed from our Senſes, but it cannot be ſaid on the contrary, that none of the Ideas which are in our Mind, draws its Origin from the Senſes, unleſs occaſionally, in that the Motions made in our Mind, which is all our Senſes can do, gives Occaſion to the Soul to form ſeveral *Ideas*, which it would not form without, though almoſt always thoſe *Ideas* have nothing ſemblable to what paſſes in the Senſes and Brain, and there is beſides a very great Number of Ideas, which borrowing nothing from a corporal Image, cannot without a viſible Abſurdity be reported to our Senſes.

2. As to *Ideas conſidered according to their Objects.* All that we conceive is repreſented to our Mind, either as a Thing, or as the Manner of a Thing, or as a Thing modified.

I call *Thing*, what is conceived as ſubſiſting by itſelf, and as the Subject of all that's conceived in it: It is what is otherwiſe called Subſtance.

I call *Manner of Things*, or *Mode*, or *Attribute*, or *Quality*, what being conceived in the Thing, and as being not capable to ſubſiſt without it, determines it to be of a certain Manner, and makes it to be called ſuch.

I call *a Thing modified*, when the Subſtance is conſidered as determined by a certain Mode. This will be better underſtood by the following Examples.

When I conſider a Body, the *Idea* I have formed of it, repreſents to me a Thing or a Subſtance, becauſe I conſider it as a Thing which ſubſiſts by itſelf, and wants no other Subject to exiſt. But when I conſider that this Body is round, the *Idea* I have of the Roundneſs repreſents to me but a Manner of Being or a *Mode*, which I conceive cannot ſubſiſt naturally without the Body, whoſe Roundneſs it is. And laſtly, when joining the *Mode* with the Thing, I conſider it a round Body, that Idea repreſents to me a Thing modified.

The Names which ſerve to expreſs the Things, are called ſubſtantive and abſolute, as *Earth*, *Sun*, *Mind*, *God.* Thoſe likewiſe which firſt and directly ſignify the *Modes*, becauſe in that they have ſome Report with the Subſtances, are likewiſe called ſubſtantive and abſolute, as *Hardneſs*, *Heat*, *Juſtice*, *Prudence.*

The Names which ſignify the Things as modified, marking firſt and directly the Thing, though more confuſedly; and indirectly the *Mode*, though more diſtinctly,

ly, are called Adjective or Connotative, as *round*, *hard*, *just*, *prudent*.

But it must be observed, that our Mind being accustomed to know most of the Things as modified, because it seldom knows them but by the Accidents or Qualities which strike our Senses, it often divides the very Substance in its Essence, into two *Ideas*, one whereof it considers as Subject, and the other as Mode. Therefore though what is in God be God himself, he is notwithstanding, conceived as an infinite Being, and the Infinity considered as an Attribute of God, and the Being as the Subject of that Attribute. Thus Man is often considered as the Subject of the Humanity, *habens humanitatem*, and consequently as a Thing modified. And then the essential Attribute, which is the Thing itself, is taken for the Mode, because conceived as in a Subject. It is properly what we call Abstract of Substances, as *Humanity*, *Corporeity*, *Reason*.

It is notwithstanding necessary to know what is truly a *Mode*, and what is a *Mode* in Appearance only; because one of the principal Causes of our Errors, is to confound the *Modes* with the Substances, and the Substances with the Modes. Therefore it is of the Nature of a true Mode, that the Substance whereof it is the Mode, can be clearly and distinctly conceived without it; and that notwithstanding that Mode cannot be conceived, without conceiving at the same Time the Report it has to the Substance, and without which it cannot naturally exist. Not that a Mode cannot be conceived without having a distinct and express Attention to its Subject; but what shews that the Report to the Substance is included in the Mode, at least confusedly, is that that Report of the Mode cannot be denied without destroying the Idea one had of it: Whereas when we conceive two Things and two Substances, we cannot deny one of the other, without destroying the Ideas we had of each.

For Example, I can very well deny Prudence, without having a distinct Attention to a prudent Man, but I cannot conceive Prudence, in denying the Report it has to a Man, or other intelligent Nature who has that Virtue.

On the contrary, when I have considered all that belongs to an extended Substance, called Body, as the Extension, Figure, Mobility, Divisibility; and that on another Part I consider all this is agreeable to the Mind, and to a thinking Substance, as Thinking, Doubting, Remembring, Willing, Reasoning; I can deny of the extended Substance all that I conceive of the thinking Substance, without ceasing to conceive very distinctly the extended Substance, and all the other Attributes joined to it; and I can reciprocally deny of the thinking Substance, all that I have conceived of the extended Substance, without ceasing to conceive very distinctly all that I conceive in the thinking Substance. This shews that the Thought is not a Mode of the extended Substance, because the Extent, and all the Properties which follow it, can be denied of the Thought, without ceasing from conceiving well the Thought.

It may be observed on the Subject of the *Modes*, that there are some which may be called interior, because they are conceived in the Substance as round, square, *&c.* and others exterior, because taken from something which is not in the Substance, as loved, seen, desired, which are Names taken from the Actions of others; and it is what is called in the Schools *external Denominations*. That if those Words are drawn in whatever Manner Things are taken, they are called second Intentions; therefore to be Subject, to be Attribute, are second Intentions, because they are Manners under which are conceived the Things taken from the Action of the Mind, which has joined together two Ideas, in affirming one of the other.

It may be observed, besides, that there are *Modes* which may be called substantial, because they represent to us true Substances applied to other Substances, as *Modes* and Manners; *Cloathed*, *Armed*, are Modes of that Kind.

There are others which may be called simply real; and these are the true *Modes* which are not Substances, but Manner of the Substance.

Lastly, there are some which may be called Negative, because they represent the Substance with some Negative of some Mode, real or substantial.

If the Objects represented by those Ideas, whether of Substances or of Modes, are in Fact such as they are represented to us, they are called true; but if they are not such, they are false in the Manner they can be false; and it is what we call in the Schools, *Entia rationis*, which consist commonly in the Assemblage the Mind makes of two Ideas real in themselves, but which are not joined in Truth, to form of them one same Idea; as that which can be formed of a golden Mountain, is an *Ens rationis*, because formed of the two Ideas of a Mountain and of Gold, which they represent as united, though they be not truly so.

To this Consideration of the *Ideas*, according to their Objects, may be referred the ten *Categories* of *Aristotle*; since they are but diverse Classes to which that Philosopher wanted to reduce all the Objects of our Thoughts, by including all the *Substances* under the first, and all the *Accidents* under the nine others. These ten *Categories* are as follow:

I. The SUBSTANCE, which is either spiritual or corporeal, *&c.*

II. The QUANTITY, called *discrete*, when the Parts thereof are not joined, as Number; — *continued*, when they are joined; and then it is either successive, as Time and Motion; — or *permanent*, which is what is otherwise called Space, or the Extent in Length, Width and Depth; the Length alone making the Lines, the Length and Breadth the Surfaces, and all three together the Solids.

III. The QUALITY, of which *Aristotle* makes four Kinds: The *first*, contains the *Habits*, i. e. the Dispositions of the Mind or of the Body, acquired by repeated Acts, as *Sciences*, *Virtues*, *Vices*, *Dexterity in Painting*, *Writing*, *Dancing*, &c. The *second*, the *natural Powers*; such as the Faculties of the Soul and of the Body, as *Understanding*, *Will*, *Memory*, the *five Senses*, the *Power of Walking*. The *third*, the *sensible Qualities*; as *Hardness*, *Softness*, *Weight*, *Cold*, *Heat*, *Colours*, *Sounds*, *Smells*, and the *various Tastes*. The *fourth*, the *Form* and the *Figure*, which is the external Determination of the Quantity; as to be *round*, *square*, *spherical*, *cubick*.

IV. The RELATION, or Report of one Thing to another; as of *Father*, *Son*, *Master*, *Servant*, *King*, *Subject*; of the Power to its Object, of the Sight to what is visible; and all that marks Comparison; as *semblable*, *equal*, *greater*, *smaller*.

V. ACTION, either in itself, as *to dance*, *to walk*, *to know*, *to love*; or without itself, as *to beat*, *to cut*, *to break*, *to light*, *to heat*.

VI. PASSION, as *to be beaten*, *to be broken*, *to be lighted*, *to be heated*.

VII. WHERE, *i. e.* what is answered to the Questions which regard the Place; as to be at *London*, *Paris*, *in one's Closet*, *in one's Bed*, *in one's Chair*.

VIII. WHEN, *i. e.* what is answered to Questions which regard the Time; as, When did he live? A hundred Years ago: When was that done? Last *Monday*.

IX. The SITUATION, *to be sitting*, *standing*, *lying*, *before*, *behind*, *on the right*, *on the left*.

X. TO HAVE, *i. e.* to have something for Vestment, Ornament, Armour; as to be *cloathed*, *crowned*, *armed*.

These are the ten *Categories* of *Aristotle*, which are represented as so many Mysteries; though, to say Truth, it be a Thing of a very little Utility, and which not only serves but very little towards forming the Judgment, which is the End proposed by the true *Logic*, but which often proves very prejudicial to it, for two Reasons it is necessary to observe.

The first is, that the *Categories* are considered as a Thing founded on Reason and Truth, when as it is a Thing entirely arbitrary, and which has no other Foundation but the Imagination of a Man, which had no Authority to prescribe a Law to others, who have as much Right as he had to order in another Manner the Objects of their Thoughts, each according to his own Manner of Philosophising. And in Effect, some have included in the following Distich, all that is considered by a modern Philosophy, in all the Things of this World,

World, and which are called the modern *Categories*, viz.

Mens, mensura, quies, motus, positura, figura,
Sunt cum materiâ cunctarum exordia rerum.

That's to say, that those modern Philosophers persuade themselves, that one can account for the whole Nature, in considering in it only these seven Things or *Modes*. 1. *Mens*, the *Mind* or thinking Substance.—2. *Materia*, the *Body*, or extended Substance.—3. *Mensura*, the *Measure*, or the *Bigness* or *Smallness* of each Part of the Matter.—4. *Positura*, the *Situation* with Respect to one another.—5. *Figura*, their *Figure*.—6. *Motus* their *Motion*.—7. *Quies*, their *Repose*, or less Motion.

The second Reason which renders the Study of the *Categories* dangerous, is, that it accustoms Men to content themselves with Words, and to imagine that they know all Things, when they know nothing but certain arbitrary Words, which form in the Mind no clear and distinct Ideas of the Things.

A modern Author has very judiciously observed, that the Rules of the *Logic* of *Aristotle*, served only to prove to another what he knew already, but that the Art of *Lullus*, whose Attributes are the most ridiculous Things which could ever be imagined, served only to make one discourse without Judgment of Things which he knows nothing of. Ignorance is far preferable to that false Science, which makes one mistake his Ignorance for a profound Knowledge.

As to the *Ideas of Things, and Ideas of Signs*.—When an Object is considered in itself and in its proper Being, without carrying the Sight of the Mind to what it can represent, the Idea one has of it is an Idea of a Thing, as the Idea of the Earth, of the Sun. But when a certain Object is considered but as representing another, the Idea one has of it, is an *Idea of Sign*, and that first Object is called *Sign*, thus Maps and Pictures are considered. Therefore the *Sign* includes two Ideas, one the Things representing, and the other of the Thing represented; and its Nature consists in exciting the second by the first.

Several Divisions of *Signs* can be made, but we'll content ourselves with three of the most useful.

First there are *Signs* which are *certain*, called in *Greek* τεκμηρια, as Respiration is a *Sign* of the animal Life: And there are Signs which are only *probable*, called in *Greek* σημεια, as Paleness is but a *probable Sign* that a Woman is with Child.

Most of the temerary Judgments, proceed from that one to confound those two Sorts of Signs; and that one Effect is attributed to a certain Cause, though it can proceed from other Causes, and therefore is but a probable Sign of that Cause.

Secondly, there are *Signs* joined with the Things, as the Air of the Face, which is a *Sign* of the Motions of the Soul, is joined with those Motions which it signifies; the Symptoms, *Signs* of Maladies, are joined to those Maladies; and to make use of more noble Examples, the colomb Figure of the Holy Ghost is joined with the Holy Ghost, and the Ablution in Baptism, Figure of a spiritual Regeneration, is joined to that Regeneration.

There are also *Signs* separated from the Things, as the Sacrifices of the old Law, *Signs* of *Jesus Christ* sacrificed, were separated from what they represented.

This Division of Signs gives Room to establish the following Examples.

1. That one can never conclude precisely, neither from the Presence of the Sign to the Thing signified thereby, since there are Signs of Things absent; nor from the Presence of the *Sign*, to the Absence of the Thing signified, since there are *Signs* of Things present; 'tis therefore the particular Nature of the *Sign* which must direct our Judgment.

2. That though a Thing in one State cannot be the Sign of itself in that same State, since all Sign wants a Distinction between the Thing representing and the Thing represented; it is notwithstanding very possible that a Thing in a certain State represents itself in another State, as it is very possible that a Man in his Chamber represents himself preaching; and therefore the sole Distinction of State suffices between the Thing figurating and the Thing figurated; that's to say, that the same Thing can be in a certain State, the Thing figurating, and in the other the Thing figurated.

3. That it is very possible that the same Thing hides and discovers another Thing at the same Time; and therefore those who have said *that nothing appears by what hides it*, have advanced a Maxim which has very little Solidity; for as the same Thing can be at the same Time and the *Thing* and the *Sign*, it can hide as a Thing, what it discovers, as a Sign; thus hot Ashes, as a Thing, hide Fire, and, as a *Sign*, discover it: Thus the Forms borrowed by Angels covered them as *Things*, and discovered them as *Signs*.

4. It may be concluded, that it being the Nature of the *Sign* to excite in the Senses by the Idea of the Thing figurating, that of the Thing figurated, as long as that Effect subsists, *i. e.* as long as that double Idea is excited the *Sign* subsists, was even that Thing destroyed in its proper Nature; thus it is no Matter whether the Colours of the Rainbow, which God has taken for *Signs* that he would destroy no more the human Race by a Deluge, be real and true, provided our Senses have always the same Impression, and they make use of that Impression to conceive God's Promise.

The third *Division of Signs*, is, that there are natural ones, which in no Manner depend on Man's Fancy, as an Image, which appears in a Glass as a *natural Sign* of him it represents; and others which are of *Institution* only, whether they have a distant Report within the Thing figurated, or none at all. Thus Words are *Signs of Institution* of the Thoughts, and Characters of the Words. I'll explain in treating of the Propositions, an important Truth on this Sort of *Signs*, which is that, on some Occasions, the Things signified can be affirmed of them.

As to *Ideas considered according to their Composition or Simplicity*.—What we have already observed, *en passant*, that we can consider a *Mode*, without Reflection on the Substance of which it is a *Mode*, gives us Occasion to explain what is Abstraction of the Mind.

The Narrowness of our Mind hinders us from conceiving perfectly Things which are a little composed, but in considering them by Parts, and by the different Faces they can receive, it is what can be generally called to *know by Abstraction*. But as Things are variously composed, and some of them are composed of Parts really distinct, called *integrant Parts*, as the human Body, and the divers Parts of a Number; it is very easy then to conceive, that our Mind can apply itself to the Consideration of a Part, without considering the other, because those Parts are really distinct, and it is not even what is called *Abstraction*.

Or it is so useful to consider in those very Things rather the Parts separately than the whole, that without it, it is almost impossible to have a distinct Knowledge. For Example, how can the human Body be known, without dividing it into its similar and dissimilar Parts, and giving them all different Names? The whole Arithmetick is also founded on this; for there is no Art wanted to reckon the small Numbers, because the Mind can conceive them whole, and therefore the whole Art consists in reckoning by Parts, which cannot be reckon'd by the whole, as it would be impossible how great soever could be the Extent of our Mind, to multiply two Numbers of 8 or 9 Carats each, in taking them whole.

The second Knowledge by Parts is, when one considers a Mode without the least Attention to the Substance, or two Modes joined together in one same Substance, in considering each of them a-part. It is what the Geometers do, who have taken for Object of their Science, the Body extended in Length, Breadth, and Depth. For to acquire a more perfect Knowledge thereof, they have first applied themselves to consider it according to one single Dimension, which is the Length, to which they have given the Name of *Line*. They have consider'd it afterwards according to two Dimensions, the Length and the Breadth, and have called it *Surface*. And then considering all the three Dimensions together, *viz.* the Length, Breadth, and Depth, they have called it *Solid* or *Body*.

We see thereby how ridiculous is the Argument of some

ſome Scepticks, who would have us queſtion the Certainty of Geometry, becauſe it ſuppoſes Lines and Surfaces which are not in Nature; for Geometers do not ſuppoſe, that there are Lines without Breadth, or Surfaces without Depth; but they ſuppoſe only that one may conſider Length, without any Attention to Breadth, which is indubitable; as when one meaſures the Diſtance from one City to another, he meaſures but the Length of the Road, without any Regard to the Breadth.

Therefore the more we can ſeparate Things into divers Modes, the more the Mind becomes capable to know them well. And thus we ſee, that as long as the Determination towards ſome Place, and even of divers Parts in the ſame Determination, has not been diſtinguiſhed in the Motion, we have never been capable to account clearly for the Reflection, and Refraction; which is eaſily done by that Diſtinction.

The third Manner of conceiving Things by *Abſtraction*, is, when the ſame Thing having various Attributes, we think of one without thinking of the other, though there be between them but a Diſtinction of Reaſon, and this is done thus. If I reflect, for Example, that I think, and that conſequently I am the Perſon that think, I can apply myſelf to the Conſideration of a thinking Thing, without any Attention that I am the Perſon that thinks, though in me, I, and the thinking Perſon is but the ſame Thing: And therefore the Idea I ſhall conceive of a Perſon who thinks, will repreſent not only myſelf, but likewiſe all the other Perſons that think. Likewiſe having drawn on a Paper an equilateral Triangle, if I apply myſelf to conſider it in the Place wherein it is, with all the Accidents whereby it is determined, I ſhall have the Idea but of a ſingle Triangle; but if I withdraw my Mind from the Conſideration of all thoſe particular Circumſtances, and apply it only to think that it is a Figure terminated by three equal Lines, the Idea I'll form of it to myſelf, ſhall on one Part repreſent more clearly that Equality of Lines, and on the other will be capable to repreſent to me all the equilateral Triangles: That if I proceed further, and without fixing myſelf to that Equality of Lines, I conſider only that it is a Figure terminated by three right Lines, I form an Idea to myſelf which can repreſent all Sorts of Triangles. If afterwards, without any Regard to the Number of Lines, I conſider only that it is a flat Surface, terminated by right Lines, the Idea I'll form of it will be capable to repreſent all the rectiline Figures; and thus I can aſcend by degrees to Extenſion. In theſe *Abſtractions* it is always ſeen, that the inferior Degree contains the ſuperior, with ſome particular Determination; but that the ſuperior Degree being leſs determined can repreſent more Things.

Laſtly, it is clear that by thoſe Sorts of *Abſtractions*, the ſingular Ideas become common, and the Commons more common; which procures me the Occaſion of ſpeaking of Ideas conſidered according to their *Univerſality* or *Particularity*.

As to *Ideas conſidered according to their Generality, Particularity, and Singularity.*—Though all the Things which have an Exiſtence be ſingular, notwithſtanding, by means of the Abſtractions above-mentioned, we have all ſeveral Ideas, ſome of which repreſent to us but one ſingle Thing, as the Idea every one has of himſelf; and the others can equally repreſent ſeveral, as when any body conceives a Triangle, without conſidering any Thing elſe in it, but that it is a Figure with three Lines and three Angles, the Idea he has formed of it, can ſerve him to conceive all the other Triangles.

The *Ideas* which repreſent but one Thing, are called *ſingular* or *individual*, and what they repreſent *Individuals*; and thoſe which repreſent ſeveral Things, are called *univerſal*, *common*, *general*.

The Names which ſerve to denote the firſt Kind of *Ideas* are called *proper*, as *Socrates*, *Rome*, *Bucephalus*, and thoſe which ſerve to mark the laſt, *common* and *appellative*, as *Man*, *City*, *Horſe*; and both the *univerſal Ideas*, and the *common Names* may be called *general Terms*.

But it muſt be obſerved that Words are *general* in two Manners; one called *univocal*, which is when they are joined with general Ideas; ſo that the ſame Word is agreeable to ſeveral, as well according to the Sound, as according to the ſame Idea, ſuch are the Words above-mentioned of *Man*, *City*, and *Horſe*.

The other called *Equivocal*, which is when the ſame Sound is join'd by us to different *Ideas*; thus the Word *Cannon* ſignifies a warlike Inſtrument, and *Canon* a Decree of a Council; though it ſignifies them but according to different *Ideas*.

This *Equivocal Univerſality*, is, notwithſtanding, of two Kinds. For the different *Ideas* joined to the ſame Sound, either have no natural Report between themſelves, as in the Word *Canon*, or have ſome Report, as when a Word being particularly joined to an *Idea*, is joined to another, but becauſe it has a Report of Cauſe, or of Effect, or of Sign, or of Similitude to the firſt; and then thoſe Sort of *Equivocal Words*, are called *Analogous*; as when the Word *wholeſome* is attributed to an Animal, to the Air, and to Food; for the *Idea* join'd to that Word, is principally *Health*, which only is agreeable to Animals, but another *Idea* is joined to it, very little different from that, which is to be the *Cauſe of Health*, which makes us ſay the *Air is wholeſome*, the *Meat is wholeſome*, becauſe they ſerve to preſerve *Health*.

But when we ſpeak here of *general Words*, we underſtand the *Equivocal* joined to univerſal and general *Ideas*: And in thoſe univerſal *Ideas*, two Things are to be conſidered, *viz. Comprehenſion* and *Extenſion*.

I call *Comprehenſion of the Idea*, the Attributes contained in that *Idea*, and which cannot be taken from it, without deſtroying it entirely; as the *Comprehenſion* of the *Idea* of the Triangle, includes Extenſion, Figure, three Lines, three Angles, and the Equality of thoſe three Angles, to two Rights, *&c.*

I call *Extenſion of the Idea*, the Subjects to which that *Idea* is agreeable, called alſo, Inferiors of a general Term, which to their Regard is called Superior, as the *Idea* of a Triangle in general, extends itſelf to all the different Sorts of Triangles.

But though the *general Idea* extends itſelf, without Diſtinction to all the Subjects agreeable to it, *i. e.* to all its Inferiors, and the common Name ſignifies them all, there is, notwithſtanding, this Difference between the Attributes it contains, and the Subjects to which it extends itſelf, that none of its Attributes can be taken from it without deſtroying it, as we have already obſerved, when as it can be confined, as to its Extenſion, by applying it only to ſome of the Subjects to which it is agreeable, without any Detriment happening to it.

This *Reſtriction* of the general *Idea*, as to its Extenſion, can be made in two Manners.—The firſt is by another diſtinct and determinate *Idea* joined to it; as when to the general *Idea* of the Triangle I join that of its having a right Angle, which confines that *Idea* to a ſingle Kind of Triangle, which is the Triangle rectangle. The other in joining to it only an indiſtinct and indeterminate Idea, as when I ſay, ſome Triangle; and it is ſaid then, that the common Term becomes particular, becauſe it extends no farther than to a Part of the Subjects, it extended before; without having determined, notwithſtanding, which is the Part to which it is confined.

As to the five Kinds of univerſal Ideas, *Genders*, *Species*, *Differences*, *Propers*, and *Accidents*. What I have ſaid already of *Ideas*, helps me towards explaining, in few Words, the *five Univerſals*, commonly treated in the Schools.

Note, That the Invention of theſe *five Univerſals*, is attributed to *Porphyrius*, by Birth a *Jew*, born at *Tyre*, and an Apoſtate of the Chriſtian Religion, by Profeſſion a Philoſopher, of the Sect of the *Platonicians*, *Photinus*'s Diſciple, Con-Diſciple of *Origen*, and Preceptor of *Iamblicus*. He wrote his *Iſagoge*, which contain the *five Univerſals*, for the Inſtruction of a *Roman* Youth, called *Chryſaorgius*, and a Pagan, about *Dioclesian*'s Time. However he is to be eſteemed for having freed the *Logic*, of the vain and uſeleſs Queſtions of the antient Sophiſts, viz. *Whether the Genders and Species conſiſt in the Nature of Things, or if they be placed only in the mere Imagination.*

Porphy-

World, and which are called the modern *Categories*, viz.

Mens, mensura, quies, motus, positura, figura,
Sunt cum materiâ cunctarum exordia rerum.

That's to say, that those modern Philosophers persuade themselves, that one can account for the whole Nature, in considering in it only these seven Things or *Modes*. 1. *Mens*, the *Mind* or thinking Substance.—2. *Materia*, the *Body*, or extended Substance.—3. *Mensura*, the *Measure*, or the *Bigness* or *Smallness* of each Part of the Matter.—4. *Positura*, the *Situation* with Respect to one another.—5. *Figura*, their *Figure*.—6. *Motus* their *Motion*.—7. *Quies*, their *Repose*, or less Motion.

The second Reason which renders the Study of the *Categories* dangerous, is, that it accustoms Men to content themselves with Words, and to imagine that they know all Things, when they know nothing but certain arbitrary Words, which form in the Mind no clear and distinct Ideas of the Things.

A modern Author has very judiciously observed, that the Rules of the *Logic* of *Aristotle*, served only to prove to another what he knew already, but that the Art of *Lullus*, whose Attributes are the most ridiculous Things which could ever be imagined, served only to make one discourse without Judgment of Things which he knows nothing of. Ignorance is far preferable to that false Science, which makes one mistake his Ignorance for a profound Knowledge.

As to the *Ideas of Things, and Ideas of Signs*.—When an Object is considered in itself and in its proper Being, without carrying the Sight of the Mind to what it can represent, the Idea one has of it is an Idea of a Thing, as the Idea of the Earth, of the Sun. But when a certain Object is considered but as representing another, the Idea one has of it, is an *Idea of Sign*, and that first Object is called *Sign*, thus Maps and Pictures are considered. Therefore the *Sign* includes two Ideas, one the Things representing, and the other of the Thing represented; and its Nature consists in exciting the second by the first.

Several Divisions of *Signs* can be made, but we'll content ourselves with three of the most useful.

First there are *Signs* which are *certain*, called in *Greek* τεκμηρια, as Respiration is a *Sign* of the animal Life: And there are Signs which are only *probable*, called in *Greek* σημεια, as Paleness is but a *probable Sign* that a Woman is with Child.

Most of the temerary Judgments, proceed from that one to confound those two Sorts of Signs; and that one Effect is attributed to a certain Cause, though it can proceed from other Causes, and therefore is but a probable Sign of that Cause.

Secondly, there are *Signs* joined with the Things, as the Air of the Face, which is a *Sign* of the Motions of the Soul, is joined with those Motions which it signifies; the Symptoms, *Signs* of Maladies, are joined to those Maladies; and to make use of more noble Examples, the colomb Figure of the Holy Ghost is joined with the Holy Ghost, and the Ablution in Baptism, Figure of a spiritual Regeneration, is joined to that Regeneration.

There are also *Signs* separated from the Things, as the Sacrifices of the old Law, *Signs* of *Jesus Christ* sacrificed, were separated from what they represented.

This Division of Signs gives Room to establish the following Examples.

1. That one can never conclude precisely, neither from the Presence of the Sign to the Thing signified thereby, since there are Signs of Things absent; nor from the Presence of the *Sign*, to the Absence of the Thing signified, since there are *Signs* of Things present; 'tis therefore the particular Nature of the *Sign* which must direct our Judgment.

2. That though a Thing in one State cannot be the Sign of itself in that same State, since all Sign wants a Distinction between the Thing representing and the Thing represented; it is notwithstanding very possible that a Thing in a certain State represents itself in another State, as it is very possible that a Man in his Chamber represents himself preaching; and therefore the sole Distinction of State suffices between the Thing figurating and the Thing figurated; that's to say, that the same Thing can be in a certain State, the Thing figurating, and in the other the Thing figurated.

3. That it is very possible that the same Thing hides and discovers another Thing at the same Time; and therefore those who have said *that nothing appears by what hides it*, have advanced a Maxim which has very little Solidity; for as the same Thing can be at the same Time and the *Thing* and the *Sign*, it can hide as a Thing, what it discovers, as a Sign; thus hot Ashes, as a Thing, hide Fire, and, as a *Sign*, discover it: Thus the Forms borrowed by Angels covered them as *Things*, and discovered them as *Signs*.

4. It may be concluded, that it being the Nature of the *Sign* to excite in the Senses by the Idea of the Thing figurating, that of the Thing figurated, as long as that Effect subsists, *i. e.* as long as that double Idea is excited the *Sign* subsists, was even that Thing destroyed in its proper Nature; thus it is no Matter whether the Colours of the Rainbow, which God has taken for *Signs* that he would destroy no more the human Race by a Deluge, be real and true, provided our Senses have always the same Impression, and they make use of that Impression to conceive God's Promise.

The third *Division of Signs*, is, that there are natural ones, which in no Manner depend on Man's Fancy, as an Image, which appears in a Glass as a *natural Sign* of him it represents; and others which are of *Institution* only, whether they have a distant Report within the Thing figurated, or none at all. Thus Words are *Signs of Institution* of the Thoughts, and Characters of the Words. I'll explain in treating of the Propositions, an important Truth on this Sort of *Signs*, which is that, on some Occasions, the Things signified can be affirmed of them.

As to *Ideas considered according to their Composition or Simplicity*.—What we have already observed, *en passant*, that we can consider a *Mode*, without Reflection on the Substance of which it is a *Mode*, gives us Occasion to explain what is Abstraction of the Mind.

The Narrowness of our Mind hinders us from conceiving perfectly Things which are a little composed, but in considering them by Parts, and by the different Faces they can receive, it is what can be generally called to *know by Abstraction*. But as Things are variously composed, and some of them are composed of Parts really distinct, called *integrant Parts*, as the human Body, and the divers Parts of a Number; it is very easy then to conceive, that our Mind can apply itself to the Consideration of a Part, without considering the other, because those Parts are really distinct, and it is not even what is called *Abstraction*.

Or it is so useful to consider in those very Things rather the Parts separately than the whole, that without it, it is almost impossible to have a distinct Knowledge. For Example, how can the human Body be known, without dividing it into its similar and dissimilar Parts, and giving them all different Names? The whole Arithmetick is also founded on this; for there is no Art wanted to reckon the small Numbers, because the Mind can conceive them whole, and therefore the whole Art consists in reckoning by Parts, which cannot be reckon'd by the whole, as it would be impossible how great soever could be the Extent of our Mind, to multiply two Numbers of 8 or 9 Carats each, in taking them whole.

The second Knowledge by Parts is, when one considers a Mode without the least Attention to the Substance, or two Modes joined together in one same Substance, in considering each of them a-part. It is what the Geometers do, who have taken for Object of their Science, the Body extended in Length, Breadth, and Depth. For to acquire a more perfect Knowledge thereof, they have first applied themselves to consider it according to one single Dimension, which is the Length, to which they have given the Name of *Line*. They have consider'd it afterwards according to two Dimensions, the Length and the Breadth, and have called it *Surface*. And then considering all the three Dimensions together, *viz.* the Length, Breadth, and Depth, they have called it *Solid* or *Body*.

We see thereby how ridiculous is the Argument of some

ſome Scepticks, who would have us queſtion the Certainty of Geometry, becauſe it ſuppoſes Lines and Surfaces which are not in Nature; for Geometers do not ſuppoſe, that there are Lines without Breadth, or Surfaces without Depth; but they ſuppoſe only that one may conſider Length, without any Attention to Breadth, which is indubitable; as when one meaſures the Diſtance from one City to another, he meaſures but the Length of the Road, without any Regard to the Breadth.

Therefore the more we can ſeparate Things into divers Modes, the more the Mind becomes capable to know them well. And thus we ſee, that as long as the Determination towards ſome Place, and even of divers Parts in the ſame Determination, has not been diſtinguiſhed in the Motion, we have never been capable to account clearly for the Reflection, and Refraction; which is eaſily done by that Diſtinction.

The third Manner of conceiving Things by *Abſtraction*, is, when the ſame Thing having various Attributes, we think of one without thinking of the other, though there be between them but a Diſtinction of Reaſon, and this is done thus. If I reflect, for Example, that I think, and that conſequently I am the Perſon that think, I can apply myſelf to the Conſideration of a thinking Thing, without any Attention that I am the Perſon that thinks, though in me, I, and the thinking Perſon is but the ſame Thing: And therefore the Idea I ſhall conceive of a Perſon who thinks, will repreſent not only myſelf, but likewiſe all the other Perſons that think. Likewiſe having drawn on a Paper an equilateral Triangle, if I apply myſelf to conſider it in the Place wherein it is, with all the Accidents whereby it is determined, I ſhall have the Idea but of a ſingle Triangle; but if I withdraw my Mind from the Conſideration of all thoſe particular Circumſtances, and apply it only to think that it is a Figure terminated by three equal Lines, the Idea I'll form of it to myſelf, ſhall on one Part repreſent more clearly that Equality of Lines, and on the other will be capable to repreſent to me all the equilateral Triangles: That if I proceed further, and without fixing myſelf to that Equality of Lines, I conſider only that it is a Figure terminated by three right Lines, I form an Idea to myſelf which can repreſent all Sorts of Triangles. If afterwards, without any Regard to the Number of Lines, I conſider only that it is a flat Surface, terminated by right Lines, the Idea I'll form of it will be capable to repreſent all the rectiline Figures; and thus I can aſcend by degrees to Extenſion. In theſe *Abſtractions* it is always ſeen, that the inferior Degree contains the ſuperior, with ſome particular Determination; but that the ſuperior Degree being leſs determined can repreſent more Things.

Laſtly, it is clear that by thoſe Sorts of *Abſtractions*, the ſingular Ideas become common, and the Commons more common; which procures me the Occaſion of ſpeaking of Ideas conſidered according to their *Univerſality* or *Particularity*.

As to *Ideas conſidered according to their Generality, Particularity, and Singularity.*—Though all the Things which have an Exiſtence be ſingular, notwithſtanding, by means of the Abſtractions above-mentioned, we have all ſeveral Ideas, ſome of which repreſent to us but one ſingle Thing, as the Idea every one has of himſelf; and the others can equally repreſent ſeveral, as when any body conceives a Triangle, without conſidering any Thing elſe in it, but that it is a Figure with three Lines and three Angles, the Idea he has formed of it, can ſerve him to conceive all the other Triangles.

The *Ideas* which repreſent but one Thing, are called *ſingular* or *individual*, and what they repreſent *Individuals*; and thoſe which repreſent ſeveral Things, are called *univerſal*, *common*, *general*.

The Names which ſerve to denote the firſt Kind of *Ideas* are called *proper*, as *Socrates*, *Rome*, *Bucephalus*, and thoſe which ſerve to mark the laſt, *common* and *appellative*, as *Man*, *City*, *Horſe*; and both the *univerſal Ideas*, and the *common Names* may be called *general Terms*.

But it muſt be obſerved that Words are *general* in two Manners; one called *univocal*, which is when they are joined with general Ideas; ſo that the ſame Word is agreeable to ſeveral, as well according to the Sound, as according to the ſame Idea, ſuch are the Words above-mentioned of *Man*, *City*, and *Horſe*.

The other called *Equivocal*, which is when the ſame Sound is join'd by us to different *Ideas*; thus the Word *Cannon* ſignifies a warlike Inſtrument, and *Canon* a Decree of a Council; though it ſignifies them but according to different *Ideas*.

This *Equivocal Univerſality*, is, notwithſtanding, of two Kinds. For the different *Ideas* joined to the ſame Sound, either have no natural Report between themſelves, as in the Word *Canon*, or have ſome Report, as when a Word being particularly joined to an *Idea*, is joined to another, but becauſe it has a Report of Cauſe, or of Effect, or of Sign, or of Similitude to the firſt; and then thoſe Sort of *Equivocal Words*, are called *Analogous*; as when the Word *wholeſome* is attributed to an Animal, to the Air, and to Food; for the *Idea* join'd to that Word, is principally *Health*, which only is agreeable to Animals, but another *Idea* is joined to it, very little different from that, which is to be the *Cauſe of Health*, which makes us ſay the *Air is wholeſome*, the *Meat is wholeſome*, becauſe they ſerve to preſerve *Health*.

But when we ſpeak here of *general Words*, we underſtand the *Equivocal* joined to univerſal and general *Ideas*: And in thoſe univerſal *Ideas*, two Things are to be conſidered, *viz. Comprehenſion* and *Extenſion*.

I call *Comprehenſion of the Idea*, the Attributes contained in that *Idea*, and which cannot be taken from it, without deſtroying it entirely; as the *Comprehenſion* of the *Idea* of the Triangle, includes Extenſion, Figure, three Lines, three Angles, and the Equality of thoſe three Angles, to two Rights, *&c.*

I call *Extenſion of the Idea*, the Subjects to which that *Idea* is agreeable, called alſo, Inferiors of a general Term, which to their Regard is called Superior, as the *Idea* of a Triangle in general, extends itſelf to all the different Sorts of Triangles.

But though the *general Idea* extends itſelf, without Diſtinction to all the Subjects agreeable to it, *i. e.* to all its Inferiors, and the common Name ſignifies them all, there is, notwithſtanding, this Difference between the Attributes it contains, and the Subjects to which it extends itſelf, that none of its Attributes can be taken from it without deſtroying it, as we have already obſerved, when as it can be confined, as to its Extenſion, by applying it only to ſome of the Subjects to which it is agreeable, without any Detriment happening to it.

This *Reſtriction* of the general *Idea*, as to its Extenſion, can be made in two Manners.—The firſt is by another diſtinct and determinate *Idea* joined to it; as when to the general *Idea* of the Triangle I join that of its having a right Angle, which confines that *Idea* to a ſingle Kind of Triangle, which is the Triangle rectangle. The other in joining to it only an indiſtinct and indeterminate Idea, as when I ſay, ſome Triangle; and it is ſaid then, that the common Term becomes particular, becauſe it extends no farther than to a Part of the Subjects, it extended before; without having determined, notwithſtanding, which is the Part to which it is confined.

As to the five Kinds of univerſal Ideas, *Genders*, *Species*, *Differences*, *Propers*, and *Accidents*. What I have ſaid already of *Ideas*, helps me towards explaining, in few Words, the *five Univerſals*, commonly treated in the Schools.

Note, That the Invention of theſe *five Univerſals*, is attributed to *Porphyrius*, by Birth a *Jew*, born at *Tyre*, and an Apoſtate of the Chriſtian Religion, by Profeſſion a Philoſopher, of the Sect of the *Platonicians*, *Photinus*'s Diſciple, Con-Diſciple of *Origen*, and Preceptor of *Iamblicus*. He wrote his *Iſagoge*, which contain the *five Univerſals*, for the Inſtruction of a *Roman* Youth, called *Chryſaorgius*, and a Pagan, about *Dioclesian*'s Time. However he is to be eſteemed for having freed the *Logic*, of the vain and uſeleſs Queſtions of the antient Sophiſts, viz. *Whether the Genders and Species conſiſt in the Nature of Things, or if they be placed only in the mere Imagination.*

Porphyrius anſwering the firſt Part of that Queſtion in the Affirmative, and the laſt in the Negative: But to proceed:

When the *general Ideas* repreſent to us the Objects as Things, and they are denoted by Terms, called Subſtantive, or abſolute, they are called *Genders*, or *Species*.

They are called GENDERS, when they are ſo common, that they extend themſelves to other *Ideas*, which are ſtill *univerſal*, as *Animal* is a *Gender*, with Reſpect to Men and Beaſt; and the *Quadilatere*, with Reſpect to the Parallelogram and Trapazium: The Subſtance is a *Gender*, with Reſpect to the extended Subſtance, called Body, and to the thinking Subſtance, called Mind.

To explain the Eſſence or Nature of ſome Thing, not only that Part which it has in common with others is to be mention'd, but likewiſe, that particular Part whereby it differs from others. For Example, to explain Man's Nature, he muſt not only be called *Animal*, which he has in common with the Beaſts, but *Rational* is to be added to it, whereby he differs from them. Thus a Triangle is not only a Figure, but a Figure contained in three Lines. And this particular Part, which together with the *Gender*, eſtabliſhes the Specie, is called *Difference*, of which hereafter.

The common *Ideas*, which are under one more common and more general, are called *Species*, as the Parallelogram and Trapezium are *Species* of the *Quadrilatere*; the Body and the Mind are *Species* of the *Subſtance*. And thus the ſame *Idea* may be *Gender*, when compared with the Ideas to which it extends; and *Species* when compared with another which is more general, as *Body*, which is a *Gender* with Reſpect to the animated and unanimated Body; and a *Species* with Regard to the Subſtance: And the *Quadrilatere* which is a *Gender* with Reſpect to the Parallelogram and Trapezium, and a *Species* with Regard to the Figure.

But there is another Notion of the Word *Species*, which is appropriated only to the *Ideas*, which cannot be *Genders*; and is when an *Idea* has none but Individuals and Singulars, under itſelf, as the Circle has under itſelf but ſingular Circles, which are all of the ſame Specie. It is what we call *Species infima*. And there is a *Gender* which is not a *Species*, viz. the Supreme of all *Genders*, whether that *Gender* be the Being or the Subſtance, which is not very important to know.

I have ſaid, that the *general Ideas*, which repreſent to us their Objects as Things, are called *Genders* or *Species*; for it is not neceſſary that the Objects of thoſe *Ideas* be effectually in the Things and Subſtances; but it ſuffices, that we conſider them as Things, in that when even they are Modes, they are not reported to their Subſtances, but to other leſs general, or more general *Ideas* of Modes, as the Figure which is but a Mode with Regard to the Body figurated, is a *Gender*, with Regard to the Curvi-line, Recti-line, *&c.* Figures.

On the contrary, the *Ideas* which repreſent to us their Objects as modified Things, or mark'd by adjective or connotative Terms, if they be compared with the Subſtances which thoſe connotative Terms ſignify confuſedly, though directly, whether, in Truth thoſe connotative Terms ſignify the eſſential Attributes, which are in fact but the Thing itſelf, or ſignify true *Modes*, they are called then, neither *Genders* nor *Species*, but either *Differences*, *Propers*, or *Accidents*.

They are called *Differences*, when the Object of thoſe *Ideas* is an eſſential Attribute, which diſtinguiſhes a *Species* from another; as *extended*, *heavy*, *reaſonable*.

They are called *Propers*, when their Object is an Attribute, which belongs in fact to the Eſſence of the Thing; but which is not the firſt conſidered in that Eſſence, but only a Dependency of that firſt, as *diviſible*, *immortal*, *docile*. And,

They are called *Common Accidents*, when their Object is a true Mode which can be ſeparated, at leaſt by the Mind, from the Thing of which it is ſaid an Accident; without the Idea of that Thing being deſtroyed in our Mind, as *round*, *hard*, *juſt*, *prudent*.—It is what I muſt explain in a more particular Manner.

As to the Difference.— When a *Gender* has two *Species*, the Idea of each *Species* muſt neceſſarily contain ſomething which is not contained in the Idea of the *Gender*. Otherwiſe, if each ſhould contain only but what is contained in the *Gender*, it would be nothing elſe but the *Gender*; as the *Gender* is agreeable to each *Species*, each *Species* would be agreeable to the other. Therefore the firſt eſſential Attribute, which each *Species* contains more than the *Gender*, is called its *Difference*, and the Idea we have of it, is an univerſal Idea, becauſe one and the ſame Idea can repreſent that *Difference* wherever it is found, *i. e.* in all the Inferiors of the *Species*. For Example, the Body and the Mind are two different *Species* of the Subſtance; there muſt be then ſomething more in the Idea of the Body, than in that of the Subſtance, and the ſame in that of the Mind. But the firſt Thing we ſee more in the Body is the Extenſion, and the firſt Thing we ſee more in the Mind is the Thought; and thus the Extenſion will be the Difference of the Body, and the Thought the Difference of the Mind; that is to ſay, that the Body will be an extended Subſtance, and the Mind a thinking Subſtance.

Whence we can ſee, 1. That the *Difference* has two Reſpects, one to the *Gender* and the other to the *Species*, which it eſtabliſhes and forms, making the principal Part of what is included in the Idea of the Species, according to its Compreheſion. Whence it happens, that all Species can be expreſſed by one Name only, as *Mind*, *Body*, &c. or by two Words, *viz.* by that of the *Gender*, and by that of its *Difference* joined together, which is called *Definition*, as *thinking Subſtance*, *extended Subſtance*.

It can be ſeen in the ſecond Place, that ſince the Difference conſtitutes the Species, and diſtinguiſhes it from other Species, it muſt have the ſame Extent of the Species, and therefore that they ſhould be ſaid reciprocally of one another, as *all that thinks is Mind*, and *all that's Mind thinks*.

It notwithſtanding happens very often, that in ſome certain Things no ſuch Attrribute is ſeen, as to belong to a Species alone, and excluſive of all other Species; and then ſeveral Attributes are joined together, the Aſſemblage thereof being found only in that Species, conſtitutes its Difference. Thus the *Platonicians* taking the Devils for reaſonable Animals, as well as Men, could not find that the Difference of reaſonable was reciprocal to Man, ſince it belongs to Beaſts likewiſe, but both together belong to Man alone; and it is what we do in the Idea we form to ourſelves of moſt of the Animals.

Laſtly, it muſt be obſerved, that it is not always neceſſary, that the two *Differences* which divide a *Gender*, be both poſitive; but one of them muſt be poſitive, as two Men are diſtinguiſhed from one another, if one of them has an Employment which the other has not; though he who has no Employment has nothing but what the other hath. It is thus that Man is diſtinguiſhed from Beaſts in general, in that Man is an Animal which has a Mind, *Animal mente præditum*; and the Beaſt is a pure Animal, *Animal merum*; for the Idea of Beaſt in general, hath nothing poſitive, but what is in Man, but the Negation of what is in Man, *viz.* the Mind, is only added to it. So that all the *Difference* between the Idea of Animal and that of Beaſt, is, that the Idea of Animal includes not Thought in its Comprehenſion, neither doth it exclude it, but even includes it in its Extent, becauſe it belongs to a thinking Animal; when as the Idea of Beaſt excludes it in its Comprehenſion, and therefore cannot belong to a thinking Animal.

As to Proper.—When we have found the *Difference* which conſtitutes a *Species*, viz. its principal eſſential Attribute whereby it is diſtinguiſhed from all other *Species*, if conſidering more particularly its Nature, we found in it beſides ſome Attribute neceſſarily joined with that firſt Attribute, and which conſequently belongs to that whole *Specie*, and to that *Specie* alone, we call it *Property*; and being ſignified by a connotative Term, we attribute it to the *Species* as its Proper, and becauſe it is alſo agreeable to all the Inferiors of the *Specie*, and that the ſingle Idea we have once formed of it can repreſent that Property whenever it is found; there has been made of it the fourth of the *common* and *univerſal Terms*. For Example, to have a right Angle is the eſſential Difference of a Triangle Rectangle. And becauſe it is a neceſſary Dependency of the right Angle, that the Square of the Side which ſupports it, be equal to the Squares of the two Sides which contain it, the Equality

Equality of those Squares is considered as the Property of the triangle Rectangle, which belong to all triangles Rectangle, and only belong to them.

Which notwithstanding, that Name *Proper*, has been sometimes extended further, and four *Species* have been made of it.

The first is that which I have already explained, *Quod convenit omni soli & semper*, as it is the Proper of a Circle, and of a Circle alone, and always, that the Lines drawn from the Center to the Circumference be equal.

The second, *Quod convenit omni, sed non soli*, as it is said that it is the *Proper* of the Extension to be divisible, because all extended Bodies can be divided, though Duration, Number, *&c.* can also be divided.

The third is, *Quod convenit soli, sed non omni*, as it belongs to Man to be a Physician or a Philosopher, tho' all Men are not such.

The fourth, *Quod convenit omni & soli, sed non semper*, as the Faculty of reasoning belongs to all Men, and to Men alone, and always.

As to Accident.—We have already observed that what could exist naturally no otherwise than by the Substance, and was not necessarily joined with the Idea of a Thing, was called *Mode*, so that the Thing may be very well conceived without conceiving the *Mode*, as one can very well conceive a Man without conceiving him prudent; but Prudence cannot be conceived without conceiving either a Man, or another intelligent Nature, which should be prudent.

Therefore when a confuse and indeterminate Idea of Substance is joined with a distinct Idea of some *Mode*, that Idea will be capable to represent all the Things where that Mode can be, as the Idea of *Prudence*, all prudent Men, the Idea of *round*, all round Bodies; and then that Idea expressed by a connotative Term, *prudent*, *round*, is what makes the *fifth Universal*, called *Accident*, because not essential to the Thing to which it is attributed; for if it was, it would be either *Difference* or *Proper*.

But it must be observed here, as I have said already, that when one considers two Substances together, one of them may be considered as the Mode of the other. Thus a Man cloathed can be considered as a Whole composed of that Man and of his Cloaths; but to be cloathed with Regard to that Man is only a Mode, or a Manner of Being, under which he is considered, though his Cloaths be Substances. Therefore to be cloathed is but a *fifth Universal*.

This is more than sufficient with Regard to the *five Universals* treated so amply in the Schools. For it is of very little Use to know if there be *Genders*, *Species*, *Differences*, *Properties*, and *Accidents*; but the Importance is to know the true *Genders* of the Things, the true *Species* of each Gender, their true *Differences*, their true *Properties*, and the *Accidents* belonging to them, and it is what I'll elucidate in a still clearer Manner, after I have said something of the *complex Terms*.

As to complex Terms, and their Universality or Particularity.—Sometimes to a Term are joined several others which compose in our Mind a total Idea, of which it often happens one can affirm or deny, which could not be affirmed or denied of each of those Terms, if separated: For Example, these are Terms complex, *a prudent Man*, *a transparent Body*, *Alexander Son of Philip*.

This Addition is sometimes made by the relative Pronoun, as if I say, *a Body which is transparent*, *Alexander who is Son of Philip*, &c. And it can even be said that if that Relative is not always expressed, it is always in some Manner understood, because it can be expressed, if one will, without changing the Proposition. For it is the same Thing to say a transparent Body, and a Body which is transparent.

What is the most remarkable in these complex Terms, is, that the Addition made to a Term is of two Sorts; one which can be called *Explication*, and the other *Determination*.

That Addition may be called only *Explication*, when it only unfolds either what is included in the Comprehension of the Idea of the first Term, or at least what belongs to it as one of its Accidents; provided it is agreeable to it in general, and in all its Extent, as if I say, *Man who is an Animal indued with Reason*, or *Man who desires naturally to be happy*, or *Man who is mortal*. These Additions are only Explications, because they do not at all change the Idea of the Word Man, nor confines it to signify nothing but one Part of Men, but marks only what is convenient to all Men.

All the Additions added to Names which mark distinctly an Individual, are of that Sort; as when one says, *George, one of the greatest Captains in the World*, *Frederick, the Titus of the Age*, *Harrington, a great Politician*; for the individual Terms distinctly expressed, are always taken in their whole Extent, being determined as much as they can be.

The other Sort of Addition, which can be called *Determination*, is when what has been added to a general Word, confines the Signification thereof; and does that it is no more taken for that general Word in its whole Extent; but only for a Part of that Extent, as if I say, the *transparent Bodies*, the *learned Men*, a *reasonable Animal*. Those Additions are not simple Explications but Determinations, because they confine the Extent of the first Term, in doing that the Term, *Body*, signifies no more but one Part of the Bodies, the Word *Man*, but one Part of Men, the Word *Animal*, but one Part of Animals. And these Additions are sometimes such that they render a general Word individual, when individual Conditions are added to it, as when I say *the present King of France*, that determines the general Word *King* to the singular Person of *Louis* XV.

As to *the Clearness and Distinction of the Ideas, and to their Absurdity and Confusion.* There can be distinguished in an *Idea* the *Clearness* from the Distinction, and *Obscurity* from Confusion. For an Idea can be said clear when it strikes us to the Quick, though it be not distinct as the Idea of Pain strikes us to the Quick, and accordingly can be called clear, though notwithstanding it is very confuse, since it represents the Pain to us in the wounded Hand, whenas it is only in our Mind.

Notwithstanding it can be said, that all *clear Ideas* are distinct, and that their Obscurity proceeds only from their Confusion, as in Pain, the sole Sensation which strikes us is clear, and distinct likewise, but what is confuse, which is, that that Sensation in our Hand is not clear to us.

Taking then for the same Thing the *Clearness* and *Distinction* of the Ideas, it is very important to examine, why some of them are clear, and the others obscure; which is better discovered by Example than by any other Means; and therefore I'll make an Enumeration here of the Principals of our Ideas which are *clear* and *distinct*, and of the Principal of those which are *confuse* and *obscure*.

The Idea which every one has of himself, as of a thinking Thing, is very *clear*; and likewise the Idea of all the Dependencies of our Thought, as *to judge*, *to reason*, *to doubt*, *to will*, *to desire*, *to feel*, *to imagine*.

We have likewise very *clear Ideas* of the extended Substances, and what is convenient to it, as *Figure*, *Motion*, *Repose*.

We conceive also very clearly the *Being*, *Existence*, *Duration*, *Order*, *Number*; provided we think only that the *Duration* of every Thing is a Mode; and likewise that the Order and the Number do not differ in fact from the Things ordered and numerated.

All these Ideas are so clear, that often when we want to elucidate them more, and not satisfied with those we form naturally, we darken them.

We can say also, that the Idea we have of God in this Life is *clear* in one Sense, though it be obscure in another, and very imperfect. It is *clear*, in that it suffices to let us know in God several Attributes which we are sure are found no where but in God alone; but it is obscure if compared with that the Blessed have of him; and it is imperfect in that our Mind being finite, cannot conceive but very imperfectly an infinite Object: But to be perfect and to be clear are different Conditions in an Idea. For it is *perfect* when it represents all that is in its Object; and it is *clear* when it represents enough of it, to be clearly and distinctly conceived.

Confuse and *obscure Ideas* are those we have of the sensible Qualities, as of the *Colours*, *Sounds*, *Smells*, *Tastes*, *Colds*, *Heats*, &c. as likewise of our Appetites,

Hunger, Thirſt, &c. and this is the Cauſe of the Confuſion of thoſe *Ideas*.

As we have been ſooner Infants than Men, and the external Things have worked upon us, in cauſing various Sentiments in our Soul, by the Impreſſions they made on our Bodies, the Soul perceiving that it was not by the Will thoſe Sentiments were excited within her, but were only occaſioned by ſome Bodies, as that ſhe felt Heat when ſhe approached the Fire, was not contented to judge that there were ſome external Thing which cauſed thoſe Sentiments; ſhe is even gone further, believing that what was in thoſe Objects was entirely ſemblable to the Sentiments or Ideas they had occaſioned within her; and has formed Ideas of thoſe Judgments in tranſporting thoſe Sentiments of Heat, Colour, &c. into the external Things themſelves. And theſe are the *confuſe* and *obſcure Ideas* we have of the ſenſible Qualities, the Soul having added her erroneous Judgments, to what Nature had diſcovered to her.

And as thoſe *Ideas* are not natural but only arbitrary, they have acted towards them in a very extravagant Manner: For tho' *Heat* and *Burn* be but two Sentiments, one weaker and the other ſtronger, the Heat has been put in the Fire, and it has been ſaid, that the Fire had Heat, but the *Burn* has not been put in it, or the Pain felt in approaching too near; for it is not ſaid that the Fire has any Pain.

But if Men have ſeen that the Pain is not in the Fire which burns the Hand, perhaps they have deceived themſelves, in believing that it is in the Hand which the Fire burns, whenas it taking it right, it is but in the Mind, though occaſioned by what paſſes in the Hand; becauſe the Pain of the Body is nothing elſe but a Sentiment of Averſion which the Soul conceives of ſome Motion contrary to the natural Conſtitution of his Body. In fact, what ſhews that the Pain called corporal is in the Soul and not in the Body, is that the ſame Things which cauſe us Pain, when we think of them, cauſe us none when our Mind is employed elſewhere.

The *Idea* of *Gravity* which appears ſo clear, is no leſs *obſcure* than the others abovementioned; for Children ſeeing Stones and other like Things fall downwards, they have formed from thence the Idea of a Thing which falls; which Idea is natural and true, and likewiſe of ſome Cauſe of that Fall, which is alſo true: But becauſe they ſee nothing but the Stone, and not what puſhes it, they, by a precipitate Judgment, have concluded, that what they could not ſee was not, and that therefore the Stone fell of itſelf by an inward Principle, without any Thing puſhing it downwards; and it is to that confuſe Idea, and which proceeded from their Error, they have fixed the Name of Gravity.

The ſole Remedy of this Inconvenience is to renounce the Prejudices of our Infancy, and to believe nothing, by what we have judged of it then, but by what we judge of it now.

The Second Part.

Containing Reflections Men have made on their Judgments; and firſt of Propoſitions.

After we have conceived Things by our Ideas, we compare thoſe Ideas together; and finding that ſome of them agree among themſelves, and others do not agree, we join them or diſunite them, which is called to *affirm* or *to deny*, and generally *to judge*.

This Judgment is alſo called *Propoſition*, and it is eaſy to ſee that it muſt have two Terms; one of which is *affirmed* or *denied*, called Subject; and the other which is *affirmed* or *denied*, called *Attribute* or *Predicate*. For Example, in this Propoſition the *Earth is round*, the *Earth* is the Subject, *round* is the *Attribute*, and both joined together are called *Terms* or Extreams of the Propoſition; for it is not ſufficient to conceive thoſe two Terms, but our Mind muſt join them together or part them, and this Action of our Mind is marked by the Verb Subſtantive *Eſt*, either alone when we affirm, or joined with a negative Particle when we deny; as in the Example, the *Earth is round*, which is an Affirmative, the Verb *is*, is alone; and in this other, the *Earth is not round*, which is a Negative of the former, the Verb *is*, is joined with the negative Particle *not*.

But though all *Propoſitions* includes neceſſarily theſe three Things; it notwithſtanding may have but two Words, or even one. For Men wanting to abridge their Diſcourſes, have made an infinite Number of Words, which ſignify together the *Affirmative*, i. e. that ſignified by the Verb *is*, and the Attribute affirmed. Such are all Verbs, except that called Subſtantive; as *God exiſts*, i. e. *is exiſtant*; *God loves Men*, i. e. *God is loving Man*. And the Subſtantive when alone, as when I ſay, *I think then I am*, is no longer purely Subſtantive, becauſe then the moſt general of Attributes, which is the Being is added to it. For *I am* ſignifies *I am a Being*, *I am ſomething*.

Sometimes alſo the *Subject* and the *Affirmation*, are included in the ſame Word, as in the firſt and ſecond Perſons of the Verbs, eſpecially in *Latin*, when I ſay *ſum chriſtianus*, for the Subject of that *Propoſition* is *ego*, which is included in *ſum*. Whence it appears that in that ſame Language a ſingle Word makes a *Propoſition* in the firſt and ſecond Perſons of the Verbs, which by their Nature include already the Affirmation and the Attribute, as *vidi*, *veni*, *vici*, are three *Propoſitions*: Whereby it is ſeen that all Propoſition is Affirmative or Negative, and that's what is marked by the Verb affirmed or denied.

But there is another Difference in the *Propoſitions*, which proceeds from their Subject, which is to be *univerſal* or *particular*; becauſe the Terms are either ſingular, or common and univerſal. And the *univerſal* Terms can be taken, either according to their whole Extent, in joining them to the univerſal Signs expreſſed or underſtood, as *omnis*, *all*, for the *Affirmative*, *nullus*, *none*, for the *Negation*; *all Men*, *no Man*. Or according to an undeterminate Part of their Extent, which is when the Word *ſome* is added to it, as *ſome Man*, *ſome Men*, or others according to the Uſe of the Languages.

Whence a great Difference happens in the *Propoſitions*, for when the Subject of the *Propoſition* is a common Term, taken in its whole Extent, the *Propoſition* is called *univerſal*; whether it be *Affirmative*, as *all impious Men are mad*, or *Negative*, as *no vicious Man is happy*. And when the common Term is taken, but according to an indeterminate Part of its Extent, becauſe confined by the indeterminate Word *ſome*, the *Propoſition* is called *particular*; whether it be *Affirmative*, as *ſome Man is cruel*, or *Negative*, as *ſome Prince is not happy*. But when the Subject of a *Propoſition* is ſingular, as when I ſay, *Don* Philip *has conquered* Savoy, it is called ſingular.

But though this *ſingular Propoſition* be different from the *univerſal*, in that the Subject thereof is not common, it, notwithſtanding, muſt rather be referred to it, than to the *particular*; becauſe its Subject is taken according to its whole Extent, ſince it cannot be taken wider than for one, which makes the Eſſence of an *univerſal Propoſition*, and whereby it is diſtinguiſhed from the Particular; for it matters not for the Univerſality of a *Propoſition*, that its Subject be great or little, provided, let it be what it will, it is taken entire; and therefore the ſingular *Propoſitions*, ſupply the Place of univerſal, in the Argumentation.

Therefore all *Propoſitions* can be reduced to four Kinds, which have been marked by theſe four Vowels, A, E, I, O, to eaſe the Memory.

A. The univerſal Affirmative, *all Hypocrites are Knaves*.

E. The univerſal Negative, *no Knaves are reſpected*.

I. The particular Affirmative, as, *ſome Hypocrites are rich*.

O. The particular Negative, as, *ſome Hypocrites are not rich*.

According to the following two Verſes:

Aſſerit A, *negat* E, *verùm generaliter ambo*.
Aſſerit I, *negat* O, *ſed particulariter ambo*.

The *Univerſality* or *Particularity* of the *Propoſitions*, are alſo commonly called *Quantity*; and the *Affirmation* or *Negation*, depending on the Verb, which is conſidered as the Form of the *Propoſition*, is called *Quality*. — And thus A and E agree according to the *Quantity*, and differ according to the *Quality*; and likewiſe I and O. But A and I agree according to the *Quality*, and

and differ according to the *Quantity*; and likewise E and O.

Propositions are divided besides according to the Matter into true and false; and it is clear that there can be none, which are neither true nor false; since all *Propositions*, marking the Judgment we make of Things, are true when that Judgment is conformable to Truth, and false when not conformable.

But because we often want Light, to discover Truth and Falshood, besides the *Propositions* which appear true, and those which appear certainly false; there are some which seem true; but the Truth thereof is not so evident, as to leave us no Room to suspect it; or which seem false; but of the Falshood thereof we are not very certain. These *Propositions* are called probable; the former being the *most probable*, and the latter, the *less probable*.

As to the Opposition of Propositions, which have the same Subject and the same Attribute. — We have said already, that there are four Sorts of *Propositions*, A. E. I. O. it is asked now, what Agreement or Disagreement they have together, when divers Sorts of *Propositions* are made of the same Subject, and of the same Attribute? It is what we call *Opposition of Propositions*.

It is easy to see that *that* Opposition cannot be but of three Sorts, though one of the three is subdivided into two others. For if they be opposed in *Quantity* and *Quality* together, as A. O. and E. I. they are called *Contradictory*, as, *all Men are Animal, some Men are not Animal, no Man is impeccable, some Men are impeccable.*

If they differ in *Quantity* only, and agree in *Quality*, as A. I. and E. O. they are called *subaltern*, as *all Men are Animal, some Men are Animal; no Man is impeccable, some Men are not not impeccable.*

And if they differ in *Quality* and agree in *Quantity*, then they are called *Contrary*, or *Sub-contrary*; *Contrary*, when they are universal, as *all Men are Animal, no Man is Animal. Sub-contrary*, when they are particular, as, *some Men are Animal, some Men are not Animal.*

Now in considering those opposite *Propositions*, according to Truth or Falshood, it is easy to judge, 1. That the *Contradictories* are never true and false together; but if one of them is true, the other is false, or if one is false, the other is true; for if it be true, that *all Men are Animal*, it cannot be true, that *some Men are not Animal*; and if, on the contrary, it is true, that *some Men are not Animal*, it is not true, that *all Men are Animal.*

2. The *Contraries* can never be true together; but they can be both false. They cannot be true, because the Contradictories would be true; for if it be true, that *all Men are Animal*, it is false, that *some Men are not Animal*; which is the *Contradictory*, and consequently still more false, that *no Man is Animal*, which is the *Contrary*.

But the Falshood of one does not carry off the Truth of the other. For it may be false that *all Men are just*, without being true, that *no Man is just*; for there can be *just Men*, though *all Men are not just*.

3. The *Sub-Contraries*, by a Rule quite opposite to that of the *Contraries*, can be true together; as these two, *some Men are just, some Men are not just*, because Justice can be agreeable to some Men, and not to others. And thus Affirmation and Negation do not regard the same Subject, since *some Men* are taken for one Part of Men, in one of the Propositions, and for the other Part in the other. But they cannot be both false, since otherwise the *Contradictories* would be both false. For if it was false, that *some Men are just*, it would be true, that *no Man is just*, which is the *Contradictory*, and with much more Reason, that *some Men are not just*, which is the *Sub-contrary*.

For the *Subaltern*, it is not a true Proposition, since the particular is a Sequel of the general. For if *all Men are Animal, some Men are Animal.* If *no Man is a Sign, some Men are not Signs*; therefore the Truth of the Universals, carries off that of the Particulars; but the Truth of the Particulars does not carry off that of the Universals. For it does not follow, that because it is true, that *some Men are just*, it is true, likewise, that *all Men are just*. On the contrary, the Falsity of the Particulars carries off the Falsity of the Universals. For if it is false, that *some Men are impeccable*, it is still more false, that *all Men are impeccable*. But the Falsity of the Universals, does not carry off the Falsity of the Particulars; for though it be false, that *all Men are just*, it doth not follow hence, that it is a Falsity to say, that *some Men are just*. Whence it follows, that there are some Occasions where these *subaltern Propositions* are both true, and others, where they are both false.

I say nothing of the Reduction of the Propositions, opposite in one and the same Sense, because that is entirely needless, and the Rules given relating to them, are most of them true, but in the *Latin* Tongue.

As to simple and composite, &c. Propositions. — I have said that all *Propositions* must have at least a Subject and an Attribute; but it does not follow hence, that a Proposition cannot have more than one Subject, and more than one Attribute. Therefore those which have but one Subject and one Attribute, are called *simple*; and those which have more than one Subject, and more than one Attribute, are called *composite*, as when I say, *Good and Evil, Life and Death, Poverty and Riches, come from the Lord*; that Attribute, *to come from the Lord*, is affirmed, not of a single Subject, but of several, *viz.* of *Good* and *Evil*, &c.

But before I explain those *composite Propositions*, we must observe, that some of them appear such, which notwithstanding are *simple*; for the Simplicity of a Proposition is taken from the Unity of the Subject and of the Attribute. But there are some Propositions which have properly but one Subject and one Attribute, but the Subject or Attribute thereof is a complex Term, which includes other Propositions which may be called *incident*, which makes but Part of the Subject or Attribute, being joined to to it by the Relative *Pronoun, who, whom*, the Property thereof is to join together several Propositions, so that they all compose but one single Proposition, Thus when Jesus Christ says, *He who does the Will of my Father who is in Heaven, shall enter into the Kingdom of Heaven*; the Subject of that Proposition contains two Propositions, since it contains two Verbs, but as they are joined by relative Pronouns, they make but one Part of the Subject; as when I say, *Good and Evil come from the Lord*, there are properly two Subjects, because I affirm equally of the one and of the other, that they come from God. And the Reason of this is, that the Propositions joined to others by *who's*, either are but very imperfect Propositions, or are not so much considered as Propositions made then, as Propositions which have been made before, and which are then conceived only as if they were simple Ideas; whence it happens, that it is indifferent to enunce those *incident Propositions*, by Adjective Nouns, or by Participles, without Verbs and without *who's*, or with Verbs and with *who's*, for it is the same Thing to say, *an invisible God has created the visible World*; or, *God who is invisible, has created the World which is visible*; Alexander, *the bravest of all Kings, has vanquished* Darius, *or* Alexander, *who was the bravest of all Kings, has vanquished* Darius. And in one and the other, my principal End is, not to affirm that God is invisible, or that *Alexander* is the bravest of all Kings; but supposing the one and the other as affirmed before, I affirm of God conceived as invisible, that he has created the visible World; and of *Alexander*, conceived as the bravest of all Kings, that he has vanquished *Darius*.

But if I was to say, Alexander *has been the bravest of all Kings, and the Vanquisher of* Darius, it is visible that I should affirm equally of *Alexander*, and that he was the bravest of all Kings, and that he had vanquished *Darius*; and therefore it is with Reason that these last Sorts of Propositions, are called *composite Propositions*; when as the others may be called *complex Propositions*, that's to say, on the Subject and on the Attribute, or on both; or on the Form only.

1. The Complexion falls on the Subject when the Subject is a complex Term, as in this Proposition, *every Man who fears nothing is a King*: *Rex est qui metuit nihil.*

Beatus ille qui procul negotiis,
Ut prisca gens mortalium,
Paterna rura bobus exercet suis,
Solutus omni fenore.

Hunger, Thirſt, &c. and this is the Cauſe of the Confuſion of thoſe *Ideas*.

As we have been ſooner Infants than Men, and the external Things have worked upon us, in cauſing various Sentiments in our Soul, by the Impreſſions they made on our Bodies, the Soul perceiving that it was not by the Will thoſe Sentiments were excited within her, but were only occaſioned by ſome Bodies, as that ſhe felt Heat when ſhe approached the Fire, was not contented to judge that there were ſome external Thing which cauſed thoſe Sentiments; ſhe is even gone further, believing that what was in thoſe Objects was entirely ſemblable to the Sentiments or Ideas they had occaſioned within her; and has formed Ideas of thoſe Judgments in tranſporting thoſe Sentiments of Heat, Colour, &c. into the external Things themſelves. And theſe are the *confuſe* and *obſcure Ideas* we have of the ſenſible Qualities, the Soul having added her erroneous Judgments, to what Nature had diſcovered to her.

And as thoſe *Ideas* are not natural but only arbitrary, they have acted towards them in a very extravagant Manner: For tho' *Heat* and *Burn* be but two Sentiments, one weaker and the other ſtronger, the Heat has been put in the Fire, and it has been ſaid, that the Fire had Heat, but the *Burn* has not been put in it, or the Pain felt in approaching too near; for it is not ſaid that the Fire has any Pain.

But if Men have ſeen that the Pain is not in the Fire which burns the Hand, perhaps they have deceived themſelves, in believing that it is in the Hand which the Fire burns, whenas it taking it right, it is but in the Mind, though occaſioned by what paſſes in the Hand; becauſe the Pain of the Body is nothing elſe but a Sentiment of Averſion which the Soul conceives of ſome Motion contrary to the natural Conſtitution of his Body. In fact, what ſhews that the Pain called corporal is in the Soul and not in the Body, is that the ſame Things which cauſe us Pain, when we think of them, cauſe us none when our Mind is employed elſewhere.

The *Idea* of *Gravity* which appears ſo clear, is no leſs *obſcure* than the others abovementioned; for Children ſeeing Stones and other like Things fall downwards, they have formed from thence the Idea of a Thing which falls; which Idea is natural and true, and likewiſe of ſome Cauſe of that Fall, which is alſo true: But becauſe they ſee nothing but the Stone, and not what puſhes it, they, by a precipitate Judgment, have concluded, that what they could not ſee was not, and that therefore the Stone fell of itſelf by an inward Principle, without any Thing puſhing it downwards; and it is to that confuſe Idea, and which proceeded from their Error, they have fixed the Name of Gravity.

The ſole Remedy of this Inconvenience is to renounce the Prejudices of our Infancy, and to believe nothing, by what we have judged of it then, but by what we judge of it now.

The Second Part.

Containing Reflections Men have made on their Judgments; and firſt of Propoſitions.

After we have conceived Things by our Ideas, we compare thoſe Ideas together; and finding that ſome of them agree among themſelves, and others do not agree, we join them or diſunite them, which is called to *affirm* or *to deny*, and generally *to judge*.

This Judgment is alſo called *Propoſition*, and it is eaſy to ſee that it muſt have two Terms; one of which is *affirmed* or *denied*, called Subject; and the other which is *affirmed* or *denied*, called *Attribute* or *Predicate*. For Example, in this Propoſition the *Earth is round*, the *Earth* is the Subject, *round* is the *Attribute*, and both joined together are called *Terms* or Extreams of the Propoſition; for it is not ſufficient to conceive thoſe two Terms, but our Mind muſt join them together or part them, and this Action of our Mind is marked by the Verb Subſtantive *Eſt*, either alone when we affirm, or joined with a negative Particle when we deny; as in the Example, the *Earth is round*, which is an Affirmative, the Verb *is*, is alone; and in this other, the *Earth is not round*, which is a Negative of the former, the Verb *is*, is joined with the negative Particle *not*.

But though all *Propoſitions* includes neceſſarily theſe three Things; it notwithſtanding may have but two Words, or even one. For Men wanting to abridge their Diſcourſes, have made an infinite Number of Words, which ſignify together the *Affirmative*, i. e. that ſignified by the Verb *is*, and the Attribute affirmed. Such are all Verbs, except that called Subſtantive; as *God exiſts*, i. e. *is exiſtant*; *God loves Men*, i. e. *God is loving Man*. And the Subſtantive when alone, as when I ſay, *I think then I am*, is no longer purely Subſtantive, becauſe then the moſt general of Attributes, which is the Being is added to it. For *I am* ſignifies *I am a Being*, *I am ſomething*.

Sometimes alſo the *Subject* and the *Affirmation*, are included in the ſame Word, as in the firſt and ſecond Perſons of the Verbs, eſpecially in *Latin*, when I ſay *ſum chriſtianus*, for the Subject of that *Propoſition* is *ego*, which is included in *ſum*. Whence it appears that in that ſame Language a ſingle Word makes a *Propoſition* in the firſt and ſecond Perſons of the Verbs, which by their Nature include already the Affirmation and the Attribute, as *vidi*, *veni*, *vici*, are three *Propoſitions*: Whereby it is ſeen that all Propoſition is Affirmative or Negative, and that's what is marked by the Verb affirmed or denied.

But there is another Difference in the *Propoſitions*, which proceeds from their Subject, which is to be *univerſal* or *particular*; becauſe the Terms are either ſingular, or common and univerſal. And the *univerſal* Terms can be taken, either according to their whole Extent, in joining them to the univerſal Signs expreſſed or underſtood, as *omnis*, *all*, for the *Affirmative*, *nullus*, *none*, for the *Negation*; *all Men*, *no Man*. Or according to an undeterminate Part of their Extent, which is when the Word *ſome* is added to it, as *ſome Man*, *ſome Men*, or others according to the Uſe of the Languages.

Whence a great Difference happens in the *Propoſitions*, for when the Subject of the *Propoſition* is a common Term, taken in its whole Extent, the *Propoſition* is called *univerſal*; whether it be *Affirmative*, as *all impious Men are mad*, or *Negative*, as *no vicious Man is happy*. And when the common Term is taken, but according to an indeterminate Part of its Extent, becauſe confined by the indeterminate Word *ſome*, the *Propoſition* is called *particular*; whether it be *Affirmative*, as *ſome Man is cruel*, or *Negative*, as *ſome Prince is not happy*. But when the Subject of a *Propoſition* is ſingular, as when I ſay, *Don* Philip *has conquered* Savoy, it is called ſingular.

But though this *ſingular Propoſition* be different from the *univerſal*, in that the Subject thereof is not common, it, notwithſtanding, muſt rather be referred to it, than to the *particular*; becauſe its Subject is taken according to its whole Extent, ſince it cannot be taken wider than for one, which makes the Eſſence of an *univerſal Propoſition*, and whereby it is diſtinguiſhed from the Particular; for it matters not for the Univerſality of a *Propoſition*, that its Subject be great or little, provided, let it be what it will, it is taken entire; and therefore the ſingular *Propoſitions*, ſupply the Place of univerſal, in the Argumentation.

Therefore all *Propoſitions* can be reduced to four Kinds, which have been marked by theſe four Vowels, A, E, I, O, to eaſe the Memory.

A. The univerſal Affirmative, *all Hypocrites are Knaves*.

E. The univerſal Negative, *no Knaves are reſpected*.

I. The particular Affirmative, as, *ſome Hypocrites are rich*.

O. The particular Negative, as, *ſome Hypocrites are not rich*.

According to the following two Verſes:

Aſſerit A, *negat* E, *verùm generaliter ambo.*
Aſſerit I, *negat* O, *ſed particulariter ambo.*

The *Univerſality* or *Particularity* of the *Propoſitions* are alſo commonly called *Quantity*; and the *Affirmation* or *Negation*, depending on the Verb, which is considered as the Form of the *Propoſition*, is called *Quality*. — And thus A and E agree according to the *Quantity*, and differ according to the *Quality*; and likewiſe I and O. But A and I agree according to the *Quality*, and

and differ according to the *Quantity*; and likewise E and O.

Propositions are divided besides according to the Matter into true and false; and it is clear that there can be none, which are neither true nor false; since all *Propositions*, marking the Judgment we make of Things, are true when that Judgment is conformable to Truth, and false when not conformable.

But because we often want Light, to discover Truth and Falshood, besides the *Propositions* which appear true, and those which appear certainly false; there are some which seem true; but the Truth thereof is not so evident, as to leave us no Room to suspect it; or which seem false; but of the Falshood thereof we are not very certain. These *Propositions* are called probable; the former being the *most probable*, and the latter, the *less probable*.

As to the Opposition of Propositions, which have the same Subject and the same Attribute. — We have said already, that there are four Sorts of *Propositions*, A. E. I. O. it is asked now, what Agreement or Disagreement they have together, when divers Sorts of *Propositions* are made of the same Subject, and of the same Attribute? It is what we call *Opposition of Propositions*.

It is easy to see that *that* Opposition cannot be but of three Sorts, though one of the three is subdivided into two others. For if they be opposed in *Quantity* and *Quality* together, as A. O. and E. I. they are called *Contradictory*, as, *all Men are Animal, some Men are not Animal, no Man is impeccable, some Men are impeccable.*

If they differ in *Quantity* only, and agree in *Quality*, as A. I. and E. O. they are called *subaltern*, as *all Men are Animal, some Men are Animal*; *no Man is impeccable, some Men are not not impeccable.*

And if they differ in *Quality* and agree in *Quantity*, then they are called *Contrary*, or *Sub-contrary*; *Contrary*, when they are universal, as *all Men are Animal, no Man is Animal. Sub-contrary*, when they are particular, as, *some Men are Animal, some Men are not Animal.*

Now in considering those opposite *Propositions*, according to Truth or Falshood, it is easy to judge,

1. That the *Contradictories* are never true and false together; but if one of them is true, the other is false, or if one is false, the other is true; for if it be true, that *all Men are Animal*, it cannot be true, that *some Men are not Animal*; and if, on the contrary, it is true, that *some Men are not Animal*, it is not true, that *all Men are Animal.*

2. The *Contraries* can never be true together; but they can be both false. They cannot be true, because the Contradictories would be true; for if it be true, that *all Men are Animal*, it is false, that *some Men are not Animal*; which is the *Contradictory*, and consequently still more false, that *no Man is Animal*, which is the *Contrary.*

But the Falshood of one does not carry off the Truth of the other. For it may be false that *all Men are just*, without being true, that *no Man is just*; for there can be *just Men*, though *all Men are not just.*

3. The *Sub-Contraries*, by a Rule quite opposite to that of the *Contraries*, can be true together; as these two, *some Men are just, some Men are not just*, because Justice can be agreeable to some Men, and not to others. And thus Affirmation and Negation do not regard the same Subject, since *some Men* are taken for one Part of Men, in one of the Propositions, and for the other Part in the other. But they cannot be both false, since otherwise the *Contradictories* would be both false. For if it was false, that *some Men are just*, it would be true, that *no Man is just*, which is the *Contradictory*, and with much more Reason, that *some Men are not just*, which is the *Sub-contrary.*

For the *Subaltern*, it is not a true Proposition, since the particular is a Sequel of the general. For if *all Men are Animal, some Men are Animal.* If *no Man is a Sign, some Men are not Signs*; therefore the Truth of the Universals, carries off that of the Particulars; but the Truth of the Particulars does not carry off that of the Universals. For it does not follow, that because it is true, that *some Men are just*, it is true, likewise, that *all Men are just.* On the contrary, the Falsity of the Particulars carries off the Falsity of the Universals. For if it is false, that *some Men are impeccable*, it is still more false, that *all Men are impeccable.* But the Falsity of the Universals, does not carry off the Falsity of the Particulars; for though it be false, that *all Men are just*, it doth not follow hence, that it is a Falsity to say, that *some Men are just.* Whence it follows, that there are some Occasions where these *subaltern Propositions* are both true, and others, where they are both false.

I say nothing of the Reduction of the Propositions, opposite in one and the same Sense, because that is entirely needless, and the Rules given relating to them, are most of them true, but in the *Latin* Tongue.

As to simple and composite, &c. Propositions. — I have said that all *Propositions* must have at least a Subject and an Attribute; but it does not follow hence, that a Proposition cannot have more than one Subject, and more than one Attribute. Therefore those which have but one Subject and one Attribute, are called *simple*; and those which have more than one Subject, and more than one Attribute, are called *composite*, as when I say, *Good and Evil, Life and Death, Poverty and Riches, come from the Lord*; that Attribute, *to come from the Lord*, is affirmed, not of a single Subject, but of several, *viz.* of *Good* and *Evil*, &c.

But before I explain those *composite Propositions*, we must observe, that some of them appear such, which notwithstanding are *simple*; for the Simplicity of a Proposition is taken from the Unity of the Subject and of the Attribute. But there are some Propositions which have properly but one Subject and one Attribute, but the Subject or Attribute thereof is a complex Term, which includes other Propositions which may be called *incident*, which makes but Part of the Subject or Attribute, being joined to to it by the Relative *Pronoun, who, whom*, the Property thereof is to join together several Propositions, so that they all compose but one single Proposition, Thus when Jesus Christ says, *He who does the Will of my Father who is in Heaven, shall enter into the Kingdom of Heaven*; the Subject of that Proposition contains two Propositions, since it contains two Verbs, but as they are joined by relative Pronouns, they make but one Part of the Subject; as when I say, *Good and Evil come from the Lord*, there are properly two Subjects, because I affirm equally of the one and of the other, that they come from God. And the Reason of this is, that the Propositions joined to others by *who's*, either are but very imperfect Propositions, or are not so much considered as Propositions made then, as Propositions which have been made before, and which are then conceived only as if they were simple Ideas; whence it happens, that it is indifferent to enunce those *incident Propositions*, by Adjective Nouns, or by Parriciples, without Verbs and without *who's*, or with Verbs and with *who's*, for it is the same Thing to say, *an invisible God has created the visible World*; or, *God who is invisible, has created the World which is visible*; Alexander, *the bravest of all Kings, has vanquished* Darius, *or* Alexander, *who was the bravest of all Kings, has vanquished* Darius. And in one and the other, my principal End is, not to affirm that God is invisible, or that *Alexander* is the bravest of all Kings; but supposing the one and the other as affirmed before, I affirm of God conceived as invisible, that he has created the visible World; and of *Alexander*, conceived as the bravest of all Kings, that he has vanquished *Darius.*

But if I was to say, Alexander *has been the bravest of all Kings, and the Vanquisher of* Darius, it is visible that I should affirm equally of *Alexander*, and that he was the bravest of all Kings, and that he had vanquished *Darius*; and therefore it is with Reason that these last Sorts of Propositions, are called *composite Propositions*; when as the others may be called *complex Propositions*, that's to say, on the Subject and on the Attribute, or on both; or on the Form only.

1. The Complexion falls on the Subject when the Subject is a complex Term, as in this Proposition, *every Man who fears nothing is a King*: *Rex est qui metuit nihil.*

Beatus ille qui procul negotiis,
Ut prisca gens mortalium,
Paterna rura bobus exercet suis,
Solutus omni fœnere.

For the Verb *est*, is understood in this last Proposition, and *Beatus* is the Attribute thereof, and all the rest the Subject.

2. The *Complexion* falls on the Attribute, when the Attribute is a complex Term, as, *Piety is a Virtue, which renders Man happy in the greatest Adversities.*

Sum pius Æneas famâ super Æthera notus.

But it must be particularly observed here, that all Propositions composed of active Verbs, and of their Regimen, can be called complex, and contain, in some Manner, two Propositions. As if I say, for Example, *Brutus* has killed some Body, and that he whom he has kill'd, was a Tyrant. Whence that Proposition can be contradicted in two Manners, or by saying that *Brutus* has not kill'd any Body, or that he whom he has kill'd was not a Tyrant. Which it is very necessary to observe; because when these Sorts of Propositions enter into an Argument, sometimes but one Part thereof is proved in supposing the other; which obliges often to reduce those Arguments into the most natural Form, to change the Active into the Passive, that the Part which is proved may be expressed directly.

3. Sometimes the *Complexion* falls on the Subject, and on the Attribute, the one and the other being a complex Term; as in this Proposition, *the Great who oppressed the Poor, will be punished by God, who is Protector of the Oppressed.*

Ille ego qui quondam gracili modulatus avenâ
Carmen, & egressus silvis vicina coëgi
Ut quamvis avido parerent arva colono
Gratum opus agricolis: at nunc horentia martis,
Arma virumque cano Trojæ qui primus ab oris,
Italiam fato profugus Lavinaque venit
Littora.

The three first Verses, and half of the fourth, compose the Subject of this Proposition, the rest composes its Attribute, and the Affirmation is included in the Verb *Cano*.

These are the three Manners, according to which Propositions can be complex as to their Matter, *i. e.* as to their Subject, and Attribute.

As to the Nature of incident Propositions, which make Part of the Complex. — Before I speak of the Propositions, the *Complexion* thereof falls on the Form, *i. e.* on the Affirmation or Negation, there are several important Remarks to be made on the Nature of *incident Propositions*, which make Part of the Subject or of the Attribute of those which are *complex* according to the Matter.

1. We have seen already, that *incident Propositions* are those whose Subject is the Relative *who*, as, *Men who are created to know and to love God*, or, *Men who are pious*, taking off the Term *Men*, the rest is an incident Proposition.

But it must be observed, that the Additions of the *complex Terms* are of two Sorts, the one which may be called simple Explications, which is when the Addition changes nothing in the Idea of the Term, because what is added to it, is generally agreeable to it, and in its whole Extent; as in the first Example, *Men who are created to know and to love God.*

The others which may be called *Determinations*, because what is added to that Term is not agreeable to it in its whole Extent, confines and determines the Signification thereof, as in the second Example, *Men who are pious*; according to this it may be said that there is an *who* explicative, and an *who* determinative.

When the *who* is explicative, the Attribute of the *incident Proposition* is affirmed of the Subject to which it relates, though it be but incidently with Regard to the total Proposition, so that the Subject itself can be substituted to the *who*, as it can be seen in the first Example, *Men who have been created to know and to love God.* For it can be said, *Men have been created to know and to love God.*

But when the *who* is determinative, if the Attribute of the *incident Proposition* is not properly affirmed of the Subject, to which the *who* relates, for after we have said, *Men who are pious are charitable*, we should substitute the Word *Men* to *who*, saying, *Men are pious*, this Proposition would be false, because it would be to affirm the Word *pious* of Men as Men; but in saying, *Men who are pious, are charitable*, we affirm neither of Men in general, nor of any Men in particular, that they are pious; but the Mind joining together the Idea of *pious* with that of *Men*, and making of it a total Idea, judges that the Attribute *charitable* is agreeable to that total Idea. Thus the whole Judgment expressed in the *incident Proposition*, is only that whereby our Mind judges that the Idea of *pious*, is not incompatible with that of *Men*, and therefore can consider them as join'd together, and examine afterwards what is agreeable to them according to that Union.

As to the Falsity found in the complex Terms, and in the incident Propositions. — What we have said, can serve to resolve a famous Question, which is to know, If Falsity cannot be found but in the *Propositions*, and if there is none in the Ideas, and in the simple Terms?

Note, That I speak of the Falsity rather than of the Truth, because there is a Truth in Things with Regard to God's Spirit, whether Men think or not think of it; but there can be no Falsity but with Regard to Man's Mind, or some other Mind subject to Error, which judges falsly that a Thing is what it is not.

It is asked, then, If that Falsity is found but in *Propositions* and *Judgments?* which Question is commonly answered in the Negative; which Answer is true in one Sense, though there is sometimes a Falsity, not in the simple Ideas, but in the complex Terms; for some Judgment or some Affirmation, express or virtual, suffices for that. It is what we'll understand better, if we consider the two Sorts of complex Terms; one, the *who* whereof it is explicative, and of the other, determinative.

In the first Sort of complex Terms, it is not surprising if there can be a Falsity, because the Attribute of the incident Proposition is affirmed of the Subject to which the *who* relates; Alexander *who is* Philip's *Son*, I affirm, though incidently, of *Alexander*, that he is the Son of *Philip*, and consequently there is a Falsity in that, *Alexander* is not *Philip*'s Son.

But two or three important Things must be observ'd, 1. That the Falsity of an incident Proposition, most commonly does not hinder the Truth of the principal Proposition; for Example, Alexander *who was* Philip's *Son, vanquished the* Persians. This Proposition must pass for Truth, if even it could be said, that *Alexander* was not *Philip*'s Son, because the Affirmation of the principal Proposition, falls on *Alexander* only, and what has been incidently added to it, though false, does not hinder from its being true, that *Alexander* vanquished the *Persians.*

But if, notwithstanding, the Attribute of the principal Proposition, had Report to the incident Proposition, as if I was to say, Alexander, Philip's *Son, who was* Amitas's *Grandson*, then the Falsity of the incident Proposition, would render the principal Proposition false.

2. The Titles commonly given to certain Dignities, can be given to all those who possess that Dignity; though what is signified by that Title, is in no Manner agreeable to them. Thus we see that St. *Paul*, in the Acts, gives the Title of *most good*, and *most excellent*, to *Festus*, Governor of *Judea*, because it was commonly given to those Governors.

3. It is not so when a Person is the Author of a Title which he gives to another, and gives it him of his own Accord, not according to the Opinion of others, or a popular Error; for then, the Falsity of those Propositions may be justly imputed to him. Thus when a Man says, Aristotle, *who is the Prince of the Philosophers, believed that the Origin of the Nerves was in the Heart*; no Body could accuse him of Falshood, because *Aristotle* is not the most excellent of all Philosophers, for it suffices that he follows in that the common Opinion, though false. But if one was to say, *M. Gassendi, who is the most learned of all Philosophers, believed that there is a* Vacuum *in Nature*, there would be Room to dispute with that Person, the Quality he would give to M. *Gassendi*, and to render him responsible for the Falshood, which one could pretend to find in that incident Proposition. Therefore one can be accused of Falshood, for

for giving to the same Person a Title he does not deserve, and not be accused of Falshood, in giving him another which he still deserves less; for Example, the Pope, *John* XII. was neither holy, nor chaste, nor pious, as *Baronius* acknowledges it; and notwithstanding those who called him *most holy*, could not be accused of Falshood, and those who had called him *most chaste*, and *most pious*, had been very great Lyers, though they had only done it by incident Propositions, as if they had said, *John* XII. *most chaste Pontiff has decreed such a Thing.*

Thus far for the first Sort of incident Propositions, the *who* whereof is explicative. As to the others the *who* whereof is *determinative*, as *Men who are pious, Kings who love their Subjects*; it is certain, that commonly they are not susceptible of Falshood, because in them the Attribute of the incident Proposition is not affirmed of the Subject to which it relates. For if one says, for Example, *Ministers who are neither partial nor interested, are to be esteemed:* He does not pretend to say thereby, that all Ministers are arrived to that Perfection.

As to different Sorts of composed Propositions. — We have said already, that composed Propositions are those which have a double Subject or a double Attribute; of which there are two Sorts; one where the Composition is expresly marked, and the other where it is more hidden, and for that Reason called by Logicians *Exponibles*, which want to be expounded or explained.

Those of the first Sort can be reduced to six Species, viz. *Copulatives* and *Disjunctives*, *Conditionals* and *Causals*, *Relatives* and *Discretives*.

Copulative Propositions, are those which include either several Subjects or several Attributes, joined by an Affirmative or negative Conjunction, *i. e. and* or *nor*; for *nor* in those Propositions has the same Effect of *and*, since the *nor* signifies *and* with a Negative which falls on the Verb, and not the Union of the two Words it joins, as if I say, that *Science and Riches do not make a Man happy*, I unite as much Science to Riches, in affirming of the one and of the other, that they don't render a Man happy, as if I was to say, that Science and Riches render a Man vain.

There can be distinguished three Kinds of those Propositions.

1. When they have several Subjects. — *Mors & vita in manibus linguæ*, Life and Death in the Power of the Tongue.

2. When they have several Attibutes.

Auream quisquis mediocritatem
Diligit, tutus caret obsoleti.
Sordibus tecti, caret invidenda
Regibus aula.

i. e. He that loves Mediocrity, which is estimable in all Things, is neither lodged meanly nor magnificently.

3. When they have several Subjects and several Attributes.

Non Dominus & fundus, non æris acervus & auri,
Ægroto Domini deduxit corpore febres,
Non animo curas.

i. e. Neither Houses nor Lands, nor the greatest Heaps of Gold and Silver can cure a Fever, nor free the Mind from Inquietude and Sorrow.

The Truth of these Propositions depends of the Truth of the two Parts; therefore if I say, *Faith and a good Life are necessary to Salvation*, that's true; because they are both necessary to Salvation; but if I was to say, *a good Life and Riches are necessary to Salvation*, the Proposition would be false, for if a good Life is necessary to Salvation, Riches are not.

The *Propositions* considered as negative and contradictory with Regard to the Copulatives, and to all the others composite, are not all those where Negations are found, but only those where the Negation falls on the Conjunction, which is done in divers Manners, as in placing the *Non* at the Head of the Proposition, *Non enim amas deseris*, says St. *Augustin*, i. e. it cannot be supposed that you love the Person you abandon.

It is also in that Manner that a Proposition is rendered contradictory to the Copulative, in denying expresly the Conjunction, as when one says, that *Love and Majesty do not agree together.*

Disjunctive Propositions are of a great Use, and they are those where enters the disjunctive Conjunction, *vel*, or; for Example; — *Love either finds Friends equal, or renders them equal. He that lives in an entire Solitude is a Beast or an Angel*, (says *Aristotle*).

The Truth of these *Propositions* depends of the necessary Opposition of the Parts, which admits of no Medium; but as it is necessary they should admit none at all to be necessarily true, it suffices that they commonly admit none to be considered as morally true: Therefore it is absolutely true that an Action done with Judgment is either good or bad, the Theologians shewing, that there are none indifferent; but when it is said that Men are actuated by no other Motive than that of Interest or of Fear, that is not absolutely true, since there are some who are actuated by none of those Passions, but only by the Consideration of their Duties; and therefore the Truth which can be in it, is, that those two Passions are the Master-springs which move most Men.

Propositions contradictory to the Disjunctives are those where the Truth of the Disjunction is denied; which is done in *Latin*, as in all other composite *Propositions*, by placing the Negation at the Head: *Non omnis actio est bona vel mala*; and in French, *Il n'est pas vray que toute action soit bone, ou mauvoise*; and in English, *It is not true that all Action is either good or bad.*

Conditional Propositions, are those which have two Parts joined by the Condition *if*, the first Part whereof, which is that where the Condition is, is called *antecedent*, and the other *consequent*; for Example, *if the Soul be spiritual* (this is the Antecedent) *it is immortal*, that's the Consequent.

This *Consequence* is sometimes *mediate*, and sometimes *immediate*. It is *mediate* when there is nothing in the Terms of the one or of the other Part, which joins them together, as if I say, *If the Earth is immobile the Sun turns*; *If God is just the Wicked will be punished.* These Consequences are very good; but they are not immediate, because the two Parts having not the common Term, they are not joined but by what one has in the Mind, and which is not expressed: That the Earth and the Sun being continually in different Situations one with Regard to the other, one must be necessarily immobile if the other moves.

When the Consequence is *immediate*, either the two Parts should have the same Subject, *if Death be a Passage to a happier Life, it is desirable*; *if you have refused to feed the Poor you have killed them:* — Or the same Attribute, *if all God's Trials should be dear to us, Infirmities should.* Or the Attribute of the first Part must be the Subject of the second; *If Patience be a Virtue, there are penible Virtues.* Or lastly, the Subject of the first Part should be the Attribute of the second, which cannot be but when that second Part is a Negative; *If all true Christians live according to the Gospel, there are but few true Christians.*

Causal Propositions, are those which contain two Propositions, by a Word of Cause, *because, forasmuch*, &c. for Example, *They can do it, because they believe they can: Such a Prince is unhappy, because he is hated of his Subjects.*

To these *Propositions* can also be reduced those called *reduplicative*; for Example, *Man as Man is reasonable: Kings as Kings depend from God alone.*

Relative Propositions, are those which include some Comparison and some Report. For Example, *Where the Treasure is, there lies the Heart. One is esteemed in the World in Proportion to his Riches.*

The Truth depends on the Justness of the Report, and they are controuled by denying the Report; for Example, *It is not true that one is esteemed in the World in Proportion to his Riches.*

Disjunctive Propositions, are those where different Judgments are made, in marking the Difference by the Particles, *but, notwithstanding*, and the like, either expressed or understood; for Example, *Fortune can rob us of our Estate, but not of our Heart.*

The Truth of this Sort of *Proposition* depends on the Truth of the two Parts, and of the Separation thereof: For though the two Parts were true, a Proposition of

this Sort would be ridiculous, if there was no Opposition between them, as if I was to say, Judas *was a Thief, and notwithstanding could not bear that* Mary Magdalene *should pour her Perfumes on* JESUS CHRIST.

Note, That the most useful Propositions in the *Sciences*, are the *Division* and the *Definition:* Therefore,

DIVISION is the Partition of the whole into the Parts it is composed of. But as there are two Sorts of *whole*, there are likewise two Sorts of *Divisions*.

There is a *whole* composed of several Parts really distinct, called in *Latin*, *totum*, the Parts whereof are called *integrant Parts*. The *Division* of that *whole*, is properly called *Partition*. As when one divides a House into its Apartments, a City into its Quarters, a Kingdom or State into Provinces, Man into Body and Soul; the Body into its Members. The sole Rule of this *Division*, is to make the Enumerations very exact.

The other *whole*, is called in *Latin*, *omne*, and its Parts *subjective* or *inferior Parts*; because this *whole* is a common Term, and its Parts are the Subjects comprised in its Extent, as the Word *Animal* is a *whole* of that Nature, the *Inferiors* whereof, as *Man* and *Beast*, comprised in its Extent, are the *subjective Parts*. This *Division* retains properly the Name of *Division*, of which there are four Sorts.

The first, is when the Gender is divided by its Species, as this, *all Substance is Body or Spirit*; *all Animal is Man or Beast*.

The second is, when the Gender is divided by its Differences, as this, *all Animal is reasonable, or deprived of Reason*; *all Numbers are even or uneven*; *all Propositions are true or false*.

The third is, when a common Subject is divided by the opposed Accidents, it is capable of, or by its various Inferiors, at various Time; *as every Star is luminous by itself, or only by Reflexion*; *all Bodies are in Motion or at rest*; *all Men are in Health or sick*.

The fourth, of an Accident into its various Subjects; as the *Division* of Goods into those of the Mind and of the Body.

The Rules of the *Division* are, 1. That it should be entire, that's to say, that the Members of the *Division* contain all the Extent of the Term divided; as *even* and *uneven* includes all the Extent of the Term of the Number, there being none which is not *even* or *uneven*. There is scarce any Thing which occasions so many false Judgments, as the Want of Attention to this Rule; and what deceives is, that there are often Terms which appear so opposed, that they seem to admit of no Medium, though they have some. Thus between *Ignorant* and *Learned*, there is a certain Mediocrity of Sufficiency, which takes a Man from among the Ignorant, though it does not place him among the Learned. Between *vicious* and *virtuous*, there is a certain State, of which it can be said, what *Tacitus* said of *Galba*, *magis extra vitia, quam cum virtutibus:* For there are Men, who having no flagrant Vices, are not called vicious, and who doing no good, cannot be called virtuous; though before God, it is a great Vice to have no Virtue. Between being in Health and sick, there is the State of a Man indispos'd, or convalescent. Between the Day and the Night, there is the *Crepusculum*. Between the opposite Vices, there is the Medium of Virtue, as Piety between Impiety and Superstition. And sometimes that Medium is double, as between Avarice and Prodigality, there is Liberality and a laudable Parcimony. Between Timidity which fears all, and Temerity which fears nothing, there is Bravery and a reasonable Precaution, which makes one avoid the Danger it is not expedient to expose oneself to.

The second Rule, which is a Sequel of the first, is, that the Members of the *Division* be opposed as *even* and *uneven*, *reasonable* and *deprived of Reason*. But it must be observed, what we have already said in the first Part, that it is not necessary that the Differences, which make those opposite Members, be positive; but that it suffices one of them should be positive, and the other the Gender alone, with the Negation of the other Difference; and thereby the Members are more certainly opposite. Thus the Difference between Man and Beast, is but the Privation of Reason, which is nothing positive. Imparity is but the Negation of Divisibility, into two equal Parts. The first Number has nothing but what the Composite has; the one and the other having Unity for Measure, the first being different from the Composite but in that it has no other Measure but Unity.

The third Rule, which is the Sequel of the second, is, that one of the Members should not be so confined within the other, that it may affirm of the other; though sometimes it can be confined in another Manner. For the Line is inclosed in the Surface, as the Term of the Surface; and the Surface in the solid, as the Term of the solid. But this does not hinder the Extent from being divided into Line, Surface, and Solid, because it cannot be said that the Line is the Surface, nor the Surface the Solid. On the contrary, the Number cannot be divided into *even*, *uneven*, and *square*, because all square Numbers being even or uneven, it is inclosed in the two first Numbers.

Neither are Opinions to be divided, into *true*, *false*, *probable*, because all probable Opinions are true or false. But they can be divided first into true and false, and afterwards the one and the other into certain and probable.

As to the Definition, called the Definition of a Thing.— I have spoke in the first Part of this Treatise, of the *Definitions* of the Name, and proved that they are not to be confounded with the *Definitions* of the Things; because the *Definitions* of the Names are arbitrary; whereas the *Definitions* of the Things do not depend on us, but on what is contained in the true Idea of a Thing; and ought not to be taken for Principles, but are to be considered as Propositions, which often must be confirmed by Reason, and which can be contradicted. It is then but of this last Kind of *Definition* I am to speak in this Place.

There are two Sorts of this *Definition*; one more exact, which retains the Name of *Definition*; the other less exact, called *Description*.

The most *exact* is that which explains the Nature of a Thing by its essential Attributes, those of them which are common, being called *Genders*, and those which are proper, *Difference*.

Thus Man is defined a *rational Animal*; the Soul a *thinking Substance*; the Body *an extended Substance*; God a *perfect Being*. What is put for Gender in a *Definition*, must be, as much as possible, the nearest Gender to the defined, and not only the distant Gender.

We define also, sometimes, by the integrant Parts, as when we say, that Man is a Thing composed of a Soul and Body; but even then there is something which supplies the Place of the Gender, and the rest that of the Difference.

The less *exact Definition*, called *Description*, is that which gives some Knowledge of a Thing by the Accidents proper to it, and which determines it enough to give of it some Idea, which distinguishes it from others.

It is in that Manner Plants, Fruits, Animals, are described by their Figure, Bigness, Colour, and other like Accidents; and Descriptions of Poets and Orators are of that Nature.

There are, likewise, *Definitions* or *Descriptions* made by the Causes, the Matter, the Form, the End, *&c.* as if a Clock be defined *an Iron Machine, composed of different Wheels, the regular Motion whereof, is proper to mark the Hours*.

Three Things are necessary to a good *Definition*, *viz.* that it be *universal*, *proper*, and *clear*.

1. A *Definition* must be *universal*, i. e. must contain all the defined. Therefore the common *Definition* of Time, *viz.* that it is the *Mensuration of the Motion*, is, perhaps, not good; because there is a great Appearance, that Time measures as well Rest, as it does Motion; since it is as well said, that a Thing has been so long at Rest, as it is said, that it has been so long in Motion: So that it seems that Time is nothing else but the Duration of the Creature, in whatever is her State.

2. A *Definition* must be *proper*, i. e. must agree only with the defined. Therefore the common *Definition* of the Elements, *a simple corruptible Body*, does not seem good. For the celestial Bodies being no less simple than the Elements, there is no Reason to believe, that there are

are no Alterations made ſemblable to thoſe made on Earth, ſince, without ſpeaking of the Comets, Spots are obſerved in the Sun, which are formed there, and diſſipated in the ſame Manner our Clouds are, though they be far bigger Bodies.

3. A *Definition* muſt be *clear*, i. e. muſt ſerve us to have a clearer and more diſtinct Idea of the Thing defined, and make us as much as poſſible, conceive the Nature thereof, ſo that it may help us to account for its principal Properties. It is what muſt be chiefly conſidered in the *Definitions*, and it is what's wanted in moſt of *Ariſtotle*'s Definitions. For who has better conceived the Nature of the *Motion*, by this Definition, *Actus entis in potentiâ quatenus in potentiâ:* The Act of a Being in Power, as it is in Power? Is not the natural Idea we have of it, clearer than that? And to whom could it be of any Uſe to explain any of the Properties of *Motion*?

Note, That theſe Rules of the *Diviſion* and *Definition* are the Concluſion of the ſecond Part of my *Logic*; therefore,

THE THIRD PART.

Of Ratiocination, or Reaſoning.

Note, That this Part I am going to treat of, and which contains the Rules of *Reaſoning*, is eſteemed the moſt important of all the *Logic*; and is almoſt the only one treated with Care, but we have ſome Reaſon to queſtion if it be as uſeful as imagined. Moſt of Men's Errors, as I have obſerved elſewhere, proceed much more from their reaſoning on falſe Principles, than from their reaſoning ill according to their Principles. It ſeldom happens that we are deceived by Reaſonings, which are no otherwiſe falſe, but becauſe the Conſequence thereof is ill drawn; and thoſe who ſhould not be capable to diſcover the Falſity thereof by the ſole Light of their Reaſon, could not underſtand the Rules given with regard to them, and much leſs apply them. Which notwithſtanding were thoſe Rules conſidered but as ſpeculative Truths, they would ſerve at leaſt to exerciſe the Mind: And beſides it muſt be confeſſed, that they are of Uſe on ſome Occaſions to Men who being of a quick and penetrating Genius, are ſometimes deceived by falſe Appearances through Want of Attention, to which the Reflections they would make on thoſe Rules would be capable to remedy. Let it be how it will, this is what is commonly ſaid of it, and ſomething more than what is ſaid of it. But to proceed,

As to *the Nature of Ratiocination*, or *Reaſoning*.— *Ratiocination* being an Act of the Mind, whereby a Judgment is deduced from other antecedent Judgments, its Nature cannot be obſcure; which notwithſtanding it is diſputed in the Schools, whether it ſhould be called a certain Species of Judgment, or ſome Act diſtinct from Judgment; though, in my Opinion, it ſhould be called a *certain Species of Judgment*, becauſe it is an Act of the Mind, affirming or denying ſomething, from other Things it had already affirmed or denied: For Example, from that it had affirmed that the Soul is a ſpiritual Subſtance, it concludes, that it is immortal, ſince all ſpiritual Subſtances are immortal; from that it has denied that Matter is incapable of Thinking, it denies its being capable of the Beatitude, ſince Thinking is neceſſary to render one happy.

This Species of Judgment has this, in particular, that it does not join an Idea with another, or ſeparates it from another, before it has compared them both, by previous Judgments, with a third: For Example, in the following Reaſoning, the Idea of an *immortal Subſtance*, is not joined with that of *Mind*, before they have been both compared with the Idea of a *ſpiritual Subſtance*, in this Manner:

All ſpiritual Subſtance is immortal:
But the Soul of Man is a ſpiritual Subſtance;
Then the Soul of Man is immortal.

The Reaſon of this is, that where the Connection, or Separation of the Attribute and Subject of ſome Queſtion is not evident by itſelf, a third Idea is wanted, whereby that Connection or Separation can be diſcovered, which third Idea is commonly called *Argument* or *Judgment*.

But if the Conjunction or Separation of the Terms of a Propoſition be known by itſelf, then it wants no Argument for the Demonſtration of the Truth or Falſity thereof: Such as are the Propoſitions known by themſelves, called *Axioms*, v. gr. *the Whole is greater than a Part thereof.*

Whence it can be underſtood, that in all Ratiocination, there muſt be two previous Judgments, the firſt which ſhould contain, and the ſecond to ſhew that the firſt contains the third Judgment deduced from them both, which third Judgment is called ſometimes *Concluſion*, or *Complection*; ſometimes *Queſtion*, or *Propoſition*. For Queſtion or Propoſition don't differ from Concluſion or Complection, but in that a Concluſion is confirmed by ſome Argument; and a Queſtion is only propoſed, and not proved.

I ſay, 1. That two Judgments, at leaſt, are always previous to a Concluſion; for nothing can be concluded from an Antecedent alone, unleſs ſome other Judgment can be underſtood joined with that Antecedent; *v. gr.* when I ſay, *I think, then I am:* I could not draw the Concluſion from the Antecedent, unleſs I had another conceived in my Mind, *viz.* all that thinks, is, or exiſts; but *I think, then I exiſt.*

I ſay, 2. That a Concluſion is contained, is one of the Premiſſes, and declared in the other: For Example, this Concluſion, *then the Soul of Man is immortal*, is contained in this Judgment, *all ſpiritual Subſtance is immortal*; and is declared by this ſecond Judgment, but *Man's Soul is a ſpiritual Subſtance:* For if the Soul be a ſpiritual Subſtance, it is certainly contained in that Propoſition, *all ſpiritual Subſtance is immortal:* Therefore it muſt be conſidered as immortal.

Note, That though *Ratiocination* be moſt commonly promiſcuouſly taken for *Argumentation*, whence it is called *long Ratiocination, ſhort Ratiocination*; if notwithſtanding *Ratiocination* be underſtood in a ſtrict Senſe, *viz.* for an Act of the Mind, deducing a Judgment from two Premiſſes, it is certainly more ſimple than Argumentation.

Note, alſo, That a *Ratiocination* founded on a falſe Argument, is called a *Sophiſm*; that founded on a probable one, *Opination*; and that founded on a certain and evident Reaſon, *Demonſtration*. Of this, the *Sophiſm* produces *Error*; a probable Reaſon, *Opinion*; and Demonſtration, *Science:* The Authority of God revealing Myſteries, produces the *divine Faith*; and Man's Teſtimony, the *human Faith*.

As to *Argumentation and the different Species thereof*.— When the Terms of a Propoſition are not ſo well joined together, as to render their Connection apparent, then there wants an *Argument* to render it manifeſt; and then the Propoſition, till then called *Queſtion*, begins to be called *Concluſion* or *Complection*.

Argumentation, is defined *a Diſcourſe whereby a Judgment deduced from Premiſes, is expreſſed by diſtinct Propoſitions*. Therefore in *Argumentation* there is ſomething *antecedent*, ſomething *conſequent*, and a Connection beſides of the *Conſequent* with the *Antecedent*, which Connection is commonly called *Conſequence*.

The *Antecedent* is that *from which ſomething is inferred*, and contains at leaſt two Judgments; whether they be expreſſed by two Propoſitions, or one of them be tacit.

The *Conſequent*, is that *which follows from the other*, or a Propoſition collected from at leaſt two antecedent Propoſitions, one whereof is ſometimes ſuppreſſed.

Laſtly, the *Conſequence* is commonly defined a *Connection of the Conſequent with the Antecedent*; which is ſometimes good, though the Conſequent be falſe; *v. g.* if this falſe Antecedent be advanced, *the Matter is a thinking Subſtance*, this falſe Conſequent would be rightly inferred, *then the Matter can be happy*, becauſe all that thinks can be happy; and *viciſſim*, the Conſequent can be true, and the Conſequent falſe; as if it was ſaid, *a Circle is round, then it differs from a Sphere*; for a Circle does not differ from a Sphere in that it is round, but becauſe it is a Plane and the Sphere is ſolid.

All *Argumentation* is contained in the *Induction* and Syllogiſm, to the *Induction* is joined *Example*; and to

Syllogism are associated the *Sorites* and *Dilemma*, which contain virtually a great Number of *Syllogisms*: And likewise the *Enthymema*, which is a truncated *Syllogism*, and the *Epicherema*: Whence we commonly reckon seven Species of Argumentation, *viz.* the *Induction*, *Example*, *Sorites*, *Dilemma*, *Syllogism*, *Enthymema*, and *Epicherema*.

Induction, is *an Argumentation, whereby in enumerating either the Genders, or the Species, or the Individuals, something universal, and common to all them is concluded*; *v. g.* if one was to say, Gold can be melted, Silver can be melted, Copper, Tin, Lead, Iron, can be liquified, he could rightly conclude, *then all Metal can be liquified.* This Sort of Argumentation is invincible, if the Enumeration of the Things be entire and perfect; otherwise it is lame, and of no Force.

Example, is an Argumentation *whereby of something singular, is inferred another such singular Thing*; viz. if because I have employ'd a whole Year in learning something, I conclude, that as much Time is required for another to learn the same Thing: Which Sort of *Argumentation* must be used with Caution; for in those Things which seem semblable, there occurs often some Difference, which hinders a just Inference of the one from the other; for, *v. gr.* another does not want, perhaps, so much Time to learn something as I do: Whence Men never err oftener, than when they take their Arguments from Examples.

To Example belong the *Parable* and *Apologus.*—*Parable*, in this Place, is a Similitude taken from a fictitious Thing, and employed to persuade, what we design should be known; such was the Parable proposed by *Nathan* to *David*, 2 *Sam.* xii. and such are all the *Parables* proposed by Christ to his Disciples.

Apologus, is a Fable, whereby Men and Beasts, and even the Things insensible, are introduced speaking, in our Manner, between themselves; as the Cedar and Thistle, 2 *Kings* xiv. 9. and all Sorts of Beasts in *Æsop*'s *Fables*.

Sorites, is an Argumentation, composed *in such a Manner of several Propositions, that the Attribute of the Precedent be the Subject of the Consequent, till the Subject of the first Proposition be composed with the Attribute of the last.* As if I were to prove that the Avaricious are miserable, I would proceed thus gradually:

The Avaricious desire many Things,
Those who desire many Things, are in Want of many,
Those in Want of many Things, are miserable;
Then the Avaricious are miserable.

The *Dilemma*, is *a composed Argumentation, and very troublesome, in which after the Division of the Whole into its Parts, that is concluded of the Whole, what had been concluded of every Part*: As if I was to prove that all Men, in this Life, are miserable, I would use the following *Dilemma*:

Every one that lives in this World, either indulges his Passions, or refrains them,
If he indulges them, he is miserable; since it is impossible he should ever entirely gratify them:
If he refrains them, he is miserable likewise; because he is forced to be at perpetual War with himself:
Therefore every one that lives in this World is miserable.

I have concluded that he who *indulges his Passions is miserable*, and likewise he who refrains them; which two Propositions are like the Parts of a Division; and hence I conclude in general, that *all Men are miserable.*

Syllogism is defined by *Aristotle*, *lib.* 1. *prior. Analytic. c.* 1. a certain Discourse, in which a Proposition, called *Conclusion*, is necessarily deduced from two other previous ones, one whereof called *major*, and the other *minor*; from that those two former Propositions, called *Premises*, are true, as when it is said,

All that thinks exists;
But I think:
Then I exist.

By which Definition, two Questions used to be propposed by the *Peripateticks* can be answered.

The first is, In what consists the Nature of the Syllogism? If in the three Propositions, or in the Conclusion only? For since the Syllogism consists of two Premises and of a Conclusion; its Nature must certainly consist in those three Propositions. Ratiocination consists in the sole Conclusion, or the Illation of one from the other; because Ratiocination is more simple than Argumentation, and consists in the sole Act of the Mind; but Argumentation is a Discourse composed of Propositions.

The second Question is, if the Premises admitted, one is obliged to consent to the Conclusion? Which seems also certain from the Definition: For if the Conclusion follows necessarily from the Premises, then one cannot assent to the Premises without acquiescing to the Conclusion.

The *Enthymema*, is a *truncated Syllogism, some Proposition whereof is reserved in the Mind*; whence it is commonly said, that an *Enthymema in the Mouth is a Syllogism in the Mind*, v. g. *I think, then I exist.*

The *Epicherema*, is a *Syllogism where each Proposition has its Proof*, in this Manner:

All that thinks exists; for it cannot be that what does not exist should think:
But I think; for I perceive, I judge, I doubt, I will, &c. *then I exist.*

Note, That the other Sorts of Argumentation, except the Syllogism, want no further Explication; therefore we must only treat next of the Syllogism, and consider that there are two Sorts of Syllogisms, *viz.* one *simple* and the other *conjunctive.*

The *simple Syllogisms*, are those where the Medium is joined separately with each of the Terms of the Conclusion; therefore this Argument is simple.

Every good Prince is beloved of his Subjects:
Every pious King is a good Prince:
Then every pious King is beloved of his Subjects.

Because the Medium is joined separately with *pious King*, which is the Subject of the Conclusion, and with *beloved of his Subjects*, which is the Attribute thereof.

A *simple Syllogism* must have but three Terms, *viz.* the two Terms of the Conclusion, and only one intermediate, each whereof being repeated twice, make up three Propositions: The *major*, called also *Thesis*, which consists of the greater Extreme, and of the Intermediate: The *minor*, called also *Assumption* or *Thesis*, which consists of the less Extreme and of the Intermediate: And lastly, the *Conclusion*, composed of the greater and lesser Extreme: For the Intermediate never enters the Conclusion, as in this *simple Syllogism.*

All that thinks is spiritual,
All Mind thinks:
Then all Mind is spiritual.

Mind, in the lesser Extreme, because it is the Subject of the Conclusion: *Spiritual*, is the greater Extreme, because it is the Attribute of the Conclusion: And lastly, *think* is the intermediate Term, which is separately joined with each Extreme, *viz.* with the greater Extreme in the *major*, and with the lesser Extreme in the *minor.*

But because all Sorts of Conclusions cannot be drawn from all Sorts of Premises; there are eight general Rules which shew that a Conclusion cannot be very well drawn in a Syllogism, where they are not observed.

The first of these Rules is, *That the intermediate Term cannot be taken twice particularly, but it must be taken at least once universally.* For as it must unite and disunite the two Terms of the Conclusion, it is clear that it cannot do it, if it be taken for two different Parts of the same whole; because it would not be perhaps the same Part which shall be united or disunited from those two Terms. But being taken twice particularly, it may be taken for two different Parts of the same Whole; and consequently it would be impossible to conclude any Thing from it, at least necessarily. Which suffices to render an Argument vicious, since no *Syllogism* is called good, but that the Conclusion whereof cannot be false, the Premises being true. Thus in this Argument; *Some Man is a Saint, some Man is a Thief, then some Thief is a Saint*; the Word *Man* being taken for divers Parts of Men, cannot unite *Thief* with *Saint*, because it is not the same Man who is a Thief and a Saint.

The same cannot be said of the Subject and of the Attribute of the Conclusion; because though they be taken twice particularly, they can notwithstanding be united together, by uniting one of those Terms to the Intermediate, in the whole Extent of the Intermediate. For it follows hence very well, that if the Intermediate be

be united in some of its Parts to some Part of the other Term, that first Term, which I have said to be joined to the whole Intermediate, will be found joined likewise with the Term wherewith some Part of the Intermediate is joined. If there are some *Englishmen* in each House of *London*, and there be some *Frenchmen* in some Houses of *London*, there are Houses where there is together an *Englishman* and a *Frenchman*.

If some rich Men are Fools,
And that every rich Man is respected.
There are Fools respected.

For those Rich who are Fools are also respected, since all rich Men are respected; and consequently in those Riches, Fools respected, the Qualities of Fool and Respected are joined together.

2. *Rule.—The Terms of the Conclusion cannot be taken more universally in the Conclusion than in the Premises:* Therefore when the one or the other is taken universally in the Conclusion, the Reasoning will be false, if it be taken particularly in the two first Propositions. The Reason of this is, that nothing can be concluded from the Particular to the General; because from that some Man is black, it cannot be concluded that all Men are black.

3. *Rule.—Nothing can be concluded from two negative Propositions:* Because two negative Propositions separate the Subject from the Intermediate, and the Attribute from the same Intermediate. But from that those two Things are separated from the same Thing, it does not follow that they are, or are not the same Thing. From that the *Spaniards* are not *Turks*, and that the *Turks* are not *Christians*, it does not follow that the *Spaniards* are not *Christians*; neither does it follow that the *Chinese* are *Christians*, though they be no more *Turks* than the *Spaniards*.

4. *Rule.—A negative Conclusion cannot be proved, by two affirmative Propositions:* For from that the two Terms of the Conclusion are united with a Third, it cannot be proved that they are disunited between themselves.

5. *Rule.—The Conclusion follows always the weaker Part*, i. e. that if one of the two Propositions be negative, the Conclusion must be negative; and if one of them be particular the Conclusion must be particular. The Proof of this is, that if there is a negative Proposition the Intermediate is disunited from one of the Parts of the Conclusion; and consequently incapable of uniting them, which is necessary to conclude affirmatively. And if there be one particular Proposition the Conclusion cannot be general. For if the Conclusion be general Affirmative, the Subject being universal, it must be likewise universal in the *Minor*; and consequently must be the Subject thereof, the Attribute being never taken generally in the affirmative Propositions: Therefore the Intermediate joined to that Subject, will be particular in the *Minor*, and general in the *Major*, otherwise it would be twice particular. Then it will be the Subject of the *Major*, and consequently that *Major* will be universal: And thus there can be no particular Proposition in an affirmative Argument, the Conclusion whereof is general.

This is still clearer in the Conclusion of universal Negatives: For it follows hence, that there must be three universal Terms in the two Premises; but as there must be in it an affirmative Proposition, according to the third Rule, the Attribute whereof is taken particularly, it follows that all the other three Terms are taken universally, and consequently the two Subjects of the two Propositions, which renders them universal, and which was to be demonstrated.

6. *Rule. Of two particular Propositions nothing is concluded.* For if they be both Affirmative, the Intermediate will be taken twice particularly, whether it be the Subject, or the Attribute. For by the *first Rule*, nothing is concluded, the Medium whereof is twice taken particularly. And if one of them was Negative, the Conclusion being so likewise (by the preceding Rule) there must be, at least, two universal Terms in the Premises; therefore there must be an universal Proposition in the two Premises, it being impossible to dispose so two Terms in two Propositions, where there must be two Terms taken universally, without making either two negative Attributes, which would be against the third Rule, or some of the Subjects universal, which renders the Proposition universal.

As to the *Figures and Modes of Syllogisms in general.* After we have established the general Rules, which must be necessarily observed in all simple Syllogisms; it remains to see how many Sorts there are of those Syllogisms.—It must be said, in general, that there are as many Sorts of them, as there are Manners to dispose, in observing those Rules, the three Propositions of a Syllogism, and the three Terms whereof they are composed.

The Disposition of the three Propositions according to their four Differences A. E. I. O. is called *Mode.*—And the Disposition of the three Terms, *i. e.* of the intermediate with the two Terms of the Conclusion, is called *Figure.*

One may reckon how many concluding Modes there are, without considering the different Figures, according to which the same *Mode* can make various Syllogisms. For by the Doctrine of Combinations, four Terms, as A. E. I. O. being taken by three and three, cannot be differently disposed but into 64 Manners. But of those 64 different Manners, those who will take the Pains to consider every one of them apart, will find that 28 of them are excluded by the third and sixth Rule, that nothing is concluded from two Negatives and two Particulars.—18 by the fifth Rule, that the Conclusion follows the weaker Part.—6 by the fourth, that from two Affirmatives nothing can be concluded negatively.—And 2 others, which make up in all 57; and consequently there remain only 10 concluding Modes.

4 Affirmat.	A. A. A. A. I. I. A. A. I. I. A. I.	6 Negat.	E. A. E. A. E. E. E. A. O. A. O. O. O. A. O. E. I. O.

Which notwithstanding there are more than ten Species of Syllogisms, since only one of these Modes, according to the other Manner, can make several Kinds thereof; whence the Diversity of Syllogisms is taken, which is the different Disposition of the three Terms, called *Figure.*

As for that Disposition of the three Terms, it relates but to the two first Propositions, because the Conclusion is supposed, before the Syllogism be made to prove it: And therefore as the Intermediate cannot be disposed but in four different Manners with the two Terms of the Conclusion, there can be but four Figures possible.

For either the Intermediate is *subject in the Major, and Attribute in the Minor*; which makes the first Figure.

Or, is *Attribute in the Major and in the Minor*; which makes the second Figure.

Or, is *Subject in the one and in the other*; which makes the third Figure.

Or, lastly, is *Attribute in the Major, and Subject in the Minor*; which can make the fourth Figure: It being certain that one can sometimes conclude necessarily in that Manner, which suffices to make a true Syllogism.

As to the Rules, Modes, and Foundations of the first Figure.—We have observed already, that the *first Figure* is that where the Intermediate is Subject in the *Major*, and Attribute in the *Minor.*—This Figure has but two Rules.

The first Rule is, that *the Minor must be Affirmative*; for if it was Negative, the *Major* would be Affirmative, by the third general Rule, and the Conclusion Negative by the fifth: Therefore the greater Term would be taken universally in the Conclusion, because it would be Negative, and particularly in the *Major*, because it is the Attribute hereof in this Figure, and would be Affirmative, which is against the second Rule, which forbids to conclude from the Particular to the General. This Reason has Place likewise in the third Figure, where the greater Term is likewise the Attribute in the *Major.*

The second Rule is, that *the Major ought to be universal*; for the Minor being Affirmative by the preceding Rule, the Intermediate which is Attribute there is taken particularly; therefore it must be universal in the *Major* where it is Subject, which renders it universal: Otherwise it would be taken twice, particularly against the first general Rule.

These

These two Rules of the first Figure are contained in the following Verse:

Sit Minor affirmans, Major verò generalis.

Whence it can be inferred, that there are only four *Modes* of the *first Figure*; for of the ten *Modes* proper to conclude, are excluded A. E. E, and A. O. O, by the first Rule; then I. A. I, and O. A. O, by the second. A. A. I. are likewise excluded; because the less Term being subject in the Minor, it cannot be universal, unless the Conclusion be universal likewise; and consequently there remain but four Modes.

2 Affirmat. { A. A A. / A. I. I. } 2 Negat. { E. A. E. / E. I. O. }

These four Modes, that they may be easier retained, have been reduced to artificial Words, the three Syllables whereof mark the three Propositions, and the Vowel of each Syllable marks what must be that Proposition; so that those Words have this very commodious in the Schools, that they mark clearly by a single Word a Species of Syllogism, which without it could not be understood, without being prolix on the Subject, *viz.*

BAR- *Whoever leaves to perish of Hunger those he should feed, is homicide.*
BA- *All the Rich who refuse to give Alms in publick Necessities, leave those to perish of Hunger whom they should feed;*
RA. *Then they are homicide.*
CE- *No impenitent Thief must expect to be saved.*
LA- *Those who die after they have enriched themselves of the publick Spoils, without making Restitution, are impenitent Thieves;*
RENT. *Therefore none of those must expect to be saved.*
DA- *All that contribute to Salvation, is advantageous.*
RI- *There are Afflictions which contribute to Salvation;*
I. *Then there are Afflictions which are advantageous.*
FE- *What is followed of a just Repentance, is never to be desired.*
RI- *There are Pleasures which are followed of a just Repentance;*
O. *Then there are Pleasures which are not to be desired.*

Note, That this Figure is founded on two Principles; one for the *affirmative Modes*, and the other for the *Negative*. The *first* of those two *Principles*, is this: *All that is said of a Subject considered according to its whole Extension, is said of all that is contained under that Subject:* Or in shorter Terms, *All that is said of the superior, is said likewise of the inferior:* If the great Extreme be said of the Intermediate, it must also be said of the less Extreme, which is contained under the Intermediate; for if Animal be affirmed of Man, it is also affirmed of *Aristotle*, who is contained under that general Name *Man*. The *second Principle* is this: *What is repugnant to the Superior is repugnant likewise to the Inferior*; v. g. if it be repugnant to Animal to walk, it will likewise be repugnant to Man.

Note, also, That none of the Figures but the first is perfect, because the natural Order of the Terms is observed in no other.

As to the Rules, Modes, and Foundations of the second Figure.—The *second Figure*, is that where the Intermediate, is twice Attribute; and hence it follows, that for it to conclude necessarily, the two following Rules must be observed.

The first is, that *one of the Premises must be a Negative*; because as the Intermediate is Attribute in both, if they were both Affirmative, it would be taken twice particularly against the first general Rule.

The second is, that *the Major must be universal*; for if it was particular, the greater Extreme, which is the Subject thereof, would be only taken particularly, when as notwithstanding it is taken universally in the negative Conclusion, whereof it is the Attribute; which would be an Absurdity, and against the second general Rule: Therefore of the Premises in this Figure,

Una negans esto, nec major sit specialis.

Hence it may be inferred, that there are only four Modes of the 2d Figure. For of the ten concluding Modes, the four affirmative are excluded by the first general Rule of that Figure, which is, that one of the Premises must be a Negative, *viz.* A. A. A, A. I. I, A. A. I,—Then O. A. O, is excluded by the second Rule, which is, that the Major must be universal: And lastly, as the less Extreme can be taken as widely in the Conclusion as in the Premises; the Mode E. A. O. is excluded as in the first Figure, because the less Term is also subject in the *Minor*; therefore there remain only four Modes, *viz.* E. A. E, A. E. E, E. I. O, A. O. O, which four Modes have been comprized under these artificial Words.

CE- *No Lyer is to be believed;*
SA- *All honest Men are to be believed;*
RE. *Then no honest Man is a Lyer.*
CA- *All those who belong to Christ, crucify their Flesh;*
MES- *All those who lead a voluptuous Life do not crucify their Flesh:*
TRES. *Then none of those belong to Christ.*
FES- *No Virtue is contrary to the Love of Truth;*
TI- *There is a Love of Peace which is contrary to the Love of Truth;*
NO. *Then there is a Love of Peace which is not Virtue.*
BA- *All Virtue is accompanied with Discretion;*
RO- *There are Zeals without Discretion;*
CO. *Then there are Zeals which are not a Virtue.*

Note, That it would be easy to reduce these different Sorts of Arguments to the same Principle; but it is more advantageous to reduce two of them to the same Principle, and two to another; because the Dependency and Relation they have with those two Principles are clearer and more immediate.

The first of those Principles is that which serves likewise for a Foundation to the negative Arguments of the first Figure, *viz.* that *what is denied of an universal Idea, is also denied of all the Subjects of that Idea*; for it is clear that the Arguments in *Cesare* and *Festino* are established on that Principle. To show, for Example, that no honest Man is a Lyer; I have affirmed credible of all honest Men, and denied Lyer of all credible Men, by saying that *no Lyer is credible*. It is true, that this Manner of denying it is indirect, since instead of denying Lyer of credible, I have denied credible of Lyer. But all the universal negative Propositions are converted simply; in denying the Attribute of an universal Subject, that universal Subject is denied of the Attribute.

This shews notwithstanding, that the Arguments in *Cesare*, are in some Manner indirect; since in them what must be denied is only denied indirectly. But as that does not hinder the Mind from conceiving easily and distinctly the Strength of the Argument, they can pass for direct, understanding that Term for clear and natural Arguments.

In the two Modes *Camestres* and *Baroco*, the Intermediate is affirmed of the Attribute of the Conclusion, and denied of the Subject; which shews that they are established directly on this Principle: *All that is comprized in the Extension of an universal Idea, is not convenient to any of the Subjects whereof it is denied, the Attribute of a negative Proposition being taken according to its whole Extension. True Christian* is comprized in the Extension of charitable; charitable is denied of impitiable towards the Poor, which makes this Argument;

All true Christians are charitable;
No Man unpitiable towards the Poor is charitable:
Then no unpitiable Man towards the Poor is a true Christian.

As to the Rules, Modes, and Foundations of the 3d Figure. This Figure has two Rules.

The first Rule is, that *the Major must be affirmative*, as well as in the first Figure, and for the same Reason.

The second, that *the Conclusion be particular*, because the *Minor* being Affirmative, the less Extreme, which is its Attribute, is taken in it particularly; therefore that it may likewise be taken particularly in the Conclusion, whereof it is the Subject, the Conclusion must be particular: Whence this Verse;

Sit minor affirmans, conclusio particularis.

Hence it may be inferred, that there are but six Modes in

in this Figure: For of the ten concluding Modes, A. E. E. and A. O. O. are included by the first Rule of this Figure, which is, that the Minor cannot be Negative. A. A. A. and E. A. E. are excluded by the second Rule, which is, that the Conclusion cannot be general. There remains then but these six Modes.

3 Affirm.	A. A. I. A. I. I. I. A. I.	3 Negat.	E. A. O. E. I. O. O. A. O.

This has been reduced to the six following artificial Words, though in another Order.

DA- *The Divisibility of the Matter*, in infinitum, *is incomprehensible.*
RA- *The Divisibility of the Matter*, in infinitum, *is very certain.*
PTI. *Then there are Things very certain, which are incomprehensible.*
FE- *No Man can forsake himself.*
LA- *All Men are Enemies to themselves.*
PTON. *Then there are Enemies who cannot be forsaken.*
DI- *There are Wicked in the greatest Fortunes.*
SA- *All the Wicked are miserable.*
MIS. *Then there are Miserable in the greatest Fortunes.*
DU- *All the Servants of God are Kings.*
TI- *There are Servants of God who are Poor.*
SI. *Then there are Poor who are Kings.*
BO- *There are Cholericks who are not blameable.*
CAR- *But Wrath is a Passion.*
DO. *Then there are Passions which are not blameable.*
FE- *No Folly is eloquent.*
RI- *But there are Follies in Figure.*
SON. *Then there are Figures which are not eloquent.*

Note. That there are two Principles on which the Modes of the third Figure are founded. — The first pertains to the affirmative Modes, *viz. If two Attributes agree to the same Subject, they likewise agree sometimes between themselves*, v. gr. If all Mystery be obscure and certain, something certain is sometimes obscure. — The second Principle relates to the negative Modes, *viz. If of two Attributes, one agree to some Subject, to which the other does not agree, those Attributes do not agee between themselves.*

As to the Modes of the fourth Figure. — There are three Rules in this Figure.

The first Rule is; *that the Major must be affirmative, and the Minor universal.* Because the Intermediate, in this Figure, is taken particularly in the affirmative Major, whereof it is Attribute. Therefore by the fourth general Rule, it must be taken universally in the Minor, and render it universal, since it is the Subject thereof.

The second Rule; *when the Minor is affirmative, the Conclusion must be particular.* For the less Extream, which is the Attribute of the Minor, is taken in it, particularly; therefore it must be taken, likewise, particularly in the Conclusion, whereof it is Subject; and consequently renders it particular.

The third Rule; *when the Mode is negative, the Major must be general.* Because the greater Term is taken universally in the negative Conclusion, whereof it is Attribute. Therefore that it may be taken likewise universally in the Major, whereof it is Subject, it renders it universal, as in the second Figure.

Major ubi affirmat, generalem sume minorem.
Si Minor affirmat, conclusio sit specialis.
Cumque negans modus est, Major generalis habetur.

Therefore there can be but five Modes in the fourth Figure, for of the ten concluding Modes, A. I. I. and A. O. O. are excluded by the first Rule; A. A. A. and E. A. E. by the second; O. A. O. by the third. Whence there remain only the five following.

2 Affirm.	A. A. I. I. A. I.	3 Negat.	A. E. E. E. A. O. E. I. O.

These five Modes can be included in the five artificial Words.

BAR- *All the Miracles of Nature are common.*
BA- *All that's common make no Impression upon us.*
RI. *Then there are Things which make no Impression upon us, which are Miracles of Nature.*
CA- *All the Evils of this Life are transitory Evils.*
LEN- *All transitory Evils are not to be feared.*
TES. *Then none of the Evils which are to be feared, is an Evil of this Life.*
DI- *Some Fools speak true.*
BA- *Whoever speaks true deserves to be followed.*
TIS. *Then there are some who deserve to be followed, who notwithstanding are Fools.*
FES- *No Virtue is a natural Quality.*
PA- *All natural Qualities have God for Author.*
MO- *Then there are Qualities which have God for Author, which are not Virtues.*
FRE- *No unhappy Persons are contented.*
SI- *There are Persons contented who are Poor.*
SAN. *Then there are Poor who are not unhappy.*

Note, That those five Modes are commonly expressed in this Manner; *Baralipton, Calentes, Dabitis, Fapesmo, Frisesomorum*; which proceeds from *Aristotle* not having made a separate Figure of these Modes, they have only been considered as indirect Modes of the first Figure; because it was pretended, that the Conclusion thereof was renversed, and the Attribute was its true Subject. Therefore those who have followed that Opinion, have placed for the first Proposition, that where the Subject of the Conclusion enters; and for Minor, that where the Attribute enters. And thus have given nine Modes to the first Figure, four Directs, and five Indirects, which they have included in the two following Verses:

Barbara, Celarent, Darii, Ferio: Baralipton,
Celantes, Dabitis, Fapesmo, Frisesomorum.

And for the two other Figures.

Cesare, Camestres, Festino, Baroco: Darapti,
Felapton, Disamis, Datisi, Bocardo, Ferison.

But as the Conclusion, being always supposed, since it is that which is to be proved; it cannot be properly said, that it is ever renversed; we have thought it more advantageous to take always for Major the Proposition where the Attribute of the Conclusion enters; which has obliged us, to place the Major first, to renverse those artificial Words. So that to retain them better, they may be included in the Verse;

Barbari, Calentes, Dibatis, Fispamo, Frisesom.

Note also, That from this I'll pass to the Explication of the *Conjunctive Syllogism*, and of its *Species.*

We have divided the Syllogism into *simple* and *conjunctive.* Next to the simple Syllogism, is the *complex*, viz. that whereof the Conclusion is complex. In this Sort of Syllogism, only some Part of the Subject, or of the Predicate of the Conclusion, is joined with the intermediate Term in one of the Premises; and the other Part with the same Intermediate, in the other Premise, *v. g.*

Money is a Thing unanimated;
But several Men are Slaves to Money;
Therefore several Men are Slaves to a Thing unanimated.

Where it appears that the Attribute of the Conclusion, *are Slaves to a Thing unanimated*, is divided in the Premises in such a Manner, that one Part thereof, *viz. a Thing unanimated*, is placed in the Major, and the other, *viz. are Slaves*, is found in the Minor.

The conjunctive Syllogism is that, the Major whereof is conjunctive or composed, and contains the whole Conclusion; and this is either conditional, or copulative, or disjunctive.

Conditional Syllogisms are those, where the Major is a conditional Proposition, which contains the whole Conclusion, as,

If there is a God, he must be beloved:
But there is a God;
Then he must be beloved.

The Major has two Parts; the first is called the Antecedent, *if there is a God*; the second the Consequent, *he must be beloved.*

This Syllogism can be of two Sorts, because of the same Major can be formed two Conclusions.

The first is, when having affirmed the Consequent in the

the Major, the Antecedent is affirmed in the Minor, according to this Rule, *in placing the Antecedent, the Consequent is placed*, v. gr.

If the Matter cannot move itself, its first Motion must be from God.
But the Matter cannot move itself.
Then its first Motion must be from God.

The second Sort is, when the Consequent is taken off, to take off the Antecedent, according to this Rule, *taking off the Consequent, the Antecedent is took off*, v. gr.

If some of the Elect perish, God is deceived;
But God is not deceived;
Then none of the Elect perish.

This is the Reasoning of St. *Augustin*; *horum si quisquam perit, fallitur Deus; sed nemo eorum perit, quia non fallitur Deus.*

The conditional Arguments are vicious in two Manners. One is when the Major is an unreasonable Conditional, and whose Consequence is against the Rules; as if I was to conclude the general from the particular, saying, *If we deceive ourselves in something, we deceive ourselves in all Things.*

But that Falsity in the Major of those Syllogisms, regards rather the Matter thereof than the Form; therefore are not considered as vicious according to the Form, but when a bad Conclusion is drawn from the Major true or false, reasonable, or against Reason; which is done in two Manners:

The first, when the Antecedent is inferred from the Consequent; as if it was said,

If the Chinese *are* Mahometans, *they are Infidels;*
But they are Infidels;
Then they are Mahometans.

The second Sort of conditional Arguments, which are false, is when from the Negation of the Antecedent, the Negation of the Consequent is inferred; as in the same Example:

If the Chinese *are* Mahometans *they are Infidels;*
But they are not Mahometans;
Then they are not Infidels.

There are notwithstanding some of these conditional Arguments, which though they seem to have the second Imperfection, are very good; because there is an Exclusion understood in the Major, though not expressed: For Example; *Cicero* having published a Law against those who should buy the Suffrages, and *Murena* having been accused to have bought them; *Cicero* who pleaded for him, justifies himself by this Argument, of the Reproach *Cato* made of him, of acting in that Defence against his own Law: *Etenim si largitionem factum esse confiterer, idque rectè factum esse defenderem, facerem improbe, etiam si alius legem tulisset; cùm vero nihil commissum contra legem esse defendam, quid est quod meam defensionem latio legis impediat?* This Argument seems to be like to one of a Blasphemer, who should say to excuse himself; *If I was to deny the Existence of a God, I should be a Reprobate indeed; but though I blaspheme, I do not deny the Existence of a God; then I am not Reprobate.* This Argument would be nought, because there are other Crimes besides Atheism, which render a Man a Reprobate: But the Reason why that of *Cicero* is good, though *Ramus* has proposed it as an Example of a bad Reasoning, is, that it contains in the Sense an exclusive Particle; and it must be reduced to the following Terms.

It would be then only I could be reproached with Reason, of acting against my Law, if I was to confess that Murena *had bought the Suffrages, and should notwithstanding justify his Action:*
But I pretend that he has not bought the Suffrages:
And consequently I do nothing against my Law.

We call disjunctive Syllogisms, those the first Proposition whereof is disjunctive, *i. e.* the Parts whereof are joined by *vel*, *or*, as this of *Cicero*,

Those who have killed Cæsar, *are Paricides, or Defenders of their Liberty;*
But they are not Paricides;
Then they are Defenders of their Liberty.

There are two Sorts of these Arguments. — The first, when one Part is taken off, to keep the other, as in this last of *Cicero*; or in the following one.

All the Wicked must be punished in this World, or in the other;
But there are wicked Men who are not punished in this World;
Then they'll be punish'd in the other.

Sometimes there are three Members in this Sort of Syllogisms; and then two of them are taken off to keep one.

The second Sort, but less natural, is, when one of the Parts is taken, to take off the other.

These disjunctive Syllogisms are seldom false, but by the Falsity of the Major, in which the Division is not exact, there being found a Medium between the two opposite Members; as if I was to say,

One must obey Princes in what they command against the Law of God, or revolt against them;
But one must not obey them in what they command against the Law of God;
Then one must revolt against them.
Or, *One must not revolt against them;*
Then they are to be obeyed in what they command against the Law of God.

Both Reasonings are false, because there is a Medium in that Disjunction, which has been observed by the first *Christians*, which is to suffer any Thing rather than to act against the Law of God, without, notwithstanding, revolting against Princes.

These false Disjunctions are one of the most common Sources of Man's false Reasonings.

There is but one Sort of copulative Syllogisms, which is, when the Major is formed of a copulative Proposition, Part whereof is taken in the Minor, to take off the other in the Conclusion, *&c.*

A Man cannot serve at once God and Mammon;
But an avaricious Man serves Mammon;
Then he cannot serve God.

All these Sorts of Syllogisms, as well as the simple ones, are commonly divided into demonstrative, topical, and sophistical; though this Division regards rather Argumentation in general; than the Syllogism.

A demonstrative Syllogism is that which consists of Premises necessarily true, *i. e.* either evident of themselves, or already proved by other Propositions, from which a true Conclusion is necessarily deduced.

A topical or dialectical Syllogism, is a Syllogism consisting of probable Propositions, and producing only an Opinion. It is called topical, *i. e.* local, because taken from dialectical Places, of which I'll speak hereafter.

A sophistical Syllogism is a Syllogism consisting of false Propositions, though apparently true, and produces Error.

As to *Enthymema's*, and *Enthemymatical Sentences.* — I have said already, that the Enthymema is a Syllogism perfect in the Mind, but imperfect in the Expression; because some of the Propositions are suppressed in it, as too clear, and too well known, and which can be easily supplied by the Mind of those to whom we speak. This Sort of Argument is so common in Discourses and Writings, that it is rare, on the contrary, that all the Propositions are expressed in them.

Therefore the *Enthymema's* are the most common Manner of expressing our Reasonings, in suppressing that Proposition we judge can be easily supplied; and that Proposition is sometimes the Major, sometimes the Minor, and sometimes the Conclusion; though that is not called then properly *Enthymema*, the whole Argument being contained in some Measure, in the two first Propositions.

It happens, sometimes, that the two Propositions of the *Enthymema* are included in one single Proposition, called for that Reason, by *Aristotle*, *Enthymematical Sentence.*

As to Syllogisms composed of more than three Propositions. — I have said already, that those Syllogisms are called *Sorites.*

There can be distinguished three Sorts of them. — 1. The *Gradations*, of which I have said enough already. — 2. The *Dilemma's*, of which I'll speak by and by. — 3. Those which the *Greeks* call *Epicheremas*, which contain the Proof either of one of the two first Propo-

Propositions; or of both, of which I am a going to speak.

As we are often obliged to suppress in the Discourse certain Propositions, because too clear; it is often necessary, when we advance some which are dubious, to join at the same Time, the Proofs to them, to prevent the Impatience of those to whom we speak, who are sometimes offended, when we endeavour to persuade them by Reasons which appear false or dubious to them; for though this Inconveniency be removed afterwards, it is, notwithstanding, dangerous to produce, even for a short Time, a Distaste in their Mind; and therefore it is far better that the Proofs should follow immediately those dubious Propositions, than to be separated from them. That Separation produces, besides, another Inconveniency much more incommodious; which is, that one is obliged to repeat the Proposition he wants to prove. Therefore, though the Method of the Schools be to propose the whole Argument, and afterwards to prove the Proposition which bears the Difficulty; that followed in the common Discourses, is to join to the dubious Propositions, the Proofs whereby they are established; which makes a Sort of Argument of several Propositions: For to the Major is joined the Proof of the Major, to the Minor the Proof of the Minor, and afterwards the Conclusion.

The whole Oration for *Milo*, can be thus reduced to a composed Argument, the Major whereof is, that it is lawful to kill one who sits in Ambuscade for us. The Proofs of that Major are taken from the natural Law, the Law of Nations, and Examples. The Minor is, that *Clodius* has set Ambuscades to *Milo*, and the Proofs of the Minor are the Equipage of *Clodius*, his Retinue, *&c.* the Conclusion is, that it was then lawful for *Milo* to kill *Clodius*.

As to Dilemma's. — A *Dilemma* can be defined a composed Reasoning, where after a Whole has been divided into its Parts, one concludes affirmatively or negatively of the Whole, what has been concluded of each Part.

I say, *what has been concluded of each Part*, and not only what should have been affirmed of it; for what we properly call *Dilemma*, is only when what we say of each Part is supported by its particular Reason.

For Example, having to prove *that none can be happy in this World*, it may be done by this *Dilemma*.

None can live in this World, without abandoning himself to his Passions, or refraining them;

If he abandons himself to his Passions, it is an unhappy State;

Because it is despicable, and one cannot be satisfied in it.

If he refrains them, it is also an unhappy State; because nothing is more troublesome, but that interior War, one is obliged to wage against oneself;

There can be then no true Happiness in this Life.

If one wants to prove, that the Bishops who do not work to the Salvation of the Souls committed to their Pastoral Sollicitude, are inexcusable before God, it may be done by a *Dilemma*.

They are either capable of their Employment, or they are incapable;

If they are capable, they are inexcusable for not employing themselves in it;

If they are incapable, they are inexcusable, for having accepted so important an Employment, which they cannot discharge;

And consequently, let the Case be what it will, they are inexcusable before God, if they do not work to the Salvation of the Souls committed to their Care.

But some Observations can be made on these Sorts of Reasonings.

The first is, that all the Propositions which enter into it are not always expressed. For Example, the *Dilemma* I have just now proposed, is contained in these few Words of an Harangue of St. *Charles*, at the Entrance of one of his provincial Synods: *Si tanto numeri impares, cur tam ambitiosi: si pares, cur tam negligentes?*

Thus there are several Things understood in that celebrated *Dilemma*, whereby an antient Philopher proved, that one ought not to meddle with the Affairs of the Republick:

For if we behave well in them, we shall offend Men; if we behave ill, we shall offend the Gods; therefore we are not to meddle with them.

And likewise in that whereby another proved that one ought not to marry: *For if the Wife one marries be handsome, she causes Jealousy; if she is ugly, she displeases; therefore one ought not to marry.*

For in both these *Dilemma's*, the Proposition which ought to have contain'd the Partition, is understood; and which is very common; because it is easily understood, being sufficiently mark'd by the particular Propositions, where each Part is treated.

Besides, in order to have the Conclusion included in the Premises, something general must be understood every where, which may be agreeable to the whole, as in the first.

This Advice is very important to judge well of the Force of a *Dilemma*, for the Reason why, for Example, the first is not conclusive, is, that it is not forbidden to offend Men, when it cannot be avoided without offending God.

The second Observation is, that a *Dilemma* can have two principal Imperfections; one whereof is when the Disjunctive on which it is founded is imperfect, because it does comprize all the Members of the whole which is divided.

Thus the *Dilemma* not to marry, is not concluding; because there may be Wives not handsome enough to cause Jealousy, nor ugly to displease.

For the same Reason, the *Dilemma* used by the antient Philosophers, to prove that Death was not to be feared, was a very bad one. *Either our Soul*, said they, *perishes with the Body, and thus being no longer sensible, we will be incapable of Pain; or if the Soul outlives the Body, it will be happier than it was while in the Body; therefore Death is not to be feared.* For as *Montague* has very well observed, it was a great Blindness not to see that a third State could be conceived between those two, which is, that the Soul remaining after Death, would find itself in a State of Torment or Misery; which is a just Subject to fear Death.

The other Imperfection, which hinders the *Dilemma's* from concluding is, when the particular Conclusions of each Part are not necessary. Therefore it is not necessary a handsome Woman should cause Jealousy, since she can be so modest and virtuous, as to give no Occasion for mistrusting her Fidelity. Neither is it necessary that being ugly she should displease her Husband, because she can have a beautiful Mind capable to gain his Love.

The third Observation is, that he who makes use of a *Dilemma*, must take Care it should not be turn'd against him. Thus *Aristotle* witnesses, that the *Dilemma* used by the Philosopher above-mentioned, to prove that one ought not to meddle with the Affairs of the Republick, was return'd against him; for it was said to him:

If one does not govern oneself according to the corrupted Rules of Men, they will be satisfied.

If one observes the Rules of true Justice, the Gods will be pleased.

Therefore we ought to meddle with the Affairs of the Republick.

Though this Return is not reasonable, for it is not advantageous to offend God in obliging Men.

As to the finding out the Medium, or dialectial Places. — What *Logicians* and *Rhetoricians* call *Places*, *loci Argumentarum*, are certain general Chiefs, to which may be referred all the Proofs used in the divers Matters treated of; and that Part of *Logic*, called *Invention*, is nothing else but what they teach of those Places.

Ramus quarrels on that Subject with *Aristotle*, and the other scholastick Philosophers, because they treat of *Places*, after they have given Rules of Argumentation, and pretends against them, that the Places must be explained before the Rules are given.

The Reason of *Ramus* is, that the Matter must have been found before one thinks of disposing it; but the Explication of the Places teaches how to find that Matter, whenas the Rules of the Argument cannot teach but the Disposition thereof.

But this Reason of *Ramus* is very weak, because tho' it be necessary that the Matter should be found to dispose it; it is not necessary notwithstanding, to learn how to find that Matter before one has learned to dispose it: For to learn how to dispose the Matter, it suffices to have certain general Matters to serve of Examples; but th:

the Mind and common Sense furnish always enough of it, without it being necessary to borrow it from any Art or Method: Therefore it is true that one should have a Matter to apply the Rules of the Arguments to it; but it is false that it is necessary to find that Matter by the Method of the *Places*.

It could be said on the contrary, that it is pretended to teach in the Places the Art of drawing Arguments and Syllogisms, therefore it is necessary to know, previously to it, what is Argument and Syllogism: But it could be perhaps answered likewise, that Nature alone furnishes a general Knowledge of Reasoning, which suffices to understand what is said of it in speaking of the *Places*.

Therefore it is almost needless to know in what Order one must treat of Places, since it would be perhaps more useful to examine, if one should not rather not at all treat of them. We know that the Antients have made a great Mystery of that Method; and that *Cicero* preferred it to the whole *Dialectic*, such as it was taught by the *Stoicians*, because they made no mention of the Places: *Quintillian* and all the other Rhetoricians, *Aristotle* and all the Philosophers, speak of it in the same Manner; so that one would be of their Sentiment, if the general Experience was not as posed to it.

We can call to witness it almost as many Persons as there are who have passed through the ordinary Course of Philosophy, and have learned of that artificial Method to find Proofs, what is learned of it in the Schools. For I really believe that none of them can truly say, that when he has been obliged to treat of some Subject, he has reflected on those *Places*, and searched among them the Reasons he wanted.

But as several celebrated Persons have spoke of those Places, that thereby they have made it an almost indispensible Necessity to speak of them, we must do it (to render our *Logic* entire and perfect) in as concise a Manner as possible: Therefore,

The *Dialectical Places* are taken either from the *Grammar*, or *Logic*, or *Metaphysick*. Whence some are *grammatical*, some *logical*, and some *metaphysical*.

Grammatical Places, are the *Etymology* and Places derived from the same Roots, called in Latin *conjugata*.

The Argument by *Ethymology*, is when one says, for Example, he never diverts himself, properly speaking, because to divert oneself, is to desist from serious Occupations.

The *Words derived from the same Roots*, serve likewise to find Thoughts. *Who is more worthy of Compassion than an illustrious unhappy? and who is more unworthy of Compassion than a proud Beggar?*

The *Places of Logic*, are the universal Terms, *Gender*, *Species*, *Difference*, *Proper*, *Accident*, *Definition*, and *Division*. But as all these Points have been already explained, it is not necessary to treat any more of them. It is only to be observed, that commonly certain Maxims are joined to those Terms, which it is not improper to know; not because they are very useful, but because they are common: Those Maxims are as follow.

1. What is affirmed or denied of the Gender, is affirmed or denied of the Species, viz. *what is agreeable to Men is also agreeable to the Great; but they cannot pretend to Advantages above human Nature.* This is the Foundation of the affirmative Argument of the first Figure.

2. In destroying the Gender the Species is destroyed likewise, v. g. *He who does not judge at all, does not judge ill; he who does not speak at all, does not speak indiscreetly.*

3. In destroying all the Species the Gender is destroyed, v. g. *The Forms called substantial (the rational Soul excepted) are neither Body nor Spirit; therefore they are not Substances.*

4. If the total Difference can be affirmed or denied of something, the Species thereof can be affirmed or denied, v. g. *Extension doth not belong to the Thought, therefore it is not a Matter.*

5. If the Property of something can be affirmed or denied, the Species thereof can be affirmed or denied, v. g. *It being impossible to represent to oneself half of a Thought, or a Thought round or square, it is impossible it should be a Body.*

6. *The defined is affirmed or denied*, v. g. *There are few Persons just, because there are few of them who have a firm and constant Will to return to every one what belongs to him.*

The *metaphysical Places*, are certain general Terms agreeable to all Sorts of Beings, to which several Arguments are referred, as the Causes, Effects, the Whole, the Parts, and opposite Terms. The most useful is to know some general Divisions thereof, and particularly of the Causes.

The Definitions given in the School to Causes in general, by saying that *a Cause is what produces an Effect, or whereby a Thing is*, are so obscure, that they had been as well left among the Things which are not defined; the Idea we have of them being as clear as the Definitions.

But the Division of Causes into four Species, which are the *final*, *efficient*, *material*, and *formal Cause*, is so famous, that we should know it.

The End for which a Thing is, we call a *final Cause*.

There are *principal Ends*, which are those which are chiefly considered; and *accessary Ends*, which are only considered by Addition.

What one pretends to do, or to obtain, is called *finis cujus gratia*. Thus Health is the End of Medicine, because Medicine pretends to procure Health. That for which one works is called *finis cui*, Man is the End of Physick in that Manner.

Nothing is more common than to draw Arguments from the End, either to shew that a Thing is imperfect, as that a Discourse is ill made, when it is not proper to persuade; or to shew that it is very likely a Man has done or will do an Action, because it is conformable to the End he commonly proposes to himself. Whence this famous Sentence of a Judge of *Rome*, that one ought to examine before all Things, *cui bono*, i. e. what Interest a Man should have had to do a Thing, because Men act commonly according to their Interest; or to shew on the contrary, that a Man ought not to be suspected of an Action, because it had been contrary to the End thereof.

There are besides several other Manners of reasoning by the End, which a good Sense will sooner discover than all the Precepts.

The *efficient Cause* is that which produces another Thing; Arguments are drawn from it, by shewing that an Effect is not, because there was no sufficient Cause; or that it is or will be, in shewing that *all* its Causes are. If those Causes are necessary, the Argument is necessary; if they are free and contingent, it is only probable. There are divers Species of *efficient Cause*, which it is needless to mention.

God in creating *Adam* was his *total Cause*, because nothing concurred with him; but the Father and Mother are each but *partial Causes* of their Child, because they want one another's Assistance.

The Sun is the *proper Cause* of the Light, but he is only the accidental Cause of the Death of a Man, killed by his excessive Heat, because he was ill disposed.

The Father is the *nearer Cause* of his Son.

The Grandfather is but a *distant Cause*.

The Mother is a *productive Cause*.

The Nurse is but a *preservative Cause*.

The Father is an *universal Cause* with respect to his Children, because they are like him in Nature.

God is but an *equivocal Cause* with regard to the Creatures, because they are not of God's Nature.

A Workman is the *principal Cause* of his Work, and his Tools are but the *instrumental Cause* thereof.

The Air which enters into Organs, is an *universal Cause* of the Harmony of the Organs.

The particular Disposition of each Pipe, and the Organist are the *particular Causes* thereof, which determine the universal.

The Sun is a *natural Cause*.

Man is an *intellectual Cause*, with regard to what he does with Judgment.

The Fire which burns the Wood or Coals is a *necessary Cause*.

A Man that walks is a *free Cause*.

The Sun lighting a Room is the *proper Cause* of its Light, the Aperture of the Window is but one *Cause* or Condition, without which that Effect could not be, *conditio sine quâ non*.

The

The Fire burning a House is the *physical Cause* of that Effect; and the Person who has set the House on Fire is the *moral Cause* thereof.

To the *efficient Cause* is referred the *exemplary Cause*, which is the Model we propose to ourselves in doing some Work, as the Design of a Building whereby the Architect guides himself, or generally what is the Cause of the objective Being of our Idea.

The *material Cause* is that whereof Things are formed, as Gold is the Matter of a golden Vessel. What is agreeable or not agreeable to the Matter, is agreeable or not agreeable to the Things which are composed of it.

The Form is what renders a Thing such as it is, and distinguishes it from others; whether it be a Being distinguished from the Matter, or only the Disposition of the Parts: It is by the Knowledge of that Form the Properties thereof are to be explained.

There are as many different Effects as there are Causes, the Words being reciprocal: The common Manner to draw Arguments from them, is to shew that if the Effect be, the Cause is, since nothing can be without a Cause. We also prove a Cause to be good or bad, when the Effects thereof are good or bad; which is not always true in Causes by Accident.

There are four Sorts of *opposite Terms*, the *relative*, as Father, Son; Master, Servant: The *contrary*, as Cold, Heat; Healthy, Sick: The *privative*, as Life, Death; Sight, Blindness; Hearing, Deafness; Knowledge, Ignorance: The *contradictory*, which consist in a Term, and in the simple Negation of that Term, *to see*, *to not see*. The Difference between these two last Sorts of *Opposites*, is, that the *privative Terms* include the Negation of a Form in a Subject, which is susceptible thereof; whenas the *Negatives* do not mark that Capacity: Therefore we do not say of a Stone, that it is blind or dead, because it is capable neither of Sight nor of Life.

As those Terms are opposite we make use of one to deny the other. The *contradictory Terms* have this Property, that in taking off one the other is established.

There are several Sorts of *Comparisons*; for we compare Things either equal or unequal, semblable or dissemblable: We prove that what is agreeable or not agreeable to a Thing equal or semblable; is convenient or not convenient to another Thing to which it is equal or semblable, *&c.*

This is succinctly what is said of *dialectical Places*.

As to the *Fallacy of Sophisms*. Though when one knows the Rules of good Reasoning, it is not difficult to discover those which are bad, notwithstanding as the Examples to be avoided make often a greater Impression on our Mind than those to be imitated, it will not be needless to represent the principal Sources of bad Reasoning, called *Sophisms* or *Paralogisms*, because that gives still a greater Facility to avoid them.

I'll reduce them all to seven or eight, since some of them are so ridiculously palpable, that they do not deserve our Attention.

The first is, *to prove another Thing than what is in Question*. This is very common in Men's Contestations: They dispute with Heat, without often understanding one another. *Passion*, or Want of Probity, makes that one attributes to his Adversary, what is often very far from his Sentiment, to have Occasion hence to fight him with more Advantage, or imputes to him the Consequences he imagines he can draw from his Doctrine, though at the same Time he denies them. All this can be referred to the first Species of *Sophism*, which a sincere and honest Man must avoid above all Things.

The second is, *to suppose for true what is in Question*. This is what *Aristotle* calls *Petition of Principle*, and which we see clearly enough, to be contrary to true Reason; because in all Reasoning what serves for Proof must be clearer and better known than what is to be proved.

Notwithstanding which *Aristotle* is accused by *Galileo*, and with Justice, to have himself been guilty of that Imperfection, when he wanted to prove by the following Argument, that the Earth is placed in the Center of the World.

The Nature of ponderous Things is to tend towards the Center of the World, and of light Things to depart from it.

But Experience shews us, that ponderous Things tend towards the Center of the Earth, and light Things depart from it:

Therefore the Center of the Earth is the Center of the World.

It is clear, that there is in the Major of this Argument a manifest *Petition of Principle*; for we see very well, that ponderous Things tend towards the Center of the Earth: But whence has *Aristotle* took, that they tend towards the Center of the World? unless he supposes that the Center of the Earth is the same with the Center of the World; which is the very Conclusion he will prove by that Argument.

The third is, *to take for a Cause which is not a Cause*. This Sophism is very common among Men, and they fall into it in several Manners: One is by the simple Ignorance of the true Causes of Things. Thus Philosophers have attributed a thousand Effects to the Fear of the Vacuum, which has been proved demonstratively by very ingenious Experiences to have for Cause but the Ponderosity of the Air.

The other Cause which makes Man fall into this Sort of Sophism, is our extravagant Vanity, which hinders us from acknowledging our Ignorance, chusing rather to forge imaginary Causes of the Things we are desired to account for, than to confess that we do not know the Cause thereof.

The fourth is, *an imperfect Enumeration*. As if any Body was to say, *Titius is condemned to die, or by his own Fault, or by the Partiality of the Judges*; this Enumeration would be imperfect, for it could happen likewise, that *Titius* is condemned to die, or by want of Probity in the Witnesses, or some Mistakes in his Defence, or the like.

The fifth is, *to judge of a Cause by what belongs to it but by Accident*. As if some body would exclude *Antimony* from among Remedies, because having been sometimes unskilfully administred, it has produced bad Effects. Men fall often into this bad Sort of Reasoning, when they take simple Occasions for true Causes; as he who should accuse the Christian Religion with having been the Cause of the Massacre of an infinite Number of Persons, who rather chose to die than to renounce *Jesus Christ*; whenas those Murders are to be attributed neither to the Christian Religion, nor the Constancy of Martyrs, but to the sole Injustice and Cruelty of the Pagans.

The sixth is, *to pass from a divided Sense to a composite Sense, and from a composite Sense to a divided Sense*.

One of these Sophisms is called *fallacia compositionis*, and the other *fallacia divisionis*. It is what will be easier understood by Examples.

Jesus Christ says in the Gospel, speaking of his Miracles, the Blind see, the Lame walk upright, *&c.* This cannot be true, but in taking these Things separately and not jointly, *i. e.* in a divided, not in a composite Sense: For the Blind could not see in remaining blind, nor the Deaf hear by remaining deaf; but those who had been blind before were no more blind, but could see; and likewise of the Deaf.

It is likewise said in the same Sense in the Scripture, that God justifies the Impious; for this cannot be said that he accounts for just, those who are impious still, but that he renders just by his Grace those who were impious before.

There are on the contrary Propositions which are not true, but in a Sense opposite to that which is a divided Sense: As when St. *Paul* says, that the Calumniators, Fornicators, Avaricious, shall not enter into the Kingdom of Heaven: For this does not signify that none of those who have been guilty of those Vices will be saved, but only that those who will not renounce them by a sincere Repentance, and their Conversion to God, shall have no Part in the Kingdom of Heaven.

It is easy to see that one cannot pass without a Sophism from one of those Senses to the other.

The seventh is, *to pass from what is true in some Respect, to what is simply true*. This is called in the Schools, *a dicto secundum quid ad dictum simpliciter*; of which I'll give the following Examples.

The *Epicureans* wanted to prove, that the Gods should have a human Form, because there was no handsomer than that, and that all that's handsome must be in

God; which was a very bad Reason. For the human Form is not absolutely a Beauty, but only with regard to the Bodies; and therefore it being a Perfection, but in some respect and not simply, it does not follow hence that it must be in God, because all Perfections are in God; none but those which are simple Perfections, *i. e.* which include no Imperfections being necessarily in God.

We see likewise in *Cicero, lib. 3. de nat. Deor.* a ridiculous Argument of *Cotta* against God's Existence, which can be reported to the same Imperfection. *How can we conceive God*, says he, *since no Virtue can be attributed to him? for shall we say that he has Prudence? But Prudence consisting in the Choice of Good and Evil; how can God want that Choice, since he is capable of no Evil? Shall we say that he is intelligent and reasonable? But Reason and Intelligence serve us to discover what is unknown to us, by what is known to us; but nothing can be unknown to God: neither can Justice be in God, since it only regards the human Society; nor Temperance, because he has no Volupties to moderate; nor Force, because he is susceptible neither of Pain nor of Toil, and is exposed to no Danger; how could then that be a God, who would have neither Intelligence nor Virtue?*

Nothing is more impertinent than this Manner of Reasoning; it is like the Thought of a Person, who having never seen but Houses covered with Straw, and having heard said that there was no Straw in the Cities, should conclude that there are no Houses in the Cities, and that the Inhabitants of those Places are very unhappy, being exposed to all the Injuries of the Air.

The eighth is, *to abuse the Ambiguity of the Words.* To this Sort of *Sophism* can be referred all the Syllogisms which are vicious for having four Terms; either because the Medium is taken twice particularly, or because it is taken in one Sense in the first Proposition, and in another Sense in the second; or, lastly, because the Terms of the Conclusion are not taken in the same Sense in the Premises, as in the Conclusion. For we do not restrain the Word *Ambiguity* to the single Words which are coarsely equivocal, which very seldom deceive, but conceive thereby all that can make a Word change Sense; especially when all Men cannot easily perceive that Change, because diverse Things being signified by the same Sound, they take them for the same Thing.— I'll produce here some Examples of that *Ambiguity*, which often deceives very learned Men.

Such is that found in the Words which signify a *Whole*, which can be taken collectively for all its Parts together, or distributively for each of its Parts. It is whereby this *Sophism* of the *Stoicians* is to be resolved, who concluded that the World was an Animal endued with Reason; *because what has the Use of Reason, is better than that which has not that Use; but nothing is better*, said they, *than the World; therefore the World has the Use of Reason.* The Minor of this Argument is false, because they attributed to the World what only belongs to God; which is to be such, that nothing can be conceived better and more perfect, But in confining ones self in the Creatures, though it can be said that nothing is better than the World, taken collectively for the Universality of all the Beings God has created, all that can be concluded from it is, that the World has the Use of Reason according to some of its Parts, such as the Angels and Men, but not that altogether he is an Animal which has the Use of Reason.

The ninth is, *to draw a general Conclusion from a defectuous Induction.* We call *Induction* when the Research of several particular Things leads us to the Knowledge of a general Truth; thus when it has been tried on several Seas that the Water thereof is salt, and on several Rivers that their Water is fresh, it is generally concluded that the Water of the Sea is salt, and that of the Rivers fresh. The different Experiments which have been made that Gold does not diminish in the Fire, has made us judge that that is true of all Sorts of Gold; and as no People have been found which do not speak, we certainly believe that all Men speak, *i. e.* make use of Sounds which signify their Thoughts.

It is even whereby all our Knowledge begins; because the Things singular offer themselves to us, before the universal; though, afterwards the Universal serve to know the Singular.

But it is true, notwithstanding, that the *Induction* alone, is never a certain Means to acquire a perfect Knowledge; the Consideration of Things singular serving only of Occasion to our Mind to reflect on its natural Ideas, according to which it judges of the Truth of Things in general; for it is true, for Example, that perhaps I had never thought of considering the Nature of a Triangle, if I had never seen one, which has given me Occasion to think of it.

Note, That it remains yet to explain the fourth and last Part of *Logic*, which is *Method*; and is without doubt one of the most useful and most important Parts of this Treatise, since we cannot proceed to the Investigation of Truth, without some Order, which we learn from the *Method*; therefore,

THE FOURTH PART.

Of the Method.

METHOD, in general is, *the Art of disposing well a Sequel of several Thoughts, either to discover the Truth while yet hidden, or to prove it to others when we have discovered it.*

Therefore there are two Sorts of *Methods*, one to discover the Truth, called *Analysis* or *Method of Resolution*, which can also be called *Method of Invention*; and the other, to make it be understood by others when we have found it, called *Synthesis*, or *Method of Composition*, and which can also be called *Method of Doctrine.*

The whole Body of a Science is not commonly treated by *Analysis*, which is used only to resolve some Question.

All *Questions* are either of Words, or of Things.

I call here Questions of Words, not those where one searches Words, but those where by the Words the Things are searched, as those where it is a Question to find the Sense of an Enigma, or to explain what an Author wanted to say by obscure and ambiguous Words.

Questions of Things can be reduced to four principal Kinds.

The *first* is, when Causes are searched by the Effects: to know, for Example, the various Effects of the Magnet, search the Cause thereof; to know the various Effects commonly attributed to the *Vacuum*; search if it be the true Cause thereof, and we have found not.

The *second* is, when the Effects are searched by the Causes: We know, for Example, that Wind and Water have a great Force to move Bodies, but the Antients having not carefully enough examined which could be the Effects of those Causes, had not applied them, as it has been done since, by means of Mills, to a great Number of Things very useful to human Society, and which was the Fruit of the true Physick: So that it can be said, that the first Sort of Questions, where Causes are searched by the Effects, make the whole Speculation of the Physick; and that the second Sort, where the Effects are searched by the Causes, makes the whole Practice thereof.

The *third* Species of Questions is, when the whole is searched by the Parts; as when having several Numbers the Sum is searched by Addition; or having two, the Product is searched by Multiplication.

The *fourth* is, when having the whole or some Part thereof, another Part is searched; as when having a Number, and what is to be taken from it, what shall remain is searched.

But it must be observed, that to extend further these two last Sorts of Questions, and that they may comprize what could not be properly reported to the two former, the Word *Part* must be taken generally, for all that one Thing contains, its Modes, Extremes, Accidents, Properties, and generally all its Attributes.

But of what Nature may be the Question proposed to be resolved, the first Thing to be done, is to conceive clearly and distinctly what is to be asked, *i. e.* which is the precise Point of the Question: For there must be avoided what happens to several Persons, who by a Precipitation of Mind, apply themselves to resolve what is proposed to them, before they have considered by the Signs and Marks, whereby they could discover what they search, when they'll find it; as if a Servant to whom his Master had

had commended to find out one of his Friends, ſhould make Haſte to go in queſt of him, before he has learned more particularly of his Maſter who is that Friend.

Though in all Queſtions there is ſomething unknown, otherwiſe there would be nothing to ſearch; it is notwithſtanding neceſſary, that even that which is unknown be marked and deſigned by certain Conditions, which determine us to ſearch one Thing rather than another, and can make us judge when we have found it, that it is what we ſearched; and theſe Conditions muſt be conſidered firſt, taking Care to not add ſome which are not included in what is propoſed; and to not omit thoſe which are included in it; for one can err in both theſe Manners.

One would err in the firſt Manner, if when, for Example, we are aſked, which is the Animal which in the Morning walks on all four, at Noon on two Feet, and in the Evening on three, we were to think ourſelves confined to take all theſe Words of Feet, of Morning, of Noon, of Evening, in their proper and natural Signification; for he who propoſes that *Enigma* has not put for a Condition, that they ſhould be taken in that Manner; but it ſuffices that theſe Words cannot by a Metaphor be reported to any Thing elſe, and thus that Queſtion is very well reſolved, when it is anſwered, that that Animal is a Man.

Suppoſe beſides, we be aſked, by what Artifice the Figure of a Tantalus could have been made, who lying on a Column in the Middle of a Veſſel, in the Poſture of a Man who leans to drink, could never do it, becauſe the Water could very well aſcend into the Veſſel as far as his Mouth, but did fly entirely, without the laſt Drop of it remained in the Veſſel, as ſoon as it had arrived as far as his Lips; one would err in adding Conditions, which would be of no Service to the Solution of that Queſtion, if one would amuſe himſelf to ſearch ſome marvellous Secret in that Figure of that Tantalus, which would make the Water fly as ſoon as it had touched his Lips, for that is not included in the Queſtion, which if it be very well underſtood, muſt be reduced to theſe Terms, to make a Vaſe to contain the Water, which cannot be full but to a certain Height, and let it all run out, if it be filled more, which is very eaſy; for there wants nothing elſe but to hide a Syphon in the Column, with a ſmall Hole at the Bottom, thro' which the Water enters, and the longeſt Leg thereof muſt have its Aperture under the Foot of the Veſſel, till the Water which will be put in the Veſſel, being arrived at the Top of the Syphon, it will remain in the Veſſel, but when arrived to it, it will all run in the longeſt Leg of the Syphon, which is opened under the Foot of the Veſſel.

The other Manner one errs in the Examen of the Conditions he ſearches, is when ſome are omitted which are eſſential to the Queſtion propoſed.

When then all the Conditions which deſign and mark what is unknown in the Queſtion have been carefully examined; what is known muſt be examined likewiſe, becauſe it is whereby one comes to the Knowledge of what is unknown. For we muſt not imagine that we are to find another Gender of Being, ſince our natural Light extends no further, than to diſcover that what we ſearch participates in ſuch and ſuch a Manner of the Nature of the Things we know: If a Man, for Example, was born blind, it would be in vain to ſearch Arguments and Proofs to make him have true Ideas of the Colours ſuch as we have them by our Senſes. Likewiſe if the *Magnet* or other Bodies, the Nature whereof we ſearch with ſo much Curioſity, was a new Gender of Beings, and ſuch as our Mind had never conceived the like, we ſhould not expect of ever knowing it by our Reaſoning, but ſhould want for that Purpoſe another Mind: Therefore we muſt believe to have found all that can be found by the human Mind, if we can conceive diſtinctly ſuch a Mixture of the Beings and Natures which are known to us, that it produces all the Effects we ſee in the Magnet.

But it is of the Attention made to what is known in the Queſtion to be reſolved, that the Analyſis chiefly conſiſts, the whole Art being to draw from that Examen great many Truths capable to lead us to the Knowledge of what we ſearch.

This is what we call *Analyſis* or *Reſolution*, where it ſhould be obſerved, 1. That in it, as well as in the Method called of *Compoſition*, we muſt always paſs from the better known to the leſs known, becauſe there is no true Method which can be exempted from this Rule.

2. But that it differs from that of Compoſition, in that thoſe known Truths are taken in the particular Examen of the Thing we propoſe to know, and not in the more general Things, as it is done in the Method of Doctrine.

3. The clear and evident Maxims are propoſed but as they are wanted, whenas in the other they are eſtabliſhed firſt.

This is what can be ſaid in general of the Analyſis, which conſiſts more in the Judgment, and in the Dexterity of the Mind than in particular Rules.

The *Method of Compoſition*, is chiefly to begin by the more general and ſimple Things, to paſs to the leſs general and more compoſed, whereby all Repetitions are avoided; ſince if the Species were treated before the Gender, as it is impoſſible to know very well a Species without knowing the Gender thereof, the Nature of the Gender ſhould be explained ſeveral Times in the Explication of each Species.

Several Things beſides are to be obſerved, to render this Method perfect, and entirely proper for the End propoſed by it; which is to acquire a clear and diſtinct Knowledge of the Truth; but becauſe general Precepts are more difficult to be underſtood, when ſeparated from all Kind of Matter, we'll conſider the Method followed by Geometers, as that which has been judged the moſt proper, to perſuade the Truth and convince the Mind; ſhewing particularly in what it is good, and in what it can be defectuous.

It being the End of Geometers to advance nothing but what is convincing, they thought they could obtain that End by obſerving three Things in general.

The firſt is, *to leave no Ambiguity in the Terms*, to which they have provided by the Definitions of the Words.

The ſecond, *to eſtabliſh their Reaſonings but on two clear and evident Principles*, which could not be diſputed by any Perſon of Senſe: Therefore before all Things they place the Axioms they aſk to be granted to them, as being ſo clear, that they could not be proved without reading them obſcure.

The third, *to prove demonſtratively all the Concluſions they advance*, by making uſe but of the Definitions they have given of the Principles which have been granted to them as very evident, or of the Propoſitions they have already extracted from them by Strength of Reaſoning, and which become afterwards as ſo many Principles to them.

Therefore all that Geometers obſerve to convince the Mind, can be reduced to thoſe three Chiefs, and included in the five following important Rules.

Neceſſary Rules for the Definitions. 1. *To leave no Term, either obſcure or equivocal*, without defining it. 2. *To employ no other Terms in the Definitions, but thoſe perfectly known and already explained.*

For the *Axioms.* 3. *To aſk nothing elſe in Axioms but Things perfectly evident.*

For the Demonſtrations. 4. *To prove all the Propoſitions a little obſcure, employing only in their Proof, either the Definitions which have preceded, or the Axioms which have been granted, or the Propoſitions which have already been demonſtrated, or the Conſtruction of the Thing itſelf in Queſtion, when there will be no Operation to be made.* 5. *To never abuſe of the Equivocation of the Terms, in miſſing to ſubſtitute mentally the Definition which reſtrains and explains them.*

This is what Geometers have judged neceſſary to render the Proofs convincing and invincible: And if it muſt be confeſſed, that the Attention to obſerve thoſe Rules is ſufficient, to avoid making falſe Reaſonings, in treating of Sciences, which without doubt is the Principal, ſince all the reſt can be ſaid uſeful rather than neceſſary.

As to *a more particular Explication of thoſe Rules; and firſt of thoſe which regard the Definitions.* Though I have ſpoke already in the firſt Part of the Utility of the Definitions of the Terms; this is notwithſtanding ſo important, that one cannot have it too much in the Mind; ſince thereby are unfolded ſeveral Diſputes which have often no other Object but the Ambiguity of the Terms, which

which one takes in one Sense, and the other in another, so that very great Contestations would cease in an instant, if one or the other of the Disputants, should take Care to mark clearly and concisely what he understood by the Terms, which are the Subject of the Dispute.

Cicero has observed that most of the Disputes between the antient Philosophers, and particularly between the *Stoicians* and *Academicians*, were founded only on that Ambiguity of Words, the *Stoicians* having took Pleasure to raise themselves, to take the Terms of the Moral in Sins, different from that of the other Philosophers; which made believe that their Moral was much more severe and perfect, though in fact that pretended Perfection consisted in Words only, and not in the Things.

Therefore it is a very useful Advice to retrench from all Disputes, all that is only founded on the Equivocation of the Words, in defining them by other Terms so clear, that one cannot be mistaken in them. To this the first of the Rules abovementioned is of a great Utility, viz. *to leave no Term, let it be ever so little obscure or equivocal, without being defined.* But to render those Definitions as useful as can be, the second Rule must be added to the first, viz. *to employ no other Terms in the Definitions but those perfectly known, or already explained*, i. e. Terms only which design, as clearly as possible, the Idea to be signified by the Word defined.

For when the Idea has not been clearly and distinctly enough designed, it is almost impossible, that in the Sequel, one should not pass insensibly to another Idea than that designed, *i. e.* that instead of substituting mentally each Time the Word, the same Idea one had designed, another is substituted which Nature furnishes us with; which is easily discovered in substituting expressly the Definition to the Defined: For that must change nothing in the Proposition, if one has always remained in the same Idea; whenas a Change will happen if one has deviated from it. All this will be easier understood by some Examples.

Euclid defines the Angle Plane rectiline, *the Meeting of two right Lines inclined on the same Plane.* If we consider this Definition as a simple Definition of the Word, so as to consider the Word single as divested of all Signification, to have no other but the meeting of the two Lines, there's no Fault to be found in it, for *Euclid* was permitted to call of the Word *Angle* the Meeting of the two Lines: But he has been obliged to remember it, and to take no more the Word *Angle* but in that Sense. But to judge if he has done it, there's no need but to substitute, every Time he speaks of *Angle*, to the Word *Angle*, the Definition he has given to it; and if in substituting that Definition some Absurdity is found in what he says of the Angle, it will follow hence that he has not remained in the same Idea he had designed, but that he has passed insensibly to another, which is that of Nature. He teaches, for Example, to divide an Angle in two: By substituting his Definition it is easily seen, that it is not the Meeting of the two Lines which is divided into two, that it is not the Meeting of two Lines which has Sides and a Base; but all that belongs to the Space contained between the Lines, and not the Meeting of the Lines.

It is visible that what has embarassed *Euclid*, and hindered him from designing the Angle by the Word of Space comprized between two Lines that meet, is, that he has seen that that Space could be greater or smaller, when the Sides of the Angle are longer or shorter; but he should not have concluded hence that the Angle rectiline was not a Space, but that it was only a Space comprized in two right Lines which meet, indeterminate according to that of those two Dimensions which answers to the Length of those Lines, and determinate according to the other by the proportional Part of a Circumference which has for Center the Point where those Lines meet.

As to *the Rules which regard the Axioms*, i. e. *the Propositions clear and evident by themselves.* Every body agrees that there are Propositions so clear and evident of themselves, that they have no need of Demonstration; and that all those which are not demonstrated must be such, to be Principles of a true Demonstration. For if they are ever so little uncertain, it is clear that they cannot be the Foundation of a Conclusion entirely certain.

But several do not conceive enough in what consists that Evidence of a Proposition. For, first, one must not imagine that a Proposition is never clear and certain, but when it is contradicted by no Body; and that it must pass for dubious, or at least one is obliged to prove it, when some Body denies it. If such a Thing was, there would be nothing certain and clear; since there have been Philosophers who have professed to doubt generally of all Things. Therefore it is not by Men's Contestations that we are to judge of Certainty, or Evidence; since there is nothing but what may be contested, especially by Word: But we must take for clear what appears such to all those who will take the Trouble to consider Things with Attention, and are sincere to say what they think. Therefore *Aristotle* says, with a great deal of Sense, that the Demonstration regards properly the interior Discourse, and not the exterior; because there is nothing so well demonstrated, but what can be denied by an obstinate Person, who will dispute even on Things of which he is persuaded inwardly, which is a very bad Disposition, and very unworthy of a generous Mind; though this Humour is often either cultivated, or taken in the Schools of Philosophy, by the Custom introduced in them of disputing of every Thing, so far as to think one's Honour engaged in never surrendering, that being esteemed the greater Genius who is quickest in finding Evasions; whenas the Character of an honest Man, is to surrender himself to the Truth, as soon as he perceives it, and to love it, even in the Mouth of his Adversary.

Secondly, The same Philosophers who pretend that all our Ideas proceed from our Senses, maintain likewise that all the Certitude and Evidence of Propositions, come either immediately or mediately from our Senses. *For*, say they, *even this Axiom, which passes for the clearest and most evident that can be desired:* The whole is greater than its Part, *has found no Belief in our Mind; but because, from our Infancy, we have observed in particular, that a whole Man is greater than his Head, a whole House greater than a Room, a whole Forest than a Tree, and the Heavens than a Star.*

This Imagination is as false as that we have refuted in the first Part, *that all Ideas come from our Senses*; for if we were no otherwise assured of that Truth, that *the Whole is greater than its Part*, but by the various Observations we have made of it, ever since our Infancy, we would only be probably sure of it; since Induction is not a certain Means to know a Thing, but when we are sure that the Induction is entire; it being nothing more common, than to discover the Falsity of what we had imagined true, by Inductions which appeared so general as to be without Exception.

Therefore it is not of the Observations we have made ever since our Infancy, that the Truth of that *Axiom* depends; since, on the contrary, nothing is more capable to entertain us in the Error, than to mind those Prejudices of our Infancy; but it depends wholly from them, that the clear and distinct Idea we have of a *Whole*, and of a *Part*, includes clearly, that the Whole is greater than the Part, and the Part is smaller than the Whole.

What we have said of that *Axiom*, may be said of all the others; and therefore I believe that the Certitude and Evidence of the human Knowledge in natural Things depends on this Principle:—*All that is contained in the clear and distinct Idea of a Thing, can be affirmed with Truth of that Thing.*

Thus because to be an *Animal* is included in the Idea of *Man*, I can affirm of Man that he is an *Animal*:—Because to have all its Diameters equal, is included in the Idea of a Circle, I can affirm of all Circles, that all their Diameters are equal, *&c.*

This Principle cannot be contested without destroying all the Evidence of the human Knowledge, and establishing a ridiculous Pyrrhonism. For we cannot judge of Things but by the Ideas we have of them; since we have no other Means to conceive them, but by their being in our Mind, and are in it but by their Ideas. But if the Judgments we form in considering those Ideas, were only to regard our Thoughts, and not the Things in themselves, it is visible that we would have no Knowledge of the Things, but of our Thoughts only, and consequently know nothing of the Things which we imagine

imagine to know moſt certainly, but only know that we think them to be ſuch; which would deſtroy, manifeſtly, all the Sciences.

Which notwithſtanding, that Principle alone is not ſufficient to judge of what is to be received for *Axiom*. For there are Attributes which are truly included in the Idea of the Things, which notwithſtanding can, and muſt be demonſtrated of them as the Equality of all the Angles of a Triangle to two Rights, or all thoſe of an Hexagon to eight Rights. But Care muſt be taken, if it be only wanted to conſider the Idea of a Thing with but an indifferent Attention, to ſee clearly that ſuch an Attribute is included in it, or if it be neceſſary beſides, to join ſome other Idea to it, to perceive that Junction. When nothing but the Conſideration of the Idea is wanted, the Propoſition can be taken for *Axiom*, eſpecially if that Conſideration aſks but an indifferent Attention, of which all common Minds are capable. But if ſome other Idea, beſides the Idea of the Thing be wanted, it is a Propoſition, which muſt be demonſtrated: Therefore the two following Rules may be given for the *Axioms*.

First RULE.—*When to ſee clearly that an Attribute is agreeable to a Subject, as to ſee that it belongs to the Whole to be greater than its Part, all that's wanted is, only to conſider the two Ideas of the Subject and of the Attribute with an indifferent Attention, ſo that it cannot be done without perceiving that the Idea of the Attribute is truly included in the Idea of the Subject; then one can take that Propoſition for an Axiom, which wants no Demonſtration, becauſe it has of itſelf all the Evidence it could borrow from the Demonſtration, which could do nothing elſe but to ſhew, that that Attribute is agreeable to the Subject, in making Uſe of a third Idea to ſhew that Relation; which is ſeen already, without the Help of a third Idea.*

But a ſimple Explication muſt not be confounded, if even there was ſome Form of Argument, with a true Demonſtration: For there are *Axioms* which, to be better underſtood, want to be explained, though they want no Demonſtration; the Explication being nothing elſe but to ſay in other Terms, and more at length, what is contained in the *Axiom*; whereas the Demonſtration aſks ſome other new Means, which is not contained clearly in the *Axioms*.

Second RULE.—*When the ſole Conſideration of the Ideas of the Subject, and of the Attribute, is not ſufficient to ſee clearly that the Attribute is agreeable to the Subject, the Propoſition which affirms it ought not to be taken for Axiom; but it muſt be demonſtrated, in making Uſe of ſome other Idea, to ſhew that Junction; as we make Uſe of the Idea of parallel Lines, to ſhew that the three Angles of a Triangle are equal to two Rights.*

Theſe two Rules are more important than one imagines: For it is one of our moſt common Imperfections, not to conſult enough ourſelves in what we affirm or deny, to truſt to what we have heard ſaid, or to our former Thoughts, without any Regard to what we ſhould think, if we were to conſider with more Attention what paſſes in our Mind; to mind more the Sound of Words, than our true Ideas; to affirm as clear and evident what we cannot conceive, and to deny as falſe, which it would be impoſſible for us not to believe true, if we would take the Trouble to think ſeriouſly upon it.

For Example, thoſe that ſay that in a Piece of Wood, beſides its Parts and their Situation, their Figure, their Motion, or their Reſt, and the Pores found between thoſe Parts, there is a ſubſtantial Form diſtinguiſhed from all that, believe that they ſay nothing but what is certain: Which notwithſtanding they ſay ſomething which neither they nor any body elſe has ever underſtood, and never will underſtand.

If on the contrary one wants to explain to them the Effects of Nature by the inſenſible Parts, Bodies are compoſed of, and by their different Situation, Magnitude, Figure, Motion, or Reſt, and by the Pores found between thoſe Parts, which give or obſtruct the Paſſage to other Matters, they think that one entertains them with Chimera's, though one ſays nothing but what they conceive very eaſily; and what is more pleaſant ſtill is, that when one ſpeaks to them of inſenſible Parts, they imagine themſelves very well founded to reject them, becauſe they can neither ſee nor feel them, and notwithſtanding they content themſelves with ſubſtantial Forms with Gravity, attractive Virtue, *&c.* which they not only can neither ſee nor feel, but not even conceive.

Note, That as to *Axioms*, every body agrees that it is important to have in the Mind ſeveral *Axioms* and Principles, which being clear and indubitable can ſerve us of Foundation to know the moſt hidden Things. But thoſe commonly given are of ſo little Uſe, that it is almoſt needleſs to know them; for what they call the firſt Principle of Knowledge, *it is impoſſible that the ſame Thing ſhould be and not be*, is very clear and very certain; but I ſee no Occaſion where it can ever ſerve to give us any Knowledge; therefore I believe that the following ones will be more uſeful: I'll begin by that I have lately explained.

1. AXIOM. *All that is contained in the clear and diſtinct Idea of a Thing, can be affirmed of it with Truth.*

2. AXIOM.—*Exiſtence, at leaſt poſſible, is contained in the Idea of all that we conceive clearly and diſtinctly.* For when a Thing is conceived clearly, we muſt conſider it as poſſible, ſince nothing but the Contradiction found between our Ideas can make us believe a Thing impoſſible: But there can be no Contradiction in an Idea when it is clear and diſtinct.

3. AXIOM.—*Nothing cannot be the Cauſe of any Thing.* From this *Axiom* ariſe others which can be called the Corollaries hereof, ſuch as are the following.

4. AXIOM, *or firſt Corollary of the third.*—*Neither a Thing nor any Perfection of that Thing actually exiſting, can have the Nothing, or a Thing not exiſting for the Cauſe of its Exiſtence.*

5. AXIOM, *or ſecond Corollary of the third.*—*All Reality or Perfection which is in a Thing, is found formally or eminently in its firſt and total Cauſe.*

6. AXIOM, *or third Corollary of the third.*—*A Body cannot move itſelf*, i. e. *give itſelf a Motion when it has none.* This Principle is ſo naturally evident, that it is what has introduced the ſubſtantial Forms. For Philoſophers ſeeing on one Part that it was impoſſible that what ought to be moved ſhould move itſelf, and having falſely imagined on the other, that there was nothing without a Stone, which could puſh it downwards, when it fell, they have thought themſelves obliged to diſtinguiſh two Things in a Stone, the Matter which receives the Motion, and the ſubſtantial Form, aſſiſted with the Accident of the Gravity which gives the Motion, without conſidering that thereby they fell into the Inconvenience they wanted to avoid, if that Form was itſelf material, *i. e.* a true Matter, or that if it was not a Matter, it ſhould be a Subſtance really diſtinct from it; which they could not conceive clearly, unleſs they ſhould conceive it as a Spirit, *i. e.* a thinking Subſtance, as is truly the Form of Man, and not that of all the other Bodies.

7. AXIOM, *or fourth Corollary of the third.*—*A Body cannot move another unleſs it be moved itſelf.* For if a Body being at Reſt cannot put itſelf in Motion, much leſs can it give Motion to another Body.

8. AXIOM.—*One muſt not deny what is clear and evident, becauſe one cannot conceive what is obſcure.*

9. AXIOM.—*It is of the Nature of a finite Mind to not conceive the Infinite.*

10. AXIOM.—*The Teſtimony of a Perſon infinitely powerful, infinitely good, and infinitely true, muſt have more Strength to perſuade our Mind, than the moſt convincing Reaſons.* For we muſt be more ſure that he who is infinitely intelligent is not deceived, and he who is infinitely good does not deceive, than we are ſure that we do not deceive ourſelves in the moſt evident Things. Theſe three laſt *Axioms* are the Foundations of Faith.

11. AXIOM.—*The Facts of which our Senſes can eaſily judge, being atteſted by a great Number of Perſons of different Ages, of different Nations, and of different Intereſts, who ſpeak of them as knowing them by themſelves, and who cannot be ſuſpected of having conſpired together to countenance a Falſhood, muſt paſs for as conſtant and unqueſtionable, as if we had ſeen them with our own Eyes.*

This

This is the Foundation of moſt of our Knowledge, there being infinitely more Things which we know that Way, than thoſe we know by ourſelves.

As to the Rules which Regard the Demonſtrations. — A true *Demonſtration wants two Things*; one that in the Matter there be nothing but certain and indubitable; the other that there ſhould be nothing vicious in the Form of Argumenting. We certainly ſhall have one and the other, if we obſerve the two Rules already propoſed. For nothing is more certain and more true than the Matter, if all the Propoſitions which are to be advanced to ſerve of Proofs, are: — Or the *Definitions* of the Words already explained, which being arbitrary, can not be conteſted: — Or the *Axioms*, which ſhall have been granted, and which muſt not have been ſuppoſed, if they were not clear and evident of themſelves, according to the third Rule: — Or the *Propoſitions* already demonſtrated, and conſequently are become thereby clear and evident: — Or the *Conſtruction* of the Thing itſelf in Queſtion, when ſome Operation thereof is to be made; which muſt be as unqueſtionable as the reſt, ſince that *Conſtruction* muſt have been demonſtrated poſſible before, if there was ſome Doubt that it is not poſſible.

LUTHERANISM.

LUTHERANISM, is the Sentiments of *Martin Luther*, and his Followers, with Regard to Religion.

Lutheraniſm had its Riſe in the ſixteenth Century. Its Author was born at *Iſleben* in *Thuringia*, in 1483, of *John Luder*, and *Marguerite Linderman*. After his Studies at *Magdebourg*, *Iſſenac*, and *Erford*, where he took the Degree of Maſter of Arts; while yet but twenty Years of Age, he enter'd himſelf among the *Auguſtin* Monks at *Erford*, who received him with great Pleaſure, as a Perſon of Merit, and whom they expected would do Honour to their Order.

In fact, *Luther* was of a quick and ſubtle Genius; naturally eloquent, diſert, polite in his Language, infinitely laborious, and ſo aſſiduous to Study, that he uſed often to ſpend whole Days in it, without minding his Meals; whereby he acquired a great Knowledge of the Languages, and of the Fathers, and particularly of St. *Auguſtin*; but he had alſo a great Fund of Pride, Preſumption, and Ambition, which made him deſpiſe all thoſe who were not of his Sentiment; and treat with a brutiſh Inſolence, all thoſe who oppoſed his new Opinions, without Diſtinction, of Kings, Emperors, or any Thing of what is moſt reputable upon Earth; paſſionate, vindictive, imperious, wanting always to be Maſter, and to diſtinguiſh himſelf by the Novelty of his Doctrine.

This was the Man, whom (being then in the Strength of his Age, of 34 Years, and in a great Reputation at *Wittemberg*) the Vicar-General of the *Auguſtines*, let looſe againſt the *Dominicans*, who in the Year 1517, preached the Indulgences of Pope *Leo* X. in *Saxony*. *Luther*, who loved Glory, pleaſed with ſo favourable an Occaſion of making Parade of his Erudition and Eloquence, mounted the Pulpit, and preached with much Vehemency againſt the Mendicants, and Preachers of Indulgences, paſſing from the Abuſes of particular Perſons, to the Condemnation of Indulgences in general; pretending that they were more detrimental than uſeful; that they were but for puſillanimous Chriſtians, who deſired to exempt themſelves from doing good, and from carrying the Croſs of *Jeſus Chriſt*, ſince they only remitted the Satisfactions which ſhould be impoſed on Sinners, *i. e.* Prayers, Mortifications of the Fleſh, and Alms-giving, which are the Fruits of the Penitence one is obliged to do, during one's whole Life, according to the Goſpel; afterwards he exhorted his Auditors to give rather for God's Sake to the Poor, the Money they were aſked for the Fabrick of the Church of St. *Peter* at *Rome*, on the falſe Security of Indulgences, which he ſaid were neither of Counſel nor of Precept, and of no Service for this World, nor for the other.

At the ſame Time he wrote to the Archbiſhop of *Mayence*, and of *Magdebourg*, intreating them to remedy the great Diſorders cauſed by the Queſtors of Indulgences, and to procure that the People ſhould be diſabuſed, who, ſeduced by their Predications, thought that in buying Letters of Indulgences, they were ſure of their Salvation. He took that Occaſion to ſend to that Archbiſhop 95 Propoſitions, which he cauſed to be affixed the ſame Day, being the Eve of *All-Saints*, at the Gates of the Church of *Wittemberg*, not, ſaid he, to maintain them as true, but only to examine them in a regular Diſpute, the better to diſcover the Truth.

The Dominican, *John Titzel*, who found himſelf much maltreated in thoſe Propoſitions of *Luther*, oppoſed to them 106 others, which he propoſed at *Francfort* on the *Oder*. He even cauſed to be burnt, as Inquiſitor of the Faith, thoſe of *Luther*, whoſe Diſciples to revenge their Maſter, burnt likewiſe, publickly at *Wittemberg*, thoſe of *Tetzel*. And this was as the Signal of that War, which ever ſince was waged, without Interruption, between the *Catholicks* and the *Lutherans*.

In fact, in the Year 1518, the famous Dr. *Ekius*, a very learned Man, and Profeſſor of Theology at *Ingolſtadt*, on one Part, and on the other *Sylveſter Pieraſque*, a *Dominican*, and Maſter of the ſacred Palace, wrote againſt *Luther*'s Propoſitions, who anſwered them at firſt, in a Manner ſmooth and civil enough. He even wrote a pretty long Treatiſe containing the Proofs and Authorities of the Fathers, he uſed to ſupport his Propoſitions, and ſent them to *Jerom*, Biſhop of *Brandebourg*, his Dioceſan, and to Pope *Leo* himſelf, with very ſubmiſſive Letters, proteſting that he was ready to ſubmit himſelf to the Judgment of his Holineſs on that Doctrine, as to that of *Jeſus Chriſt* himſelf, who ſpeaks through his Mouth.

This becoming Conduct of *Luther*, gain'd him, ſays *Cochlœe. act. Luth.* the good Will and Approbation of a great Number of Perſons, who imagined that he acted ſincerely, ſearching only the Truth; and that his Adverſaries, whoſe Impoſtures and Abuſes he had diſcovered, accuſed him unjuſtly of Hereſy. What render'd his Cauſe ſtill more plauſible, ſays the ſame Author, is, that *James Hoſtratin*, a *Dominican* Inquiſitor, writing againſt him, adviſed the Pope to employ nothing elſe but Fire and Sword againſt ſo wicked a Man, to rid the World of him as ſoon as poſſible.

In the mean Time, as the Accuſation formed againſt *Luther*, was purſued at *Rome* with Vigour, the Pope cited him to appear within 60 Days at *Rome*, before his Judges, who were appointed by him. That Citation was made the *7th* of *Auguſt*, 1518. even before the Reception of the Letter which the Emperor *Maximilian* wrote to the Diet of *Auſbourg*, and to Pope *Leo*, to deſire him to terminate that Affair as ſoon as poſſible, aſſuring him that he would ſee his Sentence executed. But at the Inſtances of the Duke of *Saxony*, and of the Univerſity of *Wittemberg*, who wrote in *Luther*'s Favour, the Pope conſented that the Cauſe ſhould be examined in *Germany*, and appointed for Judge the Cardinal *Cajetan*, *Thomas de Vioſon* his Legate, who was then at *Auſbourg*. Duke *Frederick* obliged *Luther* to appear before that great Man, whoſe Merit, ſtill more than his Dignity, render'd reſpectable. He obey'd that Order, and having receiv'd a Safe-Conduct from the Emperor, without which, according to the Advice of his Friends, he refuſed to appear, he came to *Auſbourg*, the *12th* of *October*, 1518.

The Cardinal received him with a great deal of Humanity, and without entring into Diſputes, which in fact did not become his Quality of Judge, he told him that the Pope commanded he ſhould revoke the Errors contained in his Writings, and promiſe to maintain them no

no more. *Luther* answered, that he thought himself guilty of no Errors, and desired that he should be shewed some in his Writings. The Legate marked him two, one, that against the Constitution of *Clement* VI. he denied that the infinite Merits of *Jesus Christ* be the Treasure of the Indulgencies; and the other that to be justified, it is only necessary to believe that our Sins are forgiven when we repent sincerely, which is against the Scripture which teaches us, that Man can never have an entire Certitude that he is in a State of Grace. *Luther* who had read that Clementine, answered, that he was not obliged to defer to it, because it only relates the Opinion of St. *Thomas*. And, after a pretty long Contestation on that first Point, without passing to the second, he saw that the Legate, who had no Reason to be satisfied with his Answers, pressed him always to retract himself, he asked Time to deliberate upon it till the next Day, at which Time he appeared with a Notary and Witnesses in the Presence of four Senators of *Ausbourg*: Then he made a Protestation, whereby he declared, that he submitted himself in all he had said or done, to *the Judgment of the Roman Church*; that having proposed nothing but by manner of Dispute, to inform himself of the Truth, against which he could not imagine that he had wrote any Thing, he could not, nor would retract himself, till he was shew'd that he had erred, which was not impossible, since being but a Man he was subject to Error; that he offers to render Reason, either in the Dispute or Writing, of all he had said, and was ready to subscribe to what should be decided on that Subject, by the Universities of *Basil*, *Fribourg*, and *Louvain*, and particularly that of *Paris*, *which is*, said he, *the Mother of the Sciences, and has always been the most flourishing in the Theology*.

But as after he had presented in a long Writing his Reasons, and the Passages of the Scripture he had borrowed to support them, the Legate without deferring to it, insisted always on his Retractation under the Penality of the ecclesiastical Censures; he caused his *Appeal to the Pope* to be affixed in the Night, in publick Places, and retreated with some Precipitation to *Wittemberg*, under Pretence, that he was afraid of being arrested, together with his Protector *Stopitz*. He wrote notwithstanding to the Legate very civil Letters, in praising the Clemency with which he had received him, and excusing himself for having spoke to him in a Manner less respectful than he should have done: But he wrote to others, and even to the Pope himself in a quite different Style, complaining of the insupportable Tyranny of that Cardinal, who wanted to oblige him to a Recantation, without shewing him that he had erred, and who would never accept what he had offered, *viz.* to speak no more of those Indulgences, provided his Adversaries should be commanded to be silent likewise.

I know that several have blamed the Conduct of the Legate, either because he knew not how to manage the Genius of that Doctor, who could have been reduced by a little more Complaisance; or for having been too favourable to his Brethren the Dominicans, who had published the Indulgences in a Manner very little conformable to the true Spirit of the Church, which had been the Occasions of those dangerous Troubles. Others on the contrary excuse him, and maintain that he ought to have acted as he did, according to the express Orders he had to oblige *Luther* to retract himself, or to secure him: Which he had certainly done, had it not been for the safe Conduct of the Emperor, which that crafty Monk insisted upon, before he would appear before the Legate.

Tho' I have no Character to judge of those Differences, which are not yet very well decided, I'll say only, that I am of Opinion, that that Affair could have been terminated, in taking *Luther* by his own Writing, and oblige him to stand by the Protestation he had judiciously made of submitting himself to the Judgment of the *Roman* Church, and sending afterwards to the Pope the Reasons he had given in Writing for the Defence of his Propositions, and at the same Time imposing Silence to both Parties, as himself desired it, till the Pope had terminated their Differences by his Judgment. For as the Duke of *Saxony*, the University of *Wittemberg*, and all *Germany* acknowledged yet the Pope's Authority, *Luther*, who had so lately protested that he acknowledged it likewise, had been oblig'd to submit himself to it; otherwise it is evident that he had been abandoned as a Lyer, and an Impostor: But because other Means were used, he became more bold and enterprizing, adding new Dogma's to those he had first invented; and making a new Protestation, wherein, contrary to what he had said in the first, he declares, that though he is ready to submit himself to the Judgment of the Pope well informed; notwithstanding, as though Pope, he can err, as St. *Peter* erred when contradicted by St. *Paul*, he appealed to the general Council, which is above the Pope, of all that the Pope could do against him.

Pope *Leo* perceiving that it was impossible to stop the great Progress *Luther*'s Doctrine made in *Germany*, under the Protection of Duke *Frederick* of *Saxony*, otherwise than by the rigorous Means his Predecessors had used on such Occasions, made at last his Constitution of the 15th of *June* 1520, whereby he condemns 41 Propositions extracted out of *Luther*'s Books, some of them as manifestly heretical, and the others as scandalous, and schismatical, allowing him sixty Days to retract himself, and sixty others to send to *Rome* his Retractation in good Form, or to bring it himself, offering him a safe Conduct, and all other Security to that Effect; which Time expir'd, he declared him an Excommunicate, forbidding every Body to protect him, under the Penalty of incurring the same Censure, and of being deprived of all his Employments and Dignities.

Ekius was declared Nuncio to carry that Bull into *Germany*, and particularly to the Duke of *Saxony*, and to the University of *Wittemberg*, with Letters of his Holiness, to exhort them to have it published; but this Bull instead of weakening *Luther*'s Interest, served on the contrary to promote it more. For his Partisans took Care to represent that Bull as an Effect of the Hatred and Animosity of the Doctor *Ekius* against him. Therefore the Bull remained at first as in Suspence in *Saxony*, and the Elector, who protected always *Luther*, though he dissembled yet, acted in such a Manner, that it was left for some Time, without either receiving or rejecting it. And in the same Time *Luther*, with whom the Duke and the University acted in concert, appealed anew, *i. e.* the 17th of *November*, 1520. from the Pope to the Council, wrote against the Bull, and maintained all the new Dogma's condemned in it; and he does it in treating always of Antichrist the Author of the Bull, whom he loads with a Multitude of very atrocious Injuries. And as he saw himself very sure of the Favour of the People, of the Court, of Men of Letters, and of the pretended Wits, who all declared for him with great Praises, he executed a very bold Enterprize to engage them all with him to declare an eternal War with the Pope, and to separate themselves for ever from the *Roman* Church: For having learned that his Books had been burnt at *Rome*, and in some Cities of *Flanders* and *Germany*, he caused, in his Turn, the Decrete of *Gratian*, the Decretals of the Popes, the Clementines, the Extravagants, and above all the Bull fulminated against him, to be burnt publickly, and in a solemn Manner, without the Walls of *Wittemberg*.

Charles V. had succeeded *Maximilian*, in the Empire; *Luther*, who expected through the Favour of the Elector of *Saxony*, to whom *Charles* was entirely indebted for his Election, to gain him on his Side, wrote him a Letter full of Flattery and Submission, to ask his Protection, as St. *Athanasius* did to the Emperor *Constantius* in a Persecution semblable to that he suffered, said he, for the Truth of the Gospel; and did spread several Labels, where, after he had treated the Pope in the most furrilous Manner, says *Cochlæa*, he wills that they should all submit themselves to the Emperor for the Reformation of the Church, whereof he is Protector. But *Luther*'s Hopes were frustrated; for *Charles* who was come to *Aix la Chapelle* to be crowned, according to the antient Custom, commanded, at the Instances of the Pope's Nuncio *John Alexander*, that *Luther*'s Books should be burnt, in his Dominions of the *Low Countries*; but he referred to the Dyet of the Empire, the granting the second Request of the Nuncio, which was to make an Imperial Edict to extirpate from the Empire *Luther* and his Doctrine; for the *Lutheran* Party had render'd themselves so formidable in *Germany*, that several of the Em-

peror's

peror's Council was of Opinion, that it would not be prudent to expose, at first, the Authority of the Prince, in obliging him to make an Edict, which in all Appearance would not be obey'd. Not only the Duke of *Saxony* had declared openly for *Luther*, but likewise *Lewis* Count and Elector *Palatine*, who drew after him several other Princes of his House. The Persons of Quality, allured by the Hope of sharing between them the Spoils of the rich Monasteries and Benefices which *Luther* pretended to abandon to them, embraced with all their Heart a Reformation which was so favourable to them, and threatened already to defend it by Arms. They had at their Head *Ulrick de Hutten*, a brave, and enterprising Man, agreeable, of a bright Genius, writing politely in Prose and Verse, in his natural Tongue, and in *Latin*. The People who heard nothing mentioned, but the Tyranny of the *Roman* Antichrist, look'd upon *Luther* as a great Prophet, whom God had sent to deliver the Church from the Yoke of human Laws and Traditions, wherewith the Christians, whom Christ had set at Liberty, had been miserably oppressed. The Ecclesiasticks, who were most of them very great Debauchees, and the Monks, who were tired of their Profession, heard with Pleasure speak of that Liberty, which flatter'd agreeably their Passions.

This was the Condition of *Luther*'s Party while the Dyet was assembled at *Worms*; which was the Cause that some of the Emperor's Ministers were of Opinion, that it was not proper he should make yet an Edict against *Luther*, as sollicited to it by the Pope's Nuncio. But that young Prince, who had a very just Discernment, discovered, easily, that the greatest Obstacle to that Affair, was the common Opinion, that all that was done at *Rome* against *Luther*, who had been lately excommunicated for the second Time by a Bull of the 3*d* of *January* 1520, was only for the Interest of the Pope, and of the Court of *Rome*, whereof that Doctor wanted that the Abuses should be corrected, and the Power moderated, to stop those odious Exactions, which had been made already, more than once, in *Germany*. Therefore the Emperor gave the Pope's Nuncio to understand, that it was proper he should shew clearly in the Dyet, that *Luther* attacked not only the Pope and the Court of *Rome*, but likewise the principal Points of the Christian Religion, which he was undertaking to destroy by his Errors, and which the Pope had condemned.

Palavicini says, *Act. Wormatiens. Arch. Vatican.* that the Nuncio *Alexander* followed punctually this Advice of the Emperor, in the Audience his Imperial Majesty procured him of the Dyet, where he gave to understand, in an Harangue which lasted three Hours, to that illustrious Assembly of the Princes and Deputies of the Empire, producing at the same Time *Luther*'s Books, that *it was necessary to abolish the Sect of that Heretick* (as he styled him) *since it was equally pernicious to the Church and State: That he wanted to destroy the spiritual Authority of the Chief of the Church, and even that of the General Council; without which, there being no longer a Judge to know the true Sense of the Scripture in the Controversies, there would be as many Religions as Heads: That he denied the human Liberty, and wanted that Good and Evil should be the Effect of an unsurmountable Necessity, which opened a large Gate to Libertinism, and authorised all Sorts of Crimes, through a very reasonable Excuse, that one could not act otherwise: That he annihilated the entire Value of the Sacraments of the new Law, since he refused to allow that they produce Grace: That he gave to every Body, without Distinction, the Power to absolve: That he freed all Christians from all human Laws, under Pretence of a Christian Liberty very ill understood: That he denied that the Vows made to God were obligatory: That, lastly, he threw all the World into a frightful Confusion of all Things, without Laws, Hierarchy, Subordination, without Obedience neither to the Church, nor to Princes, nor even to God himself; since, according to that Heretick, he commands us Things which it is impossible for us to execute.*—He added, *that after all that had been done for four Years past, by all Sorts of Expedients to deliver the Church and the Empire from so great an Evil, there was no other Remedy left but an Imperial Edict, which being respected and received, with a perfect Submission, by all the Orders of the Empire, would make so detestable an Heresy, and the Author thereof, be abhorred.*

That Harangue, though very long, was heard with a great deal of Attention, and produced an Effect very advantageous to the Catholick Party; for after the Dyet had deliberated upon that Subject, they all agreed that *Luther*'s Doctrine, called there *Heresy*, should be abolished, since it tended to the entire Ruin of the Christian Religion. But the Duke of *Saxony*, who agreed with the rest on the *Right*, stopt them on the *Fact*, and said, that since it was Question, to proscribe not only that Doctrine, but likewise the Doctor *Luther*, considered as the Author thereof, it was necessary, before they could proceed further, to hear him in that same Assembly, to know of him if it was true that he maintained those Propositions which were said to be in his Books.

The Emperor, who would not disoblige the Duke of *Saxony*, told the Pope's Nuncio, that *Luther* should be heard, lest it should be said that he had condemned a Man unheard, but that it would be only to know of him if he would retract the Errors contained in his Books. On which he wrote to *Luther* the 6th of *March*, 1521, and commanded him to come to *Worms* within twenty-one Days, and sent to bring him a Herald at Arms, with a safe Conduct for his Coming and Return, not only from him, but likewise from the whole Dyet, on Condition notwithstanding that he should not preach on the Road.

He departed then from *Wittemberg*, in a magnificent Coach, attended by a hundred Gentlemen on Horseback, who would accompany him to do him Honour, and to shew at the same Time, that they were ready to defend him, *Vi & Armis*. He entered *Worms* the 16th of *April* 1521, with only eight of his Horsemen, and the Day following was conducted, about four in the Afternoon, into the Hall of the Assembly, by Count *Pappenheim*, Marshal of the Empire, who did forbid him to speak otherwise than to answer precisely to what should be asked him, by the Emperor's Order.

Therefore the Official of *Treves* having told him, that the Emperor wanted to know two Things of him; the first, If he acknowledged all the Books which bore his Name? of which the Titles were read to him; and the second, If he would retract what had been condemned in them?—He answered to the first, that he acknowledged them for his, if nothing had been added to them: But for the second, he said, that as it was a Question of the most important Thing in the World, *viz.* of the Faith, and of the Word of God, he desired Time to think of it, lest that by a too precipitate Answer, he should say too little or too much, which had not been to confess Christ before Men, as he wanted to do. The Official, after it had been deliberated on that Answer, told him, that though as he knew what was to be asked him, he should have been ready to answer immediately, he particularly who was so famous a Doctor, his Imperial Majesty was notwithstanding pleased to give him Time 'till the next Day.

Therefore he had, that Day, another Audience of the Dyet, about Six in the Evening; and after he had persisted in his Answer to the first Chief, he answered to the second, that he was determined never to retract himself.

The Emperor, soon after the second Audience of *Luther*, had caused to be read in the Assembly of the Princes, a Writing whereby he was resolved to employ all his Forces, and even his own Life, to maintain the Catholick Religion he had received from the Emperors and the Kings his Predecessors, and which a miserable Apostate Monk had undertook to destroy: Therefore as he perceived that it was impossible to gain any Thing on *Luther*'s Mind, he commanded him the 26*th* of *April* to depart from *Worms*; and gave him other 21 Days to retire himself into a Place of Safety, with the Herald who had brought him, and the same Safe-Conduct which had been given him to come to the Dyet. And a Month afterwards, says, *Cochlæe, act. Luth.* he caused to be published in the great Church, in Presence of all the Princes, his imperial Edict, which puts *Luther* to the Ban of the Empire, as a Schismatick and declared Heretick, forbidding all Persons to receive or protect him, and to retain any of his Books. But this Edict was not executed as the Emperor expected. For the Duke of *Saxony*

Saxony, who knew very well that it would be publiſhed, and was not willing to offend the Emperor, nor abandon *Luther*, who acting in concert with him, had ſent back the Herald from *Fribourg*, was arreſted in a Foreſt by Perſons maſk'd, who conducted him to the Caſtle of *Weſtberg*, ſituated on a Mountain near *Alſtadt*, where he was confined more than nine Months, and ſplendidly treated, without it being known where he was. It is even ſaid, that the Duke of *Saxony*, who had only commanded in general that he ſhould be put in a Place of Safety, would not be told of it; that he could ſwear to the Emperor that he knew not where *Luther* was; notwithſtanding which his Partiſans gave out every where, that he had been aſſaſſinated by the Papiſts, which cauſed a Sort of Sedition at *Worms*, and put the Pope's Nuncio, much hated by the *Lutherans*, in a very great Danger of his Life.

In that Solitude, which he called his Iſland of *Pathmos*, *Luther* wrote his Treatiſe againſt Auricular Confeſſion; his Anſwer to Dr. *Laomus*, in which he maintains all what the Doctors of *Lovain* had condemned in his Writings, and eſpecially that Propoſition, that God commands Things which it is impoſſible for Men to execute; and that the Grace operates within us, the Good which God commands, that the Will contributes nothing towards it but Evil and Sin, which it always does in all Sorts of good Works, *omne opus bonum eſt peccatum*, *Luth. Tom.* 2. he alſo compoſed there his Treatiſe againſt private Maſſes, where he maintains that the Maſs cannot be a Sacrifice, that it is of no Service to the Dead; that there is no Purgatory, nor Tranſubſtantiation, the Body and Blood of *Jeſus Chriſt* being in the Sacrament under the Subſtance of the Bread and Wine; that both Kinds of that Sacrament muſt be adminiſtered to the Laicks; that there is no Difference between Clerks and Laicks; and every one in the Church has the ſame Power to conſecrate, adminiſter the Sacraments, and to teach; though to obſerve ſome Order and *Bienſeance*, the Exerciſe of that Power is attributed to the Elders, called Prieſts and Biſhops, both Names ſignifying the ſame Thing; that nothing obliges us in Conſcience, but what is preſcribed and commanded in the Goſpel, the Precepts and Advices whereof oblige equally all Chriſtians; that there are no other Vows obligatory, but thoſe of Baptiſm. To prove which, he compoſed likewiſe in his Solitude, his Treatiſe againſt the monaſtick Vows, and againſt the Celibacy of the Eccleſiaſticks, which he pretends to be void, as directly contrary to the Liberty of God's Children; which having open'd a Gate to the Libertinage of thoſe who thirſted after their loſt Liberty, the Monaſteries of Men and Women were ſoon ſeen deſerted, and a vaſt Number of Monks and Prieſts married in ſeveral Places of *Germany*.

But what vexed *Luther*, amidſt his Conqueſts, was, to hear that the *Sorbonne*, to whoſe Judgment he had ſubmitted himſelf, had the 15*th* of *April*, 1521, condemned his Doctrine in more than a hundred Propoſitions, extracted from his Books as execrable, heretical, impious, and blaſphematory. He learned, likewiſe, that *Henry* VIII. King of *England* had ſent to Pope *Leo*, a Book himſelf had wrote in Defence of the ſeven Sacraments, againſt that of *Luther*, *Of the Captivity of* Babylon; which engaged the Pope to give his *Britannick* Majeſty, by an expreſs Bull, the glorious Title of DEFENDER OF THE FAITH, which he retained, even after his Divorce from the *Roman* Church, which he called then his Good Mother, *Cogor tamen*, ſays he, *ne ingratitudine maculer, matrem meam Chriſti ſponſam; utinam tantâ cum facultate, quantâ cum voluntate defendere.* Which Title is ſtill retained by his auguſt Succeſſors.

It would be pretty difficult to expreſs the Impreſſion theſe bad News made on *Luther*'s Mind; he had always proteſted, as well by Word of Mouth, as by his Writings, eſpecially before the Legate *Cajetan*, and at the famous Diſpute of *Leipſic* (between him, his Diſciple *Carloſtad*, and the famous *Ekius*, who remained victorious, and forced the Maſter and his Diſciple to quit the Field) that he conſidered the Doctors of *Paris* as Maſters of the true Theology; but his Paſſion making him paſs all on a Sudden to an Extremity of Rage and Fury, againſt thoſe whom he had ſo much praiſed before, he treated them in the Anſwer he made to their Cenſure, and in his other Writings, ever ſince that Time, and in all other Occaſions, not only as the firſt Corrupters of that divine Science, but likewiſe as the moſt ignorant, the moſt ſtupid of all Men, without Wit, Light, Diſcernment, with an Infinity of other mean and low Invectives, beneath a Man who has the leaſt Sentiment of Honour and Probity, and even againſt common Senſe. He even would that his Diſciple *Melanchthon*, a very diſert and eloquent Grammarian, ſhould write againſt them, but in a Stile, which, the Politeneſs and Purity excepted, is much more of the Maſter, than of the Diſciple.

As for the King of *England*, he treated him in a ſtill more inſolent Manner than he had done the *Sorbonne*, of which this is a Specimen; *Ut neſcias an ipſa mania ſic inſanire poſſit, aut ipſa ſtoliditas fatua ſit, quam eſt caput hoc Henrici noſtri. — Damnabilis putredo iſta & vermis. Jus mihi erit Majeſtatem Anglicam, luto ſuo & ſtercore conſpergere*, &c. *Luth. cont. Reg. Angliæ. tom.* 2.

While *Luther* was ſhut up in that Caſtle, the Duke of *Saxony* would not ſuffer him to come out, to appear in publick, for fear of offending the Emperor; his Diſciple *Carloſtad* thinking that he had as much Right as his Maſter to make himſelf Chief of a Party, went, accompanied with a great Number of young Men as bold as he, into the fine Church of *All Saints*, where they broke the Crucifixes, all the Images, pulled down the Altars, and committed ſeveral other Outrages. At this News, *Luther*, who could not ſuffer that his Diſciple ſhould undertake to become Maſter, came out of his Solitude, notwithſtanding the Prohibition of the Elector, to whom he wrote to excuſe himſelf, that he was more obliged to obey God, than the greateſt Princes upon Earth. Afterwards he ran quickly to *Wittemberg*, where being followed by the People by whom he was adored, he aſcended the Pulpit and inveighed bitterly againſt *Carloſtad*, who having neither the Wit, nor the Eloquence of his Maſter, in whoſe Preſence he uſed to tremble, did not dare to ſay a Word in his own Defence.

It is true, that *Luther* had wrote already againſt the Maſs; but as he knew very well that the Duke of *Saxony* was not willing that any Thing ſhould be changed yet, as to the Exterior, and that himſelf wanted a Maſs in his Manner, very different from that of the Catholicks; he ſaid, that there were certain Things, which though good in themſelves, were not, notwithſtanding, to be done but with Order, to ſcandalize no Body. On which he publickly reprimanded *Carloſtad*, for having undertook to do it of his own private Authority; and as to what related to Images, he called him Heretick and *Iconoclaſt*, ſaying, that the Images, except that of the Divinity, are allowed, and that it is good to have them, eſpecially that of *Jeſus Chriſt*.

The poor *Carloſtad* was forced to ſuffer this publick Reprimand, in Spite of himſelf. But what provoked much more *Luther*, and obliged him to break entirely off with *Carloſtad*, was, that to make a new Party againſt his Maſter, he denied the Reality of the Body and Blood of *Jeſus Chriſt* in the Euchariſt; which *Luther* could never ſuffer in the Sacramentarians, as the *Lutherans* cannot ſuffer it to this Day in the *Calviniſts*, whatever Effort theſe laſt have made to unite themſelves with them. He even confeſſes, *Sculſembur. de Cæn. Dom.* that to ſpite ſtill more the Pope, he had been glad he could deny in Conſcience the real Preſence, but that the Scripture was ſo clear, and ſo formal on that Point, that he could by no Means oppoſe that Truth, without wanting to blind himſelf by a viſible Malice. Therefore he puſhed *Carloſtad* ſo ſmartly, that that revolted Diſciple was forced to quit *Wittemberg*, and retired to *Orlamonde*, a City on the *Sâle*, where he made a great Number of Proſelytes; and from thence to *Zurich* (having been baniſhed from *Saxony* by the Duke, and at the Sollicitation of *Luther*) where he aſſociated himſelf with *Zuingle*, who from a *Lutheran* was become a *Sacramentarian*.

About this Time, *i. e.* in 1522. *Luther* publiſhed his Book againſt the eccleſiaſtical Order; *Adverſus falſo nominatum ſtatum Eccleſiaſticorum*, *Luth. tom.* 2. and eſpecially againſt the Biſhops, whom he wanted to exterminate. He even oppoſed to the Bull *in Cœnâ Domini*, where the Pope had excommunicated him by Name, another Bull of his own making, entitled *The Bull and*

and Reformation of Doctor Luther, in which he says, that all those who shall employ their Forces and Fortunes to ravish the Bishopricks, and abolish the Government of Bishops, are God's Children; and on the contrary, those who defend them or obey them are the Ministers of *Satan*.

When *Luther* was reproached at the Beginning of his *Reformation*, that his new Doctrine had caused nothing but Trouble and Confusion, he used to say, abusing the Words of Jesus Christ, *Think not that I am come to send Peace: I am come not to send Peace, but a Sword*, Matt. x. 34. This he verified in a Sense quite different from that he understood, in a Manner which proved very fatal to all *Germany*, by the War of the revolted Peasants, which began in the Year 1525, on the following Occasion.—When *Luther* coming out of his Solitude, did run to *Wittemberg* to stop the Insolence of *Carlostad*, he found that he had been engaged in his Enterprize, says *Sleidan*, *l.* 4. & 5. by *Nicolas Stark* and *Thomas Muncer*, the two first Chiefs of the Antousiasts or Anabaptists: For these two new Reformers had undertook to desert *Luther*, and make a new Sect, under Pretence that his Doctrine was too loose, saying, that one ought not to guide himself but by the Revelations he received in Meditation; that there were neither Laws, nor ecclesiastical or political Ordinances, which could oblige Men, who being all equally God's Children, and set at Liberty by *Jesus Christ*, should be all equal, without any Body could pretend lawfully to command others.

Luther, who saw the dangerous Consequences which so dangerous a Doctrine might have, and could not suffer besides, that any Body but him should pretend to make himself Chief of a Party, expelled those Fanaticks from *Wittemberg*, who did spread all over *Germany*; where they repeated so often, especially to the Peasants, the Doctrine of *Luther* on Man's natural Freedom, and that God had permitted them to have Recourse to open Force to deliver themselves from the Oppression of their Masters, or rather Tyrants either ecclesiastical or secular, who loaded them with unsupportable Burthens, and that God had decreed that all should be in common among his Children, as in the primitive Church; that there was at last a general Revolt of those Peasants, who proclaimed every where a pretended evangelical Liberty. This Disorder began in *Suabia*, where they appeared in Arms as well as in *Wittemberg*, *Franconia*, along the *Rhine*, and in *Alsace*, plundering, murdering, burning the Castles and Houses of Persons of Quality, whom they massacred without Pity, and without any Regard to their Quality, or to the Law of War. They were even so barbarous, that having took in *Winsperg*, *Louis* Count of *Helfestein*, they massacred all the Nobility they found with him in the Place to defend it, and made him himself run through the Pikes, though the Princess his Wife, natural Daughter of the late Emperor *Maximilian*, having thrown herself at their Feet, with the young Prince her Son she held in her Arms, implored their Mercy, and asked them with Tears mixed with the innocent Cries of that Infant, the Life of her Husband.

Luther, in this Year of Trouble and Confusion, to which he had given Occasion by his new Doctrine, celebrated his Marriage. Two Years before, a *Lutheran* of *Torgau* had carried off, on *Good Friday*, nine Nuns at once, whom he conducted to *Wittemberg*, to be there in Safety under *Luther*'s Protection. This caused a very great Scandal, and every body was very much irritated against this impious Ravisher, called *Leonard Koppen*; but *Luther* undertook his Defence, which he published in the vulgar Tongue, where, after he has praised him for having done an Action very agreeable to God, he says, that he will take Part in his Glory, and that himself advised him to it; and adds, *That it is a Rape like that Christ made the Day of his Passion, when he delivered the captive Souls from the Tyranny of Satan. Felicem raptorem, sicut & Christus raptor erat in mundo, quando per mortem suam, & quidem opportunissimo tempore in pascha, quo Christus suorum quoque captivam duxit captivitatem*, Luth. ap. Cochlæ.

Among these nine libertine Nuns, all Persons of Quality, there was one called *Catherine de Bore*, whom *Luther*, who was yet in his Frock, found very handsome, and of whom he became passionately in Love. Notwithstanding, though he had wrote already against the State of Virginity in favour of Matrimony; that he teached publickly that those who thought they had not the Gift of Continence, which he confessed sincerely he had not himself, not only could, but ought to marry, though they had made Vow of Chastity; and he had on that Subject certain Sentiments, which he expressed in a Manner, which the Respect I owe to the Reader hinders me from expressing, but which can be seen in his Sermon on Marriage, in the fifth Tome of his Works: He notwithstanding dared not to undertake to marry her, because the Elector *Frederick*, who hated those scandalous Changes, had never suffered it; but as that Prince had clos'd his Eyes, finding himself at full Liberty to do what he pleased, no Consideration could hinder him from gratifying his Passion, therefore he married publickly his Nun, and celebrated his Nuptials with all Sorts of Rejoycings, at the same Time all *Saxony* was in Tears for the Loss of their Elector, and all *Germany* for the Disorders caused by the War of the Peasants.

The Emperor *Charles* V. who through the Excess of his sincere Zeal for the Religion of his august Ancestors, and but too sensible of the great Ravages *Luther*'s Reformation had caused already, and was so likely to cause in the Empire, in hopes of procuring a Reconciliation between the Catholicks and the Lutherans, or to give a Check to the vast Progresses the new Sect made daily, convoked by his Letters Patent dated the 21st of *January* 1530, a Dyet at *Ausbourg*, for the 8th of *April* of the same Year, where he was to assist in Person, promising all Parties, that they should have the Liberty to propose freely in Writing all that they would say to maintain their Cause, and gave them all safe Conduct for their Coming and Return.

Mean while the Elector of *Saxony*, and the other Protestant Princes, who had been informed, that by the Treaty of *Bolognia*, the Pope, the Emperor, and King *Ferdinand* his Brother, had entered into Engagements very disadvantageous to the new Religion they had embraced, deliberated on what they were to do for their Defence; and consulted among themselves, to know if it was not more proper to prevent the Evil of which they were threatned, and to go with the Forces they had, to meet the Emperor, who was advancing towards *Tirol*, to dispute with him the Passage of the *Alps*. A true Historian must render Justice to Merit wherever he finds it, without any Regard to the Quality of the Persons. I'll say then, without the least Fear, that the Posterity who is to read this concise Relation, will suspect me of being either *Lutheran* or *Calvinist*, that *Luther* acted on this Occasion, as the most honest Man, and the best Christian could have done: For he wrote to the Duke to dissuade him from that criminal Enterprize, saying, that it was not by open Force that the Cause of Religion was to be supported, but by good Reason, a Christian Patience, and above all by a great Confidence in God. The Duke of *Saxony*, who listened to *Luther* as to an Oracle; and at his Example the Princes his Associates took the Resolution to trust to the Emperor, and go to the Dyet; but before that the Duke assembled his principal Doctors with *Luther*, who digested by his Order their Profession of Faith into seventeen Articles, which served as Matter to the famous Confession of *Ausbourg*.

This done he departed for *Ausbourg*, accompanied by *Luther*; but for Fear of irritating the Emperor, by the Presence of a Man, whom he had proscribed by the Edict of *Worms*, he left him, says *Sleidan*, *l.* 5. *c.* 1. at *Cobourg*, one of his principal Fortresses on the Frontier of *Franconia*, and of the County of *Henneberg*, with a Promise that nothing should be done in the Dyet without consulting him. Afterwards, thinking that the Emperor would arrive sooner than he did, he went first to make his Entry at *Ausbourg* the 2d of *May* 1530, accompanied with Prince *John Frederick* his Son, *Francis* Duke of *Lunebourg*, *Wolfang* Prince of *Anhalt*, of the Count *Albert* of *Mansfelt*, of all the Nobility of *Saxony*, and of 160 Horsemen very well armed, and cloathed with rich Cassocks of Scarlet, embroider'd with Gold. The other Princes ecclesiastick and secular, made likewise their publick Entry during the rest of the same Month of *May*, and the Beginning of *June*, each with an Equi-

page suitable to his Quality, and to his Rank in the Empire: Therefore while they were waiting for the Emperor, who had stopped in *Tyrol*, *Philip Melancthon* had Time to digest as he did, with a great deal of Dexterity, the Confession of Faith, which was to be presented to his Imperial Majesty.

Sculsemburg, *Calvin*, and *Florimond de Raimond* say, that this *Philip Melancthon* rendered so famous among the Protestants, was born in a small Borough of the lower *Palatinate* near the *Rhine*. He had received from Nature, in a very low Birth, so great a Genius, and so proper for the Sciences, that being yet but 21 Years of Age, he had acquired the Reputation of one of the most learned Men of *Germany*; therefore the Duke *Frederick* Elector of *Saxony*, placed him in the Year 1518, in his University of *Wittemberg*, where he contracted so great an Intimacy with *Luther*, that he became soon the greatest Confident he had. However, one may say, that never was seen so surprizing a Friendship between two Persons, so different in their Inclinations and Humour, and who were afterwards to hate so implacably one another: For *Luther*, as every body knows, was bold, enterprizing, imperious, proud, haughty, and passionate, using neither Circumspection nor Decency, either in his Writing or his Words, when he was once in a Passion, decisive, firm, intrepid, and obstinate in his Sentiments, otherwise merry, agreeable, and of good Humour with his Friends. *Philip* on the contrary was meek, humble, moderate, complaisant, modest, very serious, loving Peace, and always ready for a Re-union if he had been Master; otherwise pusillanimous, without Firmness, or Resolution, doubting of every Thing; and so wavering in the Points of his Belief, of which he has wrote in different Manners, that the *Zuinglians*, *Calvinists*, and even the *Arians*, have pretended to have him on their Side: But this did not happen till after *Luther*'s Death, for whom he had all the Submission, all the Deference, and all the Veneration a Disciple can have for his Master. *Luther*, on his Side, had for him so much Tenderness, that he would receive no Advice but from him, and no body else would undertake to appease him when he was in a Passion.

Such was *Philip Melancthon*, who was ordered to digest the Confession of *Ausbourg*; which he did in twenty one Articles, some of which, as those concerning the divine Essence, the Trinity of the Persons, and the Incarnation of the Word, the Catholicks confess to be orthodox. To these twenty-one Articles he added seven others, to reform, said he, the Abuses of the *Roman* Church, and which he entituled, *Of the Communion under both Kinds*; *of the Marriage of Priests*; *of the Mass*; *of the monastical Vows*; *and of the ecclesiastical Power*. This Profession of the Protestants, thus reduced into twenty-eight Articles by *Melancthon*, was immediately carried to *Luther* by an Express, the Duke of *Saxony* sent him, to know of him if there was nothing to be changed in it? *Luther* assured the Duke, in his Answer, that *it pleased him much, and that he could change nothing in it; and that if even he could, it would not be proper to do it, because it would be impossible for him to use so much Circumspection, and to express himself in Terms so smooth, and so delicate.*

By this Time the Emperor was arrived from *Trent* to *Inspruck*, with King *Ferdinand* his Brother, the Queens of *Hungary* and *Bohemia*, the Cardinal *Campege* the Pope's Legate, the Cardinals of *Saltzbourg*, *Trent*, and *Gaimara*, *Frederick* Count *Palatin*, the Marquis *John Albert* of *Brandebourg*, the Ambassadors of the Kings of *France*, *England*, and *Portugal*, and several Grandees of *Spain*. After he had staid fifteen Days at *Inspruck*, he departed the 6th of *June*, passing through *Munich*, and arrived the 15th at *Ausbourg*, where towards the Evening he made his Entry with the greatest Magnificence, which had ever been seen yet in the Empire. The Emperor, who was a very handsome Prince, at the Age of Thirty, marched under a Canopy carried by the Senators of *Ausbourg*, dressed in the *Spanish* Fashion, to do Honour to his Nation, which was then at the greatest Pitch of Elevation it had ever been; he was all shining with Jewels, mounted on a beautiful *Polish* Horse, environed with all the young Princes, Sons of Electors, Dukes, Counts, and Marquises of the Empire; having immediately before him the Elector of *Sakony* preceded by seventeen Princes, and carrying the imperial Sword naked, between *Joachim* Elector of *Brandebourg*, and the Baron *Valentin d'Erbach*, representing the Count *Louis* Elector *Palatin* his Master, followed by that who represented the Elector of *Treves*. On the Right walk'd the Elector of *Mayence*, with 200 Guards of the Emperor cloathed in Cassocks of his Livery of yellow and black Velvet; on the Left of the Archbishop and Elector of *Cologn*, at the Head of 100 other Guards armed cap-a-pie. Immediately after the Canopy was seen King *Ferdinand* and the Pope's Legate, between 300 Guards of that Prince, with their Cassocks of red and white Velvet; after them three other Cardinals on their Mules, the Ambassadors of Kings, the Grand Master of the Teutonick Order, a long Retinue of Archbishops and Bishops, and of *German*, *Italian*, and *Spanish* Lords, and lastly, the Militia of *Ausbourg*, to the Number of 3 or 4000 Men, richly cloathed, and with 12 Pieces of Cannon.

The Pomp ended by the *Te Deum* sung in the great Church: *Charles* having dismissed the Princes, retained the Protestants to tell them, that he pretended that the next Day, which was that of *Corpus Christi*, they should assist at the Procession of the Sacrament with the others, according to Custom, which they refused, pretending that they could not do it in Conscience.

On *Monday* the 20th of *June*, 1530, *Charles* wanting to open the Dyet, by the Mass of the Holy Ghost, which was solemnly sung in the Cathedral Church, he had told the Elector of *Saxony*, that he expected he should discharge on that Occasion his Office of Grand Marshal of the Empire, who is to carry the Sword before the Emperor in all publick Ceremonies. His Doctors having been consulted on that Subject answered, he might do it without scruple, by the Example of *Naaman*, whom the Prophet *Elisha* permitted to serve the King of *Syria* his Master, who used to lean on him in the Temple where he adored an Idol. Therefore the Elector obey'd and went to Church, accompanied with the other Protestant Princes, who all assisted at Mass, and at the *Latin* Harangue of the Pope's Nuncio, who exhorted them all with a great deal of Zeal to a Re-union with the Catholicks.

After Mass the Emperor, followed by King *Ferdinand*, the Electors, Princes, and Deputies of the Towns, went to hold the first Session of the Dyet, in the great Hall of the Senate of *Ausbourg*, where after the Count *Palatin Frederick* had read to the Assembly a pretty long Writing, containing the Motives which had obliged the Emperor to convoke that Dyet, and the Things which were to be treated in it, it was determined, that they should begin by the Point of Religion, as the most important for the Peace and Tranquility of *Germany*: Therefore on St. *John*'s Day, which was that of the second Session, after the Assembly had heard the *Latin* Harangue of the Pope's Nuncio, and that of the Deputies of *Austria*, who asked an immediate Succour against the *Turks*; the Elector of *Saxony*, accompanied by the Marquis *George* of *Brandebourg*, the Dukes *Francis* and *Ernest* of *Lunebourg* and *Brunswick*, *Philip* Landgrave of *Hesse*, and *Wolphang* Prince of *Anhalt*, went to place himself over-against the Throne of the Emperor, where the Doctor *George Pontanus* his Chancellor made a Discourse plausible enough, whereby those Princes humbly intreated the Emperor to permit that their Confession of Faith should be read publickly before all the Orders of the Empire. At first the Emperor wanted that they should only deliver it into his Hands, to have it examined at Leisure, and to deliberate afterwards upon it, with the Electors, the Princes, and those of his Council; but to take off all Subject of Complaint, it was resolved at last to grant them their Request, for the next Day, in the Hall of his Palace where the Assembly should meet to hear what they had to say.

Therefore the *Saturday* the 25th of *June*, the Elector of *Saxony*, with the Duke *John Frederick* his Son, the other five Protestant Princes, and the Deputies of *Nuremberg* and *Rutling*, having presented themselves before the Emperor about three in the Afternoon, with their Confession in *German* and *Latin*, containing the 28 Articles of their Belief and Discipline, with the Authorities which

which they had quoted to support them, it was read slowly, and with a very loud Voice, by one of the Elector's Counsellors, with an incredible Rejoycing of the *Lutherans*, who considered that Action as the Triumph of their Doctrine. They wrote afterwards every where, that it was found conform to the pure Word of God, and that those among the Papists who had most discredited it remained mute, and would not attempt henceforward to attack it.

But it appeared soon after that they were deceived, for the Refutation which the Catholick Doctors had made of all the Dogma's contained in that Confession having been examined and put in a good Form, the Emperor caused it to be read in the Assembly the 3d of *August*, then having asked the Opinions, it was generally approved by all the Catholicks, who far surpassed the Lutherans in Number. Afterwards the Emperor addressing himself to the Duke of *Saxony*, and to the other Princes his Associates, told them that they must conform themselves to the Sentiments of the Dyet, and approve the Writing they had heard read: They asked a Copy thereof, which after some Difficulty was granted, being told at the same Time, that after they had read it every one in their Particular they should return it to the Emperor, because the Dyet having pronounced on the two Pieces which had been read in it, there was no room to dispute, but only to submit to the Sentiment of the Assembly. They rejected that Condition with a Sort of Scorn; and even the Lantgrave left the Dyet without taking Leave, which the Emperor took very ill: But as the Catholick Princes were in hope, that they could be brought back in treating with them in a particular Conference; they obtained from the Prince, that seventeen Deputies should be chosen among the Electors, the Princes, the Bishops, and the Deputies of the Towns, to confer with them in an amicable Manner, as they did the 7th of *August* in the Chapterhouse of the Cathedral Church, where *Joachim* I. Elector of *Brandebourg*, made to the six Lutheran Princes a very strong and pathetical Discourse, to engage them to renounce their Confession, of which they had heard so solid a Refutation, by the Authorities of the Scripture, the Fathers, and the Councils.

They answered to all that two Days afterwards by Words of Mouth and by Writing, that they had not had all the Audience promised them, in convoking that Dyet; that they had been refused the Copy of that Refutation, which they could not approve in Conscience, and that the Council which had been promised to them was not likely to be convoked. To which the Elector *Joachim* replied, *That though their Confession had been read in full Dyet, containing all they had to say, according as themselves had said to the Emperor, that Conference was made to hear them as much and as long as they pleased; that the Copy of the Writing of the Catholick Doctors had been offered them, on a Condition which every Body found reasonable; that their Conscience should oblige them not to separate themselves from the Catholick Religion, but to renounce the Errors and Schism of an apostate Monk, who had seduced them; and that for the Council, besides that they knew very well that the Wars had always hindered its Convocation*, Luther *himself had declared at the Dyet of* Worms, *that he would not submit himself to a Judgment against whose Authority he wrote still daily.*

Though this Reply was not very pleasing to the *Lutherans*, notwithstanding, to shew that they were not Enemies of Peace, they consented, by *Melanethon*'s Advice, who wanted a Re-union, and to terminate that Affair as soon as possible, to a Conference between seven Deputies of each Side, who should examine the Confession anew, which was done: In each Party, says *Sleidan, lib.* 7. and *Cochlæe*, two Princes, two Jurisconsults, and three Theologians were chosen; who met the 16th of *August*, 1530. and *Melanethon*, who was then Chief of the Party in *Luther*'s Absence, acted in such a Manner by his usual Mitigations, in explaining in a tolerable Manner what was most shocking to the Catholicks in the Confession of *Ausbourg*, that the very next Day they all agreed on 15 Articles of the 21, which make the first Part of the Confession relating to the Dogma's of Faith. For besides those in which the *Lutherans* have always agreed with the Catholicks, with regard to the Mysteries of the Christian Religion, it was confessed in the second, *that by Baptism the original Sin is washed off, though the Concupiscence, which is the Effect thereof, remain.* In the fourth, fifth, and sixth, *that it is not Faith alone, but Faith and the sanctifying Grace which justify us.* In the seventh and eighth, *that the Church does not contain the Elect only, but the Sinners likewise.* And in the seventeenth, *that we have our Free-Will, and that we can do nothing for our Salvation without Grace, and the supernatural Succours of God.*

They could not agree but in Part, on three Articles; for on the Twelfth the *Lutherans* would admit the Satisfaction as a Part of the Penitence, to produce the Fruits thereof according to the Gospel, but not as necessary for the Remission of the Pain due to our Sins. On the Twentieth they confessed the Necessity of good Works, but not their Merit. And as to the twenty-first, they acknowledged that the Angels and Saints pray for us, and would honour their Feasts and Memory, but not invoke them. The three other Articles, *viz.* the eleventh, fourteenth, and fifteenth, which are of the *sacramental Confession or Order*, and of the Ceremonies and Customs of the Church, were referred to the Examination of the second Part, which treats of the Abuses which they attributed to the *Roman* Church. It was here they could not agree entirely on either Article, whatever Means of Accommodation was proposed by either of the two Parties, because the *Lutherans* wanted always, that the Communion under both Kinds should be of divine Precept, that the Priests could marry, that the Mass was not a Sacrifice, that the Confession should be made in general, without descending into a particular Detale of Sins, that the Ceremonies, Feasts, and other Commandments of the Church, should not oblige in Conscience; and that the monastick Vows should be abolished. But as to the seventh and last Article, which related to Bishops, *Melanethon* who wanted to gain them and procure the Peace, relented much, by attributing to them almost the whole Extent of their Jurisdiction in their Diocese.

As the Report of the Result of that Conference was made afterwards in full Dyet, according to a reciprocal Agreement between the Parties; it was hoped, that as so great Advances had been made already towards a Re-union, a Peace could be soon procured, provided they continued to work on an Affair so happily began: And because they thought, that if the Conference was made between few Persons, they would sooner and easier agree than between a great Number, where there is more Contradiction, it was resolved to reduce the Number of the Deputies to three of each Side, *viz* to two Canonists and to one Theologian, who was *Ekius* for the Catholicks, and *Melanethon* for the *Lutherans*. Mean while *Luther*, to whom Couriers were sent every Day, to inform him of what passed in the Dyet, and in those Conferences, was continually writing, either to the Duke of *Saxony*, or to the Doctors of his Party, that they granted too much, that they were deceived, and that they should be contented with having already used too much Condescension in their Confession without giving up new Things in those Conferences; that they had undertook a Thing entirely impossible, and that they could no more reconcile *Luther* with the Pope, than *Jesus Christ* with *Belial*; and I really believe him, for as *Luther* had no Religion, but as far as he made it subservient to his Ambition and Libertinage, he knew perfectly well, that if a Reconciliation had been made, his Reign, as Chief of a formidable Party, had soon been at an End; and the greatest Favour he could have expected then had been to have his Disorders forgiven, and to have the Liberty to retun to his Cloister, without any orher Punishment, which notwithstanding had been a very great one for *Luther*.

He wrote likewise several Libels in the vulgar Tongue, against the Emperor and the Bishops, to render them odious to the People and to the Nobility; and those scandalous Writings were distributed at *Ausbourg* during the Dyet, and in the other Towns, and calculated purposely to excite a Sedition, and hinder the Peace which was at the Point of being concluded between the Catholicks and Protestants.

In fact, in Consequence of these Writings of *Luther*, *Philip*

Philip Melancthon who had granted several Things which were not agreeable to those of his Party, was forbidden to grant any Thing more; so that the Conference was terminated towards the End of *August*, without concluding any Thing.

Therefore as *Charles* saw, says *Sleidan*, *l.* 7. and *Cochlæe*, that neither his Prayers, nor his Promises, nor the strong Remonstrances he had caused to be made to them, even in his Presence, during the Month of *September*, had been of any Service to bring them to their Duty, he made at last, with the unanimous Consent of the other Princes, his Decree, which was read the Twenty-second of the same Month, to the Duke of *Saxony*, to the Princes his Associates, and to the Deputies. That Decree bears, that *the Emperor gives them Time to the Fifteenth of* April, *to declare if they will not conform themselves, in the Points of the Catholick Belief, to the Princes and other Members of the Empire, who, after they had heard the Refutation made of their Confession, which had been well examined, had generally reproved it; and if they are not ready to renounce the Articles on which they disputed still, after they had abandoned the others in the Conferences which had been made on that Subject. That during that Time given them, they shall innovate nothing, nor permit any thing to be printed, against the Faith of the Roman Catholick Church. That they shall not likewise make Proselytes, as they have done till then; nor hinder the Catholicks, even their Subjects, from having the Exercise of the antient Religion in their Dominions, and the Priests and Monks from celebrating publickly their Masses, and from administring the Sacraments with a full and entire Liberty; and lastly, that they shall join with the other Princes to exterminate the Anabaptists and Sacramentarians from the Empire*, &c.

The *Lutheran* Princes surprised with that Decree, which they did not expect, presented the next Day to the Emperor an Apology, which *Melancthon* had made of their Confession; but as they saw that *Charles* would not so much as receive it, and that he had them told, That if they were not contented with that Decree, in which he was resolved to change nothing, they would oblige him to make another still stronger; they took also the Resolution among themselves, not to submit to it; and after they had said, with a great deal of Respect to the Emperor, that seeing him so firm in his Resolution, they were determined to importune him no more on that Subject, and abandoned themselves to God's Providence, he gave them Leave to return into their Dominions, leaving some of their Officers at *Ausbourg*, till the End of the Dyet, which lasted six Weeks longer; during which they treated of other Affairs, and especially of the Succours asked against the *Turks*, and to which the *Lutherans* would contribute nothing. At last the Emperor seeing that the *Lutherans* refused always obstinately to receive the Decree he had made, he made a second at the Conclusion of the Dyet, whereby he orders, *That the Catholick Religion should be practised throughout the whole Empire, and that all the Things of which he makes a long Detale, should be restored to their former State; and forbids all Sorts of Persons, under the Penalty of the Confiscation of Bodies and Goods, to change any thing in the Doctrine, Customs, and Ceremonies of the Church, till it had been ordered otherwise by the Council.*

Thus ended that famous Dyet of *Ausbourg*, and the Emperor accompanied by King *Ferdinand* his Brother, and several Princes went to *Cologn*; where the Archbishop of *Mayence* convoked by his Orders, the Electors, for the End of the same Year, and for the Election of a King of the *Romans*: But the *Lutherans*, afraid that that Assembly was concerted to oppress them, opposed it with all their Power, and resolved to unite themselves more than ever, as they did by the famous League of *Smalcalde*.

Smalcalde is a small Town of the County of *Henneberg*, belonging to the Lantgrave of *Hesse*, which has rendered itself famous by the frequent Assemblies of the *Lutheran* Princes, to treat there of the Interests of the common Cause of their Sect; there those Princes met the 22d of *December*, at the Instance of the Elector of *Saxony*, who went to meet them, instead of going to *Cologne*, where he sent Prince *John Frederick* his Son, with Order to oppose in his Name the Election of a King of the *Romans*. He protested that it was an Enterprize manifestly against the Golden Bull, which orders to preserve the Liberty of the Suffrages, that the Election shall be made after the Emperor's Demise, without attempting to give him a Successor while he is yet living. The other Princes his Associates joined with him for the same Effect, and wrote from *Smalcalde* to the Emperor, and to the Electors, to intreat them not to think of a Thing of so bad an Example, and so contrary to the *German* Liberty; but all their Remonstrances proved vain, for *Ferdinand* King of *Bohemia* and of *Hungary*, the Emperor's Brother, was the 5th of *January* elected King of the *Romans*, and crowned at *Aix-la-chapelle* the 11th of the same Month.

Therefore the *Lutheran* Princes concluded their League to defend mutually one another, against all those who would attempt to disturb them in the Exercise of their Religion, or even to attack the Emperor, in case they should think necessary to do it. This League concluded, the confederated Princes sent to the Kings of *France* and of *England*, who they both knew hated *Charles* V. a long Manifesto, to justify their Doctrine and their Conduct, and to ask them Succours against the Emperor. *Henry* VIII. King of *England*, who had not yet made his Divorce with the *Roman* Church, would not promise them any Succours, but only to use all his Credit to procure the Convocation of a Council for the Reformation of the Abuses which had been introduced in the Church. *Francis* I. King of *France*, who had no great Reason to be very well satisfied with the Emperor, promised them the same Thing the King of *England* had done, and engaged besides, to assist them for the Conservation of the Rights of the Empire; which they said had been violated by the Election of a King of the *Romans*, provided their League should be defensive only, and to maintain their Liberty if they were attacked on that Subject. These Negociations of the Confederates with the King of *France*, made a greater Impression on the Emperor's Mind, than all they had done before, for afraid that his most Christian Majesty should gain any Advantage thereby, he sent *Albert* Archbishop of *Mayence*, and *Louis* Elector *Palatine* to treat of a Peace with the *Lutheran* Princes, who were then assembled at *Nuremberg*, while himself was holding a Dyet at *Spires*, which Peace was concluded the 23d of *July* on these Conditions, *That the Edicts of* Worms *and* Ausbourg *should remain suspended for the* Lutherans *only, who should be tolerated, and not disturbed on the Point of Religion, of which they should have the free Exercise, till the Decisions of the Council, the Convocation whereof the Emperor should procure in six Months, and the Celebration in a Year afterwards; and if such a Thing could not be obtained of the Pope, then a general Dyet should be assembled, where that Affair would be treated, to terminate it as it would be judged more proper for the Good of the Empire.*

The Emperor accomplished religiously what he had promised in that Treaty, and engaged the Pope, *Paul* III. to convoke the Council; but the *Lutheran* Princes, who had so long insisted on that Convocation, having assembled at *Smalcalde* according to Custom, whither they called *Luther*, who came accompanied with *Melancthon*, *Pometanus*, *Bucer*, *Osiander*, and several others of his most famous Disciples, to examine the Bull of Convocation, they had received from the Nuncio *Vorsius*, they declared by *Luther*'s Advice, that they would never consent, that the Council should be assembled out of *Germany*, that the Pope should appear there as a Judge, or that he even should convoke it, which belonged to the Emperor, and to Kings. Then they caused a Manifesto to be dispersed throughout all *Europe*, containing their Reasons for refusing that the Council should be assembled at *Mantua* by the Pope: They addressed themselves particularly to the King of *France*, who, they expected, because of the War he had then with the Emperor, would grant them his Protection.

Therefore the Vice-chancellor of the Emperor, who had been sent by him to persuade those Princes to accept the Bull of Convocation, seeing that all his Remonstrances were vain, engaged the Catholick Princes to assemble at *Nuremberg*, there to oppose the *Lutherans* who wanted to abolish the Catholick Religion in their Dominions, by forcing their Subjects to become *Lutherans*, they

they obliged themselves to unite their Forces against all those who should undertake to disturb the Catholicks in the Exercise of their Religion, and the Emperor and King *Ferdinand* were declared Chiefs of that League.

These two contrary Leagues made at *Smalcalde* and at *Nuremberg*, tending manifestly to a War, to which both Parties were preparing themselves, and notwithstanding, the *Lutherans*, who refused to join with the Emperor and the Catholicks for the Council they had so often asked for to compose their Differences, protesting still that they wished for nothing else but Peace, asking even for that Effect a Conference with the Catholicks, if the Emperor would consent to it: That Prince wrote from *Toledo* the 19th of *November* 1538. that he permitted them to assemble at *Franckfort*, as they did the 12th of *February* of the Year following. It was there that after more than a Month of tedious Contestations, it was concluded at last, under the good Pleasure of the Emperor, that as the Liberty of Conscience had been granted to the *Lutherans* by the Pacification of *Nuremberg*, but 'till the Convocation of the Council which the Emperor accepted, and they refused, they should be granted a Truce of fifteen Months, during which Theologians on both Sides should meet to treat in an amicable Manner of the Points contested in Presence of Deputies appointed for that Purpose, and to enter into an Agreement according to the Judgment of those Deputies, which should be accepted by both Parties: That during that Time neither the one nor the other should receive any Body anew into their League, and that the Ecclesiasticks should enjoy peaceably the Estates they had yet in the Dominions of the *Lutheran* Princes, who also should be included in that Treaty, to the Exclusion of the Anabaptists and Sacramentarians.

The Emperor refused at first to ratify that Treaty, and the *Lutherans* imagining that it was calculated to surprize them unawares, received anew, contrary to the Tenor thereof, all those who asked to be received into their League. This Violation of the Treaty had infallibly made the Emperor take other Measures, if the *Lutheran* League being almost all on a sudden grown formidable, by the Acquisition of the Subjects of Prince *George* of *Saxony*, who soon after the Death of that Prince (who had always remained a zealous Catholick, though the other Princes of his august House were all turn'd *Lutherans*) embraced the new Opinions, and *Joachim* II. Marquis of *Brandebourg*, whom his Subjects engaged to change a Religion which his Father had always so strenously defended, promising on that Condition to pay all his Debts: And made him alter the Resolution he seemed to have taken, of satisfying the Pope on the Subject of the Treaty concluded at *Franckfort* between the Catholicks and the *Lutherans*, in a Manner contrary to the Privileges and Rights of the Church, which he notwithstanding approved and ratified, because he expected that *Francis* I. King of *France*, to whom he had solemnly promised the Investiture of the *Milanese* for the Duke of *Orleans* his second Son, and denied afterwards that he had ever made such a Promise, says *Sleidan*, *l.* 22. and *Jovinus*, would soon resent his Want of Faith. Therefore for Fear he should have too many Enemies to encounter with at once, he ratified the Treaty of *Francfort*, which was very favourable to the *Lutherans*; and notwithstanding all that the Pope's Legate and his Nephew could say to divert that Blow which proved fatal to the Catholicks, he permitted the Theologians of both Sides to agree between them as they should think proper, on the Articles contested relating to the Faith, and to the Discipline of the Church. He even went farther; for as the Theologians could not terminate that Agreement in the Conference of *Haguenau*, nor in that of *Worms*, because they were interrupted by other very important Affairs which happened to King *Ferdinand* and to the Emperor, he would himself have it concluded in his Presence in the general Dyet, he held for that Effect the next following Year at *Ratisbon*; to which he desired the Pope to send his Legate, with a full Power to act in his Name, to terminate the Differences subsisting between the Catholicks and Lutherans.

The Pope, afraid that something should be done in the Dyet against his Authority, sent thither for his Legate, the Cardinal *Gaspar Contarini*, a wise, learned, and virtuous Man, who had acquired a great deal of Glory, in several other very important Negociations; but far from giving him the Power the Emperor desired, he on the contrary, did forbid him to define or change any Thing in the Discipline and Uses of the Church, under Pretence of that Accommodation which the Emperor pretended to procure; and to give or promise any Thing to the *Lutheran* Theologians, since he would not that it could be said, that they had been corrupted by Presents, to bring them back by so low and despicable Means, to the Belief of the Church; which notwithstanding, to shew that this Manner of Proceeding in that Affair was not an Effect of Parcimony or Avarice, he offered to contribute very considerable Sums to strengthen the Catholick League against that of the *Lutherans*, in case a War should be indispensible. Therefore he commanded his Legate to press first of all the Emperor, to make a good Peace with the King of *France*, judging, that it was the most efficacious Means in the present Conjuncture, to reduce the *Lutherans*.

With these Instructions the Legate departed from *Rome*, and arrived at *Ratisbon* in the Month of *March*, 1541. to assist at the Dyet, where met with the Emperor all the Electors, and almost all the other Princes both Catholicks and *Lutherans*, and the Deputies of the Towns of both Parties. Before the Opening of the Dyet, the Legate took his Time to speak to the Emperor, in a Manner equally strong and persuasive, of making a good and solid Peace with *Francis* I. as the surest Means to bring back the *Lutherans*, without all those needless Conferences: At which the Emperor being very much surprized, having resolved to keep the *Milanese*, answered, in interrupting him in a very rough Manner, contrary to his Custom, that he could not treat with a Prince, who always spoke as a Master in imposing Laws upon him, and prescribing to him the Conditions of Peace, without suffering him to make what Objections he thought proper: Which was the Cause that the Legate spoke no more of that Peace, to not prejudice his principal Design, which was that Accommodation which he expected to make between the Catholicks and *Lutherans*, against the Advice of some of the most clear-sighted, who imagined it impossible.

Therefore, as the Emperor desired it still more than *Contarini*, for some Reasons very different from his, he caused to be delivered to him in secret, by his prime Minister *Nicolas Granvelle*, a Writing containing twenty two Articles, which he said had been digested by very learned Doctors, who believed in their Conscience that they could be accepted by both Parties, without any Prejudice to the Catholick Faith; though *Cochlee* says positively, that *Martin Bucer* a Preacher at *Strasbourg*, and Apostate of the Order of St. *Dominick*, had had a Hand in it, and had instilled craftily into them the Venom of his Errors. Therefore the Legate, who was a very learned Man, says the same perceiving it, changed something in twenty Articles to rectify them; but on the other Part, as he would have the Glory of making that Accommodation, which was absolutely impossible, he made use in some of those Articles, as in those of the Justification, of the Merit of good Works, and of Faith, of certain ambiguous Expressions, of which neither Party appeared satisfied, because they did not express all what every one pretended to be essential to his Belief.

Therefore when that Exposition of Cardinal *Contarini*, was read in full Consistory at *Rome*, it was not approved; certain essential Words having been suppressed in it, of which the *Roman* Church makes Use to express the Catholick Truths; and among the rest that of *Merit*, with regard to good Works; under Pretence that it could be said that the *Lutherans* agreed with the Catholicks on the Thing signified by that Term, *viz. That what God gives us for our Works is not our Right, and that we have it only in Virtue of the Promise God was pleased to make gratuitely of giving it, for those good Works we cannot do but by his Grace.* And the Thing went even so far, that for that very Thing and several others on which the Cardinal was thought to have too much relented, especially on that of Justification, Cardinal *Caraffa*,

Caraffe, who was ſince elected Pope, accuſed him of having betray'd the Cauſe of the Church. But others undertook his Defence, who acted ſo well in his Favour, that the Pope at laſt excuſed him, in that he had done nothing in that Affair, but by the Advice of his Theologians, who had approved that Expoſition in the Manner he had corrected it.

It was then delivered, thus amended, to the Emperor, who ſaid, at the opening of the Dyet in the Month of *April* 1541, that after all he had done to cauſe the Aſſembly of a General Council, where all Differences on the Subject of Religion ſhould be terminated. In which he had not ſucceeded yet, he could find no better Means to pacify all thoſe Troubles, than to chuſe ſome learned Theologians of both Parties, Men of Probity, and Lovers of Peace, to agree among themſelves, of what was to be believed on the Articles conteſted; which was to be communicated to all the Orders of the Empire, and to the Pope's Legate, in order to make with an unanimous Conſent, a good and ſolid Accommodation. Afterwards the whole Aſſembly having deſired him to make that Choice himſelf, he named three of each Side; thoſe of the Catholicks were, the Doctors *Julius Phlugius*, *John Gropperus*, and *John Ekius*; and thoſe of the *Lutherans* were, *Philip Melanchon*, *Martin Bucer*, and *John Piſtorius*: *Frederick* Count *Palatine* the Elector's Brother, and the Lord *Nicholas Granvell*, preſided at that Conference; at which aſſiſted likewiſe ſeven or eight Perſons of Quality, moſt of them Miniſters of Princes, to be Witneſſes of what ſhould be tranſacted in it.

They began by the Examen of the Profeſſion of Faith which had been preſented to the Emperor, and which was thought could be accepted by both Parties: But after a whole Month of Examen and Diſpute, thoſe Theologians could never agree but on five or ſix Articles, *viz.* concerning Juſtification, Man's Liberty, original Sin, Baptiſm, good Works, and Epiſcopacy: But when they came to the others, and eſpecially to that of the Euchariſt, it was plainly ſeen that they would never agree, becauſe it was not a Queſtion then of the Manner of expreſſing oneſelf, which can be eaſily granted, but of the Thing itſelf, on which the Catholicks ſaid they could not relent. They inſiſted, that the *Lutherans* ſhould confeſs that the Subſtance of the Bread and Wine does not remain after Conſecration; and that the Body of *Jeſus Chriſt* remains ſtill without the Uſe of the Sacrament, when the Hoſt is kept in the Pix, or carried through the Streets, and that he is to be adored; which the *Lutherans* would not confeſs, no more than the Sacrifice of the Maſs, the auricular Confeſſion, the Infallibility of the Church repreſented by the Council, the Pope's Supremacy, and ſeveral other Things of the ſame Kind, where the Difference does not conſiſt only in the Expreſſion, but in the Thing itſelf expreſſed by the Terms uſed.

Therefore both having given their Advice in Writing, the Emperor communicated them to the Dyet, where he was much ſurprized to ſee that there was a ſtill greater Diſagreement, than in the Conference. For as he was of Opinion, that both Parties ſhould ſtand by the Articles agreed upon by the Theologians, till the Aſſembly of a General or National Council, or another Imperial Dyet: The Legate, according to his Inſtructions, ſaid, that the whole ſhould be referred either to the Pope, or to the General Council, he would convoke ſoon. The Electors wanted, that the Articles which had been agreed upon in the Conference ſhould be retained, but aſked, that a Council ſhould be held in *Germany* to confirm them, if they were found conformable to the Doctrine of the Church, and to pronounce deciſively on the others. The Biſhops, and other Catholick Princes, on the contrary, rejected thoſe Articles, becauſe they found them conceived in certain ambiguous Terms, which they thought the *Lutherans* might explain to the Advantage of their new Doctrine: And theſe afraid likewiſe, on their Side, that the Senſe of the Catholicks ſhould be attributed to theſe Articles, ſaid that a clearer Explanation ſhould be given on that Subject; that in ſhort they would not receive them, but as far as they might be found conformable to the Confeſſion of *Auſbourg*; and that for the Council, they perſiſted always in their former Reſolution, of conſenting to none out of *Germany*, and where the Pope could be their Judge, neither by himſelf, nor by his Creatures.

As it was very difficult to agree in ſo great a Diverſity of Sentiments, the Emperor, who following always his former Schemes, wanted Peace in *Germany*, and to pleaſe both Parties, for Fear *Francis* I. King of *France* ſhould make there a ſtrong Party againſt him, terminated by his Authority all thoſe Conteſtations, and the Dyet, the 28th of *July* 1541, by an Edict, in which he declares that it is his Pleaſure, that all that has been done in the Conference of the Doctors of both Parties, ſhould be referred to the General Council; or if he cannot obtain it, to a national one of all *Germany*; or elſe to the next Dyet, which was to be held in eighteen Months; orders the *Lutherans* to ſtand by the Articles, which had been agreed upon, without Innovation; and the Biſhops, to reform their Churches, and the Conduct of the Clergy, according to the Points of Reformation the Legate has preſcribed to them: Forbidding beſides, very ſtrictly, to deſtroy the Monaſteries, to uſurp the Eſtate of the Church, and to ſollicit any body to quit the antient Religion.

All this was certainly very advantageous to the Catholicks; but at the ſame Time to be ſecure likewiſe of the *Lutherans*, who he knew had aſked, ſome Time before, the Protection of the King of *France*, he did, by an Artifice much beneath ſo great an Emperor, what was as good as an Edict, and entirely contrary to what he had but juſt done. For he gave them, in private, Letters Patent, in a good Form, whereby he granted them the Liberty to believe, and profeſs openly, what they ſhould think proper with regard to the Articles propoſed; explaining to their Advantage all that ſeemed to have been forbidden them by his Edict; permitting them to receive to their Communion all thoſe who would embrace it; ſuſpending the laſt Edict of *Auſbourg*, and all the others he had made againſt them; and, what they had not been capable to obtain till then, ordered the Imperial Chamber, to do them Juſtice as to others, without any Regard to the Religion they profeſſed.

This pleaſed ſo much the *Lutheran* Princes, that they promiſed *Charles* V. all the Succours he expected from them againſt the *Turks*; and, without the leaſt Regard to the Remonſtrances of the King of *France*'s Ambaſſadors, they ordered unanimouſly with the others, that the Duke of *Cleves* his Ally, whom he protected, ſhould be put to the Ban of the Empire; and the Duke of *Savoy* his Enemy, whom he had diveſted of his Dominions, ſhould be reſtored; and that no Subject of the Empire ſhould be permitted to ſerve in *France*. On which it ſeems to me, that if *Francis* I. was well puniſhed, for having a little too much depended on the *Lutherans*, without any great Reaſon on his Side; *Charles* V. was as ſeverely handled, for having acted a double Part on this Occaſion; and appeared under two Faces, tho' it was his Cuſtom. For he loſt in that ſame Year, by a frightful and unfortunate Shipwreck, out of which he but narrowly eſcaped himſelf, that fine Fleet he had carried againſt the *Algerines*; beſides the Army he had in *Italy*, under the Command of the Marquis *du Guaſt*, which was entirely defeated by that of *France*, commanded by the Duke of *Anguien*, at the famous Battle of *Ceriſoles*.

Mean while, the Pope took the Reſolution to convoke the Council (which had been already twice convoked, once at *Mantua*, and the other Time at *Vicenza*) at *Trent*, believing that as that City was ſituated on the Frontier of *Germany*, and is of the Dependency of *Tirol*, and conſequently of the Empire, the *Lutherans* ſhould have no Pretext to refuſe it, as they did all thoſe of *Italy*. It is what he cauſed to be propoſed by the Nuncio *Morneus* Biſhop of *Modena*, to the Princes aſſembled at *Spire*, to deliberate on the Means to oppoſe the Progreſs of the *Turks*. That Propoſition was received by King *Ferdinand* and the Catholicks with great Thanks: But the *Lutherans* proteſted that they would never ſuffer, not only that the Pope ſhould convoke the Council, but likewiſe that his Name ſhould appear in the Decree made for its Convocation.

Notwithſtanding this Proteſt, the Pope publiſhed the Indiction of the Council, by his Bull of the 22d of *May*, 1542,

1542. though he could not have chose a Conjuncture less favourable to assemble it. For the War between the Emperor and the King of *France*, which was not carried on as before, by a Motive of Glory, Interest, or Ambition, but by a Spirit of Hatred and Animosity, which made them say and do Things not at all becoming those two great Princes, had thrown all *Europe* into a frightful Disorder. On the other Side the *Turk* taking Advantage of that War, waged a successful one in *Hungary*, and ravaged at the same Time all the Coasts of *Italy* with a powerful Fleet, so that as there was no Security to travel either by Land or by Sea; and the Bishops of *France*, *Spain*, and *Germany*, and even those of *Italy*, a little distant from *Trent*, dared not to venture themselves on the Road; the Pope after his Legates had waited in vain more than six Months, that there should be a sufficient Number of Fathers to open the Council, was obliged at last to defer it to a more proper Time.

Charles V. who while he wanted the Succours of the *Lutherans* against the King of *France*, had made them so many large and advantageous Concessions, with regard to the publick Exercise and Propagation of their Sect, that in that favourable Interval they had rendered themselves formidable, began in his Turn to be quite afraid of them; therefore after the Peace of *Crepy*, or of St. *John des Vignes*, concluded between him and *Francis* I. his Rival in Glory, in 1554. he began to think of destroying the Edifice himself had erected. As the two Monarchs had agreed between themselves that they should act henceforward for the Good of the Religion, they wrote both for the Indiction of the Council to the Pope, who joyfully acquiesced to their Request, by convoking by a new Bull of the 19th of *November*, 1544. the Council at *Trent*, for the 15th of *March* of the following Year, but the Difficulty was to make the *Lutherans* agree to it.

For that Purpose an Assembly of all the Orders of the Empire was held at *Worms*, in the Month of *March*, where King *Ferdinand* and the Cardinal of *Ausbourg*, who was there for the Emperor, proposed in his Name the two important Affairs which were to be treated in it, *viz.* the War against the *Turks*, and the Re-union of the Minds on the Subject of Religion. For this last Point they represented, that the Emperor and the King of *France* having at last caus'd the œcumenical Council so often and so long asked for to be convoked, there was nothing left but to propose in it on both Sides what was wanted to say, and then abide by what should be decreed in it: Therefore that nothing remained but to consult on the War against *Soliman*, for which King *Francis* had had the Generosity to promise the Empire a Succour worthy of so great a Prince. The Catholicks consented freely to all that, but the *Lutherans* on the contrary maintained always, that they were assembled, according to the Resolution taken at the last Dyet of *Spires*, to establish a solid Peace in *Germany*, in making with an unanimous Consent, a Formula of Faith common to both Parties, which should be universally received, 'till it could be ordered otherwise by a general or national Council of *Germany*; that as for that convoked at *Trent*, and where the Pope was to preside, they would not, nor could acknowledge it for a legitimate Council.

Charles V. whom the Gout detained at *Bruxelles*, vexed at this Answer of the *Lutherans*, began from that Time to form within himself the Design he took afterwards of conquering by his Arms, that Party which tended manifestly to Rebellion, and to the entire Ruin of his Authority in the Empire; but as he knew perfectly well the Art of great Princes, which is that of dissembling well, to prevent and surprize their Enemies, he feigned to acquiesce to what they asked: Therefore taking for Pretext, that there were but very few Electors and Princes in that Assembly, and that even the Deputies had not a Power ample enough, he tranferred it to *Ratisbon*, where all the Princes should be obliged to meet within the 6th of *January* of the following Year; and ordered at the same Time, that according to the Project of *Spires*, some Theologians of both Parties should digest a Formula of Faith before that Dyet, so that after having been examined in it, and changed what could be found amiss, it might be received by both Parties.

Mean while the Council of *Trent*, of which I have given a concise Relation in my Treatise of Councils, under the Letter C, was opened with the usual Solemnities. But as the Emperor was making at the same Time very great warlike Preparations, the *Lutheran* Princes began to fear, that the Emperor, acting in concert with the Pope, designed to force them to submit themselves to the Decisions of the Council; on this Suspicion, which was not ill founded, they assembled at *Franckfort* on the *Maine*, in the Month of *January*, and in that Assembly confirmed anew their Confederation, and prolonged the Term thereof; after which they resolved to oppose themselves to the Council of *Trent*; to protect openly the Archbishop of *Cologn*, who had turned *Lutheran*, and whom the Emperor had cited to his Tribunal; to insist that the Emperor should accomplish his Promises to them, and which they were determined to obtain by all Sorts of Means, *viz.* that they should have full Liberty of practising their Religion independently of the Council held at *Trent*, which they would by no Means acknowledge; and that the Imperial Chamber should be, for the future, composed of *Lutheran* Judges, as well as of Catholicks.

Having took these violent Resolutions in their Assembly, they thought it was in vain to dissemble any longer, and that they should inform themselves of the real Intentions of the Emperor, and to be on their Guard, lest they should be surprised. Therefore the Landgrave wrote, towards the End of *January* 1546, to *Nicholas Granvelle*, Prime-Minister of the Emperor, that *having learned from* Germany *and* Italy, *and from the Colonels themselves who had already received their Commission, that the Emperor made great Levies of Soldiers; that as he was at Peace with* France, *and the Truce which was negotiating with the* Turks *was on the Point of being concluded, they had Reason to fear, that the Calumnies of their Enemies having prevailed on their Innocence, in the Mind of the Prince, he was making that great Armament in Conjunction with the Pope their mortal Enemy, with whom it was rumoured every where, he designed to make War against them; which tended manifestly to disturb the Peace of* Germany, *which had been established in the preceding Dyets.* He added at the End, *that a clear and precise Answer was expected on that Subject.*

To all that *Granvelle*, who was Master of the Secret of his Prince, and knew very well how to keep it, answered, that *they were alarmed without Cause; that it was true that the Emperor had raised some Forces in* Flanders, *because the Kings of* France *and* England *his Neighbours being armed, it was neither safe, nor honest, he should be disarmed, and his Places without Garrisons; but as to what was said of that pretended League with the Pope, and of that Army with which the Emperor his Master prepared to go to the Dyet, were false Rumours, which ill-minded Persons spread without the least Appearance of Truth; of which themselves would be soon convinced, in seeing the Emperor enter* Germany, *accompanied with his Houshold only, on his Way to the Dyet of* Ratisbon; *where to shew them that he had no other View than to establish solidly the Peace he had granted them, he had already ordered, that the Theologians of the two Religions should confer together, and make that Project of Union, of Belief and Discipline, which should be received by both Parties, according to what had been resolved at the Dyet of* Worms.

In fact the Emperor, to shew that he had no other Design than to execute the Decree of *Worms*, in causing a Formula to be made which should be approved by both Parties, had commanded those Theologians to assemble at *Ratisbon*, in order to form their Project of Union before his Arrival at the Dyet. Those were, for the Catholicks, the Doctors *Peter Malvenda* a *Spaniard*, *Erard Billichius* a *Carmelite* Friar, *John Heffmester* an *Augustin*, and the celebrated *John Cochlæe*. On the side of the *Lutherans* were chosen, *Martin Bucer*, *John Brentius*, *George Major*, and *Erard Kneppius*, in the room of *Melanchthon*, who, according to his Custom, should have been at the Head of the others, and who notwithstanding was not at this Conference, which succeeded very ill to the *Lutherans*. For after the *Spanish* Doctor *Malvenda* had a long Time disputed on the Matter of Justification against

against *Martin Bucer*, who was forced, says *Cochlæe*, by the Strength of his Arguments, to confess several Things which every Body thought could not be maintained. As the Presidents of the Conference, who were the Bishops of *Elstad*, the Count *Frederick* of *Frustemberg*, and *Julius Plugius* elected Bishop of *Naumberg*, wanted, according to the Emperor's Order, that what had passed in those Conferences should be kept secret, till a Report thereof should be made to the Dyet before his Imperial Majesty; the *Lutherans* would not consent to it, pretending that they had Orders from their Masters to inform them of all that passed in that Conference, but while they waited for the Emperor's Answer, to whom the Presidents had wrote on that Subject, the *Lutheran* Doctors fled from *Ratisbon*, abandoning shamefully the Conference, and the Field of Battle to the Catholicks.

This sudden Retreat was found very surprizing, particularly by the Emperor, who complained of it to all *Germany*; and it cannot be perceived why they acted in that Manner, unless it was, perhaps, that the Confederates would not that it should be proceeded further, after the Death of their Prophet *Martin Luther*, which happen'd at that Time.

I know that the Catholick and *Lutheran* Writers, relate variously the Circumstances of his Death. These say, that he died like a great Saint in their Manner, and that he gave up the Ghost in thanking God for having made him know and love with all his Heart *Jesus Christ* his Son; for having given him, by his Grace, the Courage and Strength to preach to his Country the Truth of the Gospel. The others say, on the contrary, that he died as a Beast, without the least Sentiment of God, after he had eat and drank well. As for me, who fears to give into those Extremities, where Pre-occupation carries us but too often, I'll say sincerely, that having read the one and the other, I find that the Truth is, that while he was at *Wittemberg*, finishing his Commentaries on *Genesis*, the Counts of *Mansfeld*, who after the Death of the old Count their Father, a very zealous Catholick, had turn'd *Lutherans*, desired him to take the Trouble to transport himself to *Isbel*, the Place of his Birth, to accomodate the Differences occasion'd between them, about their Inheritance. At his Arrival there, in a Coach and six, with his Wife and his three Children, accompanied by a hundred and fifty Horse, which those Counts had sent to meet him, he was received with all Sorts of Magnificence, and rather as a great Prince, than as a Reformer.

The next Day he preached in the Church of St. *Andrew*, which he did three or four times more to a great Concourse of People; being every Day splendidly entertain'd, till the 17*th* of *February*, after he had supped very merrily, he complained of a great Pain in his Breast, and of a pretty violent Cholick. After some Remedies had been immediately administered to him, he slept about two Hours on a little green Bed, which was near at Hand, whence he was carried into his own Chamber; but as after 12 o'Clock at Night the Distemper increased, and he felt his Breast extreamly oppressed, Physicians were in Haste sent for, who came a little too late, for in attempting to succour him, they found that he was dead, either of an Apoplexy, or of a Catarrhea. Thus *Luther* died, with very little Ceremony, in the 63*d* Year of his Age.

He was, without Doubt, a Man of Wit and Learning, and very eloquent in his natural Tongue; but it must be confessed, that he has had among a few good Qualities, so many Imperfections in his Humour, in his Conduct, in his Manners, and in his Writings, where there is nothing perfect, and which he has filled with a vast Number of Invectives, and with a thousand Things extremely low and despicable, that if he had not disturbed the Christian World as he has done, no Body in the World had ever spoke of him. The *Lutheran* Princes, however, by a strange Affection, caused all the Honours to be done to him, which the greatest Man upon Earth could have expected after his Death. The Elector of *Saxony* had his Body transported with a very magnificent Pomp to *Wittemberg*, where he caused a Monument of white Marble to be erected for him, environed with the Statues of the twelve Apostles, as if *Luther* had been the thirteenth, with regard to *Germany*.

The Emperor being arrived at *Ratisbon*, in the Month of *May*, 1546. with a small Retinue, he was surprized that he could not find there, any of the Confederate Princes, whom he had so earnestly intreated to come thither in Person to work in Concert with him, to the Re-union of *Germany*. He wrote very severe Letters to them, on that Account, wherein he complains that their Theologians had abandoned the Conference began by his Orders, to agree on a Formula of Faith, according to which one could live in Peace, till the Assembly of a general or national Council; he even commands them to come to the Dyet, since their Chief and their Emperor was come there first, to procure with them the Good of the Empire; as he saw that neither Remonstrances nor Commands were minded, and that they had held a particular Assembly, to deliberate on the Means to ruinate entirely his good Designs, even by their Arms, he notwithstanding held the Dyet in the Month of *June*, 1546. where after he had asked the Assembly what Mean he could use to pacify *Germany*, so much disturbed by the Differences on the Subject of Religion, all the Catholicks, who were in a far greater Number than the others, concluded that there was no other than that of submitting to the Council of *Trent*, and humbly intreated his Imperial Majesty to oblige to it the Deputies of the *Lutherans*, who never would consent to it. Then the Emperor resolved to dissemble no longer, and to undertake openly that War against the Rebels, which acquired him so much Glory.

As *Charles* had made already very great military Preparations, though he had no foreign Enemies to encounter with, since he had concluded a Truce with *Solyman*, by the Mediation of *Francis* I. King of *France*, and consequently was likewise at Peace with that great Prince, his Rival in Glory. Some Days after the Opening of the Dyet, in the Month of *June*, 1546. the Deputies of the *Lutherans*, say *Sleidan* and *Avila*, had all together an Audience of the Emperor, where they desired him to tell them, if there was a War, and against whom he armed so powerfully, that their Principals may serve him in that War. To which that Prince answer'd immediately, with a great deal of Resolution and Majesty, that it was to chastise some Rebels who were arming against him: That those who would join with him in so just an Enterprise, would find in him a good Master, and an Emperor who knows to reward his faithful Subjects according to their Merit; as for all the others who should refuse to serve him, he designed to treat them as Rebels. All the Deputies, surprized at such a Resolution, abandoned the Dyet, and returned to their Masters to inform them, that they ought to prepare themselves for a War.

As soon as the Emperor had made this Declaration to the Deputies, he sent his Manifesto to all the Imperial Cities, wherein he protested, *that the War he was a going to undertake, was not a War of Religion, which appeared clearly by his suffering the* Lutheran *Princes and their Soldiers who served faithfully in his Armies, to live freely in their Belief; that he had entered into a Confederacy with the Pope, but as with a Prince who was to give him Succours against those who were Enemies of both; that his sole Design was to attack Rebels, who were guilty of the Crime of* LEZE-MAJESTY, *both divine and human, and who under the false Pretence of Religion, disturbed the Tranquility of* Germany, *wanted to destroy entirely the whole State of the Empire, and had rejected all the Ways of Accommodation which had been proposed to them, with an unanimous Consent in the general Dyets, and violated daily the most sacred Rights of the Empire, as far as to divest Princes of their own Dominions, witness the* Landgrave, *who after he had took all the Places of the Duke* Henry *of* Brunswick, *detained him besides in a dreadful Prison; and, lastly, setting themselves up as sovereign Masters of the People, or rather as their Tyrants, who would have soon oppressed the publick Liberty, if the Emperor, who had armed in its Defence, was not to stop by open Force the Violences and Disorders of those Rebels.* Of all the Towns, none but that of *Strasbourg* undertook to make the Apology of the Confederates, whose Chiefs were *John Frederick* Elector of *Saxony*, and *Philip* Landgrave of *Hesse*; who on their Side answered to the Manifesto of the Emperor by another, where they pretended to prove, that the

the War which was a going to be waged against them, was nothing else but a War of Religion, to tyrannize their Conscience, and oblige them by open Force to submit themselves to the Pope and to his Council of *Trent*. They sent at the same Time to ask for Succours to foreign Princes, especially to the Kings of *France* and of *England*, who as they were at Peace with the Emperor, refused to engage in that Quarrel.

But notwithstanding that Disappointment, the Confederates found themselves in a very short Time much stronger than the Emperor, whose Forces were dispersed in several Places so very distant from one another, that they could not join him Time enough at *Ratisbon*, where he was then in but a very indifferent Condition to begin so great a War. In fact he had been capable yet to assemble but seven hundred Horse, two thousand Foot of the Regiment of *Madruce*, and three thousand of that of *Renspach*, who a few Days afterwards were joined by two thousand eight hundred *Spaniards* of the Terce of the famous Colonel *Alvarez de Sonde*, who had served in *Hungary*, which together made not above a little more than eight thousand Men, which were but few, I will not say to take the Field, but to defend oneself in a large City, without Fortifications, almost all *Lutherans*, and where there was neither Cannon nor Munitions, which the Emperor had order'd should be sent to him from *Vienna*, by the *Danube*. On the contrary, the *Lutherans*, who having always mistrusted the Emperor, had took their Precautions, raised with but little Trouble, soon after his Declaration, very numerous Forces, which they had soon formed into an Army. For the Imperial Cities, which were almost all of the League of *Smalcalde*, or at least *Lutheran*, contributed each profusely and quickly, Money, Provisions, Munitions, and Cannon, not at all doubting of the Victory, because the Landgrave, who was extremely presumptuous, and whom they thought a very great Captain, had promised them, that in three Months he should either expel *Charles* from *Germany*, or make him Prisoner, and deliver him to them in Fetters.

On that foolish Confidence, the first who took the Field, says *Sleidan*, *l.* 17. were the Forces of the Duke *Ulrick* of *Wittemberg*, consisting of twenty-four Ensigns of Infantry, accompanied by almost all the Nobility of the Country. They went to join the Forces of *Ausbourg*, and of the other Cities of *Suabia*, disposed under twenty-six Ensigns of Infantry, with a thousand Horse, making up in all, twenty-three or twenty-four thousand Men, with twenty-eight Pieces of Cannon. These Forces of *Suabia* were commanded by *Sebastian Shortel*, who after he had been a Sutler in the Army of the Duke of *Bourbon*, when he took *Rome*, had found Means to obtain a Place in the Emperor's Guards; and that Prince finding him a brave and ingenious Man, took him into Favour, and advanced him so much, that he became at last the richest, and most considerable Person of the City of *Ausbourg*, who intrusted him with the Command of their Forces for his Experience, and caused him to be declared Colonel of the Infantry of the Confederate Towns. This new Colonel having took fifteen or sixteen thousand Men of that Army of *Wittemberg* and *Suabia*, and declared, that he was not in Arms against the Emperor, but only to oppose the Passage of the *Italians*, whom the Pope, a declared Enemy of the *Germans*, was sending into their Country to destroy it, undertook to render himself Master of the two Passages through which they could go to join the Emperor.

For when one's arrived from *Trent* to *Inspruck*, where that Army of the Pope was to rendezvouz, there are but two Ways to enter on that Side through *Bavaria* into *Germany*, one on the Right in descending along the River *Jus*, as far as to *Cuffstein*, a very strong Town, situated on the Frontier of *Tyrol* and of *Bavaria*; and the other on the Left, in crossing the *Alps* through a Valley, the Entrance whereof is so narrow, and so well commanded by a Fortress, which the *Italians* call *Chiusa*, and the *Germans*, *Eremberg*, that he who is Master of it, can stop a most formidable Army, without being possible for it to pass. *Shortel* being then departed from *Ausbourg* with his 15,000 Men, and the best Part of his Cannon, advanced as far as the *Chiusa*, and frighten'd so much by the Noise of his Cannon, him who commanded in it for King *Ferdinand*, that he cowardly surrendered the Place.

After so happy a Beginning, *Shortel*, to cut to the Pope's Army the other Passage of *Cuffstein*, where the Emperor had put a good Garrison, marched directly to *Inspruck*, thinking to render himself Master of it, as easily as he had done of the *Chiusa*, but on his Way to it, he learn'd that the Militia of *Tyrol* had ran to the Succour of *Inspruck*, to the Number of twelve thousand Men, all good Soldiers, well disciplined, and commanded by the Count *Castelalte*, a *Tyrolese*, one of the most antient and bravest Colonels of *Germany*, who some Time afterwards retook the *Chiusa*. So that *Shortel* having thus been disappointed, returned back to *Ausbourg*, whence he went to join at *Ulme* the rest of the Confederate Army, which went the 24*th* of *July*, 1546. to *Donawert*, a *Lutheran* Town, to wait in that very advantageous Post for the Duke of *Saxony*, and the Landgrave. Those two Princes having assembled all their Forces, and traversed without Opposition all *Franconia*, which was all for them, except the Bishops, went a few Days afterwards to join those Forces, making all together, one of the most numerous and most formidable Armies which had been seen yet in *Germany*; for it was of 24,000 Foot, and 10,000 Horse, with 100 Pieces of Cannon.

It appear'd manifestly on that Occasion, that the *Saxon* and the Landgrave were not so great Captains as they pretended. For if after their Junction they had marched directly to *Ratisbon*, as they could do it, leaving nothing behind them which could harrass them; it is certain, that as there was no Appearance that the Emperor would have suffered himself to be invested in that Place, they had forced him to come out, with an evident Danger of being beaten on his Retreat, by an Army ten Times stronger than his. But whether they were not informed of his Condition, or they believed they should make their Forces rest after so long a March, or wanted Resolution, in seeing that of *Charles*, who seemed to wait for them; they spent several Days in Consultations, and resolved at last to cross the *Danube*, to go and take the small Town of *Rain*, where there was but one single Ensign to defend it, and then *Neubourg*, which the Duke *Otto Henry* of *Bavaria*, and Cousin of the Duke of *Saxony*, deliver'd to them. Mean while the Emperor strengthened himself daily by the Arrival of the Forces which were raised for him in *Germany*.

He even discovered by his Spies, that they designed to render themselves Masters of *Landshut*, a City of *Bavaria*, between *Ratisbon* and *Curffstein*, on the Road which the Forces coming from *Italy* were to pass thro', which was the best Party they could take to hinder their Junction; but at that Time they made another Mistake, which was to suffer the Emperor, who was much the best Captain, and much better versed in the military Art, to be before-hand with them. For before they had put themselves in a Condition to execute their Enterprise, he came out of *Ratisbon*, where he left 4000 Men under the Command of *Pyrrhus Colonna*, Marquis of *Matare*, and went to post himself advantageously with the rest of his Forces near *Landshut*, between the Enemy and that City, which he covered to receive there the Succours he expected, and which were near; saying, with an incredible Intrepidity, to those who believed that he exposed himself too much, that this was the Conjuncture he was resolved to remain alive or dead in *Germany*, and to receive well his Enemies if they dared to attack him in his Camp.

On this Occasion likewise, the Judgments or Hearts of the Confederates failed them, where they could fight with so much Advantage the Emperor, who had but a Handful of Men, in Comparison to their great Army: Therefore instead of marching directly to him to attack him in his Retrenchments, which, had they been Soldiers, they could easily have forced with less Forces than they had; they contented themselves with acting a very low Fanfaronade, and in a very ridiculous Manner: For having posted themselves between *Munich* and *Ingolstadt*, six Leagues distant from the Emperor's Camp, they sent him a Trumpet with a Page, who according to the Custom of those Times, carried a Letter in a Cane, containing a Declaration of War against him, for the

the Part of the Confederates. They were both conducted to the Tent of the Duke of *Alva*, Lieutenant-General of the Emperor; who knowing their Errand, told them at first, that the Answer they could reasonably expect was to be hanged on the Spot, but that the Emperor, who considered that they were only Messengers, had Compassion on them, on Condition they should carry for Answer the Edict of the Proscription of their Masters, whereby they had been put to the Ban of the Empire, ever since the 20th of the preceding Month: On which they were sent back with the Edict, which was delivered them. The Emperor would not read their Letter, not doubting but that, according to the usual Stile of the Landgrave, a Prince extremely haughty, presumptuous, and violent, it ought to be conceived in Terms which affronted with Insolence his Imperial Majesty. In fact, he would not suffer that the Title of Emperor should be given him in that Letter, but only that of *Charles of Gaunt*, calling himself Emperor, which was the only Title they gave him during all that War: Wherefore the Soldiers of the Emperor used to say, in gaming those Rebels, *Let* Charles of Gaunt *alone, he'll teach them soon that he is Emperor.*

And in fact they were not mistaken in their Conjecture, founded on the great Merit of that Prince, and on the Want of Resolution and Conduct of his Enemies, who while they remained idle with their prodigious Army in their Camp, without daring to undertake any Thing on that of the Emperor, he received without the least Obstacle, all the Forces he expected from *Germany* and *Italy*. The first who arrived were those of the Pope, who arrived the 13th of *August*, without having met with any Thing to obstruct their Passage. This Army consisted of 12,000 Foot, and 600 Horse followed by 200 others of the Duke of *Florence*, and of 100 which the Duke of *Ferrara* kept in the Service of the Emperor. It was commanded by the Duke of *Parma*, *Octavio Farnese*, the Emperor's Son-in-law.

These Forces were a few Days afterwards followed by the Addition of 3000 *Spaniards* from *Lombardy*, commanded by Colonel *Arze*, and of that of *Naples* of 3000 *Spaniards* more, all old Soldiers, with 200 light Horse commanded by the Prince of *Salmone*. The 4000 *Germans*, whom Colonel *Chambourg* had raised in the Neighbourhood of the Black Forest; the *German* Horse which the Marquis *John* and *Albert* of *Brandebourg*, and the Grand Master of *Prussia* had raised, arrived almost all the same Time, at the Emperor's Camp, who found himself, after this Junction, to have a very fine Army. For he had in Infantry more than 16,000 *Germans*, 8 or 9000 native *Spaniards* of the old Bands, 12,000 *Italians*, and 5 or 6000 Horse, which made in all above 40,000 Men, the best he had ever had, even in the Opinion of those who had served in the other Armies he had commanded in Person, in *Austria* against *Solyman*, or in *France*, or *Africa*.

With this fine Army he came out of his Camp, and having took the 4000 Men he had left at *Ratisbon*, with 35 Pieces of Cannon, he went to cross the *Danube* at *Neustadt*, which the Enemy had already repassed at *Neubourg*. From whence marching in Battle in three Columns, accompanied by the Archduke *Maximilian* his Nephew, and by Prince *Philbert Emanuel* of *Savoy*, whom he had always at his Side, he render'd himself Master of *Ingolstadt*, and went to encamp in the Night between the 27th and 28th of *August* beyond that City, at the Distance of two Leagues from the Camp of the Enemies, having *Ingolstadt* behind him, which sheltered him against any Insult on that Side, the *Danube* on the Left, a Marsh on the Right, and before him a very large Plain, through which the Confederates could easily go to him, in Battle array, to attack him in Front. Therefore the Duke *d'Alva*, caused to be worked with so much Assiduity during the whole Night, that at Day-break all that Space was inclosed with a Ditch, from the *Danube* as far as the Marsh on the Right; but as it was not very deep, and the Lines made in digging it were very low, that could not have hinder'd brave Men and twice as strong as the *Imperialists* from attacking them, which the Emperor, who remained almost the whole Day in Order of Battle, expected.

But the Chiefs of the Confederates, who did not agree very well among themselves, spent three or four Days in Contestations on the Party they should take; the one wanting to attack the Enemy before they could have Time to make stronger Retrenchments; the others, on the contrary, maintaining that they should wait till they could find Means to dislodge him, in order to fight him in open Field. But at last the Landgrave taking a Medium between those two Opinions, had Authority enough among them to have his Advice executed in this Manner: The whole Army having advanced so near, as to be but a League distant from the Emperor's Camp, went to post itself on Eminences which terminated the Plain on that Side, from whence they could go without any Obstacle to the Enemies; and after they had sent some Parties to reconnoitre their Retrenchments, they descended into the Plain one Day, at the Beginning of *September*, early in the Morning; and after they had crossed unperceiv'd, because of a Fog, a small River which parted the two Camps, it was ranged in Order of Battle, upon two Lines in the Form of a large Half-Moon, the better to invest the greatest Part of the Emperor's Camp. The Landgrave had placed in the first Line all the Cavalry, divided into nine or ten Squadrons, pretty far distant from one another, and had in their Front more than a hundred Pieces of Cannon: The Infantry marched behind on the second Line, much less extended than the first.

In this Order marched the Army of the Confederates, having at the Head of the Squadrons the Landgrave of *Hesse*, who would not attack the *Imperialists* in their Camp, as some wished he would, nor wait till they had decamped, which others had advised him to; but according to his own Imagination expected, that having by the Help of more than 100 Pieces of Cannon, which he kept continually firing on the *Imperialists*, whose Battalions and Squadrons were easily distinguished beyond the Lines which were very low, he could afterwards force easily their Retrenchments, which he supposed to find deserted by the Soldiers: But he found that he had to deal with those who were not easily frighted at much Noise, and who by their Intrepidity disconcerted all his Measures.

When the Emperor saw the Rebels coming to him in so good Order, he began to think then that they really designed to attack him; therefore he ranged all his Infantry along the Lines. The *Spaniards* had the Left on the Side of the *Danube*, where the right Point of the Enemies was more advanced than the other. They had on their Right the Regiments of Count *George* of *Renspach*, and of the Marquis *de Marignan*, in a single Body. The *Italians* followed, taking up the whole Front of the Lines on the Side of the Plain; then the Regiments of *Madruce* and *Chambourg*, turning always to the Right as far as the Marsh; the rest, which was all open as far as *Ingolstadt*, was designed to be divided into four large Squadrons to oppose those who should attempt to enter on that Side.

It was about 10 o'Clock, when the Landgrave finding himself but about 600 Paces from the Lines, caused a Discharge to be made of all the Cannon he had on his Right upon the *Spaniards*; then drawing as near as he thought necessary, to have all the Effect he expected, the whole Army halted, they fir'd without Interruption from all the Batteries, one after another, with such Violence, that it seemed as if it rained Bullets in the Camp. It was on that Occasion that the Presence of Mind of *Charles* V. his Courage, Valour, and Intrepidity appeared in all their Lustre, exposing himself like the meanest of his Soldiers to the Fire of the Enemies, to encourage his Army to receive them well in case they should attempt to enter the Retrenchments, which they did not; for the Landgrave having in vain cannonaded the Imperialists during eight or nine Hours, was obliged at last, Night approaching, to retreat as far as the little River he had crossed in the Morning, along which he encamped: He wanted notwithstanding that the World should believe that he had done much Execution; therefore that very Evening as he was at Supper with the principal Officers of the Army he took a Bumper of Wine, and addressing himself to *Shortel*, *Let's drink*, said he, *to all those whom our Cannon has sent this Day into the other World.* To which *Shortel*, who had been

of

of Opinion that the Lines of the Enemies ſhould have been attacked Sword in Hand, anſwered, *I don't know, my Lord, how many we have killed, but I have very well obſerved that of all them left alive, not one has quitted his Poſt, or loſt an Inch of Ground.*

This was as the Forerunner of all the Misfortunes which attended, afterwards, this Army of the Confederates. For after they had made two or three other ſuch frivolous Attempts; the Emperor, harraſſing them continually by his Parties, and frequent Skirmiſhes, they were forced at laſt to quit the Field firſt, and to retreat towards *Donawert*, whither the Emperor purſued them; being continually at their Heels, till he forced, at laſt, the Elector of *Saxony* and the Landgrave of *Heſſe*, who had never agreed very well together ever ſince the Beginning of the War, to divide their Forces; the Duke of *Saxony* did run with the few Men he had left to the Succour of his Electorate, which his Couſin Duke *Maurice* had invaded at the Sollicitation of the Emperor, who promiſed to give it him; and the Landgrave retreated, or rather fled into his Country with 5 or 600 Horſe, deplorable Remains of that formidable Army, with which he had promiſed the Confederates he would either expel the Emperor from *Germany*, or take him Priſoner.

But *Charles*, who after this Diſaſter of the Confederates, thought of nothing elſe but of reſtoring Peace and Tranquility in *Germany*, learned at *Ulm* the great Progreſſes of the Elector of *Saxony*, who with the powerful Succours he had received from *Lower Saxony*, had not only retook all that King *Ferdinand* and Duke *Maurice* had rendered themſelves Maſters of, but took likewiſe moſt of the Places of that Duke, and had even defeated in a great Combat the Marquis *Albert* of *Brandebourg*, ſent by the Emperor to *Maurice*'s Succour; then *Charles* without truſting any more to any Body elſe, went himſelf to put an End to that War, which it ſeemed could not be terminated but by him alone: Therefore he departed from *Ulm* at the Beginning of *March* 1547. and notwithſtanding the Rigour of the Seaſon, which increaſed a Fit of the Gout he had had at *Ulm* before his Departure, of which he was not very well cured, which ſtopt him at *Norlinguen*, where the Phyſicians deſpaired ſo much of his Health, that it was not expected he could make the Campaign in Perſon. But the Impatience and ardent Deſire he had to go and finiſh that War by a Battle, made him quit his Bed in few Days, more ſupported by his Courage than by the Strength of Nature, being much weakened by this Relapſe, which notwithſtanding could not hinder him from departing from *Norlinguen*, the 21ſt of the ſame Month of *March*, where the Duke *d'Alva* had aſſembled all his Forces, which conſiſted then only of his three *Spaniſh* Terces, with the two Regiments of *Madruce* and *Marignan*, about 600 Light-Horſe, and 1000 *German* Horſe of the Grand Maſter of *Pruſſia*, and of the Marquis *John* of *Brandebourg*, the Elector's Brother.

With theſe Forces *Charles* went to join, towards the Month of *April*, at *Egra*, a Frontier City of *Bohemia*, the King of the *Romans* his Brother, and Duke *Maurice* of *Saxony*, who were bringing to him about 3000 Horſe, they had gathered from the ſhatter'd Remains of their Forces, always beaten by the Elector of *Saxony*, who after the Defeat of the Marquis *Albert* was Maſter of the Country, and in a Condition to continue the War with very conſiderable Forces; notwithſtanding which, he did not judge it expedient for him to encounter with the Emperor in a pitch'd Battle, who he knew was reſolved to march directly to him. Therefore he did put the greateſt Part of his Infantry in different Poſts in *Miſnia*, to oppoſe the Paſſage of the Imperial Army; and threw himſelf into *Meiſſen*, where there is a Bridge on the *Elbe*, having with him about 4000 Horſe and 6000 Foot, of his beſt Troops, with twenty Pieces of Cannon; believing, that if he was preſſed too much, he could always croſs the *Elbe*, and afterwards break the Bridge, and make a ſafe Retreat to *Wittemberg*.

But the Courage and extreme Diligence of the Emperor, render'd all his Precautions vain, and diſconcerted all his Meaſures. For departing from *Egra* the 13*th* of *April*, 1557. he traverſed the *Waitland* and *Miſnia* in ten Days of a continual March, running over all thoſe who attempted to oppoſe his Paſſage, and forcing all those Places wherein the *Saxons* had ſhut themſelves, to diſpute with him the Entrance thereof; and went to encamp the 22*d* at two or three Leagues Diſtance from *Meiſſen*. There he learned from his Scouts that the Elector having abandoned *Meiſſen*, had paſſed the *Elbe*, broke the Bridge, and poſted himſelf at *Mulberg*, five or ſix Leagues lower on the ſame River, which he deſigned to put between him and the Imperial Army, judging with Reaſon, that if the Emperor was to croſs the River at *Meiſſen*, to go afterwards to attack him at *Mulberg*, it would be very eaſy to hinder him, with his Forces, and his twenty Pieces of Cannon he had placed along the Shoar, which on his Side was much higher than on the other. The Emperor therefore, who on that Advice underſtood very well the Deſign of the Elector, and had learn'd beſides that there was a Ford near *Mulberg*, but ſo deep, that Part thereof was to be croſſed ſwimming, took preſently the Reſolution, notwithſtanding all that was ſaid to diſſuade him from an Enterprize which ſeemed impoſſible, to leave *Meiſſen* on the Right, and go directly to the Enemy, who were but three Leagues diſtant from his Camp, and to croſs the River in their Sight, by ſwimming, or on Pontoons, and to fight them either at *Mulberg*, if the Elector had Reſolution enough to wait for him, or on his Retreat, if he attempted to gain *Wittemberg*.

To be capable to execute his Project, he gave his Forces all the following Day to reſt themſelves after the Fatigues of ſo long a March, and towards the Evening of the ſame Day, *April* 23, 1547, he ordered the Departure of the Artillery and of the Carts which carried the Pontoons: About Twelve at Night the *Spaniſh* Infantry began to march, the *Germans* followed, then the whole Cavalry, and the Emperor himſelf a little before Day-light; who being arrived about Nine in the Morning at *Shemeſter* over-againſt *Mulberg*, he diſcovered the *Elbe*, and the Enemy ranged along that famous River to diſpute the Paſſage thereof; the Elector on his Side did all he could to oppoſe the Execution of an Enterprize, which if ſucceſsful might be very fatal to him. He left in *Mulberg* as many Forces as he thought neceſſary to hinder the Paſſage of the *Imperialiſts* on that Side: He reinforced thoſe who defended the Shore, which though pretty high, was beſides fortified with a Sort of Line and a Ditch. He placed ſome others in Boats of which he had made a Bridge, which could be cut into Three, to make it go down the River with leſs Difficulty, and himſelf with the reſt of his Army went to range in Order of Battle a little beyond his Men, to ſuſtain them, or if they were diſlodged, to receive them, and make his Retreat before the *Imperialiſts* had done croſſing the River.

On the other Side the Emperor found himſelf in a great Embaraſs; he had before him a River large in that Place of about 300 Paces, and whoſe Current in that Extent was notwithſtanding pretty rapid: He ſaw beyond it Forces in Order of Battle, with many Pieces of Cannon diſpoſed on the oppoſite Shore riſen in the Shape of a Platform, and ready to thunder againſt him, if he ſhould attempt the Paſſage: He did not know preciſely where the Ford was which they ſaid was near *Mulberg*, and as there was a very great Plain between his Camp and the River, he could not get to it, without expoſing himſelf to the whole Fire of the Enemy: But however, he ſurmounted all thoſe Difficulties by his invincible Courage and Preſence of Mind; for after he had ſent every where in the Neighbourhood in Queſt of ſome Body who ſhould be acquainted with the Ford, he pointed his Cannon between certain Trees, which did cut the Plain in that Place, though pretty diſtant from the River, and placed behind thoſe Trees 1000 *Spaniſh* Arquebuſiers bold and intrepid, to whom he commanded to advance, at the Favour of the firſt Diſcharge, to run to the River's Side, to enter it as far as they could, and make a continual Fire to diſperſe a little the Enemy, while the reſt of the Army follow'd. Theſe brave Men did run to that dangerous Skirmiſh with ſo much Intrepidity, and entered ſo far into the Water, that moſt of them had it above half their Body, and fired with ſuch Fury on thoſe who were on the oppoſite Shore, and on thoſe who had thrown themſelves into the

the Boats, while the Cannon, which was very well served, fired without Intermission on the Enemies, that they began to give Ground, and quit their Posts. Then the Emperor, who at the Head of the Infantry had followed those Arquebusiers as far as to the Side of the *Elbe*, caused a thousand others to advance of the Terce of *Lombardy*, under the Command of Don *Louis d'Arza*, their Colonel. These by an Emulation of Glory, wanting to surpass the others, went so far into the River, and made such furious Discharges, seconded by those of the rest of the Infantry, which followed them, that the *Saxons* uncapable to resist that Tempest, began to retreat with their Cannon; and those who guarded the Boats of their Bridge abandon'd them, after they had set them on Fire, which burnt but Part of them.

As the Emperor had not Pontoons enough to cross the *Elbe* in that Place, he addressed himself to the rest of the *Spaniards*, who were impatient to signalize themselves as well as their Comrades, and shewing them the Boats of the Enemy, carried off by the Current of the River: *It is to you*, said he, *Soldiers, that the Glory is reserved of putting us in a Condition to vanquish, by giving us what we want to perfect our Bridge, in order to go immediately to the Enemy.* Then ten of the old *Spanish* Soldiers, who under *Charles* V. acquired a Glory to their Nation, which those who are come after them, could not maintain under his Successors, undressed themselves quite naked, and throwing themselves into the Water, holding their Swords between their Teeth, swam amidst the Arquebusades, fired against them from the Walls, and the Castle of *Mulberg*, approached two Thirds of the Bridge which followed the Current of the River, got into it, killed all those they found in the Boats, and brought them to the Emperor, amidst the Applauses and Acclamations of the whole Army. Whereby the Emperor had wherewith to construct and throw quickly a Bridge on the *Elbe* to pass the Infantry and the Cannon.

While the Emperor was hastening the Construction of the Bridge, the Duke *d'Alva* brought him a young Peasant, who promised, that knowing very well the Ford, which he had crossed over a hundred Times, he would guide him without the least Danger to the other Side. *Charles* hearing him speak thus, gave the necessary Orders for the Guard of the Camp, and for the Passage of the Infantry, as soon as the Bridge would be finished, and immediately caused himself to be conducted to the Place where the Ford was, where he ranged all the Cavalry in order of Battle. He gave the Avant-Guard to the Duke *d'Alva*, where he placed in the first Rank the *Hussars* to the Number of not above six hundred, because he had sent the others towards *Tergau* to guard the Avenues thereof, and to hinder the Enemy from retreating thither. These were supported by four hundred Light Horse, commanded by the Prince of *Salmone*, and Don *Antony* of *Toledo*, followed by a hundred *Spanish* Arquebusiers on Horseback, which terminated on the Left, that first Body. In the second, drawing towards the Right, was Duke *Maurice*, who commanded six hundred Lances, and two hundred Arquebusiers on Horse-back, of his own Troops; and the Duke of *Castro* supported him with two hundred and twenty Men of Arms of the *Neapolitan* Cavalry. The Center of the Battle, which followed at some Interval, was likewise separated into two Bodies. The Emperor was at the Head of the first, which was but of five hundred Lances, and of about as many *German* Arquebusiers on Horse-back; to whom *Charles*, who would command them in Person, gave that sensible Mark of the great Confidence he had in them, to animate them to behave well. The King of the *Romans*, his Brother, accompanied with his two Sons, the Archdukes *Maximilian* and *Ferdinand*, commanded the second, which was of six hundred Lances, and three hundred Arquebusiers, all *Germans*. So that this Cavalry was in all but of about four thousand Horse, ranged on two Lines in several Squadrons, each of seventeen Files, which gave them a very large Front, made the Army appear greater than it was in Reality, and hinder'd it from being easily surrounded, or taken in Flank.

Every Thing being thus disposed, the Duke *d'Alva*, according to the Emperor's Order, made the *Hussars* cross first, then the Light Horse of the Prince of *Salmone*, and of Don *Antony* of *Toledo*, and the *Spanish* Carabins, having each a Fantassin riding behind. Afterwards he crossed himself at the Head of the *Neapolitan* Gendarmery, and of the *German* Horse who formed the second Body of the Van-guard. The Bottom of the Ford was hard and smooth, but the Water so high, that it reached above the Knees of the Men, and there were Places where the Horses lost Ground and were forced to swim over.

In this Condition, *Charles* V. crossed the *Elbe*, to go to fight, without Infantry and without Cannon, an Enemy who had both, and stronger than him by half.

As soon as the Emperor learned that the Enemies had abandon'd *Mulberg*, which he had caused to be attacked by the few Fantassins the Cavalry had carried over, and that the Duke of *Saxony* was retreating in Haste, though in order of Battle towards *Wittemberg*, he took the Resolution to pursue him, and without waiting for his Cannon and Infantry, to fight him in open Field, for fear, in waiting longer, he should have Time to reach *Wittemberg*, where he would be in Safety. On that Resolution, *Charles* caused his Van-guard to advance, from which the Duke *d'Alva* detached the *Hussars*, who running Post, according to their Custom, soon reached the *Saxon* Army, which retreated in Battle, in this Order. The Infantry of about 6000 Men marched first, divided into two large Battalions, with 20 Pieces of Cannon between; and the Cavalry of about 3000 Horses, was divided into nine Squadrons, which contrary to the Imperial Squadrons had their Front very narrow, and their Flanks very large. Four of those nine Squadrons covered on the Right and Left the Flank of the Infantry, and the five others marched behind them, having the Elector at their Head, who followed by a hundred Horse, ran from Squadron to Squadron, to give the necessary Orders, and to cause them to make Volt-face in proper Time, against the *Hussars* who harrassed them continually to retard their March; whereby they gave Time to the Duke *d'Alva* to join them, three Leagues from *Mulberg*, with all the Gendarmery of the Van-guard. Then the Elector of *Saxony*, who thought he had to deal but with that Van-guard, made his Army to face about, which at the same Time made a Discharge of their whole Artillery.

The Noise obliged the Emperor, who was not far, to make more Haste. The *Saxons* perceiving a new Body of Cavalry, which he thought still very far, reassumed his March to gain a Wood, which was pretty near, whereby he either could retire to *Wittemberg* in the Night, or at least fight to Advantage, if forced to it. But his Hope was frustrated, for before he could reach that Wood, near enough to draw any Advantage from it, he had the Imperialists at his Heels, so that to avoid being cut to Pieces, if he continued his March, he was forced to face about a second Time, and to fight. Therefore both Armies being in Presence, and ranged according to the Order they had kept till then, both prepared themselves to behave as well as they could.

The Emperor, who after he had extended himself on the Right, marched in Front on the same Line with the Vant-guard, having detached himself from his Squadron, ran throughout all the others, to inspire them with his Courage, and having given them the Word, which was, *St. George Empire, St. James Spain*, he went to replace himself at the Head of his Squadron, and marched directly to the Enemy. The Elector did likewise all that could be expected of a very brave Man, as he really was, to encourage his Men to fight well. Afterwards having placed himself at the Head of his Guards, observing that the Emperor had caused his Van-guard to pass first a Marsh he found on his March, he took that Opportunity to fight that Van-guard alone; and at that very Instant his Squadrons having retired on the Right and Left, at the Signal he gave, he made a whole Discharge of his Cannon and Musquettry in very good Order, his Men remaining afterwards in their Place, to wait for the Enemies, as the Elector had commanded it, which was the Cause in Part of his Defeat. For the Duke *d'Alva*, after that Salvo, which made more Noise than Execution, unwilling to give Time to the Enemies to make a second, informed the Emperor that he was going to charge them,

them, which he did with the *Neapolitan* Gendarmery, who attacked the first Squadrons of the right Line of the Enemy with such Fury; as did likewise Duke *Maurice* with his Curassiers, and *German* Carabins, those on the Left, and who were soon broken as well as the former. Almost at the same Time the Emperor who had crossed the Marsh, and had already took his Place on the Right, which he had before, attacked with his Gendarmery the Enemy, which King *Ferdinand* took in Flank, as the Hussars and light Horse of Prince *Salmone* did on their Side in attacking the Right; so that the *Saxon* Cavalry invested and attacked so furiously on all Sides, was first put into Disorder, and in a Moment afterwards put to Flight, abandoning cowardly the Infantry, who made but very little Resistance, and were either cut to Pieces or made Prisoners; so that of those 9000 *Saxons*, none escaped but 400, who retreated with great Difficulty to *Wittemberg* with the Prince of *Saxony*, wounded in the Head and the Right-Hand. All was taken, Cannon, Munitions, all the Colours, and Standards, and among the rest that of the Elector of *Saxony*; and what was worth all the rest, the Duke himself, whom the Duke *d'Alva* delivered from the Hands of some Soldiers who had took him, and presented to the Emperor.

This Duke extremely big and lusty, was armed with a black Curasse, under which he wore a large Coat of Maile which descended as far as under his Knees; he was mounted on a very large Horse from *Frizland*, and had his Face all covered with Blood from a Cut he had received across his left Cheek: Though he was quite tired, he notwithstanding attempted to alight from his Horse. The Emperor having some Regard to his Bulk, and to the deplorable Condition he saw him in, would not suffer it, and contented himself with hearing him, when bowing as low as to his Saddle, he told him in a very submissive Manner, *Most potent and most clement Emperor, since it has pleased Fortune to deliver me into your Hands——Very well,* replied the Emperor interrupting him, *you speak at present in a quite different Manner than when you was pleased to call me* Charles of Gaunt. A Thunderbolt had not more surprized the poor *Saxon*, than he was at that just Reproach, to which he answered nothing, except that he desired the Emperor to treat him according to his Quality, and as a Prince; to which *Charles* answered, that *he should be treated according to his Merit*; and then ordered that he should be well guarded, and returned to his Camp, where he arrived about One in the Morning, after a Fight which had lasted about eight Hours, since it had begun on the Borders of the *Elbe* between Ten and Eleven in the Morning, and ended about Seven at Night, by the most compleat and most celebrated Victory *Charles* had gained, ever since he had commanded his Armies in Person, and which plunged the unhappy Duke of *Saxony* into an Abyss of Calamities, though he never appeared greater than on this Occasion; since all that the most severe Philosophy could inspire of Strength, Constancy, and Resolution to the most heroical Souls appeared with the greatest Lustre in the Conduct of that illustrious Unhappy after he was taken. He preserved always the same Serenity in his Countenance he had while in the greatest Prosperity, without giving the least Sign of Sorrow or Melancholly: He did not speak a single Word which could give the least Hint, I'll not say of Passion or Despair, but not even of Impatience or Uneasiness; always of an even Temper, good Humour, and having all the Manners of a Person of the greatest Probity, as he certainly was, and comforting with such Words, which an *Epictetus* or *Seneca* might have acknowledged for their own, the Duke *Ernest* of *Brunswick*, who having been taken Prisoner with him, had not the same philosophical Mind to support his Adversities.

This heroical Constancy and Resolution of the Duke appeared in a greater Light still, when the Sentence of Death which the Emperor had caused to be pronounced against him the 4th of *May*, was signified to him; for then he said only with a great Tranquility, *Provided the Emperor has not* Wittemberg, *which he expects to have by this Sentence, which he pronounces only to oblige the Dutchess my Wife, and my Children to deliver that Place, to redeem my Life at so high a Price, he'll gain nothing, and I only lose some few miserable Days, which I had been obliged to spend amidst the Infirmities of old Age.* And then he invited the Duke *Ernest*, who was guarded in the same Tent, to a Game at Chess, which he play'd with an incredible Presence of Mind, as if he had only heard a Sentence pronounced against some indifferent Person: Therefore it can be said of him, that as he has equal'd the greatest Princes in all Sorts of moral Virtues, which have render'd them worthy the Praises of Posterity, he has surpassed several of them in that memorable Constancy of Mind, which though vanquished, made him triumph in those Adversities, which often conquer the greatest Courages.

The Emperor notwithstanding had all he expected by that Sentence, *i. e. Wittemberg*, which he had begun already to besiege, though perhaps he had not took it. The Treaty concluded to save the Prisoner's Life was very hard on his Side, the principal Articles whereof were these, *That* Wittemberg *should be immediately delivered to the Emperor with all the Cannon and Munitions; that the Duke should be divested of his Electorate, of which the Emperor should give the Investiture to Duke* Maurice, *who was obliged to allow the deposed Elector* 50,000 *Crowns a Year, with some small Places which were left him in* Thuringia; *that the Marquis* Albert *of* Brandebourg *whom he had taken Prisoner, should be immediately set at Liberty; and that for himself he should remain Prisoner at the Emperor's Pleasure.* They wanted to oblige him likewise, to promise that he would abide for the Religion, by the Council which was assembled at *Trent*, but he protested always with so much Obstinacy, that he would never do it; that the Emperor who considered him then as nothing, did not judge proper to insist on that Point, contenting himself with obliging to it the other *Lutheran* Princes. For after his Victory he saw himself entire Master of *Germany*; all the other confederate Towns submitted themselves to him, and to whatever he pleased to order them. The Landgrave himself, notwithstanding his Haughtiness and Pride, till then not to be conquered, gave himself up at Discretion.

It is true, that he did all he could not to be reduced to so shameful an Extremity, which he abhorred more than Death itself; but as he saw that the Emperor was always inflexible with regard to him, and resolved to see him at his Feet ready to do all he would, was already marching against him with his victorious Army: He took at last the Resolution, by the Advice of the Duke *Maurice* his Son-in-law, and of the Elector of *Brandebourg*, who promised him more than the Emperor designed to perform, though they promised him nothing but what they really thought he would perform, and had promised to perform, to go to *Hall* in *Saxony* to meet the Emperor, who received him sitting on his Throne in Publick, environed with all the greatest Princes of the Empire, and with all the Officers of his Army. There the Landgrave on his Knees, and bareheaded, which he had a hundred Times protested he would never do, his Chancellor declared in his Name, *That he confessed his Crime, wherefore the Emperor, to whose Discretion he abandoned himself entirely, could treat him with all Sorts of Rigour: But that he humbly intreated him to forgive him for God's Sake, to raze the Ban of the Empire he had very justly published against him, to receive him and his Subjects into his Imperial Favour, promising for the future an inviolable Fidelity to his Imperial Majesty, and to execute punctually all that he had required of him, by the Articles he had accepted.*

Sleidan says, *lib.* 19. that the Emperor answered in *German*, by one of his Council, in these proper Terms; *Though the Landgrave of* Hesse, *by his own proper Confession, deserves all the Chastisements imaginable for his Rebellion, his Imperial Majesty notwithstanding, having Regard to the Submission with which he is come to throw himself at his Feet, and deliver himself into his Hands, and to the earnest Intreaties of the Princes who have interceded for him, has the Goodness to forbear having him beheaded, as he has deserved, or even punishing him with the entire Confiscation of his Estate and a perpetual Prison; but pardons him, provided he accomplishes what he has promised, according to the Articles granted him by the pure Goodness of his Imperial Majesty.* As the Landgrave had in his Mind but what the Princes had promised him, he

he took no Notice of the Word *perpetual*, and appeared pretty well satisfied with that Answer; but he was very much surprized, when after he had supped at the Duke *d'Alva*'s with the two Electors his Bails, he was arrested Prisoner, and committed to the Custody of a *Spanish* Captain, of the Terce of *Lombardy*. The two Electors, who complained loudly of that Action, as of a manifest Violation of the Treaty they had concluded with the Landgrave, did all they could to procure him his Liberty: But to all they could say, the Emperor answered always, that he did not know what they had promised to the Landgrave, but that for his Part he knew very well, that in the Articles he had granted him, and which were to be seen in the authentick Act made of them, he was obliged to nothing but to not punish him with a perpetual Prison, and if they had promised him any Thing else they had exceeded their Commission.

The two Electors were so irritated at the Superchery they thought the Emperor was guilty of, as well with regard to them as to the Landgrave, and more still at the shameful Manner that Prince and the Duke of *Saxony* were treated with, whom the Emperor dragged every where after him as Captives; that though they were obliged to dissemble for their own Interest, which would not allow them to declare themselves at a Time when the Emperor was so formidable, they notwithstanding took the Resolution from that very Time to be revenged of him, as they did, under Pretence of defending their Liberty against him who wanted to oppress it.

The Fruit of this famous Victory of *Charles* V. was, that in the Dyet of *Ausbourg*, held in *September* and *October* 1547. it was at last concluded, after a great many warm Debates, that all should be obliged to conform to the Decisions of the Council which was then assembled at *Trent*; to which all the Lutheran Princes, the Duke of *Saxony* excepted, agreed, rather through Necessity than a Consciousness that till then they had been in the Wrong; and *Charles* who had procured that Agreement, did it rather by a Motive of Interest than by a Principle of Religion; which can be plainly seen throughout this historical Account of *Lutheranism*, where sometimes he is so favourable to that Sect as to be suspected of being inclinable to it himself, and sometimes pursues it *vi & armis*, and seems entirely resolved to exterminate it in the Empire, though he never designed it; since he could have done it, if after the Defeat of the Duke of *Saxony*, he had pursued with his victorious Army the rest of the *Lutheran* Princes without giving them Time to breathe; instead of going to hold his Dyet at *Ausbourg*, dismissing his Army, and amusing himself to dispute with the Pope upon the Translation of the Council to *Bologna*. It is true, that he was in continual Fears that the *Lutherans*, who had often implored the Protection of the King of *France*, should join effectually with him if he was to reduce them quite to Despair; for he was much more afraid of *Francis* I. than he was of the confederate Princes, and would perhaps have become one of the most zealous Disciples of *Luther*, nay a *Zuinglian*, or any Thing else, on Condition of seeing *France* at the low Ebb he had so often attempted to reduce it to: For as soon as he was informed that the *Lutherans* had implored the King's Succour, then he granted them all Sorts of Liberties, and seemed to be a *Lutheran*; and when by those Means he had obliged them to desert perfidiously their Protector, and even declare against him, then he began to distress them anew, and appeared as zealous a Catholick as before; for Religion was in those Days as it has been since, only employ'd as a Cloak to cover the ambitious and interested Views of Princes.

Though *Charles* V. gained several Advantages over *Lutheranism*, and was a very great Conqueror and a fortunate Prince, *Luther* notwithstanding made a far greater Number, and much more considerable Conquests, and in fewer Years, than he did during his whole Reign; for, besides the greatest Part of *Germany*, he gained the Kingdoms of *Sweden* and *Denmark*, Part of *Poland*, Part of *Hungary*; and some Time afterwards introduced itself into those of *England* and *Scotland*; though it had lost a great deal of Ground, at the latter End of the last Century and in this, by the Return to the *Roman* Church of that great and most excellent Prince *Augustus* II. late King of *Poland*, and Elector of *Saxony*, and by the Zeal of the present King of *Poland*, and Elector of *Saxony*, *Augustus* III. his Son, for the Catholick Religion: Likewise in *England*, where the Sentiments of *Luther* which seem incompatible with God's infinite Mercy, are rejected by the *English* Church as heterodox.

MAGIC.

MAGIC, taken in its antient Sense, is the Science or Discipline and Doctrine of the *Magi*, or Wise-men of *Persia*.—And taken in a more modern Sense, is a Science which teaches to perform wonderful and surprizing Effects.

Agrippa divides *Magic* into three Kinds, *natural*, *celestial*, and *ceremonial* or *superstitious*.

Natural Magic, is no more than the Application of natural active Causes to passive Causes or Subjects, by means whereof many surprizing, but yet natural Effects are produced; as producing Roses, Figs, *&c.* in *March*, causing Thunder, Lightning, Rains, Winds, *&c.*

Baptista Porta has a Treatise of *natural Magic*, or of Secrets for performing very extraordinary Things by natural Causes.

The *natural Magic* of the *Chaldeans* was nothing but the Knowledge of the Powers of Simples and Minerals. The *Magic* which they called *Theurgia*, consisted wholly in the Knowledge of the Ceremonies, to be observed in the Worship of the Gods, in order to be acceptable. By virtue of those Ceremonies, they believed they could converse with spiritual Beings, and cure Diseases.

Celestial MAGIC, borders nearly on judiciary Astrology; it attributes to Spirits a Kind of Rule or Dominion over the Planets, and to the Planets a Dominion over Men; and on those Principles build a ridiculous Kind of System.

Superstitious or *Goetick* MAGIC, consists in the Invocation of the Devil; its Effects are usually evil and wicked, though very strange, and seemingly surpassing the Power of Nature, supposed to be produced by virtue of some Compact, either tacit or express, with evil Spirits: But the Truth is, these have not all the Power that is usually imagined, nor do they produce half those Effects ordinarily ascribed to them. *Paracelsus* tells us, that pronouncing the Words *Osy*, *Osya*, will make Serpents stop their Motion, and lie still as if they were dead.

WITCHCRAFT, is a Sort of *natural Magic*, for which there may be some Foundation, since we have infinite Instances and Histories to this Purpose, which it were not fair to set aside merely because they are not reconcileable to our Philosophy; but as it happens, there seems to be something in Philosophy to countenance them.

All living Things, we know, emit Effluvia, both by the Breath and the Pores of the Skin: All Bodies therefore within the Sphere of their perspiratory, or expiratory Effluvia, will be affected by them; and that in this or another Manner, according to the Quality of the Effluvia, and in this or that Degree, according to the Disposition of the emittent, and recipient Parts.

Thus far is incontestable, nor need we produce Instances of Animals exhaling sweet or stinking Smells, or of infectious Diseases conveyed by Effluvia, *&c.* in Confirmation thereof.

Now of all Parts of an animal Body, the Eye, we know, is the quickest; it moves with the greatest Celerity, and in all the Variety of Directions. Again, its Coats and Humours are permeable as any other Part of the

the Body (witness the Rays of Light it so copiously receives.) The Eye therefore no doubt emits its Effluvia, like the other Parts. The fine Humours of the Eye must be continually exhaling. The Heat of the pervading Rays will rarify and attenuate them; and that with the subtile Juice, or Spirit of the neighbouring optick Nerve, supplied in great Abundance, by the Vicinity of the Brain, must make a Fund of volatile Matter to be dispensed, and as it were determined by the Eye.

There then we have both the Dart and the Hand to fling it. The one furnished with all the Force and Vehemence, and the other with all the Sharpness and Activity one would require: No Wonder their Effects be great!

Do but conceive the Eye as a Sling, capable of the swiftest and intensest Motions and Vibrations; and again as communicating with a Source of such Matter, as the nervous Juice elaborated in the Brain; a Matter so subtile and penetrating, that it is supposed to fly instantaneously through the solid Capillaments of the Nerves, and so active and forcible that it distends and convulses the Muscles, and distorts the Limbs, and alters the whole Habitude of the Body, giving Motion and Action to a Mass of inert, inactive Matter. A Projectile of such a Nature, flung by an Engine as the Eye, must have an Effect wherever it strikes; and the Effect will be limited and modified by the Circumstances of Distance, the Impetus of the Eye, the Quality, Subtilty, Acrimony, &c. of the Juice; and the Delicacy, Coarseness, &c. of the Object it falls on.

This Theory, in the Opinion of those who have calculated it, may account for some of the Phænomena's of *Witchcraft*, particularly of that Branch called *Fascination*. It is certain the Eye has always been esteemed chief Seat, or rather Organ of *Witchcraft*; though by most, without knowing why, or wherefore: The Effect was apparently owing, but how, was not dreamed of. Thus the Phrase, to have an *evil Eye*, imports as much as to be a *Witch*. And hence *Virgil*, *Nescio quis teneros oculus mihi fascinat agnos*. Again, old bilious Persons are those most frequently supposed to have the Faculties; the nervous Juice in them being depraved and irritated by a vicious Habitude of Body, and so rendered more penetrating and malignant. And young Persons, chiefly Boys and Girls, are most affected by it, by reason their Pores are patent, their Juices incoherent, and their Features delicate and susceptible. Accordingly the *Witchcraft* mentioned by *Virgil* only reaches to the tender Lambs. Lastly, the Faculty is only exercised when the Person is displeased, provoked, irritated, &c. it requiring some extraordinary Stress and Motion of Mind, to dart a proper Quantity of the Effluvia, with a sufficient Impetus, to produce the Effect at a Distance; that the Eye has some very considerable Power is past Dispute. The antient Naturalists assure us that the Basilisk and Opoblepa, kill other Animals merely by staring at them. If this fail of Credit, a late Author assures us, to have seen a Mouse running round a large Toad, which stood looking earnestly at its Mouth open; still the Mouse made less and less Circles about it, crying all the while as if compelled thereto; and at last, with a deal of seeming Reluctance, run into the gaping Mouth, and was streight swallowed.

Who has observed a Setting-Dog, and the Effect of his Eye on the Partridge? The poor Bird, when once his Eyes meet those of the Dog, stands as if confounded, regardless of itself, and easily lets the Net be drawn over it. We remember to have read of Squirrels stupified, and overcome by a Dog's staring hard at them, and thus made to drop out of their Trees into his Mouth.

That Man is not secure from the like Affections, is Matter of easy Observation: Few People but have again and again felt the Effects of an angry, a fierce, a commanding, a disdainful, a lascivious, an intreating Eye, &c. These Effects no doubt are owing to the different Ejaculations from the Eye, and are a Degree of *Witchcraft*.

This I must confess is not my Sentiment; for I consider *Witchcraft* as a mere Invention of weak Minds, who are pleased to attribute to extraordinary Causes what is only the pure Effect of the many Accidents and natural Disorders the human Body is exposed to.

I know very well that all living Things emit Effluvia, which form a Kind of Atmosphere wherein they swim, or are environed with; but I'll never believe that those Effluvia's emitted through the Eyes of an Animal, can be projected into another Animal, so as to affect such and such a Part of the Body of that Animal rather than another, *viz.* render him epileptick, or stupid, or lame, &c. in which *Witchcraft* is pretended to consist chiefly; and which to perform those Effluvia's thus emitted, must also be directed by the Will of the Animal whence they are emitted, and preserve that Direction, thro' the different Circumvolutions they are obliged to make from the Eyes, by which they are communicated, till they arrive at the Part it is designed they should affect, which is a very ridiculous Paradox.

The Example of Animals exhaling sweet or stinking Smells, to corroborate the pretended Truth of *Witchcraft*, has not the least Relation to it, since those Smells are unvoluntary, and affect necessarily the Odorat against the Animal's Will, and *Witchcraft* is voluntary, otherwise it is no *Witchcraft*. That of infectious Diseases being conveyed by Effluvia, &c. is not more to the Purpose, since those Effluvias cease the Mass of the Blood, commonly through Respiration, have no other Direction but what they receive from the Agitation of the Atmosphere, which they have most commonly infected first, nor any Determination for any Part of the Body in particular.

As to the *Witchcraft Virgil* complained of, which he calls *Fascination*, it was perhaps nothing but some natural Dimness in the Eyes of his Lambs, which a superstitious Pagan, as *Virgil* was, might very well attribute to some other extraordinary Cause.

The Basilisk and Opoblepa killing other Animals by only staring at them, if it be true, cannot be brought in Confirmation of *Witchcraft*; since those Animals being extremely venemous, and their Venom very subtile, flow with Impetuosity through their Eyes, finding no Passage so free in all the other Parts of their Body, and thereby is communicated to the other Animals; seizes immediately the Mass of the Blood, which it soon coagulates, whence Death ensues. The Fear which seizes the Partridge, naturally a very timorous Bird, at the Sight of the Setting-Dog, causes its Confusion, and not the Effluvia emitted from the Dog: Therefore neither can this be brought in Confirmation of *Witchcraft*.

Naude has published an Apology for all the great Men suspected of *Magic*.—*Agrippa* says, that the Words used by those in Compact with the Devil, to invoke him, and to succeed in what they undertake, are *Dies*, *Mies*, *Jesquet*, *Benedafet*, *Docevima*, *Enitemaus*. There are an hundred other Formulas of Words, composed at Pleasure, or gathered from different Languages, or patched in Imitation of it.

Note, That the Origin of *Magic*, according to our first Definition, is ascribed to *Zoroaster*: *Salmasius* derives the very Name from *Zoroaster*, who, he says, was sirnamed *Mag*, whence *Magus*.—Others, instead of making him the Author of the *Persian* Philosophy, make him only the Restorer and Improver thereof; alledging that many of the *Persian* Rites, in Use among the *Magi*, were borrowed from the *Jabii* among the *Chaldeans*, who agreed in many Things with the *Magi* of the *Persians*; whence some make the Name *Magus* common both among the *Chaldeans* and *Persians*. Thus *Plutarch* mentions, that *Zoroaster* instituted *Magi* among the *Chaldeans*, in Imitation whereof the *Persians* had theirs too.

The antient *Magi*, according to *Aristotle* and *Laertius*, were the Authors and Conservators of the *Persian* Philosophy; and the Philosophy principally cultivated among them was Theology and Politicks; they being always esteemed as the Interpreters of all Laws both divine and human, on which Account they were wonderfully revered by the People. Hence *Cicero* observes, that none were admitted to the Crown of *Persia*, but such as were well instructed in the Discipline of the *Magi*, who taught τα βασιλικα and shewed Princes how to govern.

Plato,

Plato, *Apuleius*, *Laertius*, and others agree, that the Philosophy of the *Magi* related principally to the Worship of the Gods, they were the Persons who were to offer Prayers, Supplications, and Sacrifices, as if the Gods would be heard by them alone.

According to *Lucian*, *Suidas*, &c. the Theology, or Worship of the Gods, about which the *Magi* were employ'd, was little more than the diabolical Art of Divination. So that μαντεια, strictly taken, signifies Divination.

Philo-Judæus describes the *Magi* to be diligent Enquirers into Nature, out of the Love they bear to Truth; and who setting themselves a-part for those Things, contemplate the divine Virtues the more clearly, and initiate others in the same Mysteries.

Their Descendants, the modern *Magi*, or Fire-Worshippers, are divided into three Classes; whereof the first and most learned, neither eat nor kill Animals, but adhere to the old Institution of abstaining from living Creatures.—The *Magi* of the second Class, refrain only from tame Animals; nor do the last kill all indifferently; it being the firm and distinguishing Dogma of them all, that *there is a Transmigration of Souls*. To imitate the Similitude between Animals and Men, they use to call the latter by the Name of the former; thus their Fellow-Priests they called Lions, the Priestesses, Lionesses, the Servants, Crows, &c.

Magic, according to our other Definition, is only used to signify an unlawful and diabolical Kind of Science, particularly the *superstitious* and *goetic Magic*, depending on the Assistance of the Devil and departed Souls. If any wonder how so vain and deceitful a Science should gain so much Credit and Authority over Men's Minds, *Pliny* gives the Reason of it: 'Tis, says he, because it has possessed itself of three Sciences of the most Esteem among Men; taking from it all that is great and marvellous in it. No Body doubts but it had its first Origin in Medicine, and that it insinuated itself into the Minds of the People, under Pretence of affording extraordinary Remedies. To these fine Premises, it added every Thing in Religion that is pompous and splendid, and that appears calculated to blind and captivate Mankind, particularly the *Oracles*, Men having always been very curious of Futurity; for,

ORACLE, was an Answer usually couched in very dark and ambiguous Terms, supposed to be given by Dæmons, either by the Mouths of their Idols, or by those of their Priests to the People, who consulted them on Things to come.

It is a pretty general Opinion among the more learned, that *Oracles* were all meer Cheats and Impostures; either calculated to serve the avaricious Ends of the Heathen Priests, or the political Views of the Princes.

M. *Bayle* says positively they were meer human Artifices, which the Devil had no Hand in. He is strongly backed by *Van Dale*, and M. *Fontenelle*, who have wrote expresly on the Subject.

There are two Points in Dispute on the Subject of *Oracles*, viz. whether they were human or diabolical Machines? and whether or no they ceased upon the Publication or Preaching of the Gospel?

Plutarch has a Treatise on the ceasing of some Oracles; and *Van Dale*, a *Dutch* Physician, has a Volume to prove they did not cease at the Coming of Christ; but that many of them ceased long before, and that others held till the Fall of *Paganism*, under the Empire of *Theodosius the Great*, when *Paganism* being dissipated, these Institutions could no longer subsist.

Van Dale was answered by a *German*, one *Mæbius*, Professor of Theology at *Leipsic*, in 1685, M. *Fontenelle* espoused *Van Dale*'s System, and improved upon it in his *History of Oracles*, and shewed the Weakness of the Arguments cited by many Writers in Behalf of Christianity, drawn from the ceasing of *Oracles*.

F. *Balthus*, a learned Jesuit, has answered both *Van Dale* and *Fontenelle*. He labours to prove that there were real *Oracles*, and such as can never be attributed to any Artifices of the Priests or Priestesses; and that several of these became silent in the first Ages of the Church, either by the Coming of *Jesus Christ*, or by the Prayers of the Saints.

This Doctrine is confirmed by a Letter of Father *Bouchet*, Missionary, to Father *Balthus*; wherein it is declared, that what Father *Balthus* says of the antient *Oracles*, is experimented every Day in the *Indies*.

It seems, according to this Missionary, that the Devil still gives *Oracles* in the *Indies*, and that not by Idols, which would be liable to Imposture, but by the Mouths of the Priests, and sometimes of the By-standers. It is added, that these *Oracles* too cease, and the Devil becomes mute in Proportion as the Gospel is preached among them.

It was *Eusebius* who first endeavour'd to persuade the Christians, that the Coming of *Jesus Christ* had struck the Oracles dumb; though it appears from the Laws of *Theodosius*, *Gratian*, and *Valentinian*, that the *Oracles* were still consulted as low as the Year 385. *Cicero* says, the *Oracles* became dumb in Proportion as People growing less credulous, began to suspect them for Cheats.

Plutarch alledges two Reasons for the ceasing of *Oracles*; the one was *Apollo*'s Chagrin, who it seems took it in Disdain to be interrogated about so many Trifles. The other was, that in Proportion as the Genii or Dæmons, who had the Management of the *Oracles*, died, and became extinct, the *Oracles* must necessarily cease. He adds a third and more natural Cause for the ceasing of *Oracles*, viz. the forlorn State of *Greece*, ruined and desolated by Wars. For hence the Smallness of the Gains let the Priests sink into a Poverty and Contempt too bare to cover the Fraud.

Most of the Fathers of the Church took it to be the Devil that gave *Oracles*; and looked on it as a Pleasure he took to give dubious and equivocal Answers; in order to have a Handle to laugh at them. *Vossius* allows, that it was the Devil who spoke in *Oracles*, but thinks that the Obscurity of his Answer was owing to his Ignorance, as to the precise Circumstances of the Events. That artful and studied Obscurity, wherein the Answers were couched, shewed the Embarrass the Devil was under; as those double Meanings they usually bore provided for their Accomplishment. Where the Thing foretold did not happen accordingly, the *Oracle* forsooth was misunderstood.

Eusebius has preserved some Fragments of a Philosopher, called *Ænomaus*, who out of Resentment for his having been so often fooled by the *Oracles*, wrote an ample Confutation of all their Impertinences.—'When 'we come to consult thee, says he to *Apollo*, if thou 'seest what is in Futurity, why dost thou use Expressions 'that will not be understood? dost thou not know that 'they will not be understood? if thou dost, thou takest 'Pleasure in abusing us; if thou dost not, be informed 'of us, and learn to speak more clearly. I tell thee that 'if thou intendest an *Equivoque*, the *Greek* Word where-'by thou affirmed that *Crœsus* should overthrow a great 'Empire, was ill chosen, and that it could signify no-'thing but *Crœsus*'s conquering *Cyrus*. If Things must 'necessarily come to pass, why dost thou amuse us with 'thy Ambiguities; what dost thou, Wretch as thou art, 'at *Delphos*; employed in muttering idle Prophecies?'

But *Ænomaus* is still more out of Humour with the *Oracle*, for the Answer which *Apollo* gave the *Athenians*, when *Xerxes* was about to attack *Greece*, with all the Force of *Asia*. The *Pythian* declared, that *Minerva*, the Protectoress of *Athens*, had endeavoured in vain to appease the Wrath of *Jupiter*; yet that *Jupiter*, in Complaisance to his Daughter, was willing the *Athenians* should save themselves within wooden Walls; and that *Salamis* should behold the Loss of a great many Children, dear to their Mother, either when *Ceres* was spread abroad, or gathered together.

Here *Ænomaus* loses all Patience with the God of *Delphos*: 'This Contest, says he, between Father and 'Daughter, is very becoming the Deities! It is excellent 'that there should be contrary Inclinations and Interests 'in Heaven.—Pure Wizzard, thou art ignorant who 'the Children are that *Salamis* shall see perish, whether 'Greeks or *Persians*: It is certain they must be either

'one or the other; but thou needeſt not have told ſo 'openly, that thou kneweſt not which. Thou concealeſt 'the Time of the Battle under thoſe fine poetical Ex-'preſſions, *either when* Ceres *is ſpread abroad, or ga-'thered together*; and wouldſt thou cajole us with ſuch 'pompous Language? who knows not that if there be a 'Sea-fight, it muſt either be in Seed-time or Harveſt? 'It is certain it cannot be in Winter. Let Things go 'how they will, thou wilt ſecure thyſelf by this *Jupiter*, 'whom *Minerva* is endeavouring to appeaſe. If the '*Greeks* loſe the Battle, *Jupiter* proved inexorable to the 'laſt; if they gain it, why then *Minerva* at length pre-'vailed.'

For my Part I am of M. *Fontenelle*'s Opinion, that the *Oracles* were nothing but meer Cheats, Frauds, and Impoſtures of the *Pagan* Clergy, to impoſe on the too great Credulity of Mankind, gain a certain Reſpect and Veneration from them, pick their Pockets, and render themſelves abſolutely neceſſary. For to believe that it was the Devil who uſed to ſpeak in the Idols, is to arraign the Veracity of the true God, who ſays poſitively, that *he wills that all Men ſhould be ſaved.* But to entertain the Heathens in their Ignorance, Impiety, and Idolatry, by the Miniſtry of the Devil ſpeaking in the Idols, contradicts that poſitive Declaration of God, with Regard to the Salvation of all Men in general; therefore it is in my Opinion, blaſphematory to ſay that there were real Oracles. If it be objected to this, that God ſuffer'd only the Devil to ſpeak in the Idols, and that he is not obliged to undeceive us, if we will deceive ourſelves; I'll anſwer, that the Devil ſpeaking in the Idols, and giving *Oracles*, could not be a ſingle Tolerance; ſince the Devil being a pure ſpiritual Intelligence, the Nature thereof is only to form Ideas, without being capable to inveſt them with Words, ſince they have no Organs to articulate them; God muſt have operated a Miracle every Time an Oracle was pronounced, and therefore poſitively contributed towards deceiving Mankind, and thereby rendered their Reprobation of an abſolute, or indiſpenſible Neceſſity, which none can ſuppoſe without Impiety.

Oracle, is alſo uſed for the Dæmon who gave the Anſwer, and the Place where it was given.

The principal *Oracles* of Antiquity, were that of *Abæ*, mentioned by *Herodotus*; of *Amphiareus*; of the *Branchidæ* at *Didimus*; of the *Camps* at *Lacedæmon*; of *Dodona*; of *Jupiter Ammon*; of *Nabarca*, in the Country of *Andriaca*, near the *Caſpian Sea*; of *Trophonius*, mentioned by *Herodotus*; of *Chryſopolis*; of *Claros* in *Ionia*; of *Mallos*; of *Patarea*; of *Pela* in *Macedonia*; of *Phaſelides* in *Cilicia*; of *Sinope* in *Paphlagonia*; of *Orpheus's Head*, mentioned by *Philoſtratus* in his Life of *Apollonius*, &c.

But of all others, the *Oracle* of *Apollo Pythius* at *Delphos*, was the moſt celebrated; this was conſulted in the *Dernier reſort*, by moſt of the Princes of thoſe Ages.

The *Pythia*, which was to be a pure Virgin, was always in a Rage when ſhe gave *Oracles*; at firſt ſhe gave them in Verſe, and fell at length to Proſe, upon the People's beginning to laugh at the Poorneſs of her Verſification.

MAGNET.

MAGNET, *Magnes*, or *Load-Stone*, is a Sort of ferrugineous Stone, *i. e.* very near the Colour of Iron, but harder and more heavy, taken out of Iron-Mines; and ſometimes in very large Pieces, half *Magnet*, and half Iron.

Note, That the *Magnet* borrowed its Name from *Magneſia*, a Province of *Macedonia*, where it is ſaid to have been firſt found; according to this of *Lucretius*, *lib.* 6. *de rerum natura*, *Verſe* 906.

—— Agere incipiam quo fœdere ſiat
Naturæ lapis hic ut ferrum ducere poſſit,
Quem Magneta vocant patrio de nomine Graii,
Magnetum quia ſit patriis in finibus ortus.

But *Nicanor*, in *Pliny*'s Natural Hiſtory, *lib.* 36. *c.* 16. ſays, that the *Magnet* borrows its Name from the Perſon who found it firſt. That a Shepherd, called *Magnes*, diſcovered it, while he was feeding his Flock on Mount *Ida*, by Means of his Crook, armed at the End with Iron, which reſting on the Ground, he found faſten'd to a Piece of *Magnet*. That ſurprized at this extraordinary, and till then unheard of Phænomenon, he communicated it to others. Becauſe it adhered to Iron, it was called by ſome *Siderites*, i. e. *Ferruginous*; and by others *Heracleos*, or *Herculean*, becauſe the *Magnet* conquered Iron, as *Hercules* did Monſters. — Therefore the attractive Virtue of the *Magnet*, was the firſt diſcover'd; and is taken Notice of, beſides, by *Lucretius* and *Pliny*, by *Plato*, *Ariſtotle*, *lib.* 1. *de Anim. c.* 2. and by *Orpheus* among the *Greek* Poets, and by *Claudian* among the *Latins*, in his Poem of the *Magnet*, where he ſpeaks thus:

—— Lapis eſt cognomine Magnes.
Decolor, obſcurus, vilis, non ille repexvam
Cæſariem Regum, nec candida virginis orat
Colla; nec inſigni ſplendet per cingula morſu:
Sed nova ſi nigri videas miracula ſaxi,
Tum ſuperat pulchros cultus, & quicquid Eois
Indus litoribus rubra ſcrutatur in Alga.
Ex ferro vitam meruit, ferrique rigore
Veſcitur: has dulces epulas hæc pabula novit.

Note, alſo, That the beſt *Magnets* are thoſe brought from *China* and *Bengal*, which are of an irony or ſanguine Colour; thoſe of *Arabia* are reddiſh, thoſe of *Macedonia* blackiſh, and thoſe of *Hungary*, *Germany*, *England*, &c. the Colour of unwrought Iron.

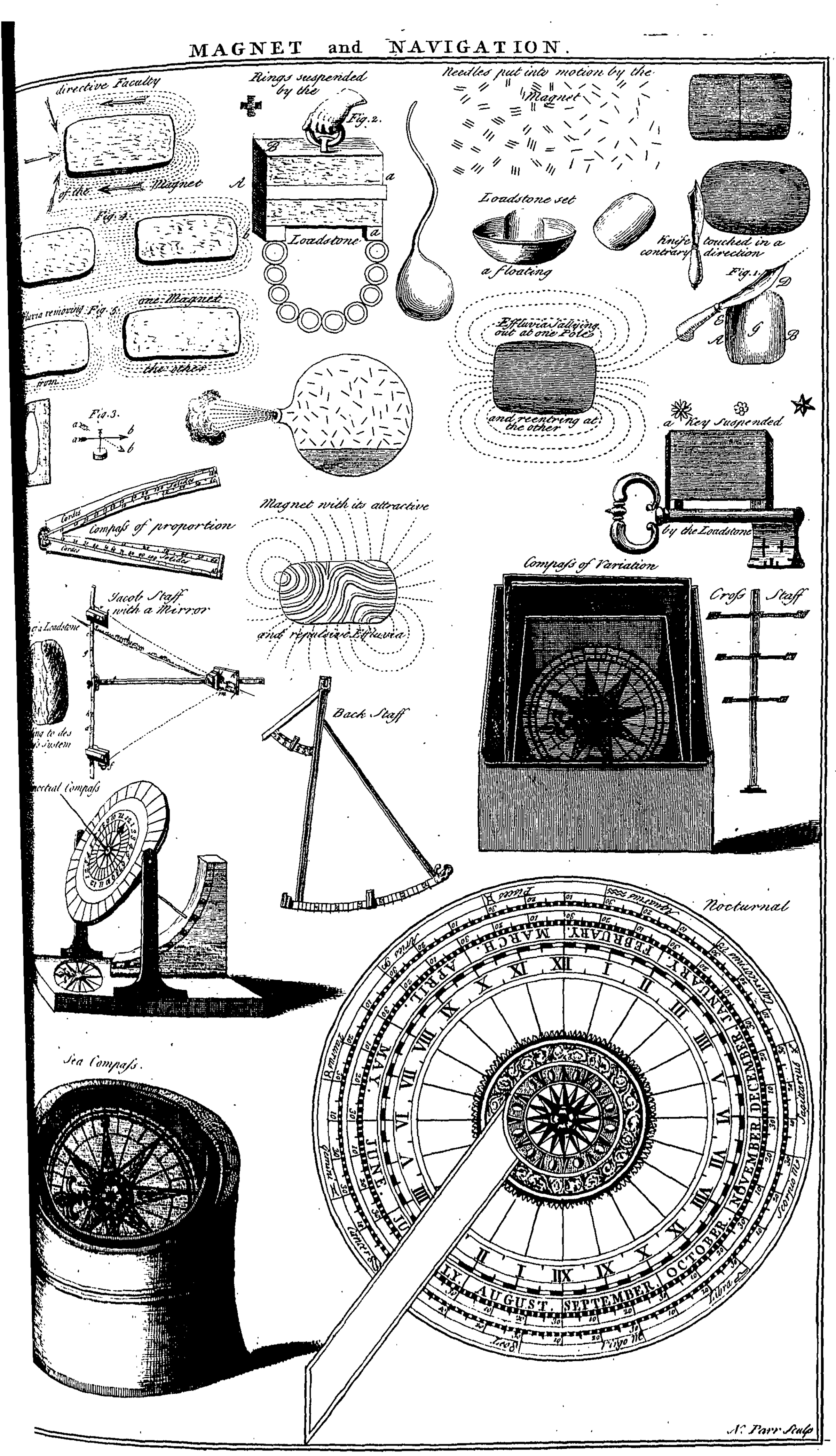
The Antients reckoned five Kinds of *Magnets*, different in Colour and Virtue; the *Ethiopic*, *Magneſian*, *Bœotic*, *Alexandrian*, and *Natolian*. They alſo took it to be Male and Female; but the chief Uſe they made of it was in Medicine, eſpecially for the Cure of Burns and Defluxions on the Eyes. The Mariners, more happy, take it to conduct them in their Voyages.

The moſt diſtinguiſhing Properties of the *Magnet* are, as we have already obſerved, that it attracts Iron, and was that whereby it was diſcovered, and which ſurprized the moſt learned Philoſophers of thoſe Times; who after they had found that by placing a Piece of Iron at a certain Diſtance from the *Magnet*, that Iron quitted its Place to go and unite itſelf intimately with the *Magnet*, and that it was not without ſome Reſiſtance, they were ſeparated from their mutual Coheſion. To diſcover if the Attraction was reciprocal, ſome of them imagined, in order to render the Motion of the Stone eaſier, to put it in a ſmall light Boat, and leave the Boat to float on the Water, while one of them held a Piece of Iron at a Diſtance from the Boat, whereby they found that the Boat floated towards the Iron, and the *Magnet* joined itſelf to the Iron.

This firſt Experiment occaſioned another no leſs ſurprizing, *viz.* it was obſerved, that the *Magnet* left at full Liberty in the Boat, to chuſe and direct itſelf towards the moſt commodious Place, and more proper to it, moved and directed itſelf always in the ſame Manner; whence it was concluded that it affected a particular Poſition in the World; for it turned one of its Sides towards that Part of the Horizon called the *North*, and the oppoſite to it towards the South; which are the two Places of the *Magnet*, which have been ſince called its *Poles*; and the right Line, which is ſuppoſed to paſs from one Pole to the other, is called its *Axis*.

What cauſed a ſtill greater Surprize was, when it was found

MAGNET and NAVIGATION.



found that the *Magnet* had that Property to transfer its Virtues above-mentioned to the Iron it touches, or is only placed at a certain Diſtance from it; ſo that a Piece of Iron touched by the *Magnet*, or placed very near it, has not only the ſame Virtue of attracting another Piece of Iron, but likewiſe of directing itſelf towards the ſame Parts of the World the *Poles* of the *Magnet* are directed: For Example, a Knife rubbed upon the *Magnet* acquires thereby the Virtue of attracting to itſelf Needles, Iron Nails, *&c.* and the Needle of a Sea-Compaſs turns towards the North and South, and denotes by its Extremities thoſe two Places.

But there are certain Things on this Phænomenon worthy our Obſervation. The firſt is, that the Knife rubbed on the *Magnet* acquires a greater or leſſer attractive Virtue, according to the Part of the *Magnet* it is rubbed upon. It receives the ſtrongeſt Touch when it is drawn leaſurely from the Handle towards the Point, over one of the Poles; for Example, if G be the *Magnet*, the Poles thereof are A and B, the Knife C D acquires the attractive Virtue it is capable of, by drawing it over the *Magnet* thro' the Longitude of the Line F E, fig. 1. ſo that that Part of the Knife neareſt the Handle touches firſt the *Magnet*, and the Point laſt. The ſecond is, that if that Knife thus in Poſſeſſion of a ſtrong attractive Power, be re-touched in a contrary Direction, *viz.* by drawing it from the Point towards the Handle, over the ſame Pole, it immediately loſes all its Virtue.

The other Phænomena of the *Magnet* are as follows: We have already obſerved, that in every *Magnet* there are two Poles, one whereof points northward and the other ſouthward; and if the *Magnet* be divided into ever ſo many different Pieces, the two Poles will be found in each Piece. Theſe Poles in different Parts of the Globe, are differently inclined towards a Point under the Horizon; and though contrary to one another, help mutually towards the Attraction and Suſpenſion of Iron. If two *Magnets* be ſpherical, one will turn or conform itſelf to the other, ſo as either of them would do to the Earth; and after they have ſo conformed or turned themſelves, they endeavour to approach or join each other; but if placed in a contrary Poſition, they avoid each other. If a *Magnet* be cut through the Axis, the Parts or Segments of the Stone which before were joined, will now avoid and fly each other. If the Magnet be cut by a Section perpendicular to its Axis, the two Points, which before were conjoined, will become contrary Poles; one in one, the other in the other Segment. Iron receives Virtue from the *Magnet* by Application to it, or barely from an Approach near it, though it do not touch it; and the Iron receives this Virtue variouſly, according to the Part of the Stone it is made to touch, or even approach to; for if an Iron be any how applied to the Stone, it receives Virtue from it only as to its Length. The *Magnet* loſes none of its own Virtue by communicating any to the Iron; and this Virtue it can communicate to the Iron very ſpeedily, though the longer the Iron touches or joins the Stone, the longer will its communicated Virtue hold, and a better *Magnet* will communicate more of it, and ſooner than one not ſo good; but the Virtue thus acquired by touching wears off by Degrees, and at laſt vaniſhes entirely, unleſs it be renewed from Time to Time by touching it anew. Steel receives from the *Magnet* better than Iron.

A Needle touched by a *Magnet* will turn its Ends the ſame Way towards the Poles of the World as the *Magnet* itſelf does; though neither itſelf nor Needles touched by it do conform their Poles exactly to thoſe of the World, but have uſually ſome Variation from them; and this Variation is different in divers Places, and at divers Times in the ſame Place. A *Loadſtone* will take up much more Iron when armed or capped than it can alone. And though an Iron Key or Ring be ſuſpended by the *Loadſtone*, yet the *magnetical* Particles do not hinder that Ring or Key from turning round any Way, either to the Right or Left. The Force of a *Loadſtone* may be variouſly increaſed or leſſened by the various Application of Iron, or another *Loadſtone* to it. A ſtrong *Magnet* at the leaſt Diſtance from a leſſer or a weaker, cannot draw to it a Piece of Iron, adhering actually to ſuch leſſer or weaker Stone; but if it comes to touch it, it can draw it from the other; but a weaker *Magnet*, or even a little Piece of Iron can draw away or ſeparate a Piece of Iron contiguous to a greater or ſtronger *Loadſtone*.

In theſe northern Parts of the World, the South Pole of a *Loadſtone* will raiſe up more Iron than the North Pole. A Plate of Iron only, but no other Body interpoſed, can impede the Operation of the *Loadſtone*, either as to its attractive or directive Quality. M. *Boyle* found it true in Glaſſes ſealed hermetically, and Glaſs is a Body as impervious as moſt are to any Effluvia. The Power or Virtue of a *Loadſtone* may be impaired by laying long in a wrong Poſition, as alſo by Ruſt, Wet, *&c.* and may be quite deſtroyed by Fire.

A Piece of Iron Wire well touched, will, upon its being bent round in a Ring, or coyled round on a Stick, *&c.* generally, quite loſe its directive Virtue, but always have it much diminiſhed; and yet if the whole Length of the Wire were not entirely bent, ſo that the Ends of it, if only for the Length of one Tenth of an Inch, were left ſtrait, the Virtue will not be deſtroy'd in thoſe Parts, though it will in all the reſt. This was firſt obſerved by *Grimaldi* and *de la Hire*; and is confirmed by the Experiments of Mr. *Derham*, who adds further, that though coyling or bending the Wire as above, would always deſtroy its Virtue by Day, yet it would not do it in the Evening. The Sphere of the Activity of *Magnets* is greater and leſſer at different Times, in particular that reſerved in the Repoſitory of the Royal Society, will keep a Key or other Body ſuſpended to another, ſometimes, at the Heighth of eight or ten Feet; and at others not above four Feet. To which we may add, that the Variation of the *magnetical* Needle from the Meridian, varies at various Times of the Day, as appears from ſome Experiments of Mr. *Graham*. By twiſting a Piece of Wire touched with a *Magnet*, its Virtue is exceedingly diminiſhed, and ſometimes ſo diſordered and confuſed, that in ſome Parts it will attract and in others repel; and even in ſome Places, one Side of the Wire ſeems to be attracted, and the other Side repelled by one and the ſame Pole of the Stone. A Piece of Wire that has been touched being ſplit or cleft in two; the Poles are ſometimes changed, as in a cleft *Magnet*, the North becoming South, and the South North: And yet ſometimes one Half of the Wire will retain its former Poles, and the other Half have them changed. To which it may be added, that laying one or other Side of the Half uppermoſt, cauſes a great Alteration in its Tendency or Averſion to the Poles of the *Magnet*. A Wire being touched from End to End with the ſame Pole of the *Magnet*, the End whereat you begin will always turn contrary to the Pole which touched it; if it be again touched the ſame Way with the other Pole of the *Magnet*, it will then be turned the contrary Way. If a Piece of Wire be touched in the Middle with only one Pole of the *Magnet*, without moving it backwards and forwards; in that Place will be the Pole of the Wire, and the two Ends will be the other Pole.

If a *Magnet* be heated red-hot, and again cooled, either with its South Pole towards the North in a horizontal Poſition, or with its South Pole downwards in a perpendicular Poſition, its Poles will be changed.

Mr. *Boyle* (to whom we are indebted for the following *magnetical* Phænomena) found he could preſently change the Poles of a ſmall Fragment of a *Loadſtone*, by applying them to the oppoſite vigorous ones of a large *Magnet*. Hard Iron Tools well tempered, when heated to a briſk Attrition, as filing, turning; will, when warm, attract thin Filings or Chips of Iron, Steel, *&c.* but not when cold; though there are not wanting ſome Inſtances of their retaining the Virtue when quite cold. The Iron Bars of Windows, which have a long Time ſtood in an erect Poſition, grow permanently magnetical; the lower Ends of ſuch Bars being the Northern Pole, and the upper the Southern. A Bar of Iron that has not ſtood long in an erect Poſture, if it be only held perpendicularly, will become *magnetical*, and its lower End the North Pole, as appears from its attracting the South Pole of a Needle: But then this Virtue is tranſient, and by inverting the Bar the Poles will ſhift their Places. In order therefore to render the Quality permanent in an Iron Bar, it muſt continue a long Time in a proper

Position: But the Fire will produce the Effect in a short Time: For as it will immediately deprive a *Load-stone* of its attractive Virtue, so it soon gives a Verticity to a Bar of Iron, if being heated red hot, it be cooled in an erect Posture, or directly North and South: Nay Tongs, and Fire-Forks, by being often heated, and set to cool again in a Posture nearly erect, have gained this *Magnetical* Property. Mr. *Boyle* found, that by heating a Piece of *English* Oker red-hot, and placing it to cool in a proper Posture, it manifestly acquired a *Magnetic* Virtue. And an excellent *Magnet* of the same ingenious Gentleman having lain near a Year in an inconvenient Posture, had its Virtue surprisingly impaired; and as if it had been by Fire.

A Needle well touched, it is known, will point North and South: If it have one contrary Touch of the same Stone, it will be deprived of its Faculty; and by another such Touch will have its Poles quite changed. — If a Bar of Iron have gained a Verticity by being heated red hot and cooled again, North and South, and then hammered at the two Ends, its Virtue will be destroyed by two or three small Blows on the Middle. — Either a *Magnet*, or a Piece of Iron being laid on a Piece of Cork, so as to swim freely in Water, it will be found, that which soever of the two is held in the Hand, the other will be drawn to it: In this Experiment if the *Magnet* be set afloat, it will direct its two Poles to the Poles of the World.

To account for all the above-mentioned Phænomena of the *Magnet*, according to both its *attractive* and *directive Faculty*, several Hypotheses have been invented at different Times, and by divers Philosophers, tho' none of them has been found satisfactory yet.

Cardan attributes the *directive* Faculty of the *Magnet* to the Polar Star: The University of *Conimbre*, to some Part of the Heavens, not very distant from the Pole: The common Scholasticks to an occult Quality, which God wills *should be the Subject of our Surprize, but above our Apprehension.* And the modern Philosophers, have Recourse to certain substantial Effluvia flowing from the Earth; which last Opinion is the most probable; tho' in the particular Explication of their several Opinions, a great Number of Difficulties occur, which are not very easily resolved.

Des Cartes, part. 4. *Princip.* from *num.* 123. to 183. explains the *Magnetical* Virtues by the striated or channelled Matter, which he supposes circulating round the Earth; which, he believes, proceeds from its general Hypothesis, or System of the World, I have explained in my Treatise of *Astronomy.*

Therefore, according to his Sentiment, when the Matter of the first Element passes through Lines parallel to its Axis, from the Pole of one Vortex to the Middle or Center, the triangular Spaces contained between the Globules of the second Element, it is formed into small Columns with three Channels; and turned round by the Motion of the whole Vortex, in the Manner of Necklaces. Whence *Des Cartes* observes, that those which issue out of the northern Pole are not twisted in the same Manner as those which flow from the southern Pole: Whence it happens, that those which have issued from one of the Poles of the Earth, cannot re-enter through the same Pole, but are forced by the Resistance of the ambient Air, and the continual flowing of the striated Matter near that Pole, to return by a certain Circumvolution to the opposite Pole.

Des Cartes imagines this Hypothesis very easy, and very proper to explain the Phænomena of the *Magnet.* But several Philosophers cannot believe that it is possible, that either the Necklace of the striated Matter, or the Channels or small Pipes in which they are moved, can always retain their striated Figure, without the Prominences of the Channels being wore off at last. For how is it possible, say they, that a continual Friction should not wear off the Channels: And how can the prominent Parts of the Beads be so aptly received into the striated Receptacles dug in the Channels, as never to stop in them, nor retard the Motion of the succeeding Holes; and be moved with no less Celerity, than if they were carried round their Axis with a direct Motion?

These Objections, and several others of the same Kind, have been made by the celebrated M. *Hugens*, a *Dutchman*, to propose another Hypothesis, which several have imagined preferable to that of *Des Cartes*; though subject, likewise, to several very great Inconveniencies.

Therefore he has admitted, that the Effluvia which continually flow from the Earth through Lines parallel to its Axis, penetrate one of the Poles of the *Magnet*, and running through Lines parallel to its Axis, come out at the opposite Pole: And as those Effluvia's are moved with a greater Facility, through the Meatus of the *Magnet*, than through those of the Air; they form a Vortex round the *Magnet*, in such a Manner, that they only enter it through one Pole, and come out of it at the other opposite Pole; which happens so, that the small Fibres or Threads, which are between the Meatus of the *Magnets*, not unlike those of Velvet, are depressed on one Part, by that Matter called the magnetick Effluvia, and consequently do not retard their Motion on that Part; but if by a contrary Motion the magnetical Matter was to attempt to flow from the opposite Pole of the *Magnet*, then the Fibres or Threads having reassumed their former Situation, would obstruct its Passage. Therefore in his Sentiment there are two Poles in the *Magnet*, one he calls the *Pole of Ingress*, and the other the *Pole of Egress*.

He calls the *Pole of Ingress*, that which the magnetical Effluvia enter; and the *Pole of Egress*, that which they come out at.

For while the *Magnet* was formed in the Mine, that Effluvium or *magnetical Matter*, which passes through the Earth, by Lines parallel to its Axis, from one Pole to the other, and returns by a perpetual Circumvolution, or vertical Motion from the Pole of *Egress* to that of *Ingress*; that Matter, says I, has disposed the Meatus of the *Magnet* in such a Manner, as to depress entirely the small Fibres in that Part through which it passes, as the Chaff in a Ear of Corn, is flattened in such a Manner on one Side, that it cannot be easily risen on the opposite.

Therefore those Fibres do not retard the Motion of the magnetical Matter from the Pole of *Ingress* to that of *Egress*, since they are bowed on that Part; but only opposes the *Egress* of that Matter through the same Meats, since they cannot be bowed on the opposite Part whatever Figure those Particles of the magnetical Matter may have contracted otherwise. And we are persuaded, that those Particles are greater than the subtile Matter which gives their Ponderosity to the Bodies, from that the Bodies placed in the Vortex of the *Magnet* lose nothing of their Ponderosity; therefore they are to be referred to the Matter of the third Element of *des Cartes*, and not to the Substance of the first Element.

There is one Thing in this Hypothesis, worthy our Notice, which is, that the Pole of the *Magnet*, which was the Southern Pole, while that Stone was yet in the Mine, must turn towards the northern Pole of the Earth, when dug out of the Mine. For though in this System, it does not very well appear which Pole of the Earth is to be called the Pole of *Ingress*, and which the Pole of *Egress*; it matters not, since it always succeeds in the same Manner: If notwithstanding for a greater Facility, the *Magnetical* Effluvia be conceived to enter the northern Pole of the Earth, they must likewise enter the northern Pole of the *Magnet*, turned towards that same Side of the Earth, while it is in the Mine; but as those Effluvia, which are supposed to be carried in the Center of the Earth, through Lines parallel to its Axis, from South to North, return from North to South, in the Circumference of the Earth; it is necessary that the *Magnet* dug out of the Earth, be placed in a contrary Position, to receive those Effluvia; and its southern Pole turned towards the northern Pole of the Earth, whence they flow. The same will happen if the northern Pole be considered as the Pole of *Ingress*, and the southern as the Pole of *Egress*.

This is the Hypothesis of M. *Hugens*, which though to be esteemed for its Simplicity, is notwithstanding attended with a great many Difficulties. For 1. It is uncertain in it which is the Pole of *Ingress*, and which the Pole of *Egress*, either in the Earth or in the *Magnet*; without which it is very difficult to establish it on a right Foundation,

dation, and to understand it well. 2. It is more probable, that the *magnetical* Matter enters, as it comes out, at both Poles without Distinction; since it seems to flow from the æthereal Matter. 3. It is more difficult to conceive in that Hypothesis, than in that of *Des Cartes*, why two *Magnets*, which turn their Poles of Ingress towards one another, recede into opposite Parts, *&c.*

For the *directive Virtue* of the *Magnet*, Mr. *Whiston* from the first, second, third, *&c.* Laws of *Magnetism*, inclines to think it mechanical; and ascribes it to *Magnetick* Effluvia, circulating continually round the *Load-Stone*; of which Circulations he thinks there are evident Indications in *Magnetick* Experiments; as M. *Boyle* thinks there are of the *Magnetism*, or *Magnetick* Effluvia of the Earth; though those Effluvia were never yet rendered sensible, as electrice Effluvia begin to be.

Note, That the Laws of *Magnetism*, from which Mr. *Whiston* deduces the *directive Power* of the *Magnet*, are as follows.

1. He supposes that the Load-stone has both an *attractive* and *directive Power* united together; whereas Iron touched by it has only the former, *i. e.* the *Magnet* not only attracts Needles or Filings of Steel, but directs them to certain different Angles, with Respect to its own Surface and Axis: Whereas Iron touched with it, does little or nothing more than attract them; still suffering them to lie along or stand perpendicular to its Surface and Edges in all Places, without any such special Direction.

2. That neither the strongest nor the large *Magnet*, give a better directive Touch to Needles, than those of a lesser Size or Virtue; to which it may be added, that whereas there are two Qualities in all *Magnets*, an *attractive* and a *directive* one; neither of them depend on, or are any Argument of the Strength of the other.

3. That the *attractive Power* of *Magnets*, and of Iron, will greatly increase or diminish the Weight of Needles on the Ballance: Nay, will overcome that Weight, and sustain other additional Weight too. While the *directive Power* has much smaller Effect. That *Gassendi* indeed, as well as *Mersenus* and Dr. *Gilbert*, maintain it has not at all, but by Mistake; for Mr. *Whiston* found from repeated Trials on large Needles, that after the Touch they weighed less than before. One of $4584\frac{1}{8}$ Grains, lost $2\frac{5}{8}$ Grains by the Touch; and another of 65726 Grains Weight, no less than 14 Grains.

4. That the Quantity and Direction of *Magnetick Powers* communicated to Needles, is not properly after such Communication, owing to the *Magnet* which gave the Touch; but to the Goodness of the Steel which receives it, and to the Strength and Position of the terrestial *Load-Stone*, whose Influence alone those Needles are afterwards subject to, and directed by: So that all such Needles, if good, move with the same Strength, and point to the same Angle; what Load-stone soever (provided it be good) they were excited by. Nor does the Touch seem to do much more in *Magnetical*, than Attrition in electrical Cases, *i. e.* it serves to rub off some obstructing Particles, that adhere to the Surface of the Steel, and open the Pores of the Bodies touched, and so make Way for the Entrance and Exit of such Effluvia, as occasions or assists the Power we are speaking of. Hence Mr. *Whiston* takes occasion to observe, that the *directive Power* of the Load-stone, seems to be mechanical; and to be derived, as already mentioned, from *Magnetick* Effluvia, circulating continually round it.

But let it be how it will of those different Systems, with Regard to the *directive Faculty* of the *Magnet*, that of *Hugens* is, in my Opinion, preferable to all the rest, whereby I'll endeavour to explain the *directive Faculty* of the *Magnet*, and all its other Properties; by which Explication the Hypothesis of *Des Cartes* will be explained likewise; therefore,

The *directive Faculty* of the *Magnet* must be taken from the substantial Effluvia entring, by a perpetual Circulation, one Pole of the Earth, and coming out at the other; since by those substantial Effluvia, entring by a perpetual Circulation, one Pole of the Earth and coming out at the other, the Direction of the *Magnet* towards the Poles of the Earth is rightly understood; those *Effluvia* being again moved through the same Meatus they had formed to themselves in the Mine. And this is confirmed not only by the Phænomena of the *Magnet* itself, but likewise by those of the Iron, the Nature whereof is much like that of the *Magnet*.

For, 1. Iron Rods which have been a long Time fixed on the Earth in a perpendicular Manner (as we have observed when we spoke of the Phænomena of the *Magnet*) acquire a *Magnetick* Virtue, whereby they direct themselves towards the Poles of the World. When any Iron Bar standing, for a considerable Time, perpendicularly in the Fire, has a *Magnetick* Power; and when applied to the Needle of a Sea-compass, attracts it to itself, on one Part, and repulses it on the other, as it happens in the *Magnet*; which cannot be understood unless by the substantial Effluvia, which flowing from the Earth incline the small Fibres of the Iron on that Part, towards which they are moved. For that Power is easier communicated to a hot Iron, and a little softened, than when it is cold and hard.

2. We can be persuaded that the *Magnet* borrows its *attractive Faculty* from the Earth, by the *Inclination of the Needle of a Sea Compass*. For if the Needle, which is placed in an Equilibrium in the Box of the Compass, be touched by the *Magnet*, presently the Part thereof, directed towards the North, beyond the Equinoctial Circle, in the northern Climates is depressed, and the opposite Part raised; because the Rays of the *Magnetick* Matter flowing from the Earth, and penetrating the Needle at its northern Part or Pole, are bowed archwise, as they are seen towards the Poles *a*, *b*, fig. 3. whence they force that Part to descend a little, therefore the Mariners commonly affix Wax to the other Part, to keep the Needle on a Level.

But if the same Mariners come under the Equator, where the Rays of the *Magnetick* Matter are carried in an almost direct Line, as it can be seen towards the Middle of the *Magnet*, *a*, *b*, fig. 3. the Wax must be taken off, and both Parts of the Needle will mutually keep one another in an Equilibrium. Lastly, if they pass beyond the Equator, the southern Part of the same Needle, which before tended upwards, will begin to incline downwards, or be depressed, and the Wax shall be affixed to the other Part; from which Experiment it is very well inferred, that the *directive Power* of the *Magnet* is to be attributed to the Effluvia flowing from the Earth.

3. The *Magnet* not only adapts itself to the Situation of the Earth, but must also be conceived as a certain *Terella*, or small Earth, having its Poles, Equator, and Meridians, according to Dr. *Gilbert*'s Sentiment. For it has its Vortex or Atmosphere, which the farther it goes the weaker it is; which Vortex appears manifestly in Iron-filings, strewed round the *Magnet*; for those Filings are soon seen to dispose themselves in the Form of an Orb, from one Pole to the other, *viz.* from the Pole *a*, southern, to the Pole *b*, northern, fig. 3.

But as the *Magnetick* Substance enters through one Pole of the *Magnet*, and comes out at the other Pole; if the northern, or Pole of Ingress of one *Magnet*, be turn'd towards the southern or Pole of Egress of another *Magnet*; the Matter which flows from the one, will easily enter the other; whence the Iron-filings between both will be directed in right Lines, *v. gr.* if the Pole *a*, or southern of one *Magnet*, fig. 4. be turned towards the Pole *b*, northern of another *Magnet*, the Iron-filings thrown between both, will be soon directed in right Lines, and to form one and the same Vortex, around both *Magnets*.

But if the two Poles, which mutually regard one another, are both Poles of Ingress or Poles of Egress, or both northern or southern, fig. 5. then the *Magnetick* Effluvia will form two Vortices, and remove one *Magnet* from the other.

Hence it happens, that the *Magnet* put in a Silver or other Vessel, which is not Iron or Steel, and set afloating on Water, if it inclines towards the northern Pole, and the southern Pole of another *Magnet* be applied to it, it presently will draw near it. For as the Matter which flows from one, can then easily enter the other; it will fill up the Space between both, in such a Manner,

Manner, as to expel almost all the Air from it, either course or subtile. Whence that Air, taking the *Magnet* backward, will force the one on the other, like the Water contained in a Syringe, is forced upwards by the Compression of the Air.

I say that the Air, either coarse or subtil, flowing between both *Magnets*, is expelled by the *Magnetick* Matter, and ranges itself on the Backside of the *Magnet*; for in the Pneumatick Machine, when the coarse Air has been pumped out, Iron is again joined to the *Magnet*, which is not to be attributed to the coarse Air alone, but likewise to the subtile Matter.

If the Poles of the *Magnet*, which mutually turn towards one another, be both Poles of Ingress, or both Poles of Egress; or both northern Poles, or both southern Poles, then the magnetick Matter will remove one *Magnet* from the other; for it forms two Vortices.

But if the Hypothesis of *Des Cartes* pleases best, it will be said, that the magnetick Globules which flow from the northern Pole, either of the Earth, or of the *Magnet*, cannot return through the same Poles, for the Reason heretofore given, but must necessarily return through the southern Pole; and *vice versâ*. For it happens hence, that if the cognominal Poles be turned towards one another, *viz.* the Southern towards the Southern, or the Northern towards the Northern, the Globules which have flowed from the Pole of one *Magnet*, cannot pass the Pole of the other *Magnet*, nor *vicissim*. Therefore both *Magnets* will be repelled into opposite Parts. But if Poles of different Appellations regard one another, then the Globules, which have sallied out of the northern Pole of the one, will enter the southern Pole of the other; and *vicissim*. And thus will expel the Air contained between both *Magnets*; which, by a Sort of Circumvolution, gaining the back of one and the other *Magnet*, will join them both.

From these and the like Experiments it is easily inferred, that the directive Power of the *Magnet*, whereby it turns itself towards the two Poles of the World, is to be deduced from the substantial Effluvia flowing continually from the Earth, and not from an imaginary Quality, or from celestial Influences.

It may be objected, that if the Direction of the *Magnet* should proceed from certain substantial Effluvias, the Needle of a Sea-Compass, should always be directed towards the Poles of the World; which it does not always, since in several Places it declines from it; therefore, *&c.*

To this I answer, that the Needle should always be directed towards the Poles of the World, so as to not decline much from them; but not so as to not at all decline from them. Therefore the *Magnet* is said to be directed towards the Poles of the World, because if it does not always indicate them precisely, it notwithstanding does not recede much from it, which Recess from the Pole is called the *Declension of the Magnet*, and therefore the *Magnet* declines from the Pole, because the Ducts or Pores of the interior Earth, through which the magnetical Matter flows, are not precisely directed from North to South, but decline a little from the Poles; therefore the *Magnet* follows the same Direction, and receives a little from the Poles.

It is objected secondly, that if the magnetick Effluvia flowed from the Earth, the *Declension of the Magnet* should not change, as it often changes in the same Place. For at *Paris*, towards the Middle of the seventeenth Century, the Needle of a Sea-Compass, declined five or six Degrees towards the East: And in the Year 1684, declined 4 Degrees 10 Minutes towards the West, and was observed afterwards to decline only 3 Degrees towards the West.

I answer, that several various Mutations may happen in the subterraneous Places, *viz.* new Mines of Iron may be generated, whereby the magnetick Effluvia within the Earth are put out of their right Way, from the Pole of Ingress to the Pole of Egress, and consequently in the Air from the Pole of Ingress to that of Egress; as *Des Cartes* observes, *quart. part. princip. art.* 168. For those Effluvias are easier moved through Iron Veins than through the other Parts of the Earth. Hence the Needle of a Sea-Compass, by approaching Iron or the *Magnet* near it, declines towards the Iron or the *Magnet*: Therefore it seems to be a Certainty, that the Power whereby the *Magnet* is turned towards the Poles, or towards the Parts nearer them, flow from the Earth near its Poles. Hence it is, that the Sea-Compass is of no Use in those Places nearer the Poles, because the magnetick Effluvia, which flow from the Pole of the Earth in an almost perpendicular Manner, do not direct the nautical Needle, more towards one Part of the Horizon than towards the other.

I'll explain the other Power of the *Magnet*, called attractive Power, whereby it attracts another *Magnet* or Iron in few Words. For we have shewn already the Reason why it attracts another *Magnet*, viz. when the Poles of a different Appellation are turned mutually towards one another, and the magnetick Matter flowing from one Pole continues its Motion through the Pole of the other, and occupies the Space between both *Magnets*; the Air expelled from that Place ranges itself backwards, and pushes the mobile *Magnet* towards the immobile one.

Very near the same Thing happens to Iron, with this Difference, that a *Magnet* attracts at one Part another *Magnet*, and expells it at the other; but attracts Iron at both Parts or Ends: Which Difference having not been observed by the Antients, they imagined that there were two Bodies, one whereof attracted Iron, which they called *Magnet*, and the other repelled it, which they called *Theamedes*. But though a *Magnet* at one Side attracts another *Magnet* to itself, and expells it at the other, it notwithstanding attracts Iron at both Ends.

The Reason of this Difference seems to consist, in that the small Fibres of the Iron are softer than those of the *Magnet*, and therefore the Poles of Ingress and Egress are easily changed in the Iron, but not in the *Magnet*, whose Fibres are harder, and where they are bowed in one Part, they cannot be easily brought over the other, unless the *Magnet* be weak or softened by Fire.

Therefore Iron runs to the *Magnet*, when the magnetick Matter, *viz.* that emitted from the *Magnet*, runs through it, and forces the Air, both coarse and subtil, contained between the Iron and the *Magnet*, to the Sides. Then the Air environing the Iron and *Magnet*, forces either the Iron towards the *Magnet*, or the *Magnet* towards the Iron: Therefore neither the *Magnet* attracts properly the Iron, nor the Iron the *Magnet*, but both are impelled mutually on one another. Therefore,

Iron is less judiciously said to be attracted by the *Magnet*, than impelled on it; since they are forced towards one another by the Impression of the Air; *viz.* when the Air, either coarse or subtil, which occupies the Space between the Iron and *Magnet*, is expelled by the magnetick Substance, and by a certain Circumvolution ranges itself at the Back of the *Magnet* and Iron, and forces them towards one another, as already observed.

Besides, we have no clear and distinct Idea of Attraction, unless it be joined with Impulsion: *v. g.* When a Horse draws a Cart, it is compelled to it by the Harness which is on his Back. Likewise, when we are said to draw something with our Arm, the animal Spirits which circulate thro' the Nerves, distending the Muscles, moves the Arm by a true Impulsion. In a Word, there seems to be no Attraction in Nature, but according to a common Opinion; therefore it is better to explain the Conjunction of the Iron with the *Magnet*, by some Impulsion, than by Attraction.

It may be objected, that it is not possible that the Air expelled by the magnetick Substance, should have Strength enough to join the Iron, or *Magnet*, to another *Magnet*.

I answer, that the Air expelled from the Space which was between the *Magnet* and the Iron, or between both *Magnets*, takes off the Equilibrium of the whole Volume of Air: Whence the Compression thereof becomes unequal towards the Iron or *Magnet*, and therefore where the Pression is less, there the *Magnet* or Iron is moved.

It is objected, secondly, that if the Iron runs to the *Magnet*, because moved by the Impulsion of the Air; no Reason can be assigned why the *Magnet*, armed at both Poles with Steel, draws up a Weight ten Times bigger

bigger than before; for it cannot be ſaid, that thus armed, a greater Quantity of Effluvia flows from it.

I anſwer this in the Negative; for when the *Magnet* is armed at both Poles with poliſhed Steel, as *fig.* 2. then the magnetick Effluvia flow with a greater Facility towards the Pole, *v. g.* the northern A, through the Steel between A and *a*, than through the Air. Likewiſe on the other Part, it is eaſier moved between B and *b*, than in the Air; and therefore form a Vortex, whereby Iron-Rings, diſpoſed in a Semi-circle, are ſuſpended. Whence, if in Lieu of Rings a Piece of Iron be applied to the two Extremities of the Steel, *viz.* *a* and *b*, that Iron will be ſuſtained by the Force of both Poles; whereas if it was not armed, it would only be ſuſtained by one, *viz.* either the Northern or Southern: Wherefore the magnetick Virtue acquires a conſiderable Increaſe by the *Magnet* being armed. But if the Steel wherewith the *Magnet* is armed be ruſty, ſo as to hinder the magnetick Matter moving thro' it with Eaſe, then the magnetick Virtue acquires but little Increaſe. When a Piece of Paper is put between the Armature, and the Iron which is to be attracted, the Paper hinders the *Magnet* from having more Virtue than if it was not armed; becauſe it does not touch the Iron with more Parts than if it was not armed.

Hence it appears, why Iron ſuſpended in the Air between two *Magnets*, one whereof is ſtronger than the other, adheres ſometimes more to the weaker than to the ſtronger; becauſe it happens then, that it touches the weaker with more Parts than the ſtronger.

The *Magnet* has a third Virtue, called *communicative*; whereby it indues the Steel or Iron it touches with its Virtue or Power: So that the Iron or Steel directs itſelf towards the Poles of the Earth, and attracts another Iron: Which Virtue is likewiſe to be deduced from the magnetick Effluvia.

By Means of the ſame Effluvia, can be explained the magnetick Virtues of the Ember or Succinum, Wax, Glaſs, *&c.*

MAHOMETANISM.

MAHOMETANISM, or MAHOMETISM, is the Syſtem of Religion broached by *Mahomet*, and ſtill adhered to by his Followers.

The Impoſtor *Mahomet*, Inventor of *Mahometaniſm*, and from whom it borrows its Name, was born in *Arabia Felix*, and his firſt Employment was that of Groom of a Stable. He had neither Wit nor Knowledge, not ſo much as to know how to read or write. He enter'd into the Service of a Widow extremely rich, and had Craft enough to engage her to marry him, after he had debauched her. During this Marriage he was ſubject to epileptick Fits, that were very violent, which his Wife ſupported with much Impatience. But to appeaſe her, he made her believe that the Angel *Gabriel* appeared often to him, and that his Preſence cauſed thoſe Convulſions. There was a deteſtable Monk called *Sergius*, who had been expell'd from his Monaſtery, becauſe he profeſſed *Arianiſm*. This Woman communicated to him what *Mahomet* had told her, and the Wretch confirm'd her in the Belief of that Apparition; aſſuring her, that *Mahomet* was a Prophet. She told this to her Female Neighbours, who told it to their Huſbands; and thus in a very ſhort Time it was rumoured abroad that *Mahomet* had Communication with the Angel *Gabriel*. This finding that his Impoſture had gained a Belief among the Populace, invented new Dreams, which he ſaid were revealed to him by his Angel.

Among other Things, he publiſhed a Book under his Name, which *Sergius* compoſed full of Follies, which notwithſtanding he pretended he had received from Heaven; and which he diſperſed among the Inhabitants of the Country, who were Fools enough to add Faith to it. The *Jews* ſeeing that he taught and practiſed Circumciſion, were the firſt that joined with him; but having diſcover'd that he did eat Meats, reputed unclean in their Laws, they were undeceived, and forſook him; notwithſtanding which, they continued to animate and encourage him againſt the Chriſtians.

At laſt, to engage all Men, if he could, to embrace his Sect, he compoſed, or rather the Monk *Sergius* for him, his new pretended Religion, from all other Religions which had Courſe in the World; and borrowed from that of the *Jews*, the Doctrine of one only God, Abſtinence from Swines Fleſh, and Polygamy. To deceive the Chriſtians, he ſpoke honourably of *Jeſus Chriſt*; teaching, that he was the Son of a Virgin, and a great Prophet; as alſo the Word of God, but inferior to God and his Servant, in which he agreed with the *Arians*: That the *Jews* thought they had crucified him, but had only crucified his Shadow, that he had fled from their Hands, and aſcended into Heaven; where God having aſked him, if he had called himſelf his Son? he declared to him, that he had never pronounced ſuch an Impiety.—He ordered a Sort of Lent, and recommended much the Uſe of Prayer and Alms.—He taught with the Pagans, the unavoidable Neceſſity of Fate, which ſerved to render his Partiſans intrepid in the greateſt Dangers; as being perſuaded, that if they were to be killed in a Battle, it was not in their Power to avoid Death; and if they were to eſcape, nothing was capable to kill them.—He promiſed to thoſe who ſhould embrace his Law, a Paradiſe entirely carnal, full of Women, perfectly handſome, and who were to be always Virgins, and likewiſe of handſome Boys, to gratify their Brutality, and where they ſhould be continually feaſted.—He mixed alſo with thoſe Dreams, and Impieties, a Kind of Worſhip for the Moon, to gain the Favour of the Gentiles.

Therefore the firſt Article of the *Mahometan Creed*, is, *that there is no other God but God*; which they have from the *Alcoran*, where theſe Words are inceſſantly repeated: *There is no other God but him. Your God is the only God. I am God, and there is no other God but me.*—This grand Axiom of their Theology, ſeems to have been taken from the *Jews*, who were continually rehearſing thoſe Words in *Deuteronomy*, *Hear, O Iſrael, the Lord our God is one.*

For this Reaſon the *Mahometans* account all ſuch as own any thing of Number in the Divinity, to be Infidels, or Idolaters: And accordingly one of the firſt Leſſons they teach their Children, is, that God is neither Male nor Female, and conſequently can have no Children.

The *ſecond Article*, is, that *Mahomet was ſent from God*, by which they exclude all other Religions, under Pretence, that their Prophet was the laſt and greateſt of all the Prophets that God would ever ſend; and that as the *Jewiſh* Religion ceaſed with the Coming of the *Meſſiah*, ſo likewiſe the Chriſtian Religion was to be abrogated with the Coming of *Mahomet*.

Theſe are the two Fundamentals of *Mahometaniſm*; ſo that when any is to make Profeſſion of that Faith, they content themſelves with their rehearſing theſe Words, *There is no other God but God, and Mahomet is his Envoy or Prophet.*

To theſe Articles the *Mahometans* have added that of Bathing or Purification, in Imitation of the *Jews*. And ſuch an Opinion have they of theſe Purifications, that it is purely on that Account they ſeem to have retained the Practice of Circumciſion. For they pretend with the *Jews*, that if the leaſt Part of the Body remained unwaſhed, the Bathing is of no Effect. Hence they find themſelves under a Neceſſity of being circumciſed; that the Part covered by the Prepuce, may alſo have its Share in the Lotion.

As to Prayer they perform it five Times a Day, to diſtinguiſh themſelves from the *Jews*, who only do it thrice. Some of their Periods or Hours of Prayer they hold to be neceſſary, and of divine Obligation, others they eſteem convenient and prudential: That at nine o'Clock

o'Clock in the Morning they do not esteem necessary; but those at Noon and in the Afternoon are held to be *Jure Divino*. They are obliged to observe an Infinity of Things in order to be heard. If they speak or smile in praying, their Prayers are vain: And it is the same Thing if they weep, unless it be with the Thought of Paradise or Hell: In many Prayers they use Beads.

The *Mahometans* believe with the Christians and *Jews*, the Resurrection of the Dead. They hold that ere that Time an *Anti-Mahomet* will come; and that *Jesus Christ* will descend from Heaven to kill him, and establish *Mahometanism*: To which they add a great many more Chimeras relating to *Gog* and *Magog*, and the Beast that is to come out of *Mecca*. The Mountains are to fly in the Air like Birds, and at last the Heavens will melt and drop down upon the Earth. They add however, that some Time after God will renew and re-establish the Earth, that then the Dead will be raised.

As to their *Fasting*, they are so scrupulous on that Point, that they will not so much as take the Smell of any Perfume by the Nose: They hold, that Odors themselves break *Fast*; if they bathe it is forbid to put the Head under Water for Fear of swallowing any of it; and as for Women they are forbid to bathe at all on Fast-Days, for a Reason peculiar to the Sex. Their great Fast or Lent is called *Ramazan* or *Ramadan*, during which they fast all Day and feast all Night.

The *Turks* are commonly very charitable, from the Prince to the meanest of the Subjects. The Grand Seignior seldom undertakes any Project of Consequence, before he has made his *Corban*, which is a Slaughter of a great Number of Sheep, which is afterwards distributed to the Poor, hoping by those Alms to render Heaven propitious to his Enterprize. The Grand Vizier, and all the other Officers of the Empire, most commonly follow on such Occasions, in Proportion to their Abilities the Sultan's Example.

All the Revelations, Doctrine, and Prophecies of the pretended *Mahomet*, are contained in the Book called *Alcoran*, in a very confuse and undigested Manner.

The Word *Alcoran* is Arabick, and literally denotes either Reading or Collection; but it is in the first of these Senses that the *Alcoran* of *Mahomet* seems best understood: *Mahomet* purposing to have his Book called *Reading*, by way of Eminence, in Imitation of the *Jews* and Christians, who call the New and Old Testament *Writing*, *Scripture*, on the same Account.

The *Turks* also call it *Alforkan*, from the Verb פרק *Pharaka*, to divide or distinguish; either by reason it makes the Distinction between what is true and false, or between what is lawful to do and what not; or else on Account of its containing the Division or Heads of the Law; in which again they imitate the *Hebrews*, who give divers Books the like Name פרקים *Perakim*, q. d. *Capita*, *Capitula*, Chapters, Heads.—Lastly, the *Alcoran*, is also denominated *Aldhichr*, Advertisement or Remembrance, as serving to retain or retrieve the Knowledge of the Law.

I have already observed, that it is the common Opinion among the Christians, that the abominable Monk *Sergius* composed this infamous Book for *Mahomet*, but the *Mahometans* believe it as an Article of their Faith, that the Prophet, who, they say, was an illiterate Man, had no Hand in it, but that it was given him by God, who to that End made use of the Ministry of the Angel *Gabriel*; that however it was communicated to him by little and little, a Verse at a Time, and in different Places, during the Course of 23 Years. And 'hence, 'say they, proceeds that Disorder and Confusion visible 'in the Work'. Which in Truth is so great, that all their Doctors (if illiterate Fellows can be called by that Name) have never been able to adjust it. For *Mahomet*, or rather his Copist, having put all these loose Verses promiscuously in a Book together, it was impossible ever to retrieve the Order wherein they were delivered.

Those 23 Years which the Angel employed in conveying the *Alcoran* to *Mahomet*, are of wonderful Service to his Followers, inasmuch as they furnish them with an Answer to such as tax them with those glaring Contradictions wherewith the Book is full: Those Contradictions they piously father upon God himself, alledging, that in the Course of so long Time, he repealed and altered several Doctrines and Precepts, which the Prophet had before received of him.

M. *d'Herbelot* thinks it probable, that when the Heresies of the *Nestorians*, *Eutychians*, &c. had been condemned by Œcumenical Councils, many Bishops, Priests, Monks, *&c.* being driven into the Desarts of *Arabia* and *Egypt*, furnished the Impostor with Passages, and crude ill-conceived Doctrines of the Scriptures: And it was hence that the *Alcoran* became so full of the wild and erroneous Opinions of those Hereticks.

The *Jews* also, who were very numerous in *Arabia*, contributed their Quota to the *Alcoran*; nor is it without some Reason that they boast, twelve of their chief Doctors, to have been the Authors of this detestable Work.

The *Alcoran*, it is to be observed, while *Mahomet* lived, was kept in loose Sheets: His Successor *Abubeker*, first collected them into a Volume, and committed the Keeping thereof to *Haphsa*, the Widow of *Mahomet*, in order to be consulted as an Original. And there being a good deal of Diversity between the several Copies already dispersed throughout the Provinces: *Ottoman*, Successor of *Abubeker*, procured a great Number of Copies to be taken from that of *Haphsa*; at the same Time suppressing all the others not conformable thereto.

The chief Differences then, in the Copies of this Book, consist in the Points; which were not in Use in the Time of *Mahomet* and his immediate Successors, but were added since, to ascertain the Reading; after the Example of the *Massoretes*, who put the like Points to the *Hebrew* Text of the Scripture.

The Work is divided into *Suras* or Chapters, and the *Suras* sub-divided into little Verses, which are all composed in a broken interrupted Style, resembling Prose rather than Verse. The Division into *Suras* is but of late standing: The usual Number of them is sixty.

There are seven principal Editions of the *Alcoran*, two at *Medina*, one at *Mecca*, one at *Coufa*, one at *Bassora*, one in *Syria*, and the common Edition. The first contains 6000 Verses, the others surpassing this Number by 200, or 236 Verses; but the Number of Words and Letters is the same in all, *viz.* 77,639 Words, and 323015 Letters.

The Number of Commentaries on the *Alcoran* is so large, that only the bare Titles would make a large Volume.—*Ben Oschair* has wrote the History thereof, intitled, *Tarikh Ben Oschair*: The principal among them are *Reidhaori*, *Thaalebi*, *Zamelchschari*, and *Bacai*.

Besides the *Alcoran*, which is the Basis of the *Mahometan* Faith, they have also a Book containing their Traditions, which they call *Sonna*; which Word signifies, in *Arabick*, the same with *Mishna* in the *Hebrew*; that is second Law, or as the *Jews* call it *Oral Law*.

The Adherents to the *Sonna* are called *Sonnites*; and as among the *Jews* there is a Sect of *Caraites*, who reject the Traditions as Fables invented by the *Rabbins*; there are also Sectaries among the *Mahometans*, called *Shiites*, who reject the Traditions of the *Sonnites*; as being only founded on the Authority of an Apochryphal Book, and not derived to them from their Legislator.

There is the same Enmity between the *Sonnites* and *Shiites*, as between the *Rabbinists*, *Jews*, and the *Caraites*. The *Shiites* reproach the *Sonnites*, with obtruding the Dreams of their Doctors for the Word of God; and the *Sonnites* in their Turn treat the *Shiites* as Hereticks, who refuse to admit the divine Precepts, have corrupted the *Alcoran*, &c.

The *Mahometans* have a positive Theology, built on the *Alcoran* and Tradition, as well as a scholastical one built on Reason. They have likewise their Casuists, and a Kind of Canon Law, wherein they distinguish between what is of divine, and what is of positive Right.

The sovereign Interpreter of the Alcoran, and Chief or Patriarch of the *Mahometan* Religion, is called *Muphti*, or *Mufti*; he decides all Questions of the Law, takes Place of the Bashaws, and his Authority is often terrible to the Grand Signior himself; whom he can call to an Account by his Fetfa's or Bulls, and even depose of his own Authority. For as the *Turks*, as well as some other Nations, want sometimes to cover their Rebellion with the

the Cloak of Religion, they have Recourse to the *Muphti's* holy Craft to give a Sanction to it; who, according to the Levitical Genius, seldom refuses to have a Hand in so GOOD A CAUSE. The unhappy *Ibrahim*, was deposed and murder'd, by the Authority of the *Muphti*, and by a Principle of Religion, much about the Time, that excellent Prince, the unhappy *Charles* I. was murder'd in *England*, by the same Principle of Religion. From these Sorts of Religions, *Good Lord deliver us.*

It is the *Muphti* that girds on the Sword to the Grand Signior's Side, which Ceremony answers to the Coronation of our Kings.

The *Mahometans* have also their Beneficiaries, Chaplains, Almoners, and Canons, who read a Chapter every Day out of the Alcoran in the Mosques, and have Prebends for so doing. The *Hatil* of the Mosque, is what we call the Parson of the Parish; and the *Sheics* are the Preachers who take their Text out of the Alcoran.

They have several Orders of Monks too, particularly *Dervises* or *Dervishes*, who lead a very austere Life, and profess extream Poverty; though allowed to marry. The *Dervises* are also called *Mevelavises*, from their Chief or Founder, one *Mevelava*. Their chief Monastery is that near *Coigni* in *Natolia*; where their General makes his Residence; and where the Assemblies of the Order are held: The other Houses being all dependent of this; by a Privilege granted to this Monastery under *Ottoman* I.

The *Dervises* affect a World of Modesty, Patience, Humility, and Charity. They always go bare-legged, and open-breasted, and frequently burn themselves with hot Iron, to inure themselves to Patience. They always fast on *Wednesdays*, eating nothing on those Days till after Sun-set. *Tuesdays* and *Fridays* they hold Meetings, at which the Superior of the House presides. One of them plays all the while on a Flute, and the rest dance, turning their Bodies round with the greatest Swiftness imaginable. Long Custom to this Exercise from their Youth, has brought them to such a Pass, that it does not maze, or discompose them at all. This Practice they observe with great Strictness, in Memory of *Mevelava* their Patriarch's turning miraculously round, for the Space of four Days, without any Food or Refreshment; his Companion *Hamsa* playing all the while on the Flute: After which he fell into an Extasy, and therein received wonderful Revelations for the Establishment of his Order. They believe the Flute an Instrument consecrated by *Jacob*, and the Shepherds of the Old Testament; by Reason they sang the Praises of God thereon. They profess Poverty, Chastity, and Obedience; and really observe them while they remain *Dervises*; but if they chuse to go out and marry, they are always allowed.

The Generality of *Dervises* are rank Charletans; some apply themselves to Legerdemain, Postures, *&c.* to amuse the People; others give into Sorcery and Magick: But all of them, contrary to *Mahomet*'s Precept, are said to drink Wine, Brandy, and other fuddling Liquors, to give them the Degree of Gaiety their Order requires.

Besides their great Saint *Marvelava*, there are some particular Saints honoured in some particular Monasteries; as *Kederle*, greatly revered in the Monasteries of *Egypt*, and held by some to be St. *George*, and by others, with more Probability, the Prophet *Elias*.

The *Dervises* are great Travellers; and under Pretence of preaching and propagating their Faith, are continually passing from one Place to another; on which Account, they have been frequently used as Spies.

There are also *Dervises* in *Persia*, called in that Country *Abdal*, q. d. Servants of God. They lead a very penurious, austere Life, and preach the *Alcoran* in the Streets, Coffee-Houses, and where they can meet with Auditors. The Persian *Dervises* relate little but Fables to the People, and are in the last Contempt among Men of Wit and Letters.

There are other Religious called *Cadrites*, whose Founder was *Abdul Cadri*, a great Philosopher and Lawyer; whence they have their Name *Cadrites*.

They live in common, and in a Kind of Monastery; which however they are allowed to quit, if they request it, and to marry; on Condition of their wearing black Buttons on their Garments, to distinguish them from the rest of the People.

In their Monasteries, each *Friday* they pass the greatest Part of the Night in running round, holding each other's Hand, and crying incessantly *Hhai*, Living, one of the Names of God; one of their Number plays all the Time on a Flute, to animate them in this extravagant Dance.

The Temples which the *Mahometans* set apart for the Exercise of their Religion, are called *Mosques* (from the Turkish *Mesged* or *Meschit*, which properly signifies a Temple built of Wood, such as the *Turks* first used.)

There are royal Mosques founded by the Emperor, as the *Solimania* and *Uclidea*, at *Constantinople*; and private Mosques founded by Muphties, Vizirs, Bashaws, *&c.*

Mosques are built like large Halls, with Isles, Galleries, and Domes, and are adorned on the Inside with Compartiments, and Pieces of Arabesque Work. On one Side is always found a Pool with several Cocks; and on the Top is placed a Crescent.

The *Turks* have converted most of the Christian Churches into Mosques, as the celebrated Temple of St. *Sophia*, at *Constantinople*, &c.

The *Mahometans* distinguish themselves by the Title of *Mussulmen*, which in the *Turkish* Language signifies *true Believers*, or *Orthodox*.

The Appellation was first given to the *Saracens*, as is observed by *Leunclavius*. There are two Kinds of *Mussulmen*, very averse to each other, and whom we have already mentioned, *viz.* the *Sennonites* and the *Shiites*. The *Sennonites* follow the Interpretations of the Alcoran given by *Omer*. The *Shiites* are the Followers of *Ali*. The Subjects of the King of *Persia* are *Shiites*, and those of the Grand Signior *Sonnites*.

Some Authors will have it that the Word *Mussulman* signifies *saved*, that is, *predestinated*; and that the *Mahometans* give themselves the Appellation, as believing they are all predestinated to Salvation. *Martinius* is more particular to the Origin of the Name, which he derives from the *Arabick* מסלם, *Musalam*, saved, snatched out of Danger: The *Mahometans*, he observes, establishing their Religion by Fire and Sword, massacred all those who would not embrace it, and granted Life to all that did, calling them *Mussulmen*, q. d. *erepti e periculo*, whence the Word in Course of Time, became the distinguishing Title of all those of that Sect, who have affixed to it the Signification of *true Believer*.

Notwithstanding this barbarous Zeal for propagating their Religion, the *Mahometans* are most commonly very charitable, particularly those who are right *Mussulmen*, or religious Observers of the Alcoran. A Mark of their extensive Charity and Hospitality, is their building *Caravansera's*, which are large publick Buildings, or Inns destined to receive and lodge Travellers.

Of these *Caravansera's*, or, as *Chardin* calls them, *Caravansarai*, there are a great Number throughout the East, erected out of the Charity and Magnificence of Princes, *&c.* of the several Countries.

Those of *Schiras* and *Casbia* in *Persia*, are said to have cost 60,000 Crowns each. They are open to People of all Religions and Countries, without any Questions asked, or any Money requir'd.

The *Caravanserai*, are usually huge square Buildings, with a spacious Court in the Middle thereof. They are encompassed with Galleries and Arches, under which runs a Kind of Banquette, or Elevation some Feet high, where Travellers rest themselves, and make their Lodgings as well as they can; their Baggage and the Beasts that carry them, being fasten'd at the Foot of the Banquette. Over the Gate there are frequently a Sort of little Chambers; which the *Caravanseraskier* lets outs at a very dear Rate, to such as have a Mind to be to themselves.

Though the *Caravansera's* serve in lieu of Inns, yet there is this essential Difference between them and our Inns, that the Traveller finds nothing at all in the *Caravansera*, neither for himself nor his Cattle; but must carry all his Provisions and Necessaries with him. They are chiefly built in dry, barren, desart Places; and are generally furnished with Water from a great Distance, and at a vast Expence; there being no *Caravansera* without its Well of Water. There are several of them in Cities, where they serve not only as Inns, but as Shops, Warehouses, and even Exchanges.

There are few Cities in the East without their *Caravansera's*

o'Clock in the Morning they do not esteem necessary; but those at Noon and in the Afternoon are held to be *Jure Divino*. They are obliged to observe an Infinity of Things in order to be heard. If they speak or smile in praying, their Prayers are vain: And it is the same Thing if they weep, unless it be with the Thought of Paradise or Hell: In many Prayers they use Beads.

The *Mahometans* believe with the Christians and *Jews*, the Resurrection of the Dead. They hold that ere that Time an *Anti-Mahomet* will come; and that *Jesus Christ* will descend from Heaven to kill him, and establish *Mahometanism*: To which they add a great many more Chimeras relating to *Gog* and *Magog*, and the Beast that is to come out of *Mecca*. The Mountains are to fly in the Air like Birds, and at last the Heavens will melt and drop down upon the Earth. They add however, that some Time after God will renew and re-establish the Earth, that then the Dead will be raised.

As to their *Fasting*, they are so scrupulous on that Point, that they will not so much as take the Smell of any Perfume by the Nose: They hold, that Odors themselves break *Fast*; if they bathe it is forbid to put the Head under Water for Fear of swallowing any of it; and as for Women they are forbid to bathe at all on Fast-Days, for a Reason peculiar to the Sex. Their great Fast or Lent is called *Ramazan* or *Ramadan*, during which they fast all Day and feast all Night.

The *Turks* are commonly very charitable, from the Prince to the meanest of the Subjects. The Grand Seignior seldom undertakes any Project of Consequence, before he has made his *Corban*, which is a Slaughter of a great Number of Sheep, which is afterwards distributed to the Poor, hoping by those Alms to render Heaven propitious to his Enterprize. The Grand Vizier, and all the other Officers of the Empire, most commonly follow on such Occasions, in Proportion to their Abilities the Sultan's Example.

All the Revelations, Doctrine, and Prophecies of the pretended *Mahomet*, are contained in the Book called *Alcoran*, in a very confuse and undigested Manner.

The Word *Alcoran* is Arabick, and literally denotes either Reading or Collection; but it is in the first of these Senses that the *Alcoran* of *Mahomet* seems best understood: *Mahomet* purposing to have his Book called *Reading*, by way of Eminence, in Imitation of the *Jews* and Christians, who call the New and Old Testament *Writing*, *Scripture*, on the same Account.

The *Turks* also call it *Alforkan*, from the Verb פרק *Pharaka*, to divide or distinguish; either by reason it makes the Distinction between what is true and false, or between what is lawful to do and what not; or else on Account of its containing the Division or Heads of the Law; in which again they imitate the *Hebrews*, who give divers Books the like Name פרקים *Perakim*, q. d. *Capita*, *Capitula*, Chapters, Heads.—Lastly, the *Alcoran*, is also denominated *Aldhichr*, Advertisement or Remembrance, as serving to retain or retrieve the Knowledge of the Law.

I have already observed, that it is the common Opinion among the Christians, that the abominable Monk *Sergius* composed this infamous Book for *Mahomet*, but the *Mahometans* believe it as an Article of their Faith, that the Prophet, who, they say, was an illiterate Man, had no Hand in it, but that it was given him by God, who to that End made use of the Ministry of the Angel *Gabriel*; that however it was communicated to him by little and little, a Verse at a Time, and in different Places, during the Course of 23 Years. And 'hence, 'say they, proceeds that Disorder and Confusion visible 'in the Work'. Which in Truth is so great, that all their Doctors (if illiterate Fellows can be called by that Name) have never been able to adjust it. For *Mahomet*, or rather his Copist, having put all these loose Verses promiscuously in a Book together, it was impossible ever to retrieve the Order wherein they were delivered.

Those 23 Years which the Angel employed in conveying the *Alcoran* to *Mahomet*, are of wonderful Service to his Followers, inasmuch as they furnish them with an Answer to such as tax them with those glaring Contradictions wherewith the Book is full: Those Contradictions they piously father upon God himself, alledging, that in the Course of so long Time, he repealed and altered several Doctrines and Precepts, which the Prophet had before received of him.

M. *d'Herbelot* thinks it probable, that when the Heresies of the *Nestorians*, *Eutychians*, &c. had been condemned by Œcumenical Councils, many Bishops, Priests, Monks, *&c.* being driven into the Desarts of *Arabia* and *Egypt*, furnished the Impostor with Passages, and crude ill-conceived Doctrines of the Scriptures: And it was hence that the *Alcoran* became so full of the wild and erroneous Opinions of those Hereticks.

The *Jews* also, who were very numerous in *Arabia*, contributed their Quota to the *Alcoran*; nor is it without some Reason that they boast, twelve of their chief Doctors, to have been the Authors of this detestable Work.

The *Alcoran*, it is to be observed, while *Mahomet* lived, was kept in loose Sheets: His Successor *Abubeker*, first collected them into a Volume, and committed the Keeping thereof to *Haphsa*, the Widow of *Mahomet*, in order to be consulted as an Original. And there being a good deal of Diversity between the several Copies already dispersed throughout the Provinces: *Ottoman*, Successor of *Abubeker*, procured a great Number of Copies to be taken from that of *Haphsa*; at the same Time suppressing all the others not conformable thereto.

The chief Differences then, in the Copies of this Book, consist in the Points; which were not in Use in the Time of *Mahomet* and his immediate Successors, but were added since, to ascertain the Reading; after the Example of the *Massoretes*, who put the like Points to the *Hebrew* Text of the Scripture.

The Work is divided into *Suras* or Chapters, and the *Suras* sub-divided into little Verses, which are all composed in a broken interrupted Style, resembling Prose rather than Verse. The Division into *Suras* is but of late standing: The usual Number of them is sixty.

There are seven principal Editions of the *Alcoran*, two at *Medina*, one at *Mecca*, one at *Coufa*, one at *Bassora*, one in *Syria*, and the common Edition. The first contains 6000 Verses, the others surpassing this Number by 200, or 236 Verses; but the Number of Words and Letters is the same in all, *viz.* 77,639 Words, and 323015 Letters.

The Number of Commentaries on the *Alcoran* is so large, that only the bare Titles would make a large Volume.—*Ben Oschair* has wrote the History thereof, intitled, *Tarikh Ben Oschair*: The principal among them are *Reidhaori*, *Thaalebi*, *Zamalchschari*, and *Bacai*.

Besides the *Alcoran*, which is the Basis of the *Mahometan* Faith, they have also a Book containing their Traditions, which they call *Sonna*; which Word signifies, in *Arabick*, the same with *Mishna* in the *Hebrew*; that is second Law, or as the *Jews* call it *Oral Law*.

The Adherents to the *Sonna* are called *Sonnites*; and as among the *Jews* there is a Sect of *Caraites*, who reject the Traditions as Fables invented by the *Rabbins*; there are also Sectaries among the *Mahometans*, called *Shiites*, who reject the Traditions of the *Sonnites*; as being only founded on the Authority of an Apochryphal Book, and not derived to them from their Legislator.

There is the same Enmity between the *Sonnites* and *Shiites*, as between the *Rabbinists*, *Jews*, and the *Caraites*. The *Shiites* reproach the *Sonnites*, with obtruding the Dreams of their Doctors for the Word of God; and the *Sonnites* in their Turn treat the *Shiites* as Hereticks, who refuse to admit the divine Precepts, have corrupted the *Alcoran*, &c.

The *Mahometans* have a positive Theology, built on the *Alcoran* and Tradition, as well as a scholastical one built on Reason. They have likewise their Casuists, and a Kind of Canon Law, wherein they distinguish between what is of divine, and what is of positive Right.

The sovereign Interpreter of the Alcoran, and Chief or Patriarch of the *Mahometan* Religion, is called *Muphti*, or *Mufti*; he decides all Questions of the Law, takes Place of the Bashaws, and his Authority is often terrible to the Grand Signior himself; whom he can call to an Account by his Fetfa's or Bulls, and even depose of his own Authority. For as the *Turks*, as well as some other Nations, want sometimes to cover their Rebellion with the

the Cloak of Religion, they have Recourse to the *Muphti's* holy Craft to give a Sanction to it; who, according to the Levitical Genius, seldom refuses to have a Hand in so GOOD A CAUSE. The unhappy *Ibrahim*, was deposed and murder'd, by the Authority of the *Muphti*, and by a Principle of Religion, much about the Time, that excellent Prince, the unhappy *Charles* I. was murder'd in *England*, by the same Principle of Religion. From these Sorts of Religions, *Good Lord deliver us.*

It is the *Muphti* that girds on the Sword to the Grand Signior's Side, which Ceremony answers to the Coronation of our Kings.

The *Mahometans* have also their Beneficiaries, Chaplains, Almoners, and Canons, who read a Chapter every Day out of the Alcoran in the Mosques, and have Prebends for so doing. The *Hatil* of the Mosque, is what we call the Parson of the Parish; and the *Sheics* are the Preachers who take their Text out of the Alcoran.

They have several Orders of Monks too, particularly *Dervises* or *Dervishes*, who lead a very austere Life, and profess extream Poverty; though allowed to marry. The *Dervises* are also called *Mevelavises*, from their Chief or Founder, one *Mevelava*. Their chief Monastery is that near *Coigni* in *Natolia*; where their General makes his Residence; and where the Assemblies of the Order are held: The other Houses being all dependent of this; by a Privilege granted to this Monastery under *Ottoman* I.

The *Dervises* affect a World of Modesty, Patience, Humility, and Charity. They always go bare-legged, and open-breasted, and frequently burn themselves with hot Iron, to inure themselves to Patience. They always fast on *Wednesdays*, eating nothing on those Days till after Sun-set. *Tuesdays* and *Fridays* they hold Meetings, at which the Superior of the House presides. One of them plays all the while on a Flute, and the rest dance, turning their Bodies round with the greatest Swiftness imaginable. Long Custom to this Exercise from their Youth, has brought them to such a Pass, that it does not maze, or discompose them at all. This Practice they observe with great Strictness, in Memory of *Mevelava* their Patriarch's turning miraculously round, for the Space of four Days, without any Food or Refreshment; his Companion *Hamsa* playing all the while on the Flute: After which he fell into an Extasy, and therein received wonderful Revelations for the Establishment of his Order. They believe the Flute an Instrument consecrated by *Jacob*, and the Shepherds of the Old Testament; by Reason they sang the Praises of God thereon. They profess Poverty, Chastity, and Obedience; and really observe them while they remain *Dervises*; but if they chuse to go out and marry, they are always allowed.

The Generality of *Dervises* are rank Charletans; some apply themselves to Legerdemain, Postures, *&c.* to amuse the People; others give into Sorcery and Magick: But all of them, contrary to *Mahomet*'s Precept, are said to drink Wine, Brandy, and other fuddling Liquors, to give them the Degree of Gaiety their Order requires.

Besides their great Saint *Marvelava*, there are some particular Saints honoured in some particular Monasteries; as *Kederle*, greatly revered in the Monasteries of *Egypt*, and held by some to be St. *George*, and by others, with more Probability, the Prophet *Elias*.

The *Dervises* are great Travellers; and under Pretence of preaching and propagating their Faith, are continually passing from one Place to another; on which Account, they have been frequently used as Spies.

There are also *Dervises* in *Persia*, called in that Country *Abdal*, q. d. Servants of God. They lead a very penurious, austere Life, and preach the *Alcoran* in the Streets, Coffee-Houses, and where they can meet with Auditors. The Persian *Dervises* relate little but Fables to the People, and are in the last Contempt among Men of Wit and Letters.

There are other Religious called *Cadrites*, whose Founder was *Abdul Cadri*, a great Philosopher and Lawyer; whence they have their Name *Cadrites*.

They live in common, and in a Kind of Monastery; which however they are allowed to quit, if they request it, and to marry; on Condition of their wearing black Buttons on their Garments, to distinguish them from the rest of the People.

In their Monasteries, each *Friday* they pass the greatest Part of the Night in running round, holding each other's Hand, and crying incessantly *Hhai*, Living, one of the Names of God; one of their Number plays all the Time on a Flute, to animate them in this extravagant Dance.

The Temples which the *Mahometans* set apart for the Exercise of their Religion, are called *Mosques* (from the Turkish *Mesged* or *Meschit*, which properly signifies a Temple built of Wood, such as the *Turks* first used.)

There are royal Mosques founded by the Emperor, as the *Solimania* and *Uclidea*, at *Constantinople*; and private Mosques founded by Muphties, Vizirs, Bashaws, *&c.*

Mosques are built like large Halls, with Isles, Galleries, and Domes, and are adorned on the Inside with Compartiments, and Pieces of Arabesque Work. On one Side is always found a Pool with several Cocks; and on the Top is placed a Crescent.

The *Turks* have converted most of the Christian Churches into Mosques, as the celebrated Temple of St. *Sophia*, at *Constantinople*, &c.

The *Mahometans* distinguish themselves by the Title of *Mussulmen*, which in the *Turkish* Language signifies *true Believers*, or *Orthodox*.

The Appellation was first given to the *Saracens*, as is observed by *Leunclavius*. There are two Kinds of *Mussulmen*, very averse to each other, and whom we have already mentioned, *viz.* the *Sennonites* and the *Shiites*. The *Sennonites* follow the Interpretations of the Alcoran given by *Omer*. The *Shiites* are the Followers of *Ali*. The Subjects of the King of *Persia* are *Shiites*, and those of the Grand Signior *Sonnites*.

Some Authors will have it that the Word *Mussulman* signifies *saved*, that is, *predestinated*; and that the *Mahometans* give themselves the Appellation, as believing they are all predestinated to Salvation. *Martinius* is more particular to the Origin of the Name, which he derives from the *Arabick* מסלם, *Musalam*, saved, snatched out of Danger: The *Mahometans*, he observes, establishing their Religion by Fire and Sword, massacred all those who would not embrace it, and granted Life to all that did, calling them *Mussulmen*, q. d. *erepti e periculo*, whence the Word in Course of Time, became the distinguishing Title of all those of that Sect, who have affixed to it the Signification of *true Believer*.

Notwithstanding this barbarous Zeal for propagating their Religion, the *Mahometans* are most commonly very charitable, particularly those who are right *Mussulmen*, or religious Observers of the Alcoran. A Mark of their extensive Charity and Hospitality, is their building *Caravansera's*, which are large publick Buildings, or Inns destined to receive and lodge Travellers.

Of these *Caravansera's*, or, as *Chardin* calls them, *Caravansarai*, there are a great Number throughout the East, erected out of the Charity and Magnificence of Princes, *&c.* of the several Countries.

Those of *Schiras* and *Casbia* in *Persia*, are said to have cost 60,000 Crowns each. They are open to People of all Religions and Countries, without any Questions asked, or any Money requir'd.

The *Caravanserai*, are usually huge square Buildings, with a spacious Court in the Middle thereof. They are encompassed with Galleries and Arches, under which runs a Kind of Banquette, or Elevation some Feet high, where Travellers rest themselves, and make their Lodgings as well as they can; their Baggage and the Beasts that carry them, being fasten'd at the Foot of the Banquette. Over the Gate there are frequently a Sort of little Chambers; which the *Caravanseraskier* lets outs at a very dear Rate, to such as have a Mind to be to themselves.

Though the *Caravansera's* serve in lieu of Inns, yet there is this essential Difference between them and our Inns, that the Traveller finds nothing at all in the *Caravansera*, neither for himself nor his Cattle; but must carry all his Provisions and Necessaries with him. They are chiefly built in dry, barren, desart Places; and are generally furnished with Water from a great Distance, and at a vast Expence; there being no *Caravansera* without its Well of Water. There are several of them in Cities, where they serve not only as Inns, but as Shops, Warehouses, and even Exchanges.

There are few Cities in the East without their *Caravansera's*

ſera's, eſpecially within the Dominions of *Turky*, *Perſia*, and the *Great Mogul*. Thoſe of *Conſtantinople*, *Iſpahan*, and *Agra*, the Capitals of the three Empires, are diſtinguiſhed for their Magnificence and Commodiouſneſs.

In *Turky*, none but the Grand Signior's Mother and Siſter, with the Viziers and Baſhaws, who have been in three Battles againſt *Chriſtians*, are allowed to build a *Caravanſera*.

Beſides *Caravanſera's*, the *Turks* have alſo Hoſpitals, for the Poor and Sick; and even for Beaſts of all Kinds, which are render'd uncapable to provide for themſelves, either through Age, Illneſs, or any other Accidents.

MATHEMATICKS.

MATHEMATICKS (from μαθησις, which ſignifies *Diſcipline* or *Science*) is the Science of Quantity, or a Science that conſiders Magnitudes, either as computable or meaſurable.

Mathematicks are divided with Regard to their End, into *ſpeculative* and *practical*.

Speculative Mathematicks, are thoſe which reſt in the bare Contemplation of the Properties of Things.

Practical Mathematicks are thoſe which apply the Knowledge of thoſe Properties to ſome Uſes in Life.

With Regard to their Object, *Mathematicks* are divided into *pure* or *abſtract*, and *mix'd*.

Pure Mathematicks, conſider Quantities abſtractedly; without any Relation to Matter or Bodies.

Mix'd Mathematicks, conſider Quantity as ſubſiſting in material Beings, *e. gr.* Length in a Road, Breadth in a River, Height in a Star, *&c.*

Pure Mathematicks, again, either conſider Quantity as diſcrete, and ſo computable, as *Arithmetick*; or as concrete, or continued, and ſo meaſurable, as *Geometry*, and *Trigonometry*.

Mix'd Mathematicks are very extenſive, and are diſtinguiſhed by various Names, as the Subjects they conſider, and the Views wherein they take them vary; it being ſufficient to determine an Art to be a Branch of *mix'd Mathematicks*, that *pure Mathematicks* are applicable thereto, *i. e.* that it may be explained and demonſtrated from the Principles of Arithmetick and Geometry. Such are,

Mechanicks, which conſider Motion, or the Law of moving Bodies. — *Hydroſtaticks*, which conſider the Laws of Fluids, or of Bodies gravitating in Fluids. — *Pneumaticks*, the Air, with Regard to the Laws of Menſuration thereof. — *Hydraulicks*, the Motion of Fluids. — *Opticks*, direct Light or Viſion. — *Catoptricks*, reflected Viſion. — *Dioptricks*, refracted Viſion. *Perſpective*, the Images of Objects, in order to delineate or repreſent them. — *Aſtronomy*, the Univerſe and the Phænomena of the Heavens. — *Geography*, the Earth, both as in itſelf, and in its Affections. — *Hydography*, the Sea, principally as navigable. — *Chronology*, Time, with Regard to the meaſuring and diſtinguiſhing thereof. — *Gnomonicks* or *Dialling*, Shadows, in order for determining the Hour of the Day. — *Pyrotechny*, artificial Fires, with Regard both to Diverſion, and to the Uſes of War. — *Military Architecture*, the Strength of Places, with Regard to their Defence againſt an Enemy. — *Civil Architecture* (now become a Branch of *Mathematicks*) Buildings. — *Muſick*, Sounds, and their Effects on the Ear.

Note, That as I have already treated ſeveral of theſe Branches of *Mathematicks*, each under its proper Head; and deſign to do the ſame of all the others, to avoid Confuſion, eaſe the Memory of the Reader, and procure him a greater Facility to learn each Branch, *&c.* I'll content myſelf to ſpeak in this Place of the Origin of *Mathematicks*, and of the Progreſs thereof.

For the Origin of the *Mathematicks*, *Joſephus* dates it before the Flood, and makes the Sons of *Seth*, Obſervers of the Courſe and Order of the heavenly Bodies: He adds, that to perpetuate their Diſcoveries, and ſecure them from the Injuries either of a Deluge, or a Conflagration, they had them engraven on two Pillars, the one of Stone, the other of Brick; the former of which, he ſays, was ſtanding in *Syria* in his Days.

The firſt who cultivated *Mathematicks* after the Flood, were the *Aſſyrians* and *Chaldeans*; from whom the ſame *Joſephus* adds, they were carried by *Abraham* to the *Egyptians*; who proved ſuch notable Proficients, that *Ariſtotle* makes no Scruple to fix the firſt Riſe of *Mathematicks* among them. From *Egypt*, 584 Years before Chriſt, they paſſed into *Greece* through the Hands of *Thales*, who having learnt Geometry of the *Egyptian* Prieſts, taught it in his own Country. After *Thales* comes *Pythagoras*, who among other mathematical Arts, paid a peculiar Regard to Arithmetick, fetching the greateſt Part of his Philoſophy from Numbers: He was the firſt, as *Laertius* tells us, who abſtracted Geometry from Matter, and to him we owe the Doctrine of incommenſurable Magnitude, and the five regular Bodies, beſides the firſt Principles of Muſick and Aſtronomy. *Pythagoras* was ſucceeded by *Anaxagoras*, *Ænopides*, *Briſo*, *Antipho*, and *Hippocrates* of *Scio*; who all applied themſelves particularly to the Quadrature of the Circle, the Duplicature of the Cube, *&c.* but the laſt with moſt Succeſs: This laſt is alſo mention'd by *Proclus*, as the firſt who compiled Elements of *Mathematicks*.

Democritus excelled in *Mathematicks* as well as Phyſicks, though none of his Works in either Kind are extant; the Deſtruction of which ſome Authors lay at *Ariſtotle*'s Door. The next in order is *Plato*, who not only improved Geometry, but introduced it into Phyſicks, and ſo laid the Foundation of a ſolid Philoſophy. Out of his School proceeded a Crowd of *Mathematicians*; *Proclus* mentions thirteen of Note; among whom was *Leodamus*, who improved the Analyſis firſt invented by *Plato*; *Theætetus*, who wrote Elements; and *Archytas*, who has the Credit of being the firſt who applied *Mathematicks* to uſe in Life. Theſe were ſucceeded by *Neocles* and *Theon*, the laſt of whom contributed to the Elements. *Eudoxus* excelled in Arithmetick and Geometry, and was the firſt Founder of a Syſtem of Aſtronomy. *Menechmus* invented the conick Sections; and *Theudrus* and *Hermitomus* improved the Elements.

As for *Ariſtotle*, his Works are ſo ſtored with *Mathematicks*, that *Blancanus* compiled a whole Book of them: Out of his School came *Eudemus* and *Theophraſtus*; the firſt of whom wrote of Numbers, Geometry, and inviſible Lines; the latter a mathematical Hiſtory. To *Ariſteus*, *Iſidorus*, and *Hypſicles*, we owe the Books of Solids, which, with the other Books of Elements, were improved, collected, and methodized by *Euclid*, who died 284 Years before Chriſt.

An hundred Years after *Euclid*, came *Eratoſthenes* and *Archimedes*. Contemporary with the latter was *Conon*, a Geometrician and Aſtronomer. Soon after came *Apollonius Pergæus*; whoſe Conicks are ſtill extant. To him are likewiſe aſcribed the fourteenth and fifteenth Books of *Euclid*, which are ſaid to have been contracted by *Hypſicles*. *Hipparchus* and *Menelaus*, wrote on the Subſtenſes in a Circle; the latter alſo on ſpherical Triangles: *Theodoſius*'s three Books of Sphericks are ſtill extant; and all theſe, *Menelaus* excepted, lived before Chriſt.

In the Year 70, of Chriſt, *Ptolemy* of *Alexandria* was born, the Prince of Aſtronomers, and no mean Geometrician: He was ſucceeded by the Philoſopher *Plutarch*, of whom we have ſtill extant ſome mathematical Problems. After him came *Eutocius*, who commented on *Archimedes*; and occaſionally mentions the Inventions of *Philo*, *Diocles*, *Nicomedes*, *Sporus*, and *Heron*, on the Duplicature of the Cube. To *Cteſebes* of *Alexandria* we owe our Pumps; and *Geminus*, who came ſoon after, is preferred by *Proclus* to *Euclid* himſelf.

Diophantus of *Alexandria* was a great Maſter of Numbers, and the firſt Inventor of Algebra; among others of the Antients, *Nichomacus* is celebrated for his arithmetical,

MECHANICKS.

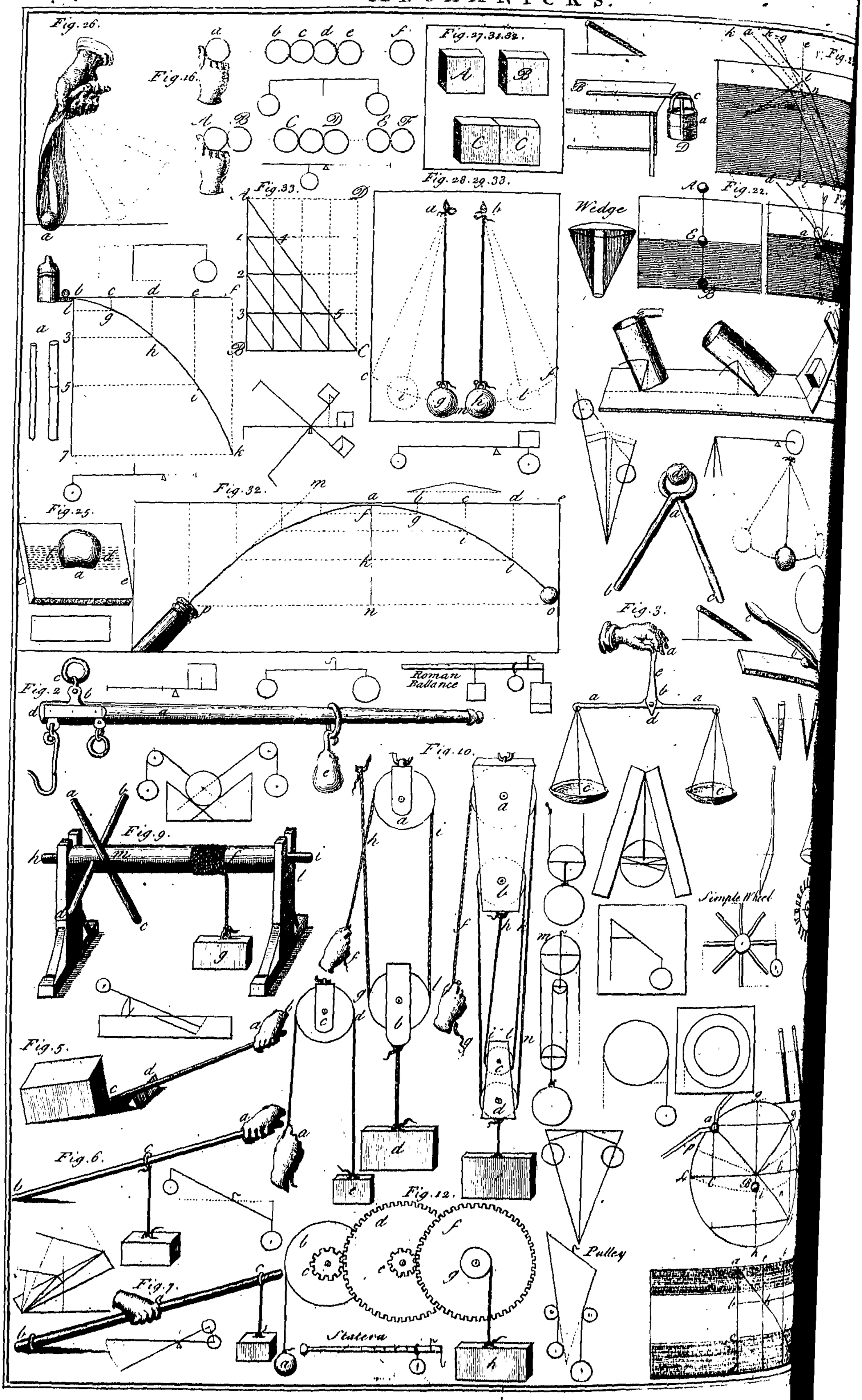


Fig. 26.
Fig. 16.
Fig. 27. 31. 32.
Fig. 28. 29. 33.
Fig. 33.
Fig. 22.
Wedge
Fig. 25.
Fig. 32.
Fig. 2
Roman Ballance
Fig. 3.
Fig. 10.
Fig. 9.
Simple Wheel
Fig. 5.
Fig. 6.
Fig. 12.
Pulley
Fig. 7.
Statera

metical, geometrical, and musical Works; *Serenus* for his Book on the Section of the Cylinder; *Proclus* for his Comments on *Euclid*; and *Theon* has the Credit among some of being Author of the Books of Elements ascribed to *Euclid*. The last to be named among the Antients, is *Pappus* of *Alexandria*, who flourished in the Year of Christ 400, and is celebrated for his Books of mathematical Collections still extant.

MECHANICKS.

MECHANICKS, are a mixed mathematical Science, which considers Motion or moving Powers, their Nature and Laws, with the Effects thereof, in Machines, *&c.*

That Part of *Mechanicks*, which considers the Motion of Bodies arising from Gravity, is by some called *Staticks*; in Distinction from that Part which considers the mechanical Powers, and the Application properly called *Mechanicks*. So that on this Footing *Staticks* should be the Doctrine or Theory of Motion; and *Mechanicks* the Application thereof.

Note, That the whole Doctrine of *Mechanism* depends entirely on a sole Point, which is to find the Center of Gravity of Bodies; therefore I'll begin this Treatise by examining what is Gravity, with Respect to *Mechanicks*; how Gravity is divided; the Center of Gravity, *&c.*

DEFINITIONS.

Gravity, in *Mechanicks*, denotes the Conatus or Tendency of Bodies towards the Center of the Earth.

Gravity, in this View, is distinguished into *absolute* and *relative*.

Absolute Gravity is that whereby a Body descends freely through an unresisting Medium. Thus the *absolute Gravity* of a Stone in the Air, is its Faculty of descending, when it only touches the æthereal Particles.

Relative Gravity is that wherewith a Body descends, after it has spent Part of its Weight in overcoming some Resistance. Such is that wherewith a Body descends along an inclined Plane, where some Part is employ'd in overcoming the Resistance or Friction of the Plane.

The *Center of Magnitude* of a Body, is a Point as equally distant as possible from the two Extreams.

The *Center of Motion* of a Body, is the fix'd Point round which one or more heavy Bodies, that have one common Center of Gravity, revolve.

The *Center of Gravity*, is a Point within a Body, through which if a Plane pass, the Segments on each Side will be equal and equiponderate, *i. e.* neither of them can move the other.

Whatever moves or suspends a Body, is called a *moving Power* or *Faculty*.

The Quantity of Power is determined from the Quantity of Gravity of the Power suspended or moved, *v. g.* if the Body A be carried downward, according to the Line B C, fig. 1. by a Power of 10 Pounds Weight, the Power which stops its Descent, whether it only suspends it, or forces or draws it from C towards B, will be called a Power of 10 Pounds.

Whatever can accelerate, or stop the Motion of a Body, is called *Machine*.

There are two Sorts of *Machines*, some *simple* and others *compound*.

Simple Machines are those otherwise called *mechanical Powers*.

There are six *simple Machines*, to which all others may be reduced, *viz.* the *Ballance*, *Lever*, *Wheel*, *Pully*, *Wedge*, and *Screw*; to which may be added the *inclin'd Plane*, since it is certain that the most heavy Bodies are lifted up by its Means, which otherwise could not be moved.

Compound Machine is that which is composed of several simple ones combined together.

The Number of *compound Machines* is now almost infinite; and yet the Antients seem to have out-done the Moderns in this Respect. Their Machines of War, Architecture, *&c.* being described as vastly superior to ours.

The *Application of the Weight* or *Power* to the Lever, is the Angle of the Line of Direction of that Power or Weight, with the Lever.

The *Distance of Power* or *Weight*, is the Space from the Point of the Machine, to which the Power or Weight is applied, to the Center of the Motion.

Note, That to observe the same Order in this Treatise, I have observed in all my other Treatises of Mathematicks, I'll explain every one of the simple Machines or mechanical Powers, and join to that each Explication, the Doctrine thereof: Therefore,

The *Ballance* or *Balance*, is used principally for determining the Quality or Difference of Weights in heavy Bodies, and consequently their Masses or Quantities of Matter.

The *Ballance* is of two Kinds, *viz.* the *antient* and *modern*.

The *antient* or *Roman*, called also *Statera Romana*, consists of a Lever, *a*, fig. 2. or a Beam, moveable on a Center *b*, and suspended near one of its Extremes *c*; on one Side the Center *d*, are applied the Bodies to be weighed, and their Weight is measured by the Division marked on the Beam; on the other Side is the Place where a Weight moveable *e*, along it keeps the *Ballance* in Equilibrium.

The *modern Ballance*, fig. 3. now ordinarily in Use, consists of a Lever or Beam *a*, suspended exactly by the Middle *b*, to the Extreams whereof are hung Scales or Basons, *c.c.*

In each Case the Beam is called the *Jugum*, and the two Moieties thereof on each Side the Axis, the *Brachia*, or *Arms*: And the Handle whereby it is held, *Trutina*. The Line on which the Beam turns, or which divides its *Brachia*, is called the Axis *d*, and when considered to the Length of the *Brachia*, is esteemed but a Point, and called the *Center of the Ballance*; and the Places where the Weights are applied, the *Points of Suspension* or *Application*. That slender Part perpendicular to the *Jugum*, whereby either the Equilibrium, or Preponderancy of Bodies is indicated, is called the *Tongue of the Ballance*, *e*.

In the *Roman Ballance*, therefore, the Weight used for a Counter-ballance is the same, but the Points of Application various. In the common *Ballance*, the Counterpoise is various, and the Point of Application the same.

The Principle on which each is founded is the same, and may be conceived from what follows.

The Beam *a a*, fig. 3. which is the principal Part of the *Ballance*, is a Lever of the first Kind, which (instead of resting on a *Fulcrum* at *d*, its Center of Motion) is suspended by somewhat fasten'd to *d*, its Center of Motion.

Hence as the known Weight is to the unknown, so is the Distance of the unknown Weight from the Center of Motion, to the Distance of the known Weight, where the two Weights will counter-poise to each other; consequently the known Weight shews the Quality of the unknown.

Or thus; the Action of a Weight to move a *Ballance*, is by so much greater, as the Point pressed by the Weight is more distant from the Center of the *Ballance*; and that Action follows the Proportion of the Distance of the said Point from the Center.

As to the *Varieties in the Application of the Ballance*. If the *Brachia* of a *Ballance* be divided into equal Parts, one Ounce applied to the ninth Division from the Center, will equiponderate with three Ounces at the third, and two Ounces at the sixth Division act as strongly as three at the fourth, *&c.*

Hence it follows, that the Action of a Power to move a *Ballance*, is in a Ratio compounded of the Power itself, and its Distance from the Center; for that Distance is as the Space gone through in the Motion of the *Ballance*.

It may be here observed, that the Weight equally presses the Point of Suspension at whatever Height it hangs from it, and in the same Manner as if it was fixt at that very Point; for the Weight at all Heights equally stretches the Cord by which it hangs.

A *Ballance* is said to be in *Æquilibrio*, when the Actions of the Weights upon the Brachia to move the *Ballance* are equal, so as mutually to destroy each other. When a *Ballance* is in *Æquilibrio*, the Weights on each Side are said to *equiponderate*; but then the Distances from the Center must be reciprocally as the Weights; in which Case, if each Weight be multiplied by its Distance, the Products will be equal; which is the Foundation of the Steel-Yard.

Thus in a *Ballance*, whose Brachia is very unequal, a Scale hanging at the shortest, and the longest divided into equal Parts; if such a Weight being applied to it as at the first Division, shall equiponderate with one Ounce in the Scale, and the above-mentioned Weight be moved along the longest Brachium, till the Æquilibrium be found: The Number of Divisions between the Body and the Center, shews the Number of Ounces that the Body weighs, and the Subdivisions the Parts of an Ounce.

On the same Principle also is founded the *deceitful Ballance*, which cheats by the Inequality of the Brachia: For Instance; take two Scales of unequal Weights, in the Proportion of 9 to 10, and hang one of them at the tenth Division of the *Ballance* above-described, and the other at the ninth Division, so that there may be an Æquilibrium; if then you take any Weights, which are to one another as 9 to 10, and put the first in the first Scale, and the second in the other Scale, they will equiponderate.

It may happen, contrary to the Intention of the Scale-Maker, that a Ballance is deceitful; which to discover, the Weights must be changed Scales; for then they will not be in an Æquilibrium, though they were at first.

We know, by Experience, that as a Merchant who makes Use of such a *Balance* gets, and the Buyer loses, if the Merchandize be put into the Scale of the longer Arm, Means have been devised whereby the Damages of both are compensated: Which those thought to have found, who weighed several Times the Things which could have been weighed once, so as to put the Weight alternately in the two Scales of the *Balance*, v. gr. if sixty Pounds Weight of Merchandizes were to be weighed in such a *Balance*, they were divided into six equal Parts, the First, Third, and Fifth whereof were weighed in the Scale of the shorter Arm, and the Second, Fourth and Sixth in that of the longer Arm.

But it is impossible to find an accurate Weight by that Means, as is plainly seen by the Calculation, *v. gr.* let sixty Pounds Weight of Merchandize be weighed in a Balance, the Arms whereof are to one another as 15 to 16: Let the Weight of 10 Pounds be put the three first Times in the Scale of the shorter Arm of the Balance, and transferred for the three last Times into the Scale of the longer Arm: It is certain, that each of the first Times the Merchant delivers $9\frac{6}{13}$ Pounds Weight of Merchandize, and each of the three last $10\frac{10}{13}$ Pounds; so that the Merchant delivers $60\frac{2}{13}$ Pounds Weight instead of sixty, and therefore loses two Ounces.

Several Weights hanging at several Distances on one Side, may equiponderate with a single Weight on the other Side; to do this it is required, that the Product of that Weight, by its Distance from the Center, be equal to the Sum of the Products of all the other Weights, each being multiplied by its Distance from the Center.

To demonstrate which, hang three Weights, of an Ounce each, at the second, third, and fifth Divisions from the Center, and they will equiponderate with the Weight of one single Ounce applied at the tenth Division of the other Brachium; and the Weight of an Ounce at the sixth Division, and another of three Ounces at the fourth Division, will equiponderate with a Weight of two Ounces on the other Side at the ninth Division.

Several Weights unequal in Number on either Side, will equiponderate: In this Case, if each of them be multiplied by its Distance from the Center, the Sums of the Product on either Side will be equal; and if those Sums be equal, there will be an Æquilibrium.

To prove which, hang a Weight of two Ounces at the fifth Division, and two others, each of one Ounce, at the second and seventh; and on the other Side hang two Weights, each also of one Ounce, at the ninth and tenth Divisions; and these two will equiponderate with those three.

To the *Justness of a Balance* it is required, that the Points of Suspension be exactly in the same Line as the Center of the *Balance*; that they be precisely equidistant from that Point on either Side; that the Brachia be as long as conveniently they may, that there be as little Friction as possible in the Motion of the Beam and Scales; and lastly, that the Center of Gravity of the Beam be placed a little below the Center of the Motion.

A LEVER, is an inflexible right Line, supported in a single Point, on a Fulcrum or Prop, and used for the raising of Weights; being either void of Weight itself, or at least having such a Weight as may be commodiously counter-balanced.

In a *Lever* there are three Things considered; the *Weight* to be *raised* or *sustained*, the *Power*, by which it is *raised* or *sustained*, and the *Fulcrum* or Prop, whereon the *Lever* is sustained, or rather on which it moves round, the Fulcrum remaining fix'd.

Levers are of three Kinds; sometimes the *Fulcrum b* is placed between the Weight *a* and the Power *c*, fig. 5. this we call a *Lever of the first Kind*. Sometimes the Weight *c*, is between the *Fulcrum b*, and the Power *a*; which is called a *Lever of the second Kind*, as in fig. 6. And sometimes the Power acts between the Weight and the Fulcrum *b*, fig. 7. which is, the *Lever of the third Kind*.

In the first Kind of *Levers*, fig. 5. so much as the Distance *a b* surpasses the Distance *c b*, as much the Power *a* surpasses the Weight *c*. Therefore if the Space *a b*, which is between the Power *a*, and the Point fix'd *b*, is ten Times longer than the Space *c b*, which is between the Fulcrum *b* and the Weight *c*, and that Weight *c* be considered as a hundred Pounds Weight, provided the Power *a* be equivalent to ten Pounds and a little more, it will surpass the Weight *c* and raise it, provided that when the Power *a* shall descend by ten Ounces or Inches, and a little more, the Point *c* be risen of an Ounce or an Inch Breadth only, because whatever increase the Power acquires, proceeds either from the greater Space or Velocity, or from the Length of Time.

The same must be said of the second Kind of *Lever*, because as the more the Distance *a b*, fig. 6. surpasses the Distance *c b*, more efficaciously and easily the Power *a*, surpasses the Weight *c*.

The third Kind of *Levers* do not render the Power *a* fig. 7. more efficacious; but rather increase the Weight *c*, and adds Strength to it, because the Distance of the Power *a* from the Point fix'd *b*, is lesser than the Distance of the Weight *c*, from the same Point fix'd *b*; but in that Case the Power must run through less Space than the Weight.

It appears by the sole Inspection that the Roman *Stratèra* is a *Lever* of the first Kind; for in the *Forceps*, *a b c d*, fig. 3. there are two *Levers* of the first Kind, which have but one Hypomachlion, *viz.* in the Point *a*, round which each Arm of the *Forceps* is turned; and the lesser is the Distance *a d*, than either *a b* or *a c*, the better the Power applied in *b* and *c*, counter-balance the Body placed in *d*.

A Knife placed by one of its Sides in the Point *a*, fig. 6. so that it may incline towards that Point, shews the second Kind of *Lever*; in which, if the Power be applied in *c*, and a Piece of Bread, or some other Thing like it, be placed in *b*, the more the Power will be distant from the Point fixt *a*, the stronger the Power will act.

Note, That from what I have said relating to the different Kinds of *Levers*, it may be easily inferred, 1. That

1. That when we use a *Lever* of the first Kind, the Power can be greater or lesser than the Weight, according as the Distance of the Weight is greater or lesser than that of the Power.

2. That when we use a *Lever* of the second Kind, the Distance of the Weight is necessarily lesser than the Distance of the Power, as the Power is necessarily lesser than the Weight.

3. On the contrary, when we make use of a *Lever* of the third Kind, the Distance of the Weight is necessarily greater than the Distance of the Power, as the Power is necessarily greater than the Weight.

Axis in peritochio, is a Machine or *mechanical* Instrument proper, in which the Cylinder *h i*, fig. 9. called the *Axis*, is sustained at both Ends by the Fulcrum's *k l*. With the Circle in *c*, called the *Peritochium*, in the Circumference whereof are made Holes, to which are fitted the Spokes, or *Radii*, *a m c*, *b m d*, to which the Force being applied it winds up a Rope round the Axis, whereby the Weight, *&c.* is to be raised.

The *Axis in Peritochio*, takes Place in the Motion of every Machine, where a Circle may be conceived described about a fixed *Axis*, concentrick to the Plane of a Cylinder, about which it is placed, as in Crane-Wheels, Mill-Wheels, Capstons, *&c.*

Nothing more easy than to shew that the *Axis in Peritochio*, as we represent it here, is to be referred to the *Lever* of the first Kind. For the Point fixt is in the Middle of the Circle and Axis, *viz.* in the Point *a f*. For when the Cylinder is turned round, innumerable fixt Points can be conceived in it from the Extreme *h* to *i*, or rather in lieu of Points fixt, is to be conceived a middle fixt and immoveable Line from *h* into *i*, round which the Cylinder is turned. The Power is in *a* or in *b*, *&c.* and recedes from the Point fixt, or the middle immobile Line, not only the whole Semi-diameter of the Axis and the Circle, but besides of the whole Length of the Spoke *a m* or *b m*, &c. the Weight placed in the Point of the Superficy *e*, and is removed of the sole Semi-diameter *c f*, from the Point fix'd *f*. Whence the more the Distance *a m* surpasses the Distance *e f*, the easier the Power applied in *a* surpasses the Weight, which is understood to be placed in *e*; and the greater the Radius, the more Increase will the Power acquire.

But if a Periphery be put round the Extremes *a b c* to make an entire Wheel, which several Men could turn round, it would be nothing more but continued. The same must be said of those large Wheels, which Men, shut up in them, turn round with their Feet, to draw up by means of a Cable, immense Weights, *viz.* either Stones from Quarries, or Beams at the Top of Houses, *&c.*

The *Pulley*, fig. 10. is a Machine consisting of a little Wheel or Rundle, having a Channel round it, and turning on an Axis, serving by means of a Rope which slides in its Channel, for the raising of Weights.

If the *Pulley* be simple, *i. e.* if it has but one Wheel or Rundle (for some of them have several Rundles) which Rundle turns round an immobile Axis, such a Pulley does not increase the Power; for the Motion of the Weight *e* is equal to that of the Power *a*, and the Ascent of *e* equal to the Descent of *a*. Whence all the Advantage arising from such a Machine, consists only in that the Rope does not wear off, and that it turns easier round the Orb *b d*.

Hence a single *Pulley*, if the Lines of Direction of the Power and the Weight be Tangents to the Periphery neither assists nor impedes the Power, but only changes its Direction.

The Use of the Pulley therefore is, when the vertical Direction of a Power is to be changed into an horizontal one, or an ascending Direction into a descending one, and on the contrary.

This is found a good Provision for the Safety of the Workmen employed in drawing with the *Pulley*. For, suppose a large Weight required to be raised to a great Height by Workmen pulling a Rope; if now the Rope should chance to break, the Workmen's Heads underneath would be in immediate Danger; but if by means of a *Pulley*, the vertical Direction be changed into an horizontal one, there is no Danger from the Rope breaking.

This Change of Direction by means of a *Pulley*, has this further Advantage, that if any Power can exert more Force in one Direction than another, we are here able to employ it in its greatest Force.

Thus, *e. gr.* a Horse cannot draw in a vertical Direction, but draws with all its Advantage in an horizontal one; by changing the vertical Draught therefore into an horizontal one, a Horse becomes qualified to raise a Weight.

But the great Use of the *Pulley* is, where several of them are combined; thus forming what *Vitruvius* and others after him called *Polyspasta*; the Advantages whereof are, that the Machine takes up but little Room, is easily removed, and raises a very great Weight.

As in my 10th Figure, where there are two Rundles, whose Axis is immobile, *viz. a*, and the other whose Axis is mobile, *viz. b*, of which a Weight, *v. gr.* of a hundred Pounds, depends; therefore if the Rope be tied at one End to the Nail *c*, and the other End be pulled by the Power, I say, that the Force of fifty Pounds in the Power *f*, is equivalent to the Weight *d* of a hundred Pounds; or the Force of the Hand *f* is double that it should have without the Assistance of the mobile Rundle; for when the Ratio of the Velocity or Space, and of the Weight or Bulk is reciprocal between the Power and the Weight, they are in Æquilibrio. For if the Weight be of a hundred Pounds, and the Power *f* of fifty only, *i. e.* if the Weight be double the Power, the Power will move with double the Celerity of the Weight, because while the Weight *d* is lifted up through that Interval which is between *b* and *a*, the Power *f* will bring up two Segments of the Rope, *viz. b g* and *i l*, which together are equal to double the Space *b a*; and therefore will be moved twice faster: Therefore its Force will be double, and if it be heavier than fifty Pounds, it will lift up the Rundle *b* with the Weight *d*.

If there be two mobile Rundles, *c* and *d*, fig. 11. a Rope be tied to the immobile Axis of the Rundle *b*, which may be carried round as well by the two mobile Rundles *c* and *d*, as by the immobile *a* and *b*, and drawn by the Power *o e*; I say, that the Force of the Power *o* is quadruplicate. For to raise up the Weight *e* from the Point *c* to the Point *b*, the Power *o* must pull four Segments of the Rope, viz. *f g*, *h i*, *k l*, and *m n*, equal to the Altitude *c b*; therefore the Power must move four Times faster than the Weight.

But we must observe, that the immobile Rundles neither increase nor diminish the Force of the Power, but all Increase of that Kind proceeds from the moveable Rundles, in the combined *Pulleys*; and that Force increases in Proportion as the Velocity of the Power exceeds the Velocity of the Weight.

The Wheel, is a simple Machine consisting of a round Piece of Wood, Metal or other Matter, which revolves on an Axis.

The *Wheel* is one of the principal Powers of *Mechanicks*. It has Places in most Engines; in Effect, it is of an Assemblage of *Wheels*, most of our chief Engines are composed, witness Clocks, Mills, *&c.*

Its Form is various according to the Motion it is to have, and the Use it is to answer. By this it is distinguished into *simple* and *dented*.

Simple Wheels are those, whose Circumference and Axis is uniform, and which are used singly, and not combined. Such are the *Wheels* of Carriages, which are to have a double Motion; the one circular about their Axis, the other rectilinear; by which they advance along the Road, *&c.* which two Motions they appear to have, though in effect they have but one, it being impossible the same Thing should move, or be agitated two different Ways at the same Time.

This one is a spiral Motion, as is easily seen by fixing a Piece of Chalk on the Face of the *Wheel*, so that it may draw a Line on a Wall, as the *Wheel* moves. The Line it here traces is a just Spiral, and still the more Curve as the Chalk is fixed nearer the Axis. A very nice Phenomenon of the Motion of this *Wheel* is seen in *Rota Aristotelica*, which is the Name of a celebrated Problem in *Mechanicks*; thus called, because first, that we know of, taken Notice by *Aristotle*.

The Difficulty is this; while a Circle makes a Revolution on its Center, advancing at the same Time in a right

right Line along a Plane; it describes on that Plane a right Line equal to its Circumference. Now if this Circle, which we may call the *Deferent*, carry with it another smaller Circle concentrick with it, and which has no Motion but what it receives from the Deferent; which is the Case of the Nave of a Coach-Wheel carried along by the *Wheel*; this little Circle or Nave, will describe a Line in the Time of the Revolution equal, not to its own Circumference, but to that of the *Wheel*; for that its Center advances in a right Line, as fast as that of the *Wheel* does, as being in Reality the same therewith.

The Matter of Fact is certain: But how it should be done seems a Mystery. It is obvious, that the *Wheel* advancing during the Revolution, must describe a right Line equal to its Circumference; but how should the Nave, which revolves like the *Wheel*, describe a right Line much greater than its Circumference.

The Solution *Aristotle* gives is no more than a good Explication of the Difficulty. *Galileo*, who next attempted it, has Recourse to an Infinity of infinitely little Vacuities in the right Line described by the two Circles, and imagines that the little Circle never applies its Circumference to those Vacuities; but in Reality only applies it to a Line equal to its own Circumference, tho' it appears to have applied it to a much larger.

But it is evident this is all *gratis dictum*. The Vacuities are imaginary, and why does not the great Circle apply its Circumference to them? Lastly, the Magnitude of these Vacuities must be augmented or diminished, according to the different Proportion of the two Circles.

F. *Tacquet* will have it, that the little Circle making its Rotation more slowly than the great one, does on that Account describe a Line longer than its Circumference; yet without applying any Point of its Circumference to more than one Point of its Base: But this is no more allowable than the former.

The Attempts of so many great Men proving vain; M. *Dortus de Meyran*, a *French* Gentleman, had the good Fortune to hit on a Solution which he sent to the Academy of Sciences, where being examined by Mess. *de Louville* and *Salmon*, appointed for that Purpose, they made their Report that it was satisfactory. The Solution is to this Effect.

The *Wheel* of a Coach is only acted on, or drawn in a right Line, inasmuch as it defeats that Direction; of Consequence the Causes of the two Motions, the one right, the other circular, are equal, and therefore their Effects, *i. e.* the Motions are equal. And hence, the *Wheel* describes a right Line on the Ground equal to its Circumference.

For the Nave of the *Wheel*, the Case is otherwise. It is drawn in a right Line by the same Force as the *Wheel*, but it only turns round, because the *Wheel* turns, and can only turn with it, and at the same Time therewith. Hence it follows, that its circular Velocity is less than its rectilinear one.

Since then it necessarily describes a right Line equal to that of the *Wheel*, it can only do it by sliding, or what they call the Motion of the *Rasion*. That is, a Part of the circular Nave cannot be applied to a Part of a right Line greater than itself, but by sliding along that Part; and that more or less, as the Part of the Nave is less than that of the Circle.

We shall add, that in *simple Wheels* the Height should always be proportioned to the Stature of the Animal that draws or moves them. The Rule is, that the Load, and the Axis of the *Wheel* be of the same Height with the Power that moves them; otherwise the Axis being higher than the least, Part of the Load will lie on him, or if it be lower he pulls to Disadvantage, and must exert a greater Force: Though *Stevinus*, Dr. *Wallis*, &c. shew, that to draw a Vehicle, *&c.* over waste, uneven Places, it were best to fix the Traces to the *Wheels* lower than the Horse's Breast.

The Power of these *Wheels* results from the Difference of the Radii or Spokes of the Axis and Circumference. The Canon is this: 'As the Radius of the Axis is to that of 'the Circumference, so is any Power to the Weight it 'can sustain hereby.'

This is also the Rule in the Axis in the Peritochio, and in effect, the *Wheel* and the Axis in Peritochio are the same Thing; only in Theory, it is usually called by the latter Name, and in Practice by the former.

Dented Wheels, are those either whose Circumference or Axis is cut into Teeth, by which they are capable of moving and acting on one another, and of being combined together. The Use of these is very conspicuous in Clocks, Jacks, *&c.*

The Power of the *dented Wheel* depends on the same Principle as that of the simple one. It is only that to the simple Axis in Peritochio, what a combined Lever is to a simple Lever.

Its Doctrine is comprized in the following Canon, *viz.* 'The Ratio of the Power to the Weight,' in order for that to be equivalent to this, 'Must be compounded 'of the Ratio of the Diameter of the Axis of the last 'Wheel to the Diameter of the first; and of the Ratio 'of the Number of Revolutions of the last Wheel to 'those of the first in the same Time.' But this Doctrine will deserve a more particular Explication.

Suppose the Weight *a*, fig. 12. which by its Force can raise one Pound, and is understood to move the *Wheel b*, and the little *Wheel c* joined to its Axis; if we suppose that there are only ten Teeth in the little Wheel *c*, and an hundred in the Wheel *b*, very well adapted to the former and joined to them; it will happen hence, that while the small *Wheel c* turns ten Times round, the great *Wheel d* will turn but once. Likewise if the same Ratio be put between the small *Wheel e*, joined to the *Wheel d*, and between the *Wheel f* implicated to it, then while the small *Wheel e*, together with the *Wheel d* turn ten Times round, the *Wheel f* will be conceived to turn only once round: Therefore the first *Wheel b* will turn round ten Times swifter than *d*, and the *Wheel d* ten Times swifter than *f*; or which is the same, the *Wheel b* will turn round a hundred Times swifter than *f*.

If a Power moves a Weight by means of divers *Wheels*, the Space passed over by the Weight is to the Space of the Power as the Power to the Weight. Hence the greater the Power, the faster is the Weight moved, and *vice versâ*.

The Spaces passed over by the Weight and the Power, are in a Ratio compounded of the Revolutions of the slowest *Wheel*, to the Revolutions of the swiftest; and of the Periphery of the Axis of that, to the Periphery of this. Hence, the Space of the Weight and the Power are reciprocally as the sustaining Power to the Weight, in a Ratio compounded of the Revolutions of the slowest *Wheel*, to those of the swiftest, and of the Periphery of the Axis of that to the Periphery of this.

'The Periphery of the Axis of the slowest *Wheel*, 'with the Periphery of the swiftest Wheel given; as 'also the Ratio of the Revolutions of the one to those 'of the other; to find the Space which the Power is to 'pass over, while the Weight goes any given Length.'

Multiply the Periphery of the Axis of the slowest *Wheel* into the antecedent Term of the Ratio, and the Periphery of the swiftest *Wheel* into the consequent Term; and to those two Products, and the given Space of the Weight find a fourth Proportional: This will be the Space of the Power; suppose, *e. gr.* the Ratio of the Revolutions of the slowest *Wheel* to those of the swiftest, to be as 2 to 7, and the Space of the Weight 30 Feet; and let the Periphery of the Axis of the slowest *Wheel* be to that of the swiftest as 3 to 8, the Space of the Power will be found 280.

'The Ratio of the Peripheries of the swiftest *Wheel*, 'and of the Axis of the slowest, together with the Ratio 'of their Revolutions, and the Weight being given; 'to find the Power able to sustain it.'

Multiply both the Antecedents, and the Consequents of the given Ratios into each other; and to the Product of the Antecedents, the Products of the Consequents, and the given Weight, find a fourth Proportional; that will be the Power required. Suppose, *e. gr.* the Ratio of the Peripheries 8 : 3. that of the Revolutions 7 : 2, and the Weight 2000, the Power will be found 214 $\frac{2}{7}$. After the same Manner may the Weight be found, the Power and the Ratio of the Peripheries, *&c.* being given.

'The Revolutions the swiftest *Wheel* is to perform, 'while the slowest makes one Revolution, being given, 'together with the Space the Weight is to be raised, and 'the

'the Periphery of the flowest *Wheel*; to find the Time 'that will be spent in raising it.'

I say, as the Periphery of the Axis of the flowest *Wheel* is to the Space of the Weight given, so is the given Number of the Revolutions of the swiftest *Wheel* to a fourth Proportional; which will be the Number of Revolutions, performed while the Weight reaches the given Height. Then, by Experiment determine the Number of Revolutions the swiftest *Wheel* performs in an Hour; and by this divide the fourth Proportional found before. The Quotient will be the Time spent in raising the Weight.

Inclined Plane (which I place here, because it has a near Relation to the other three Powers already explained) is a *Plane* which makes an oblique Angle with an horizontal *Plane*: Which *inclined Plane* is to be seen in our Plate of Hydraulicks.

We make use of an *inclined Plane* to raise up, or let fall heavy Bodies with a greater Facility, whereby Part of their Weight is taken away; as Workmen find by Experience and without being taught. For when a great Weight is to be carried to a high Place, they put it on an *inclined Plane*, which Plane is sometimes supported with Boards or Cylinders, for the Conveniency of transporting it from one Place to another.

The *Laws of Descent of Bodies on inclined Planes* are, 1. If a Body be placed on an inclined *Plane*, its relative Gravity will be to its absolute Gravity, as the Length of the Plane to its Height. Hence, 1. Since a Ball gravitates on the *inclined Plane* with its relative Gravity; the Weight applied in a Direction parallel to the Length of the Plane, will retain or suspend it, provided the Weight be to that of the Ball, as the Altitude of the Plane is to its Length.

2. The absolute Gravity of the Body is to its retractive Gravity applied on the *inclined Plane*, as the whole Sine to the Sine of the Angle of Inclination.

3. Hence the respective Gravities of the same Body on different *incline Planes*, are to each other as the Sines of the Angle of Inclination.

4. The greater therefore the respective Gravity is, the greater is the Angle of Inclination.

5. As therefore in a vertical *Plane*, where the Inclination is greatest, *viz.* perpendicular, the respective Gravity degenerates into absolute; so in an horizontal *Plane*, where there is no Inclination, the respective Gravity vanishes.

To find the Sine of the Angle of Inclination of a *Plane*, on which a given Power will be able to sustain a given Weight. Say, as the given Weight is to the given Power, so is the whole Sine to the Sine of the Angle of Inclination of the *Plane*. Thus, suppose a Weight of 1000 be to be sustained by the Power of 50, the Angle of Inclination will be found 2052.

If the Weight descends according to the perpendicular Direction, and raises up the Weight in a Direction parallel to the *inclined Plane*; the Height of the Ascent will be to that of the Descent, as the Sine of the Angle of Inclination to the whole Sine.

The Powers that raise Weights through Altitudes reciprocally proportional to them, are equal. This *Des Cartes* assumes as a Principle whereby to demonstrate the Powers of Machines; hence we see why a loaden Waggon is drawn with more Difficulty on an inclined than an horizontal *Plane*; as being pressed with a Part of the Weight, which is to the whole Weight in a Ratio of the Altitude of the Plane to its Length.

A heavy Body descends on an *inclined Plane*, with a Motion uniformly accelerated.

Hence, 1. The Spaces of Descent are in a duplicate Ratio of the Times, and likewise of the Velocities; and therefore in equal Times increase according to the unequal Numbers, 1, 3, 5, 7, 9, *&c.*

2. The Space passed over by a heavy Body descending on an *inclined Plane*, is subduple of that which it would pass over in the same Time, with the Velocity it has acquired at the End of its Fall.

3. Heavy Bodies therefore descend by the same Laws on *inclined Planes*, as in perpendicular Planes. Hence it was that *Galileo*, to find the Laws of perpendicular Descents, made his Experiments on *inclined Planes*, in regard to the Motions being slower in the latter than the former, as in the following Theorem.

The Velocity of a heavy Body, bending on an *inclined Plane*, at the End of any given Time; is to the Velocity which it would acquire in falling perpendicularly, in the same Time, as the Height of the *inclined Plane* is to its Length.

The WEDGE, *fig.* 16. is a triangular Prism, whose Bases are equilateral acute-angled Triangles.

Authors are divided about the Principles whence the *Wedge* derives its Power. *Aristotle* considers it as two Levers of the first Kind, inclined towards each other, and acting opposite Ways. *Guido Ulbaldus*, *Mersennus*, &c. will have them Levers of the second Kind. But F. *de Lanis* shews, that the *Wedge* cannot be reduced to any Lever at all. Others refer the *Wedge* to the *inclined Plane*; because, say they, it consists of two inclined *Planes*, whose two Sides terminate in a common right Line. Others again, with *De Stair*, deny the *Wedge* to have scarce any Force at all; and ascribe much the greatest Part to the Mallet that drives it. But the latest Authors agree to refer the Effect of the *Wedge* to the Cochlea or Shell.

Its Doctrine is contained in this Proposition: 'If the 'Power directly applied to the Head of the *Wedge*, be 'to the Resistance to be overcome by the *Wedge*, as the 'Thickness of the *Wedge* is to its Height; then the 'Power will be equivalent to its Resistance; and if in-'creased, will overcome it.'

For the Firmness whereby the Parts of the Obstacle, suppose Wood, adhere to one another, is the Resistance to be overcome by the *Wedge*.

Hence, if the Thickness of the *Wedge* (that is, the Way of the Impediment, and consequently its Velocity) be to the Height of the *Wedge* (that is the Way, and consequently the Velocity of the Power) as the Power of the Impediment, or Resistance; then the Momentum of the Power, and the Impediment, will be equal the one to the other; and consequently the Power, being increased, will overcome the Resistance.

Hence, 1. The Power equivalent to half the Resistance, is to it as the whole Sine to the Co-tangent of half the Angle of the *Wedge*.—And, 2. As the Tangent of a less Angle is less than that of a greater, the Power must have a greater Proportion to half the Resistance, if the Angle be greater than if less. Consequently the acuter the *Wedge* is, the more does it increase the Power.

To the *Wedge* may be referred all Edge-tools, and Instruments which have a sharp Point, in order to cut, cleave, slit, chop, pierce, bore, or the like; as Knives, Hatchets, Swords, Bodkins, *&c.*

The SCREW, is a right Cylinder, furrowed spiral-wise, chiefly used in pressing or squeezing Bodies close, though sometimes also in raising Weights.

If the furrowed Surface be convex, the *Screw* is said to be *Male*; if concave it is *Female*.

Where Motion is to be generated, the *Male* and *Female* Screws are always joined, that is, whenever the *Screw* is to be used as a single Engine, or mechanical Power. When joined with an Axis in Peritochio there is no Occasion for a Female; but in that Case it becomes Part of a compound Engine.

The *Doctrine of the Screw* is,—1. As the Compass described by the Power in one Turn of the *Screw*, is to the Interval or Distance between any two immediate Threads or spiral Winding, so is the Weight or Resistance to the Power; then the Power and the Resistance will be equivalent one to the other; and consequently, the Power being a little increased will overcome the Resistance.

For it is evident, that in one Turn of the *Screw*, the Weight is so much lifted up, or the Resistance so much removed, or the Thing to be pressed is squeezed so much closer together, as is the Distance between two immediate Spirals: And in the same Time the Power to be moved is so much, as is the Compass described by the said Power in one Turn of the *Screw*. Wherefore the Velocity of the Weight (or whatever answers thereto) will be to the Velocity of the Power, as is the said Distance between the Spirals to the Compass described by the Power, in one Revolution, or turning round of the

the *Screw*; so that the gaining in Power is here recompensed by the Loss in Time.

2. As the Distance between two Threads is less, the Power required to overcome the said Resistance is less; therefore the finer the Thread the easier the Motion.

3. If the Male *Screw* be turned in the Female at Rest, a less Power will be required to overcome the Resistance.

4. The Distance of the Power from the Center of the *Screw*, the Distance of two Threads, and the Power to be applied being given, to determine the Resistance it will overcome; or the Resistance being given, to find the Power necessary to overcome it.

Find the Periphery of a Circle described by a Radius, then the Distance between the two Threads, the Periphery just found, and the given Power; or to the Periphery found, the Distance of the two Threads, and the given Resistance, find a fourth Proportional. This in the former Case will be the Resistance that will be overcome by the given Power; and in the latter the Power necessary to overcome the given Resistance.

E. gr. suppose the Resistance between the two Threads 3, the Distance of the Power from the Center of the *Screw* 25, and the Power 30 Pounds, the Periphery of the Circle to be described by the Power, will be found 157: Therefore, as 3, 157: 30, 1570, the Weight to which the Resistance is equal.

5. The Resistance to be overcome by a given Power being given; to determine the Diameter of the *Screw*, the Distance of two Threads, and the Length of the Scytala or Handle: The Distance of the Threads, and the Diameter of the *Screw* may be assumed at Pleasure, if the Male be to be turned in the Female by a Handle: Then as the given Power is to the Resistance it is to overcome, so is the Distance of the Threads to a fourth Number, which will be the Periphery to be described by the Handle, in a Turn of the *Screw*. The Semi-diameter of this Periphery therefore being sought, we have the Length of the Handle; but if the Female *Screw* be to be turned about the Male without any Handle, then the Periphery and Semi-diameter found, will be very nearly those of the *Screw* required.

E. gr. Suppose the Weight 6000, the Power 100, and the Distance of the Threads 2 Lines; for the Periphery to be passed over by the Power, say, as 100, 6000: 2, 120; the Semi-diameter of which Periphery being $\frac{1}{3}$ of 120=40 Lines will be the Length of the Handle, if any be used; otherwise the Side of the Female *Screw* must be 40 Lines.

There are, besides the above-mentioned *Screws*, the *endless Screw*, and *Archimedes's Screw*.

The *endless* SCREW, is a *Screw* fitted to turn a dented Wheel, called *endless*, or *perpetual*, in regard it may be turned for ever, without coming at an End. From the Scheme it is evident enough, that while the *Screw* turns once round, the Wheel only advances the Distance of a Tooth.

The *Doctrine of the endless* SCREW, is:—If the Power applied to the Lever, or Handle of an *endless Screw*, be to the Weight, in a Ratio compounded of the Periphery of the Axis of the Wheel, to the Periphery described by the Power, in turning the Handle, and of the Revolutions of the Wheel, to the Revolutions of the *Screw*, the Power will be equivalent to the Weight.

Hence, 1. As the Motion of the Wheel is exceedingly slow, a small Power may raise a vast Weight, by Means of an *endless Screw*: For this Reason, the great Use of the *endless Screw*, is either where a great Weight is to be raised through a little Space; or where a very slow, gentle Motion is required: On which Account it is very useful in Clocks and Watches.

2. The Number of Teeth, the Distance of the Power from the Centre of the *Screw*, the Radius of the Axis, and the Power being given, to find the Weight it will raise.

Multiply the Distance of the Power from the Centre of the *Screw* into the Number of Teeth: The Product is the Space of the Power passed through, in the Time the Weight passes through a Space equal to the Periphery of the Axis. Find a fourth proportional to the Radius of the Axis, the Space of the Power now found and the Power; this will be the Weight the Power is able to sustain.

Archimedes's SCREW, or the *Spiral Pump*, is a Machine for the raising of Water, invented by *Archimedes*. Its Structure is as follows:

A leaden Tube is wound round a Cylinder, after the same Manner as the spiral Thread is drawn in the common *Screw* above described. This Cylinder is inclined to the Horizon in an Angle of about 15 Degrees, and the Orifice of the Tube immerged under Water. If then the *Screw* be turned about by the Handle, against the Water; the Water will raise up the Spiral and be discharged at the other Orifice of the Cylinder.

This Machine (whose Figure is the Second in the Plate of *Hydraulicks*) with a very little Strength, is able to raise a great Quantity of Water: Whence it is found of good Use in emptying of Lakes, *&c.*

If the Water be to be raised to any considerable Height, one *Screw* will not suffice; but the Water drawn up by one, is to be taken by another, and so successively.

Note, As the *Mechanicks* are founded on *Motion*, Attempts have been made, from Time to Time, to find out a *perpetual Motion*, i. e. a Motion which is supplied and renewed from itself, without the Intervention of any external Cause; or in an uninterrupted Communication of the same Degree of Motion from one Part of Matter to another, in a Circle (or other Curve returning it into itself) so as the same Momentum still returns undiminished upon the first Mover.

To find a *perpetual* MOTION, or construct an Engine, *&c.* which shall have such a Motion, is a famous Problem that has employed the Mathematicians for 2000 Years; though none perhaps have prosecuted it with Attention and Earnestness equal to those of the present Age.

Infinite are the Schemes, Designs, Plans, Engines, Wheels, *&c.* to which this longed for *perpetual Motion* has given Birth: It were as endless as impertinent to give a Detail of them all, nor does any of them deserve particular Mention, since they have all equally proved abortive: It would rather be of the Nature of an Affront than a Compliment, to distinguish the Pretenders hereto; when the very Thing they are commemorated for, carries with it so disagreeable an Idea.

In effect, there seems but little in Nature to countenance all this Assiduity and Expectation: Among all the Laws of Matter and Motion, we know of none yet, which seems to lay any Principle or Foundation for such an Effect.

Action and Re-action are allowed to be ever equal, and a Body which gives any Quantity of Motion to another, loses just so much of its own; but under the present State of Things, the Resistance of the Air, the Fraction of the Parts of Machines, *&c.* do necessarily retard every Motion.

To keep the Motion on Foot, therefore, either 1st, there must be a Supply from some foreign Cause; which in a *perpetual Motion* is excluded.

Or, 2dly, all Resistance from the Friction of the Parts of Matter, must be removed, which implies a Change in the Nature of Things.

For, by the second Law of Nature, the Changes made in the Motions of Bodies, are always proportional to the impressed moving Force, and are produced in the same Direction with it; no Motion then can be communicated to any Engine greater than that of the first Force impressed.

But on our Earth all Motion is performed in a resisting Fluid, and must therefore of Necessity be retarded; consequently a considerable Quantity of its Motion will be spent on the Medium.

Nor is there any Engine or Machine, wherein all Friction can be avoided, there being in Nature no such Thing as exact Smoothness, or perfect Congruity; the Manner of the Cohesion of the Parts of Bodies, the small Proportion the solid Matter bears to the Vacuities between them, and the Nature of those constituent Particles not admitting it.

This Friction therefore will also in Time sensibly diminish the impressed, or communicated Force; so that a *perpetual Motion* can never follow, unless the communicated Force be so much greater than the generating Force, as to recompense the Diminution made therein by

by all these Causes: But *nil dat quod non habet*, the generating Force cannot communicate a greater Degree of Motion than it has itself.

The whole Business of finding a *perpetual Motion*, therefore, comes to this, *viz.* to make a Weight heavier than itself, or an elastick Force greater than itself.

Or, 3dly, and lastly, there must be some Method of gaining a Force equivalent to what is lost, by the artful Disposition, and Combination of *Mechanick Powers*: To which last Point, then, all Endeavours are directed: But how, or by what Means such Force should be gained, is still a Mystery!

The Multiplication of Powers or Forces, it is certain, avails naught; for what is gained in Power, is still lost in Time; so that the Quantity of Motion still remains the same.

All *Mechanicks* cannot really make a little Power equal, or superior to a larger; and wherever a less Power is found in Equilibrio with a larger, *v. gr.* twenty-five Pounds with a hundred, it is a Kind of Deception of the Sense: The Equilibrium is not strictly between one hundred and twenty-five; but between one hundred Pounds and twenty-five moving, or disposed to move four Times as fast as the one hundred.

To consider the Weights one hundred, and twenty-five, as fix'd and immoveable; the twenty-five may seem, some how, raised beyond themselves; which is one of the sham Miracles of *Mechanicks*, that has deceived Millions; but which is easily dissipated, by considering the four Degrees of Velocity, which are to be given to the twenty-five Pounds, and which require a Force equal to the Excess of one hundred above twenty-five Pounds.

A Power of ten Pounds moved with ten Times the Velocity of the one hundred Pounds, would have equalled them in the like Manner; and the same may be said of all the possible Products equal to one hundred. But, in fine, there must still be one hundred Pounds of Power on each Side, what Way soever they be taken, whether in the Matter, or in the Velocity.

This is an inviolable Law of Nature; by which nothing is left to Art, but the Choice of the several Combinations that may produce the same Effect.

APPENDIX.

Note, That though *Motion* does not make Part of the *Mechanicks*, notwithstanding as it is the Foundation thereof, it will not be improper to add to this Treatise, by way of *Appendix*, what relates to a *Local Motion*, its Affections, Causes, *&c.*

Local MOTION, is a continued and successive Change of Place.

I say, a continued and successive Change of Place, *viz.* through a Space which is between the Term at which the Motion begins, and that at which the Motion ends; which Space is not, in fact, distinguished from the physick Bodies themselves, but mentally only, and mathematically; inasmuch as the sole Extension thereof is considered, and not the other physical Qualities; for no *Motion* is understood beyond Continuity and Succession. For if God, *v. gr.* was to produce, or preserve at *Rome*, the same Body which is in *London*, without passing through intermediate Places, tho' there would be a Change of Place, there would be no Mutation, because there were not a Passage from one Place to another.

Philosophers, both antient and modern, agree among themselves, that the *local Motion* is a certain State, or Manner of the mobile Body, whereby it corresponds successively to several different Places: But whether *Rest* be something real and positive, is what is much controverted. *Aristotle, lib. 5. Physic. c. 8.* and all the *Peripateticians* believe, that *Rest* is nothing but a Privation of *Motion*. And *Des Cartes* is of Opinion, that *Rest* is no less real and positive than *Motion* itself. In which Controversy I'll chuse the Medium: For *Rest*, as I take it, can be defined *the remaining of a Body in the same Place or Space*: Therefore it can be called either a State, or Manner, or Relation; and not a sole Privation of Motion, as *Aristotle* imagined it; much less is it to be considered, as some positive or real Faculty in a Body, whereby it can act or resist, as *Des Cartes* will have it.

It may be objected against my Sentiment, by the *Peripateticians*, that Rest consists in that which once admitted, its Nature is easily understood; as it happens by admitting only the Privation of Motion, as Darkness is understood by admitting only the Privation of Light.

To which I answer, that neither Rest is understood by the sole Privation of *Motion*, nor *Motion* understood, by the sole Privation of Rest, but either State is positive, one whereby a Body corrresponds to the different Parts of the Place, and the other whereby it corresponds to the same Parts of a Place; one or the other of those Manners being always in a Body. For if it ceases from moving it rests, and if it ceases from resting it is moved: Whence *Motion* and *Rest* alternately succeed each other in a Body.

As to what is said, that Darkness is a Privation of Light, it wants Explication. Darkness is a Privation of Light, if considered comparatively to our Senses, but not as considered as it is in dark Bodies: For either State of Light or Darkness, is positive in some Bodies, *v. gr.* in the Air. In the first State the Parts of a Body are moved with Celerity; in the second they either rest, or are moved more slowly.

The *Cartesians* will object, that when a Body which is at Rest is impelled by some mobile Body and breaks the *Motion* thereof, it is said to resist it; which Faculty of resisting proceeds from the Parts being at Rest; and therefore that Rest is a positive Faculty in a Body whereby it resists to Motion.

To which I answer, that a Body at Rest is said to resist to a mobile Body, inasmuch as the *Motion* of the mobile Body distributed in every Part of the Body at Rest, produces in it an almost insensible shaking; but not as if the Body at Rest had some *Re-action*, as they call it, or some active Faculty for the Elision of the *Motion* of the mobile Body. I agree that there is no other Faculty in a Body at Rest but the Rest of the Parts; which Faculty is only a passive Power; but I deny that it is an active one: Therefore a Body at Rest is said to resist a Body in Motion, because the *Motion* of the mobile Body being distributed throughout all the Parts of the Body at Rest, becomes sometimes insensible; as when a leaden Ball is fired against a Wall built with very hard Stones, let the Velocity of the Ball be ever so great, it being notwithstanding distributed throughout all the Parts of the Stone, scarce produces a sensible Quaking: But a Body at Rest does not resist a Body in Motion, as by some active Faculty whereby it re-acts into it. For to *Re-action* is required, a *tonick Motion* at least, such as that which happens in a Tree, which if bowed in one Part, and some body endeavours to bow it on the opposite Part, it happens then a true and proper *Re-action*, because the Tree resists by its *tonick Motion*.

Note, That *Tonick* is a Term used in Medicine, and applied to a certain Motion of the Muscles, wherein the Fibres being extended, continue their Extension in such Manner, as that the Part seems immoveable, though in Reality it be in Motion. Such is the Case of a Man standing, of Birds plating or swimming through the Air, *&c.* *Galen* says, that the Muscles act even when at Rest; for after having made any Contraction to fix themselves in a certain State or Disposition, the preserving of that Contraction, is what we call the *tonick Motion*.

It may be urged, with *Des Cartes, secund. part. princip. num.* 49. that a less Body, with whatever Velocity it may be carried against a greater at Rest, it never can communicate its *Motion* to the greater Body at Rest, and the more the Velocity of the lesser Body is increased, the greater grows the Resistance and Rest of the larger Body; therefore that *Rest* is some active Faculty or Power in a Body at Rest, as Motion is an active Faculty in a mobile Body.

To this I answer, that the Objection is the fourth Rule of the Communication of *Motion*, established by *Des Cartes*, which I will refute both by Reason and Experience. By Reason, because the Velocity of the lesser Body can be such, that being distributed throughout all the Parts of the larger Body at Rest equal to itself, it moves

moves them all, and consequently the whole Body. By Experience, because if a soft Body, *v. g.* with three Degrees of Velocity, be throwed against another soft Body twice bigger than itself, it will communicate to it two Degrees of its Velocity, and both as if they were united into a Body triple the former, will be moved by one Degree of Velocity towards the same Part; for the Velocity decreases, in Proportion the Volume of the Body, in which it is distributed, increases. Therefore if a greater Body is said to resist more in *Motion* than a lesser, it must be taken in almost the same Sense, as a greater Heap of Earth, is more difficult to be drenched with Water than a Handful; since the Effect must correspond to the Cause; so that the greater is the Heap of Earth, the more Water is required to penetrate it, not that the Earth has any Faculty to hinder the Water from penetrating; but the greater the Heap is, the greater must be the Quantity of Water to penetrate it: Likewise the *Motion* must be distributed throughout all the Parts of a Body at Rest, to be carried from one Place to another; and the greater is the Number of Parts to which the *Motion* is to be communicated, the greater must be the Quantity of *Motion*.

To understand better the Nature of *Motion* and *Rest*, it is necessary to say something of *Time* and *Place*.

As *Motion* is the Translation of a Body from one Place to another, which wants Time to be accomplished; we should, therefore, understand the Nature of *Time* and *Place*.

TIME, is *the successive Duration of a Thing which has a Beginning, and which can have an End.* It is called *a successive Duration*, because *Time* does not exist together. 2. *Which has a Beginning, and can have an End*, because Time belongs to created Things, which God has formed of nothing, and can reduce to nothing.

The Name of *Place* is ambiguous; for sometimes it signifies the Superficies of a Body wherein another Body is contained, sometimes a Space which can be occupied by all Sorts of Bodies; the first is called an *internal Place*, and the other *external*.

Gassendus, *Sect. prim. Phys. lib.* 2. *c.* 1. with *Epicurus* and all the *Epicureans*, pretend, that there is properly no other Place but the internal, because all the Bodies are properly contained in an *external* Space, and penetrated by it. But those who reject the *Vacuum*, as fictitious, as do the *Cartesians* and *Peripateticians*, admit no other than the *external Place*.

Aristotle takes Notice only of the *external Place*, *Phys. lib.* 4. *c.* 6. where he defines *Place*, *the first immobile Term of the ambient Body*; i. e. the first and internal Superficy of a Body containing another Body; that interior Superficy is called *concave*, and the other *convex*. *Place* is called *immobile* by *Aristotle*, because it is not carried, by the Motion, together with the Body, but is like an immobile Vessel; as, on the contrary, a *Vessel* is like a *mobile Place*. But how that Immobility of the external Place can remain with the Mobility of the Bodies, is very difficult to explain.

The *Thomists*, to defend it, have Recourse to certain immobile Parts of the Universe, *viz.* to the Poles of the World, around which the Heavens are said to turn in the *Ptolemaick* System.

Others add to the two Poles, four Points; *viz.* the Point of the East, the Point of the West, the vertical Point or *Zenith*, and the Point opposed to it, or *Nadir*; and say, that a Body is at *Rest*, when it keeps the same Distance to those Points; and is in *Motion*, when it changes that Distance.

Others, lastly, establish the divine Immensity, diffused by its Parts, or *virtual Points*, as well within, as beyond this World, for Rule of the Immobility of a Place; and imagine that a Body is moved, when applied to different Points of that Kind; and is at Rest, when it is joined to those same Points, and is penetrated by them.

However, all these Explications shew, how a located Body can sometimes be said to be at *Rest*, and sometimes in *Motion*; but do not attribute the Immobility to the Superficy of the Body wherewith it is environed, which is properly its Place; which notwithstanding is the present Difficulty: Therefore I believe that what I have said before to explain *Motion*, can be used here, to explain the Nature of *Place*: Therefore,

I consider the Superficy of the ambient Body in two Manners, *viz. Physically*, and *Mathematically*.—It is considered *Physically*, when considered in a physical Body, endued with several sensible Qualities, *viz.* Fluidity, Mobility, *&c.* and *Mathematically*, when considered as in an extended Substance, or in the sole Extension, abstracted mutually, from sensible Qualities: These presupposed,

I say, that the *external Place*, or *Place* properly called, *viz.* the concave Superficy of an ambient Body containing another Body, is in fact, and *physically* mobile, because it is continently moved, as it appears either in the Air we are environed with, and which is agitated around us; or in running Water, which washes the Piles of a Bridge.

But the *external Place* considered *Mathematically*, can be conceived immobile, because in it the sole Extension is considered, as abstracted from the rest of the physical Qualities, *viz.* Fluidity, Mobility, *&c.*

COROLLARY.

When *Motion* is defined the Translation of a Body from a Place into another, *Place* is considered *mathematically*, not *physically*.

From this I'll pass to the principal Affections of *Motion*.

The principal Affections of *Motion* are, its *Quantity*, *Determination*, *Reflection*, and *Refraction*.

The *Quantity of* MOTION, is the Answer to the Question, *How great is the Motion*, or that whereby any *Motion* compared with another, is said to be either greater or less than that it is compared with. And this is to be taken from two Chiefs, *viz.* from the Bulk or Weight of a mobile Body, and from the Velocity of the Motion.

Therefore if the two Bodies A and B, fig. 16. are equal in Bulk, and are moved with an equal Celerity, there will be as much *Motion* in one as there is in the other; but if one of them, *viz.* A, is moved with twice the Celerity of the other, it will have twice the Quantity of Motion B has. Likewise if both be carried with the same Velocity, and one be twice or thrice, or four Times the other, it will have twice, thrice, four Times, the Quantity of Motion.

For if some Force is used to throw, *v. gr.* a Body of a Pound Weight at fifty Feet Distance, within the Time of the second of an Hour, the same Force must necessarily be double, to throw it within the same Time, at a hundred Feet Distance; and then the Quantity of Motion in it will be double.

For the same Reason, if a Body of a Pound Weight be carried with a certain Force, within a Minute's Time to two hundred Paces, certainly a Body of two Pounds will be moved, and within the same Time, to a hundred Paces; notwithstanding which there will be the same Quantity of Motion in both, because the Force of the lesser Weight is followed with a greater Velocity. Therefore the Particles of the first Element of *Des Cartes* must be moved with a far greater Celerity with the same Quantity of Motion, than those of the second Element, because the first Element is much thinner than the second.

Though you cannot say absolutely therefore, what Quantity of *Motion* there is in a Body, you can notwithstanding have this Rule, that you may be capable to define what Quantity of Motion there is in it *comparatively* to another Body. For if you multiply the Velocity of the Motion by the Bulk or Weight of the Body, the *Product* then will give the Quantity of the *Motion*, *v. gr.* let it be a Body of two Pounds, which has three Degrees of Velocity: Likewise, let it be a Body of four Pounds, moved with three Degrees of Velocity. If you multiply the three Degrees of Velocity by the two Pounds, you'll have six Degrees of Velocity for the first Body: Likewise if you carry the three Degrees of Velocity into four Pounds, you'll have 12 Degrees of Motion for the second Body.

The DETERMINATION *of Motion*, is *the Direction thereof towards one Part, rather than towards another.* Whence *Motion* is taken from the impulsive Faculty, which is sometimes greater and sometimes lesser; and the *Determination* is to be deduced from the Manner whereby

whereby the Impulsion is made, *v. gr.* when a Ball is thrown with the Battler against a Wall, the *Motion* proceeds from the Blow or Percussion; but the *Determination* depends on the Manner of throwing it, *viz.* from the different Situation of the Battler, which Situation causes that the Fall describes one Line rather than another. For nothing hinders a Motion which is not interrupted, from being preserved in a mobile Body, though the *Determination* be changed; *v. g.* when a Ball falls obliquely into a Wall and returns back, the Determination thereof is changed, though the same Motion continues.

Hence, though *Motion* with regard to itself is to be said *simple*, and the mobile describes one Line only, either right or curve, when moved from one Point into another, we notwithstanding conceive sometimes two or more *Determinations* in it; and the *Motion* is said to be composed in some Manner, of those two or more *Determinations*, viz. where two or more Causes endeavour to move separately one and the same Mobile into different Parts, *v. g.* if one would cross a River from B to D, fig. 18. and be carried by almost the same Rapidity of the Water into G, whereby he is carried into D; then he'll follow neither the right Line A G, nor the right A D, but the Line A K. For if he had arrived at first by his own Strength to the Point B, he should have arrived at the Point E by the Strength of the River. Therefore to answer those two Motions, *i. e.* to arrive at the Point D, through that Interval, which is between A and B; and to the Point G, through that Interval, which is between A and E, it is certainly necessary, that he should be at the first Instant in the Point H, at the second Instant in the Point I, and at the third in K.

This composite Motion is of great Consequence in the throwing of Bodies; For, *v. gr.* when the Bullet of a Cannon is exploded, it is understood to be moved by a double Power, *viz.* of a horizontal Motion, by the lighted Gunpowder, and of a perpendicular Motion by its own Weight. Hence Hunters (excluding the Difference which can be occasioned either by the Quality of the Gunpowder, or the Caliber of the Gun) must aim a little higher, when they want to hit their Prey, at some Distance; for the leaden Bullet exploded from the Gun describes a Curve, and almost parabolick Line, not a right one; as I'll explain it in a clearer Manner, when I'll treat of the Descent of heavy Bodies, *&c.*

The Reflection *of Motion* in a mobile Body, is *the Regress of the mobile Body from another Body it cannot penetrate.* As when a Ball be thrown against a Wall, as it cannot penetrate the Wall, and is endued with an elastick Faculty, immediately returns back.

But when a Body is thrown against another, it falls against it, either perpendicularly and directly, or obliquely; if it falls perpendicularly, and is capable of Reflection, it must measure quite the same Line, since there is no Reason why it should incline to one Part rather than another, *v. gr.* when a Bladder blown is thrown against the Pavement, it is observed to return back according to the same perpendicular Line.

But if that Body falls obliquely against another, *viz.* if a Ball be thrown according to the Line A B, fig. 19. against the Line C B, in such a Manner as to form with it the Angle A B C, less than a right one, then it will reflect on the other Part, and keep the same Inclination towards the Superficy B E, or from another Angle equal to the former: The former is an *Angle of Incidence*, and the latter an *Angle of Reflection*; and those Angles, if the Contact be made on a smooth and polished Superficy, and meet with no Obstruction, must be equal, as is shewn in the second Dissertation of *Des Cartes*'s Dioptricks, in this Manner.

Let it be the Ball A, fig. 20. which is carried through the Line A B, into the Point B; its Motion is understood to be composed of two others, *viz.* of a Perpendicular, whereby it arrives at the Line C B E, and of a Horizontal, whereby it arrives at the Line G B H, or tends towards D E F: Whence it may be imagined, that the Ball is impelled by a double Power at once, *viz.* by one Power, according to the perpendicular Line A C; and by another, according to the horizontal Line A R D. If those Faculties or Powers be supposed equal, the Line A C will be equal to the Line A R, or C B; because the Ball advances as much by an horizontal Motion, as it is thrown by a perpendicular one; and therefore the Line A B will be the Diagonal of the perfect Square A C B R, but if the Faculties be supposed unequal, or if the Motion is said to be made according to a more oblique Line, another Proportion will be observed between the Faculties or Powers, and those Lines perpendicular and horizontal, and such as the Power will be to the Power, such will be the Line to the other Line.

For when the Ball will have touched the Point B in the Superficy or Line C B E, which opposes the perpendicular *Motion*, not the horizontal, it will change its perpendicular Motion, not the horizontal: But though the Determination be changed, the Motion does not immediately cease, for the Ball returns with almost the same Force it was thrown with: Hence it follows, that when it advances forward horizontally according to the Length E D equal to itself C B, it will advance forward by a perpendicular Motion according to the Length E D equal to A C; so as for the Angle of Reflection D B E, to be equal to the Angle of *Incidence* A B C.

The same happens if C B E, fig. 21. be imagined to be a small Cord, extended from the Point L to the Point M, against which is thrown the Ball A, according to the Line A B, for then the Cord will be bowed according to the perpendicular Line B *i* K, to the Point *i*, or thereabouts, and not according to the oblique Line B *n f* to the Point *n*; because the Motion or Inflection is easier and shorter, according to the perpendicular Line, than according to the obliquous: Therefore that Cord by its Elasticity will reflect the Ball in G; but when otherwise, the Ball with the same Force tends by a horizontal Motion towards the Point E, it must come back through the diagonal Line B D, which is the middle Line between both; and thus will form an Angle of Reflection equal to the Angle of Incidence.

If the Angle of Incidence had been more acute, *viz.* if the Ball had been thrown from the Point P to the Point B, the Angle of Reflection had been very near semblable to it, and the Ball repercuted into the Point O. This can be seen in those small smooth Stones which Children throw obliquely into a River, for those Stones reflect in the Superficy of the Water, with almost the same Inclination or Obliquity. Several say, that they have experienced the same Thing in playing Pieces of Brass Cannon on the Shoar, and that several have been killed on the opposite Shoar, by the Bullets having reflected in the Superficy of the Water: Which is a Proof that the Angle of Reflection of the Bullets was very near equal to the Angle of Incidence.

Therefore the perfect Equality of the Angles of Incidence and of Reflection, can only be defended, if the Reflection be made in a Superficy so smooth and so well polished, that the Asperity or Situation of the Parts be not an Obstacle to that Equality; nor the Motion of the mobile Body be diminished in the Contact or Percussion: For if the Superficy be scabrous and unequable, or in any Manner distorted, it will interrupt the Motion, according to the various Situation and Asperity of its Parts. Likewise the same mobile Body can by its Figure, or Texture, or the Loss of its Motion, hinder the Angle of Incidence, and the Angle of Reflection, from being entirely equal between themselves. For if it loses the least Part of its perpendicular Motion, as it happens in the small Pebbles which Children throw obliquely on the Superficy of a River, the Angle of *Reflection* must certainly be less than that of *Incidence*; because as much of their perpendicular Motion those Pebbles communicate to the Water they touch, so much they lose of it in the Reflection.

As to the Refraction *of Motion* — As often as a mobile Body passes from a liquid one, into another Liquid of a different Kind, which it penetrates and divides, it is not reflected by it, but it sometimes suffers another Mutation, called *Refraction*; with regard to which the modern Mathematicians have made several curious Observations, relating particularly to Astronomy and Dioptrick; but which the antient Philosophers have not so much as taken the least Notice of.

Refraction, is the *Inflection of Motion, whereby a mobile Body, according to the greater or lesser Resistance of the Liquid, which it enters obliquely, declines from its right Line.*

Line. Therefore a mobile Body falling perpendicularly on a Liquid of a different Kind, suffers no *Refraction*, *viz.* if the Ball A, fig. 22. falls perpendicularly from the Air into Water, and begins to penetrate it in the Point E, it will descend, by a right Way, into B; since no Reason occurs why it should incline more on one Part than on the other. But if a mobile Body, *viz.* a Ball, enters the Water in an obliquous Manner, then it will recede from the right Way; in which Recess, Gravity and Levity can produce some Variation.

But as the Doctrine of *Refraction* regards, particularly, Light, which we'll prove afterwards to be placed in a small Body pressed and moved, it seems more proper to explain it in the Rays of the Light, in which there is properly neither Gravity nor Levity.

Let therefore the Ray of Light be *a b*, fig. 23. which passes obliquely from the Air into Water, as it must on his Way tend towards *c*, it will be refracted in *b*, in approaching the Perpendicular *e f*.

If it had come from *d*, and passed from the Water into the Air, as soon as it had arrived at *b*, it had not proceeded forwards to *g*, but receding from the perpendicular Line *e f*, it had inclined towards the Point *a*.

Which to understand, you must conceive the solid Ray *k k i l*, which falls obliquely into the Water, where its Point *i* shall reach the Superficy of the Water, while the Point *b* will be still in the Air: And as the Resistance of the Water is greater than that of the Air, while the Point *i* shall run through the Space *i m*, the Point *l* shall run through the Space *l n*, which is much greater than the Space *i m*, as the Resistance of the Water is much greater than that of the Air: The one and the other Motion *l n* and *i m*, is understood to be made circular, and round the Center *r*, in which the Line *l i* and *a m* are formed.

But when the Line *i l* will be arrived at *m n*, and the whole Ray shall touch the Water with its anterior Parts, it will find the same Resistance every where; and thus will advance towards the Part *o d p*, by a right Motion, and not a circular one.

On the contrary, if the Radius *o p m n* was to come out of the Water, its Point *n* would reach the Air sooner than the Point *m*; therefore while the Point *n*, by a circular Motion were moved into *l*, the Point *m* should likewise be moved into *i*; and then both by the Force of the Water, and a direct Way should tend towards K L, in receding from the perpendicular.

From this I'll pass to the true and proper Cause of *Motion*, either *effectrice* or *conservatrice*.

We call, 1. In Metaphysicks, the true and proper effectrice Cause] of *Motion*, that which truly and properly produces *Motion* in Bodies, or which imprints a Motion in them, or in a Word moves them.—2. To move the Bodies, is to carry them from one Place into another, by a continual Fluctuation.

The Bodies which are carried from one Place into another wants God's continual Preservation; whence for Bodies to be moved, it is necessary they should be preserved in different Places, or continually created in those Places: But they cannot be continually created in those Places, but by him who has first created them; since a continual Creation be but as an Extension of the first Creation: Therefore without him by whom they have been created, they cannot be moved.

Bodies besides can be clearly and distinctly conceived without any Motion, even without any Penchant to Motion, and without any Faculty or Power, or active and inward Principle to moves themselves: For, *v. gr.* an immoveable Stone, and destitute of all Penchant to Motion, cannot be understood to lose the Nature of a Body: Therefore *Motion*, or a Penchant to Motion is not identical to a Body.

Corollary.

The *Motion* of Bodies does not properly proceed from themselves, since they can neither carry themselves nor other Bodies from one Place into another; the Faculty of moving themselves, or communicating a *Motion* to other Bodies is not contained in their Nature, and they are clearly and distinctly conceived without a Faculty or active Principle of Motion.

The Occasion of the Motion of the large and sensible Bodies draws its Beginning from a subtile and fluid Matter, which the Author of Nature keeps in a perpetual Motion; which can be demonstrated by Induction: For, *v. gr.* in a Watch, the Motion of the Index, which shews the Hours, proceeds from the Wheels, and the Wheels are put in Motion by the Spring inclosed in the Barrel; which Spring does not move itself, but receives its Motion from the subtile Matter; which Matter receives its Motion from the first Mover of all Things.

A Body can be the occasional Cause of another Body; as when the subtile Matter runs against the large Bodies, or Somebody pushes a Ball against another Ball: Thus Incursion, or Impulsion, is the Occasion of the Author of Nature transferring those Bodies into another Place, according to the Law he has prescribed to himself.

The natural Bodies can be very well called the second Nature; and nearest Causes of *Motions*, or natural Effects; because those Causes are employed by the Author of Nature to produce those Effects: *v. gr.* the Sun to produce Light and Heat.

The first and second Cause of a continued Motion in a Body, is the same with the Cause of the first Motion.

Corollary I.

A *Motion* once imprinted into a Body, continues always in it, till it be stopt by an outward Cause, *viz.* by the Bodies it meets in its Way; because it cannot be changed or destroyed by that Body into which it is received; since all Body be idle by itself. Whence if it was moved in the Vacuum, or rather in a Space in which there were no Resistance, its Motion would be perpetual.

Corollary II.

There is no definite Term, towards which the Motion tends, unless what proceeds from the Bodies it meet in its Way; for without those Bodies the Motion would be perpetual, and never interrupted, as we have already observed, and is plainly seen in the Planets, the Revolution whereof is perpetual.

The next Thing which falls under our Consideration is, *the Cause of the reflected Motion*; wherein I'll treat of *the Elasticity of the Bodies.*

There is such an Affinity between physical Questions, that one can scarce be explained or understood without several others. Thus the *Cause of the reflected Motion*, requires a Knowledge of *Elasticity*; and Elasticity, an Explication of Hardness. But as all those Things cannot be treated together, I'll postpone the Explication of Hardness; and speak only, in this Place, of the *Cause of a reflected Motion*, and of the *Elasticity* of Bodies.

Elasticity, or the *elastick Faculty of Bodies*, is the Power of restoring itself to its former State; as when the Branch of a Tree which was bowed returns to its former State of Extension. Therefore a Body for to be called *elastick*, must be first pressed or bowed, retaining all the while the Power to re-assume its former State.

If there was therefore a Body entirely hard and inflexible, such as the Atoms of the *Epicureans* are imagined to be, it would appear quite destitute of all *elastick* Faculty, since it could neither be bowed nor pressed.

Likewise if there was a Body perfectly liquid, capable of taking easily all Sorts of Form, and of retaining none, such as the Matter of the first Element of *Des Cartes* is represented to be, it would have no *Elasticity*, since it could neither be pressed nor bowed, so as to be capable to re-assume its former State. First it could not be pressed beyond Nature, since by its Nature it retains no Form. Secondly, being pressed it could not re-assume its former State, since it is capable of all Figures, and retains naturally the last which has been given to it.

Corollary.

An *elastick Body* must have at least some Regidity or Hardness in its Parts, whereby to support as much as possible its Form, otherwise it would never endeavour to recover its former State.

Which notwithstanding the sole Regidity of the Parts ought not to be considered as the proper Cause of *Elasticity*, since Regidity is in some measure the same with the *elastick Faculty*, or at least proceeds from the same Principle: Which, when we consider with a great deal of

of Attention, the Nature of Bodies, it seems to be nothing else but a certain subtile Matter, which runs through the Meatus of the larger Bodies; which Sentiment, which is that of *Des Cartes*, can be confirmed by several Examples.

For, 1. When an Ivory Ball falls on the Pavement, the Parts where the Contact is made, are plained, and consequently the Passages of the subtile Matter, closed. But the subtile Matter, to flow more freely, endeavours to dilate those Passages or Meatus, by penetrating them: Which it is impossible it should accomplish, without either removing the Pavement, or lifting up the Ball. But it is more easy to lift up the Ball, than to remove the Pavement; therefore it lifts up the Ball, and restores it to its former State. Let, *v. gr.* the Ball be *a d b*, fig. 25. in which the Part *a* be compressed in such a Manner, as for the Motion of the subtile Matter from the Part *c* thro' the Part *b* to *d* and *e* to be retarded: Then certainly that Matter by the continual Impulsion whereby it endeavours to dilate the Pores of the Ball, will restore to the Ball its former Form. But as the Ball received by the Batler, not only becomes more Plane in those Parts which touch the Batler, but even bends the Net of the Batler, by the *Elasticity* thereof it is repercuted; likewise an Ivory Ball falling on a Marble-Table, is reflected, as well by its own *Elasticity*, as by that of the Table.

Secondly, The same Thing may be observed in the Spring inclosed in the Barrel of a Watch; for if the Spring be inflected, the Pores in the convex Superficy, are dilated, and closed in the Concave. Whence the coarser Particles of the subtile Matter, can enter the convex Superficy, but cannot penetrate the Concave: And therefore endeavour to restore by their Penchant, and Pression, the Body to its former State. Here it happens, that the subtile Matter which flows continually, lengthwise, from one Extreme of the Spring to the other, affects as much as possible a right Line, and consequently endeavours to extend the Spring.

Next follow our Reflections on the *Cause of a translated Motion, where I'll treat of the Laws of Motions, observed in the Collision of Bodies.*

As God is the Author of all Motions, he has, notwithstanding, established Causes, which are the Occasion of his creating various Motions; which Causes are commonly called *second* or *natural*, and by modern Philosophers, *occasional*; and although those Causes, can sometimes be spiritual, *viz.* the Act of the Will with Regard to the Motion of the Members in a human Body; I'll speak in this Place but of the sole Bodies, *viz.* as by their running against other Bodies, they commonly excite them to *Motion*. Whence though Bodies consider'd in themselves, are only accounted passive, not active; if notwithstanding they be consider'd with Respect to the Bodies they touch or impel, they are said to act on them.

They exert their Strength, not only upon the Bodies which are nearest and contiguous to them, but operate, likewise, by the Intervention of the contiguous on those which are distant from them, *viz.* the Sun, by the interjected Rays of the subtile Matter, warms us: Though this Faculty of acting does not extend to all Kind of Distance, without Exception, but only to a certain determinate one, *v. gr.* the Fire-Heat extends no farther than a certain determinate Distance, which is greater or smaller, according to the Violence of the Fire: And that Circle whereby the Action of Bodies is terminated on all Sides, is called their *Sphere of Activity*.

But with what Proportion one Body operates on another, and communicates to it its Motion, and which are the Laws established by the Author of Nature, in the Collision of Bodies, is what can be discover'd only by observing carefully their natural Effects, and a long Meditation.

Des Cartes, who first of all attempted that Discovery, says, *secund. part. princip. num.* 36. and following, that God is the first Cause, as well of the Matter as of the Motion, and that he has produced a certain Quantity of Matter and of Motion, which always continues the same, without Increase or Diminution; for though some Part of the Matter, has at one Time a greater, and at another a lesser Quantity of Motion; there remains always, notwithstanding, the same Measure of Motion in the whole corporeal Nature; and when one Part thereof receives some Increase, as much Diminution is made in another. To which Sentiments of *Des Cartes* I subscribe, as the most proper to explain the Nature of Things.

From this Foundation he deduces three Laws, which, in his Sentiment, are always to be observed and never violated.

The first consists in this, that all Bodies remain in that State in which it was once placed, till that State be changed by the Encounter of other Bodies. Thus we see a Matter, which is square, retaining always the same Figure, till something happens from another Part, which makes it change that Figure. For the same Reason, when the Matter is at rest, it can be excited to Motion by another Cause, but not of itself: That when it is moved, it continues in Motion as long as it meets with nothing to stop its Motion.

The second Law of Nature is, that every Part of Matter which is moved, affects always a right Line, though by the Encounter of other Bodies, it often steps out of the right Road, and acquires a circular Motion, as it happens in a River, the Water whereof running against the Pile of a Bridge, returns back, and acquires a circular Motion, when it should have followed the strait Way, if it had met with no Obstruction to change its Determination.

For this Law, which *Des Cartes* believes is founded on God's Immutability, as well as the first, we can account physically in the following Manner.

A Body which is moved, affects that Line to which it is necessarily determined as the most compendious; and that Line is the right; as it appears in a Ball, which as it begins to be moved on a Plane, can be understood to be moved from one Point of the Space to the nearest and contiguous Point; which Points cannot be otherwise disposed but in a right Line: Since two Points or Spaces, which are considered as indivisible, never form a curve Line: Therefore the Beginning of the Motion of a Body is always determined into a right Line. And consequently a Body which is moved, affects always a right Line; unless a circular Motion be communicated to it, by the Encounter of other Bodies.

Hence it is that the Stone *a*, fig. 26. turn'd round in a Sling, by letting slip one of the Chords of the Sling, is thrown according to the right Line *a g*, which right Line is the *Tangent* of the Circle, delineated by the Sling, *i. e.* it touches it in the Point *a*.

Likewise, if Corn, or another minute Bodies, be put on a Mill-Stone, turning round, and are carried by the Motion of the Mill-Stone, they'll come out of it according to the Tangent-Lines. Whence it may be inferr'd, that all that's moved, even of a circular Motion, affects always a right Line, and recedes as much as possible from the Center of Motion; which is of a great Use in Physick.

The third Law of Nature of *Des Cartes*, contains two Parts.

His former Part is thus: As often as a Body which is in Motion, meets with another, if it has a lesser Force to go forward according to a right Line, than the other has to hinder it; then it reflects on the opposite Part; and retaining its Motion, changes only the Determination of Motion.

This first Part can be true in elastick Bodies; *v. gr.* in an Ivory Ball thrown on a Marble-Table. But in hard and inflexible Bodies, such as are imagined by *Des Cartes*, it can have no Place.

Then *Des Cartes* has establish'd Rest, as a certain Force and Power in a Body at Rest, whereby that Body resists to the Motion of another; which I have already refuted.

The latter Part of the Law is thus: If a Body in Motion, falls on a weaker Body, all the Motion it communicates to it, it loses it. So that if a hard Body encounters against a soft Body, it transfers all its Motion to it, *v. gr.* if a Ball be thrown into a Heap of Dust, the whole Impetuosity of the Ball passes into the Heap of Dust, or into the ambient Air, and is thereby entirely stopp'd. I do not see that this latter Part contains any Thing contrary to Reason.

But God has join'd each Part of this Universe between themselves, so as to communicate their Motions to each

each other by a mutual Collision. Therefore Laws of that Communication were to be established, according to which a Body encountring against another, should acquire nothing, or lose nothing of its Motion: Which to accomplish, *Des Cartes* has imagin'd hard and entirely inflexible Bodies, such as are not to be found in Nature; removing in his Mind, as well the sensible Qualities, as Flexibility, Softness, *&c.* as the Impediments of other Bodies, whereby the Laws of Nature could be disturbed. By that Means he imagin'd, that he could deduce, with a greater Facility, the Laws of Motions, from the Principles he had established.

The Percussion of two Bodies can be made in two Manners: For either both run mutually against one another from opposite Parts; or one runs against another, which is at Rest: Or both are carried towards the same Part, so that the Body which is last, is moved with a greater Celerity, and overtakes that which is foremost.

If they run against one another from opposite Parts: They are either equal in Bulk and Velocity, or are equal in Velocity, and unequal in Bulk or Weight; or lastly, are equal in Weight, and unequal in Velocity.

If one of them runs against another which is at Rest, or that which is less runs against a bigger, or a big one falls on a lesser; or an equal runs against another equal. These three Rules are explain'd by the fourth, fifth, and sixth Rule of *Des Cartes*.

If both are moved towards the same Part; or an equal Body overtakes another equal Body; or a lesser Body overtakes a bigger; or lastly, a greater overtakes a less. Whence three Rules can likewise be established, relating to this third Manner of Percussion: But *Des Cartes* has established but one Rule for it, *viz.* the seventh. For he has proposed seven Rules of the Communication of *Motions*, in the second Part of the Principles, *Num.* 46. and following.

The first is thus: *If two equal Bodies, as* A *and* B, fig. 27. *directed from opposite Parts with an equal Celerity, encounter one another, after the Collision, they will reflect with an equal Celerity towards the Place whence they departed.* For there is no Cause why the Motion should perish, but the Determinations must be changed.

The first Rule is observed in elastick Bodies; for in those which have no Elasticity; whether they be inflexible, as imagined by *Des Cartes*; or soft, it has no Place; because the opposite Determinations in Bodies destitute of Elasticity, destroy mutually one another; and those Bodies are only stopped by one another, but do not reflect.

But to apply these, and the following Rules to Experiments; and to imprint a certain Quantity of Motion into a Body, comparatively to another; we commonly take two Points in a Wall, perpendicularly erected, *viz.* *a* and *b*, fig. 28. to which we affix two Nails, from which hung two Threads *a g* and *b h*, whereby are described the two Arches of a Circle *h l f* and *g i c*, equal between themselves, and distributed into equal Divisions. For then if the two equal Balls *g* and *h*, suspended by those two Threads, be both thrown down from the same Height, they will run from opposite Parts against one another in the Point *m*, with an equal Velocity of Motion.

Therefore if they be both Elasticks, *viz.* either Marble, or Ivory, *&c.* then after the Collision, they'll reflect with the same Celerity to almost the same Height from whence they were thrown. For if an elastick Ball hits another elastick Ball with the same Force it was hit with by that other elastick Ball; and if there was not a little Obstacle as well from the Gravity of the Ball, as from the Resistance of the Air, they would mutually repel one another to the same Place from which they were thrown.

But if the Balls be destitute of Elasticity, *viz.* if they be made of soft Clay, both, after the Collision, will remain immoveable in the Point *m*. Though it must not be inferred hence, that their Motion is entirely perished; for it is transferred either into the Parts of the Balls, which being soft, are compressed, or swell in the Form of a Belly, or into the incumbent Air, and subtile Matter.

The second Rule. — *If the Bodies be unequal, and pushed against one another with an equal Velocity; the lesser Body shall reflect with the same Celerity, and both advance together towards the same Part.* This Rule seems to me contrary to Experience, even in Bodies destitute of Elasticity, from which *Des Cartes* has established it. For if the two Bodies, *g* and *h*, be soft, so that *g* be twice as big as *h*, and both thrown from the same Height (*viz.* from *i* and *h*, fig. 28) the Body *h* will fly back, but not with the same Celerity it came down, for the Motion of the lesser Body will take from the Motion of the bigger one, a Part equal to itself, and both move towards the Part *f*, with that Quantity of Motion whereby the Body *h* was surpassed by the Body *g*, before their Encounter.

But if those Bodies destitute of Elasticity, whether they be inflexible or soft, are supposed to have Velocities reciprocal with the Bulk; so that *v. g.* the Body *g* be twice the Body *h*, but, *vicissim*, and moved twice slower, *viz.* if the Body *g* be thrown from the Point *i*, and the Body *h* from the Point *f*, which is twice farther, both after the Collision, will remain immoveable, as is plainly seen in two soft Balls, *viz.* made of Clay. But however, as the Quantity of Motion is deduced both from the Bulk and Velocity, a Body twice lesser than the other, but moved twice swifter, has the same Motion as the other: Hence it happens, that both rest in the Point *m*, as if they were equal, and fallen with an equal Velocity.

What I have said, that a less Body thrown down from a Point twice more remote, has twice the Velocity of a greater, I will not have it understood agreeable to a very accurate Reason; since the Velocities of heavy Bodies do not increase as Spaces do.

If those unequal Bodies, pushed, notwithstanding against one another with an equal Velocity, be indued with Elasticity, both their Bulk is to be considered as in Bodies destitute of Elasticity. Then we must examine what that elastick Power produces in both, according to the Doctrine above deliver'd: Hence we'll discover what must happen in every Case.

The third Rule. — *If Bodies be equal in Bulk, but are moved with an unequal Velocity, that only which is moved slower, will return back after the Encounter, and both will be moved with an equal Celerity towards the same Part,* v. gr. If the Body *g* approaches with six Degrees of Celerity; and the Body *h* with four only, fig. 29. the sole Body *h* will return back after the Collision, and the Body *g*, besides, will communicate to it one of its Degrees of Velocity, that both afterwards may separately, with each five Degrees of Celerity, tend towards the same Part.

But this Rule is false, in that it can be adapted only to Bodies destitute of Elasticity; and because a lesser Quantity of Motion remains in them after the Collision, than it establishes; for if the two soft Bodies *g* and *h*, be supposed equal in Bulk; and the Body *g* runs with six Degrees of Velocity against the Body *h* at rest, it will communicate to it three Degrees of its Velocity, that both may be carried with the same Velocity towards the same Part. But if *h* runs against *g* with four Degrees of Velocity, as supposed in *Des Cartes*'s Hypothesis; then it will borrow four Degrees of Velocity from *g*; and both, after the Collision, be moved towards the same Part; so that the two Degrees of Velocity remaining in the Body *g*, will be equally distributed in them.

But if those equal Bodies are said to be elastick, and the Body *g* be thrown from the Height *c*; and *h* from the Height *l* only, so as the Velocity will be greater in the Body *g* than in the Body *h*, both after the Percussion will permute their Velocities, and the Body *g* reflect only into the Point *i*, and the Body *h* into the Point *f*. The Reason whereof is, that the Body *g* which is moved with more Celerity, strikes stronger the Body *h* in the Collision, than is striken by it; hence they must change their Velocities between them.

The fourth Rule. *If a Body be less than another which is at Rest, with whatever Celerity it may be pushed against it, it will never communicate a Motion to it, but will be reflected by it, into a contrary Part,* v. gr. never the Body C C at Rest, can be moved either by the Body A or the Body B, fig. 30. because a Body at Rest resists more to a greater Celerity, than to a lesser, and the greater the Celerity is in a lesser Body, the more the Resistance increases in a greater.

But that Rule, which establishes Rest in a Body, as something real and positive, to resist the Motion of another Body;

Body; can be demonstrated contrary, both to Reason and to Experience.

And first it is contrary to Experience: For if some softer Body, *v.gr.* if the Body *h* runs with three Degrees of Velocity against the Body *g*, twice bigger and at Rest; it will communicate to it two Degrees of its Velocity, and both united, will run with one Degree of Celerity against a Body three Times bigger than the Body *h*.

If those Bodies be elastick, and the lesser Body *h* moved, is said to run against the greater *g* and at Rest, the lesser Body *h* will not (according to *Des Cartes*) return with all its Motion, but will communicate something of it to the greater Body *g*, having Regard to the Motion of both, and to the elastick Faculty.

This Rule of *Des Cartes* is also contrary to Reason; for that a lesser Body may be capable to give Motion to a greater, it suffices that the Rest of the greater be not infinite, and the Motion of the lesser can be increased *in Infinitum*: For hence it will happen at last, that the Rest of the greater will be conquered by the Motion of the lesser: But the Rest of the greater Body is not infinite, since it is only attributed to the Bulk, which is finite; but the Motion of the lesser Body can be increased *in infinitum*, since it takes its Quantity, not from the sole Bulk, which is finite; but likewise from Velocity, which can be increased *in infinitum*.

Therefore a less Body can give Motion to a greater, and the fourth Rule of *Des Cartes* is not only contrary to Experience, but likewise to Reason.

The fifth Rule. *If the bigger Body C C hits the lesser Body A or B, which is at Rest, fig.* 31. *it transfers to it as much of its Motion as is sufficient to have them both moved with an equal Velocity.* Let it be, for Example, the Body C C, which being double the Body A, and having three Degrees of Velocity, will give one of them to it: For the Body A will be equally moved with one Degree, as the Body C C with two.

This Rule is agreeable to Experience, since those Bodies, after Collision, are united into one; but is not observed in elastick Bodies: For when a greater Body is pushed against another Body lesser, and at Rest, though the greater begins to move towards the same Part, it notwithstanding communicates a greater Celerity than that it has, though it does not give it a greater Quantity of Motion.

The sixth Rule. *If the Bodies A and B be equal, and the Body B be at Rest, the Body A hitting with four Degrees of Celerity against the Body B, will communicate to it one of its Degrees of Celerity, and with the three Degrees of Celerity remaining, will reflect into a contrary Part.*

This Rule, even according to *Des Cartes*'s Doctrine, is entirely false: For the Body A must give half its Motion to the Body B equal to it and at Rest, that together they may advance towards the same Parts, provided they be soft, and destitute of Elasticity; because then they make but one Body.

But if they be Elasticks the Body A will stop, and transfer its whole Motion to the Body B which was at Rest before. For as the Body A has two contrary Determinations, one whereby it is carried into the Body B, the other whereby it is repelled by its Elasticity, those two Determinations will mutually destroy one another, and consequently the Body A be necessarily stopped: But as the Body B has only one Determination, which it receives from the Body A, it therefore will be moved with that Quantity of Motion which was in the Body A.

Therefore if the Body A be pushed against the several Bodies C D E F, for Example, if a Crown be thrown upon other Crowns equal to it, all those Bodies will stop except the last; for if the Body A, in the Collision has two contrary Determinations, the Body B will have two likewise as well as D and E; so that the Body *f* which is repelled by none, must be moved.

For the same Reason, if two Bodies be thrown against several others, they will all stop except the two last. If three were thrown, only the three last would be moved.

The seventh and last Rule is a little longer and more intricate, and not true: The Sense of it is very near as follows.—*If B and C C, fig* 32. *be moved towards the same Part, and C C which is double the other, goes foremost, but slower than B, so as to be at last overtaken by it, it can happen that B either will transfer Part of its Velocity to C C, or fly back with all its Motion.*

For if the Excess of Celerity whereby B surpasses C C, be greater than the Excess of Magnitude, whereby C C surpasses B; then B will communicate to C C some of its Motion; that both may be moved with an equal Celerity towards the same Part: But if the Excess of Celerity whereby B surpasses C C be less than the Excess of Magnitude whereby C C surpasses B, nothing of the Motion of the Body B will be transferred to C C; but the Body B will fly back with all its Motion.

This Rule can be defended neither by Experience, nor by Reason: Whence we must philosophise in another Manner, of the Reason of that Percussion, and distinguish three Cases.

For if the Bodies in which the Experiment is made be destitute of Elasticity, *viz.* *g* and *h*, fig 33. and are moved towards the same Part slowly at first, and afterwards with great Celerity; either both are equal, or that which precedes, *viz.* *h* is greater, or lastly, that which follows, *viz.* *g* is greater.

If they be equal, and the Body *g* is thrown down from the Point *c*, and the Body *h* from the Point *i*; so that there be four Degrees of Velocity in the Body *g*, and only two in the Body *h*: After *g* shall have overtaken *h*, it will communicate to it one of the Degrees of its Celerity, that both together should proceed forward with three Degrees of Velocity; which Celerity is half the Celerity of both Bodies taken together: For 4 and 2 Degrees is 6, and half that Sum is 3.

Whence it may be inferred, that if the Body *g* be greater than *h*, all other Things supposed as before he is not to communicate a whole Degree of its Celerity to *h*; but if it be lesser, he must communicate to it more than one Degree of its Celerity, because it is distributed according to the Bulk. Therefore if when the Bodies are equal, and the common Velocity after the Encounter be half the same composed of the former Velocities; certainly when the Body which is foremost will be lesser than the other, the common Velocity will be greater than half the Sum; and when that Body will be greater, the common Celerity is to be lesser than half the Sum.

But if the Bodies *g* and *h* be elastick and equal, after *g* will have overtook *h*, they'll interchange their Velocities: For if the Body *g* was to run, with four Degrees of Velocity against the Body *h* at Rest, it would hit it with all those four Degrees, and be repulsed by so many Degrees afterwards by the Elasticity; and thus stop, having transferred its whole Motion to the Body *h*. Therefore if the Body *h* flies with two Degrees when hit by the Body *g*, the Percussion then will be of two Degrees only: Whence two Degrees will be added to the Body *h*, and two taken from the Body *g*; and thus they will interchange their Velocities.

If those two elastick Bodies be unequal, and are guided toward the same Parts by unequal Motions, Regard will be had as well to the Bulk of both Bodies, as to the Elasticity. But there is a more curious Research of those Things, for him who will take the Trouble to make a whole Treatise of Percussion; which, though attended with great Difficulties, is of little or no Use; therefore I'll pass to something which is much more useful, *viz.* to *the Motion of heavy and light Bodies*, where I'll treat of *Levity* and *Gravity*.

Nothing is more common in the peripatetick Schools, than to affirm, that *Gravity is a certain Faculty or Power, or a natural Cause, whereby a heavy Body is thrown downwards*; and *Levity a Quality or Cause whereby it tends upwards*. And to demonstrate to us, that there is within us a Science or certain Knowledge of Things by their Causes, they commonly make use of these Examples, *viz.* that a Stone is carried downwards, because it is heavy, and the Flame upwards, because it is light: Notwithstanding which there is not perhaps throughout Physick a more difficult Question than is that of the *Gravity* and *Levity* of Bodies.

The Opinion, that there is a natural Gravity in Bodies is not a modern one: For *Epicurus* pretended, that all the Atoms being solid, heavy and ponderous, were carried by a natural Propensity, and through a perpendicular Line, downwards: Therefore there is in his Opinion, a double Motion of the Atoms, one natural whereby

whereby they are carried downwards; and the other violent, proceeding from the sole Impulsion and Compression of the others, whereby they are carried upwards. There can be added a Third, which is called of Inclination, *viz.* to avoid the Necessity of Fate, and to explain Man's Liberty; which Motion of Inclination can be also called natural. The violent Motion of the Atoms *Lucretius* illustrates by the Example of a Beam, which though very heavy, cannot without a great Violence, be kept under Water, but on the contrary is continually forced upwards by the same Waters. He speaks thus, *lib.* 2. *de rerum natur. vers.* 169.

Nonne vides etiam quantâ vi tigna trabesque
Respuat humor aquæ? nam quam magni mersimus altè
Directa, & magna vi multi pressimus ægrè,
Tam cupidè sursum revomit magis, atque remittit.
Plus at parte foras emergant, exiliantque.
Nec tamen, hoc, quantum est in se, dubitamus opinor,
Quin vacuum perienne deorsum cuncta ferantur.

But as nothing is upwards or downwards, but comparatively; and the Things we imagine to be placed upwards, are taught, by our Antipodes, to be placed downwards; and as all Body, with regard to itself, is very indifferent to Motion or Rest; neither Reason, nor Experience, can persuade that there is in Bodies that inward Principle, whether it be called *Nature* by the *Epicureans*, or *Form*, or *Appetite*, or *Quality*, by the common Scholiasts: For as Bodies are idle of themselves, and cannot be moved, unless they be moved by others, whether they be carried upwards, or downwards, they must necessarily be pushed by others.

The Cause and Reason of this Impulsion, will be easily understood, if we admit a certain liquid Body diffused round the terraqueous Globe, and which consists, in Part, of a coarse Air, and in Part of an ætherial and subtile Substance, agitated round, by a vertical Motion, from West to East: For it happens hence, that all and every Part of that fluid Body, incline to recede from the Center of the Vortex, which is the same as the Center of the Earth, and tend with all their Force towards the Superficy of that Vortex.

Therefore if that Vortex of the liquid Substance, be conceived divided into several Columns, or rather Pyramids; though all the Particles of which those Pyramids or Columns consist, be brought to the supreme Superficy of the Vortex, they cannot notwithstanding fall all together beyond the Vortex, because they are forced back by the neighbouring Vortices; for one of those Columns cannot slip from the same Vortex, rather than another, since they all recede from the Center with an equal Force.

But if some solid Body be placed within a Pyramid, *v. g.* a Stone, which has not that Faculty to recede from the Center, which proceeds from the Substance of the first and second Element, in which the Particles of solid Bodies swim; it is manifest that *that* Pyramid will become weaker than the neighbouring Pyramids, of that Part of Motion, which the solid Body wants, and consequently that the Particles of the Pyramids will occupy the upper Place, and precipitate the Stone towards the Center of the Vortex.

The Thing is illustrated by the Example of Sealing-wax reduced into Powder, and thrown into a Pan full of Water: For if the Water be agitated with a Stick or the Finger, the Particles of the Wax will presently be carried to the Sides of the Pan, *viz.* while they have a greater Penchant than the Water to recede from the Center of the Vortex. But as those Particles are less solid, and rough in their Superfices, they sooner lose their Motion than the Particles of the Water, which are more solid, fluid, and lubrick: Whence as the vortical Motion continues in the Water, the Parts thereof recede with great Force from the Center of the Vortex, they precipitate the Wax, which is destitute of that Motion, to the Center.

Note, 1. That the Gravity of Bodies is not a certain Entity, inherent in the Bodies, as the Scholasticks imagine, whereby they are moved downwards; since such an Entity is unconceivable, and has been imagined for no other Reason than that the true Cause of the Descent of Bodies was not known.

2. That all Sorts of sensible Bodies whatever, whether they be placed in the terraqueous Globe or round it, are indued with some Gravity, whether greater or lesser; and none of them can be called absolutely light, but comparatively only, since they are all subject to the Pression of the subtile and fluid Substance.

3. Those of sensible Bodies are heavier, which are precipitated downwards with a greater Force; *viz.* whose Texture is more compact, and penetrated with a greater Difficulty by the subtile and fluid Substance. Whence as the Texture of the Oil is less compact than that of Water, the Oil is less heavy than Water, and swims over it; for as it has a greater Number of Pores than Water, more Particles of the subtile Matter pass through those Pores, and consequently compress it more than it does Water.

Likewise Wood is sometimes lighter than Water, and Water lighter than a Stone. For a Stone, as being of a more compact Texture, is pressed downward by the subtile Substance, with a greater Force than Water; and Water than Wood. Because the easier a Body is penetrated by that subtile and fluid Substance, the greater Number of Strokes it avoids from that same Matter. Therefore in a Glass-Tube, wherein are contained Petroleum, Spirit of Wine, Oil of Tartar, and Glass reduced into Powder, commonly called the four Elements; each of those Bodies search its own Place, as it is more or less forced downwards by the subtile Substance. The Glass in Power occupies the lower Place, which is supposed that of the *Earth*; then the Oil of Tartar, which represents the *Water*; to which succeeds the Spirit of Wine, which represents the *Air*; and at Top of all the Petroleum, representing *Fire*. Therefore, let those four Bodies be ever so well mixed, if notwithstanding they are altogether left to themselves, they are separated again; and each re-assume its own proper Place.

To this it may be objected, 1. That certain Motions have been given to Bodies by the Author of Nature, to carry them to the Place appointed for them, *viz.* the light upwards, and the heavy downwards; and that therefore, the Motion of the heavy and light Bodies, is rather to be attributed to an innate Gravity and Levity, as to Qualities inherent in Bodies, than to the Impulsion of the subtile and fluid Matter.

I answer, that a certain Motion seems to have been given by the Author of Nature, to the Bodies, to be carried to the Place of their Destination, having regard to the Connexion which is between the Parts of this Universe; but not without that Regard. For we do not infer, that Motions have been given to Bodies by the Author of Nature, to render them capable to reach the Place of their Destination, from that there is such a Disunion between the Parts of this Universe, that they press one another, and thus are forced towards the Place appointed to them. But it is not likely that Gravity and Levity are mere Qualities depending from the Union of other Bodies. For Bodies are idle of themselves, and do not affect one Part of this Universe more than the other.

It is objected, 2. That *Aristotle*, *lib.* 8. *Physic. c.* 4. teaches, that the Motion of the light and heavy Bodies, proceeds from a generating Cause; therefore it does not proceed from the Impulsion of the subtile Matter.

I answer, that it does not seem likely, that a Stone, *v. gr.* which falls from the Roof of a House, is pushed down by generating Causes, *viz.* by the Sun, which, according to the *Peripateticians*, is the universal effectual Cause of all sublunary Things, or some other Causes, often very remote and distant; though, in some Manner, it receives from them the Gravity taken from the Disposition of Parts, adapted to the Body being pushed downwards.

It is objected, 3. That it is more probable that heavy Bodies are carried downwards by the substantial Effluvia, which flow continually from the Earth, according to the Sentiment of *Gassendi*, *Sect.* 1. *Physic. lib.* 5. *c.* 2.

I answer, that this Sentiment of *Gassendi*, can be rejected for several Reasons, 1. For though those Effluvia should flow continually from the Earth, and be moved upwards, it would still remain to explain, by what Force or

or Power they ſhould draw with ſo much Impetuoſity to the Earth, the largeſt Bodies? What could determine them to return to the Place whence they were departed? Is it their own Gravity? But the ſame Queſtion would return, *viz.* Whence that Gravity could proceed? Is it their Penchant to the Earth? But why ſhould they incline towards the Earth, ſince they are ſaid to have but juſt flew from it upwards? 2. Why ſhould not thoſe Effluvia, draw downward a light Body, *viz.* a Feather, rather than a compact one, as Lead? 3. While thoſe Effluvia would be carried upwards, they would either run into the ſolid Parts of the heavy Body, or through its Pores. If we ſay the firſt, far from bringing it downwards, they ſhould rather lift it upwards. If the ſecond, they would make no Impreſſion upon it, but ſhould run in a direct Line from one Pore through the other.

It is objected, 4. That if the Gravity of Bodies be taken from the ſole vertical Motion of the liquid Subſtance, as that Motion is quicker under the middle Circle of the whole Vertex, which Circle is called the Equator; ſlower under the Polar Circles, and there is no Motion at all under the Poles; the Gravity ſhould likewiſe be very great under the Equator; ſlower under the Polar Circles, and none under the Poles.

It would, beſides, follow hence, that heavy Bodies ſhould not tend towards the Center of the Earth, as the Center of Gravity; but towards a Center parallel to the Equator, under which all heavy Bodies will be contained, *v. gr.* the Fall of a Body placed under one of the Polar Circles, ſhould be directed towards the Center of that Polar Circle, not towards the Center of the Earth. But it is not likely, that a Stone taken from the Earth, falls down with a greater Celerity under the Equator, than under the Polar Circles; and ſtand ſtill under the Poles. But it is rather more probable that heavy Bodies placed round the Earth, are directed towards its Center, as the common Center of all heavy Bodies, than to the various Centers parallel to the Circles: That therefore it is ſtill uncertain, whether the Gravity of Bodies is to be taken from the ſole Rotation of the liquid Subſtance.

I anſwer, 1. That heavy Bodies muſt not fall with leſs Celerity under the Polar Circles, and even under the Poles, than under the Equator, if while the fluid Matter, is turn'd round the Axis by a vertical Motion, its whole Volume can't paſs through the Parts the moſt remote from the Poles, *viz.* the Equator; but the greateſt Part thereof is forced to return back on the right and left, towards the Poles. Hence it happens, that not only according to the Plane of the Equator, but likewiſe according to the Plane of the Meridian, it is turn'd upſide down, and conſequently recedes from the Center of the Earth; and forces down the heavy Bodies, not only under the Equator, but likewiſe under the Polar Circles, and under the Poles.

To give ſome Strength to the laſt Objection, the whole Volume of the ſubtile Matter of which our Vortex is compoſed, ſhould flow through the Equator, and a new Matter enter through the Poles, to ſupply the Place of the firſt; which can't be done, ſince there is no empty Place in the neighbouring Vortices to receive it, but on the contrary all thoſe Vortices oppoſe its flowing out.

Thus far of the Motion of heavy Bodies: At preſent I muſt ſay ſomething of the *Acceleration of the heavy Bodies in the Deſcent.* For the Intelligence of thoſe Things, which have been happily diſcovered by our modern Mathematicians, and have been publiſhed almoſt in our Times, as well for the publick Utility, as for the Increaſe of Learning: I ſay that,

Heavy Bodies accelerate their Motion in deſcending: And that Acceleration very near follows the Progreſs of the uneven Numbers, 1, 3, 5, 7, ſince they are continually ſpurred on by the incumbent ſubtile Matter; for as that ſubtile Matter is always carried upwards, there is no Reaſon or Cauſe why its Faculty or Efficacy to force the heavy Bodies downwards, ſhould be diminiſh'd or deſtroyed.

That that Acceleration follows very near the Progreſs of the uneven Numbers, 1, 3, 5, 7, appears not only by the Experiments of *Galileo*, but likewiſe of other famous Mathematicians, who by thoſe they have made, particularly at the Obſervatory at *Paris*, have found, that a Body falling, runs within the ſecond of an Hour, or the Pulſation of an Artery, one ſix Feet; in the ſecond Inſtant, three; in the third, five; or rather, if within a ſecond, it was fallen from the Height of twelve Feet; it fell within two Seconds the Height of forty-eight Feet; and therefore; had run the ſecond Time, thirty-ſix Feet, *i. e.* three Times the Space it had run the firſt Time.

They have obſerved this in Pendulums. For the Ball being ſuſpended at a Rod three Feet, eight Lines and a half long, it performs a ſingle Vibration within the Time of a ſecond. But if the Rod be four Times longer, *viz.* twelve Feet, two Inches, and ten Lines, it will perform a ſingle Vibration in twice the Time, *viz.* in two Seconds. So that to the firſt Second are allowed three Feet, with eight Lines and a half; and to the laſt, three Times three Feet, or nine Feet, twenty five Lines and a half. If the Pendulum be nine Times longer, *viz.* twenty-ſeven Feet, ſix Inches, and four Lines and a half, it deſcribes its Arch within three Seconds. For thoſe Sums, *viz.* three Feet, with eight Lines and a half; nine Feet, with two Inches, and one Line and a half; fifteen Feet, with three Inches, and ſix Lines and a half, make up the Sum of twenty-ſeven Feet, ſix Inches, and four Lines and a half.

Therefore heavy Bodies follow very near, in their Deſcent, eſpecially in the leſſer Diſtances, the Progreſs of the uneven Numbers, 1, 3, 5, 7, *&c.*

I ſay *very near*, and in the *leſſer Diſtances*, becauſe that Progreſſion is obſerved neither accurately, nor at all Diſtances without Diſtinction.

Note, That there is no other Cauſe of Acceleration of the Motion of heavy Bodies in the Deſcent, than *that* which firſt puſhes it downwards, *viz.* the liquid Matter whereby it is continually depreſſed.

2. That the Spaces run through by a heavy Body in falling, are, in *Galileo*'s Hypotheſis, between them, as *Quarters of Times.* For if a heavy Body in the firſt Time, or Pulſation of an Artery, runs ſix Feet, in the ſecond, nine, in the third, fifteen, *&c.* it will follow hence, that at the End of the ſecond Time, it will have run twenty-four Feet, *viz.* ſix within the firſt Pulſation of an Artery, and nine within the ſecond. And if thoſe twenty-four Feet, are joined with twenty-eight, which it will run in the third Time, they will make up fifty-two Feet. And thus, at the End of the third Time, it will be found to have run nine Hexapedes; and four and nine are quadrate Numbers.

This is commonly expreſſed, fig. 30. in which the Triangle, A 11. repreſents the Space run through at the firſt Time; the three Triangles compriſed within 11 and 22, the Space run through at the ſecond Time, *&c.* For 1 and 2 are 4, which is a quadrate Number, produced from a binary Number, carried into itſelf. The Ratio of all other Angles is the ſame. Therefore the Spaces run through by a heavy Body in the Hypotheſis of *Galileo*, which as the leſſer Diſtances approaches nearer the Truth, are between them as Quarters of Time.

The ſame is ſeen in Pendulums; for a Pendulum of three Feet, eight Lines and a half, accompliſhes its ſimple Vibration within the Space of a Second; as we have already obſerved; a Pendulum of twelve Feet, two Inches and ten Lines, within two Seconds; and a Pendulum of twenty-ſeven Feet, ſix Inches and four Lines and a half, within three Seconds.

For 3, 12, and 27, are between them as 1, 4, and 9; for every where the firſt Number is contained four Times in the ſecond, and nine Times in the third; 4 and 9 beſides are Quarters of Times, *viz.* of two and three Seconds. Therefore the Spaces run thro' by a heavy Body; according to *Galileo*'s Hypotheſis, are between them as Quarters of Times.

3. A heavy Body, puſhed by a horizontal Motion, *v. gr.* a Leaden Bullet exploded from a Cannon, is carried by one Motion only, and deſcribes but one Line: But it is moved by two motrice Faculties or Powers, *viz.* by a *horizontal Motion*, from the lighted Gun-Powder, and by a *perpendicular one*, from its innate Gravity, or rather the Preſſion of the ſubtile Subſtance. Therefore of that double Motion, *viz.* horizontal and perpendicular, is formed a certain compoſite

posite Motion, whereby is described a curve Line: Which Line, such as it is, is made up in this Manner.

The horizontal Motion, the Resistance of the Air excluded, follows the natural Series of the Numbers, 1, 2, 3, 4; and the perpendicular Motion advances forwards, according to the uneven Numbers, 1, 3, 5, 7, as we have already observed. Therefore the Line described by that double Motion, the Resistance of the Air excluded, is a *Parabola*.

For a PARABOLA, *is a Line in which the Quarters of the Ordinates are between them, as Parts of a Diameter intercepted by those Ordinates*. But a Line described by a heavy Body, thrown by a horizontal Motion, is such a Line. For in fig. 31. if the horizontal Lines 1 *g*, 3 *h*, 5 *i*, 7 *k*. called ordinate, are between them as the Numbers, 1, 2, 3, 4; and the Parts 6 1, 1 3, 3 5, 5 7, follow the Progression of the uneven Numbers, hence it can be understood that a Quarter of the Line 3 *h*, which is, *v. gr.* of two Inches, is to a Quarter of that Line 5 *i*, which is of 3 Inches, as *a b* 6 3 is to 6 5. For the Quarter of the Line 3 *h* of two Inches is 4, and the Quarter of the Line 5 *i*, which is of three Inches, is 9: Likewise 6 3, or 6, 1, 3, is 4; for it contains 1+3. Likewise 6 5, or 6, 1, 3, 5, is 9: For it contains 1+3+5. and thus the Line *b g h i k*, which describes the Water flowing from the Fountain *a* through the Pipe *b*, is parabolick.

All projected Bodies, provided they be not thrown upwards by a perpendicular Motion (for then they re-measure the same Line) describe in their Ascent and Descent, an entire Parabola.

Let it be, *v. gr.* a Bullet exploded from the Cannon *p*, fig. 32. and sent according to the Line *p m*, as it should be carried into the Point *m*, it will be carried by its own Weight into the Point *a*, then into *g i l o*; and that Line *p a g i l o* is parabolick. For as the Bullet by its horizontal Motion, the Resistance of the Air supposed, follows the Series of the natural Numbers, 1, 2, 3, 4, the Lines *f g*, *h i*, *k l*, *n o*, will be as 1, 2, 3, 4; but as it follows in the Descent the Progress of the uneven Numbers 1, 3, 5, 7, the Parts of the Diameter *a f*, *g h*, *h k*, *k n*, will be as the same Numbers 1, 3, 5, 7: Therefore, as we have observed already, the Quarters of the Ordinates will be between themselves, as the Parts of the Diameter intercepted by those Ordinates; and consequently the Bullet will very near describe a Parabola. For heavy Bodies do not fall perhaps, exactly according to the Progress of the uneven Numbers; and the Air besides opposing the horizontal Motion, hinders those heavy Bodies from following the natural Series of the Numbers, by that horizontal Motion; but the Difference is not sensible in smaller Distances. It does not seem foreign to our Purpose to observe here, that Bodies thrown to an Angle of 55 Degrees describe a very great Parabola.

For if a Bullet be thrown upwards, and according to a perpendicular Line, so as to form with the horizontal Line a right Angle, or of 90 Degrees, it will fall through the same Line.

But if it follows a Line nearer to the horizontal, and form with it a less acute Angle, it will fall sooner by its Weight.

Therefore to send it very far, and that it may describe a very great Parabola, a middle Line must be chosen between the horizontal and perpendicular, *viz.* which should form with the horizontal, a Semi-right Angle, or of 45 Degrees.

For that Reason, the more or less the Line, according to which the Projection is made, will be inclined to the Horizon, one will be capable to judge into what Place the Bullets exploded will fall. For if above and beyond the forty-fifth Degree of Elevation, be taken equi-distant Arches, *viz.* 40 and 50, the Bullet will always fall in the same Place of the Horizon. But the Parabola described by a Bullet exploded according to 50 Degrees of Elevation, will be higher; and that according to 40 Degrees of Elevation, lower: Though both will have the same Amplitude, *i. e.* the Bullet will arrive at the same Point of the Horizon.

If I be asked, which is the Cause of the Progress of the Motion of heavy Bodies, by uneven Numbers? I answer, that as that Progress is not observed with much Accuracy, it is very difficult to assign the Cause thereof. Though that assigned by *Galileo*, and his Disciples, shew a great Strength of Imagination. Let's suppose, say they, that a heavy Body descends so as to accomplish the first Time, or within a Second, an Hexaped: If when it began to be moved, it had had that Velocity it acquired after the first Time, it had run double the Space, *viz.* two Hexapedes. Therefore in the second Time, by the Force of that Impetus it has acquired, and which it retains, it will run two Hexapedes, and another, besides, by its own Gravity; so that it will run three Hexapedes. Likewise the third Time it will run, by the Force it has acquired, not two Hexapedes only, but four; to which if one be added, which it acquires by its own Gravity, you'll have five Hexapedes, which it will have to run in that Time. There is the same Ratio of Increase in all the subsequent Times; whereby they pretend that the Motion of heavy Bodies is to be accelerated according to the Progress of uneven Numbers.

These they commonly demonstrate, fig. 33. in which the Line A B is said to represent the Times, *viz.* A 1, 12, 23, 3 B: And the Lines 11, 22, 33, B C represent the Velocities acquired to each Time. And the Space over-run in the second Time, which is exhibited by the three Triangles contained between 11 and 22, is triple that which is run the first Time, and which is represented by the single Triangle A 11. Likewise the Space run through in the third Time, and expressed by the Triangles contained with 22 and 33, is the Quintuple of the same first A 11, *&c.* if the heavy Body at the Beginning of its Motion had had that Velocity, which it acquired at the End, it should have run double the Space: Which is expressed by the Triangle A B C D, whereof the Triangle A B C is but one Half. But all these Things are only shadowed with Figures, but not demonstrated.

METALS.

METALS are hard and solid Bodies, fusible by Fire, and ductile by the Hammer.

We commonly distinguish six or seven Sorts of *Metals*, viz. *Gold*, *Silver*, *Copper*, *Tin*, *Iron*, *Lead*, and *Quick-Silver*. Where we must observe, that the Antients understood by the Name of *Tin*, a certain Mixture of Silver and Lead; but what we call Tin, at present, was by them called white or candied Lead.

I have said, that we reckon six or seven Sorts of *Metals*; for *Mercury* or *Quick-Silver*, is pretended to be rather a metallick Matter, or the Seed and Principle of *Metals*, than a *Metal*; for it is neither dissolvable by Fire, malleable, nor fix'd: In effect, it seems to constitute a peculiar Class of Fossils.

As to the Origin and Formation of *Metals*, various are the Sentiments of Philosophers antient and modern. M. *Tournefort* is of Opinion, that *Metals* as well as all other Minerals, have their Origin from Seeds, like Plants; that they have Vessels with Juices circulating in them, *&c.*

Plato will have the Cause of *Metals* to be a humid Vapour inclosed in the Bowels of the Earth, which being variously intermixed with Parts of the Earth produces various *Metals*. *Plotin* maintains Sulphur to be the Father of *Metals*; and an oleaginous viscous Humour, the Mother. *Lidgat* endeavours to prove all *Metals* generated by a subterraneous Fire; urging among other Reasons, that many *Metals* when taken out of the Earth, are

are exceedingly hot. *Du Hamel* shews, that *Metals* do not take their Rise either from any vaporous Exhalation, or from Water, or from Earth, but are generated of Mercury, Sulphur, and Salt. He adds, that *Metals* take their Matter and Weight from the Mercury, and their Tincture and Form from Sulphur.

Some Authors own the first Rudiment of a *Metal* to be a saline Substance swimming in Water, which is by little and little carried off. By how much the terrestrial Parts are more exquisitely mixed with the aqueous or humid, by so much is the *Metal* more heavy and firm, as having fewer and smaller Pores. Hence its Ductility for its Parts being extremely small, dense, and complicated, may be drawn out into a very spacious Surface; on which Account it is that Gold exceeds all other *Metals* both in Weight and Ductility: Hence also its Fixity, its Parts being too close and dense to be exhaled. The Water defends the Earth from being burnt, and the Earth the Water from flying off; neither forsakes the other, but each is bound in an undissolvable Knot. The Moisture gives Ductility, the Earth Solidity; where the Mixture is less perfect, whether the Earth or the Water prevail, the *Metal* will neither have so much Weight as having larger Pores, nor will it bear the Fire so well: For if the Earth prevail, as in Iron, or the Water, as in Lead, Heat will set the one at Liberty from the other; the Moisture evaporates, and the Earth is reduced into Scoria, *&c.*

Dr. *Woodward* maintains, that all *Metals* now found in the Strata of the Earth, owe their present Condition to the Deluge, when he also imagines, the Strata of Stone, Earth, Marble, *&c.* were formed. The *metallick* and mineral Matter now found in the perpendicular Intervals or Fissures of the several Strata's whereof the Earth is composed, was, according to him, at the Time of the Deluge lodged in the Bodies of those Strata's, and brought thence, and transmitted into these Intervals since that Time; the Intervals themselves not existing, *till* the Strata's were formed and broke again, to let the Water from the Earth. Now the Water, which he imagines is constantly ascending from the Abyss towards the Surface of the Earth, continually pervading the Strata, detaches out of their Pores and Intervals such *metallick* and mineral Corpuscles, as it finds loose in its Way, carrying them along with it to the perpendicular Intervals, where having a freer Passage than before, it deserts them, and leaves them in those Intervals. And this he takes to be the Way in which all *Metals*, now found in those Places, were brought thither, and still grow.

Those in the Strata however, he observes, do not nor can grow; but on the contrary, are continually lessened and diminished, by so much as has been conveyed into the perpendicular Intervals, and brought forth on the Surface of the Earth by Springs, and Exhalations from the Abyss, *&c.*

The same Author complains of the great Uncertainty and Inconstancy in the mineral and *metallick* Kingdom; neither Colour, Figure, nor Situation in the Earth, being to be depended on, so as to make any positive Judgment from them. A Pyrites, or Marcasite, for Instance, shall have the Colour and Brightness of Gold and Silver, and yet afford nothing but a little Vitriol and Sulphur; where a Pebble, in Appearance shall have a Mixture of a valuable *Metal* in it. It is common too to find the same *Metal* shot into a great Number of different Forms, as well as to find different Kinds of *Metal* of the same Form. And as to their Place in the Earth, there is the same Uncertainty, being sometimes found in the perpendicular Intervals or Fissures of the Strata, sometimes interspersed in the Bodies of the Strata, and sometimes in both. The same *Metals* are also placed indifferently in all Kind of terrestrial Matter, or in Strata of very different Natures. They are frequently intermixed with each other, so that it is a rare Thing to find any of them pure and simple; but Copper and Iron shall be in the same Mass, Gold and Copper, Silver and Lead, Tin and Lead; nay sometimes all Six together in the Lump.

The *French* Chymists have been very curious in their Enquiries into the Nature and Production of *Metals*.

M. *Geoffrey*, from a Mixture of Sulphur with a vitriolick Salt, and an argillous Earth, brought an Iron; which he maintained to be a new Production, or a Composition resulting from the Assemblage of certain Principles, which existed separately in the Ingredients that formed that *Metal*; in a Word, that it was an artificial Iron. And observing that there were Parcels of this *Metal* in the coloured Ashes of Plants, and of most other inflammable Substances, he concluded that it might be formed there also by the Union of the same three Principles.

This was opposed by M. *Lemery* the younger, who maintained that the Iron contained in the Ashes of Plants, was not formed there by Calcination, but was really existent in the Plants themselves, being raised in their Vessels along with the Juices of the Earth; and further, that all the Ingredients whereof M. *Geoffrey*'s artificial Iron was formed, do really contain Iron in themselves, either in smaller or larger Quantities; not the Argilla only, where the Iron is easily discovered by an animated Knife; nor the Oil of Vitriol, which is drawn from a Mineral, the Ground whereof is Iron; but also Linseed Oil, whereof M. *Geoffrey*'s Sulphur was made; and even that of Turpentine, sweet Almonds, *&c.* relating withal the Operations whereby each of those Oils may be reduced to an Earth, wherein there is Iron.

To this it was answered, that in what Manner soever Iron be procured from the several Ingredients separately, there will be still found infinitely less in them, than when mixed; and that of Consequence the Mixture produces Iron. That as for Oils, it is evident, they are not simple Substances, but are composed of an earthy, an acid, and a sulphurous, or inflammable Part; which are the three precise Principles required for the Formation of Iron: So that, according to all Appearances, it is an Assemblage of those Sulphurs, Salts, and Earth in the Oil, that the Iron is formed by Calcination; and therefore, that the Means used to the Iron in the Ingredients, are the very same with those by which it is composed.

Hence it appears, that vegetable Matters contain the Principles of Minerals. But M. *Geoffrey* goes further; and to support his Doctrine of the Production of *Metals*, undertakes to prove, that the Principles of Vegetables, and those of Minerals, are essentially the same; and that one may readily, and with Ease, decompound Minerals, by separating their Principles, and compound them again, by substituting Principles taken from Vegetables, in lieu of those taken away.

To clear this Point, he examines and compares the Principles of mineral and vegetable Salts. The principal in the mineral Class, are Nitre, Sea-Salt, and Vitriol: All which Salts we find in Plants. On the other Hand, the essential Salt of the Parietaria is wholly nitrous, and melts on the Coals like Saltpetre. The fix'd Salts of the Carduus benedictus, Absinthium, Kaly, *&c.* contain a great deal of Sea-Salt, which crystallizes in Cubes, and precipitates on the Coals. Add, that the greatest Part of the fix'd Salts of Plants calcined to a certain Degree, yield a strong Smell of Sulphur, which can proceed from nothing but a vitriolick Salt, rarified and volatilized by the Oil of a Plant. By these Salts we may be able to judge of all the other Salts of Plants; for the volatile Salts are nothing else but fixed Salts disengaged from the greatest Part of their Earth, and joined with Parts of Oil.

Further, there is scarce any Reason to doubt, that the acid Juices drawn from Vegetables, are of the same Nature with the mineral Acids; with this only Difference, that the Acids of Plants have been extremely rarefied by Fermentation, and united so closely with Sulphurs, that it is not without a great deal of Difficulty that they are separated.

Thus distill'd Vinegar, which we make no Scruple of ranking among the vitriolick Acids, does only differ from Spirit of Sulphur, Spirit of Vitriol, or even the caustick Oil of Vitriol, in that the Acids in the Vinegar are diffused among a great deal of Phlegm, and strongly united to a great deal of Oil, which yet may be separated. By dissolving Copper in the Acid of Vinegar, separated as much as possible from its Oil, there are formed Chrystals, like in Figure to those of blue Vitriol: From all which it appears, that the Salts of

Plants

Plants do not differ essentially from those of Minerals.

For Sulphurs, the inflammable or sulphurous Principle is the same in Vegetables as in Minerals. And M. *Geoffroy* even shews, that the Principle of Inflammability in common Sulphur, is the same with that which renders the Fat of Animals, the Oils and Resins of Plants, and the Bitumens of the Earth, inflammable. To which he adds, that this same sulphurous Principle is not only likewise found in metallick Substances, but that it is this which gives them their Fusibility, Ductility, and metallick Forms. Thus Antimony, which is a Substance approaching the nearest of any to a Metal, is little else but a burning Sulphur. By exhaling this it loses its metallick Form, and turns to a Kind of grey Ashes, which being melted, instead of *Metal*, becomes Glass: by melting this over again, and adding to it some inflammable Matter, as Tartar, it returns into a Regulus.

I must confess, that the Sentiment of Dr. *Woodward* (Let it be said with all the Respect I owe to so ingenious an Author) does not appear satisfactory; and some Authors, who have not the same Respect for that great Man, would perhaps turn it into Ridicule, as entirely contrary to Reason, and to Nature's Skill in its different Productions, by robbing her of some of the most marvellous among them, to transfer the Honour thereof to a pure Hazard; and searching the Cause or Principle of a Thing real and evident, in a Thing which has no other Foundation, than mere Suppositions, supported by the specious Reasoning of modern Philosophy. For if *Metals* owe their present Condition to the Deluge, the *metallick* and mineral Matter, now found in the perpendicular Intervals or Fissures of the several Strata of the Earth, being lodg'd at that Time of the Deluge in those several Strata, and brought thence, and transmitted into these Intervals since that Time, by the Water constantly ascending from the Abyss towards the Surface of the Earth; the same Difficulty still remains with regard to the Formation of that *metallick* and mineral Matter. For I would ask Dr. *Woodward*, If there were then no perfect *Metals* before the Deluge, since it must be necessarily inferred from his Sentiment, that the Waters of the Abyss, which were let loose at the Time of the Deluge, and not before, were necessary to usher up the *metallick* and mineral Matter to the Surface of the Earth? Was that Matter, while it continued in the Bodies of those Strata's a perfect Pyrites, or Marcasite? Or did it acquire its Perfection in its Separation from the Bodies of the Strata by the Water alone? If it was a perfect Metal before that Separation, and wanted no further Elaboration than that Separation, and ushering up to the Surface of the Earth, by the Waters of the Abyss, in order for its being easier discovered by avaricious Men, why is it not found in all Parts of the Earth; and why not in a greater Quantity, where there is a greater Abundance of Water near the Sea-shore, for Example, or large Rivers? When Experience convinces us on the contrary, that it is more seldom found in such Places, than in others far distant from them; and that if Gold or Silver be found sometimes in Rivers, it's only in those which have their Source, or wash Places where there are Mines of those *Metals*, as in *Guinea*, *Brasil*, &c. Why are Mines of those precious Metals more frequent in hot Climates than in the temperate or cold? Why are they so different in Quality and Quantity? And why is the Marcasite, as himself confesses, sometimes left imperfect? And why should the Water determine itself to separate that metallick and mineral Matter from the Strata, rather than others, the Bodies of those Strata's are composed of, which are easier usher'd up? As to his pretending to confirm his Sentiment by the Example of a Pebble, which sometimes contains a more perfect Metal than that found in the Mine, it is of no Signification, since a Pebble, like all other Bodies of that Kind, being formed *per Congeriem*, it may very well happen, that in the Assemblage and Coadunation of the Parts it is composed, some metalline Particles are joined with the rest, which by the Friction happening in the Union and Condensation of those Parts, may acquire a new Degree of Perfection.

M. *Tournefort*'s Opinion, that *Metals* have their Origin from Seeds like Plants, and have their Vessels with Juices circulating thro' them, is not better founded than that of Mr. *Woodward*; unless he could have made to us, as evident Demonstrations of those Vessels and Juices, as he has done of those of Plants, which is impossible; for then a Pyrites or Marcasite being set in the Earth, could grow, and be propagated, as easily as Plants are.

Though I readily agree with him, and this is my own Sentiment, that *Metals* have their Origin from Seeds, if by Seeds he understands a certain glutinous Matter, or Juice, enveloped in the Bowels of the Earth, proper to receive any Degree of Perfection, either from the Heat of the Sun penetrating the Earth, or from that of the subterraneous Fires, or from both acting in Concert. That in the Exaltation of the most subtile Particles of that Matter, from its coarser and most terrestrial ones, and in the different Configuration of their Pores, which cannot be done, without a violent and continual Shaking or Agitation of the Body operated upon, there arises from it a certain Phlegm, which temperates the too great Activity of the saline and sulphureous Particles in their Exaltation and Sublimation, hinders them from being set on Fire by the powerful Agent, and forces them, at last, after they have been exhausted of almost all their Activity, in the violent Effort made in their Exaltation, to fall back on one another, the saline Particles sheathing themselves, or hooking in the sulphureous one, so as to form, at last, that compact Texture we call *Metals*; which are more or less perfect, according as the Matter operated upon was more or less disposed to receive its last Degree of Perfection, and the Agents were more or less interrupted in their Operation. I am even of Opinion, that the Sun operates then in the Bowels of the Earth, very near in the same Manner as he does in the Marshes on the Coast of *Britanny*, where Salt is made.

As to the Species of *Metals* there are four, which the Chymists call *imperfect*, because, say they, their Principles are not bound so fast together, but that the Force of a common Fire destroys them; these are Iron, Copper, Lead and Tin: The others which are Proof against common Fire, are Gold and Silver, called *perfect Metals*.

In the four first it is easy to see the Principle of Inflammability; they become all fusible by the Addition of Salt-petre, either in a greater or less Degree.—Iron is that wherein this is the most visible; next, Tin; then Copper and Lead.—But the Principle is more conspicuous still, in the Dust or small Filings of the *Metals*, let fall in the Flame of a Candle, than in the Lamp.

For Gold and Silver, the sulphureous Principle is not so obvious; no Heat, but that of the Sun collected into a Focus, is able to decompound them: But no Doubt they have the same Principles with the other *Metals*, though not so easily seen.—In Gold, as well as in other *Metals*, is an Earth capable of Vitrification, as appears by the Glass remaining after the Calcination of Gold in a Burning-Glass; and there is Reason to believe, that the greatest Part of what is exhaled in Smoak, during the Operation, is the sulphurous Principle mixed with Salts.

As to Silver, there is something in it extremely various: When purified with Antimony, it vitrifies with a Burning-Glass; but if purified with Lead, it leaves nothing behind but grey Ashes.—The Basis of this *Metal* is doubtless an Earth, capable of Vitrification; and what exhales in Smoak, is apparently a Mixture of Sulphur, Salt, and a little Earth volatilized by the Fire.

From all which, and many more Observations of the same Kind, M. *Geoffrey* draws the following Conclusions, That the Substances whereof *Metals* are composed, do not differ essentially from those which compose Vegetables. That the imperfect *Metals* are composed of a Sulphur, vitriolick Salt, and vitrifiable Earth. That this sulphureous Principle is more or less strongly joined with the other Principles; very strongly in Gold and in Silver, less in Antimony, and very little in mineral Sulphur. That the Principle of Inflammability may be separated from *metallick* Substances, either by cumilay Fire, or by the Sun. That the *Metal*, thus despoiled of its Principle, is converted into Ashes, and that these Ashes, purified further with a violent Fire, vitrify; and that

ſuch Aſhes or Glaſſes, by the Application of ſome inflammable Matter, re-aſſume the *metallick* Form they had loſt. That it is by this Means Linſeed-Oil turns Argilla into Iron. That if we knew all the other *metallick* Earths, they might likewiſe be immediately converted into *Metals*, by the Projection of ſome inflammable Matter. That it is the ſaline and earthy Parts, found in Oil of Vitriol, that furniſh the earthy vitrifiable Part, which makes the Baſis or Ground of Iron, and that it receives the *metallick* Form from the ſulphurous Principle of the Oil. That the Iron found in the Aſhes of Plants, was produced there in the ſame Manner: And, that it is a Compoſition of the vitrifiable Earth of the Plants, the Acid of theſe Plants, and their oily or inflammable Principle.

The ſame Author, the better to aſcertain the conſtituent Parts of *Metals*, made a great Number of Experiments on them with his Royal Highneſs the Duke of *Orleans*'s large Burning-Glaſs; the Reſult whereof falls in with, and confirms the Doctrine laid down above. From thoſe Experiments he gathers, that the four *Metals* which we call imperfect, *viz.* Iron, Copper, Tin, and Lead, are compoſed of a ſulphurous, or oily Subſtance, capable of burning, and a *metallick* Earth capable of Vitrification. That from this Sulphur proceeds the Opacity, Brightneſs, and Malleability of a *Metal.* — That this *metallick* Sulphur does not appear at all different from the Oil or Sulphur of Vegetables, or even Animals; and that it is the ſame in Mercury, as in the four imperfect *Metals.* That theſe four *Metals* have for their Baſis an Earth ſuſceptible of Vitrification; that this Earth is different in each of the four *Metals*, in that it vitrifies differently in each; and that on this Difference in vitrifying, depends the Difference of *Metals.*

Boerhaave, after a Survey of the ſeveral *Metals*, their Characters, Properties, Preparations, Uſes, *&c.* draws the following Corollaries concerning the general Nature of *Metals.* 1. That which diſtinguiſhes *Metals* from all other Bodies, as well as from each other, is their Weight: Though every *Metal* has its peculiar Weight, which no Art is able to imitate, and which depends, as *Helmont* and the Chymiſts expreſs it, on the omatick Homogenity of their Parts. Now the later Philoſophers have proved, that all corporeal Magnitude has juſt ſo much Reality in it as Weight; and therefore if you have found the Weight of any *Metal*, you have at the ſame Time found its Capacity. Sir *Iſaac Newton*, treating of Gravity, and *Huygens* of the Pendulum, ſhew that Weight and Reality are correſpondent.

2. The *Metals* appear to be ſimple, yet are really Compounds. Their component Principles, according to the Antients, are Sulphur and Mercury; to which ſome of the Moderns have added Salt: But it is certain Salt is no conſtituent Part, or Ingredient of *Metals*, but rather ſomething external adhering to them. All *Metals* conſiſt of two Parts or Principles; Mercury as the Baſis or Matter; and Sulphur as the Binder or Cement: The firſt the Subſtratum or *metallick* Matter; and the ſecond, that which renders it fixed and malleable. The Mercury, it is to be noted, is the ſame with our Quick-ſilver, only defecate and clear of any heterogenous Matter; whereas the common Quick-ſilver is always *mixed.* As to the Sulphur, it is not the vulgar foſſil Sulphur, but a peculiar Sort of Matter, ſpecifically denominated *Sulphur of Metals*, concluded by ſome of our lateſt and beſt Chymiſts, particularly M. *Homberg*, to be Fire; which being mixed with the Mercury, fixes it, and according to the different Degrees of its Union, and Coheſion therewith, produces different *Metals.*

Thoſe who eſpouſe this Sentiment of *Boerhaave*, pretend, that it is confirmed by an Experiment of Mr. *Boyle*, who after having retain'd Mercury a long Time in a moderate Fire, took a Piece of Gold out of it, which it was apparent was not in the Mercury, before it was expoſed to the Fire. That M. *Homberg* has an Experiment to the ſame Effect; from which he concludes, that Gold conſiſts of a ſulphurous igneous Part, and a heavy mercurial Part fixed thereby; and that upon taking away the ſulphurous or fiery Part, the Gold is converted into fluid Mercury.

3. All *Metals* muſt firſt be Mercury, ere they be Gold; and the Thing ſuper-added to common Mercury, whereby it is prevented from becoming Gold, is a ſharp volatile Body, which when heated, becomes corroſive, and emits Fumes; which are the Properties of the foſſil Sulphur.

4. If any *Metal*, or other Body, could be found that only differ'd from Gold, in its wanting Weight, it were impoſſible ever to make Gold of it; and on the contrary, if a Body could be had that is as heavy as Gold; all the other Properties, as Colour, Fixity, Ductility, *&c.* might eaſily be added. And hence the more knowing among the Alchymiſts, hold the primary Matter of Gold to be Quick-ſilver; which, ſay they, is Gold at Heart, as coming neareſt to Gold in Point of ſpecifick Gravity. Only there is a corroſive Body, *i. e.* Sulphur, adhering to it, which, if it were ſeparated, you would have Gold; or if it were only inverted, Silver.

And accordingly, whoever would make Gold out of any other foreign Matter, muſt remember, that the more his Matter differs from Mercury in Weight, *&c.* the leſs Gold it will make.

5. Therefore *Metals* are tranſmutable into one another: For if Mercury be the common Matter of all *Metals*, and if all the Difference lie in the fixing Spirit of the Sulphur, which, as it is leſs or more ſubtile, or pure, conſtitutes this or that *Metal*; it is no Way improbable they ſhould be tranſmuted by a purer fixing Sulphur, taking Place of a corroſive one, and fixing the Matter into a more perfect *Metal.*

6. The pureſt *Metals* reſult of the pureſt and moſt defæcate Mercury, and the ſmalleſt Quantity of the ſubtileſt Sulphur. Hence Mercury of Gold is heavier than common Mercury, and has always ſome impure Part that is lighter than Gold; and could that be taken away, and the fixing Spirit be added, it would become heavier than Gold.

7. The imperfect *Metals* conſiſt of imperfect Mercury, and imperfect Sulphur, with ſome other variable heterogeneous Matter in it: This fuſed by the Fire, emits a Fume, which whitens Copper, after which the Sulphur exhales yet further. The Evidence of ſuch a third Matter is evidenced hence, that all theſe baſer *Metals* are reſolvable not only into Mercury and Sulphur, but alſo into Scoria or Sordes, which are lighter and more earthy than either of the other, and accordingly ſwim therein.

8. Upon the whole it appears, that in the three nobler *Metals*, Gold, Mercury, and Silver, it is principally the greater or leſs Proportion of the Sulphur to the Mercury, that determines them to be Gold, Mercury, or Silver: That it is by this Proportion thoſe ſeveral *Metals* are defined and denominated. And that from this Difference of Proportion, flow all the ſpecifick Differences of Colour, Weight, Fixity, Ductility, Volatility, Fuſibility, Solubility, Salubrity, *&c.*

9. That in the other baſer *Metals*, beſides this different Proportion of the two Principles, there intervenes another Cauſe of Diverſity, *viz.* a third Principle, or Matter of an earthy Kind, and very different from either of the reſt; which adhering to the pure elemental Sulphur, corrupts and adulterates, and variouſly modifies: And from the different Circumſtances of this third Principle, conſidered along with thoſe of the Sulphur itſelf, reſult the ſpecifick Differences of the more imperfect *Metals*, as to Weight, Colour, *&c.*

I beg Leave to refute every one of thoſe Corollaries deduced from *Boerhave*'s Doctrine concerning the general Nature of *Metals.*

1. Though it be very true that *Metals* are really compound, it is notwithſtanding very falſe, that they conſiſt only of two Parts or Principles, *viz.* of Mercury as the Baſis or Matter, and of Sulphur as the Binder or Cement, ſince to ſuppoſe Mercury the Baſis of the *Metals*, it muſt be ſuppoſed likewiſe ſuſceptible of Fixibility, and capable to receive any Impreſſion from heterogeneous Bodies, ſo as to loſe entirely its natural Fluidity, and form a ſolid and compact Compoſitum with them, and ſo intimate in their Coheſion as to never be ſeparated afterwards, even by the greateſt Efforts Art has made to that Purpoſe, but all in vain; which cannot be ſaid of Mercury, which, let it be ever ſo much diſguiſed under any Form whatever, reaſſumes always its former natural Fluidity by Help of Fire; which Phœnomenon could

could never be seen yet in perfect *Metals*, such as Gold and Silver; whatever Experiments have been made by Alchymists for that Purpose, and to make an Analysis of *Metals*, in order to get a clear Insight into their Composition, which would be a very great Help towards imitating Nature afterwards in their Formation. Even in the Fixation of Mercury by Verdigrease, which is the strongest that can be made by Art; the Mercury, by giving to it a violent Degree of Heat, either re-assumes its former Fluidity, or vanishes into Smoak, which Smoak is nothing else but the mercurial Particles themselves, which are never lost, but could be found yet in some Parts of the Place where the Operation is made; and if this be the natural Quality of Mercury, as a daily Experience convinces us it is; how can it be supposed the Basis of a perfect *Metal*, without confessing at the same Time, that the constituent Parts of such a *Metal* can easily be separated, since the Basis thereof should be so susceptible of the Impressions of Fire, which is contrary to Experience, and consequently M. *Homberg*'s Sentiment, that the Sulphur he admits for the other Constituent of *Metals* is Fire, which being mixed with Mercury fixes it, is false; since it is false that Fire alone has the Power to fix Mercury; but has on the contrary, that of expelling it, as we see in the different Operations wherein Mercury enters, as in gilding, *&c.* For the igneous Particles, far from penetrating the globulous ones of Mercury, as M. *Homberg* pretends, they on the contrary slide on them, as a Needle or pointed Iron would do on a smooth Ivory Ball, and serve only to accelerate their Motion. As to the Experiment of Mr. *Boyle* to confirm Mess. *Boerhaave* and *Homberg*'s Opinion, if I had lived in Mr. *Boyle*'s Time, and that ingenious Gentleman, for whom I have the greatest Veneration, had assured me that he had taken out of his Crucible a Piece of Gold, formed of Mercury he had retained a long Time at a moderate Fire, I would not have contradicted him, though I must have silenced my Reason, to believe him; for if even a moderate Fire could have fixed Mercury so as to have changed it into Gold; and Mr. *Boyle* had discover'd that Degree of Fire, why have not the other Alchymists who have worked since to discover the same Secret, and, without Doubt with as much Assiduity, as ever Mr. *Boyle* did, been as happy as he was in that Discovery? Besides, by observing that a moderate Fire fixes Mercury, so as to make of it the most perfect of all *Metals*, it gives to understand, that a violent one is not capable to produce that Effect, under the Supposition perhaps that a too violent Agitation of the igneous Particles is communicated to the mercurial ones, naturally much inclined to Motion; therefore, if even it could be supposed, that the Fire considered by *Boerhaave* and *Homberg*, as a Constituent of Gold, was moderate enough, in the Mine, to fix the Mercury so as to make it Gold; that Fire acquiring a new and far greater Degree of Action in the Crucible, far exceeding that Moderation necessary to fix the Mercury, must excite that Agent to destroy its own Works by evaporating what it had fixed, whereby the Basis being destroy'd, the whole Edifice must fall to the Ground.

2. The Weight of *Metal*, its Colour, Fixity, Ductility, *&c.* do not proceed from the greater or less Quantity of Mercury it contains, but from the more or less intimate Union of the Parts it is composed of, which renders it more or less heavy, *viz.* more, when the Union is very intimate; and less, when the Cohesion is not so great, or the Parts are looser, from the different Configuration of its Pores; whence proceeds a different Reflection of the Light, its greater or lesser Fixity, Ductility, *&c.*

3. From the Cohesion of the Parts, and the different Configuration of the Pores, proceeds likewise the greater or lesser Perfection of *Metals*; and not from the Perfection, or Imperfection, of the Parts they are composed of. For it is but a mere Supposition to say, that the Difference in their Degrees of Perfection consist in the Impurity of the Mercury, and the Imperfection of the Sulphur; no Alchymist having been capable yet to discover any Mercury in the frequent Analyses they have attempted, of the different Sorts of Metals; of which I'll give here a more particular Description, beginning with Gold, reckon'd the most perfect of them all.

GOLD, is a yellow *Metal*; the heaviest, purest, most ductile, and shining, and on those Accounts the most valuable of all *Metals*.

The Weight of Gold is to that of Water, as 19636 to 1000.—A cubick Inch of pure Gold weighs twelve Ounces, two Drachms, and fifty-two Grains; and the cubick Inch of Silver, six Ounces, five Drachms, twenty-eight Grains.—The Pound Weight, or twelve Ounces Troy of Gold, is divided into twenty four Caracts.

The Value of *Gold* is to that of Silver as 14 to 1; indeed, this Proportion varies as Gold is more or less plentiful: For *Suetonius* relates, that *Cæsar* brought such a Quantity of Gold from *Italy*, that the Pound of Gold was only worth seven Pounds and a half of Silver.—Standard Gold is worth 44*l.* 10*s.* Sterling the Pound Weight: Standard Silver is worth 3*l.* the Pound, or 5*s.* the Ounce.

The first Characteristick, or Property of *Gold*, is that it is the heaviest of all Bodies; proceeding from the Union or Cohesion of its Parts, which is closer and more intimate than in any other *Metal*.

Its second Character is, that of all known Bodies it is the most ductile and malleable, proceeding from the Configuration of its Pores, which being diversified and not all in the same Order of Opposition, give Way easily to one another. Of all Bodies, its Parts have the greatest Degree of Attraction, *i. e.* cohere with the greatest Force, as already observed.

This Tenacity or cohesive Force of Gold depends altogether on the sulphurous Particles which enter into its Composition, being free in their Sublimation in the Mine, from these earthly and heterogeneous Bodies which before rendered them spungy, and improper for a close Cohesion.

The third Character of *Gold* is its Fixedness in the Fire, in which it exceeds all other Bodies. This Property seems to result from the Equality of its Parts, which equally aid and support each other, and have equal Pores and Interstices through which the fiery Corpuscles find an easy Passage. The Prince of *Mirandola*, Mr. *Boyle*, and other Chymists, furnish divers Experiments to illustrate this wonderful Fixity. After laying a Quantity of *Gold* two Months in the intensest Heat imaginable, it is taken out without any sensible Diminution of Weight. It must be added however, that in the Foci of the large burning Glasses of *Tschirnhausen* and *Vilette*, even Gold itself volatilizes and evaporates. After this Manner we are told from the Royal Academy at *Paris*, a Quantity of pure Gold was vitrified (which contradicts the Sentiment of Mess. *Boerhaave* and *Homberg*, that no Salts enter the Composition of Gold) and that the Glass being fused with a Quantity of Grease was restored into Gold; which is a Confirmation of my Sentiment, that there must be some sulphurous Particles in the Formation of Gold, wherein the most acute Points of the same ones are sheathed.

Its fourth Character is, not to be dissoluble by any Menstruum in Nature, except Aqua Regia and Mercury, the Basis of Aqua Regia being Sea-Salt, which is the only Salt we know of that has any Effect on Gold; and it has its Effect in what Form soever applied, whether as fluid or solid, in Substance or in Spirit.

Mr. *Boyle* made a Menstruum of Butter of Antimony which dissolved Gold with great Facility; and hence concluded that *Gold* might be dissolved without Sea Salt; but by Mistake, the effective Part even of this Menstruum being still Sea Salt, which is an Ingredient in sublimate Mercury wherewith Butter of Antimony is made.

The seventh Character is, that it readily and spontaneously, as by some magnetick Virtue, attracts and absorbs Mercury, though what my Lord *Bacon* writes, *viz.* that Gold in imbibing Mercury increases in specifick Gravity, we doubt, is but ill warranted. It is more than probable it must be increased in Bulk more than in Weight, and consequently must be specifically lighter. It may be added, that as soon as the Mercury enters the *Gold*, the *Metal* becomes soft like Paste; though in my Opinon it does not at all enter the Gold, but being thrown into the Crucible, at that very Instant the Gold is on the Point of being in Fusion, and consequently while its Parts are much loosened, by the

the igneous Particles; it glides between the Interſtices of thoſe Parts thus looſened, ſhakes by means of the continual Agitation of its Particles, heightned by the Fire, and diſunites the whole Frame, ſo as to reduce it into Powder, with which uniting itſelf, loads itſelf thereby with a Burthen which ſtops its natural Fluidity, and offers it to our Sight as a Sheath to the *Gold* it is amalgamated with.

The eighth Character is, that it withſtands the Violence both of Lead and Antimony, *i. e.* being fuſed in the Coppel along with either of thoſe Matters, it does not diſſipate and fly off with them in Fume, but remains fixed and unchanged.

All other *Metals* except *Gold* and Silver melted with Lead, periſh with it, and evaporate by Fire; and in Antimony all other *Metals* except *Gold*, even Silver itſelf undergo the ſame Fate. Thus if a Maſs conſiſting of *Gold*, Silver, Stones, Copper, *&c.* be fuſed together with Antimony, the ſeveral Matters become ſeparated, and all but the *Gold* riſe to the Surface in Form of a Scoria, and is blown off with Bellows; but the *Gold* remains behind, much purified, as having loſt all its heterogeneous Parts along with the other *Metals*; and hence Antimony is uſed as the Teſt of *Gold*.

The ninth Character is, that of all Bodies it is the ſimpleſt (the primary Elements being here excepted) by ſimple we here mean that minuteſt Part has all the phyſical Property of the whole Maſs. Thus if a Grain of *Gold* be diſſolved in Aqua Regia, and a ſingle Drop of the Diſſolution be taken, a Quantity of *Gold* may be ſeparated therefrom, which ſhall only be the millionth Part of the Grain, and yet have all the Characters of *Gold*. Or if you fuſe a Grain of *Gold* with a large Maſs of Silver, and mix the two together, ſo that the *Gold* become equally diffuſed through the whole Maſs; you will have in every Particle of the Maſs a Particle of perfect *Gold*; accordingly diſſolve any Part of the Mixture in Aqua Fortis, and a Quantity of *Gold* will precipitate to the Bottom; bearing the ſame Proportion to the Grain that the Part diſſolved did to the whole Maſs, on which Principle depends the Art of aſſaying.

All the known Parts of the Earth afford this precious *Metal*; though with a deal of Difference in Point of Purity, and Abundance: *Europe*, ſo fertile in other Reſpects, comes ſhort of all other Quarters in *Gold*. *America* furniſhes the moſt; and particularly the Mines of *Peru* and *Chili*. That of *Aſia* is eſteemed the fineſt, particularly that of *Meranicabo* in the *Eaſt Indies*: Tho' the *Spaniards* aſſure us, that they get *Gold* out of ſome of their *Peruvian* Mines, twenty-three Caracts fine, before it be purified. Add, that the *Gold* of *Axima* on the Coaſt of *Africa*, is found from twenty-two to twenty-three Caracts.

Glauber, an eminent Chymiſt, holds, that there is not any Sand, or Stone, but *Gold* may be procured from, Limeſtone only excepted: The Misfortune is, that the Expence of ſeparating it, much ſurmounts the Profits.

Gold is chiefly found in Mines; though there is ſome, alſo, found in the Sand, and Mud of Rivers, and Torrents, particularly in *Guinea*: This laſt is in Form of a fine Duſt, and for that Reaſon called *Gold Duſt*. — *Glauber* tells us, that there is a third Sort of *Gold*, ſcarce found any where but in the Drains of the Mountains of *Chili*, which they ſeparate from the Earth by waſhing; whence the Places where it is found, or ſeparated, are called *Lavadero's*.

This Earth is uſually reddiſh, and very fine: At about ſix Foot deep it is mixed with Grains of large Duſt; and from hence commences the Stratum, or Bed of *Gold*; between are Banks of ſoft bluiſh Stone, mix'd with yellow Threads, which yet are not *Gold*, but only Pyrites, or Marcaſite of *Gold*.

When they have diſcovered any of this Earth, they endeavour to bring Rivulets to it (which in thoſe Mountains are very frequent) in order by Force thereof to tear off the upper Earth and lay the golden Stratum bare. Thus they forward by digging with Spades, *&c.* as ſoon as the golden Earth is uncovered, they turn off the Water, and dig up the Soil by Force of Arm, and loading it on Mules, carry it to the *Lavadero's*, i. e. a Sort of Baſons of Water where the Earth undergoing divers repeated Lotions in different Waters, the earthy and impure Part is all ſeparated and carried off by the Stream, and the *Gold* left at Bottom.

This Method of getting *Gold* is immenſely gainful; the Expences being but trifling, compared with thoſe accruing in the common Way by Machines, Fire, and Quickſilver: The richeſt of theſe *Lavadero's* is that *del Eſtanua del Rey*, twelve Leagues from *Conception*, a Port of the *South Sea*. — *Thuringia*, and ſome other Places along the *Rhine*, are the only Places in *Europe*, where *Gold* is got in this Manner.

The *Gold* of Mines is of two Kinds: The one in ſmall Pieces, or Grains of various Forms and Weights. Of this Sort, among the Specimens ſent by *Columbus* into *Spain*, to let them ſee the Richneſs of his Diſcovery, there were ſome of eighteen Ounces Weight; and the Relations of thoſe Days aſſure us, that in 1502, there were others found of thirty-two Pounds Weight.

The other Kind of *Gold* is dug up in ſtony Glebes, which is what they call the *mineral* or *Ore of Gold*: Theſe Glebes are of various Colours, and uſually one hundred and fifty, or one hundred and ſixty Fathoms deep. Along with the *Gold* they uſually contain ſome other mineral Matter, as Antimony, Vitriol, Sulphur, Copper, or Silver, particularly the laſt; without ſome Share of which it is ſcarce ever found.

To ſeparate the *Gold*, they firſt break the *metalline* Matter with Iron Mallets pretty ſmall, then carry it to the Mills, where it is grounded into a very fine Powder; and laſtly, paſs it through ſeveral Braſs-wire Sieves one after another, the laſt as fine as any of our Silk Sieves.

The Powder thus prepared is laid in wooden Troughs, with a proper Quantity of Mercury and Water, and there left to knead and ſaturate in the Sun and Air, for twice twenty-four Hours. After this the Water with the recrementitious Earth is drove out of the Tube, by means of other hot Waters poured thereon. This done, there remains nothing but a Maſs of Mercury with all the *Gold* that was in the Ore. The Mercury they ſeparate from it by Diſtillation, in large Alembicks: The Gold in this State is called *Virgin Gold*, as well as that found in the Sand of Rivers, or that in Grains in the Mines, in regard none of them have paſſed the Fire. After this they uſually fuſe it in Crucibles, and caſt it into Plates or Ingots.

SILVER, is a white, rich Sort of Metal; being the fineſt, moſt ductile, and moſt precious of all *Metals* except Gold; becauſe there is not ſo intimate an Union between the conſtituent Parts of Silver, as there is between thoſe of Gold; neither has it ſo great a Number of Pores, ranged in a perpendicular Manner, all of them being very ſmall beſides, which is the Cauſe of its reflecting Light with more Force than any other *Metals*, whence its Whiteneſs: It alſo receives in its Compoſition a greater Number of ſulphurous Particles than Gold, and leſs defecated, whence it is ſubject to more Mutations; and is diſſolved with a greater Facility.

There are *Silver* Mines in all the four Quarters of the World. *Europe* has its Share; nor is *England* quite deſtitute thereof, though it has none of much Value.

The Mines of *Peru*, and ſome other Parts of *America*, are much the richeſt and moſt abundant; they appear almoſt inexhauſtible, particularly thoſe of *Potoſi*, which continue to be dug with equal Advantage as when firſt diſcovered, with this only Difference, that the Veins which were then almoſt in the Surface of that famous Mountain, are now ſunk to prodigious Depths, the Workmen going into them by a painful Deſcent of four or five hundred Steps. Many Millions of *Indians* have periſhed in them, and prodigious Numbers continue to be deſtroy'd yearly.

The Ores or mineral Stones they dig, are not all of the ſame Quality, Conſiſtence, or Colour: Some are white or Aſh-colour ſpotted with red or blue, and called *Plata blancha*; others are black, and called *Promo ranco*: Theſe laſt are the richeſt, and the eaſieſt wrought, no Mercury have been here needed, nor any Thing but to put them in the Fire, where the Lead evaporating, leaves the Silver pure. The *Indians*, who, till the Arrival of the *Spaniards* knew nothing of the Uſe of Mercury, melted none but of this Kind of Mineral. The *Roſicler*, is another black Mineral diſtinguiſhed by whetting and rubbing it againſt Iron, which turns it red.

red. It is very rich, and the *Metal* it yields of the beſt Sort. The *Joroche* burns like Talc, and looks as if ſilvered, though it does not yield much. The *Paco*, is a yellow Red, very ſoft, and found almoſt broke in Pieces; it is not rich. The *Cobriſſo* is green and half friable. Though the Silver of this be viſible, yet it is drawn from it with great Difficulty, by reaſon of the Copper wherewith it is intermixed. Laſtly, the *Araunea*, which is only found in *Potoſi*, and that only in the Mine of *Cotamito*, conſiſts of Threads of pure Silver, interwove like a *Silver* Galoon, that has been burnt to get out the Silk.

The *Silver* Veins, of what Quality ſoever, are uſually richer in the Middle, than towards the Extremes; but the richeſt Places are thoſe where the Veins interſect. It is reckoned a great Addition to the Richneſs of a Mine to be near a River, for the Advantage of Mills to grind Ore. At *Lipes* and *Potoſi*, for Inſtance, the Caxon of Ore muſt yield ten Marks to defray Expences; whereas at *Tomava*, there need not above five.

The moſt uſual Way of ſeparating the *Silver* from the Ore, is by what they call *Pinea's*. Sometimes, however, they uſe nothing but Fire frequently repeated; or Aqua fortis.

The Manner of doing it by *Pinea's*, is to break firſt the Ore, or mineral *Silver* dug out of the Veins of the Mine; then grind it in Mills for the Purpoſe, driven by Water, with Iron Peſtles of two hundred Pound Weight. The Mineral thus pulverized, is next ſifted, then worked up with Water into a Paſte, which when half dry is cut into Pieces, called *Cuerpo's*, a Foot long; weighing each about two thouſand five hundred Pounds.

Each Cuerpo is again kneaded up with Sea Salt, which diſſolving incorporates with it. They then add Mercury, from ten to twenty Pounds for each Cuerpo, kneading the Paſte afreſh until the Mercury be incorporated therewith. This Office being exceedingly dangerous, by reaſon of the noxious Qualities of the Mercury, is the Lot of the poor *Indians*.

This Amalgamation is continued for eight or nine Days: Some add Lime, Lead, or Tin Ore, *&c.* to forward it; and in ſome Mines they are obliged to uſe Fire. To try whether or no the Mixture or Amalgamation be ſufficient, they waſh a Piece in Water, and if the Mercury be white, it has had its Effect; if black, it muſt be further worked.

When enough it is ſent to the Lavatories, which are large Baſons, that empty ſucceſſively into one another. The Paſte, *&c.* being laid in the uppermoſt, the Earth is then waſhed from it into the reſt by a Rivulet turned upon it; an *Indian* all the while ſtirring it up with his Feet, and two other *Indians* doing the like in two other Baſons.

When the Water runs quite clear out of the Baſons, they find the Mercury and Silver at Bottom incorporated. This Matter they call *Pella*, and of this they form the *Pinea's* by expreſſing as much of Mercury as they can; firſt by putting it in wooden Bags, and preſſing and beating it ſtrongly, then by ſtamping it in a Kind of wooden Mould of an octagonal Form, at the Bottom whereof is a Braſs Plate pierced full of little Holes.

The Matter being taken out of the Mould is laid on a Trivet, under which is a large Veſſel full of Water, and the whole being covered with an earthen Head, a Fire is made around it.

The Mercury ſtill remaining in the Maſs is thus reduced into Fumes, and at length condenſing is precipitated into the Water, leaving behind it a Maſs of Silver Grains of different Figures, which only joining or touching at the Extremes, render the Matter very porous.

This then is the *Pinea's* or *Pignes*, which the Workmen endeavour to ſell ſecretly to the Veſſels trading to the *South Sea*; and from which thoſe who have ventured to engage in ſo dangerous a Commerce, as the Merchants of St. *Malo* in *Britanny* did in the Beginning of this Century, have made ſuch vaſt Gains, particularly *l'Eſpine d'Alicant*, who, from a Merchant of Butter, became by that Commerce to the *South Sea*, ſo immenſely rich in a few Years, that he was capable at laſt to lend the late King *Louis* XIV. during that long deſtructive War, he carried on againſt all *Europe* leagued againſt him, ſix Millions of Livres, all in *Pina's* or *Pignes* of Silver; for which ſignal Service the King made him a Nobleman. And when the King offered to pay him the Intereſt of his Money, told his Majeſty, that the Honour of having ſuccoured the State, was worth both the Intereſt and Principal.

Indeed the Traders herein muſt be very careful, for the *Spaniſh* Miners are errant Knaves, and to make the *Pignes* weigh more, make a Practice of filling the Middle with Sand or Iron.

What renders the working of the Mines exceedingly dangerous, is the Exhalations ariſing from them; which are even felt on the Outſide, and make an Impreſſion on Animals grazing in the Neighbourhood; but in the Inſide ſtupify the Miners, none of whom can bear ſo poiſonous an Air above a Day together. Sometimes it is ſo fatal that it kills them on the Spot, and obliges them to ſtop up the Veins again whence it exhales. The Mines of *Potoſi* are much the leaſt ſubject to them, and yet without the Herb Paraguay, the Infuſion whereof is taken by the Miners, as we do that of Tea, thoſe Mines would ſoon be abandoned.

Though the Mines of *Potoſi* and *Lipes* ſtill keep up their Reputation, yet are there ſeveral diſcovered within theſe few Years, that exceed them much in Richneſs: Such are the Mines of *Aruro*, eight Leagues from *Arica*, and thoſe of *Alachæ* near *Cuſco*, opened in 1712. It is remarkable that moſt of the Mines in *America*, are found in cold and barren Places.

The Method of ſeparating *Silver* from the Ore, in *Europe*, is the ſame as that of Gold; that is by Means of Quickſilver; with this Difference, that for *Silver*, to every fifty hundred Weight of Ore, is added one hundred Weight of Rock Salt, or ſome other natural Salt.

To ſeparate the *Silver* from the Mercury wherewith it is amalgamated, they have a Furnace open a-top; and the Aperture covered with a Kind of a Capital made of Earth, of a cylindrical Form; that may be clapped on or taken off at Pleaſure. The Maſs of *Silver*, and Mercury being laid in the Furnace, the Capital applied, and the Fire lighted underneath; the Quickſilver raiſed by the Action of the Fire, in form of Vapour, is caught in the Capital, and taken thence to be uſed in the ſecond Operation.

The Standard of fine *Silver* is 12 Penny-weights, each conſiſting of 24 Grains: When it is below this, it muſt be raiſed to it by refining.

COPPER, is a hard, dry, heavy, ductile Metal, found in Mines in ſeveral Parts of *Europe*.

Copper is of all *Metals* the moſt ductile, and malleable, after Gold and Silver; and abounds much in Vitriol, and an ill-digeſted Sulphur.

Copper is found in Glebes or Stones of various Forms and Colours; which are firſt beaten ſmall and waſhed, to ſeparate them from the earthy, *&c.* Parts wherewith they are melted, and the melted Matter run into a Kind of Moulds, to form large Blocks, by ſome called *Salmons*, and by others *Cakes of Copper*: This is the ordinary *Copper*.

To render it more pure and beautiful, they melt it again once or twice; ſome of its coarſe earthy Parts being left at each Fuſion, and a Quantity of Tin and Antimony added in each: In this State it is called *Red Copper*, in Latin *Æs peloſum*.

Copper is alſo, ſometimes, found native and pure in the Mines, either in Form of Threads, or in Flakes, Plates, Grains, or other Makes and Lumps: This is called Virgin *Copper*.

Of a Mixture of *Copper* and *Lapis Calaminaris*, is formed Braſs; which, in *France*, we call *Cuivre jaune*, yellow Copper, in Contradiſtinction to natural *Copper*, which we call *Cuivre rouge*, red Copper.

IRON, is a hard, fuſible and malleable Metal, of great Uſe in the Affairs of Life: It conſiſts of an Earth, Salt, and Sulphur, but all impure, ill mixed, and digeſted, which renders it extremely liable to Ruſt.

Iron is the hardeſt, drieſt, and the moſt difficult to melt of all *Metals*. It may be ſoftened by heating it often in the Fire, hammering it, and letting it cool of itſelf; and it is hardened, by extinguiſhing it in Water.

There is a great Number of *Iron* Works in moſt Parts of *England*, thoſe in the Foreſt of *Dean* in *Glouceſterſhire* are in moſt Repute. The Ore is there found in great Abundance,

dance, differing much in Colour, Weight, and Goodness. The best called *Etuſh Ore*, is of a bluiſh Colour, very ponderous, and full of little ſhining Specks, like Grains of Silver; this affords the greateſt Quantity of *Iron*, but being melted alone produces Metal very ſhort and brittle, and therefore not ſo fit for common Uſe: For the remedying whereof the Workmen make uſe of another Sort of Material termed *Cinder*, which is nothing but the Refuſe of the Ore, after the Metal has been extracted; and which being mingled with the other, and in a due Quantity, gives it that excellent Temper of Toughneſs which cauſes this *Iron* to be prefered before any brought from foreign Parts.

After they have provided the Ore, they firſt work it to calcine it, which is done in Kilns, much after the Faſhion of our ordinary Lime-Kilns: This they fill up to the Top with Coal and Ore, *Stratum ſuper ſtratum*, that is, one Lay upon another; and ſo putting Fire at the Bottom they let it burn till the Coal be waſted, and then renew the Kilns with freſh Ore and Coal, in the ſame Manner as before. This is done without Fuſion of the Metal, and ſerves to conſume the more droſſy Part of the Ore, and to make it malleable, ſupplying the beating and waſhing which are uſed in other Metals.

From hence they carry it to their Furnaces, which are built of Brick or Stone, about 24 Feet ſquare on the Outſide, and near 30 Feet in Height within, not above 8 or 10 Feet over where wideſt, which is about the Middle; the Top and Bottom having a narrow Compaſs much like the Shape of an Egg. Behind the Furnace are fixed two large Pair of Bellows, the Noſes of which meet at a little Hole near the Bottom; theſe are compreſſed together by certain Buttons placed on the Axis of a very large Wheel, which is turned about by Water, in the Manner of an over-ſhot Mill. As ſoon as theſe Buttons are ſlid off, the Bellows are raiſed again by the Counterpoiſe of Weights, whereby they are made to play alternately, one giving its Blaſt while the other is raiſing.

At firſt they fill the Furnace with Ore and Cinder, intermixed with Fuel, which in thoſe Works are always, Wood or Charcoal, laying them hollow at the Bottom, that they may more eaſily take Fire; but after they are once kindled, the Materials run together with a hard Cake or Lump, which is ſuſtained by the Faſhion of the Furnace; and through this the Metal as it melts, trickles down into the Receivers ſet at the Bottom, where there is a Paſſage open, by which the Men take away the Scum and Droſs, and let out the Metal as they ſee Occaſion. Before the Mouth of the Furnace there lies a great Bed of Sand, wherein they make Furrows of the Shape into which they would have their *Iron* caſt. As ſoon as the Receivers are full, they let in the Metal, which is made ſo very fluid by the Violence of the Fire, that it not only runs to a conſiderable Diſtance, but ſtands afterwards boiling for a good while.

When the Furnaces are once at Work, they keep them conſtantly employ'd for many Months together, never ſuffering the Fire to ſlacken Night or Day, but ſtill ſupplying the waſting of the Fuel, and other Materials, with freſh poured in at the Top: Charcoal is uſed altogether in this Work, Sea-coal will ſcarcely do.

From theſe Furnaces the Workmen bring their *Sows* and *Pigs* of *Iron*, as they call them, to their Forges, where it is wrought into Bars.

TIN, is a whitiſh Metal ſofter than Silver, yet much harder than Lead.

The conſtituent Parts of *Tin*, and thoſe of Silver, are no otherwiſe different from one another, but in their Preparation, which is leſs perfect in *Tin* than in Silver, and in their Coheſion, which is leſs intimate in *Tin* than in Silver; which Imperfection proceeds chiefly, as well from the Imbecility of the Heat, occaſioned by the Difference of the Climates, or the Interpoſition of heterogeneous Bodies, between the Agent and the Patient, as by the cacochimous Diſpoſition of the Matrice, where the Marcaſite is formed. For though the Pores of *Tin* are as exiguous as thoſe of Silver, and equally unpervadable to the Light, whereby it reflects with the ſame Force on Tin as it does on Silver; the Texture of thoſe Pores being for the greateſt Part compoſed of an ill digeſted Sulphur, is eaſily broken, and deſtroy'd by Fire. This is my own Sentiment on *Tin*.

Boerhaave ſays, that the principal Characters and Properties of *Tin* are, that it is the lighteſt of all Metals, very little ductile or elaſtick; the moſt fuſible and volatile of them all, and ſcarce diſſoluble by Acids, unleſs the weaker Sort, and eaſily and intimately miſcible with other Metals, the Ductility whereof becomes diminiſhed by ſuch Mixture.

The ſame Author concludes with me, that Sulphur is the prevailing Ingredient in *Tin*, and deduces ſeveral of its particular Properties therefrom. He adds, that could the Metal be perfectly purged of this heterogeneous Sulphur, it is probable it would be found no other than Silver.

Several Authors had before noted a great Conformity in divers Particulars, between the two Metals, as that both grow better when diſſolved by Acids; that when fuſed together there is ſcarce any ſeparating them again, not even by Lead. Add, that Mr. *Boyle*, and others give us ſeveral Inſtances of Silver being actually produced in conſiderable Quantities from *Tin* Ore.

Yet ſome Naturaliſts judge the Analogy greater between *Tin* and Lead, and contend that *Tin* is only Lead, under a leſs Degree of Coction; but if there be ſome Marks of Agreement between them, there are as many of Diſagreement. The Cake of Lead, for Inſtance, eaſily fuſes and vitrifies, but that of *Tin* not without the utmoſt Difficulty: If *Tin* and Lead be mixed by a violent Fire, a vehement Colluctation enſues, and both run into a Calx: Add, that *Tin* is eaſily revivified, but Lead with greater Labour.

There are Mines of *Tin* as well as other Metals; the beſt are in *England*, in the Counties of *Cornwall* and *Devonſhire*, from whence the greateſt Part of the *Tin* conſumed in *Europe* is procured.

The Working of thoſe Mines is very hard and difficult, not only by reaſon of the great Depth which the Veins deſcend to, even as low as 60 Fathoms; but alſo becauſe the Rocks, through which Paſſages are frequently to be cut, are often ſo hard, that the Workmen cannot dig a Foot in a Week; nor is the ſoft ſhaking Earth found in the *Tin* Mines much leſs inconvenient to the Workmen, both by reaſon of the fœtid malignant Vapours it exhales, and of the Currents of Water met withal therein: All theſe Diſadvantages render it impracticable for the Workmen to hold it above four Hours together.

The mineral Stone or Ore being dug and drawn out of the Mine, is there broke into Pieces with large Iron Mallets, then brought to a ſtamping Mill, where it is ſtill pounded ſmaller with Stampers, much like thoſe of Paper-Mills; and the Water paſſing through it, waſhes away the earthy Parts, leaving the metallick ones behind: The Lotion is repeated twice to make the better Separation.

This done, they dry it in a Furnace on Iron Plates, and grind it very fine in a Craſing-Mill, then waſh it again and dry it: In this State the metallick Matter is called *black Tin*.

To convert it into Tin, *i. e.* into *white Tin*, they carry it to a Furnace or Blowing-houſe, where by means of a Charcoal Fire, kept up by huge Bellows worked with Water, it is melted; after it has paſſed all theſe Preparations and is become cold, they forget it, which is the laſt Thing done to it in the Works.

The Droſs or Scoria ſcummed off the *Tin* in Fuſion, being melted down with freſh Ore runs into Metal, and even the *Cauſalty*, i. e. the Matter waſhed and ſeparated from the Metal in the Mill, being thrown up in Heaps, after reſting ſix or ſeven Years they fetch it over again, and it yields as good Tin as any of that of *Germany*.

The Workmen diſtinguiſh ſeveral Kinds of *Tin*, as *moor Tin*, which is the beſt Sort, a Foot whereof weighs 80 Pounds; and *Mine-Tin*, which is the next, a Foot whereof weighing about 52 or 50 Pounds. The *Tin* got from the ſoft gravelly Earth, they call *Pryan-Tin*, to diſtinguiſh it from that got from the Stones, which is better by almoſt half. Two Pounds of *black Tin* when melted yield about one of *white*.

There is a Curioſity in the Corniſh Mines, which the Lovers of natural Hiſtory will be pleaſed to hear, and it is this: That in digging at the Depth of 40 or 50 Fathoms,

Fathoms, they frequently meet with large Trees ſtill entire.

Childrey in his *natural Hiſtory*, goes back as far as the Deluge to place them there; but without having Recourſe to ſo great Antiquity, they who believe that the Mines, when exhauſted of their Ore or mineral Matter, renew and fill again in Courſe of Time, will ſoon ſolve the Difficulty by ſuppoſing, that in the firſt working of theſe Mines thoſe Trees had been let down to ſerve as Props and Pillars.

But there are other People will think this Renewal of the Mines itſelf a Difficulty as great as the former: However, what the former Author adds, *viz.* that in ſome Places in the Mine they likewiſe find Pick-axes, *&c.* with wooden Shafts, as alſo Braſs Nails, and even a Medal of *Domitian* ſeems to countenance the Opinion.

For my Part I find not much Difficulty in the Renewal of the Mines; ſuppoſing, as it ſeems very reaſonable, that though the Mines have been exhauſted once of their Ore, there remains ſtill in them a ſufficient Quantity of the Seed of the ſame Ore, which being freed of the Obſtacle, which the vaſt Quantity of the Ore already produced, oppoſed to its Vivification, are thereby at Liberty to receive immediately, or without any Interpoſition, the Impreſſion of a powerful Agent, which unfolds by Degrees their minuteſt and moſt ſubtile Particles, puts them into Motion, ſublimates them from the heterogeneous ones they were enveloped in, and directs them towards their Cryſtalization, whereby they are rendered ſuſceptible of thoſe Degrees of Perfections, which render them in Time a new and perfect Ore.

To find whether *Tin* be ſoft and ductile, or harſh and ductile, there are two Kinds of Eſſays: The firſt is by putting the *Tin* in a Mould of caſt Braſs, and there melting it; if the Metal be harſh, it will be taken out heavier than before, otherwiſe it will be lighter. The ſecond is, by caſting the melted *Tin* into a little Mould made of the Thunder-ſtone. This Mould has a little Canal of moderate Length, which conducts the Matter into a Cavity capable of containing half a Billiard Ball; if the *Tin* be harſh it appears whitiſh towards the Entry of the Mould, otherwiſe it is tinged ſuperficially with a very faint bluiſh Brown.

LEAD, is a coarſe, heavy impure Metal, of all others the ſafeſt and moſt fuſible when purified.

Thoſe who have made an Analyſis of *Lead*, find it to contain a little Mercury, ſome Sulphur, and a great deal of bituminous Earth.

Lead is found in various Countries, but abounds particularly in *England*; it is found too in ſeveral Kinds of Soils and Stones, ſome whereof beſides, contain Gold, ſome Silver, others Tin, *&c.*

It is melted in a Furnace provided for that Purpoſe, with a ſtrong Coal-Fire upon it; as it melts it runs thro' a Canal on one Side, leaving the Earth, Stones and Scoria with the Aſhes of the Coals. It is purified by ſkimming it ere cold, and throwing Suet and other fat Bodies into it.

Lead is found of a lighter or deeper Colour, according as it is more or leſs purified, though ſome make a Difference in the Colour of the Ore, always eſteeming that moſt which is the whiteſt.

Some very able Naturaliſts obſerve, that the Weight of *Lead* increaſes either in the open Air, or under Ground. Mr. *Boyle* obſerves this particularly of the *Lead* of Churches, which, he ſays, frequently grows both in Bulk and Weight, ſo as to become too ponderous for the Timber that before ſuſtained it; which ſome account for from the Impurity, Heterogeneity, and looſe Texture of its Parts, by means whereof the Particles of the Air getting Admiſſion within its Pores, are attracted, and eaſily aſſimulated to it. But others, who rely wholly on Experience, abſolutely deny the Fact, as alſo that it is produced in Mines before exhauſted, by letting them lie long open to the Air, which others aſſert.

Lead is a Metal of much Uſe, it eaſily melts, and mixes with Gold, Silver, and Copper, and communicates its Humidity to them; but not being able to endure the Fire which they undergo, it retires and carries with it all that was heterogeneous in them, ſo as neither Gold nor Silver are refined without *Lead*. To which may be added, that the coarſer Kind of precious Stones boiled in *Lead* are thereby rendered much more brilliant.

M. *Glanville* obſerves, that the Smoak of the *Lead-Works* at *Mendy's* in *Somerſetſhire*, is a prodigious Annoyance, and ſubjects both the Workmen and the Cattle that graze about them, to a mortal Diſeaſe: The Trees that grow near them have their Tops burnt, and their Leaves and Outſides diſcoloured and ſcorched.

When the Lead Ore is dug out they beat it ſmall, then waſh it clean in a running Stream, and ſift it in Iron Rudders. Their Hearth or Furnace is made of Clay or Fire-ſtone; this they ſet in the Ground, and on it build their Fire, when they light their Charcoal, continuing it with young oaken Gads blown with Bellows, by Men treading on them. After the Fire is lighted and the Fire-place hot, they throw their *Lead* Ore on the Wood, which melts down into the Furnace, and then with an Iron Ladle they take it out, and upon Sand caſt it into what Form they pleaſe.

The Mine-men ſometimes find the Vein run up into the Roots of Trees, and yet do not obſerve any Difference between thoſe and other Trees. When the Mine is near the Surface, the Graſs is ſometimes found yellow. They make no Account of the *Virgula Divinatoria*, yet ſay, that when a Mine is open, they may gueſs by it how far the Vein will lead. The Ore runs ſometimes in a Vein, ſometimes is diſperſed in Banks, it lies many Times between Rocks, ſome of it is harder, others milder; ſometimes they have branched Ore in the Spar, about the Ore is Spar and Caulk, and another Subſtance which they call Crootes.

MERCURY, is an imperfect *Metal*, neither ductile nor malleable, but only a fluid Matter perfectly reſembling Silver in Fuſion.

Mercury is known under a great Number of Denominations; the common Name among the Antients was *Hydrargirum*, q. d. Water of Silver. The Moderns commonly call it *Mercury*, from ſome ſuppoſed Relation it bears to the Planets of that Name. The *French* call it *argent vif*, and the *Engliſh*, *Quickſilver*, from its Appearance. Many of the Chymiſts call it *Proteus*, from the Variety of Forms, Colours, *&c.* it paſſes through in their Preparation.

Boerhaave obſerves, that it is very improperly called a *Metal*, inaſmuch as it has not all the Characters of ſuch a Body, nor ſcarce any thing in common with the other *Metals* except Weight, and Similarity of Parts: Thus, for Example, it is neither diſſolvable by Fire, malleable, nor fixed: Whence ſome conclude, that it conſtitutes a peculiar Claſs of Foſſils, and is rather the Mother or Baſis of all Metals, than a Metal itſelf, but I am of a contrary Opinion, as is plainly ſeen at the Beginning of this Treatiſe.

The Characters of *Mercury* are, firſt, that of all Bodies it is the heavieſt after Gold; and ſtill the purer it is the heavier; nay ſome of the Philoſophers even hold, that *Mercury* well purged of all its Sulphur, would be heavier than Gold itſelf. The ordinary Proportion is, that of fourteen to nineteen: If any Mercury be found to weigh more than according to this Ratio, ſome imagine, that it may be eaſily concluded to have Gold in it, which in my Opinion, is a very falſe Imagination; for that Gold ſhould be in it, either potentially or actually; if they ſay that it is potentially in it, it cannot make any ſenſible Alteration in the Weight, ſince it could be then nothing elſe but the *Mercury* itſelf, which they conſider as the Seed or Baſis of Gold, and ſuſceptible of a new Configuration of Parts, by means of their imaginary Sulphur, which is the true Senſe of being ſomething potentially: If on the contrary there was Gold actually in the Mercury, it could be eaſily diſcovered from among the reſt by its being a fixed Body, without Fluidity: Therefore ſome *Mercury* exceeding the common Ratio of the Weight, can be attributed to nothing elſe, at leaſt in my Opinion, but to its greater Degree of Perfection, and to its being better purified of all heterogeneous Particles.

The ſecond Character of *Mercury*, is to be of all Bodies the moſt fluid, that is its Parts ſeparate, and recede from each other by the ſmalleſt Force; nay, we even have in it a plain Demonſtration of what I have ſaid in my Treatiſe of *Mechanicks*, of the ſubtile Matter being the primary Cauſe of Motion; of which the mercurial Particles,

Particles, by reason of their perfect Rotundity, are of all Bodies the most susceptible: For being placed on an even and smooth Plane, they are immediately put into Motion, without the least Resistance on their Part; that Particle which receives the first Impulsion, communicating so much of it to the next, without any sensible Loss of it on its Side; that to the next, and thus successively to the last, till every one of them retaining enough Motion, as to move all with an equal Rapidity, till they meet with some heterogeneous Bodies to stop their Course. Consequently of all Bodies *Mercury* is that whose Parts cohere the least, or are the least tenacious; and that therefore of all others the least ductile and malleable. The Parts of Water do not divide so readily as those of Quicksilver, and the Parts of Oil much less: There is a certain Tenacity even in the Parts of Spirit of Wine which resists Separation; but there is scarce any Cohesion at all in the Parts of *Mercury*, unless we chuse to say, that every sensible Particle thereof, is a whole Compound of itself, whose Corpuscles are so closely, or intimately united together, that they are indivisible, which intimate Union causes their perfect Smoothness and Rotundity.

The third Property of *Mercury*, which indeed depends on the second, is, that of all Bodies it is divisible into the minutest Parts, every Part, as observed above, being an entire Body of itself. Thus being exposed to the Fire, it resolves into a Fume scarce perceiveable to the Eye; but in whatever Manner it be divided it still retains its Nature, and is the same specifick Fluid. For the Vapours of distilled or volatilized *Mercury* received in Water, or a moist Leather, or the like, become pure *Mercury*; and if *Mercury* be mixed with other Bodies in order to fix it, it is easily separated from them again by Fire, and reducible into pure *Mercury* as before.

The fourth Character is to be extremely volatile, being convertible into Fume, even by a Sand-heat. In effect it does not sustain Fire long enough either to boil or ignite; though it must be added, if the Fire be at first very gentle, and increase by easy Degrees, it may be retained therein a pretty long Time, and be fixed so at length to become ignited in the Crucible, as we learn from some very tedious Experiments made at *Paris*.

The Gilders are but too well acquainted with the Vapours of *Mercury*, which frequently render them epileptick and paralytick, and sometimes salivate them; being of so penetrating a Nature as to take away any scirrhous Tumours, though very apt to reach and destroy the nobler Parts.

The fifth Property is, that it easily and intimately adheres to Gold, less easily to the other Metals, with Difficulty to Copper, and not at all to Iron. Indeed we have heard much among the Adepts about making an Amalgama with *Mercury* and Iron; but the Experiment would never succeed with that industrious Chymist Dr. *Boerhaave*. It is possible there may be some Way of binding those two Bodies together, and no doubt an Amalgama might be made, if a large Quantity of Gold were added to the Iron: But then if the Compound were beaten into Dust in Water, the Iron would wash away, and the Gold remain. On this Account it is that such as have Occasion to handle *Quicksilver*, always make Choice of Iron Instruments for that Purpose. We have known Women in a Salivation, to have their Earrings grow white and soft with the Effluvia of the *Mercury*. And hence the Gilders, to lay Gold on any other Body, dissolve it in hot *Mercury*, which done, they apply the Solution on the Body to be gilt, suppose Silver; then setting it over the Coals the *Mercury* flies away, and leaves the Gold adhering like a Crust to the Silver. Lastly, rubbing the Crust with *Lapis Hæmatites*, the Silver is gilt.

The sixth Character is, that of all Fluids it is the coldest, and the hottest, supposing the Circumstances the same.

Boerhaave shews, that Fire is equally diffused through all Bodies; and that there is in Reality the same Degree thereof in *Mercury* as in Spirit of Wine; and yet if you try with your Finger *Mercury* in the Cold is much colder, and over the same Fire, considerably hotter than this Spirit. This Property depends on the great Weight of *Mercury*; for the Heat and Cold of all Bodies is *cæteris paribus* as their Weights. Now *Mercury* being fourteen Times heavier than Water, if both of them be exposed in a Winter's Night to the same Cold; the *Mercury* must be so much colder than Water, as it is heavier: So also if they be both applied to the same Degree of Heat, while the Water becomes warm, the *Mercury* will be hot enough to burn the Hand.

The seventh Property is, that it is dissoluble by almost all Acids, and unites itself with them, at least with all fossil Acids. Thus it is dissolved in Oil of Vitriol, Spirit of Sulphur *per Campanam*, Spirit of Nitre and Aqua regia.

Only Vinegar does not dissolve it, and hence we are furnished with a Method of detecting the Frauds of Druggists, *&c.* who make a Practice of sophisticating Quicksilver with Lead. Do but take a Mortar, and pound the *Mercury*, with Vinegar therein; if the Vinegar grow sweetish, it is a Proof there is a Mixture of Lead: If Copper have been mixed with it, the *Mercury* will turn bluish or greenish, if there be no Adulteration, the *Mercury* and Vinegar will both remain as before.

The eighth Property is, that it is the most simple of all Bodies next after Gold; accordingly we find it the same in all its Parts, so far as our Observation goes: If a single Grain of *Mercury* be dissolved in Spirit of Nitre, a proportionable Part of the Grain will be distributed into every minute Particle of the Menstruum; and by diluting the whole with an Ounce of Aqua stygia, the whole Grain of *Mercury* will be revived. Had we the *Mercury* of the Philosophers, called also *vital Mercury*, *Mercury of Metals*, &c. so much talked of; it is asserted it would be still simpler than Gold; for from Gold it is pretended, that sometimes *Mercury*, sometimes Sulphur can be separated; but from pure *Mercury* nothing besides itself can be separated.

The ninth Property of *Mercury* is, not to be in any measure acrid, for it shews no Acrimony to the Taste, nor does it corrode any Body; and if a Carcase were to be buried in Quicksilver, it might doubtless remain there without being any way hurt.

The extraordinary Effects however it produces in the Body, have given People a Notion of its being acrid; but the Case is, that when received into the Blood it acts by its Weight and Velocity; whence it tears and destroys the Vessels, and thus occasions those great Alterations which lead the Chymists into their Mistakes. In effect, all its medicinal Operations are to be accounted for from the Properties already enumerated.

Mercury is found in Mines, the Chief of which are those of *Hungary*, *Spain*, *Friuli*, and *Peru*; the greatest Part of our *Quicksilver* is brought us from *Friuli*, where there are Abundance of Mines belonging to the Queen of *Hungary*, though mortgaged to the *Dutch*. It is found under three several Forms: 1. In ruddy Glebes or Clods, called *Cinnabar*. 2. In hard stony Glebes, or a mineral Substance of a Saffron, and sometimes a blackish Colour. 3. It is also found pure; for upon opening Holes in the Beds of Stones, *&c.* there sometimes gushes a Vein or Stream of pure *Mercury*, called *Virgin Mercury*.

This last Sort is most valued; *Paracelsus* and *Basil Valentine* prefer it far to any other Sort, for chymical Operations. Dr. *Brown* assures us in his Travels, that enquiring of one of the Directors of the *Quicksilver* Mines, wherein the Difference between this and common *Mercury* consisted; he was answered, that *Virgin Mercury* mixed and amalgamated with Gold, renders the Sulphur of the Gold volatile; but this has been tried several Times without Success.

To procure or separate *Mercury* from the Ore or Earth, they first grind the Glebe into Powder; this done they pour a great Quantity of Water upon it, stirring and working the whole briskly about till the Water become exceeding thick and turbid: This Water having stood till it be settled, they pour it off, and supply its Place with fresh, which they stir and work as before: This they repeat, and continue to do, till the Water at length comes away perfectly clear, then all remaining at the Bottom of the Vessel is *Mercury*, and other metalline Matter.

To this *Mercury*, &c. they add the Scoria of Iron, putting them together in large earthen Retorts, and so distilling

distilling it; by which Means all the heterogeneous, metallick and stony Part is separated therefrom, and the *Mercury* left pure.

As to the *Mercury* in Cinnabar, they do not find it worth while to distil, and yet get it out; Cinnabar selling at so high a Price alone.

The miserable People condemned or hired to work in those Mines, all die in a little Time; they are first affected with Tremors, and proceed to Salivation; then their Teeth drop out, and they are seized with Pains all over, especially in their Bones, which the *Mercury* penetrates, and thus die.

In *Spain* the melting and exhaling of the *Metal*, is performed with more Care, and with an Engine contrived for that Purpose.

As to the earthly Matter wherewith the *Mercury* is mixed, that of *Spain* is red, and speckled with Black and White, and so hard that it is not to be broken up with Gunpowder. In *Hungary* it is frequently a hard Stone, but ordinarily a reddish Earth. In *Friuli* there is a soft Earth where the *Virgin Quicksilver* is found; and a hard Stone which yields the common *Mercury*.

The Mine of *Idica*, one of those belonging to *Friuli*, is so rich, that it yields always half *Quicksilver*, sometimes two Thirds.

The Mine of *Juan Cabelaca* in *Peru*, is still more considerable, the Earth is of a whitish Red, like Bricks half burnt; it is first broke, then exposed to the Fire, by spreading it on a Layer of common Earth, wherewith the Grate of an earthen Surface is covered, under which is lighted a little Fire of an Herb, called by the *Spaniards Icho*; which is of that Necessity in those Works, that the cutting of it is prohibited for the Space of twenty Leagues round. In Proportion as the Mineral heats, the *Mercury* rises volatilized into Smoak; which Smoak finding no Vent through the Capital of the Furnace, which is exactly luted, escapes through a Hole made for the Purpose, communicating with several earthen Cucurbites fitted within one another. The Water at the Bottom of each Cucurbite condensing it to Smoak, the *Quicksilver* precipitates, and is taken up when the Operation is over. In this Process there are three Things remarkable; the first, that the further the Cucurbites are from the Furnace, the more they are filled with Quicksilver. The second, that at last they all grow so hot, that they would break, were they not sprinkled from Time to Time with Water. Thirdly, that the Workmen employed never hold it long, but become paralytick, and die hetick. The Precaution they use is, to hold a Piece of Gold in their Mouth, to imbibe the Effluvia, and interrupt their Passage into the Body. Dr. *Pope* tells us of one he saw in the Mines of *Friuli*, who in half a Year's Time was so impregnated with the Metal, that putting a Piece of Brass in his Mouth, or even rubbing it in his Fingers, it would turn as white as Silver.

The Method of purifying Mercury is, by washing it several Times in Vinegar, wherein common Salt hath been dissolved; or by passing and repassing it frequently over a shammy Skin. *Am. Paræus* tells us, that the best Way is to make a Dog swallow a Pound at a Time, and afterwards to separate it from the Excrement, and wash it in Vinegar.

I'll conclude this Treatise, by observing that the common radical Character of *Metals* is, that of all known Bodies they are the heaviest. By Dr. *Halley's* Experiments, the Weight of Gold to that of Glass is determined to be as 9 to 1; and the Weight of Tin the lightest of all Metals to that of Gold, as 7 to 19; which considerably surpasses the Weight of all Stones, Marbles, Gums, and other the most solid Bodies, as appears from the Tubes of specifick Gravity: Nor is there any Body in Nature but a *Metal*, that is one Third of the Weight of the Gold.

The Royal Society furnishes us with various Experiments of that Kind. The Weights of the several *Metals* and other Solids, they have examined hydrostatically, by weighing them in Air and in Water; and the Weights of the Fluids by weighing an equal Portion of each: By such Experiments they find, that taking the same Weights of Water and Gold, the Bulk or Magnitude of the former is to the latter as 19636 to 1000; consequently that the Weight of Gold is to Water nearly as 19 to 1.

The specifick Weight of the several *Metals* by this Means determined stands thus:

GOLD	19636	IRON	7852
QUICKSILVER	14019	TIN	7321
LEAD	11345	GRANATE	3978
SILVER	10535	WATER	1000
COPPER	8843	AIR	$\frac{1}{11}$

The Cube Inch of

		Ounces.	Drams.	Grains.
GOLD	weighs	12	2	52
QUICKSILVER		8	6	8
LEAD		7	3	30
SILVER		6	5	28
COPPER		5	6	36
IRON		5	1	24
TIN		4	6	17

METAPHYSICK.

METAPHYSICK, is a speculative Science which treats of the *Ens* in general, and of its Affections, mentally abstracted, especially of spiritual Substances, as far as they can be known by a natural Reason.

1. It can be said a Science, *i. e.* a certain and evident Knowledge of a Thing necessary and immutable by its proper Causes or Ratio's. For what is demonstrated in the metaphysical *Ens* in general, of God and of the human Soul is immutable, and supported with immutable Reasons, as we'll see clearly in the Sequel of this Treatise.

2. It is a certain speculative Knowledge of very general, or most sublime Things, by sublime Principles or Arguments.

The *Metaphysick* is divided into two Parts, *viz. Ontology*, and *Pneumotology*.—*Ontology* treats *de ente*, or *Being*, as a *Being*, and of its Affections abstracted by the Mind.—*Pneumotology* treats of Spirits, *viz.* of God, of the human Soul, in a manner conform to our Reason.

ONTOLOGY, which is the first Part of *Metaphysick*, according to my Division, can be called very well a *general Science*, since it exposes the first Notions of the Mind with regard to *Ens*, or *Being* in general, and its Affections. But to proceed with some Order in this first Part of my *Metaphysick*; I'll speak, 1. *De ente*, or of *Being* in general and of its Affections.—2. Of the Attributes common between the *Being* itself and its Affections.—3. Of the Attributes proper to the *Being* alone.—4. Of the first Notions or Axioms formed of the first Ideas of the *Being* in general, and of its Attributes.

As to Being, and its Affections in general.—Though *Being* is commonly taken in a double Sense, one, *viz.* whereby *Ens* is called a Participle of the present Tense, whereby it signifies, say they, a present and actual Existence, either of the Thing or of the Mode, or is the same as existing: The other whereby it has only the Name, but not the Force of a Participle, and denotes a *Thing* which exists or can exist; it is notwithstanding taken by the Learned, rather in the first than in the last Sense, among whom, *Being*, *Thing*, and *Substance*, have the same Signification. But however, whether some Substance exists actually or not exist, &c. a Violet, a Rose, &c. This Proposition is notwithstanding always true, a *Violet is a Being*, *a Rose is a Being*, or is a Thing or Substance, since *Ens* very seldom performs the Office of a Participle.

Therefore

Therefore though *Ens* or *Being* taken for a Participle (*viz.* as it is the same as existing, and can be adapted as well to Substance as to Manner) be very well defined *that which exist*; Ens, notwithstanding taken for a Name, ought not to be defined in that Manner: For *Ens* thus considered, is the same as Thing or Substance, or is that which subsists by itself, as God, an Angel, a Man, a Stone. But the Manner is not a Being or Thing, but only the Manner or Affection of a Thing, and which is inherent in another, as in a Subject, as Perception, or Remembrance in the Mind, the Figure or Motion in the Body. And thus *Ens* is distinguished from Accident or Manner of Being, in that *Ens* is conceived something without any Regard to the Subject; and Accident or Appendix, or Manner of Being has always some Report to the Subject in which it is inherent, and without which it naturally cannot be.

Hence this Question seems needless, viz. *whether Ens be synonimous or univocal with respect to the Substance and Accident*: For as the sole Substance is properly called *Ens* or Thing; the Accident or Manner cannot have the same Appellation; it can never happen, that *Ens* should have the same Signification in both.

Much less will it be univocal with respect to *Ens reale* and *Ens rationis*, especially if *Ens rationis* be taken for a certain Assemblage of two or several dissenting Ideas, as when it is said, that of the Idea of the Soul, and of the Body, is imagined a *corporal Soul*; of the Idea of Stone and Wood, a *wooden Stone*, &c. in which Sense *Ens rationis* is defined *an Impossible known*. For such an Assemblage is a *non ens*, in such a Manner that it can neither be nor conceived, for a *corporal Soul*, a *wooden Stone*, a *square Circle*, a *Stick without two Ends*, and the like, which are commonly brought for Examples in the Schools, can neither be, nor be conceived: For a square Circle is not a Circle, a wooden Stone is not a Stone, *&c.* For that Reason therefore, those Things which are understood repugnant to themselves are judged impossible. Whence if this Question, so common in the Schools be asked, *from what Faculty, Ens rationis, thus defined, proceeds*; whether from the Understanding or from the Will? It is easily answered, from none, since it can neither be, nor be conceived; and tho' the Stone and Wood be understood separately, a Perception or Idea notwithstanding cannot be composed of them.

Neither is *Ens* synonimous between God and a created Substance; for when we consider *Ens* simply, or the Being itself, we properly conceive nothing else but God; for God is the *Being* itself, but created Substances are not the *Being* itself, but they have a *Being*, or participate of a *Being*; and are no less distant from God in that they are Beings, than either the Image of a Man, or the Shadow of a Tree, differs from a Man or a Tree, in the Ratio either of a Man or of a Tree. This is what the Schools teach when they say, that *God is a Being by Essence*, and the created Substances, *Beings by Participation*. And as he can be participated by the Creatures in infinite Manners, hence it happens, that we divide the Idea of him, first into the Idea of *Being*, which is general, and into the Idea of the *various Manners*, whereby he can be participated by the Creatures, which Manners are called *differentiæ entis*, the Differences of the Being: Wherefore, without some Idea of God, either of a Being simple, or of a Being sovereignly perfect, of an infinite Being, not limitated, we have no Idea of a general Being, which is said to be abstracted from all singular Beings: Thus that Idea of a Being in general seems to be nothing else but the Idea of God himself.

Therefore if we place God among the other Beings, or include him in the same Category or Scheme, as we have done in the Logic, and is commonly done in the Schools; we declare that we have done it improperly, viz. for some Analogy, which seems to be between God and the Things created, and not because *Ens* is *synonimous* between God and the Creatures. For we know very well, that the Creatures, if compared to God, are nothing else but the Shadows of Being; and we are only moved by the Reason of a certain Analogy, when we said, that *Ens* in general is common both to the *Being* by Essence and uncreated, and to the Being by Participation and created.

Ens therefore, considered in general, is defined, *that which subsists by itself*, and is divided into Spirit and Body. Spirit, is either God or an Angel, or the human Soul; but in an *analogical*, not *synonimous* Manner. And Body is either without Life, as Heaven, the Earth, *&c.* or has Life; and again, either has not the Faculty of walking, as a Plant; or has that Faculty and is called Animal, which is either destitute of Reason as a Brute, or is endued with Reason as Man.

Therefore there can be distinguished three Kinds of Beings, or of Substances, or of Things. For some Beings are entirely spiritual, as God, and the Angels; some entirely corporal, as the Air, the Earth, Wood, *&c.* Between these two Kinds there is a third, which participates of the Nature of both, *viz.* Man, who consists of Soul and Body.

All these have their essential Attributes, without which they can neither exist, nor be understood; *viz.* Gender, Species, and Difference; *v. gr.* God is not only a Spirit, not only a Substance, or Being, which are his generical Attributes, but is also sovereignly perfect, *i. e.* very just, very potent, *&c.* which are the Differences, without which a Being cannot be entirely perfect. Likewise, an Angel is a Spirit, a Substance, or Being; as Wood is a Body, a Substance, a Thing, the generical Attributes of both; but they have besides their peculiar Differences, pertaining to the particular Nature of each Substance; for an Angel is spiritual, intelligent, *&c.* and Wood is corporal, extended, *&c.*

These essential Attributes are commonly called in the Schools, *Gradus Metaphysici*, metaphysical Degrees: Of those *Degrees*, some are *superior*, i. e. more general and common; and others *inferior*, and contained under the superior. For there are more Beings than Bodies; since Body is contained under Being, as under Body are comprehended Wood, Stone, *&c.* under Stone, Marble, Flint, *&c.* So that by those Degrees an Ascent is made, from the lowest Species to the supreme Gender; and a Descent from the supreme Gender to the lowest Species.

They are called *Metaphysical*, because they are abstracted by the Mind; for all is called *Metaphysical*, which is either spiritual of its Nature, or which the Mind abstracts from the Matter.

It is asked in the Schools, whether those Degrees or Attributes in the same Individual, are in Fact distinguished between themselves, and from that Individual?

I answer, 1. That the metaphysical Degrees of Things purely spiritual, or purely corporal, are neither distinguished mutually between themselves, nor from the Individuals. For in God, *v. gr.* the Divinity, Wisdom, Omnipotence, and other essential Attributes, are neither distinguished between themselves, nor from God: Likewise in Wood the Ligneity, (if I may use that Term) the Corporeity, and the Substance of Wood, are nothing else but the Wood itself, considered in a different Manner, by the Mind.

I answer, 2. That in Man, who is in Part spiritual, and in Part corporal, the corporal Degrees are, in fact, distinguished from the spiritual. For the Corporeity, Extension, Solidity, and the rest of the corporal Attributes, are entirely distinct from Rationality, Spirituality, Liberty, *&c.* though the whole Man is denominated corporal or extended, as well as spiritual, and free; because the Denomination is of the *whole*; but notwithstanding his Body is not spiritual, nor his Mind corporal.

But if there be Attributes which include the Body and the Mind, they are not distinguished from the whole; *v. gr.* the Humanity is nothing else but the Body and the Soul, as they are joined together, and constitute a whole; for the Body alone, or the Soul alone, cannot be called Humanity; but the Body and the Soul united together form a Man.

Therefore, when God is called a *perfect Being*; or when the Spirit or the Mind is called a *thinking Substance*; certainly, in those Definitions, the Gender and the Differences are not distinguished between themselves, but are one and the same Thing considered in a different Manner. For God can be considered either as a *Being*, and in that Sense he agrees, at least *analogically*, with all the other *Beings* he has produced; or as a *perfect Being*, whereby he differs from all others; therefore that Sort of Composition of the Gender and Difference,

is *metaphysical* only, and proceeds from the Narrowness of our Mind, inasmuch as a finite Mind must consider the different Faces, or Manners, or Relations, or Attributes of the same Thing, to know that Thing more distinctly, and with less Difficulty. Even a *simple Being*, cannot be without that Sort of Composition, if I dare call it thus: For he is a *Being*, which is his Gender; and he is *simple*, which is his Difference.

But in Man who is composed of Parts of a different Order, the Gender and the Difference are separated by a real Distinction; for as he is commonly defined a *rational Animal*, his Gender, whereby he agrees with the Brutes, is the *Animality*; and the Difference whereby he differs from them, is the *Rationality*: Animality and Rationality are really distinguished, for they are the same Thing, and Parts really distinct, *viz.* the Body and Soul. Therefore the Animality, which is the Principle of the animal Functions, and which univocally is convenient to Men and Brutes, is nothing else but the organical Body, as by Means of the animal Spirits it can discharge the Functions common to Men and Beasts: For if Animality should include the Soul, it would not be common to Beasts. —*Rationality*, is the Principle of Reasoning, or the Soul itself, which perceives, judges, reasons, and disposes; and which is independant from the Body in its Thought, that it often takes the Occasion of Thinking from corporal Motions.

From these we may infer what we are to think of that Dispute subsisting between the *Thomists* and *Scotists*, and which was invented by the antient Sophists, *viz. whether there are universal Natures in Things*, as the *Scotists* imagine; *or in the Soul only*, as the *Thomists* pretend.

It is certain, 1. That there is no universal Nature in Things, or *which is one in several, and proper to be predicated of them*, as the *Scotists* define it. For the generical Nature, as *Animality*, considered either in *Peter* or *Paul*, is not distinguished from the organical and animated Body either of *Peter* or *Paul*; and therefore does not exist one and the same in both, or in other Men. Likewise the specifick Nature or *Humanity* in *Peter*, is the Body and Soul of *Peter*; in *Paul*, the Body and Soul of *Paul*; but the Body and Soul of *Peter* are not the same Thing with the Body and Soul of *Paul*; and when *Peter* is said to be a *Man*, and *Paul* a *Man*, the same Man is not enunced of both, but of one and of another. Therefore there is no universal Nature in Things.

2. Neither are we to admit an universal Nature, *per mentem*, at least in the Sense it is admitted by the *Thomists*. For they call universal Nature, that *which is apt to be in several, and to be attributed to them*; such as there is none in the Mind. For that pretended Nature is nothing but an objective Idea; but an objective Idea is not apt to be in several, or to be predicated of them; but only to exhibit several Things, *viz.* several Species, if it be a generical Idea; or several Individuals, if it be a specifick Nature: Therefore an universal Nature *in essendo & prædicando*, as the Scholasticks express themselves, consists neither in the Things themselves, nor in our Mind.

Therefore, when *Peter* and *Paul* are said to be of the same Species, the Sense is not that there is a common Nature in them; but a semblable Nature, which agree with the same Original, or with the divine Idea. This Similitude of Nature cannot be called Unity, unless perhaps the Name of *Unity* be taken improperly, as it often happens, for *Similitude*; and those Things are said to be of the same Nature, which are only semblable.

Now we can easily judge of the Impropriety of such an Union, from that, in that Sense, an Angel and a Stone could be called one, not in the *Specie*, but in the *Gender*; because they agree in the general Idea of Substance, as in an Original; and have the *same*, i. e. a *semblable* generical Nature.

Some may ask, perhaps, if nothing in Nature can be called universal?

To which I answer, that there are three Universals; *viz.* God *in operating*, because he operates all Things in all Things: The Idea *in representing*, because it represents a World of Things; and lastly, the common Name *in signifying*, because it signifies a World of Things: We know no Universal but these; and therefore, if the Gender, Specie, or other Attributes are said to agree with several; that is only true, in that those Attributes are represented by a general Idea common to several, and expressed by a common Name. For though an Idea be particular in our Mind, it can notwithstanding represent several Things: *v. gr.* the Idea of a Circle represents several Circles; the Idea of a Man, all Men, *&c.* Likewise it is manifest, that the universal Attributes are expressed by a common Name.

What we have said, already, of the Attributes essential to each Substance, or Being, *viz.* the Gender, Species, and Difference, is to be understood of the Manner of Being, or of the Accident; for every Mode, whether spiritual or corporal, is either of the same Species with another Mode, as two Remembrances, or two Rotundities; or of a different Species: And again, or of the same Gender, as Rotundity and Quadrature, which agree in the same Gender, *viz.* in Figure; or of a different Gender, as Rotundity and Remembrance: So that there of whatever Mode or Accident can be affirmed, is Gender, Species, and Difference: For Quadrature, *v. gr.* is first called Figure, then Mode; likewise Remembrance is called Cogitation, afterwards Mode. Recordation, or Remembrance, is called, besides, Spiritual, and Rotundity, Corporal; which are the Differences of both.

From this I'll pass to *the Attributes common both to the Being, and to its Mode.*

The ATTRIBUTES, which are common both to the Being itself, and to every one of its Modes, are called, in the Schools, *transcendent*; as transcending all the Genders, or Categories, as well of the Being itself, or Substance, as of every Accidence or Mode; and are not like the mental Attributes, contained in one Category rather than in another. For the Attribute essential to every Substance, *viz.* its Gender, Species, or Difference, are not found rambling out of the Category of the Substance. The Attributes of any Mode, *v. gr.* of Motion, or Figure, are always found in the Category of that Mode.

Essence notwithstanding, taken in general, or the Name or Notion of *Essence*, is agreeable both to Substance and Accident; for it is said, the *Essence* of a Thing or Substance; and the Essence of a Mode or Accident: Whence, as the Names of *Gender*, *Species*, &c. can be called *transcendent*, likewise the Name of *Essence*, or *Essence* in general, can be called a *Transcendent* Term or Attribute. And *Existence* is said of the Being, and of the Mode of the Being.

ESSENCE, is the same as the Nature of a Thing, and is defined, *that which the Thing is*, or *that which is first conceived in Thing*, or *what is answered to the Question, what the Thing is*, v. g. if I be asked what Man is? I'll answer, that he is a Substance consisting of Soul and Body, physically united.

EXISTENCE, is *that whereby a Thing is actually*, v. g. Man by his *Existence*, is said to be extent actually in Things..

Both pertain to *Entity*, which *Entity* is the Reality of the Being, or, is the Substance of the Thing, or the Thing itself.

Those three Things, *Entity*, *Essence*, and *Existence*, are one and the same Thing, but considered in a different Manner, *v. gr.* the *Entity* or Substance, or Reality of a Man, is his Soul and Body: His *Essence* is also contained in his Body and Soul; and his *Existence* is nothing else but the same Man as existing: Or is the Body and Soul which, joined together, exist. But *Singularity, whereby something is understood singular and individual*, is not to be distinguished, in fact, from Existence: For *Singularity* is nothing else, but the Thing or Substance, or Entity, which, as existing, is that numerically, not another; as if it be Question of the Mode of the Being, it is the Mode itself, which, as existing, is singular.

All those Things notwithstanding are distinguished thus, that the *Essence* of a Thing, or of a Mode, is *that, without which the Mode or Thing cannot be, nor conceived*, or some Species. Whence while that Thing or Species remains, the Essence thereof is immutable: For as a Number, by the Addition or Substraction of an

an Unity is not the ſame; likewiſe Eſſence, if you add ſomething to it, or take ſomething from it, does not remain the ſame. Therefore *Ariſtotle*, *lib.* 8. *Metaphyſ. c.* 3. ſays, that Eſſences are ſemblable to Numbers. But *Entity* can be changed, and notwithſtanding remain the ſame; for, *v. gr.* though Fruit be rotten, its whole Entity remains; for it neither periſhes nor is annihilated, but is only rotten, and aſſume new Forms.

Therefore, if Exiſtence be compared with Eſſence or ſome Specie, becauſe that Eſſence or Species can periſh, the Exiſtence thereof periſhes, *viz.* when that Species is deſtroy'd: But if Exiſtence be compared with Entity, as Entity cannot naturally periſh, the Exiſtence of the Entity remains, which is nothing elſe but the Entity itſelf exiſting, *v. g.* the Entity of Wood, whether it be burnt and diſſolved into Smoak and Aſhes, or be changed again into Earth, or perhaps into a Tree, it always exiſts, and cannot periſh, or return into its former Nothing, unleſs it be by the omnipotent Will of him, who has produced it from nothing.

What we ſay, that the Eſſences of Things are immutable, muſt be underſtood of Eſſences or Species, *metaphyſically* conſidered, *viz.* in that they muſt be neceſſarily contained in a certain Gender, and a certain Difference; but not of phyſical and ſenſible Species, which being formed of the Aſſemblage of Accidents, do not conſiſt in the Indiviſible, ſo as to not admit a ſlight Mutation in the Accident, without being deſtroy'd themſelves: For a ſmall Quantity of Wine mixed with a great Quantity of Water do not loſe its Species. Thus white Wine differs in the Texture of the Parts from red; though the Eſſence of Wine remains untouched in both Sorts of Wine. Whence the Loſs of ſome Parts, *viz.* of an Eye, of an Ear, does not hinder our Body from remaining a human Body.

Eſſence and Exiſtence are between themſelves as the Power and the Act.

We call Power, in this Place, not the Faculty of acting, but *the Capacity of receiving ſomething*. Whence whatever is perfected by another, either in Reality, or *per mentem*, in our Manner of conceiving, that is ſaid in the Power with reſpect to it, as Eſſence is in the Power with reſpect to Exiſtence; Entity with reſpect to Mode; Gender with reſpect to Difference; Matter with reſpect to Form; becauſe Eſſence is ſaid to be perfected by Exiſtence, Entity by Mode, Gender by Difference, Matter by Form.

Therefore Act is *the Perfection or Accompliſhment of a Thing*; as Exiſtence is the Perfection and Act of the Eſſence; Difference the Perfection of the Gender; Form of the Matter.—There are two Sorts of *Acts*, viz. the *metaphyſick Act*, and the *phyſick*.

The *metaphyſick* Act, is that *which only determines the Subject, but not affects it phyſically*; ſuch is *Spirituality*, or *Rationality* with reſpect to the Soul, *Humanity* with reſpect to Man: And this Act is not really diſtinguiſhed from its Power or Subject, which it is underſtood to perfect.

The *phyſical* Act, *affects the Subject phyſically*; as the Thought affects the Mind, and Figure the Body. Whence a phyſical Mode can be called a phyſical *Act*, with reſpect to the Entity or Subject, of which it is a Mode.

There are, alſo, two Sorts of this *phyſical Act*; one called *firſt*, viz. the Power of Acting, Suffering, or Receiving, as the Will and the Underſtanding; the other *ſecond*, *viz. Action*, or *Paſſion*, or *Modification*, v. g. to will, to underſtand; or, as they ſpeak, *Volition*, and *Underſtanding*. But as all thoſe Acts are imperfect, and can be perfected, one is a *moſt perfect Act*, which can receive no Addition of Perfection, *viz.* God, who for that Reaſon is commonly called a *very pure Act*.

All thoſe Attributes are common both to the Being itſelf, and to the Accident. For the Accident, as well as the Subſtance, has its Eſſence, Exiſtence, and Singularity; and that Singularity is taken, as well in the Subſtance as in the Accident, from the Exiſtence: For a Thought, or a Rotundity, is one and ſingular as Exiſting: But if a Thought be rejected and re-aſſumed again, or if a Rotundity is taken from Wax, for Example, and reſtored to it again, it will not be the ſame Thought nor the ſame Rotundity. Therefore there is no other Principle of *Individuation*, as they call it, or of *Singularity*, than the Exiſtence of the Thing, or of the Mode. For a Thing or a Mode cannot exiſt without being ſingular.

But beſides the *Eſſence*, *Exiſtence*, *Entity*, and *Singularity*, there are other *tranſcendent Attributes*, or which are common both to the Subſtance and to the Accident; viz. *Unity*, *Truth*, *Goodneſs*, *Duration*, *Order*, *Relation*; or *Habit*, *Proportion*, *Oppoſition*, and the like.

Unity is a tranſcendent Attribute, whereby the Subſtance or the Accident is to be one, *i. e.* undivided in itſelf, and ſeparated from all others. *Unity* is defined in the Schools an *Undiviſion of the Thing in itſelf, and a Diviſion from all other Things*.

Diſtinction is contrary to Unity, by which Diſtinction Things are underſtood not to be one and the ſame Thing: Whence Diſtinction is commonly defined, *the Negation of Identity*.

There is this Difference between Diſtinction and Diviſion, that all the Things which are divided or ſeparated are diſtinct; but all the Things which are diſtinct, are not divided or ſeparated: For, *v. g.* the two Middles of a Globe are *diſtinct*, though they be not divided. Some Things can likewiſe be *divided*, which are not *different*; as *Peter* and *Paul* are divided or ſeparated, though they be not different, becauſe they have ſemblable, not different Natures. But *Peter* and *Bucephalus* are together diſtinct, divided and different.

Two Kinds of *Diſtinction* are admitted in the Schools; *viz.* a *real Diſtinction*, and a *Diſtinction of Reaſon*.

The *Diſtinction of Reaſon*, is that which the Mind imagines, in Things which are not diſtinct in Fact. And this is likewiſe of two Sorts, *viz.* Diſtinction of *Reaſon*, *Reaſoning*, v. gr. which is imagined without any Foundation in the Thing, ſuch as that which is ſaid to be between *Marcus Tullius* and *Cicero*; and Diſtinction of *Reaſon ratiocinated*, which is with ſome Foundation; ſuch is that between the Thing and its Attributes, or between the Attributes themſelves, *v. g.* between God's Juſtice and Mercy, which for their various Effects are the Subjects of different Conceptions, and that with a juſt Foundation; or between Manner and Paternity, or Similitude, or Equality, or other Habit or Relation he has to another.

The ſame Diſtinction is called, in the Schools, *virtual*; becauſe by it one Thing is conceived to be virtually equivalent to another; *v. gr.* the ſame Heat is equivalent to the Virtue of hardening and ſoftening, becauſe it hardens Clay, and ſoftens Wax. The ſame is to be underſtood of the Mercy and Juſtice, and God's other Attributes. Likewiſe of the Underſtanding and Will of our Soul.

But becauſe the Attributes of a Thing, are ſome *Formalities*, or Perfections, or Acts: *Scotus* has called *formal* that Diſtinction, which is between the Attributes of a Thing; and differed from all other Philoſophers, in that he imagined that thoſe Formalities, *viz.* Juſtice, and Mercy in God, were actually diſtinguiſhed between themſelves; not as Things but as *Formalities*, i. e. as Attributes or Perfections; which however does not ſeem true, for God's Juſtice and Mercy are, in fact, God himſelf. Whence we admit, likewiſe, a formal Diſtinction between thoſe Attributes; not an actual one, but virtual only, *viz.* with reſpect to their different Effects.

Des Cartes, in his Anſwers to the firſt Objections, againſt his *metaphyſick* Meditations, is of Opinion, that the formal Diſtinction ſhould be confounded with the modal; but he ſeparates entirely the modal from the real. For *formal*, or *virtual*, or *modal* Diſtinction, ſeems to be the ſame, in his Sentiment, as the Diſtinction of Reaſon; which however he has a little reformed in the firſt Part of his Principles, *num.* 42.

Real Diſtinction, is that whereby ſeveral Things are *actually* one and the ſame Thing; and is commonly ſubdivided into *greater* real Diſtinction, and into *leſſer*.

The *greater real Diſtinction*, can be conſidered either in God, or in the Things created. In God, it is ſaid to be between thoſe Things which are mutually referred to themſelves, *viz.* between the Perſons of the Bleſſed Trinity. And in Things created, it occurs between Things which are either ſeparated, as between two Globes; or can be ſeparated, as between the two Middles of the ſame Globe. Some Things can be divided or ſeparated by

by a certain Argument, when one of them can be conceived in such a Manner, that the Idea of that one *positively* and compleatly excludes the Idea of another; as because the Idea of the Soul removes from itself, *positively* and *compleatly*, the Idea of a Body, and *vicissim*; we say, that the Body can be separated from the Soul, and *vicissim*.

I omit to speak of the *adequate* Distinction, whereby two Wholes, as *Peter* and *Paul*; and of the *inadequate* Distinction, whereby a Whole and its Part, *v. g. Peter*, and *Peter*'s Soul, are said to be distinguished; for as those Sorts of Distinctions are not of much Consequence, they want no great Explication.

The *lesser real Distinction*, or *Modal*, is that which is between a Thing and its Mode or Accident, as between the Finger and its Inflexion.

The *transcendent* and *metaphysick Truth*, of which we treat in this Place, is a transcendent Attribute, whereby a Thing, or the Mode of a Thing, is conform to its Prototype, or to the divine Idea; it differs from the Truth of Idea, or Judgment, or Sign. Therefore a Thing is called *true*, which is conform to its Original; *v. gr.* Good is called *true*, where it is conform to the divine Idea; for then it has the true Nature of Good, *viz.* such as is conceived by the divine Mind.

All Being, or Accident of Being, is true; and none is false but with respect to us: *v. gr.* Bath-Metal is true Bath-Metal; but with respect to us it is called false Gold; inasmuch as by its outward Appearance it appears Gold, and induces us to pronounce a false Judgment.

Transcendent and *metaphysical Goodness*, is the *Perfection of the Thing or of the Accident*; or *a transcendent Attribute, whereby any Thing is called perfect in its Kind.* This Goodness differs from a *moral* Goodness, or from Probity which deserves Praises, of which I have treated in *Ethicks*. *Metaphysical Goodness* consists in that all Being is either of God, who is essentially Good, *i. e.* sovereignly perfect; or is come from God, and is only good by Participation. The Mode of a Being is good, likewise, when it is as perfect as it can be.

Duration, is an Attribute, whereby a Being, or the Manner of a Being, is said to persevere in its Being; and that if it has neither Beginning nor End, and exists all together, belongs only to God, and is called *Eternity*, of which hereafter: If it has a Beginning, but is to have no End, it pertains to Angels, and perhaps to the Universality of this aspectable World: Lastly, if it has a Beginning and an End, it is to be attributed to corporal, composed, and coruptible Things, and is called Time.

Order, is an Attribute common both to the Substance and to the Accident, whereby some Things are conceived prior, others posterior; some antecedent, others subsequent, others placed together: Some Things, however, if we believe the Schools, can be prior and posterior, or placed all together in five different Manners.

1. Something is placed before another, of a Priority of Time or Duration, as *Adam* was Prior to *Abel*, *David* to *Solomon*.—2. Something is said to be before another of a Priority of Nature, when it can be inferred from it: In which Sense, the Gender is before the Species; for if something, *v. gr.* be a Circle, it can be very well inferred, then it is a Figure; but not *vicissim*.—3. A Thing is said prior to another, in *Order* or Position: As in a Discourse, the Exordium is before the Narration. —4. In Honour: In which Sense a Master is before a Servant, a King before a Soldier, *&c.*—5. The *effective Cause*, by that Name is prior to its Effect, not only in Time; but likewise in Nature, Honour, and Order: Because there is nothing in the Effect, which does not proceed from the Cause. All which is expressed in the following Verses:

Tempore, naturâ, prius ordine, dic & honore:
Causaque causato dicitur esse prior.

Relation, likewise, is a transcendent Attribute, or common to all Beings and Modes: And is commonly defined *Order*, or *Respect*, or the *Habit of one to the other*; i. e. or of a Thing to a Thing, or to an Accident: Or of an Accident to an Accident, or to a Thing; one is *essential*, the other *accidental*. For I don't treat in this Place of the divine Relations, which are subsistent, and not distinguished from the divine Persons.

I call *essential Relation*, that without which a Thing, or an Accident can neither exist nor be conceived, *v. g.* the Relation of a created Substance to the Creator is essential, because a created Substance is by its Nature a dependant Being, a Being by Participation proceeding from the supreme Being. Likewise the Relation of an Accident to its Subject, is essential to that Accident: For an Accident, whether it be spiritual as a Thought, or corporal as Motion, Rest, *&c.* can never be understood without some Report to its Subject; because the Accident regards the Subject: Whence *Relation* is also called *Connotation*.

There are even some Accidents, which have not only an essential Relation to the Subject, but likewise to something outward; as Science has not only a Report to the Subject in which it is, but likewise to the Object which can be learned. And if we want Terms to express the *Reciprocation* of Relation, we must invent some, according to *Aristotle*'s Advice, *c. de relat. in categor.* where he says, that *Head* is not of an Animal, but a *headed*; *Wing*, not of a Bird, but of a *winged*, &c.

Accidental Relation, is that which happens either to the Being or to the Accident, because of something accidental, and without which that Being or Accident can be absolutely understood. Therefore, in those Sorts of Relations, three Things are commonly distinguished in the Schools, *viz.* the *Subject*, which is referred to another, the Term to which the Relation is made; and the *Foundation* or Reason for which the Subject is related to the Term, *v. gr. Socrates* is related to *Plato* by reason of the Philosophy, which is common to both, and *vicissim*. A Father is related to his Son, whom he has begotten, though it was in his Power not to beget him, *&c.*

Those Things which are referred to themselves are called *related*, or rather *cor-related*; because a Relation is always mutual and reciprocal. Whence the Related are commonly said to be both by *Nature and Cognition*; because one is collected from the other, and *vicissim*: *v. gr.* If there be a Father, there must necessarily be a Son; if there be a Master, there must be a Servant, *&c.* and these have either the same Name; as *semblable*, is said *semblable* to a *semblable*; *equal*, *equal* to an *equal*, &c. or have a different Denomination; as a Father is said the Father of a Son, the Master of a Servant; the Cause of the Effect, *&c.*

The *Foundations* of Relations are taken from all the Categories; *i. e.* from the Substance and all the Modes, as well spiritual as corporal.

Therefore the Relations of *Conveniency* are founded in the Substance; those of Difference in the Nature; *v. g.* two Cherubims, two Arch-Angels, two Men, two Lyons, have between them a Conveniency, or Similitude in the Substance; a Cherubim and an Arch-Angel, a Man and a Lyon, have a Dissimilitude in Nature.

Relations of *Equality* and *Inequality*, are founded in Quantity; for an Equal is equal to another Equal; and an Inequal is either greater or less than the other.

To this pertains the Relation of a Whole to its Part, of the containing to the Thing contained, of the Place to the Thing located, and *vicissim*: Because the Whole is greater than its Part; the containing than the Thing contained; the Place than the Thing located or placed.

The accidental Relation of *Similitude* and *Dissimilitude*, is founded in the Quality, because the Name of Quality includes all the Modes or Accidents. Thus *Plato* is related to *Aristotle* by reason of the Philosophy, which is a spiritual Quality; an *Æthiopian* to an *Æthiopian*, for the Blackness, which is common to both, and which is a corporal Quality.

Other Relations are founded in the Relation itself: *v. gr.* Paternity, which is the Relation of the Father to the Son, is a legitimate Cause, why a Father is related to another Father; because both agree in Paternity.

The Relations of the Causes to the Effects, and of the Effects to the Causes, are found in the Action and Passion. Where the Name of Cause is to be taken in a wider Sense, for all that which either produces a Thing, as God with Respect to the Creatures; or which procures us the Knowledge of a Thing, as Sign with Respect to the

the Thing signified; the Premises with Respect to the Conclusion, &c.

In *Ubi*, or Place, are found the Relations of *Vicinity*, *Distance*, &c.

In *Quando*, or Time, the Relations of *Age*, viz. of Infancy, Youth, &c. have their Foundation.

Lastly, in Habit, and all Adjacents, possessed, retained, &c. are founded the different Relations of Men of the Gown, of military Men, of Riches, &c.

From the Relation, Habitude, or Comparison of one Thing to another, follows *Proportion*, which is *an Equality of those Reasons, or Comparisons*; of which I have treated in my Treatise of *Geometry*.

Opposition is the Dissonance of two Beings or Accidents, whereby they are particularly contrary to one another.

We distinguish, in the Schools, four Kinds of *Opposites*. The first are the *Correlatives*, which are mutually related to one another. — The second, the *Contraries*, which placed under the same Gender of Quality, are very distant from one another. I say, *under the same Kind of Quality*, for the Substance, if we believe *Aristotle*, *has nothing contrary*, by Reason of itself, nor by Reason of Quantity; but only by Reason of the Qualities it is affected with; though not for all, for Quality seems to contain in itself all the Modes or Accidents; but only by Reason of some, which, according to the Doctrine of the Schools, must be positive on every Part, as *Virtue* and *Vice*. Though *Contrariety* taken in a wider Sense, signifies the same as *Opposition*: And those Things called *Opposite* in the Schools, are called *Contraries* by *Cicero*, *in Topic.* — The third, the *Privatives*, which are the Form or Habit, and its Privation. And which, taken in a wide Sense, can be called *Contraries*, according to the same *Cicero*. Such are Sight and Blindness, Day and Night, &c.

We must observe, 1. That *Privation* is commonly defined, *the Absence of the Form or Habit in a Subject, apt to be informed by such an Habit or Form*: In which it differs from *Negation*, which is defined the *Absence of the Form in a Subject inapt to receive that Form*. For Example, the Absence of Light in a Man, is called *Privation*, in a Stone, *Negation*; because a Man is born apt to see; but not a Stone. Likewise, the Absence of a Knowledge which one should have acquired, is called *Ignorance of Privation*: But if we are not obliged to have that Knowledge, it is called *Ignorance of mere Negation*. Therefore the Verb *to be deprived*, is taken in almost the same Manner in the Schools, as *to want* by *Cicero*, *lib.* 1. *Tuscul. quest.*

2. That what is taken in the Schools as an Axiom, is not generally true, *viz.* that *from the Privation to the Habit there is no Regress*. For Example, though there be no Regress from Blindness to Sight, in him whose Eyes have been pulled out, or is afflicted with a *Glaucoma*, which is produced in the Cristalline of the Eye; there can, notwithstanding, be a Regress, if the Blindness proceeds from a *Cataract*.

Lastly, those are called *Contradictories*, which differ, as a *Being*, and no Being, *v. g.* a Man, no Man.

Of all Kinds of Oppositions, the greatest are the *Contradictories*. For *Contradictories* are neither semblable nor equal: Neither do they agree in the Subject, as the Form and Privation, which are successively received in the same Subject; nor in the Gender, as the Contraries, which are placed under the same Gender of Quality. Whence the Contradictories differ among themselves in such a Manner, that if one be, the other cannot possibly be; since there is no Medium between them.

For there are some Extremes, between which there is a Medium, either by *Participation*, or by *Exclusion of the Extremes*, v. gr. the Flower of the Age, is a Medium by Participation between Youth and old Age; because it participates of the Strength of the one, and of the Prudence of the other: Man is a Medium by Participation, between the Things spiritual, and the corporal; because he participates of the one and the other Nature. But Virtue is said to be a certain Medium between two Vices, by the Exclusion of both, according to *Horace*, *Epist.* 18. *lib.* 1.

Virtus est medium vitiorum & utrimque reductum.

But between *to be*, and *not be*, there is no Medium, neither by Participation, nor by Exclusion; though between a *Being* and *Nothing*, there is some Medium, *viz.* the *Mode of the Being*, which is neither a *Being* nor *Nothing*.

Therefore a *Being* and *Nothing*, are not, strictly speaking, *Contradictories*. Because *Contradiction*, is *the same Thing affirming or denying the same Thing, according to all the same Things*. But *Nothing* is not a Negation of the *Being* alone; but likewise of the *Mode of the Being*. And thus *a Being*, and *no Being*; or the *Mode of the Being*, and *not the Mode of the Being*, is the same Thing affirming, and denying the same Thing, according to all the same Things; but *Being* and *Nothing* are not so; because *Nothing* denies more, than *Being* affirms; since *Nothing* does not only deny a *Being*, but likewise the *Mode of a Being*.

The next Things which falls under our Consideration are: *The Attributes proper to the sole Being or Substance.*

SUBSTANCE, is called *a Being subsisting of itself*, or only *Being*. For all that does not subsist of itself, is not properly a *Being*, but only the *Mode*, or *Appendix of a Being*.

Substance, is either a Part of another, as the Head, the Arms, and all the other Members, are Parts of the human Body; and the Body itself is Part of the Man; or a certain and compleat *whole*: Again, it is that Complement, either in the Ratio of *Nature*, or in that of *Essence* only; or has it in the Ratio of a *Suppositum*, or of a *Person*; which Complement is called by the Theologians, *Substance*, or *Hypostasis*. All which must be explained in a clear Manner; since on that Explanation depends that of the principal Mysteries of the Christian Religion, *viz.* of that of the Trinity, and of the Incarnation.

Therefore HYPOSTASIS, according to *Boetius*, *lib. de person, & natur. c.* 3. signifies nothing else among the antient profane Writers, but a singular Substance, which they would not distinguish either really, or *per mentem*, from Nature itself; but the ecclesiastical Writers, to defend the sound Doctrine received by the Fathers, relating to the Mysteries of the Trinity, and of the Incarnation, have distinguished the Nature and Substance, from *Hypostasis*, and have called *Hypostasis* by the Name of *Subsistence*, or *Suppositum*.

Therefore, *Subsistence*, according to the Energy of the Expression, seems to signify nothing else than the Manner, whereby every Substance, either compleat, as a Man, or incompleat as the Head, exists. Whence *Subsistence* is defined, *the last Complement of a Substance, which renders it of its own Right; or incommunicable to another, as to a Suppositum.*

SUPPOSITUM, is a *singular Substance, entirely compleat, and of its own Right*. That is called a Substance entirely compleat, of its own Right, and incommunicable to another, as to a Supposite, which is the *entire Principle of its Affections, or Operations, if it has any*. As *Socrates* is a *Suppositum*, and not his Soul alone, or his Body alone: Because *Socrates* is the whole and entire Principle of his Operations. A *Suppositum*, if it be indued with Reason, will be called a *Person*.

A *Person*, according to *Boetius*, *lib. de person. & natur. c.* 3. is *the individual Substance of a rational Nature*. For, says he, we say the Person of a Man, of God, of an Angel; not of a Tree, nor of a Horse; because God, an Angel, and a Man are rational, or thinking Natures. Therefore Person and Suppositum differ in that all Person can be called Suppositum, not *vicissim*.

We call a *Whole*, that which is *of its own Right*; and this is either simple and has no Parts, as God, and an Angel; or has Parts, as Man, and all Things corporeal. That which has Parts, is called in the Schools, either an *actual* and singular *whole*, or *universal* and *potential*.

We call *actual Whole*, that which has Parts in itself; which Parts are either *essential*, viz. when without them, a Whole can never be, nor conceived, such are the Soul and the Body with Regard to Man; or are *integral*, *integrant*, or *entitative*, such are the Head, the Neck, &c. with Respect to Man.

We call *potential* or *universal Whole*, that which has Parts under *itself*. As the Gender has Species under itself;

itself; and the Species has Individuals; which Parts are called *subjective*, or *inferior*.

A singular Substance, whether it be a Whole, or a Part, does not only subsist by itself; but is likewise the Subject of all the Accidents or Modes.

There are different Sorts of Subjects. The first is called a Subject of *Inhesion*, in which the Accident is inherent; which first Subject is either remote, or which, or nearest, or whereby. The Suppositum *which*, is that which receives the Accident, by Means of another; as Man receives the Philosophy by Means of his Understanding. And the Subject *whereby*, is that whereby the Accident is received immediately; as the Understanding with Respect to Philosophy.

The second is the Subject of *Denomination*, viz. which is denominated from some Form or Perfection, Defect, Action, or Affection: As Man is denominated a Philosopher from Philosophy; blind from Blindness; acting from Action: For the *Denominations are of Supposites*; though the Form, Perfection, or Defect, from which proceeds the Denomination, be only in some Part of the Suppositе; as Philosophy is in the Mind; Blindness in the Eye, and not in the whole Man: As likewise Locution, which is a certain Action, pertains only to some, and not to all the Parts of the Body. Sometimes that Denomination is called *extrinsick*, when taken from something extrinsick, *v. gr.* a Wall is called Sight, from Man's Vision, which is extrinsick to a Wall.

The third is called Subject of *Information*, viz. into which is received some substantial or essential Form, whereby it is informed to constitute some physical Whole; *v. gr.* the human Body is commonly called *Subject of Information*, with Respect to a rational Soul, whereby it is perfected to form Man of both Substances, as of a double essential Part. Therefore the rational Soul is called the *informing* Form of the human Body, because united to it essentially, and by the Destination of the Creator.

The fourth Kind of Subject, is called *Subject of Attribution*, viz. *a Matter subject to some Discipline*, to which are attributed all the Things treated in that Discipline. Otherwise it is called in the Schools, *material Object*, or the whole Object, or *total*, viz. if it be join'd with the formal Object.

Of *Substances*, besides, some are called *Causes*, and other *Effects*.

Cause is commonly defined in our Schools, *a Principle influencing a Being into another*, i. e. into another Nature. Among us all *Cause* is a Principle, but all Principles are not *Causes*. It is added, *influencing a Being into another*, i. e. into another Nature distinct from it, at least in Number; as the Father, in Men, is called a *Cause* of his Son, because the Essence and Humanity of the Father, is not the Essence and Humanity of the Son, *viz.* they have another Body and another Soul.

We commonly reckon four *Causes*, which have different *Causalities*, viz. the *final Cause*, which causes, as that *for which*; the *efficient Cause*, which causes, as that *of which*, the Effect is made; and both are called *external*; the *material Cause*, which causes, as that *from which*; and the *formal*, as that whereby the Effect is made; and these are called *intrinsick*, because they remain within the Thing produced. Some add a fifth Cause, *viz.* the *exemplary*, which causes, as that *to which*, or in whose Similitude the Effect is made.

The whole Thing can be made clearer by an Example.

An Architect is called the *efficient Cause* of a House; for he builds the House, whereby he is engaged by the Hope of some Reward, which is his End or *final Cause*, without which he had not determined himself to work: And this called *the End of the Workman*: A commodious Habitation is called *the End of the Work*. The Stones and Wood the House is composed of, is called *the Matter thereof*; and the Disposition of the several Parts, and of the whole House, which agree with the Idea of the Architect, is called *the Form of the House*. If the Architect has seen another House, or the Model of another House, on which he has built this, that first House, or the Model thereof, is the *exemplary Cause* of this last. Whence we can rekon four or five *Causes*. But among those, if we want to speak properly, the sole *efficient Cause* deserves the Name or Title of *physical Cause*; because that alone influences a Being into another: For the *final Cause* seldom exists any where else but in the Mind, and is only to be called *objective Cause*, since it does not move or determine the effectrice Cause, but as it is the Object of the Mind, *v. gr.* Health does not move to take a Medicine, but as our Mind considers it as something good. The material and formal Cause, or the Matter and Form, are rather Parts of the Thing produced, or composing Principles, than Causes. A Model or Type does not act in the Thing itself, but only is proposed to the effectrice Cause to be imitated.

There are also several Kinds of *effectrice Causes*.

The first Kind is of the logical or metaphysical *Causes*. That is called a logical or metaphysical *Cause*, which, though it be not a true Cause, it is notwithstanding such with Regard to our Knowledge, *v. gr.* the human Soul is consider'd as the Cause of the Understanding and Will, though it be not distinguished from them as a Thing from a Thing. Thus, likewise, the Disposition of Parts is called the Cause of Opacity, or Perspicuity, or other physical Affections; though Opacity or Perspicuity, or other Affections of that Kind, consist in the Situation of the Parts.

To this Kind of Causes, can be reported the Premises with Respect to the Conclusion; for they can be called the logical or metaphysical Causes thereof, inasmuch as this is deduced from those, and is contained in them. Tho' they be not the physical Causes thereof.

The second Kind of effectrice Causes, contain the *moral Causes*; which do not influence, physically, the Effect; but are, notwithstanding, with respect to it, and in Men's Opinion, as if they had a true Influence in it; *v. gr.* he that commands an Homicide, is called the Cause of the Homicide, though he does not kill the Man himself: He who sets Fire to a House, is the Cause of the Conflagration which ensues, tho' it be the Fire, and not the Man himself, which burns the House.

The third Kind includes the physical Causes; which again are either occasional only, or are in fact, Effectrices.

Occasional Causes, are those which give Occasion to some Effect, according to the Law established by the Author of Nature; *v. gr.* an Act of the human Will, is the occasional Cause of the Motion of the Arm, or of all other voluntary Motion in a human Body: As *vicissim*, the Motion of the animal Spirits is the Occasion of the several Thoughts we have in our Mind.

The most modern Philosophers are of Opinion, that the Bodies are no otherwise moved by the Spirits, *viz.* Angels, than by a certain Law which God has established between the Acts of their Will, and the Motion of the Bodies; and say the same Thing of the Motions of the Bodies, proceeding from the Collision of other Bodies: And that that Collision of Bodies is not to be taken for a Cause, properly said, but only for the Occasion of the Motion, since God alone is properly and strictly the Author of all Things and Motions.

Therefore, according to *Des Cartes*, and the other modern Philosophers, there is but one effectrice Cause, properly so called, *viz.* God himself: For no created Things, except the Will, properly operate: Even the created Will which determinates itself to act, and really acts, acts nothing physically besides itself, but occasionally only.

But though all these Things be true, when we examine Things with more Accuracy, we must confess, notwithstanding, that according to the Opinion of the Vulgar, several Causes, besides God, can be assigned, which are called second, and which operate in their Manner, though they depend, for their Operation, from the first Cause, *v. gr.* a Man begets another Man, an Eagle another Eagle.

Therefore the effectrice Cause is commonly divided into *first* and *second*. That is called *first*, which depends on no other to act, and to which all the others are subject, and this first Cause is God alone. The *second*, which depends on the first in its Operations, such are all the Creatures.

Either the second Cause is *general*, which contributes towards several and different Effects; as the Sun, which contributes towards several and different Generations;

tions; or is particular, which is restrained only to some Kind of Effects: Whence the general Cause is called *equivocal*, i. e. producing Effects of a different Kind from itself: But the particular Cause is oftner *univocal*, or of the same Ratio with the Effect it produces.

There is besides, a *principal Cause*, which is said to act by its own Power; and another *Instrumental*, applied to Action by another.

The *principal Cause*, is either a *Cause by itself*, or a *Cause by Accident*.

A Cause by *itself*, is that which by its Nature is appointed to produce some Effect, as an Eagle to produce an Eagle. That can also be called a Cause by itself, which operates something with Judgment and Deliberation.

A Cause *by Accident*, is that which produces some Effect, against one's Intention, as he who endeavouring to give a mortal Wound to a certain Jason, broke a Vomica, which all the Physicians could never cure; therefore he cured, *by Accident*, a Man of a dangerous Malady, in attempting to kill him. There are two Sorts of this Cause *by Accident*, according to *Aristotle*, *lib. 2. Physic. c. 4.* viz. *Fortune* and *Accident*; that is attributed to prosperous Events, and this to unhappy or even indifferent Events, *v. g.* when some body digging the Earth finds a Treasure contrary to his Expectation, that's Fortune; and when passing along a House a Tile falling from the Roof, wounds him, that's an Accident.

From this I'll pass *to the first Axioms, which generally consist of the Ideas of the Being itself, of the Modes of the Being, and of the Attributes of both.*

Till now we have dwelt on the Consideration of the Being, and of the Accident of the Being, and have made a Recapitulation of the Attributes, either common or proper to both; but as that which belongs to the first Notions or Propositions, or Axioms, formed of the first Ideas as well of the Being itself as of the Modes in general, and of the Attributes of both, be proposed in this Place, that the Principles derived from them, and dispersed throughout the other Disciplines, may appear contained in this first Philosophy, as Brooks are contained in Fountains. For the first Philosophy, or general Science, is as the common Parent of all the others, from which they all derive their Origin, and to which they refer all they have of Evidence or Certitude.

An *Axiom* is a common Sentence, known to every one who will have the least Attention to it; as this of *Aristotle, Metaphysic. lib. 4. c. 3. Impossibile est ut idem sit simul, & non sit:* For the Evidence of that Proposition is so great, and the Connection of the Attribute with the Subject so clear and distinct, that no Body, let him be ever so stupid, provided he will be attentive to it, can be ignorant of the Truth thereof.

Therefore as this is common to all Axioms, that their Truth is in some Manner clear and evident by itself, there seems to be no other first Rule of Truth and Certitude, or as the *Greeks* say other *Criterion*, or as the Schools speak, no other first Principle of a certain Knowledge, than the Evidence and Distinction of the Ideas. So that all that is contained in the distinct Idea of a Subject or Matter, that certainly can be affirmed of it. But this Truth, according to the common Method of the Schools, must be established and proved here: Therefore,

First Axiom.—The first *Axiom*, the first Criterion of Truth, the first Rule of Certitude, or, as the Schools express themselves, the first Principle of Knowledge, seems to be this: *All that is comprehended is the clear and distinct Idea of some Thing which certainly can be affirmed of it.* Because it is so clear by itself, that it cannot be proved by another, and that by it all others can be demonstrated.—It is clear by itself, since it consists in the Evidence and Distinction of the Ideas.—It cannot be proved by another Principle, since no other can be assigned prior to it.—And, lastly, all others can be demonstrated by it, as it will appear from the Induction of every one. For why should the Metaphysicians affirm, with so much Confidence, that *it is impossible the same Thing should be together and not be*; unless because in the clear and distinct Idea of a Thing actually existing, is included an Impossibility of not existing at that very same Time? Why should the Mathematicians say, that *the Whole is greater than its Part*; unless because they understand, that the Part is contained in the clear and distinct Idea of the whole; though, perhaps, the Enumeration of every Part cannot be made? The same can be said of all others; *v. gr.* nothing is more certain among moral Philosophers than this Principle, *Do not to others what you would not have done to you*; and this among Physicians, provided it be contained within its proper Limits, *Contraries are cured by their Contraries.* Because in the clear and distinct Idea of natural Equity and Justice, this is contained, that he should not do to others what he would not have done to him: And thus of the rest.—Therefore the first *Axiom*, the first Principle of a certain Knowledge, seems to be this: *All that's contained in the clear and distinct Idea of something, that certainly can be affirmed of that Thing.*

Corollary I.

This *Axiom* pertains to the Essence of a Thing, not to the Existence, but when the Existence is essential to that Thing; or when the Existence is contained in the clear and distinct Idea of the Thing: So that it cannot be separated from the Conception thereof.

Corollary II.

As actual Existence, which is a certain Perfection, is contained in the clear and distinct Idea of God, or of a Being sovereignly perfect, it certainly can be affirmed of him. It certainly can be affirmed that God, or a Being sovereignly perfect, actually exists.

Corollary III.

But because actual Existence is not included necessarily in the clear and distinct Idea of Things created, *viz.* which are not Beings sovereignly perfect, and existing by themselves, it cannot be necessarily affirmed of them, but only contingently.

Corollary IV.

But the possible Existence of Things, which we know clearly and distinctly, whether they be created or not created, can certainly be affirmed; because *what we can conceive clearly and distinctly can exist*; which will be the second Axiom.

Corollary V.

We are certain in two Manners, that our Soul, which is a thinking Substance, exists while we think: For, 1. He that thinks, is so conscious to himself that he exists, that he cannot doubt of his Existence while he thinks. 2. We understand, that the Idea of a Thing existing, is included in the clear and distinct Idea of a thinking Thing.

Corollary VI.

There are two Things of whose Existence we cannot doubt, whatever Hypothesis may be made, *viz.* God and our Soul.

Corollary VII.

We cannot be certain by their Ideas of the Existence of other Things, whether spiritual or corporal; therefore we cannot discover them otherwise, but by certain Impressions made in the Organs of our Senses, and in our Mind; which Impressions cannot be excited within us during our whole Life, unless the Things exist, whereby they are excited, otherwise God would deceive us during our whole Life; which is quite foreign to the clear and distinct Idea of a Being sovereignly perfect, and consequently sovereignly wise, sovereignly true, and sovereignly good.

Corollary VIII.

The Existence of Bodies is made known to us by a vivid and constant Sense, and which operates always in the same Manner.

PNEUMATOLOGY.

We call the other Part of Metaphysick *Pneumatology*, or the Science of Spirits. A *Spirit* or the *Soul* is a *thinking Substance:* It is called a *Substance*, in which it agrees with the Bodies, and is called *Thinking*, i. e. per-

perceiving and willing, in which it differs from the Bodies: For the Spirit alone thinks, and nothing can be found in the Mind prior to that Thought.

It is needless to search here, whether Spirits exist; since our Soul cannot doubt of its Existence, since she is conscious to herself that she thinks, and knows for certain that she exists, before she can prove the Existence of Bodies. Therefore I should have contented myself with dividing this second Part of my *Metaphysicks* into three Articles, and had treated in the first of God; in the second, of Angels; in the third, of the human Soul; if I had not given a whole Treatise of *GOD and his Attributes*, under the Letter G; and another whole one of *Angels*, under the Letter A. Therefore I'll confine myself, in this Part, to my third and last Article, which is *of the human Soul*; which Article I'll subdivide into six others. — In the first Place, I'll treat of the *Nature of the human Soul*; in the second, of the *Knowledge of the human Soul*; in the third, of its *Immortality*; in the fourth, of its *Understanding*, and of *Ideas*; in the fifth, of its *Will and Liberty*; and in the sixth, of the *natural Habits*.

1. *As to the Nature of the human Soul.*—We cannot better discover the *Nature* of the human Soul, but by its Affections and Operations: For every Thing is made evident by its Properties and Functions; and we discover in the human Mind, or rational Soul, Cogitations, *viz.* to *understand*, and *to will*; or to *perceive*, *doubt*, *opinate*, &c. which cannot proceed from the Body: For the Body, in whatever Manner it be divided, or moved, or formed, can never produce a Thought of itself, which belongs only to a Substance of a different Order, which we call spiritual: Therefore the *human* or *rational Soul*, is a certain spiritual and thinking Substance, created at the Image and Similitude of God. For we are said to be semblable to God for no other Reason, than because he has given us a rational Soul, whereby we are rendered capable to know and love him; which to demonstrate with some Method, we must prove, first, the Spirituality of the human Soul; which is done by an evident Demonstration of its being capable of Perception and Will; which Demonstration is confirmed by a continual Experience.

The *Epicureans*, on the contrary, are of Opinion, that a corporal Substance is capable both of Cogitation and Extension; or that Extension and Cogitation, are two Modes of a corporal Substance: As to be a Physician and Musician, are two Modes of Man.

But when the *Epicureans* speak in that Manner, they do not consider, as they should, the Nature of that Substance, whereby they are distinguished from the Brutes: For if they would consider it, they would soon understand, that it is certainly distinct from the Body. For those Things are certainly different, whose clear and distinct Ideas exclude *mutually*, *positively*, and *compleatly* each other: For there is not a more certain Argument of the Diversity or Distinction of Things, than the Diversity or Opposition of Ideas: But the Idea of Body, and the Idea of Soul, exclude mutually, *positively*, and *compleatly* each other. For nothing else is conceived by the *Body*, but an extended Substance, which can be divided, moved, *&c.* and by the *Soul*, we understand a thinking Substance. But the Extension, Figure, and Motion, exclude Cogitation positively, and compleatly, and reciprocally; for how much soever you may extend, move, and divide a Body, you'll never draw a Thought from it: Likewise, how great may be the Number of Thoughts, Perceptions, and Desires, we assemble together, you'll never be capable to form, of them, an extended Substance: Therefore the Body and the Soul are certainly distinguished; or the corporal and extended Substance is of a different Order from a thinking and spiritual Substance.

In fact, what can be imagined more absurd, than that a small Portion of Dust, or Matter is intelligent, and capable to have, not only corporal Things, and subject to our Senses, but likewise the spiritual, and most remote from the Commerce of the Senses? For we do not only conceive material Things, but understand likewise those which have no Affinity with the Materials, *viz.* God and his Attributes, *v. gr.* his Unity, Eternity, Infinity, *&c.* and the Laws of Argumentation, the Laws of Justice and Equity, the Series and Difference of Times, *&c.* For who can be so presumptuous to attribute, to a very small Portion of Dust, such a Power, as to be capable to measure the Motions of the Heavens; to define, by a certain Calculation, the Vicissitudes and Inequalities of the Days and Nights, the Periods of Times, without mentioning other metaphysical and mathematical Demonstrations, which excite our Admiration, and which supposes a more noble Principle than a coarse Matter, whatever Form or Figure it may be adorned with?

What shall I say of the Acts of the Will; are they to be attributed to a corporal Substance? Can Matter love Justice, Constancy, and all the other Virtues of the Soul, as they are in fact beloved by our Will? For what do we love in the Saints and in the Martyrs, says St. *Augustin*, *Tract.* 3. *in Joan. num.* 21. *Their Members tore by wild Beasts; what's more offensive, if you consult only the Eyes of the Flesh; what's handsomer, if you consult those of the Heart? What do you think of a handsome young Man who is a Thief? Is he not in Horror to your Eyes? If you consult them, nothing is better shaped, his Features and Complection are delightful; and notwithstanding, when you hear that he is a Thief you fly from that Man. You see on the contrary, an old Man leaning on a Stick, who can scarcely walk for Age, his Face furrowed with Wrinkles; what do you see in him to please your Eyes? You hear that he is an honest Man, you love him, you embrace him.* From which it is rightly inferred, that a thinking and an extended Substance, or the Soul and Body are of different Kinds; that neither a thinking Substance is capable of Extension, nor an extended Substance of Thoughts.

The *Epicureans* insist, that the Idea of a Physician and of a Musician are different, and exclude mutually each other; though the same can be a Physician and a Musician, and therefore that the same Substance can be thinking and extended.

To which I answer, that the Idea of a Physician and the Idea of a Musician excludes each other mutually, of *a negative and incompleat Exclusion*, but not of a *positive and compleat one*. For the Idea of a Physician excludes *negatively* the Idea of a Musician, *i. e.* does not include it precisely within itself, and can be separated from it *incompleatly* at least, inasmuch as one can be considered a Physician, though he is not considered as Musician: But the Idea of Physician does not exclude *positively* the Idea of Musician, *i. e.* does not remove it from itself, nor can be *compleatly* separated from it; for the Idea of Musician always includes the *Mind*, which contains Musick, as the Idea of Physician includes the *Mind*, into which Physick is received: Whence both agree in that they are Modes of the Mind, or that they are the Mind itself affected with a certain Mode.

But the Idea of Body removes *positively* and *compleatly*, the Soul and *vicissim*; or the Idea of a Thing extended, removes from itself *positively* and *compleatly*, the Idea of a thinking Substance and *vicissim*: Therefore Thought and Extension cannot abide in one and the same Subject, as Musick and Medicine are received in the same Mind, and Whiteness and Sweetness are the Accidents or Modes of the same Milk. For, 1. Extension is not conceived but as a Thing extended in Length, Width, and Depth, and has no Relation to the Subject as a Mode; then no Body can think, without being conscious to himself of his Thought; but no Body in his Senses has ever said that a Body thinks, and is conscious to itself of its Thought.

Therefore to shew that our Mind is spiritual, it is not necessary to have Recourse to the Perception it has of universal and immaterial Things; since nothing without being spiritual can reach, by thinking, not only the Things universal and immaterial, but not even the single and corporal ones; but if a Substance understands singular Things, it will understand them universal, since one does not seem more difficult than the other. It cannot even happen, that one should, *v. gr.* conceive a single Circle, without knowing generally what a Circle is, and the Idea of a Circle be contained in the Mind, whereby all Circles be shewn possible. Whence when some Philosophers pretend, that Brutes reason on simple Things only, that imports a manifest Con-

Contradiction; as, *v. gr.* a Sheep, which has never seen a Wolf, or which has only seen a red, not a black one, cannot fly, by Ratiocination, the Approaches of a black one, unless he has conceived, before, that general Notion, *all Wolves, whatever they be, or of whatever Colour, whether black or red, are to be avoided.* Therefore no Ratiocination is to be attributed to Beasts, with regard to simple Things, unless that with regard to universal Things be granted to them likewise; and that Ratiocination be understood deduced from universal Notions.

Neither is of a greater Strength what others imagine, *viz.* that Brutes conceive and discern Objects, but are not conscious of their Perception; for nothing can be conceived (unless there be an Ambiguity hidden in that Term of Perception) unless he that conceives be conscious of his Perception. Whence the Difference between our Perception, and that of the Brutes, is not to be placed in that we can conceive Things universal, and be conscious to ourselves of our Perception: But we are distinguished from them in that we are capable of thinking, not they. For when a Beast is said to see or to hear, its Audition or Vision consists in the sole Motions of the Spirits, and is not joined with Thoughts as ours.

The *human Mind* besides, though it be spiritual and uncorporal, is notwithstanding joined with an organical Body, by the Creator's Disposition and Order, to constitute a Man; therefore it is very well called the *Form of Man.*

COROLLARY.

From all these can be deduced the Definition of the human Soul by St. *Augustin, lib. de quantit. anim. c.* 13. *If you will,* says he, *have the Definition of the Soul, and you ask me what the Soul is, I'll answer, that it seems to me to be a certain Substance indued with Reason, appointed to govern the Body.* In which Definition the Term Reason seems generally taken for Thought, which confirms that of the modern Philosophers, that the Soul is a thinking Substance, which joined with the human Body, constitute a certain *Whole*, viz. Man.

2. *As to the Knowledge of the Soul.*—The human Soul being, as already observed, a thinking Substance, conscious to itself of its Thought; it is very certain that it must know itself naturally.

To this it is objected, 1. That if the human Mind should naturally know itself and its Thoughts, it should therefore conceive itself and them, from the very first Instant of its Creation, which it does not; therefore, *&c.*

I answer, that the human Soul does not know itself from the first Instant of its Creation, *i. e.* does not reflect on itself, notwithstanding which, it has some Sense of itself; therefore the human Soul is naturally a thinking Substance, and conscious to itself of its own Thought; whence it has always a Sense of itself; but agitated by the Motions of a very tender Body, it cannot in those first Times reflect on itself.

For we know by a daily Experience, that Infants conceive the Names, Qualities, and Differences, of the Things which are shewn them, and that long before they can express them by Words; which Perception of Things and Force of Memory, which sometimes is not to be found in Adults, is a plain Demonstration, that there is a perfect Reason in Infants; though for the Imbecillity of their tender Body, and its uncertain Motions, they are not capable of a long Attention. Therefore there is a perfect Reason in Infants as well as in Adults.

It is urged further, that if the Soul know itself from the first Instant of its Creation, we should certainly remember our Thoughts; not only those we have formed as soon as we were born, but those likewise we had in the Womb of our Mothers, which notwithstanding does never happen; therefore the Soul does not know itself from the first Instant of its Creation.

To this I answer, that in order to remember our Thought while the Soul is joined with the Body, it is necessary that some Vestigia should be traced in the Brain, whereby the Soul is determined to remember Things; for Memory does not consist in the Soul only, but more particularly in the Vestigia imprinted in the Brain; of which Infant's Brain being too soft, is not capable, it being besides agitated by the Bodies wherewith their tender one is environed; whence it happens, that so many different Impressions are confounded together, that they obliterate one another. Therefore, though the Soul thinks from the first Instant of its Creation, it notwithstanding cannot remember its Thoughts till the Substance of the Brain be grown harder, and capable of retaining the Impressions made on it; which seldom happens before Children be three Years of Age, though it sometimes happens sooner; as it is recounted of *Tasso*, that *Coriphæum* of the *Italian* Poets, who being yet but six Months old, reasoned as a Man; frequented the publick Schools at three Years of Age, and at seven was almost perfect Master of the *Greek* and *Latin* Tongues. But these Examples, if they be true, are not common, neither do we want them to support the Truth of our Assertion.

It is objected, 2. That our Soul knows itself, at least by some Knowledge attended with Reflection, *i. e.* after it has thought of something it returns on itself, to understand itself thinking; and therefore does not know itself naturally, but only after it has been informed with the Knowledge of some external Things.

I answer, that the Soul does not know itself only by a Thought accompanied with Reflection, from a previous Knowledge of external Things, but likewise from an inward Sense and Consciousness, whereby it is rendered sensible of its Existence, and knows itself to be a thinking Substance.

3. *As to the Demonstration of the Immortality of the Soul.*—The Life of the human Soul, as well as of all other spiritual Things, consists in the Thought; for Spirits live no otherwise than by Thought, and consequently cannot die unless they cease thinking. For while they exist they are understood capable of thinking; therefore they are to be considered as living as long as they exist, and this Certitude is metaphysical; for a Spirit not only cannot exist otherwise, but not even be thought otherwise.

Therefore when it is asked, whether the human Soul be immortal? The State of that Question is, whether Life be always agreeable to it; but as it cannot live without it exists, we must see first if after it is separated from the Body it continues to exist; for if it exists, it must necessarily live, since its Life, as consisting in the Thought, cannot be separated from its Existence.

It is an Articicle of the Christian Faith, and even the Foundation of the Christian Faith, that our Souls do not perish after they are delivered from the Prison of the Body, but are immortal. Hence Christ, *Matt.* x. 28. *Fear not them which kill the Body, but are not able to kill the Soul.*

But as we are to support this important Truth, not only by Authority, but by Reason likewise; and as the Council of *Lateran* celebrated under the Popes *Julius* II. and *Leo* X. exhorts, in the eighth Session, all the Philosophers, to employ all the Strength of their Reasoning, to prove that important Truth; it is just I should follow in this Place that salutary Advice, and chuse among an infinite Number of Reasonings alledged by the Philosophers both antient and modern, the best and most persuasive, to prove that important Truth of the *Immortality* of the Soul in an Age, where the little Regard most Christians have for a future State, which some of them have even the Impiety to turn into Ridicule, leaves us room to suspect, that but few of them think their Soul immortal: But previously to it, we must call to mind what we have already demonstrated, *viz.* that the human Soul is really distinct from the Body; therefore,

The human Soul is really distinct from the Body, since it can, by God's Omnipotency, exist without the Body; for if it being a thinking Substance, it can very well be conceived by us without a Body, *i. e.* without a Substance naturally extended; and therefore God can separate it from the Body, and preserve it without the Body; since God can effect what we conceive clearly and distinctly.

If this be certain, as it really is, even of a metaphysical Certitude, it follows hence, that the Immortality of the Soul can be demonstrated by the several following Arguments.

perceiving and willing, in which it differs from the Bodies: For the Spirit alone thinks, and nothing can be found in the Mind prior to that Thought.

It is needless to search here, whether Spirits exist; since our Soul cannot doubt of its Existence, since she is conscious to herself that she thinks, and knows for certain that she exists, before she can prove the Existence of Bodies. Therefore I should have contented myself with dividing this second Part of my *Metaphysicks* into three Articles, and had treated in the first of God; in the second, of Angels; in the third, of the human Soul; if I had not given a whole Treatise of *GOD and his Attributes*, under the Letter G; and another whole one of *Angels*, under the Letter A. Therefore I'll confine myself, in this Part, to my third and last Article, which is *of the human Soul*; which Article I'll subdivide into six others. — In the first Place, I'll treat of the *Nature of the human Soul*; in the second, of the *Knowledge of the human Soul*; in the third, of its *Immortality*; in the fourth, of its *Understanding*, and of *Ideas*; in the fifth, of its *Will and Liberty*; and in the sixth, of the *natural Habits*.

1. *As to the Nature of the human Soul.*—We cannot better discover the *Nature* of the human Soul, but by its Affections and Operations: For every Thing is made evident by its Properties and Functions; and we discover in the human Mind, or rational Soul, Cogitations, *viz.* to *understand*, and *to will*; or to *perceive*, *doubt*, *opinate*, &c. which cannot proceed from the Body: For the Body, in whatever Manner it be divided, or moved, or formed, can never produce a Thought of itself, which belongs only to a Substance of a different Order, which we call spiritual: Therefore the *human* or *rational Soul*, is a certain spiritual and thinking Substance, created at the Image and Similitude of God. For we are said to be semblable to God for no other Reason, than because he has given us a rational Soul, whereby we are rendered capable to know and love him; which to demonstrate with some Method, we must prove, first, the Spirituality of the human Soul; which is done by an evident Demonstration of its being capable of Perception and Will; which Demonstration is confirmed by a continual Experience.

The *Epicureans*, on the contrary, are of Opinion, that a corporal Substance is capable both of Cogitation and Extension; or that Extension and Cogitation, are two Modes of a corporal Substance: As to be a Physician and Musician, are two Modes of Man.

But when the *Epicureans* speak in that Manner, they do not consider, as they should, the Nature of that Substance, whereby they are distinguished from the Brutes: For if they would consider it, they would soon understand, that it is certainly distinct from the Body. For those Things are certainly different, whose clear and distinct Ideas exclude *mutually*, *positively*, and *compleatly* each other: For there is not a more certain Argument of the Diversity or Distinction of Things, than the Diversity or Opposition of Ideas: But the Idea of Body, and the Idea of Soul, exclude mutually, *positively*, and *compleatly* each other. For nothing else is conceived by the *Body*, but an extended Substance, which can be divided, moved, *&c.* and by the *Soul*, we understand a thinking Substance. But the Extension, Figure, and Motion, exclude Cogitation positively, and compleatly, and reciprocally; for how much soever you may extend, move, and divide a Body, you'll never draw a Thought from it: Likewise, how great may be the Number of Thoughts, Perceptions, and Desires, we assemble together, you'll never be capable to form, of them, an extended Substance: Therefore the Body and the Soul are certainly distinguished; or the corporal and extended Substance is of a different Order from a thinking and spiritual Substance.

In fact, what can be imagined more absurd, than that a small Portion of Dust, or Matter is intelligent, and capable to have, not only corporal Things, and subject to our Senses, but likewise the spiritual, and most remote from the Commerce of the Senses? For we do not only conceive material Things, but understand likewise those which have no Affinity with the Materials, *viz.* God and his Attributes, *v. gr.* his Unity, Eternity, Infinity, *&c.* and the Laws of Argumentation, the Laws of Justice and Equity, the Series and Difference of Times, *&c.* For who can be so presumptuous to attribute, to a very small Portion of Dust, such a Power, as to be capable to measure the Motions of the Heavens; to define, by a certain Calculation, the Vicissitudes and Inequalities of the Days and Nights, the Periods of Times, without mentioning other metaphysical and mathematical Demonstrations, which excite our Admiration, and which supposes a more noble Principle than a coarse Matter, whatever Form or Figure it may be adorned with?

What shall I say of the Acts of the Will; are they to be attributed to a corporal Substance? Can Matter love Justice, Constancy, and all the other Virtues of the Soul, as they are in fact beloved by our Will? For what do we love in the Saints and in the Martyrs, says St. *Augustin, Tract.* 3. *in Joan. num.* 21. *Their Members tore by wild Beasts; what's more offensive, if you consult only the Eyes of the Flesh; what's handsomer, if you consult those of the Heart? What do you think of a handsome young Man who is a Thief? Is he not in Horror to your Eyes? If you consult them, nothing is better shaped, his Features and Complection are delightful; and notwithstanding, when you hear that he is a Thief you fly from that Man. You see on the contrary, an old Man leaning on a Stick, who can scarcely walk for Age, his Face furrowed with Wrinkles; what do you see in him to please your Eyes? You hear that he is an honest Man, you love him, you embrace him.* From which it is rightly inferred, that a thinking and an extended Substance, or the Soul and Body are of different Kinds; that neither a thinking Substance is capable of Extension, nor an extended Substance of Thoughts.

The *Epicureans* insist, that the Idea of a Physician and of a Musician are different, and exclude mutually each other; though the same can be a Physician and a Musician, and therefore that the same Substance can be thinking and extended.

To which I answer, that the Idea of a Physician and the Idea of a Musician excludes each other mutually, of *a negative and incompleat Exclusion*, but not of a *positive and compleat one*. For the Idea of a Physician excludes *negatively* the Idea of a Musician, *i. e.* does not include it precisely within itself, and can be separated from it *incompleatly* at least, inasmuch as one can be considered a Physician, though he is not considered as Musician: But the Idea of Physician does not exclude *positively* the Idea of Musician, *i. e.* does not remove it from itself, nor can be *compleatly* separated from it; for the Idea of Musician always includes the *Mind*, which contains Musick, as the Idea of Physician includes the *Mind*, into which Physick is received: Whence both agree in that they are Modes of the Mind, or that they are the Mind itself affected with a certain Mode.

But the Idea of Body removes *positively* and *compleatly*, the Soul and *vicissim*; or the Idea of a Thing extended, removes from itself *positively* and *compleatly*, the Idea of a thinking Substance and *vicissim*: Therefore Thought and Extension cannot abide in one and the same Subject, as Musick and Medicine are received in the same Mind, and Whiteness and Sweetness are the Accidents or Modes of the same Milk. For, 1. Extension is not conceived but as a Thing extended in Length, Width, and Depth, and has no Relation to the Subject as a Mode; then no Body can think, without being conscious to himself of his Thought; but no Body in his Senses has ever said that a Body thinks, and is conscious to itself of its Thought.

Therefore to shew that our Mind is spiritual, it is not necessary to have Recourse to the Perception it has of universal and immaterial Things; since nothing without being spiritual can reach, by thinking, not only the Things universal and immaterial, but not even the single and corporal ones; but if a Substance understands singular Things, it will understand them universal, since one does not seem more difficult than the other. It cannot even happen, that one should, *v. gr.* conceive a single Circle, without knowing generally what a Circle is, and the Idea of a Circle be contained in the Mind, whereby all Circles be shewn possible. Whence when some Philosophers pretend, that Brutes reason on simple Things only, that imports a manifest Con-

Contradiction; as, *v. gr.* a Sheep, which has never seen a Wolf, or which has only seen a red, not a black one, cannot fly, by Ratiocination, the Approaches of a black one, unless he has conceived, before, that general Notion, *all Wolves, whatever they be, or of whatever Colour, whether black or red, are to be avoided.* Therefore no Ratiocination is to be attributed to Beasts, with regard to simple Things, unless that with regard to universal Things be granted to them likewise; and that Ratiocination be understood deduced from universal Notions.

Neither is of a greater Strength what others imagine, *viz.* that Brutes conceive and discern Objects, but are not conscious of their Perception; for nothing can be conceived (unless there be an Ambiguity hidden in that Term of Perception) unless he that conceives be conscious of his Perception. Whence the Difference between our Perception, and that of the Brutes, is not to be placed in that we can conceive Things universal, and be conscious to ourselves of our Perception: But we are distinguished from them in that we are capable of thinking, not they. For when a Beast is said to see or to hear, its Audition or Vision consists in the sole Motions of the Spirits, and is not joined with Thoughts as ours.

The *human Mind* besides, though it be spiritual and uncorporal, is notwithstanding joined with an organical Body, by the Creator's Disposition and Order, to constitute a Man; therefore it is very well called the *Form of Man.*

COROLLARY.

From all these can be deduced the Definition of the human Soul by St. *Augustin, lib. de quantit. anim. c.* 13. *If you will,* says he, *have the Definition of the Soul, and you ask me what the Soul is, I'll answer, that it seems to me to be a certain Substance indued with Reason, appointed to govern the Body.* In which Definition the Term Reason seems generally taken for Thought, which confirms that of the modern Philosophers, that the Soul is a thinking Substance, which joined with the human Body, constitute a certain *Whole*, viz. Man.

2. *As to the Knowledge of the Soul.*—The human Soul being, as already observed, a thinking Substance, conscious to itself of its Thought; it is very certain that it must know itself naturally.

To this it is objected, 1. That if the human Mind should naturally know itself and its Thoughts, it should therefore conceive itself and them, from the very first Instant of its Creation, which it does not; therefore, *&c.*

I answer, that the human Soul does not know itself from the first Instant of its Creation, *i. e.* does not reflect on itself, notwithstanding which, it has some Sense of itself; therefore the human Soul is naturally a thinking Substance, and conscious to itself of its own Thought; whence it has always a Sense of itself; but agitated by the Motions of a very tender Body, it cannot in those first Times reflect on itself.

For we know by a daily Experience, that Infants conceive the Names, Qualities, and Differences, of the Things which are shewn them, and that long before they can express them by Words; which Perception of Things and Force of Memory, which sometimes is not to be found in Adults, is a plain Demonstration, that there is a perfect Reason in Infants; though for the Imbecillity of their tender Body, and its uncertain Motions, they are not capable of a long Attention. Therefore there is a perfect Reason in Infants as well as in Adults.

It is urged further, that if the Soul know itself from the first Instant of its Creation, we should certainly remember our Thoughts; not only those we have formed as soon as we were born, but those likewise we had in the Womb of our Mothers, which notwithstanding does never happen; therefore the Soul does not know itself from the first Instant of its Creation.

To this I answer, that in order to remember our Thought while the Soul is joined with the Body, it is necessary that some Vestigia should be traced in the Brain, whereby the Soul is determined to remember Things; for Memory does not consist in the Soul only, but more particularly in the Vestigia imprinted in the Brain; of which Infant's Brain being too soft, is not capable, it being besides agitated by the Bodies wherewith their tender one is environed; whence it happens, that so many different Impressions are confounded together, that they obliterate one another. Therefore, though the Soul thinks from the first Instant of its Creation, it notwithstanding cannot remember its Thoughts till the Substance of the Brain be grown harder, and capable of retaining the Impressions made on it; which seldom happens before Children be three Years of Age, though it sometimes happens sooner; as it is recounted of *Tasso*, that *Coriphæum* of the *Italian* Poets, who being yet but six Months old, reasoned as a Man; frequented the publick Schools at three Years of Age, and at seven was almost perfect Master of the *Greek* and *Latin* Tongues. But these Examples, if they be true, are not common, neither do we want them to support the Truth of our Assertion.

It is objected, 2. That our Soul knows itself, at least by some Knowledge attended with Reflection, *i. e.* after it has thought of something it returns on itself, to understand itself thinking; and therefore does not know itself naturally, but only after it has been informed with the Knowledge of some external Things.

I answer, that the Soul does not know itself only by a Thought accompanied with Reflection, from a previous Knowledge of external Things, but likewise from an inward Sense and Consciousness, whereby it is rendered sensible of its Existence, and knows itself to be a thinking Substance.

3. *As to the Demonstration of the Immortality of the Soul.*—The Life of the human Soul, as well as of all other spiritual Things, consists in the Thought; for Spirits live no otherwise than by Thought, and consequently cannot die unless they cease thinking. For while they exist they are understood capable of thinking; therefore they are to be considered as living as long as they exist, and this Certitude is metaphysical; for a Spirit not only cannot exist otherwise, but not even be thought otherwise.

Therefore when it is asked, whether the human Soul be immortal? The State of that Question is, whether Life be always agreeable to it; but as it cannot live without it exists, we must see first if after it is separated from the Body it continues to exist; for if it exists, it must necessarily live, since its Life, as consisting in the Thought, cannot be separated from its Existence.

It is an Articicle of the Christian Faith, and even the Foundation of the Christian Faith, that our Souls do not perish after they are delivered from the Prison of the Body, but are immortal. Hence Christ, *Matt.* x. 28. *Fear not them which kill the Body, but are not able to kill the Soul.*

But as we are to support this important Truth, not only by Authority, but by Reason likewise; and as the Council of *Lateran* celebrated under the Popes *Julius* II. and *Leo* X. exhorts, in the eighth Session, all the Philosophers, to employ all the Strength of their Reasoning, to prove that important Truth; it is just I should follow in this Place that salutary Advice, and chuse among an infinite Number of Reasonings alledged by the Philosophers both antient and modern, the best and most persuasive, to prove that important Truth of the *Immortality* of the Soul in an Age, where the little Regard most Christians have for a future State, which some of them have even the Impiety to turn into Ridicule, leaves us room to suspect, that but few of them think their Soul immortal: But previously to it, we must call to mind what we have already demonstrated, *viz.* that the human Soul is really distinct from the Body; therefore,

The human Soul is really distinct from the Body, since it can, by God's Omnipotency, exist without the Body; for if it being a thinking Substance, it can very well be conceived by us without a Body, *i. e.* without a Substance naturally extended; and therefore God can separate it from the Body, and preserve it without the Body; since God can effect what we conceive clearly and distinctly.

If this be certain, as it really is, even of a metaphysical Certitude, it follows hence, that the Immortality of the Soul can be demonstrated by the several following Arguments.

1ſt Argument.—The firſt Argument of the Immortality of the Soul, which is alſo a metaphyſical one, taken from the innate Notion Men have of the human Soul, can be formed thus: That Subſtance is immortal, which ſeparated from the Body ſubſiſts and lives; but the human Soul ſeparated from the Body ſubſiſts and lives. Firſt, it ſubſiſts, ſince it is a Subſtance diſtinct from the Body, which conſequently does not want the Body to ſubſiſt. Secondly, it lives, becauſe as it always thinks, and its Life conſiſts in the Thought, it cannot ſubſiſt without Life: Therefore the human Soul is immortal.

What I ſay, that this firſt Argument is metaphyſical, muſt be underſtood only of Life with reſpect to a thinking Subſtance; for a thinking Subſtance cannot be conceived without Life, ſince its Life conſiſts in the Thought; therefore while it ſubſiſts it lives, or does not die, and conſequently is immortal.

But as to what regards its Subſiſtence after it is ſeparated from the Body, we are not certain of it, of a metaphyſical Certitude, becauſe it could happen by God's Omnipotency, that it ſhould not continue to ſubſiſt, though it cannot die of itſelf. For as none but God exiſts neceſſarily, the Creatures exiſting only contingently, and as having received their Exiſtence from God, it is manifeſt that they ſhould return into their former Nothing, if God was to deprive them for a ſingle Moment of his Influence. And as this Order has been eſtabliſhed in Things created by the Almighty, that what he has once extracted from nothing ſhould be continually preſerved by him, it cannot happen, while that Order remains, that the human Soul ſeparated from the Body ſhould periſh: This Certitude is phyſical, and can be ſupported by the following Argument.

2d Argument.—The human Soul is not of a worſe Condition, than another Subſtance of an inferior Order, *viz.* the Body, or Part of the Body; but the Body deſerted by the Soul inclines towards a Subſiſtence, *v. gr.* it is certain, of a phyſical Certainty, that a Branch of a Tree torn from the Trunk muſt remain, though the Trunk be burnt and reduced to Aſhes: And it is alſo conſtant of a phyſical Certitude, that a created Thing cannot fail of itſelf, but only, if God withdraws his Concurrence, without which it cannot ſubſiſt; but God does not withdraw that Concurrence from a Part, when another periſhes, on which it does not depend:

Therefore, at the Diſſolution of the Body, God does not deny his Concurrence to the Soul to ſubſiſt, but preſerves the Soul as well as the Body, with this Difference, notwithſtanding, that the Body, being compoſed of Parts, undergoes ſeveral Mutations; but the Soul, which is ſimple and without Compoſition, remains whole and uncorrupted.

And hence Men have that innate Opinion of the Immortality of the rational Soul, for which we are indebted to Nature alone, not to Reaſon or Science; from which follows the third Argument, which is a moral one, and adapted to every one's Underſtanding.

3d Argument.—This Argument is taken from the common Conſent of all Men, particularly thoſe who have not renounced common Senſe; as obſerved by *Tully, lib.* 1. *Tuſcul. quæſt. Man's Solicitude, with reſpect to what is to happen after Death, is a great Proof that Nature itſelf has an innate Notion of the Immortality of the Soul.* And after he has commemorated all that is done with regard to a future Life, ſo as planting Trees, adopting Children, erecting Monuments for the Dead, expoſing our Lives in the Service of our Country, he adds, *that if the Conſent of all Men be the Voice of Nature, and all agree, that it is ſomething pertaining to thoſe who have departed this Life; we muſt be of the ſame Sentiment.*

Seneca agrees in this Point with *Cicero*, when he writes, *Epiſt.* 117. *That when he treats of the Eternity of the Soul, the Conſent of all Men is a very great Inducement to believe it.* I omit here the Authority of *Plato, Ariſtotle*, and other Philoſophers, which can be ſeen learnedly and elegantly explained by *Cicero, lib.* 1. *Tuſcul. quæſt.*

For we muſt confeſs that this vaſt Univerſe, like a very well poliſhed Republick, is under the Government of a ſupreme Being, who puniſhes Crimes and rewards Virtue, which could not be done if the Soul was not immortal; for here in this World we ſee but too often the Innocent reduced to Miſery, and oppreſſed; and the Wicked reign and live in Opulence; which is very juſtly obſerved by our Lord *Jeſus Chriſt*, in the Parable of *Lazarus* and *Dives, Luke* xvi. 25. *Remember that thou in thy Life-time receivedſt thy good Things, and likewiſe Lazarus evil Things; but now he is comforted and thou art tormented.* Therefore the human Soul is immortal.

Thoſe who deny the *Immortality of the Soul*, are not aſhamed to employ Authority and Reaſon, in Defence of their impious Folly; and object, 1. That the Death of Man and Beaſt is the ſame, according to *Eccleſ.* iii. 19.

I anſwer, that it is true that the *Eccleſiaſtes* ſays in that Place, that the Death of Men and Beaſts is the ſame, and their Condition the ſame, as to the Neceſſity of dying; *for as one dieth ſo dieth the other, yea they have all one Breath, ſo that a Man has no Pre-eminence above a Beaſt*, with reſpect to a corporal Life which is common to all Animals. Whence the *Eccleſiaſtes* proceeds; *all go unto one Place, all are of the Duſt, and all turn to Duſt again*, viz. on Account of the Body; for the Soul which is not made of Duſt, does not turn to Duſt: The Soul notwithſtanding, ever ſince the original Sin has been ſo wrapped, or rather buried in the Matter, that having in ſome Manner forgot its Origin, it minds nothing but terreſtrial Things, and does not remember its being born for Heaven. Therefore the *Eccleſiaſtes* adds, *who knoweth the Spirit of Man that goeth upward, and the Spirit of the Beaſt that goeth downward to the Earth?* For ſeveral of thoſe who would be accounted wiſe, as the *Epicureans*, do not know this; becauſe they are wholly taken up with corporal Things, and neglect to conſider what belongs to the Soul; tho' the *Eccleſiaſtes* admoniſhes them in the ſame Place, *viz.* in the Verſes 16 and 17. that we muſt expect another Life, in which God will reward the Juſt, and puniſh the Impious; but they do not mind neither theſe, nor an infinite Number of other Paſſages of the Scripture, whereby they can be convinced of Impiety, ſearching only the very few, of which they imagine, they can eaſily abuſe.

It is objected, 2. From St. *Paul*, 1 *Tim.* vi. 16. *That God alone is immortal.*

I anſwer, by an Explication of the Text of the Apoſtle, God alone is immortal of himſelf it is true, but not of another: For God alone has the Immortality of himſelf, becauſe he alone is uncreated, and ſovereignly perfect in himſelf, but the angelical and human Soul is immortal by Participation only, as having received it from God. Whence St. *Auguſtin, Epiſt.* 166. otherwiſe 28. *c.* 2. ſays, *that the human Soul is immortal in its Manner, but not in all Manners as God is, of whom it is ſaid, that he alone has the Immortality.* Hence it is, that God is called in the Schools eternal and immortal, as well inwardly as outwardly, *i. e.* he can be annihilated neither by himſelf nor by another: But the human Soul is immortal inwardly only, becauſe it cannot be annihilated by itſelf, but God can annihilate it; therefore in the ſixth general Council, the human Souls are ſaid to be *immortal by God's Grace only, not by Nature*, becauſe they receive the Immortality from God's Grace and Will, not from themſelves.

It is objected, 3. With *Lucretius, lib.* 3. *de rerum natur.* with *Pliny* the older, *lib.* 7. *natur. hiſt. c.* 55. and with the whole Family of the antient *Epicureans*, that the Soul is born with the Body, or in the Body, and conſequently periſhes with the Body.

I anſwer, that though the Soul be born with the Body, or in the Body, it is notwithſtanding a Subſtance diſtinct from the Body, and of a quite different Kind, and conſequently ſubſiſts, though the Body periſhes.

If it be ſaid, that the Soul of the Brute periſhes with the Body, becauſe born with the Body; and therefore the human Soul periſhes with the Body, becauſe born with the Body. I'll deny the Parity, and give for Reaſon of the Diſparity, that the Souls of Beaſts are corporal and conſiſt of Parts, *viz.* of the Blood, and of the animal Spirits; but the human Soul is ſpiritual and thinking: Therefore the Souls of Beaſts can be diſſolved and corrupted, as likewiſe the animal Spirits are diſſipated in Man; but the human Soul remains always untouched

untouched and uncorrupted, as being very ſimple, entirely without Parts, and of a different Nature from the human Body.

It may be urged, that there is a great Similitude between Men and Beaſts.

To which I anſwer, that there is a great Similitude, with regard to the corporal and animal Functions, for a Man eats, ſleeps, grows ſick, *&c.* as well as a Beaſt; but not with regard to the ſpiritual Functions, *viz.* Underſtanding and Will: For there is no intelligent Faculty in Beaſts, no Liberty, but they are moved by a blind and temerarious Impetuoſity.

It may be urged further, that there are ſome Beaſts, in which is diſcovered a great Sagacity: Which I anſwer in the Negative. For if there was ſome Ratiocination in Beaſts, they would communicate their Thoughts by ſome Signs, not only between themſelves, but to us likewiſe, as a Man travelling among foreign Nations, and is ignorant of their Language, learns by a continual Uſe, though perhaps very imperfectly, that Language, to converſe or trade with them; but Beaſts don't communicate their Thoughts to us by any Signs or Words, though they have Organs in ſome meaſure proper to ſpeak, as is ſeen in Magpyes and Parrots: Therefore Beaſts have no Ratiocination.

That Argument beſides, does not ſhew that the human Soul is corruptible and mortal; but only grants the Immortality to the Souls of Beaſts. For if Beaſts think as well as Men, their Thoughts muſt certainly proceed from a ſpiritual Soul which is uncorruptible and immortal, which I have proved to be falſe in my Treatiſe of *Animals*, under the Letter A.

Others object, that though the human Soul be capable of Thoughts, it notwithſtanding periſhes with the Body.

I anſwer this Objection in the Negative: For the Soul is a Subſtance diſtinct from the Body, and does not depend of the Body for its Subſiſtence, as I have already ſo often repeated.

But, ſay they, God has created the human Soul for the Body only; therefore the Body periſhing, which is animated therewith, it muſt periſh likewiſe.

I anſwer, that God has not created the Soul for the Body only, *viz.* a moſt noble Subſtance for a moſt ignoble, but has created it for himſelf. Whence our Soul, as formed to God's Reſemblance, and created for himſelf, is not quite deprived of its Functions when the Body dies, as ſome have falſely pretended, but muſt be ſubſervient to God's Glory to all Eternity. Therefore it is neceſſary it ſhould remain after the Diſſolution of the Body.

They inſiſt, that what has a Beginning muſt have an End, according to *Ariſtotle*, *lib.* 1. *de cœlo*, *c.* 12. and that though the human Soul be created for God, it has notwithſtanding a Beginning; therefore muſt have an End with the Body.

I anſwer, that let it be that what has a Beginning by Generation, as an Animal, a Tree, or ſome other natural Thing compoſed, ſhould have an End; but not what has a Beginning by Creation, which is the Caſe of the human Soul, which has a Beginning by Creation not by Generation; therefore has no End. For if the Matter, which is created, continues always to exiſt, and is not annihilated, unleſs God refuſes it his Concurrence for its Exiſtence, much more the human Soul, which is a Subſtance much more noble and much more perfect, can ſubſiſt with God's Concurrence.

They urge further, that the Soul increaſes in Infants, becomes ſtronger in Youths, and declines in old Perſons. That it is beſides, healthy in a healthy Body, infirm in a cacochimous, is diſturbed in a Drunkard; and is ſubject to all the Changes of the Body: Therefore is either corporeal, or depends on the Body in ſuch a Manner, that when it dies, the Soul cannot ſubſiſt.

I anſwer, that the Soul increaſes in Infants, *&c.* becauſe of the ſtrict Union which ſubſiſts between it and the Body: But not for itſelf, and its Nature. Therefore the Soul ſeems to increaſe in Infants, to grow ſtronger in Youths, *&c.* becauſe God has eſtabliſhed this Law between the Soul and the Body, that almoſt all the Thoughts of the Soul ſhould be immediately followed by ſome Motions of the Spirits in the corporeal Organs, and *viciſſim.* Whence the more thoſe Organs grow perfect, the freer and quicker is the Motion of the Spirits, and then the Soul ſeems to increaſe or to grow ſtrong, in that it is more eaſily determined to thinking: But when the Spirits are diſturbed or fail, the Thought for the ſame Reaſon, ſeems to be diſturbed or fail: Therefore in a Lethargy, Frenzy, and Ebriety, it is not the Soul which ſuffers, but the Brain only, which is the Inſtrument of the Soul: And hence it is the Brain which muſt be cured, not the Soul. But when the Soul is ſeparated from the Body, it is no longer agitated by thoſe Sorts of Motions, but remains the ſame, and in the ſame State; therefore it cannot be inferred that it periſhes with the Body, or is annihilated.

As to what *Lucretius* ſays in the Book above quoted, that thoſe are mad who join the Eternal with the Mortal, *i. e.* the Soul with the Body; I ſay myſelf, that in that Place, no more than in ſeveral others of his Writing, *Lucretius* himſelf does not ſpeak as a Man of Senſe; ſince it is very convenient that a ſpiritual Subſtance ſhould be joined with a corporal one, that the Souls as well as the Bodies may be in ſome Manner aſſociated in one and the ſame Compoſite, to avoid all Kinds of Flaws in the divine Works.

It is objected, 4. With *Peter Pomponatius*, a Philoſopher of *Mantua*, and with all thoſe who are of Opinion, that the Immortality of the Soul is to be proved by Faith alone, not by Reaſon; that our Sentiment is contrary to *Ariſtotle*'s Authority.

I anſwer in the Negative; for though ſeveral imagine that *Ariſtotle* has doubted of the Immortality of the Soul, as he teaches, notwithſtanding, *lib.* 1. *Ethic. c.* 11. that the Dead are ſenſible of the Fortune of their Friends, he could not be certainly of Opinion, that the Soul is mortal.

They inſiſt, that the human Soul ſeparated from the Body would be in a violent State, and therefore could not ſubſiſt.

I anſwer in the Negative, 1. Becauſe a Subſtance which is in a violent State is not immediately annihilated; but if it be corporal and conſiſting of Parts, is only diſſolved. Whence the damned Souls, which are ſimple and ſpiritual, though they be in a violent State, do not periſh, but live continually in their Torments.

2. Our Adverſaries do not prove that the human Soul is in a violent State, after it has been ſeparated from the Body. For, in their Opinion, it ſhould be in a violent State, as retaining ſome Propenſity towards the Body; but though it ſhould have ſuch a Propenſity, it could not be ſaid, that it would be in a violent State; for that Propenſity does not engage the Mind in ſuch a Manner as to make it pine after the Body.

3. If the Soul be a bleſſed one, and intimately united with God, it is not in a violent State; for its Union with God fills it with ſo much Joy, that it conſiders its Separation from the Body almoſt as nothing. Therefore the human Soul ſubſiſts and lives, though ſeparated from the Body.

But, ſay you, the rational Soul ſeparated from the Body, would be idle, at leaſt; for it could not feel, nor underſtand, nor be moved, nor communicate its Thoughts to other Men's Minds; which is quite abſurd.

I anſwer in the Negative: For that Subſtance is not idle which thinks; but the human Soul, ſeparated from the Body, thinks: Since it does not borrow the Power of Thinking from the Body, and does not want ſenſible Species, or Objects, to excite it to think: For there are ſeveral Things in the Underſtanding, which were not in the Soul before. Therefore the human Soul, ſeparated from the Body, does not remain idle.

What is ſaid, that there is no Senſibility without the Body, is true in ſome Senſe; *viz.* if *Senſe*, or, as we expreſs ourſelves ſometimes, *Senſation*, be defined, with St. *Auguſtin*, *Lib. de quant. anim. c.* 30. a Paſſion of the Body proceeding from the Soul. Becauſe as it is no longer joined with the Body, it is no longer affected, occaſionally, by its Motions. But if Senſation be taken for a certain interior Affection of the human Soul, commonly occaſioned by the Body, as Sorrow and Joy, certainly the Soul, ſeparated from the Body, can be ſenſible; becauſe, by God's Will, it can be affected with the ſame Sentiments of Sorrow and Pleaſure, it was when

when joined with the Body. It is not even against all Appearance of Truth, that God could dispose some Part of the Matter with respect to a Soul separated from the Body, so that as it was moved by a Sentiment either of Joy or Sorrow, occasioned by the Motions made in the human Body; likewise by the Occasion of the Motions of that Portion of Matter, it is susceptible of Joy or Sorrow: And by the same Reason can be explained how the damn'd Souls are tortured by the Fire of Hell. For though their Substance cannot be consumed by the Flames, they notwithstanding, by Occasion of the Matter they are environed with, can feel the Fire.

The human Soul, besides, separated from the Body, can both understand itself, God, and several other Things.

1. Itself; because it cannot think, without being conscious to itself of its Thought: Therefore as it thinks continually, it can likewise continually understand itself.

2. It understands God; because it has continually God present, either as Remunerator, or as Avenger.

3. It can understand several other Things, *viz.* either those which she sees in God; or those with which it has some Affinity, or Relation: Therefore the Soul can understand without the Assistance of the Body.

It can, likewise, be moved without the Body, *viz.* of that Motion which is agreeable to Spirits; for as spiritual Things are not properly in a Place, (as I have observed in my Treatise of *Angels*, under the Letter A) neither are they properly moved, or they are not properly transferred from one Place to another, unless it be *definitively*, viz. as they can be present, by their Thought, sometimes in one Place, and sometimes in another; though they be not environed with that Place. Lastly, as to the Manner, it can open its Mind to other Souls, or understand the Thoughts of others; the Thought of one is manifested to the other, by Means of his Will; as, at present, by Means of some Words or Sayings, the Thought of a Man is communicated to another Man.

4. *Touching the human Understanding, and Ideas.* — We must distinguish in a thinking Substance two principal Faculties, *viz.* those of understanding and of willing; the former is called *Understanding*, and the latter *Volunty*: Tho' Understanding signifies rather *Perception* or Intellection, than the *Faculty of Understanding*; and *Volunty* rather the Act of Willing, than the Power. All Philosophers, the *Thomists* excepted, are of Opinion, that those Faculties are not really distinct from the Soul; not without just Reason. For nothing obliges us to distinguish those Faculties from the Soul, if the Soul alone can acquit itself of its Functions, without that real Distinction; which it can do, since the Soul thinks of itself; and to think is to understand and will: Therefore the Understanding and Will are not to be really distinguished from the Soul itself; *since Beings are not to be multiplied without Necessity.*

Notwithstanding which I'll treat of both Faculties, and of the others which have any Affinity to them, separately, to avoid Confusion: Speaking first of the *Understanding*, which is commonly defined, *a Faculty of the human Soul, conceiving all Being, and the Mode of the Being*; and is the Soul itself, as Understanding and Conceiving; as the Will is the same Soul as Willing.

It is very difficult, and very laborious, to discover how the Soul *perceives.*

The *Epicureans*, who falsely persuade themselves, that there is nothing in Nature but Atoms and a Vacuum, have Recourse to *Idols* and *Spectres*; which ridiculous Opinion is not worthy our Notice. There are two other Sentiments of Philosophers, deserving as little our Attention: The first is that of the *Peripateticians* or *Scholiasts*; the second is that of the *Cartesians* or *Platonicians*, exemplified by the Author *Of the Enquiry after Truth.*

The Sentiment of the PERIPATETICIANS.

The *Peripateticians* distinguish from *Aristotle, Lib.* 3. *de anim. c.* 5, & 6. two Sorts of Understanding, *viz.* an *active Understanding*, and a *passive Understanding*. They teach that the *active Understanding*, is that which causes that *Things which possibly can be understood, are actually understood.* By forming the Ideas, or spiritual Representations of Things, which in Theology are called the *Word of the Wind*, or *expressed Species*, to distinguish them from the Species from Objects, which are called *impressed Species.* The *active Understanding* is said to express those Species, *by Conversion to Phantasmata*, or by being attentive to the corporal Species traced in the Phantasy, which, though not seen by him, he notwithstanding imagines that he forms his Ideas on their Model; wherefore the Understanding and Phantasy are Faculties radicated and founded in the same Subject, or the rational Soul; which notwithstanding is very difficult to conceive.

They call *passive Understanding*, that *which receiving the Ideas formed by the active, understand all Things.* For though the Name of Idea is sometimes taken for the Perception of the Mind, it is notwithstanding, after taken for the *Species* of the Thing, or conceived Object; that is called a *formal*, and this an *objective Idea.* But we must observe, *en passant*, that the *Greek* Word used by *Aristotle* in this Place, signifies the Soul itself, not the Understanding taken for a Faculty of the Soul; therefore our Souls can be called and considered as active and passive together; for it is *active* when it determines itself to Action, in which Sense it is called *Will*; and is *passive* when it actually understands, and then is called *Understanding.*

The Sentiment of the CARTESIANS.

The *Cartesians*, on the contrary, pretend that all Perception is *passive* within us, so that our Understanding does not form the *Ideas* of the intelligible *Species* of Things, but receives them only: Which Ideas *Des Cartes* teaches to be either *innate*, or *adventitious*, or *factitious*, as I have explained it in the Logic; and imagines them to be united with the Motions of the animal Spirits, as to be occasional to one another.

My own Sentiment.

For my Part I am of Opinion, that it is not very difficult to shew, that there is no active Understanding in a created Soul, as the *Peripateticians* imagine; but that the divine Understanding alone, who is illuminated by none, and illuminates all others, acts, and represents to the created Spirits the Ideas contained within him: Therefore I am of Opinion, that there is no active Understanding within us, since our Understanding cannot form Ideas or spiritual Images of Things, for he has not even an Idea of himself, in the Sense the *Peripateticians* take it: For before he could form those Ideas, he should either conceive the Things themselves, or be ignorant of them; if he could perceive them, he would be already informed of an intelligible Species or Idea of them, and therefore should not want a new Species to perceive them: If he was ignorant of them, he could never be capable to form a representative Species of them, since we cannot form an Idea of a Thing which we have no Knowledge of: Therefore there is no active Understanding within us.

It may be said, that our Understanding does not understand otherwise than by the Species painted in our Phantasy, or imaginative Faculty, from which we draw his Ideas; and therefore that our Understanding is active as well as passive.

I answer, 1. That *the Things we know are of two Kinds*, says St. *Augustin, lib.* 15. *de Trinit. c.* 12. *One of the Things which our Minds conceive by means of the Senses; the other of the Things which we know by ourselves*, *i. e.* without a Conversion to those Images painted in the Brain. — 2. If the Understanding understand no otherwise but by a Conversion to the Images painted in the Brain, he either conceives them or not conceives them; if he conceives them, he wants no intelligible Species to understand, therefore he would form them in vain; and if he does not know them, how can he fabricate Species resemblable to them, since there can be formed no Representation or Species of a Thing unknown? I confess however, that our Mind conceives the Things corporal, by means of the Motions excited in the Brain, or of the Images traced in it; but it does not appear that such a Thing proceeds from the Similitude which those Species or Images have with the Thoughts known, which Similitude, as an *assimilative* Power, should move

our Underſtanding, to produce that Idea ſemblable to the Thing itſelf; but it can be ſaid, on the contrary, that a Law has been eſtabliſhed by the Author of Nature, between the Soul and the Body, whereby, on Occaſion of ſome Motions of the Body, certain Perceptions are excited in our Underſtanding.

But, ſay you, if thoſe Motions have no Reſemblance with the Things conceived, how can they excite a Perception thereof?

I anſwer, by that Law above-mentioned; for nothing could hinder God from appropriating, by his Omnipotency, ſome Thoughts of our Mind to certain Motions of the Body; as we join ſome of our Thoughts with certain Words, which are not at all ſemblable to the Things ſignified and excited in our Mind.

Corollary I.

Our Underſtanding muſt be called a *paſſive* Faculty of the human Soul, not an active one. For receiving the Ideas, is not acting, but ſuffering. But our Mind, in Underſtanding, receives the Ideas; ſince it not only does not form them, as already obſerved, but even receives them, ſometimes, in Spite of itſelf. Therefore, *&c.*

Corollary II.

If the Intellection of our Mind be voluntary, it is always preceded by ſome Determination of the Will, whereby the Mind applies itſelf to underſtand; and that Application, which is alſo called *Attention*, is a true Action, which the Will can do, or omit at Pleaſure. Whence, when the Mind is attentive to itſelf, to know itſelf, it really acts; and it is ſaid created to God's Reſemblance, in that it knows and loves itſelf: Though in knowing and loving itſelf, it does not produce Subſiſtances, as it is done in the bleſſed Trinity.

When it is ſaid, that by thinking, one repreſents ſomething to himſelf, that Repreſentation, conſider'd as an Action, is nothing elſe but the Determination of the Will, whereby the intellective Power, which is paſſive, is applied to conceive it; or is the *Attention* of the created Mind, which like a natural Prayer, impetrates from God, according to the Hope himſelf has eſtabliſhed, that he ſhould inform him of the Idea of certain Things; but is not an Action of the Underſtanding, which forms, or fabricates an *expreſſed Species*.

Corollary III.

When the human Soul knows itſelf by its Conſcience, it does not produce then an Idea diſtinct from itſelf, and *Repreſentative* of itſelf; but is only conſcious by an inward Senſe, of its Exiſtence, and of its Thought.

Corollary IV.

What I ſay here of the human Mind, may be attributed to all other created Underſtanding; for God alone, by contemplating himſelf, and all other Things in himſelf, operates; becauſe God alone, neither is, nor can be illuminated by any other Being; whereas, on the contrary, he illuminates all others.

Corollary V.

God can be called the Light of the created Souls, ſince he diſſipates all their Darkneſs, and infuſes Ideas into them, which they can find neither in themſelves, nor in the Objects; ſince they cannot be immediately affected by the Objects.

Corollary VI.

God does not ſeem to concur with a created Underſtanding, otherwiſe than by his Irradiation.

Corollary VII.

The *Attention* of the Mind is the occaſional Cauſe, or, as the Author of the Inquiry after Truth expreſſes himſelf, is like *a certain natural Prayer*, whereby we engage God, to grant us Underſtanding: Hence it follows, that we have ſome *innate Ideas*.

We call an *innate Idea*, that which is born with us; which Idea is juſtly called a natural Light; wherewith God illuminates the human Souls. The Idea of a Being ſovereignly perfect, is of that Kind; which, as we can be made Partakers thereof, in different Manners, we conſider, firſt, as a Being, then as a ſovereign Being, *i. e.* as true, as good, *&c.* Hence it is, that we have generally the Idea of a Being, and of his Attributes, Differences, or Modes, *viz.* of Unity, Truth, Beauty, *&c.* which are requiſite for a ſovereign Perfection: Hence likewiſe is deduced the Idea of Extenſion, and of thoſe Things which belong to Extenſion, *viz.* Diviſibility, Mobility, all which Ideas, could not paſs through the Senſes. We have naturally, not only thoſe Ideas, but the Relations which have a mutual Regard to one another; and in that conſiſts the Force of the natural Light, by Means whereof we join the Ideas which are ſemblable to one another, and remove thoſe which are diſſemblable; and form all the Judgments which are certain and evident.

It may be objected, 1. That all our Ideas drawing their Origin from the Senſes, we have no innate ones; and that they draw their Origin from the Senſes, is evident from this Axiom, ſo common in the Schools, *Nihil eſt in intellectu quod prius non fuerit in ſenſu.*

I anſwer, that thoſe Ideas have not their Origin from our Senſes, which have neither Colour, Taſte, nor Sound; nor any other ſenſible Quality; ſuch are the Idea of a Being in general, and of its Attributes or Modes; the Idea of a God, *&c.* But thoſe only draw their Origin from our Senſes, the Objects whereof can affect the Senſes, *viz.* the Ideas, or rather Perceptions of the ſenſible Qualities, as of Colour, Sound, Smell, Taſte, Heat, Cold, *&c.* from which proceed the Affections of Joy, Sorrow, *&c.* Though thoſe Ideas do not depend on the Senſes in ſuch a Manner, that the Senſes are the Cauſes thereof, properly ſaid, but only, they draw their Origin from them, as from Occaſions. Therefore that Principle cannot be generally maintained, *Nihil eſt in intellectu*, &c. ſince it cannot have Place but in the ſole Perceptions of the ſenſible Qualities.

Having thus eſtabliſhed the Exiſtence of innate Ideas, we muſt conſider next in what conſiſts the Nature or Entity of the innate Ideas, objectively taken; and which are thoſe which we conceive by clear Ideas, and which by confuſed Ideas.

Des Cartes, and the *Carteſians*, are generally of Opinion, that Perception is made within us, by innate, or adventitious, or factitious Ideas, *i. e.* by Virtue of the Law which God has eſtabliſhed between the Soul and the Body, whereby, on Occaſion of the Motions made in our Brain, ſeveral Ideas or Perceptions are excited in our Minds; but the Manner how Things are preſent to our Underſtanding, and are united to it, was left by them undecided. But Father *Mallebranche*, a *Frenchman*, has gone further, in that excellent Work he has entitled, *Of the Inquiry after Truth.* For he diſtinguiſhes in us, four different Manners of Perception.

The firſt is that whereby a Thing is ſeen in itſelf. — The ſecond, that whereby a Thing is not ſeen in itſelf, but by a *clear Idea*, which alone is properly an Idea, and which repreſents to our Mind, either the Being itſelf, or the Mode of the Being. — The third is *by an inward Senſe*, or *by Conſcience*, how the human Mind is conſcious of its Affections, or Senſations. — The fourth is only *by Conjecture*; whereby the Minds of other Men ſeem to be known to us. — We may be permitted to add a fifth, and that ſupernatural, *by divine Revelation*, or Faith, whereby we know the Myſteries of the Chriſtian Religion.

Therefore what *Des Cartes* ſays, we know *by a confuſe Idea*, the Author of the Inquiry after Truth, is of Opinion, that we know it *by an inward Senſe*, or by *Conſcience*; for he admits no Idea which is not clear and diſtinct, which repreſents Things to our Mind, clearly and diſtinctly, ſuch are the Idea of Extenſion, the Idea of a Number, *&c.* but this muſt be explain'd in a clearer Manner.

The firſt Manner of Perception, *when a Thing* is ſeen in itſelf.

Therefore, if we believe Father *Mallebranche*, we know the Eſſence of God, not in an Idea, Species, or Image diſtinct from God; but we know it in God himſelf; *Quatenus* he is preſent to our Mind, and illuminates it.

when joined with the Body. It is not even against all Appearance of Truth, that God could dispose some Part of the Matter with respect to a Soul separated from the Body, so that as it was moved by a Sentiment either of Joy or Sorrow, occasioned by the Motions made in the human Body; likewise by the Occasion of the Motions of that Portion of Matter, it is susceptible of Joy or Sorrow: And by the same Reason can be explained how the damn'd Souls are tortured by the Fire of Hell. For though their Substance cannot be consumed by the Flames, they notwithstanding, by Occasion of the Matter they are environed with, can feel the Fire.

The human Soul, besides, separated from the Body, can both understand itself, God, and several other Things.

1. Itself; because it cannot think, without being conscious to itself of its Thought: Therefore as it thinks continually, it can likewise continually understand itself.

2. It understands God; because it has continually God present, either as Remunerator; or as Avenger.

3. It can understand several other Things, *viz.* either those which she sees in God; or those with which it has some Affinity, or Relation: Therefore the Soul can understand without the Assistance of the Body.

It can, likewise, be moved without the Body, *viz.* of that Motion which is agreeable to Spirits; for as spiritual Things are not properly in a Place, (as I have observed in my Treatise of *Angels*, under the Letter A) neither are they properly moved, or they are not properly transferred from one Place to another, unless it be *definitively*, viz. as they can be present, by their Thought, sometimes in one Place, and sometimes in another; though they be not environed with that Place. Lastly, as to the Manner, it can open its Mind to other Souls, or understand the Thoughts of others; the Thought of one is manifested to the other, by Means of his Will; as, at present, by Means of some Words or Sayings, the Thought of a Man is communicated to another Man.

4. *Touching the human Understanding, and Ideas.* — We must distinguish in a thinking Substance two principal Faculties, *viz.* those of understanding and of willing; the former is called *Understanding*, and the latter *Volunty*: Tho' Understanding signifies rather *Perception* or Intellection, than the *Faculty of Understanding*; and *Volunty* rather the Act of Willing, than the Power. All Philosophers, the *Thomists* excepted, are of Opinion, that those Faculties are not really distinct from the Soul; not without just Reason. For nothing obliges us to distinguish those Faculties from the Soul; if the Soul alone can acquit itself of its Functions, without that real Distinction; which it can do, since the Soul thinks of itself; and to think is to understand and will: Therefore the Understanding and Will are not to be really distinguished from the Soul itself; *since Beings are not to be multiplied without Necessity.*

Notwithstanding which I'll treat of both Faculties, and of the others which have any Affinity to them, separately, to avoid Confusion: Speaking first of the *Understanding*, which is commonly defined, *a Faculty of the human Soul, conceiving all Being, and the Mode of the Being*; and is the Soul itself, as Understanding and Conceiving; as the Will is the same Soul as Willing.

It is very difficult, and very laborious, to discover how the Soul *perceives.*

The *Epicureans*, who falsely persuade themselves, that there is nothing in Nature but Atoms and a Vacuum, have Recourse to *Idols* and *Spectres*; which ridiculous Opinion is not worthy our Notice. There are two other Sentiments of Philosophers, deserving as little our Attention: The first is that of the *Peripateticians* or *Scholiasts*; the second is that of the *Cartesians* or *Platonicians*, exemplified by the Author *Of the Enquiry after Truth.*

The Sentiment of the PERIPATETICIANS.

The *Peripateticians* distinguish from *Aristotle, Lib.* 3. *de anim. c.* 5, & 6. two Sorts of Understanding, *viz.* an *active Understanding*, and a *passive Understanding.* They teach that the *active Understanding*, is that which causes that *Things which possibly can be understood, are actually understood.* By forming the Ideas, or spiritual Representations of Things, which in Theology are called the *Word of the Wind*, or *expressed Species*, to distinguish them from the Species from Objects, which are called *impressed Species.* The *active Understanding* is said to express those Species, *by Conversion to Phantasmata*, or by being attentive to the corporal Species traced in the Phantasy, which, though not seen by him, he notwithstanding imagines that he forms his Ideas on their Model; wherefore the Understanding and Phantasy are Faculties radicated and founded in the same Subject, or the rational Soul; which notwithstanding is very difficult to conceive.

They call *passive Understanding*, that *which receiving the Ideas formed by the active, understand all Things.* For though the Name of Idea is sometimes taken for the Perception of the Mind, it is notwithstanding, after taken for the *Species* of the Thing, or conceived Object; that is called a *formal*, and this an *objective Idea.* But we must observe, *en passant*, that the *Greek* Word used by *Aristotle* in this Place, signifies the Soul itself, not the Understanding taken for a Faculty of the Soul; therefore our Souls can be called and considered as active and passive together; for it is *active* when it determines itself to Action, in which Sense it is called *Will*; and is *passive* when it actually understands, and then is called *Understanding.*

The Sentiment of the CARTESIANS.

The *Cartesians*, on the contrary, pretend that all Perception is *passive* within us, so that our Understanding does not form the *Ideas* of the intelligible *Species* of Things, but receives them only: Which Ideas *Des Cartes* teaches to be either *innate*, or *adventitious*, or *factitious*, as I have explained it in the Logic; and imagines them to be united with the Motions of the animal Spirits, as to be occasional to one another.

My own Sentiment.

For my Part I am of Opinion, that it is not very difficult to shew, that there is no active Understanding in a created Soul, as the *Peripateticians* imagine; but that the divine Understanding alone, who is illuminated by none, and illuminates all others, acts, and represents to the created Spirits the Ideas contained within him: Therefore I am of Opinion, that there is no active Understanding within us, since our Understanding cannot form Ideas or spiritual Images of Things, for he has not even an Idea of himself, in the Sense the *Peripateticians* take it: For before he could form those Ideas, he should either conceive the Things themselves, or be ignorant of them; if he could perceive them, he would be already informed of an intelligible Species or Idea of them, and therefore should not want a new Species to perceive them: If he was ignorant of them, he could never be capable to form a representative Species of them, since we cannot form an Idea of a Thing which we have no Knowledge of: Therefore there is no active Understanding within us.

It may be said, that our Understanding does not understand otherwise than by the Species painted in our Phantasy, or imaginative Faculty, from which we draw his Ideas; and therefore that our Understanding is active as well as passive.

I answer, 1. That *the Things we know are of two Kinds*, says St. *Augustin, lib.* 15. *de Trinit. c.* 12. *One of the Things which our Minds conceive by means of the Senses; the other of the Things which we know by ourselves*, *i. e.* without a Conversion to those Images painted in the Brain. — 2. If the Understanding understand no otherwise but by a Conversion to the Images painted in the Brain, he either conceives them or not conceives them; if he conceives them, he wants no intelligible Species to understand, therefore he would form them in vain; and if he does not know them, how can he fabricate Species resemblable to them, since there can be formed no Representation or Species of a Thing unknown? I confess however, that our Mind conceives the Things corporal, by means of the Motions excited in the Brain, or of the Images traced in it; but it does not appear that such a Thing proceeds from the Similitude which those Species or Images have with the Thoughts known, which Similitude, as an *assimilative* Power, should move us

our Underſtanding, to produce that Idea ſemblable to the Thing itſelf; but it can be ſaid, on the contrary, that a Law has been eſtabliſhed by the Author of Nature, between the Soul and the Body, whereby, on Occaſion of ſome Motions of the Body, certain Perceptions are excited in our Underſtanding.

But, ſay you, if thoſe Motions have no Reſemblance with the Things conceived, how can they excite a Perception thereof?

I anſwer, by that Law above-mentioned; for nothing could hinder God from appropriating, by his Omnipotency, ſome Thoughts of our Mind to certain Motions of the Body; as we join ſome of our Thoughts with certain Words, which are not at all ſemblable to the Things ſignified and excited in our Mind.

Corollary I.

Our Underſtanding muſt be called a *paſſive* Faculty of the human Soul, not an active one. For receiving the Ideas, is not acting, but ſuffering. But our Mind, in Underſtanding, receives the Ideas; ſince it not only does not form them, as already obſerved, but even receives them, ſometimes, in Spite of itſelf. Therefore, *&c.*

Corollary II.

If the Intellection of our Mind be voluntary, it is always preceded by ſome Determination of the Will, whereby the Mind applies itſelf to underſtand; and that Application, which is alſo called *Attention*, is a true Action, which the Will can do, or omit at Pleaſure. Whence, when the Mind is attentive to itſelf, to know itſelf, it really acts; and it is ſaid created to God's Reſemblance, in that it knows and loves itſelf: Though in knowing and loving itſelf, it does not produce Subſiſtances, as it is done in the bleſſed Trinity.

When it is ſaid, that by thinking, one repreſents ſomething to himſelf, that Repreſentation, conſider'd as an Action, is nothing elſe but the Determination of the Will, whereby the intellective Power, which is paſſive, is applied to conceive it; or is the *Attention* of the created Mind, which like a natural Prayer, impetrates from God, according to the Hope himſelf has eſtabliſhed, that he ſhould inform him of the Idea of certain Things; but is not an Action of the Underſtanding, which forms, or fabricates an *expreſſed Species*.

Corollary III.

When the human Soul knows itſelf by its Conſcience, it does not produce then an Idea diſtinct from itſelf, and *Repreſentative* of itſelf; but is only conſcious by an inward Senſe, of its Exiſtence, and of its Thought.

Corollary IV.

What I ſay here of the human Mind, may be attributed to all other created Underſtanding; for God alone, by contemplating himſelf, and all other Things in himſelf, operates; becauſe God alone, neither is, nor can be illuminated by any other Being; whereas, on the contrary, he illuminates all others.

Corollary V.

God can be called the Light of the created Souls, ſince he diſſipates all their Darkneſs, and infuſes Ideas into them, which they can find neither in themſelves, nor in the Objects; ſince they cannot be immediately affected by the Objects.

Corollary VI.

God does not ſeem to concur with a created Underſtanding, otherwiſe than by his Irradiation.

Corollary VII.

The *Attention* of the Mind is the occaſional Cauſe, or, as the Author of the Inquiry after Truth expreſſes himſelf, is like *a certain natural Prayer*, whereby we engage God, to grant us Underſtanding: Hence it follows, that we have ſome *innate Ideas*.

We call an *innate Idea*, that which is born with us; which Idea is juſtly called a natural Light; wherewith God illuminates the human Souls. The Idea of a Being ſovereignly perfect, is of that Kind; which, as we can be made Partakers thereof, in different Manners, we conſider, firſt, as a Being, then as a ſovereign Being, *i. e.* as true, as good, *&c.* Hence it is, that we have generally the Idea of a Being, and of his Attributes, Differences, or Modes, *viz.* of Unity, Truth, Beauty, *&c.* which are requiſite for a ſovereign Perfection: Hence likewiſe is deduced the Idea of Extenſion, and of thoſe Things which belong to Extenſion, *viz.* Diviſibility, Mobility, all which Ideas, could not paſs through the Senſes. We have naturally, not only thoſe Ideas, but the Relations which have a mutual Regard to one another; and in that conſiſts the Force of the natural Light, by Means whereof we join the Ideas which are ſemblable to one another, and remove thoſe which are diſſemblable; and form all the Judgments which are certain and evident.

It may be objected, 1. That all our Ideas drawing their Origin from the Senſes, we have no innate ones; and that they draw their Origin from the Senſes, is evident from this Axiom, ſo common in the Schools, *Nihil eſt in intellectu quod prius non fuerit in ſenſu.*

I anſwer, that thoſe Ideas have not their Origin from our Senſes, which have neither Colour, Taſte, nor Sound; nor any other ſenſible Quality; ſuch are the Idea of a Being in general, and of its Attributes or Modes; the Idea of a God, *&c.* But thoſe only draw their Origin from our Senſes, the Objects whereof can affect the Senſes, *viz.* the Ideas, or rather Perceptions of the ſenſible Qualities, as of Colour, Sound, Smell, Taſte, Heat, Cold, *&c.* from which proceed the Affections of Joy, Sorrow, *&c.* Though thoſe Ideas do not depend on the Senſes in ſuch a Manner, that the Senſes are the Cauſes thereof, properly ſaid, but only, they draw their Origin from them, as from Occaſions. Therefore that Principle cannot be generally maintained, *Nihil eſt in intellectu*, &c. ſince it cannot have Place but in the ſole Perceptions of the ſenſible Qualities.

Having thus eſtabliſhed the Exiſtence of innate Ideas, we muſt conſider next in what conſiſts the Nature or Entity of the innate Ideas, objectively taken; and which are thoſe which we conceive by clear Ideas, and which by confuſed Ideas.

Des Cartes, and the *Carteſians*, are generally of Opinion, that Perception is made within us, by innate, or adventitious, or factitious Ideas, *i. e.* by Virtue of the Law which God has eſtabliſhed between the Soul and the Body, whereby, on Occaſion of the Motions made in our Brain, ſeveral Ideas or Perceptions are excited in our Minds; but the Manner how Things are preſent to our Underſtanding, and are united to it, was left by them undecided. But Father *Mallebranche*, a *Frenchman*, has gone further, in that excellent Work he has entitled, *Of the Inquiry after Truth.* For he diſtinguiſhes in us, four different Manners of Perception.

The firſt is that whereby a Thing is ſeen in itſelf. — The ſecond, that whereby a Thing is not ſeen in itſelf, but by a *clear Idea*, which alone is properly an Idea, and which repreſents to our Mind, either the Being itſelf, or the Mode of the Being. — The third is *by an inward Senſe*, or *by Conſcience*, how the human Mind is conſcious of its Affections, or Senſations. — The fourth is only *by Conjecture*; whereby the Minds of other Men ſeem to be known to us. — We may be permitted to add a fifth, and that ſupernatural, *by divine Revelation*, or Faith, whereby we know the Myſteries of the Chriſtian Religion.

Therefore what *Des Cartes* ſays, we know *by a confuſe Idea*, the Author of the Inquiry after Truth, is of Opinion, that we know it *by an inward Senſe*, or by *Conſcience*; for he admits no Idea which is not clear and diſtinct, which repreſents Things to our Mind, clearly and diſtinctly, ſuch are the Idea of Extenſion, the Idea of a Number, *&c.* but this muſt be explain'd in a clearer Manner.

The firſt Manner of Perception, *when a Thing* is ſeen in itſelf.

Therefore, if we believe Father *Mallebranche*, we know the Eſſence of God, not in an Idea, Species, or Image diſtinct from God; but we know it in God himſelf; *Quatenus* he is preſent to our Mind, and illuminates it.

For nothing, either Image, Species, or Resemblance, can represent God to us. Therefore the human Soul is not only joined with the human Body, but is likewise joined in its Manner with God himself.

We do not only know the divine Essence, because it presents itself in some Manner to our Mind, but sees, likewise, in it, as in a Looking-Glass, the general Ideas of Things, the first and immutable Laws of our Judgments, and Ratiocinations, and the Axioms which express the mutual Relations of those Ideas to one another.

The second Manner of Perception *by a* clear Idea.

Our second Manner of *Perception*, according to the same Author, is by a *clear Idea*, i. e. as himself interprets it, in considering the *archetypal Idea*, in which the Bodies are contained in an intelligible Manner, which archetypal Idea is nothing else in itself, but the divine Essence, *as participable of the Creature, in some Manner of Similitude.*

Though, in his Sentiment, *Perception* and *Idea* differ much between themselves. For *Perception*, is the Mode or Affection of a conceiving Mind, which, consequently, is peculiar to every Mind, and is sometimes the inward and confused Sense, or *Conscience.* But *Idea* is common to all: For not only, says he, the *Europeans* see with their Mind, or conceive an immense Extension, and diffused, *in infinitum*, throughout those Spaces, called by some *imaginary*, but the *Asiaticks*, likewise, the *Africans*, and *Americans*, have the same clear and distinct Idea; and all can, in that Idea, distinguish different Figures, different Motions, *&c.* and all know, that the lesser of that Extension is contained in the greater, *&c.* And as the Perception, or Mode of the human Mind, does not contain in itself that immense Extension, and can be formed into a Circle, Triangle, or any other Figure of that Kind; it seems necessary, that he should see that Extension, and all the Properties thereof, in some Original or Light, common to all Men, *i. e.* in that *archetypal Idea*, which is shewn to all Men, and in which Men see whatever they conceive clearly and distinctly. But what is that Original or *archetypal Idea*, but God himself, as *far as the Creatures can in some Measure* partake of him, and he contains them all, *eminently.*— Therefore we see in God an immense Extension, and *consequently* all Bodies.

If Men conceive, that Extension within themselves, and with their Eyes shut, they'll conceive it every where *homogeneous*, or of the same Sort. But if they open their Eyes, they'll discover in it a very great Diversity; for one Part thereof will affect them in one Manner, and another Part, in another Manner, *viz.* they'll perceive a greater Strength of Light in the Sun, than in the Moon; and will be touched by the different Perceptions of Colours, Sounds, Smells, Tastes, and other sensible Qualities, according to the Presence of the different Bodies. And every Man has his own proper Perceptions, or those which tho' agreeable to some, are disagreeable to others; but the Idea of Body and of Extension, is a certain Original, or Model common to all Men, for all conceive Extension in the same Manner, can draw the same Figures in it, and understand semblable Motions.

It is objected, that there is no Extension in God, since he is not corporal; therefore he cannot represent to us a Model of Extension.

I answer, that there is no Extension in God, *formally*, but there is *eminently.* For God is not extended, and does not occupy a Place; but as God, notwithstanding, is a simple Being, a Being by Essence, from whom flows necessarily all that exists, all the other Beings must be contain'd in him, either formally or eminently. Therefore, as all the Bodies which exist, have been produced by him, they must be contain'd in him in an intelligible Manner, at least, *i. e.* according to an *intelligible Extension*, not according to a local one; and consequently God can represent them to us, either immediately, or by Means of some Motions of the Bodies.

The third Manner of Perception *by* Conscience.

The human Soul knows itself, according to the same Author, its Thoughts, and Affections, *viz.* Joy, Sorrow, and all the Sensations of Light, Colour, Sound, Smell, *&c.* by *Conscience.* For we do not know in what Manner the human Soul must be affected with the Sense of Joy, Sorrow, or Heat, as we see clearly which must be the Disposition of the Body, to be round, square, or of any other Figure: Because we see the Essence of the Body in the Archetype, or God; and have but a confus'd Sense of our Soul, whereby we are conscious to ourselves, that it exists and thinks; and that therefore it is of a Nature different from that of the Body: Notwithstanding which, we do not know clearly and distinctly its Nature and Properties.

Others, whose Sentiment is not very different from mine, believe, that the Nature of our Soul is understood in the general Idea of a Being, in which the Souls, as well as the Bodies, are contained. For as God is a Being by Essence, and can be partaken by the Creatures in several Manners; he illuminates our Mind in such a Manner, that it supplies us with the Idea of a Being in general, and of the Species and Modes of that Being. For though the human Soul knows itself by that Idea, it does not seem, notwithstanding, to know otherwise than by *Conscience*, or a confus'd Sense, its Affections, *viz.* Joy, Sorrow, *&c.*

The fourth Manner of Perception *by* Conjecture.

The same Author imagines, that we know the Nature of the other created Minds, whether angelical or human, by *Conjecture.* For as we do not see them, neither in themselves, nor in clear Ideas, and cannot discover by Conscience, what passes in them, there is but one Expedient left, which is to suppose them such in themselves, as we are conscious to ourselves we are, which if true, it follows:

That the *adventitious Ideas*, are either vain, false, or confus'd.

For, 1. If they be taken for the Affections of the Soul, excited occasionally by the Motions of the Body, they are not properly Ideas, since they properly represent nothing, *v. g.* the Affection, whereby the Soul is made sensible of Heat, Cold, Sound, or of the other Qualities, represents properly nothing: But is only a certain inward Sense, whereby the human Soul feels confusedly something in itself.

2. If they be taken for the Qualities themselves objectively perceived, they are false or confuse; *false*, inasmuch as they do not represent what is in the Bodies; confuse, in that they confound the formal Idea, which is the *Perception* itself, with what is in the Things, tho' there be no Resemblance between the corporal Qualities, and the Sense they have excited.—Therefore the *adventitious Ideas* are either vain, false, or confuse.

The *factitious Ideas*, are either composed of the innate Ideas, or are produced of the Union of an inward Sense with a clear Idea. But that Union is not made by our Understanding, since it seems to be rather passive than active; but is made in our Understanding, either on Occasion of the disturbed Motion of the animal Spirits, as it happens in those who have a Fever, or by an Act of the Will, as when, *v. gr.* the Will together with the Idea of Extension, which is present to our Mind, determinates that Motion of the animal Spirits, whereby the Sense of yellow or gold-colour is excited, in which Case we imagine a golden Mountain; or when we join the Idea of a human Head, with the Idea of the Body of a Fish, to imagine, *&c.* in all these Things it is necessary that either the Motion of the animal Spirits, or the Act of the Will should interfere, whereby that Composition may be determined either mediately or immediately; in which occurs sometimes a tacit Judgment, whereby we judge, that a Thing, tho' it does not exist actually, can exist at least.

Thus far of the Manner whereby the Essences of Things are known. At present I must explain, how we discover their Existence.

We understand, that God's Existence is contained in the clear Idea of him, which, as far as he illuminates our Mind, is not distinct from him. For the Existence, which is a Perfection, is understood to be contained in the Idea of a Being sovereignly perfect.

We are sure of the Existence of our Soul, by a certain inward Sense, whereby she is conscious to herself of her Thoughts: For we cannot think without being conscious

conscious to ourselves that we think, and consequently exist. Hence this Principle, *I think; then I exist.* And though, according to the Author *Of the Enquiry after Truth*, our Soul has a less clear Knowledge of her Essence, than of that of the Body, she is notwithstanding more certain of her Existence than of that of the Body, *viz.* though she be entirely conscious to herself, that she exists; she can nevertheless still doubt of the Existence of the Body.

We know the Existence of spiritual or human Souls, distinct from ours, by the Effects, which we suppose produced by them.

We know the Existence of corporal Things, and that they are indued with certain Qualities, by some Impressions, whereby, as occasionally, some Affections, or vivid Sensations, are constantly excited in our Mind.

We may form the same Judgment of all the others we do of the Sun; which we know to exist, and to be luminous and hot, by the Impression of the Light or of Heat, or of its other Qualities, whereby are excited in our Soul constantly, occasionally, and always in the same Manner, some certain Affections, or vivid Sensations: Therefore we know the Existence of the corporal Things, and that they are indued with certain Qualities, by some Impressions, *&c.*

Corollary.

From what I have said on this Subject, we may judge of the Origin of all Ideas. For they all proceed from God, either immediately, or mediately by means of corporal Motions; and are excited in the Soul, or intellective Faculty; at present it remains to add to it some Reflections on *Reason*, *Phantasy*, and *Memory*, which are Faculties nearly related to the Understanding.

Memory, in Man, *is a Faculty of the rational Soul, or human Mind, whereby we remember Things which we have formerly learned*; and is nothing else but the human Mind itself, as determined on Occasion of the Vestiges remaining in the Brain, and of the Motions of the animal Spirits running through those Vestiges to a certain Perception of Things.

Phantasy, is a *Faculty whereby the human Mind sees corporal Things, under corporal Figures or Images:* Or is rather the Mind itself, or rational Soul, excited by the Vestiges imprinted in the Brain, and the Motion of the animal Spirits flowing through those Vestiges, to know something corporal under a corporal Figure.

Lastly, Reason, in this Place is *the Faculty of Reasoning*; or to infer rightly one Thing from another, and therefore includes both the Understanding and Will.

5. *Touching the human Will and Liberty.—Will* is called a Faculty of the human Soul, and is commonly defined in the Schools, *a Faculty which prosecutes the Good offered by the Understanding, and is averse to Evil*: Or is the Mind itself, inclining towards Good, and avoiding Evil: For it is not an Entity really distinct from the Soul; but as the human Mind, considered as Understanding, is called *Intellect* likewise, when considered as willing, it is called *Volunty* or *Will.* Therefore *Will* in the Schools is improperly called blind: For a Faculty, which is in fact one and the same Thing with the knowing Faculty, as Will is in fact one and the same Thing with the knowing Faculty, or Understanding, cannot be properly called *blind*; for there is no Difference between them both but in the Appellation, since they are both one and the same Soul.

But as, notwithstanding *Perception* is different from *Volition*, and that the Soul by the Will does not prosecute or avoid a Thing, till it has a previous confuse Knowledge of that Thing; hence the Perception of the Understanding is said to be previous to the Motion of the Will, or as they speak in the Schools, the Understanding is conceived to present a lighted Torch to the Volunty. Notwithstanding which, the human Will cannot be called *blind*, since a blind Faculty cannot follow a lighted Torch.

As the Understanding by its natural Light, can discover as well the Being in general, as the Mode or Accident of the Being; the Will likewise has a natural Propensity towards Good in general, *i. e.* towards God himself, *implicitly*, if not *explicitly* known. Again, as the Perception of a particular Thing seems to be nothing else but a certain Determination of the human Light, whereby we know universally the Being itself, or God: Likewise the Propensity of the Will towards particular Goods, is a certain general Determination of that Inclination, or a Restriction whereby it adheres to that same particular Good.

From that *Amplitude* of the Will, whereby it prosecutes Good in general, and can be satiated by the incommutable and infinite Good alone, seems to proceed *Indifference* towards private Goods, whence it happens that it never adheres necessarily to them. But I must explain in a clearer Manner, what is that Indifference of the Will, otherwise called Liberty.

Human Liberty.

Human Liberty, as considered here by us, seems to be nothing else but the Will itself, as free from an external, and sometimes an internal Necessity, in prosecuting Good and avoiding Evil. For in this present Subject we commonly distinguish two Sorts of *Necessities*, viz. an *external Necessity*, called *Coaction*; and an *internal* one, which is a certain natural and necessary Propensity towards Good, and an Aversion from Evil. Therefore there are two Sorts of Liberty, one from Coaction, and the other from Necessity.

Liberty from Coaction, is the human Will being free from external Violence, as well in prosecuting Good, as in avoiding Evil; and we call external Violence or *Coaction*, that which is offered to Somebody, by an external Principle, against his Inclination; as when any Body is carried to the Supplice.

Where it must be observed, that no Violence can be offered to the Will, with regard to its interior and proper Acts, *v. gr.* with regard to Love or Hatred; for one cannot be forced to love against his own proper Inclination, otherwise he should love and not love the same Thing; he should will and not will together; or should will unwilling, and in Spite of himself, which involves a Repugnance: But the Will, notwithstanding, can suffer that Violence with regard to exterior and corporal Motions, which it excites in the Body, as an occasional Cause: *v. gr.* a Person can be hindered from pursuing a Journey in Spite of himself, or be forced to stir or walk, when he would repose himself.

Whence it appears, that the Will is always free from Coaction, with regard to proper and inward Acts; or, what is the same, that all voluntary Acts are always free from Coaction; because done freely, and proceeds from the Will, without any external Violence; but, notwithstanding, it is not always free from a natural Necessity. Therefore,

Liberty from a natural Necessity, called also *Free-Will*, or *Liberty of Election*, is *that which excludes all Sort of Necessity, as well external as internal.* Internal Necessity, or Necessity of natural Inclination, is *a certain Propensity of the Will to pursue necessarily Good, and to avoid necessarily Evil.* Whence we are not free of a natural and inward Necessity towards the Love of Good, and the Hatred of Evil in general. For it is impossible we should not love Good in general, or our Felicity, and hate Evil or Misery.

But our Will is not necessarily engaged to love private Goods; therefore we have a free Power to chuse them, or prefer one or several of them to the rest; and if there be but one we may take it or leave it; which cannot be understood without some Indifference.

But as all Philosophers confess that Free-Will is placed in the Will, it must appear surprizing, that in the Schools *Judgment*, which is the same as *Free-Will*, is commonly attributed to the Understanding, not to the Will. But as we design to follow the Truth in this, as we do in all other Things, as near as we can, we'll shew, that *Judgment* properly belongs to the Will, and that it is always voluntary, since Perception is sometimes excited within us against the Inclination of our Will; let it be therefore,

That *Judgment* belongs to the Will, not to the Understanding, since it is an Act of the Will; it being the Affirmation of Truth, or the Negation of Falshood; or is an Assent or Dissent, whereby it approves or disapproves something; or whereby it inclines either toward the

the Affirmative, or the Negative Part, according as the Idea is consentaneous or dissentaneous.

Though *Perception* be excited in our Mind, even in Spite of ourselves, all Judgment, notwithstanding, is always voluntary; because it always proceeds from a free Determination or Election. For either the Connection of the Subject and of the Attribute is evident: And then the Will is freely determined towards Affirmation or Negation, though it judges necessarily, and not of a free Determination: Or that Connexion is a little more obscure, and then the Will affirms or denies, by a Choice, or of a free Determination; as it happens in *temerarious Judgments*; therefore all Judgment is always voluntary.

Sometimes our Judgment is free of a *Liberty of Election*, which excludes all Sorts of Necessity, external as well as internal and natural. Because it can be carried or not carried at Pleasure; since there is neither a clear, nor a necessary Connection of the Attribute with the Subject; therefore *temerarious Judgments* are forbidden, and condemn'd as *free*, and put in our Power.

As to the *sensitive Appetite*. — The Will consider'd as inclining towards a sensible Good, and avoiding Evil, by the Occasion of the corporal Motions, is called *sensitive Appetite*; and is subdivided into *concupiscive*, and *irascive Appetite*. Therefore when any Body desires something, without a corporal Motion, it is the Will: If occasioned by the Motions of the Body, and particularly with a violent Commotion, it is called *sensitive Appetite*, which is either *concupiscive* or *irascive*.

6. *Touching the natural Habits of the human Soul.* — The natural Habits of the Soul, depends likewise for the greatest Part on the Soul itself, and for that Reason, do not seem to belong more to *Metaphysick* than to Physick: Notwithanding which, I believe that it is very proper to treat in this Place, at least of the spiritual Habits, since the Essence, the Faculties, and Habits, follow immediately one another.

HABIT, therefore, can be defined, according to the Doctrine of *Aristotle*, *lib.* 2. *Ethic. c.* 4. and *libr. Categor. c. de qualit. A Quality of the first Species happening to the Power, and assisting it to operate.*

It is called a *Quality of the first Species*; because *Aristotle* distinguishes four Sorts of Qualities, of two Members each, *viz. Habit* and *Disposition*; *Natural Power* and *Impotency*, &c.

It is added, *happening to the Power*, because we have it not naturally, unless it be with Regard to Inchoation. But it is either infused by God, or acquired by repeated Acts.

Lastly it is said, *which assists the Power to operate*; because by the Succours of the Habit, we operate easier, quicker, and with more Pleasure.

Of *Habits*, some are supernatural, *viz.* those which God infuses within us without us; wherefore they are called infused, as *Faith*, *Hope*, and *Charity*, of which I don't treat in this Place: And other natural, which are acquired by repeated Acts; whence they are also called acquired. Therefore an *acquired Habit* can be defined *a Facility of acting acquir'd by repeated Acts.*

That acquir'd Habit, is either called *spiritual*, when it *assists a spiritual Faculty*; though, by Reason of its Entity, it pertains for the greatest Part, to the Body, as we'll see by and by: Or is called *corporal*, *if it determines the corporal Faculty to act.* Both are either good, and called *Virtue*, or bad, and called *Vice*.

Again, the *spiritual Habit*, is either called *intellectual* or *moral*.

That is called *intellectual*, *which assists the Intelligence and Knowledge of the Mind*; and therefore regards the Understanding; because Perception or Knowledge, which is the primary Part of those Sorts of Habits, belongs to the Understanding. *Aristotle*, *lib.* 6. *Ethic. c.* 3. reckons five of those *intellectual Habits*, *viz. Intelligence*, *Wisdom*, *Science*, *Prudence*, and *Art*, and these Habits being good, are called *Virtues of the Mind*; but Error and Heresy are called *Vices of the Mind.* — Lastly, *Opinion*, which is deduced from a probable Reason, and *human Faith*, which is entirely founded on Man's Authority and Testimony, are called *indifferent Habits.*

Moral Habit inclines the Will, either to moral Good or moral Evil. If it inclines it to Good, it is called moral Virtue; if to Evil or Sin, it is called moral Evil. As I have observed in my Treatise of *Ethicks.*

We must, at present, explain in few Words, in what the Nature of spiritual Habits consists. Which to execute, with more Facility, we must remember what has been heretefore so often inculcated, *viz.* that our Mind is occasionally determin'd, by the corporal Motions, according to the Law established by the Creator, as *vicissim*, the Motions of the Body are, occasionally, excited by the Thought. For the Society of the Body and Mind is such, that there is no Thought but that it is immediately follow'd by some Motion of the animal Spirits, as no Motion happens in the Brain, without procuring some Thought in the Mind. For all the Motion of the human Body is accomplished by the Circulation of the animal Spirits, as I have sufficiently proved in my Treatise of *Anatomy*. Which animal Spirits are nothing else, but the most subtile, and pure Portion of the Blood, which being purified in the Ventricles of the Brain, enters the Nerves, and through them are carried to all the Parts of the Body.

Therefore, as, on Occasion of some Thoughts, those animal Spirits are oftener carried to some Parts of the Body than to others, they render the Channels, through which they pass and repass, wider, whereby the same Thoughts are often repeated. Hence,

The intellectual Habits, such as *Sciences*, are not mere spiritual Qualities inherent to the Mind; but consist, for the greatest Part, in the *Vestigia*, imprinted in the Brain, after all the Obstacles which could retard the Circulation of the animal Spirits, have been removed. Because if the *intellectual Habits* were mere spiritual Qualities, inherent to the Mind, they would be either some Affections only, or Dispositions, or Modifications of the human Mind; or would be some spiritual Entities, adventitious to the Mind, and received in it, as it is imagined in the Schools. But they are neither Affections or spiritual Modifications; nor Entities superadded to the human Soul, and as *implanted* in it.

1. They are Affections only, or Dispositions of the human Mind. Because a simple Affection of the Mind, or a Disposition, does not seem capable to contain a whole Science, which consists of several Parts, and because also the Affection of the Mind, which is spiritual, cannot be obliterated by the Violence of a Malady, nor by Length of Time, as we see daily a Science entirely defaced or obliterated; since neither a Malady can affect the Soul, nor a spiritual Thing be corrupted.

2. Neither are they Entities superadded to the Soul. For those who pretend that the intellectual Habits are Entities superadded to the Soul, understand by those Entities, *Species* produced by the Action of the Understanding, as certain Terms, as they call them, of a vital Action or Thought, or the Effects remaining after the Thought. For a created Understanding cannot produce Entities from nothing, which is the Property of God alone. Our Understanding, besides, being only passive, not active. — Lastly, if the intellectual Habits were Entities inherent to the Mind; it would follow hence, that they could exist without the Mind; which is an Absurdity; for no Body has ever pretended yet, that Science or Wisdom can subsist without the Mind. Therefore the *intellectual Habits*, such as the Sciences, are not mere spiritual Qualities inherent to the Soul.

But they are a Facility of thinking of Things, which we have already conceived, and to treat again of Things we have already treated: Which Facility consists, for the greatest Part, in the Vestigia imprinted in the Brain, by the Removal of all the Obstacles which could obstruct the Passage of the animal Spirits: For the Circulation or Motion of those Spirits have so strict an Union with the Thoughts of the Soul, that they always offer themselves together; and the more distinct are those Vestiges traced in the Brain, the more distinct and clear are the Motions of the Spirits; and our Notions become more distinct and clear. Therefore, the *intellectual Habits*, such as the Sciences, consist for the greatest Part in the Vestiges traced in the Brain.

COROLLARY.

The *intellectual Habits*, besides the Knowledge of the Soul, which is their more excellent Part, include the corporal Affections, which determine as occasionally that

that Knowledge: And therefore Man by the intellectual Habits, which he has acquired by Labour and Study, has gain'd that Right on certain Things granted him by God, as a Reward for his Induſtry, that when he will reflect on them he preſently underſtands them.

Moral Habits, as Juſtice, Injuſtice, Temperance, Intemperance, *&c.* beſides the Diſpoſition of the Soul itſelf, or Will, which is the ſuperior Part of a moral Habit, require a certain Facility of acting, which conſiſts in the Motion of the Spirits, and the Diſpoſition of the Body. For *moral Habits* are thoſe which incline the Will to Good or Evil, as Juſtice and Injuſtice, Temperance and Intemperance, *&c.* which Habits, beſides the good or bad Quality of the Mind, *viz.* a conſtant Love of Order, if the Habit be good, or an Averſion to Order, if bad, require a certain Facility of acting, which is placed in the Motion of the Spirits and the Diſpoſitions of the Body. For the Will is naturally enough determined to act, by the ſole Perception of the Underſtanding, and ſuffers no Delay in its Actions, but from corporal Affections or Motions: Whence that Reſiſtance only proceeding from the Body, is to be conquered, and that by a contrary Affection of the Body, which is placed in the Motion of the Spirits.

Corollary I.

By all theſe it can be very well underſtood, that the effectrice Cauſes of natural Habits, even ſpiritual ones, can be called repeated Acts, or rather the animal Spirits, inaſmuch as determinated by repeated Acts, they force their Way through, and imprint deeper Veſtiges in the Mind: For that is the effective Cauſe, at leaſt occaſional, of a natural Habit, by which that natural Habit is produced, at leaſt occaſionally; but a natural Habit, even a ſpiritual one, is produced by the animal Spirits, at leaſt occaſionally, inaſmuch as thoſe Spirits determinated by repeated Acts, force their Way through, and imprint deeper Veſtiges in the Brain: Therefore, *&c.*

Corollary II.

A *natural Habit*, can ſcarce be acquired by a ſingle Act; for a natural Habit, is the Facility of acting eſtabliſhed in the Veſtiges imprinted in the Brain, and in a free Motion of the Spirits, which is durable and not momentaneous; which Facility cannot be acquired by a *ſingle Act*, ſince by that ſingle Act the Veſtiges are not imprinted deep enough; neither can the Meatus of the Spirits be enough dilated, for the Removal of all the Obſtacles they could meet with to obſtruct their Paſſage; unleſs, perhaps, the Subſtance of the Brain be very ſoft, in which Caſe the Habit would be as eaſily obliterated or defaced, as it had been imprinted: Therefore no Habit is properly generated, ſince it muſt continue, and conſequently requires ſome Solidity in the Brain; therefore it does not ſeem that a natural Habit can be acquired by a ſingle Act.

Corollary III.

All the *natural Habits* are increaſed, perfected, and confirmed, by a deeper Impreſſion of the Veſtiges in the Brain, by wider Meats, and a very free Motion of the animal Spirits.

Corollary IV.

The *natural Habits* are weakened, or diminiſhed by Cauſes contrary to thoſe whereby they are commonly increaſed, or receive an Addition of Perfection or Strength, *viz.* when the Veſtiges imprinted in the Brain are obliterated by degrees, or the Canals of the animal Spirits are obſtructed or contracted. If thoſe Veſtiges be quite defaced, or the Meats entirely ſtopped, then the Habits periſh entirely.

Note, That the firſt who wrote profeſſedly on the Subject of *Metaphyſicks*, is *Ariſtotle*. Indeed he is the firſt who uſes the Word; Μετα τα Φυσικα, is the Title of one of his Books, which ſome of his Commentators will have to ſignify no more, than *after the Books of Phyſicks*. M. *du Hamel* taking the Prepoſition μετα in the Senſe of *poſt*, is even of Opinion that the Word was coined by *Ariſtotle*'s Diſciples; and that the Word was unknown to *Ariſtotle*: Which is alſo my Sentiment, *i. e.* that it was invented by *Ariſtotle*'s Interpreters, *Alexander Aphrodiſius* and *John Philoponus*; but for what Reaſon it was effected, *Strabo* takes Notice, *lib.* 13. of his *Geography*, in the Deſcription of *Troades* (where he mentions the Town *Scepſi* which was the native Place of the Philoſopher *Neleus*). That *Ariſtotle* (who was the firſt who compoſed a Library of the Books he had collected) left that Library to his Diſciple *Theophraſtus*, together with his School. That *Theophraſtus* bequeathed, likewiſe, by his Teſtament, his Books, and thoſe of *Ariſtotle*, to *Neleus Scepſius*, who had been one of *Ariſtotle*'s Diſciples. *Neleus*, therefore, transferred that Library into *Scepſis*, and left it, at his Death, to very ignorant Heirs. And theſe having learn'd that a Reſearch was made, every where, of Books to compoſe the Library of *Pergama*, they hid theirs under Ground, for fear they ſhould have been taken away from them; where they were left, for a very conſiderable Time, in ſome Meaſure buried. At laſt having been dug up by their Succeſſors, in Part tore and rotten, they were ſold to *Apellico Teio*, for a large Sum of Money; who having in ſome Meaſure repair'd the Parts which were defective, cauſed them to be copied, notwithſtanding which they were left full of *Laccunæ*, to the great Diſpleaſure of the *Peripateticians*, who uſed to read them. But ſoon after *Apellico*'s Death, his Library having been taken by *Scylla*, was tranſported to *Rome*; where a certain Grammarian, called *Tyrannius*, aſked, that he ſhould be permitted the Uſe of *Ariſtotle*'s Books, which having obtain'd, he changed ſeveral Things in them himſelf, and communicated the Original to a certain *Rhodian*, called *Andronicus*, who, in all Likelihood, made alſo ſome Interpolations in them, after which they were publiſhed. And thoſe which pertain to Logick, Phyſick, and to other Faculties, having been digeſted into Order, the reſt, between which there was no Connection, and belonged to no Subject in particular, were placed after the Phyſick; whence it is that they were called Books of *Metaphyſick*, as much as to ſay, placed after the Phyſick.

Therefore, it is evident, that the Books of *Metaphyſicks*, had been more ſpoiled than any of the others; which is the Reaſon why they are not written with the ſame Care and Caution as the others are. For, as *Gaſſendi* obſerves, *lib.* 1. *adverſ. Ariſtot. acercit.* 5. *num.* 11. *As all the Books of Phyſick are deſign'd to explain the material Subſtance; the fourteen Books of Metaphyſick, were certainly deſign'd to treat of the immaterial Subſtance; but has it been done? Though thoſe Books contain* 141 *Chapters, none but the five laſt of the twelfth Book, have ſomething of that Matter.* Therefore there's nothing leſs accurate, or perfect, than *Ariſtotle*'s *Metaphyſick*; becauſe, perhaps, the beſt Part thereof is loſt; and we have nothing left but the ſmalleſt Part, and that beſides mutilated and imperfect.

F. *Malebranche* and Mr. *Locke* have wrote much more clearly, and conſiſtently of *Metaphyſicks*, than any of the Antients.

METEOROLOGY.

METEOROLOGY, is the Doctrine of *Meteors*; explaining their Origin, Formation, Kinds, Phænomena, *&c.*

METEOR, is an imperfect Mixt, conſiſting of ſublimated Exhalations, and formed in the ſuperior Region of the Air, or of our Atmoſphere.

There are three Kinds of *Meteors*, viz. *igneous*, or *fiery*; *aerial*, or *airy*; and *aqueous*, or *watery Meteors*.

Igneous, or *fiery* METEORS, ſuch as *Lightning*, *Thunder*, *Ignis fatuus*, *Draco volans*, *falling Stars*, and the like, ſeem to be nothing elſe but ſulphurous and nitrous Exhalations, ſet on Fire in the Air, by the violent Motion of the Parts. Therefore, the Matter of *Thunder* and *Lightning*, as well as that of Gunpowder, is particularly Nitre and Sulphur: The Effects of both being entirely ſemblable. For the hollow Cloud, wherein the ſulphurous and nitrous Exhalation is contained, is like the Cannon, and the Exhalation like the Gunpowder; which, when it lacerates the Cloud, produces *Thunder* and *Lightning*. *Thunder*, according to the Manner the Matter kindled, falls on the Earth; whether in a direct or oblique Line: And Lightning or Fulguration, when it blazes through the Air; but it cannot break the Cloud, with a great Violence, without making a very great Noiſe: For *Thunder* is a Sound, occaſioned by a violent Commotion of the ſubtile Matter, iſſuing out of a lacerated Cloud.

The ſulphurous and nitrous Matter is ſet on Fire, if we believe *Des Cartes*, *Diſſert.* I. *Meteor.* when the ſuperior Cloud being reſolved into Water by the Heat of the Air, falls on the Inferior; ſo that the two Extremities thereof reach ſooner the inferior Cloud than its middle Part; for then the Air, intercepted between the two Clouds together, with the ſulphurous and nitrous Exhalations, is preſſed by the ſudden Fall of the ſuperior Cloud, and by its elaſtick Virtue, lacerates the inferior Cloud, either in its lower Part, or at its Sides, and being forced out, with great Impetuoſity, together with thoſe ſulphurous and nitrous Exhalations, produces that violent Noiſe called *Thunder*. Juſt in the ſame Manner, as if one was to place the Leaf of a Tree upon the Thumb and the Index, keeping his Hand half ſhut, ſo that half of the Leaf contained within the hollow of the Hand be a little bowed; then with the other Hand ſtrike the Leaf with a great Force, it will excite a great Noiſe, becauſe of the Elaſticity of the Air preſſed, whereby the Leaf is lacerated, in its lower Part. The Exhalations preſſed within the narrow Compaſs of the Clouds, do not only produce a Sound, but likewiſe a Coruſcation, or Light to the Eyes, becauſe they are nitrous and ſulphurous Exhalations ſublimated by the Matter of the firſt Element, which ſuddenly penetrate the inferior Cloud: Hence they lacerate the Cloud with a greater Violence, and move more powerfully the adjacent Air, as it happens in Muſkets. For, as if one breaks a Leaf in the Manner abovementioned, or diſcharge a Muſket, near a Foreſt or Wood, the Sound produced, by a ſingle Blow, or a ſingle Diſcharge, being ecchoed by the Foreſt, rowl longer thro' it, than if it had been done in another Place: Likewiſe the larger and thicker is the Cloud, though there be but one Clap of *Thunder*, the Sound notwithſtanding continues to rowl longer through the Cloud; and is not heard by thoſe who are at a great Diſtance from the Place where the Cloud is broken, but a long while after the Lightning has been ſeen: For the Sound is propagated by Succeſſion only, and runs twenty-eight Feet within the Time of a Second.

Therefore if the Lightning is ſeen long before the Sound is heard, the Thunder is not dangerous; but if we ſee the Lightning and hear the Sound, at one and the ſame Time, the Matter has been ſet on Fire very near us, and conſequently the Thunder is dangerous. Though he that ſees the Lightning and hears the Thunder is ſeldom hurted by it. Sometimes notwithſtanding, the Ball of Fire being formed of a more tenacious Matter, is ſeen to fall on the Ground, and rowl for a conſiderable Time from one Place to another, whereby Men and Beaſts are often killed; ſometimes Houſes and Trees are thrown down, and other ſurprizing Effects produced, according as the Thunder is agitated by the Wind, or reflected by obvious Bodies.

When the ſuperior Cloud falling on the inferior excites the Thunder or Lightning, preſently follows a Shower of Rain; becauſe the ſuperior Cloud does not fall on the inferior, till its heavier Particles have been diſſolved into Water; and alſo becauſe the inferior Cloud preſſed by the ſuperior falls downwards, and in falling is reſolved into Water. Hence the Cloud is almoſt always reſolved into Water when it thunders.

But when thoſe Clouds in their Fall meet with ſome exalted Places, as Rocks, Towers, Steeples, &c. then the Cloud being divided into ſeveral Parts by that Encounter, hover over that Place, whereby the Irruption of the Thunder is facilitated. Hence exalted or high Places, are oftner ſtricken with Thunder than lower ones: The ſame Thing happens in the ringing of Bells; for if their Sound, which we think conſiſts in the Agitation of the Air, be ſtronger and louder, it violently agitates that Part of the Cloud which is over the Steeple where thoſe Bells are ranged; whence the Cloud attenuated in that Place breaks after, and procures thereby an eaſy Paſſage to the Thunder, that it may fall on the Steeple, to the great Danger of the Ringers. Therefore the Sound of the Bells is only of ſome Utility when the Thunder is yet at ſome Diſtance; but when it is heard near the Steeple, it is then very dangerous to ring the Bells.

Sir *Iſaac Newton* is of Opinion, that *Thunder* is not occaſioned by the falling of Clouds, but by the kindling of ſulphurous Exhalations, in the ſame Manner as the Noiſe of *Aurum fulminans*.

He ſays, that there are ſulphurous Exhalations, always aſcending into the Air when the Earth is dry; there they ferment with the nitrous Acids, and ſometimes taking Fire, generate *Thunder*, Lightning, &c.

That beſides the Vapours raiſed from Water, &c. there are alſo Exhalations carry'd off from Sulphur, Bitumen, volatile Salts, &c. is paſt all Doubt; the vaſt Quantity of ſulphurous and bituminous Matter all over the Surface of the Earth, and the volatile Salts of Plants and Animals, afford ſuch an ample Stock thereof, that it is no Wonder the Air ſhould be filled with ſuch Particles (ſay thoſe who eſpouſe Sir *Iſaac*'s Opinion) raiſed higher or lower, according to their greater or leſſer Degree of Subtility and Activity, and more copiously ſpread in this or that Quarter, according to the Direction of the Winds, &c.

Dr. *Wallis*, who inclines much toward the firſt Syſtem I have eſtabliſhed of Thunder, thinks that the Effects of *Thunder* are ſo like thoſe of fired Gunpowder, that we need not ſcruple to aſcribe them to the ſame Cauſe; but that the principal Ingredients in Gunpowder, we know, are Nitre and Sulphur; Charcoal only ſerving to keep the Parts ſeparate, for the better kindling.

Hence, if we conceive in the Air a convenient Mixture of nitrous and ſulphurous Particles, from the Sources abovementioned; and thoſe, by any Cauſe, to be ſet on Fire, ſuch Exploſion may well follow: And with ſuch Noiſe and Light, as in the Firing of Gunpowder; and being once kindled, it will run from Place to Place, this Way or that, as the Exhalations happen to lead to it; much as is found in a Train of Gunpowder.

This Exploſion, if high in the Air, and remote from us, will do no Miſchief; but if near us, may deſtroy Trees, Animals, &c. as Gunpowder would do in the like Circumſtances.

This Nearneſs, or Farneſs, may be eſtimated, ſay they, by the Interval of Time between the Flaſh and the Noiſe, which we have ſaid to be our Sentiment likewiſe. Dr. *Wallis* obſerves, that ordinarily the Difference between the two is about ſeven Seconds; which, at the Rate of 1142 Feet in a Second of Time, gives the Diſtance about a Mile and a half: But ſometimes it comes in a Second or two, which argues the Exploſion very near us, and even among us; and in ſuch Caſes, the Reverend Doctor aſſures us, he has more than once foretold the Miſchiefs that befel.

Upon the whole, that there is in Lightning a ſulphurous Vapour, appears from the Sulphur which attends it, and from the ſultry Heat in the Air, which uſually precedes; and that there is a nitrous Vapour along with it. The ſame Author concludes hence, that we know of no other Body ſo liable to a ſudden and violent Exploſion: And as to the kindling of theſe Materials, we know that a Mixture of Sulphur and Steel-Filings, with a little Water, will break forth into actual Flame. Nothing therefore is wanting to the Exploſion, but ſome Chalybeat or vitrioliek Vapour, and among the various Effluvias from the Earth, the Doctor does not doubt but there muſt be ſome of that: But

But what he leaves as a Probability, we can produce a Proof of.

In History we meet with Instances of its raining Iron in *Italy*, and Iron Stones in *Germany*; *Jul. Scaliger* tells us, he had by him a Piece of Iron rain'd in *Savoy*. *Cardan* reports 1200 Stones to have fallen from Heaven, some of them weighing 30, some 40, and one 120 *lb.* all very hard, and of the Colour of Iron.

The Matter of Fact is so well attested, that Dr. *Lister*, in the *Philosophical Transactions*, builds a whole Theory of *Thunder* and *Lightning* on it; maintaining that they both owe their Matter to the Breath or Exhalation of Pyrites.—That Rattling in the Noise of *Thunder*, which makes it seem as if it passed through Arches, or were broken variously, is doubtless owing to the Sound being excited among Clouds hanging over one another, and the agitated Air passing between them.

But these two last Sentiments are not, in my Opinion, very satisfactory, and do not explain accurately enough, all the Phænomena of *Thunder*; or rather they are but the first System, I have established, disguised under greater Difficulties, and divested of what it has the most clear, and the most proper to explain those Phænomena.

My own Sentiment.

What if we were to say, that *Thunder* consists in fact of the nitrous and sulphurous Vapours exalted from the Earth together with all the other Exhalations, which form the Clouds within our Atmosphere, or the lowest Region of the Air; but that these nitrous and sulphurous Vapours being separated from all the rest, sublimated, and drawn nearer the Sun by his Heat; remain suspended between that Congeries of the coarser Particles, which form the thick and lower Clouds, and some of a finer Texture, which have been exalted along with them, are interposed between them and the Sun; that on Proportion that Sublimature draws near to its Perfection, those thin Clouds interposed between the nitrous and sulphurous Exhalations, growing too weak to struggle against the continual and violent Agitation of the igneous Particles, and being deprived besides of the Supply they continually received from below, during the Operation, are soon dissipated, and the excessive Heat of the Sun, meeting no longer with that Obstacle, lays hold of the combustible Matter, and sets it on Fire; which Fire, by its natural Elasticity, tending continually towards extending further and further, rowls on the Clouds below, and by the Rapidity of its Motion, and the continual Conflict between the igneous Particles, and the aqueous ones of the Clouds it rowls upon, exalts new Vapours, which forming new Clouds, wherewith it is enveloped; and by the Efforts it makes to disengage itself and force its Way, causes that Noise we hear, which is louder, in Proportion the Clouds it breaks through, are thicker, and more condensed.

On this my System, may be accounted for some Phænomena of the *Thunder*, which without it remain unconceivable. For it may be said, that if it is often heard, and by shorter, or longer Intervals, before the *Thunder* falls, that proceeds from the smaller or greater Resistance the *Thunder* meets with from the Clouds it is environ'd with; for if they be thick, and much condensed, the Noise is louder in the Explosion, as we have already observed: If they make but a small Resistance, the Noise is but small; as a Pound of Powder ramm'd close in a Cannon, when set one Fire, makes more Noise than 100 *lb.* lighted, in a wider Space, where it meets with much less Resistance. Again, if the Noise is less frequent at on Time than at another, or rather, if the Intervals between every Clap are sometimes longer, and sometimes shorter, it proceeds from the Obstructions it meets with being more or less frequent; for the Clouds being more sublimated, and less loaded with terrestrial and aqueous Particles, in some Places than in others, the Thunder rowls with less Opposition, because it does not so soon exalt round itself other Clouds, by Reason of the Rarity of the Particles they must be formed with. Lastly, when the Clouds underneath, on which the Thunder rowls, are weaker and less condensed, than those exalted by the violent Agitation of the Thunder, around itself; in the Struggle the Thunder makes to disengage itself, those Clouds underneath break, and the Thunder falls on the Earth.—This is my own System, which I submit to the Censure of the Learned.

If what we call *Lightning*, acts with extraordinary Violence, and breaks or shatters any Thing, it is called a *Thunder-bolt*, which the Vulgar, to fit it for such Effects, suppose to be a hard Body, and even a Stone. But some are of Opinion, that we need not have Recourse to a hard solid Body to account for the Effects commonly attributed to the *Thunder-bolt*, as will be evident to any one, who considers those of *Pulvis fulminans* and Gunpowder.

The Phænomena of the *Thunder-bolt* are, that it oftner strikes on high Places than on low: That it often burns People's Cloaths without touching their Bodies; as it happen'd to *Amurath* IV. Emperor of the *Turks*, who, while asleep, in an Afternoon, had his Shirt burnt by Thunder, and his Body not in the least touch'd: That it sometimes breaks their Bones without hurting their Flesh or their Cloaths: That it has even melted the Sword without injuring the Scabbard, *&c.*

Some account for the most surprizing of these Phænomena, by observing, that the Exhalations set on Fire, are very different from one another. That some, *e. gr.* coming nearest the Nature of Sulphur, may only yield a slight lambent Flame, which will only affect such Things as take Fire the soonest; and others, on the contrary, so subtile and penetrating, as to come near the Nature of volatile Salts or Aqua-fortis, which spare soft Bodies, and spend their whole Force on hard ones.

The Chevalier *De Louville*, of the *French* Academy of Sciences, accounts for some Effects of *Thunder* upon a new Principle: As to killing of Animals without burning or wounding them, it is naturally enough ascribed to the Sulphur, which falling near enough the Person, the Fumes thereof stop his Respiration.—As to Trees, Buildings, *&c.* split, or beaten down, there must be another Cause. M. *de Louville*, therefore, supposes, that when the *Thunder* is so high, its Flame is dissipated, before it arrives at the Earth: And that the Air being violently driven along by the impetuous Motion of the Flame, and of Consequence exceedingly condensed, becomes as it were a hard Body, capable of producing terrible Effects.

Places struck with *Thunder-bolts*, were held sacred among the Antients. *Nigidius* has a curious Treatise on the *Thunder-bolt*. *Marcilius Ficinus*, and some others, maintain, that Coral dissipates panick Fear, and keeps off *Thunder-bolts* and Hail. *Fortunat. Licitus* has endeavour'd to account for it physically. Father *Le Brun* proves very easily, that those Philosophers are mistaken.

Note, That on Medals the *Thunder-bolt* is sometimes found to accompany the Emperor's Heads, as that of *Augustus*. In which Case it is a Mark of Sovereignty, and of a Power equal with the Gods.

Appian informs us, that the *Thunder-bolt* was the principal Divinity of *Seleucia*; adding that it was adored even in his Time, with various Hymns and Ceremonies.

Ignis *Fatuus*, is a popular *Meteor*, chiefly seen in dark Nights, frequenting Meadows, Marshes, and other moist Places.—Known among the People by the Appellations, *Will with a Wisp*, and *Jack with a Lanthorn*. It seems to arise from a viscous Exhalation, which being kindled in the Air, reflects a Sort of thin Flame in the Dark without any sensible Heat. It is found flying along Rivers, Hedges, *&c.* by Reason it there meets with a Stream of Air to direct it.

Draco *volans*, is a fat, heterogeneous, earthy *Meteor*, appearing long and sinuous, something in the Shape of a flying Dragon. This Shape is supposed to arise from the hind Part of the Matter of this Meteor being fired with greater Impetuosity than what comes first out of the Cloud; and it is supposed the broken Parts of the Cloud, and the sulphurous Matter which adheres to them, forms the apparent Wings of this imaginary Dragon.

I omit speaking of the other *igneous Meteors*, as falling *Stars*, *fiery Beams*, and those called by the antient Navigators *Castor* and *Pollux*, or *Helena*; at present called by the *Italians*, *Sicilians*, *Spaniards*, *Portuguese*, and

and *French*, *St. Elen's Fire*; which, they say, follows after a Ship in its Course, and sometimes enters the Pump, and stops it.

The *aerial*, or *airy Meteors*, consist of flatulent and spirituous Exhalations; such are *Winds*, *Whirlwinds*, and *Hurricanes*.

WIND, is a sensible Agitation of the Air, whereby a large Quantity thereof flows out of one Place, or Region, into another.

As to the physical Cause of the *Wind*. —*Des Cartes*, *Rohault*, &c. account for the *General Wind* from the diurnal Rotation of the Earth. The Atmosphere, say they, investing the Earth, and moving round it, that Part will perform its Circuit soonest, which has the smallest Circle to describe: The Air therefore, near the Equator, will require a somewhat longer Time to perform its Course in, from East to West, than that nearer the Poles. Thus as the Earth turns Eastward, the Particles of the Air near the Equinoctial, being exceeding light, are left behind; so that in respect to the Earth's Surface they move Westward, and become a constant earthly Wind.

This Opinion seems confirmed by this, that these Winds are found only between the Tropicks, in those Parallels of Latitude, where the diurnal Motion is swiftest. But the constant Calms in the *Atlantick* Sea, near the Equator, the westerly *Winds* near the Coast of *Guinea*, and the periodical westerly Monsoons, under the Equator, in the *Indian Sea*, declare the Insufficiency of this Hypothesis.

Besides, the Air being kept close to the Earth by the Principle of Gravity, would, in Time, acquire the same Degree of Velocity that the Earth's Surface moves with, as well in respect of the diurnal Rotation, as of the annual about the Sun, which is about thirty Times swifter.

Dr. *Halley* therefore substitutes another Cause, capable, says he, of a like constant Effect, not liable to the same Objections, but agreeable to the known Properties of the Elements of Water and Air, and the Laws of the Motion of fluid Bodies. Such a one is the Action of the Sun's Beams upon the Air and Water, as he passes every Day over the Ocean, considered together with the Quality of the Soil, and the Situation of the adjoining Continents.

According to the Laws of Staticks, the Air which is less rarified or expanded by Heat, and consequently more ponderous, must have a Motion towards those Parts thereof which are more rarified, and less ponderous, to bring it to an Equilibrium; also the Presence of the Sun, continually shifting to the Westward, that Part towards which the Air tends, by reason of the Refraction made, by its greatest meridian Heat, is with him carried Westward, and consequently the Tendency of the whole Body of the lower Air is that Way.

Thus a general easterly *Wind* is formed, which being impressed upon the Air of a vast Ocean, the Parts impel one the other, and so keep moving till the next Return of the Sun, whereby so much of the Motion as was lost, is again restored; and thus the easterly *Wind* is made perpetual.

From this simple Principle it follows, that this easterly *Wind* should, on the North Side of the Equator, be to the Northward of the East, and in South Latitudes, to the Southward thereof; for near the Line the Air is much more rarified than at greater Distance from it, because the Sun is twice in a Year vertical there; and at no Time distant about 23½ Degrees: At which Distance, the Heat being as the Line of the Angle of Incidence, is but little short of that of the perpendicular Ray; whereas under the Tropicks, though the Sun stays longer vertical, yet he is a long Time 47 Degrees off; which is a Kind of Winter, wherein the Air so cools, as that the Summer Heat cannot warm it to the same Degree with that under the Equator. Wherefore the Air towards the Northward and Southward being less rarified than that in the Middle, it follows, that from both Sides it ought to bend towards the Equator.

This Motion compounded with the former easterly *Wind*, accounts for all the Phænomena of the general Trade-Wind; which, if the whole Surface of the Globe was Sea, would undoubtedly blow quite round the World, as they are found to do in the *Atlantick* and *Ethiopick* Oceans. But seeing so great Continents do interpose, and break the Continuity of the Oceans, Regard must be had to the Nature of the Soil, and the Position of the high Mountains, which are the two principal Causes of the Variation of the *Wind*, from the former general Use: For if a Country laying near the Sun, proves to be flat, sandy, and low Land, such as the Desarts of *Lybia* are usually reported to be; the Heat occasioned by the Reflections of the Sun's Beams, and the Retension thereof in the Sand, is incredible to those who have not felt it; whereby the Air being exceedingly rarified, it is necessary that the cooler and more dense Air should run thitherwards to restore the Equilibrium.

This is supposed to be the Cause why near the Coast of *Guinea* the *Wind* always sets in upon the Land, blowing Westerly instead of Easterly; there being sufficient Reason to believe, that the inland Parts of *Africa* are prodigious hot, since the Northern Borders thereof were so intemperate, as to give the Antients Cause to conclude, that all beyond the Tropicks was uninhabitable by Excess of Heat.

From the same Cause it happens, that there are so constant Calms in that same Part of the Ocean called the *Rains*; for this Tract being placed in the Middle, between the westerly *Wind* blowing at the Coast of *Guinea*, and the easterly Trade-Winds, blowing to the Westward thereof; the Tendency of the Air here, is indifferent to either, and so stands in Equilibrio between both: And the Weight of the incumbent Atmosphere, being diminished by the continual contrary *Winds* blowing from hence, is the Reason that the Air here holds not the copious Vapours it receives, but lets them fall in so frequent Rains.

But, as the cool and dense Air, by reason of its greater Gravity, presses upon the hot and rarified, it is demonstrable, that this latter must ascend in a continued Stream as fast as it rarifies; and that being ascended, it must disperse itself, to preserve the Equilibrium, that is, by a contrary Current, the upper Air must move from those Parts where the greatest Heat is; so by a Kind of Circulation the North-East Trade-Wind below will be attended with a South-West Wind above; and the South-East with a North-West above.

That this is more than a bare Conjecture, the Author and Defenders thereof pretend, that the almost instantaneous Change of the *Wind* to the opposite Point, which is frequently found in passing the Limits of the Trade-Winds, seem to assure us of; but that which above all confirms this Hypothesis, is the Phænomenon of the Monsoons, by this Means most easily solved, and without it hardly explicable.

Supposing therefore such Circulation as above, it is to be considered, that Northward of the *Indian* Ocean, there is every where Land within the usual Limits of the Latitude of 30 Deg. viz. *Arabia*, *Persia*, *India*, &c. which, for the same Reason of the *Mediterranean* Parts of *Africa*, are subject to insufferable Heats, when the Sun is to the North, passing nearly vertical; but yet are temperate enough, when the Sun is removed towards the other Tropick, because of a Ridge of Mountains at some Distance, within the Land, said to be frequently in Winter covered with Snow, over which the Air as it passes must be much chilled. Hence it happens, that the Air coming according to the general Rule, out of the North-East to the *Indian* Sea, is sometimes hotter, sometimes colder, than that which by this Circulation is returned out of the South-West; and by Consequence sometimes the under Current, a Wind is from the North-East, sometimes from the South-West.

That this has no other Cause, say they, is clear from the Times wherein these *Winds* set, *viz.* in *April*; when the Sun begins to warm these Countries to the North, the South-West Monsoon begin and blow during the Heats till *October*, when the Sun being retired, and all Things growing cooler northward, and the Heat increasing to the South, the North-East Winds enter and blow all the Winter till *April* again. And it is undoubtedly from the same Principle, that to the Southward of the Equator, in Part of the *Indian* Ocean, the North-

North-West *Winds* succeed the South-East, when the Sun draws near the Tropick of *Capricorn*.

But the Induſtry of ſome late Writers, having brought the Theory of the Production and Motion of Winds, to ſomewhat of a mathematical Demonſtration; we ſhall here give it the Reader in that Form; therefore,

If the Spring of the Air being weakened in any Place, more than in the adjoining Places, a Wind will blow through the Place where the Diminution is. For, ſince the Air endeavours by its elaſtick Force to expand itſelf every Way, if the Force be leſs in one Place than another, the Niſus of the more againſt the leſs elaſtick, will be greater than the Niſus of the latter againſt the former. The leſs elaſtick Air therefore will reſiſt with leſs Force, than it is urged by the more elaſtick; conſequently the leſs elaſtick will be driven out of its Place, and the more elaſtick will ſucceed.

If now the Expreſs of the Spring of the more elaſtick, above that of the leſs elaſtick Air, be ſuch as to occaſion a little Alteration in the Baroſcope; the Motion both of the Air expelled, and that which ſucceeds it, will become ſenſible, *i. e.* there will be a *Wind*.

2. Hence, ſince the Spring of the Air increaſes, as the compreſſing Weight increaſes, and compreſſed Air is denſer, than Air leſs compreſſed, all *Winds* blow into rarer Air, out of a Place filled with a denſer.

3. Wherefore, ſince a denſer Air is ſpecifically heavier than a rarer; an extraordinary Lightneſs of the Air in any Place, muſt be attended with extraordinary *Winds* or Storms.

Now an extraordinary Fall of the Mercury in the Barometer, ſhewing an extraordinary Lightneſs of the Atmoſphere, it is no Wonder if that foretels Storms.

4. If the Air be ſuddenly condenſed in any Place, its Spring will be ſuddenly diminiſhed: Hence, if this Diminution be great enough to affect the Barometer, there will be a *Wind* blow through the condenſed Air.

5. But ſince it cannot be ſuddenly condenſed, unleſs it has been much rarified before, there will a *Wind* blow through the Air as it cools, after having been violently heated.

6. In like Manner, if Air be ſuddenly rarified, its Spring is ſuddenly increaſed; wherefore it will flow through the contiguous Air, not acted on by the rarifying Force.—A *Wind*, therefore, will blow out of a Place, in which the Air is ſuddenly rarified: And on this Principle, in all Probability, it is, that,

7. Since the Sun's Power in rarifying the Air is notorious, it muſt neceſſarily have a great Influence on the Generation of *Winds*.

8. Moſt Caves are found to emit *Wind*, either more or leſs. The riſing and changing of the *Wind* is determined experimentally, by means of Weathercocks placed a-top of Houſes, *&c.* But theſe only indicate what paſſes about their own Height, or near the Surface of the Earth: *Wolfius* aſſures us, from Obſervations of ſeveral Years, that the higher *Winds* which drive the Clouds, are different from the lower ones, which move the Weather-cocks. And Mr. *Derham* obſerves ſomething not unlike this.

The Author laſt mentioned relates, upon comparing ſeveral Series of Obſervations made of the *Winds* in divers Countries, *viz. France*, *England*, *Italy*, *Switzerland*, *New-England*, &c. that the *Winds* in thoſe ſeveral Places ſeldom agree; but when they do it is commonly when they are ſtrong, and of long Continuance in the ſame Quarter; and more, he thinks, in the Northerly and Eaſterly, than in other Points. Alſo, that a ſtrong *Wind* in one Place, is oftentimes a weak one in another; or moderate, according as the Places are nearer, or more remote.

As *to the Force and Velocity of Wind.*—Wind being only Air in Motion, and Air being a Fluid ſubject to the Laws of other Fluids, its Force may be brought to a preciſe Computation; thus,—The Ratio of the ſpecifick Gravity of any other Fluid to that of the Air, together with the Space that Fluid, impelled by the Preſſure of the Air, moves in any given Time, being given, we can determine the Space which the Air itſelf, acted on by the ſame Force, will move in the ſame Time; by this Rule:

1. As the ſpecifick Gravity of the Air is to that of any other Fluid; ſo reciprocally is the Square of the Space which that Fluid, impelled by any Force, moves in any given Time to the Square of the Space, which the Air, by the ſame Impulſe, will move in the ſame Time.

Suppoſing therefore, the Ratio of the ſpecifick Gravity of that other Fluid to that of the Air, to be $= b : c$; the Space deſcribed by the Fluid to be called S; and that which the Air will deſcribe by the ſame Impulſe, x. The Rule gives us $x = \sqrt{(b s^2 : c)}$.

Hence, if we ſuppoſe Water impelled by the given Force, to move two Feet in a Second of Time, then will $S = 2$; and ſince the ſpecifick Gravity of Water to the Air is as 970 to 1, we ſhall have $b = 970$, and $c = 1$; conſequently $x = \sqrt{970 . 4} = \sqrt{3880} = 623$ Feet. The Velocity of the *Wind* therefore, to that of Water moved by the ſame Power, will be as 623 to 2, *i. e.* if Water moves two Feet in a Second, the *Wind* will fly 623 Feet.

2. Add, that $S = \sqrt{(c x^2 : b)}$, and therefore the Space any Fluid, impelled by any Impreſſion, moves in any Time, is determined by finding a fourth Proportional to the two Numbers that expreſs the Ratio of the ſpecifick Gravity, and the Square of the Space the *Wind* moves in, in the given Time. The ſquare Root of that fourth Proportional is the Space required.

M. *Mariotte*, e. gr. found, by various Experiments, that a pretty ſtrong Wind moves 24 Feet in a Second of Time; wherefore if the Space, which the Water, acted on by the ſame Force as the Air, will deſcribe in the ſame Time, be required; then will $c = 1$, $x = 24$, $b = 970$; and we ſhall find $S = \sqrt{(576 : 970)} = \frac{22}{31}$.

3. The Velocity of the *Wind* being given, to determine the Preſſure required to produce that Velocity, we have this Rule:—The Space the *Wind* moves in one Second of Time, is to the Height a Fluid is to be raiſed in an empty Tube, in order to have a Preſſure capable to produce that Velocity, in a Ratio compounded of the ſpecifick Gravity of the Fluid to that of the Air, and of Quadruple the Altitude a Body deſcends in the firſt Second of Time, to the aforeſaid Space of the Air.

Suppoſe, *e. gr.* the Space the Air moves in a Second of Time, $a = 24$ Feet, or 288 Inches; call the Altitude of the third x, and the Ratio of Mercury to Air $b : c = 13580 : 1$, $d = 181$ Inches; x will be leſs than that Number by one Line, or $\frac{1}{12}$ of an Inch. And hence we ſee why a ſmall, but ſudden Change in the Barometer, is followed with violent *Winds*.

The Force of the *Wind*, determined experimentally by a peculiar Machine, called an *Anemometer*, Wind-Meaſurer; which being moved by means of Sails, like thoſe of a Wind-Mill, raiſes a Weight, that ſtill the higher it is raiſed, receding farther from the Centre of Motion, by ſliding along an hollow Arm fitted on to the Axis of the Sails, becomes heavier and heavier, and preſſes more on the Arm, till being a Counterpoiſe to the Force of the *Wind* on the Sails, it ſtops the Motion thereof.—An Index, then fitted upon the ſame Axis, at right Angles with the Arm, by its riſing or falling, points out the Strength of the *Wind*, on a Plane divided like a Dial-Plate into Degrees.

As to *the Qualities and Effects of the* Wind.—1. A *Wind* blowing from the Sea is always moiſt: In Summer it is cold, and in Winter warm, unleſs the Sea be frozen up. This is demonſtrated thus; there is Vapour continually riſing out of all Water (as appears even hence, that a Quantity of Water being left a little while in an open Veſſel, is found ſenſibly diminiſhed) but eſpecially if it be expoſed to the Sun's Rays; in which Caſe the Evaporation is beyond all Expectation. By this Means the Air incumbent on the Sea becomes impregnated with a deal of Vapour. But the *Winds* blowing from off the Sea, ſweep theſe Vapours along with them; and conſequently are always moiſt.

Again, Water in Summer, *&c.* conceives leſs Heat than terreſtrial Bodies, expoſed to the ſame Rays of the Sun; but in Winter Sea-Water is warmer than the Earth covered with Froſt and Snow, *&c.* Wherefore as the Air, contiguous to any Body, is found to partake of its Heat and Cold, the Air contiguous to Sea-Water will be warmer in Winter and colder in Summer, than that

that contiguous to the Earth. Or thus; Vapours raised from Water by the Sun's Warmth in Winter, are warmer than the Air they raise in (as appears from the Vapours condensing and becoming visible, almost as soon as they are got out into the Air) fresh Quantities of Vapours therefore, continually warming the Atmosphere over the Sea, will raise its Heat beyond that of Air over the Land. Again, the Sun's Rays reflected from the Earth into the Air, in Summer, are much more than those from the Water into the Air: The Air therefore, over the Earth, warmed by the Reflection of more Rays than that over the Water, is warmer. — Hence Sea-Winds make thick, cloudy, hazy Weather.

Winds blowing from the Continent, are always dry; in Summer warm, and cold in Winter. For there is much less Vapour arising from the Earth, than from the Water; and therefore the Air over the Continent will be impregnated with much fewer Vapours. Add, that the Vapours or Exhalations, raised by a great Degree of Heat out of the Earth, are much finer, and less sensible than those from Water. The *Wind* therefore blowing over the Continent, carries but little Vapour with it, and is therefore dry.

Further, the Earth in Summer is warmer than Water exposed to the same Rays of the Sun. Hence, as the Air partakes of the Heat of contiguous Bodies; that over the Earth in Summer, will be warmer than that over the Water: Therefore the Wind, *&c.*

After the like Manner it is shewn, that the Land-*Winds* are cold in Winter. Hence we see why Land-*Winds* make clear, cold Weather.

Our northerly and southerly *Winds*, however, which are commonly esteemed the Causes of cold and warm Weather, Mr. *Derham* observes, are really the Effects of the Cold or Warmth of the Atmosphere. Hence it is, that we frequently see a warm southerly Wind, on a sudden change to the North, by the Fall of Snow or Hail; and that in a cold, frosty Morning, we see the *Wind* North, which afterwards wheels about towards the southerly Quarter, when the Sun has well warmed the Air; and again, in the cold Evening, turn northerly or easterly.

The *Winds* are divided into *perennial*, *stated*, and *variable*. — They are also divided into *general* and *particular*.

Perennial, or *constant Winds*, are such as always blow the same Way. Of these we have a very notable one between the two Tropicks, blowing constantly from East to West; called the *General Trade Wind*, in French, *Vents Alizees*.

Stated, or *periodical Winds*, are such as constantly return at certain Times. Such are the Sea and Land Breezes, blowing from Land to Sea in the Evening, and from Sea to Land in the Morning; though this Rule is not general; for in some Places they blow from Sea to Land, in the Evening, and from Land to Sea in the Morning.

Such are also the *shifting*, or *particular Trade Winds*, which for certain Months of the Year, blow one Way, and the rest of the Year, the contrary Way.

Variable, or *erratick Winds*, are such as blow, now this, now that Way; are now hushed, without any Rule, or Regularity, either as to Time or Place.

Such are all the *Winds* observed in the Inland Parts of *England*, *&c.* though several of these claim their certain Times of the Day. Thus the *West-Wind* is most frequent about Noon; the *South-Wind* in the Night; the *North* in the Morning, *&c.*

General Wind, is such a one, as, at the same Time, blows the same Way, over a very large Tract of Land, almost all the Year. But even this has its Interruptions: For 1. At Land it is scarce sensible at all, as being broke by the Interposition of Mountains, Valleys, *&c.* 2. At Sea, near the Shore, it is disturbed by Vapours, Exhalations, and particular *Winds*, blowing from Landward; so that it is chiefly considered as general only at Mid-Sea: Where, 3. It is liable to be disturbed, by Clouds driving from other Quarters.

Particular Winds includes all others, excepting the general *Trade Winds*. Those peculiar to one little Cantoon, or Part, are called *Topical* or *Provincial Winds*. — Such is the North *Wind*, on the western Side of the *Alps*, which does not blow above one or two Leagues lengthwise, and much less in Breadth: Such also is the Pontia's in *France*, &c.

WHIRL-WIND, is a *Wind* that rises suddenly, is exceedingly rapid, and impetuous when risen, but soon spent.

There are divers Sorts of *Whirl-winds*, distinguished by their peculiar Names; as the *Prester*, *Typho*, *Turbo*, *Exhydria*, and *Echnepias*.

The *Prester* is a violent *Wind*, breaking forth with Flashes of Lightening. This is rarely observed; scarce without the *Ecnephias*. *Seneca* says it is a *Typho* or *Turbo*, kindled or ignited in the Air.

The *Ecnephias*, is a sudden and impetuous *Wind*, breaking out of some Cloud, frequent in the *Ethiopick* Sea, particularly about the Cape of *Good Hope*. — The Seamen call them *Travados*.

The *Exhydria*, is a *Wind* bursting out of a Cloud, with a great Quantity of Water. — This only seems to differ in Degree from the *Ecnephias*, which is frequently attended with Showers.

A *Typho*, or *Vortex*, most properly called a *Whirl-wind*, or *Hurricane*, is an impetuous *Wind*, turning rapidly every Way, and sweeping all round the Place. — It frequently descends from on high. — The *Indians* call it *Orancan*; the *Turks*, &c. *Oliphant*. — It is frequently in the eastern Ocean, chiefly about *Siam*, *China*, &c. and renders the Navigation of those Parts exceeding dangerous.

HURRICANE, a furious Storm of *Wind*, arising from a Contrariety or Opposition of several *Winds*.

Hurricanes are frequent in the *East* and *West Indies*; making terrible Ravages in the Islands thereof, blowing down Houses, rooting up Trees, and even whole Woods, *&c.*

They begin in the North, some say the West, but turn round; and in a little Time are through all the Points of the Compass.

It is the Custom for the *English* and *French* Inhabitants of the *Caribbee* Islands, to send every Year, about *June*, to the Native *Caribbees* of St. *Dominico*, and St. *Vincent*, to know whether there will be any *Hurricanes* that Year? And about ten or twelve Days ere any *Hurricane* comes, they constantly send them Word.

The Prognosticks those Barbarians go by, are given us by Capt. *Longford*, who in 1697, engaged one of them, by Civilities, to reveal them to him.

It is one of their Principles, that all *Hurricanes* come either on the Day of the Full, Change, or Quarter of the Moon; each of which is discover'd by a Number of Phænomena, the preceding Quarters, as a turbulent Sky, Sun red, universal Calm, the Stars appearing red, Noises in Hollows, or Cavities of the Earth, strong Smell of the Sea, a settled westerly Wind, *&c.*

That Author assures us, he received that Benefit from the Information, that whereas *Hurricanes* are so dreadful, that all Ships are afraid to put to Sea, while they last, and chuse rather to perish in the Roads; yet with good Management, a Vessel may lay out at Sea, in these, as safely as in other Storms, by taking Care the Ports be well barr'd and calk'd, the Top-masts and Tops taken down, the Yards a-part lash'd, and the Doors and Windows secured. With these Precautions, that experienced Navigator preserv'd his Vessel in two great *Hurricanes*, and taught others how to do the same, by putting out from Port, where they would inevitably have perished. And from the Prognosticks above, he foretold several *Hurricanes*.

He adds, that all *Hurricanes* begin from the North, and turn to the Westward, till arriving at the South-East their Force is spent.

The Cause he suggests to be the Sun leaving the Zenith of those Places, and going back towards the South; and the repelling or bounding back of the Wind, occasion'd by the calming of the general Trade-Wind.

The *aqueous* or *watery* METEORS, are composed of Vapours or watery Particles, variously separated and condensed by Heat and Cold; such are *Clouds*, *Rainbows*, *Hail*, *Snow*, *Rain*, *Dew*, and the like.

CLOUD, is a Collection of condensed Vapours, suspended in the Atmosphere.

A Cloud

A *Cloud* is a Congeries of watery Particles, or Vesiculæ rais'd from the Water, or watery Parts of the Earth, by the solar or subterraneous Heat, or both; which at their first Rise from our Globe, are too minute to be perceiv'd; but as they mount, meeting with a greater Degree of Cold, are condensed, and render'd opake by the Re-union of their Parts; so as to reflect Light, and become visible.

The Manner wherein Vapours are raised into *Clouds*, may be conceived thus. — Fire being of a light, agile Nature, easily break loose from Bodies wherein it is detain'd. — Now by Reason of the Smallness of the Particles of Fire, their attractive Force must be exceedingly great: Hence in their Ascent through fluid Bodies, part of the Fluid will cling around them, and mount up together with them, in Form of Vesicles of Water replete with Particles of Fire; which Vesicles are what we call Vapour. Further this Vapour being specifically lighter than Air, mounts in it, till having reached such a Region of the Atmosphere as is of the same specifick Gravity with themselves, they will be suspended; till the watery Vesicles, which were at first too thin to be perceived, being now condensed by the Cold of the superior Regions; and their included igneous Particles extinct, or at least driven into a less Compass, and consequently the Parts set closer together; their Density is first augmented, so as to render them opake enough to reflect the Sun's Light, and become visible; and their specifick Gravity increased, so as to make them descend: In the former State they are called *Clouds*; and in the latter, when they arrive at us, Rain. — Therefore *Clouds* are nothing else but a Vapour suspended in the Atmosphere, the Particles whereof collected together, intercept almost the whole Heat of the Sun, whence those who inhabit the highest Mountains of the *Pyrenees*, or of the *Alps*, when they are arrived at the Region of the *Clouds*, are not insensible of their entring a thick and opake *Cloud*, which I have experienced, in crossing over the *Appennine*, for I found myself insensibly environ'd with a thick Vapour, buzzing at my Ears.

Aura Serotina, is that *thin* and *penetrating Vapour*, which exalted together with the Vapours, by the diurnal Heat of the Sun, falls soon after Sun-set. — If the *Aura Serotina*, or *Evening Dew*, be exalted from stinking Places, it is pernicious to the human Body, when it falls. For it causes Rheums, the Tooth-ach, and the like.

The Morning Dew is a thin, light, insensible Mist, or Rain, falling while the Sun is below the Horizon. — Some define it a Vapour liquified, and let fall in Drops: Others a Vapour having a like Relation to Frost, as Rain has to Snow, *&c.* Among the Dissertations of M. *Huet*, is a Letter, to shew that *Dew* does not fall, but rises.

To us, *Dew* appears only to differ from Rain, as more and less. Its Origin and Matter, no doubt is from the Vapours, and Exhalations of the Earth and Water. — The thin Vesiculæ, whereof Vapours consist, being once detached from their Bodies, we all know, keep rising in the Atmosphere, till they arrive at such a Stage of the Air, as is of the same specifick Gravity with themselves: Then their Rise is stopped. Now, as it is the Warmth, or Fire, that dilating the Parts of Water, forms the Vesiculæ specifically lighter than Air, and capable of ascending therein; so when the Heat declines, or is lost, as by the Approach or Contiguity of any colder Body, the Vesiculæ condensed, become heavier, and descend. In the Day-time, therefore, the Sun warming the Atmosphere by a continual Influx of his Rays, the Vapours once raised, continue their Progress, as meeting with nothing to increase their Gravity, till such Time as they are got far out of the Reach of the reflected Warmth of the Earth, in the middle Region of the Atmosphere. Here condensing, they form Clouds, from which arise Rain.

But when the Sun is below the Horizon, the Case is somewhat different: For the Atmosphere then cooling, the Vapours rais'd by the Warmth of the Earth, and of the Rays of the Sun lodged therein the preceding Day, begin to condense apace, as soon as they are got out of the Air, spending their Stock of Fire and Heat on the cold moist Air they pass through. Their Ascent, therefore, becomes short; and by that Time they are got a few Fathoms high, being exhausted of their Fire, and restored to the natural Dimensions, and Gravity of their constituent Water; they precipitate, and fall back again in little Spherules or Drops.

From these Principles, the other Phænomena of *Dews* are easily accounted for. Hence, *e. gr.* it is, that *Dews* are more copious in the Spring, than in the other Seasons; there being then a greater Stock of Vapour in Readiness, through the small Expence thereof in the Winter's Cold and Frost, than at other Times. Hence, what *Pliny* relates of *Egypt*, that it abounds in *Dews* throughout all the Heats of Summer; for the Air there being too hot to constipate the Vapours in the Day-time, they never gather into Clouds, and hence they have no Rain; but we know, that in Climates, where the Days are excessive hot, the Nights are remarkably cold; so that the Vapours raised after Sun-set, are readily condensed into *Dews*; or perhaps, that notable Coldness is rather the Effect, than the Cause of the Quantity of *Dews*. For a deal of Vapour being raised by the great Heat of the Earth; and the Stock of Fire spent on it in the Day-time, the Influx of such a Quantity of cold Moisture, must greatly chill the Air.

May-Dew whitens Linen and Wax; the *Dew* of Autumn is converted into a white Frost. Out of *Dew*, putrified by the Sun, arises divers Insects, which change apace from one Species into another. What remains is converted into a fine white Salt, with Angles like those of Salt-petre, after a Number of Evaporations, Calcinations, and Fixations.

There is a Spirit drawn from *May-Dew*, which has wonderful Virtues attributed to it. The Method of gathering and preparing it, is prescribed by *Hanneman*, Physician at *Kiel*. It is to be gather'd in clean Linen Cloths, exposed to the Sun in close Vials; then distill'd, and the Spirit thrown upon the *Caput mortuum*; this is to be repeated till the Earth unite with the Spirit, and become liquid; which happens about the seventh or eighth Cohobation, or Distillation. By such Means you gain a very red, odoriferous Spirit. *Stolterfold*, a Physician of *Lubeck*, thinks *May-Dew* may be gather'd in Glass-Plates, especially in still Weather, and before Sun-rise. And *Etmuller* is of the same Sentiment. It may likewise be collected with a Glass Funnel, exposed to the Air, having a crooked Neck to bring the *Dew* into a Vial in a Chamber.

In the *Philosophical Transactions*, we have an Account of a very extraordinary Kind of *Dew*. For a good Part of the Winter, 1695, says the Bishop of *Cleyne*, there fell in many Parts of the Provinces of *Munster* and *Lemster*, a Kind of thick *Dew*, which the Country-People called *Butter*, from its Consistency and Colour; being soft, clammy, and of a dark Yellow. It falls always in the Night, and chiefly in low, moorish Places, on the Top of the Grass, and often on the Thatch of Cabbins. It was seldom observed in the same Place twice. It commonly lay on the Earth a Fortnight, without changing Colour, but then died, and turn'd black. It fell in Lumps; and had a strong Smell like that of Graves. — M. *R. Vans*, in the same *Transactions*, gives an Account of the like, at the same Time, in *Limerick* and *Tipperary*; adding, that if one rubbed it with the Hand, it melted; but laying it by the Fire, it dried, and grew hard.

Rain is a very frequent and useful *Meteor*, form'd of the Concretion of Vapours, and descending from above in Form of Drops of Water.

And Vapours are demonstratively nothing else but little Bubbles or Vesiculæ detached from the Waters, by the Power of the Solar, or subterraneous Heat, or both. These Vesiculæ being specifically lighter than the Atmosphere, are buoyed up thereby, until they arrive at a Region, where the Air is at a just Ballance with them; and here they float, till by some new Agent they are converted into Clouds, and thence either into Rain, Snow, Hail, Mist, or the like.

But the Agent of this Formation of the Clouds into *Rain*, &c. is a little controverted: The common *Peripateticians* will have it, the Cold, which constantly occupying the superior Region of the Air, chills and condenses the Vesiculæ, at their Arrival from a warmer Quarter, congregates them together, and occasions several of them

to coalesce into little Masses: By this Means their Quantity of Matter increasing in a greater Proportion than their Surface, they become an Over-load to the thin Air, and accordingly descend in Rain.

Mr. *Derham* accounts for the Precipitation, hence; that the Vesiculæ being full of Air, when they meet with a colder Air than that they contain, the Air is contracted into a lesser Space, and consequently the watery Shell or Case render'd thicker, so as to become heavier than the Air, *&c.*

Others only allow the Cold a Part in the Action, and bring in the Winds as Sharers with it: Indeed it is clear, that a Wind blowing against a Cloud will drive its Vesiculæ upon one another, by which Means several of them coalescing as before will be enabled to descend; and the Effect will be still more considerable, if two opposite Winds blow towards the Place. Add to this, that Clouds already formed, happening to be aggravated by fresh Accessions of Vapour continually ascending, may thence be enabled to descend.

Yet, the grand Cause, according to *Rohault*, is still behind; that Author conceives it to be the Heat of the Air, which after continuing for some Time near the Earth, is at length carried up on high by a Wind, and there thawing the snowy Villi, or Flakes of the half-frozen Vesiculæ, reduces them into Drops, which coalescing, descend, and have their Dissolution perfected, in their Progress through the lower and warmer Stages of the Atmosphere.

Others, as Dr. *Clark*, &c. ascribe this Descent of the Clouds, rather to an Alteration of the Atmosphere, than of the Vesiculæ, and suppose it to arise from a Diminution of the Spring or elastick Force of the Air.

This Elasticity, which depends chiefly or wholly on the dry terrene Exhalations being weakened, the Atmosphere sinks under its Burthen, and the Clouds fall on the common Principle of Precipitation.

Now the little Vesiculæ by any, or all, these Means, being once upon the Descent will persist therein, notwithstanding the Increase of Resistance they every Moment meet withal in their Progress through the still denser and denser Parts of the Atmosphere. For as they all tend towards the same Point, *viz.* the Center of the Earth, the further they fall, the more Coalitions will they make; and the more Coalitions, the more Matter will there be under the same Surface; the Surface only increasing as the Squares, but the Solidity as the Cubes; and the more Matter under the same Surface, the less Friction or Resistance there will be to the same Matter.

Thus if the Cold, the Wind, *&c.* happen to act early enough to precipitate the ascending Vesiculæ, before they are arrived at any considerable Height; the Coalitions being few in so short a Descent, the Drops will be proportionably small; and thus is formed the Dew.

If the Vapours prove more copious, and rise a little higher, we have a *Mist* or *Fog*.

A little higher still, and they produce a small Rain, *&c.*

If they neither meet with Cold, nor Wind enough to condense or dissipate them; they form a heavy, thick dark Sky, which lasts sometimes several Weeks.

Hence we may account for many of the Phænomena of the Weather, *e. gr.* why a cold is always a wet Summer; and a warm, a dry one? Because the Principle of Precipitation is had in the one Case, and wanted in the other.

Why we have ordinarily, most *Rain* about the Equinoxes? Because the Vapours arise more plentifully than ordinarily in the Spring, as the Earth becomes loosened from the brumal Constipations; and because as the Sun recedes from us in Autumn, the Cold increasing, the Vapours that had lingered above during the Summer Heats, are now dispatched down, *&c.*

Why a settled, thick, close Sky scarce ever *rains* till it have been first clear? Because the equally defected Vapours must first be condensed, and congregated into separate Clouds, to lay the Foundations of *Rain*, by which Means the rest of the Face of Heaven is left open, and pervious to the Rays of the Sun, *&c.*

As to the *Quantity of Rain* that falls, its Proportion in several Places at the same Time, and in the same Place at several Times, we have Store of Observations, Journals, *&c.* in the Memoirs of the *French* Academy, the *philosophical Transactions*, &c. an Idea whereof will not be unacceptable.

Upon measuring then, the *Rain* falling yearly, its Depth at a Medium, is found as in the following Tables.

Depth of the Rain *in* falling yearly, *and its Proportion in several Places.*

At *Paris*, in *France*, observ'd by M. *de la Hire*	19 *Inch.*
At *Lisle*, in *Flanders*, by M. *Vauban*	24
At *Pisa*, in *Italy*, by Dr. *Mich. Ang. Tilli*	43 $\frac{1}{4}$
At *Townly*, in *Lancashire*, by Mr. *Townly*	42 $\frac{1}{2}$
At *Upminster*, in *Essex*, by Mr. *Derham*	19 $\frac{1}{4}$
At *Zurich*, in *Switzerland*, by D. *Scheuchzer*	32 $\frac{1}{4}$

Proportion of the Rain *of* several Years *to one another.*

At Paris.			At Upminster.	
21 *Inch.*	38 *cent.*	1700	19 *Inch.*	03 *cent.*
27	78	1701	18	69
17	42	1702	20	38
18	51	1703	23	99
21	20	1704	15	81
14	82	1705	16	93

Proportions of the Rain *of the* several Seasons *to one another.*

1708	*Depth at* Pisa.	*Depth at* Upminst.	*Depth at* Zurich.	1708	*Depth at* Pisa.	*Depth at* Upminst.	*Depth at* Zurich.
	Inch.	*Inch.*	*Inch.*		*Inch.*	*Inch.*	*Inch.*
Jan.	6 41	2 88	1 64	*July*	0 00	1 11	3 50
Febr.	3 28	0 46	1 65	*Aug.*	2 27	2 94	3 15
March	2 65	2 03	1 51	*Sept.*	7 21	1 46	3 02
April	1 25	0 96	4 69	*Octob.*	5 33	0 23	2 24
May	3 33	0 02	1 91	*Nov.*	0 13	0 86	0 62
June	4 90	2 32	5 91	*Dec.*	0 00	1 97	2 62
half-year	28 82	10 67	17 31	*half-year*	14 94	8 57	15 35

Preternatural Rains, or *Showers*, as of Blood, *&c.* are very common in our Annals, and even natural Histories, yet if strictly pry'd into, will be all found other Things than *Rain*.

Bloody Rains, Dr. *Merret* observes, are certainly nothing else but the Excrements of Insects. Accordingly *Gassendi* gives an Instance of a *bloody Rain* in *France*, which terrified the People; but which *Peiresc* found to be only red Drops coming from a Sort of Butterfly that flew about in great Numbers, as he concluded from seeing such red Drops come from them; from the Drops not being laid on Buildings, or the outer Surfaces of Stones, *&c.* but in Cavities and Holes, and from those Walls only being tinged therewith that were next the Fields, not those in the Streets, and the former only a little Height, such as Butterflies are used to fly to.

This Reasoning of *Peiresc* is, in my Opinion, very lame, and what we call in France *tiré par les cheveux*; for the Air should have been pestered with a prodigious Quantity of those Butterflies, and them afflicted with a Kind of bloody Flux to produce such a Phænomenon; which I am more inclinable to think proceeds from the Vapours exalted from the Earth, and the different Disposition of their Particles when resolved into Rain, which reflecting Light in a Manner quite different from common Rain, strikes our Sight with a red Colour; or the Vapours themselves may have preserved that Colour in their Exaltation from the Earth.

The same Dr. *Merret* adds, that it is most evident the *Rain of Wheat* are nothing but Ivy-Berries swallowed by the Starling, and again cast forth by Stool. An Instance of such Rain we have in the *Philosophical Transactions*, from the Country about *Bristol*, by Mr. *W. Cole*; who, upon examining the Drops, found them to be the Seeds of Ivy-Berries, blown down by fierce Winds from Towers, Churches, Chimneys, Walls, *&c.* where they had been left by Birds, chiefly Starlings and Choughs. We

We have in *France* a Tradition of *a Rain of Stones*, in a Plain six or seven Leagues long between *Arles* and *Marseilles*, called *la crau*, which is now quite covered therewith. The Fable has it, that *Hercules* in his Engagement with *Albion* and *Bregion*, in favour of *Neptune*, wanting Darts, was assisted by *Jupiter* with a Shower of these Stones, seen to this Day.

If the Vapours condensated into Clouds, be not liquefied in falling, which happen when both the superior and inferior Region of the Air are very cold; then they produce not Drops of Rain but Flakes of *Snow*. For,

Snow, *nix*, seems to be nothing else but a Meteor formed in the middle Region of the Air, of Vapours raised by the Action of the Sun or subterraneous Fire, there congealed, its Parts constipated, its specifick Gravity increased, and thus returned to the Earth in Form of little white Villi or Flakes.

The *Snow* we receive may properly enough be ascribed, as already observed, to the Coldness of the Atmosphere, through which it falls. When the Atmosphere is warm enough to dissolve the *Snow* before it arrives at us, we call it *Rain*; if it preserves itself undissolved, it makes what we call *Snow*.

Dr. *Grew*, in a Discourse on the Nature of *Snow*, observes, that many Parts thereof are of a regular Figure, for the most Parts are so many little Rowels or Stars of six Points, and are perfect and transparent Ice, as any we see on a Pond, *&c.* Upon each of these Points are other collateral Points set at the same Angles as the main Points themselves: Among which there are divers other irregular Troops, which are chiefly broken Points, and Fragments of the regular ones. Others also, by various Winds, seem to have been thawed, and froze again into irregular Clutters, so that it seems as if the whole Body of *Snow* were an infinite Mass of Isicles irregularly figured; that is, a Cloud of Vapours being gathered into Drops, the said Drops forthwith descend; upon which Descent meeting with a freezing Air, as they pass through a colder Region, each Drop is immediately froze into an Isicle, shooting itself forth into several Points; but these still continuing their Desent, and meeting with some intermitting Gales of warmer Air, or in their continual Waftage to and fro, touching upon each other, some of them are a little thawed, blunted, and again froze into Clusters, or intangled so as to fall down, in what we call Flakes.

The Lightness of *Snow*, although it is firm Ice, is owing to the Excess of its Surface, in comparison to the Matter contained under it; as Gold itself may be extended in Surface, till it will ride upon the least Breath of Air.

Snow, abounding with Nitre and volatile Salt, excites the Fecundity of the Earth. It preserves from the Plague, cures Fevers, Cholicks, Tooth-achs, sore Eyes, and Pleurisies, says *Bartholin* (for which last Use his Countrymen of *Denmark* us'd to keep Snow-Water gathered in *March*). He adds, that it contributes to the Prolongation of Life, giving Instances of People in the Mountains of the *Alps* that live to great Ages; and to the preserving of dead Bodies; Instances whereof he gives of Persons buried under *Snow* in passing the *Alps*, which are found uncorrupted in the Summer when the *Snow* is melted.

He observes, that in *Norway* Snow-Water is not only their sole Drink in the Winter, but *Snow* even serves for Food; People having been known to live several Days without any other Sustenance.

Some imagine that the Generality of these medicinal Effects of *Snow* are not to be ascribed to any specifick Virtue in *Snow*, but to other Causes; that it fructifies the Ground, for Instance, by guarding the Corn or other Vegetables from the intenser Cold of the Air, especially the cold piercing Winds: And preserves dead Bodies, by constipating and binding up the Parts, and thus preventing all such Fermentations or internal Conflicts of their Particles, as would produce Putrification. It is a popular Error, that the first *Snow* that falls in the Year, has particular Virtues. In *Italy* they cool their Wine all the Summer with Snow-Water.

Signior *Sarotti*, in the *Philosophical Transactions*, mentions a red or *bloody Snow*, which fell on the Mountains *la Langhe*, near *Genoa*, on St. *Joseph's* Day. This *Snow* when squeezed, yielded a Liquor of the same red Colour.

But when the little Clusters or Flakes of the congealed Vapour, are liquified by a warm Air, and meet afterwards in their Descent with a colder Air, they are then changed into *Hail*, whose Grains acquire a different Figure, according to the different Solutions of the Flakes. Sometimes it is round, sometimes angular, triangular, pyramidal, *&c.* sometimes thin and flat, Star-like, with six equal Points, *&c.*

Hail, is observed frequently to attend Thunder and Lightning; the Nitre that contributes to the one, having likewise a large Share in the Production of the other.

Natural Histories furnish us with various Instances of extraordinary Showers of *Hail*. In the *Philosophical Transactions* Dr. *Halley* and others relate, that in *Cheshire*, *Lancashire*, &c. *April* 29, 1697. a thick black Cloud, coming from *Carnarvanshire*, disposed the Vapours to congeal in such a Manner, that about the Breadth of two Miles, which was the Limit of the Cloud, in its Progress for the Space of sixty Miles, it did inconceivable Damage; not only killing all Sorts of Fowls, and other small Animals, but splitting Trees, knocking down Horses and Men, even ploughing up the Earth, so that the *Hail-Stones* buried themselves under Ground, an Inch or an Inch and a Half deep. The *Hail-Stones*, many of which weighed five Ounces, and some half a Pound, and being five or six Inches about, were of various Figures, some round, others half-round; some smooth, others embossed and crenelated: The Icy Substance of them was very transparent and hard; but there was a snowy Kernel in the Middle of them.

In *Hertfordshire*, *May* 4. the same Year, after a severe Storm of Thunder and Lightning, a Shower of *Hail* succeeded, which far exceeded the former: Some Persons were killed by it, their Bodies beat all black and blue; vast Oaks were split, and Fields of Rye cut down as with a Scythe: The Stones were measured from ten to thirteen or fourteen Inches about. Their Figures were various, some oval, others picked, some flat.

At *Lisle* in *Flanders*, in 1686. fell *Hail-Stones* of very large Size, some of which contained in the Middle a dark-brown Matter, which thrown on the Fire gave a very great Report.

Mezeray, speaking of the War of *Louis* XII. King of *France*, in *Italy*, in the Year 1510. relates, that there was for some Time an horrible Darkness, thicker than that of Night; after which the Clouds broke into Thunder and Lightning, and there fell a Shower of *Hail-Stones*, or rather (as he calls them) pebble Stones, which destroy'd all the Fish, Birds, and Beasts of the Country. It was attended with a strong Smell of Sulphur; and the Stones were of a bluish Colour, some of them weighing an hundred Pounds.

From these I'll pass to the Rainbow, and other *amphatical* Impressions, as the *Halo*, *Parelion*, and *Parasenele*.

The Rainbow, *iris*, is a Meteor in form of a party-coloured Arch or Semicircle, exhibited in a rainy Sky, opposite to the Sun, by the Refraction of its Rays in the Drops of falling Rain.

There is also a secundary or fainter *Rainbow*, usually seeen investing the former at some Distance; and among Naturalists we read of Lunar *Rainbows*, marine *Rainbows*, &c.

The *Rainbow*, Sir *Isaac Newton* observes, never appears but where it rains in the Sunshine, and may be represented artificially, by contriving Waters to fall in little Drops like Rain, through which the Sun shining, exhibits a *Bow* to the Spectator, placed between the Sun and the Drops; especially if a dark Body, *e. gr.* a black Cloth be disposed beyond the Drops.

Anton. de Dominis, first accounted for the *Rainbow* in 1611; he explained at large how it was formed, by Refraction and Reflection of the Sun-beams, in spherical Drops of Water; and confirmed his Explications by Experiments made with Glass Globes, *&c.* full of Water; wherein he was followed by *Des Cartes*, who mended and improved on his Account: But as they were both in the Dark as to the true Origin of Colours, their Explications are defective, and in some Things erroneous; which

which the *Newtonians* pretend to ſupply and correct by their Doctrine of Colours; giving the following Theory of the *Rainbow*.

To conceive the Origin of the *Rainbow*, we muſt conſider what will befal Rays of Light, coming from a very remote Body, *e. gr.* the Sun; and falling on a Globe of Water, ſuch as we know a Drop of Rain to be.

Suppoſe then A D K N, *Tab. opt. fig.* 12. to be a Drop of Rain, and the Lines E F, B A, O N, to be Rays of Light coming from the Centre of the Sun; which by Reaſon of the immenſe Diſtance of the Sun, we conceive to be parallel. Now the Ray B A being the only one that falls perpendicularly on the Surface of the Water, and all the reſt obliquely; it is eaſily inferred, that all the other Rays will be refracted towards the Perpendicular.

Thus the Ray E F, and others accompanying it, will not go on ſtrait to G; but as they arrive at H I, deflect from F to K, where ſome of them, probably, eſcaping into the Air, the reſt are reflected upon the Line K N, ſo as to make the Angles of Incidence and Reflection equal.

Farther, as the Ray K N, and thoſe accompanying it, fall obliquely upon the Surface of the Globule; they cannot paſs out into the Air, without being refracted, ſo as to recede from the Perpendicular L M; and therefore will not proceed ſtrait to Y, but deflect to P.

It may be here obſerved, that ſome of the Rays arriving at N, do not paſs out into the Air, but are again reflected to Q; where being refracted like the reſt, they do not proceed right to Z, but declining from the Perpendicular T V, are carried to R; but ſince we here only regard the Rays, as they may affect the Eye, placed a little below the Drop, *e. gr.* at P, thoſe which deflect from N to Q, we ſet aſide as uſeleſs, becauſe they never come at the Eye. On the contrary, it is to be obſerved, that there are other Rays, as 2, 3, and the like; which being reflected from 3 to 4, thence to 5, and from 5 to 6, may at length arrive at the Eye placed beneath the Drop.

Thus much is obvious; but to determine preciſely the Quantities of Refraction of each Ray, there muſt be a Calculation; by ſuch Calculation it appears, that the Rays which fall on the Quadrant A D, are continued in Lines, like thoſe here drawn in the Drop A D K N; wherein there are three Things very conſiderable: *First*, That the two Refractions of the Rays in their Ingreſs and Egreſs, are both the ſame Way, ſo that the latter does not deſtroy the Effect of the former. *Secondly*, That of all the Rays paſſing out of A N, N P, and thoſe adjoining to it, are the only ones capable of affecting the Senſe; as being ſufficiently cloſe or contiguous; and becauſe coming out parallel; whereas the reſt are divaricated, and diſperſed too far to have any ſenſible Effect, at leaſt to produce any Thing ſo vivid as the Colours of the *Bow*. *Thirdly*, That the Ray N P has Shade or Darkneſs under it; for ſince there is no Ray comes out of the Surface N 4, it is the ſame Thing as if the Parts were cover'd with an opake Body. We might add, that the ſame Ray N P, has Darkneſs above it; ſince the Rays that are above it are ineffectual; and ſignify no more than if there were none at all.

Add to theſe, that all the effectual Rays have the ſame Point of Reflection, *i. e.* the parallel and contiguous Rays, which alone are effectual after Refraction, will all meet in the ſame Point of the Circumference; and be reflected thence to the Eye.

Farther it appears by Calculation, that the Angle O N P, included between the Ray N P, and the Line O N, drawn from the Center of the Sun, which is the Angle whereby the *Rainbow* is diſtant from the oppoſite Point of the Sun, and which makes the *Semidiameter of the Bow*, contains 41°, 30′.

But ſince, beſides thoſe Rays coming from the Center of the Sun to the Drop of Water, there are many more from the ſeveral Points of its Surface: There are a great many other effectual Rays to be conſider'd; eſpecially that from the uppermoſt, and that from the loweſt Part of the Sun's Body.

Since then the apparent Diameter of the Sun, is about 16 Seconds, it follows that an effectual Ray from the upper Part of the Sun, will fall higher than the Ray E F, by 16 Seconds: This does the Ray G H, fig. 13. which being refracted as much as E F, deflects to I, then to L, and at length emerging equally refracted with the Ray N P, proceeds to M; and makes an Angle O N M, of 41°, 14′, with the Line O N.

In like Manner the effectual Ray Q R, coming from the loweſt Part of the Sun, falls on the Point R, 16 Min. lower than the Point F, on which the Ray E F falls; and being refracted declines to S; whence it is reflected to T; where emerging into the Air, it proceeds to V; ſo as the Line T V, and the Ray O T, contain an Angle of 41°, and 46′.

Again, upon computing the Deflections of the Rays, which like that 23, fig. 14. coming from the Center of the Sun, and being received into the lower Part of the Drop, we have ſuppoſed to be twice reflected, and twice refracted, and to enter the Eye like that 67, fig. 16. we find that which may be accounted effectual, as 67, with the Line 86, drawn from the Center of the Sun, contains an Angle 867, of about 62 Degrees: Whence it follows, that the effectual Ray from the highest Part of the Sun, with the ſame Line 86, includes an Angle leſs by 16 Min. and that from the loweſt Part of the Sun, an Angle greater by 16 Min.

Thus ſince A B C D E F, is the Path of the efficacious Ray, from the higheſt Part of the Sun to the Eye in F; the Angle 86 F becomes of about 51°, 44′. In like Manner, ſince G H I K L M is the Way of an effectual Ray from the loweſt Part of the Sun to the Eye, the Angle 86 M, becomes nearly of 52°, 16′.

Since then we admit ſeveral Rays to be effectual, beſides thoſe from the Center of the Sun; what we have ſaid of the Shade, will need ſome Alteration: For of the three Rays deſcribed, fig. 12, and 13. only the two extream ones will have a Shadow joined to them, and that only on the outer Side. Hence it is evident, that theſe Rays are perfectly diſpoſed to exhibit all the Colours of the Priſm.

For the great Quantity of denſe or intenſe Light, *i. e.* the Bundle of Rays collected together in a certain Point, *v. gr.* in the Point of Reflection of the effectual Rays, may be accounted as a livid or radiant Body, terminated all around by Shade. But the ſeveral Rays thus emitted to the Eye are both of different Colours, and are differently refracted out of the Water into Air, notwithſtanding their falling alike upon the refracting Surface.

Hence it follows, that the different or heterogeneous Rays will be ſeparated from one another, and will tend ſeveral Ways; and the homogeneous Rays will be collected, and tend the ſame Way; and therefore this livid Point of the Drop wherein the Refraction is effected, will appear fringed or border'd with ſeveral Colours; that is, red, green, and blue Colours will ariſe from the Extreams of the red, green, and blue Rays of the Sun tranſmitted to the Eye from ſeveral Drops, one higher than another; after the ſame Manner as is done in viewing livid, or other Bodies through a Priſm.

Thus, adds Sir *Iſaac Newton*, the Rays that differ in Refrangibility, will emerge at different Angles; and conſequently, according to their different Degrees of Refrangibility, emerging moſt copiouſly at different Angles, will exhibit different Colours in different Places.

Note, That *Refrangibility* of Light, is the Diſpoſition of the Rays to be refracted. That a *greater* or *leſs Refrangibility*, is a Diſpoſition to be more or leſs refracted, in paſſing at equal Angles of Incidence, into the ſame Medium.

A great Number then of theſe little Globules being diffuſed in the Air, will fill the whole Place with theſe different Colours; provided they be ſo diſpoſed, as that effectual Rays may come from them to the Eye; and thus will the *Rainbow* at length ariſe.

Now to determine what that Diſpoſition muſt be; ſuppoſe a right Line drawn from the Centre of the Sun, through the Eye of the Spectator, as the Line V X, fig. 13. called the Line of Aſpect; being drawn from ſo remote a Point, it may be eſteemed parallel to all other Lines

Lines drawn from the ſame Point: But a right Line falling on two Parallels, makes the alternate Angles. If then an indefinite Number of Lines be imagined drawn from the Spectator's Eye to a Part oppoſite to the Sun where it rains; which Lines make different Angles with the Line of Aſpect, equal to the Angle of the Refraction of the differently refrangible Rays, *e. gr.* Angles of 41°, 46′, and of 41°, 30′, and of 41°, 40′. Theſe Lines falling on Drops of Rain illuminated by the Sun, will make Angles of the ſame Magnitude, with Rays drawn from the Center of the Sun to the ſame Drops. And therefore the Lines thus drawn from the Eye, will repreſent the effectual Rays that occaſion the Senſation of any Colour.

That, *e. gr.* making an Angle of 41°, 46′, repreſenting the leaſt refrangible or red Rays of the ſeveral Drops, and of 41°, 40′, the moſt refrangible or violet Rays: The intermediate Colours and Refrangibilities will be found in the intermediate Space.

Now it is known that the Eye being placed in the Vortex of a Cone, ſees Objects upon its Surface as if they were in a Circle; and the Eye of our Spectator is here in the common Vortex of ſeveral Cones, formed by the ſeveral Kinds of efficacious Rays, with the Lines of Aſpect. And in the Surface of that whole Angle where the Vortex or Eye is the greateſt, and wherein the others are included, are thoſe Drops or Parts of Drops which appear red: And in the Surface of that Cone whoſe Angle is leaſt, are the purple Drops: And in the intermediate Cones are the green, blue, *&c.* Drops. Hence then ſeveral Kinds of Drops muſt appear as if diſpoſed into ſo many circular colour'd Faſciæ or Arches, as we ſee in the *Rainbow*.

This Part of the Solution, Sir *Iſaac Newton* expreſſes more artfully, thus: Suppoſe O, fig. 15. *Optic.* the Eye, and O P a Line parallel to the Sun's Rays, and let P O E, P O F be Angles of 40°, 17′, and 42°, 2′. And ſuppoſe the Angle to turn about their common Side O P, with their other Sides O E and O F, they will deſcribe the Bounds or Verges of the *Rainbow*.

For if E F, be Drops placed any where in the conical Surface deſcribed by O E, O F; and be illuminated by the Sun's Rays S E, S F, the Angle S E O being equal to the Angle P O E or 40 Deg. 17 Min. ſhall be the greateſt Angle in which the moſt refrangible Rays come after Reflection be refracted to the Eye; and therefore all the Drops in the Line O E, ſhall ſend the moſt refrangible Rays moſt copiouſly to the Eye, and thereby ſtrike the Senſes with the deepeſt Violet-colour in that Region.

And in like Manner the Angle S F O being = to the Angle P O F = 420 Deg. 2 Min. ſhall be the greateſt, in which the leaſt refrangible Rays, after one Reflection, can emerge out of the Drops; and theſe Rays ſhall come moſt copiouſly to the Eye from the Drops in the Line O F, and ſtrike the Senſes with the deepeſt red Colour in that Region.

And by the ſame Argument the Rays, which have intermediate Degrees of Refrangibility, ſhall come moſt copiouſly from Drops between E and F, and ſo ſtrike the Senſes with the intermediate Colours, in the Order which their Degrees of Refrangibility require; that if the Progreſs from E to F, or from the Inſide of the Bow to the Outſide, in this Order, *Violet*, *Indico*, *Blue*, *Green*, *Yellow*, *Orange*, *Red*; though the Violet, by the Mixture of the white Light of the Clouds will appear faint, and incline to a Purple.

And ſince the Lines O E, O F may be ſituated any where in the abovementioned conical Surface; what is ſaid of the Drops and Colours in theſe Lines is to be underſtood of the Drops and Colours throughout the whole Superficies. Thus is the primary or *inner Bow* formed.

As to the *ſecundary* or *fainter Bow*, uſually ſurrounding the former; in aſſigning what Drops would appear coloured, we exclude ſuch as Lines drawn from the Eye, making Angles a little greater than 40 Deg. 2 Min. ſhould fall upon; but not ſuch as ſhould contain Angles much greater.

For, if an indefinite Number of ſuch Lines be drawn from the Spectator's Eye, ſome whereof make Angles of 50 Deg. 57 Min. with the Line of Aſpect; *e. gr.* O G, otherwiſe Angles of 54 Deg. 7 Min. *e. gr.* O H; thoſe Drops whereon theſe Lines fall, muſt of Neceſſity exhibit Colours, particularly thoſe of 50 Deg. 57 Min.

E. gr. the Drop G will appear red, the Line G O being the ſame with an effectual Ray; which after two Reflections and two Refractions, exhibits a red Colour. Again, thoſe Drops which receive Lines of 54 Deg. 7 Min. *e. g.* the Drop H will appear Purple, the Line O H, being the ſame with an effectual Ray, which after two Reflections and two Refractions, exhibits Purple.

Now there being a ſufficient Number of theſe Drops, it is evident there muſt be a ſecond *Rainbow*, formed after the like Manner as the firſt.

Thus Sir *Iſaac Newton*; in the leaſt refrangible Rays, the leaſt Angle at which a Drop can ſend effectual Rays after two Reflections, is found by Computation to be 50 Deg. 57 Min. and in the moſt refrangible the leaſt Angle is found 54 Deg. 7 Min.

Suppoſe then O the Place of the Eye, as before, and P O G, P O H to be Angles of 50 Deg. 57 Min. and 54 Deg. 7 Min; and theſe Angles to be turned about their common Side O P, with their other Sides O G, O H, they will deſcribe the Verges or Borders of the *Rainbow* C H D G.

For if G H be Drops placed any where in the conical Superficies deſcribed by O G, O H, and be illuminated by the Sun's Rays; the Angle S G O, being equal to the Angle P O G or 50 Deg. 57 Min. ſhall be the leaſt Angle, in which the then leſs refrangible Rays ſhall come moſt copiouſly to the Eye from the Drops in the Line O G, and ſtrike the Senſes with the deepeſt Red in that Region.

And the Angle S H O, being equal to P O H, 54 ſhall be the leaſt Angle, in which the moſt refrangible Rays after two Reflections, can emerge out of the Drops; and therefore thoſe Rays ſhould come moſt copiouſly to the Eye from the Drops in the Line O H, and ſo ſtrike the Senſes with the deepeſt Violet in that Region.

And by the ſame Argument, the Drops in the Region between G and H ſhall ſtrike the Senſes with the intermediate Colours, in the Order which their Degrees of Refrangibility require, that is, in the Progreſs from G to H, or from the Inſide of the Bow to the Outer, in this Order; *Red*, *Orange*, *Yellow*, *Green*, *Blue*, *Indico*, *Violet*.

And ſince the Lines O G, O H, may be ſituated any where in the conical Surface; what is ſaid of the Drops and Colours in thoſe Lines, is to be underſtood of the Drops and Colours every where in theſe Superficies.

Thus are formed two *Bows*, an interior and ſtronger, by one Reflection; and an exterior and fainter by two; the Light becoming weaker and weaker by every Reflection.

Their Colours will lie in a contrary Order to one another, the firſt having the Red without, and the Purple within; and the ſecond, the Purple without and Red within, and ſo of the reſt.

This Doctrine of the *Rainbow* is confirmed by an eaſy Experiment; for upon hanging up a Glaſs Globe full of Water in the Sunſhine, and viewing it in ſuch a Poſture as that the Rays which come from the Globe to the Eye may, with the Sun's Rays, include an Angle either of 42°, or 50°; if, *e. gr.* the Angle be about 42°, the Spectator ſuppoſed at O, will ſee a full red Colour in that Side of the Globe oppoſite to the Sun, as at F. And if that Angle be made a little leſs, ſuppoſe by depreſſing the Globule to E, the other Colours, Yellow, Blue, and Green, will appear ſucceſſively in the ſame Side of the Globe, alſo exceedingly bright.

But if the Angle be made about 50°, ſuppoſe by raiſing the Globule G there will appear a red Colour in that Side of the Globe towards the Sun, though that ſomewhat faint; and if the Angle be made greater, ſuppoſe by raiſing the Globe to H, the Red will change ſucceſſively to the other Colours, Yellow, Green, and Blue.

The ſame Thing is obſerved in letting the Globe reſt, and raiſing or depreſſing the Eye to make the Angle of a juſt Magnitude. This is called an *artificial Rainbow*.

Des Cartes was the firſt who took the *Dimenſions of*

the

which the *Newtonians* pretend to ſupply and correct by their Doctrine of Colours; giving the following Theory of the *Rainbow*.

To conceive the Origin of the *Rainbow*, we muſt conſider what will befal Rays of Light, coming from a very remote Body, *e. gr.* the Sun; and falling on a Globe of Water, ſuch as we know a Drop of Rain to be.

Suppoſe then A D K N, *Tab. opt. fig.* 12. to be a Drop of Rain, and the Lines E F, B A, O N, to be Rays of Light coming from the Centre of the Sun; which by Reaſon of the immenſe Diſtance of the Sun, we conceive to be parallel. Now the Ray B A being the only one that falls perpendicularly on the Surface of the Water, and all the reſt obliquely; it is eaſily inferred, that all the other Rays will be refracted towards the Perpendicular.

Thus the Ray E F, and others accompanying it, will not go on ſtrait to G; but as they arrive at H I, deflect from F to K, where ſome of them, probably, eſcaping into the Air, the reſt are reflected upon the Line K N, ſo as to make the Angles of Incidence and Reflection equal.

Farther, as the Ray K N, and thoſe accompanying it, fall obliquely upon the Surface of the Globule; they cannot paſs out into the Air, without being refracted, ſo as to recede from the Perpendicular L M; and therefore will not proceed ſtrait to Y, but deflect to P.

It may be here obſerved, that ſome of the Rays arriving at N, do not paſs out into the Air, but are again reflected to Q; where being refracted like the reſt, they do not proceed right to Z, but declining from the Perpendicular T V, are carried to R; but ſince we here only regard the Rays, as they may affect the Eye, placed a little below the Drop, *e. gr.* at P, thoſe which deflect from N to Q, we ſet aſide as uſeleſs, becauſe they never come at the Eye. On the contrary, it is to be obſerved, that there are other Rays, as 2, 3, and the like; which being reflected from 3 to 4, thence to 5, and from 5 to 6, may at length arrive at the Eye placed beneath the Drop.

Thus much is obvious; but to determine preciſely the Quantities of Refraction of each Ray, there muſt be a Calculation; by ſuch Calculation it appears, that the Rays which fall on the Quadrant A D, are continued in Lines, like thoſe here drawn in the Drop A D K N; wherein there are three Things very conſiderable: *First*, That the two Refractions of the Rays in their Ingreſs and Egreſs, are both the ſame Way, ſo that the latter does not deſtroy the Effect of the former. *Secondly*, That of all the Rays paſſing out of A N, N P, and thoſe adjoining to it, are the only ones capable of affecting the Senſe; as being ſufficiently cloſe or contiguous; and becauſe coming out parallel; whereas the reſt are divaricated, and diſperſed too far to have any ſenſible Effect, at leaſt to produce any Thing ſo vivid as the Colours of the *Bow*. *Thirdly*, That the Ray N P has Shade or Darkneſs under it; for ſince there is no Ray comes out of the Surface N 4, it is the ſame Thing as if the Parts were cover'd with an opake Body. We might add, that the ſame Ray N P, has Darkneſs above it; ſince the Rays that are above it are ineffectual; and ſignify no more than if there were none at all.

Add to theſe, that all the effectual Rays have the ſame Point of Reflection, *i. e.* the parallel and contiguous Rays, which alone are effectual after Refraction, will all meet in the ſame Point of the Circumference; and be reflected thence to the Eye.

Farther it appears by Calculation, that the Angle O N P, included between the Ray N P, and the Line O N, drawn from the Center of the Sun, which is the Angle whereby the *Rainbow* is diſtant from the oppoſite Point of the Sun, and which makes the *Semidiameter of the Bow*, contains 41°, 30′.

But ſince, beſides thoſe Rays coming from the Center of the Sun to the Drop of Water, there are many more from the ſeveral Points of its Surface: There are a great many other effectual Rays to be conſider'd; eſpecially that from the uppermoſt, and that from the loweſt Part of the Sun's Body.

Since then the apparent Diameter of the Sun, is about 16 Seconds, it follows that an effectual Ray from the upper Part of the Sun, will fall higher than the Ray E F, by 16 Seconds: This does the Ray G H, fig. 13. which being refracted as much as E F, deflects to I, then to L, and at length emerging equally refracted with the Ray N P, proceeds to M; and makes an Angle O N M, of 41°, 14′, with the Line O N.

In like Manner the effectual Ray Q R, coming from the loweſt Part of the Sun, falls on the Point R, 16 Min. lower than the Point F, on which the Ray E F falls; and being refracted declines to S; whence it is reflected to T; where emerging into the Air, it proceeds to V; ſo as the Line T V, and the Ray O T, contain an Angle of 41°, and 46′.

Again, upon computing the Deflections of the Rays, which like that 23, fig. 14. coming from the Center of the Sun, and being received into the lower Part of the Drop, we have ſuppoſed to be twice reflected, and twice refracted, and to enter the Eye like that 67, fig. 16. we find that which may be accounted effectual, as 67, with the Line 86, drawn from the Center of the Sun, contains an Angle 867, of about 62 Degrees: Whence it follows, that the effectual Ray from the higheſt Part of the Sun, with the ſame Line 86, includes an Angle leſs by 16 Min. and that from the loweſt Part of the Sun, an Angle greater by 16 Min.

Thus ſince A B C D E F, is the Path of the efficacious Ray, from the higheſt Part of the Sun to the Eye in F; the Angle 86 F becomes of about 51°, 44′. In like Manner, ſince G H I K L M is the Way of an effectual Ray from the loweſt Part of the Sun to the Eye, the Angle 86 M, becomes nearly of 52°, 16′.

Since then we admit ſeveral Rays to be effectual, beſides thoſe from the Center of the Sun; what we have ſaid of the Shade, will need ſome Alteration: For of the three Rays deſcribed, fig. 12, and 13. only the two extream ones will have a Shadow joined to them; and that only on the outer Side. Hence it is evident, that theſe Rays are perfectly diſpoſed to exhibit all the Colours of the Priſm.

For the great Quantity of denſe or intenſe Light, *i. e.* the Bundle of Rays collected together in a certain Point, *v. gr.* in the Point of Reflection of the effectual Rays, may be accounted as a livid or radiant Body, terminated all around by Shade. But the ſeveral Rays thus emitted to the Eye are both of different Colours, and are differently refracted out of the Water into Air, notwithſtanding their falling alike upon the refracting Surface.

Hence it follows, that the different or heterogeneous Rays will be ſeparated from one another, and will tend ſeveral Ways; and the homogeneous Rays will be collected, and tend the ſame Way; and therefore this livid Point of the Drop wherein the Refraction is effected, will appear fringed or border'd with ſeveral Colours; that is, red, green, and blue Colours will ariſe from the Extreams of the red, green, and blue Rays of the Sun tranſmitted to the Eye from ſeveral Drops, one higher than another; after the ſame Manner as is done in viewing livid, or other Bodies through a Priſm.

Thus, adds Sir *Iſaac Newton*, the Rays that differ in Refrangibility, will emerge at different Angles; and conſequently, according to their different Degrees of Refrangibility, emerging moſt copiouſly at different Angles, will exhibit different Colours in different Places.

Note, That *Refrangibility* of Light, is the Diſpoſition of the Rays to be refracted. That a *greater* or *leſs Refrangibility*, is a Diſpoſition to be more or leſs refracted, in paſſing at equal Angles of Incidence, into the ſame Medium.

A great Number then of theſe little Globules being diffuſed in the Air, will fill the whole Place with theſe different Colours; provided they be ſo diſpoſed, as that effectual Rays may come from them to the Eye; and thus will the *Rainbow* at length ariſe.

Now to determine what that Diſpoſition muſt be; ſuppoſe a right Line drawn from the Centre of the Sun, through the Eye of the Spectator, as the Line V X, fig. 13. called the Line of Aſpect; being drawn from ſo remote a Point, it may be eſteemed parallel to all other Lines

Lines drawn from the ſame Point: But a right Line falling on two Parallels, makes the alternate Angles. If then an indefinite Number of Lines be imagined drawn from the Spectator's Eye to a Part oppoſite to the Sun where it rains; which Lines make different Angles with the Line of Aſpect, equal to the Angle of the Refraction of the differently refrangible Rays, *e. gr.* Angles of 41°, 46′, and of 41°, 30′, and of 41°, 40′. Theſe Lines falling on Drops of Rain illuminated by the Sun, will make Angles of the ſame Magnitude, with Rays drawn from the Center of the Sun to the ſame Drops. And therefore the Lines thus drawn from the Eye, will repreſent the effectual Rays that occaſion the Senſation of any Colour.

That, *e. gr.* making an Angle of 41°, 46′, repreſenting the leaſt refrangible or red Rays of the ſeveral Drops, and of 41°, 40′, the moſt refrangible or violet Rays: The intermediate Colours and Refrangibilities will be found in the intermediate Space.

Now it is known that the Eye being placed in the Vortex of a Cone, ſees Objects upon its Surface as if they were in a Circle; and the Eye of our Spectator is here in the common Vortex of ſeveral Cones, formed by the ſeveral Kinds of efficacious Rays, with the Lines of Aſpect. And in the Surface of that whole Angle where the Vortex or Eye is the greateſt, and wherein the others are included, are thoſe Drops or Parts of Drops which appear red: And in the Surface of that Cone whoſe Angle is leaſt, are the purple Drops: And in the intermediate Cones are the green, blue, *&c.* Drops. Hence then ſeveral Kinds of Drops muſt appear as if diſpoſed into ſo many circular colour'd Faſciæ or Arches, as we ſee in the *Rainbow*.

This Part of the Solution, Sir *Iſaac Newton* expreſſes more artfully, thus: Suppoſe O, fig. 15. *Optic.* the Eye, and O P a Line parallel to the Sun's Rays, and let P O E, P O F be Angles of 40°, 17′, and 42°, 2′. And ſuppoſe the Angle to turn about their common Side O P, with their other Sides O E and O F, they will deſcribe the Bounds or Verges of the *Rainbow*.

For if E F, be Drops placed any where in the conical Surface deſcribed by O E, O F; and be illuminated by the Sun's Rays S E, S F, the Angle S E O being equal to the Angle P O E or 40 Deg. 17 Min. ſhall be the greateſt Angle in which the moſt refrangible Rays come after Reflection be refracted to the Eye; and therefore all the Drops in the Line O E, ſhall ſend the moſt refrangible Rays moſt copiouſly to the Eye, and thereby ſtrike the Senſes with the deepeſt Violet-colour in that Region.

And in like Manner the Angle S F O being = to the Angle P O F = 420 Deg. 2 Min. ſhall be the greateſt, in which the leaſt refrangible Rays, after one Reflection, can emerge out of the Drops; and theſe Rays ſhall come moſt copiouſly to the Eye from the Drops in the Line O F, and ſtrike the Senſes with the deepeſt red Colour in that Region.

And by the ſame Argument the Rays, which have intermediate Degrees of Refrangibility, ſhall come moſt copiouſly from Drops between E and F, and ſo ſtrike the Senſes with the intermediate Colours, in the Order which their Degrees of Refrangibility require; that if the Progreſs from E to F, or from the Inſide of the Bow to the Outſide, in this Order, *Violet*, *Indico*, *Blue*, *Green*, *Yellow*, *Orange*, *Red*; though the Violet, by the Mixture of the white Light of the Clouds will appear faint, and incline to a Purple.

And ſince the Lines O E, O F may be ſituated any where in the abovementioned conical Surface; what is ſaid of the Drops and Colours in theſe Lines is to be underſtood of the Drops and Colours throughout the whole Superficies. Thus is the primary or *inner Bow* formed.

As to the *ſecundary* or *fainter Bow*, uſually ſurrounding the former; in aſſigning what Drops would appear coloured, we exclude ſuch as Lines drawn from the Eye, making Angles a little greater than 40 Deg. 2 Min. ſhould fall upon; but not ſuch as ſhould contain Angles much greater.

For, if an indefinite Number of ſuch Lines be drawn from the Spectator's Eye, ſome whereof make Angles of 50 Deg. 57 Min. with the Line of Aſpect; *e. gr.* O G, otherwiſe Angles of 54 Deg. 7 Min. *e. gr.* O H; thoſe Drops whereon theſe Lines fall, muſt of Neceſſity exhibit Colours, particularly thoſe of 50 Deg. 57 Min.

E. gr. the Drop G will appear red, the Line G O being the ſame with an effectual Ray; which after two Reflections and two Refractions, exhibits a red Colour. Again, thoſe Drops which receive Lines of 54 Deg. 7 Min. *e. g.* the Drop H will appear Purple, the Line O H, being the ſame with an effectual Ray, which after two Reflections and two Refractions, exhibits Purple.

Now there being a ſufficient Number of theſe Drops, it is evident there muſt be a ſecond *Rainbow*, formed after the like Manner as the firſt.

Thus Sir *Iſaac Newton*; in the leaſt refrangible Rays, the leaſt Angle at which a Drop can ſend effectual Rays after two Reflections, is found by Computation to be 50 Deg. 57 Min. and in the moſt refrangible the leaſt Angle is found 54 Deg. 7 Min.

Suppoſe then O the Place of the Eye, as before, and P O G, P O H to be Angles of 50 Deg. 57 Min. and 54 Deg. 7 Min; and theſe Angles to be turned about their common Side O P, with their other Sides O G, O H, they will deſcribe the Verges or Borders of the *Rainbow* C H D G.

For if G H be Drops placed any where in the conical Superficies deſcribed by O G, O H, and be illuminated by the Sun's Rays; the Angle S G O, being equal to the Angle P O G or 50 Deg. 57 Min. ſhall be the leaſt Angle, in which the then leſs refrangible Rays ſhall come moſt copiouſly to the Eye from the Drops in the Line O G, and ſtrike the Senſes with the deepeſt Red in that Region.

And the Angle S H O, being equal to P O H, 54 ſhall be the leaſt Angle, in which the moſt refrangible Rays after two Reflections, can emerge out of the Drops; and therefore thoſe Rays ſhould come moſt copiouſly to the Eye from the Drops in the Line O H, and ſo ſtrike the Senſes with the deepeſt Violet in that Region.

And by the ſame Argument, the Drops in the Region between G and H ſhall ſtrike the Senſes with the intermediate Colours, in the Order which their Degrees of Refrangibility require, that is, in the Progreſs from G to H, or from the Inſide of the Bow to the Outer, in this Order; *Red*, *Orange*, *Yellow*, *Green*, *Blue*, *Indico*, *Violet*.

And ſince the Lines O G, O H, may be ſituated any where in the conical Surface; what is ſaid of the Drops and Colours in thoſe Lines, is to be underſtood of the Drops and Colours every where in theſe Superficies.

Thus are formed two *Bows*, an interior and ſtronger, by one Reflection; and an exterior and fainter by two; the Light becoming weaker and weaker by every Reflection.

Their Colours will lie in a contrary Order to one another, the firſt having the Red without, and the Purple within; and the ſecond, the Purple without and Red within, and ſo of the reſt.

This Doctrine of the *Rainbow* is confirmed by an eaſy Experiment; for upon hanging up a Glaſs Globe full of Water in the Sunſhine, and viewing it in ſuch a Poſture as that the Rays which come from the Globe to the Eye may, with the Sun's Rays, include an Angle either of 42°, or 50°; if, *e. gr.* the Angle be about 42°, the Spectator ſuppoſed at O, will ſee a full red Colour in that Side of the Globe oppoſite to the Sun, as at F. And if that Angle be made a little leſs, ſuppoſe by depreſſing the Globule to E, the other Colours, Yellow, Blue, and Green, will appear ſucceſſively in the ſame Side of the Globe, alſo exceedingly bright.

But if the Angle be made about 50°, ſuppoſe by raiſing the Globule G there will appear a red Colour in that Side of the Globe towards the Sun, though that ſomewhat faint; and if the Angle be made greater, ſuppoſe by raiſing the Globe to H, the Red will change ſucceſſively to the other Colours, Yellow, Green, and Blue.

The ſame Thing is obſerved in letting the Globe reſt, and raiſing or depreſſing the Eye to make the Angle of a juſt Magnitude. This is called an *artificial Rainbow*.

Des Cartes was the firſt who took the *Dimenſions of*

the Rainbow, and determined the Diameter thereof, by laying it down, that the Magnitude of the *Bow* depends on the Degree of Refraction of the Fluid, and assuming the Ratio of the Sine of Incidence to that of Refraction, to be in Water as 250 to 187.

But Dr. *Halley* has since, in the *Philosophical Transactions*, given us a simple direct Method of determining the Diameter of the *Rainbow* from the Ratio of Refraction of the Fluid being given; or *vice versâ*; the Diameter of the *Rainbow* being given to determine the refractive Power of the Fluid. The Praxis is as follows:

First, 'The Ratio of Refraction being given, to find 'the Angles of Incidence, and Refraction of a Ray 'which becomes effectual after any given Number of 'Reflections.' Suppose any given Line, as A C (Optic. fig. 17.) which divide in D, so as that A C be to A D, in the Ratio of Refractions; and again divide it in E, so as A C be to A E, as the given Number of Reflections increased by what Unity is to Unity; with the Diameter C E describe a Semicircle C B E, and from the Center A with the Radius A D, describe an Arch D B intersecting the Semicircle in B: Then drawing A B, C B, A B C or its Complement to two right Angles, will be the Angle of Incidence, and A C B the Angle of Refraction required.

Secondly, 'The Ratio of Refraction and any Angle 'of Incidence being given, to find the Angle which a 'Ray of Light emerging out of a refracting Sphere, 'after a given Number of Reflections, makes with the 'Line of Aspect, or an incident Ray; and consequent-'ly to find the Diameter of the *Rainbow*.' The Angle of Incidence and the Ratio of Refraction being given, the Angle of Refraction is given; which Angle being multiplied by double the Number of Reflections increased by 2, and double the Angle of Incidence subtracted from the Product, the Angle remaining is the Angle sought.

Thus supposing the Ratio of Refraction to be, as Sir *Isaac Newton* has determined it, *viz.* as 108 to 81, in the red Rays, as 109 to 81 for the blue Rays, *&c.* the preceding Problem will give the Distance of the Colours in the

1st. Rainbow	Red,	42°	11′	the Spectator's Back being turn'd to the Sun.
	Violet,	40	16	
2d. Rainbow	Red,	50	58	
	Violet,	54	9	

If the Angle made by a Ray after three or four Reflections, were required, and therefore the Diameter of the third and fourth *Rainbow* (which are scarce ever seen, by Reason of the great Diminution of the Rays, by so many repeated Reflections) they will be found,

3d. Rainbow	Red,	41°	37′	the Spectator being turned towards the Sun.
	Violet,	37	9	
4th. Rainbow	Red,	43	52	
	Violet,	49	34	

Hence the *Breadth of the Rainbows* is easily found: For the greatest Semi-diameter of the first *Bow*, i. e. from Red to Red, being 42°, 1′, and the least, *viz.* from Violet to Violet, 40°, 16′; the Breadth of the *Fascia* or *Bow*, measured a-cross from Red to Violet, will be 1°, 45′; and the greatest Diameter of the second *Bow*, being 54°, 9′, and the least 50°, 58′, the Breadth of the *Fascia* will be 3°, 10′; and hence the Distance between the two will be found 8°, 15′.

In these Measures the Sun is only esteemed a Point; wherefore as its Diameter is really about 30′, so much must be added to the Breadth of each *Fascia* or *Bow*, from Red to Violet, and so much be substracted from the Distance between them.

This will leave the Breadth of the *primary Bow*, 2°, 15′; that of the *secondary Bow*, 3°, 40′; and the Interval between the two *Bows* 8°, 25′; which Dimensions deduced from Calculation, Sir *Isaac Newton* assures us from his own Observations, agree very exactly with those found by actual Mensuration in the Heavens.

From this Theory of the *Rainbow*, all the particular Phænomena thereof are easily deduced: Hence we see why the *Iris* is always of the same Breadth; by Reason the intermediate Degrees of Refrangibility of the Rays between Red and Violet, which are its extream Colours are always the same.

2. Why it is more distinctly terminated on the Side of the Red, than on that of the Violet? There being no efficacious Rays in the Space adjoining to the red Drops, *i. e.* to the Space between the *Bows*; whence it terminates abruptly; whereas in the Space on the Side of the Violet ones, there are some Rays emitted to the Eye, which though too feeble to affect it strongly, yet have this Effect, that they soften the violent Edge insensibly, so that it is difficult to determine precisely where it terminates.

3. Why the *Bow* shifts its Situation as the Eyes does, and, as the popular Phrase has it, *flies those who follow it, and follows those that fly it?* The colour'd Drops being disposed under a certain Angle about the Line of Aspect, which is different in different Places: Whence, also, it follows, that every different Spectator sees a different *Bow*.

4. Why the *Bow* is sometimes a large Portion of a Circle, sometimes a less? Its Magnitude depending on the greater or less Part of the Surface of the Cone, above the Surface of the Earth at the Time of its Appearance; and that Part being greater or less, as the Line of Aspect is more incline or oblique to the Surface of the Earth; which Inclination or Obl[illegible] greater as the Sun is higher; whence also [illegible] the Sun the less the *Rainbow*.

5. Why the *Bow* never appears when the Sun is above a certain Altitude? The Surface of the Cone wherein it should be seen, being lost in the Ground, at a little Distance from the Eye, when the Sun is above 42° high.

6. Why the *Bow* never appears greater than a Semicircle on a Plane? Since be the Sun never so low, and even in the Horizon; the Center of the *Bow* is still in the Line of Aspect; which in this Case runs along the Earth, and is not at all raised above the Surface. Indeed if the Spectator be placed on a very considerable Eminence, and the Sun in the Horizon; the Line of Aspect wherein the Center of the *Bow* is, will be notably rais'd above the Horizon (considering the Magnitude of the Circle whereof the *Bow* uses to be a Part.) Nay, if the Eminence be very high, and the Rain near, it is possible the *Bow* may be an entire Circle.

7. How the *Bow* may chance to appear inverted, *i. e.* the concave Side be turn'd upwards? To wit, a Cloud happening to interrupt Rays, and prevent their shining on the upper Part of the Arch: In which Case only the lower Part appearing, the *Bow* will seem as if turn'd upside down; which probably has been the Case in several Prodigies of this Kind related by Authors. Indeed the *Bow* may appear inverted from another Cause: For if when the Sun is 41°, 46′ high, his Rays fall upon the smooth Surface of some spacious Lake, in the Middle whereof a Spectator is placed; and if at the same Time there be Rain falling to which the Rays may be reflected from the Lake; it will be the same as if the Sun should shine below the Horizon, and the Line of View be extended upwards: Thus the Surface of the Cone wherein the colour'd Drops are to be placed, will be wholly above the Surface of the Earth: But since the upper Part will fall among the unbroken Clouds, and only the lower Part be found among the Drops of Rain, the Arch will be inverted.

8. Why the *Bow* sometimes appears inclined? The accurate Roundness of the *Bow* depending on its great Distance, which prevents us of judging of it exactly: If the Rain, which exhibits it, chance to be much nearer, we shall see its Irregularities; and if the Wind in that Case drives the Rain so as the higher Part be further from the Eye than the lower, the *Bow* will appear inclined.

9. Why the Legs of the *Rainbow* sometimes appear unequally distant? If the Rain terminate on the Side of the Spectator, in a Plane so inclined to the Line of Aspect, as to make an acute Angle on the left Hand, and an obtuse Angle on the right; the Surface of the Cone which determines what Drops will appear, will fall upon them in such a Manner, as that those on the left Hand will appear further from the Eye than those on the right. For the Line of Aspect being perpendicular to the Plane of the *Bow*, if you suppose two

two rectangular Triangles, a Right and Left, the Cathetus of each to be the Line of View, and the Base of the Semidiameter of the Bow inclined as above: It is evident, since those Angles of the Triangles next the Eye, must always be the same (*viz.* 43° in the inner Bow) the Basis of the right hand Triangle will appear much longer than that of the Left.

The Moon sometimes also exhibits the Phænomenon of an *Iris* or *Bow*; by the Refraction of her Rays in the Drops of Rain in the Night-time.

Aristotle says, he was the first that ever observed it; and adds, that it never happens, *i. e.* is never visible, but at the Time of the Full Moon; her Light at other Times being too faint to affect the Sight after two Refractions and one Reflection.

The *Lunar Iris* has all the Colours of the *Solar*, very distinct and pleasant; only faint, in Comparison of the other, both from the different Intensity of the Rays, and the different Disposition of the Medium.

In that mentioned *Philos. Transact.* N°. 331. Mr. *Thoresby* observes, the Largeness of the Arch was not so much less than that of the Sun, as the different Dimensions of their Bodies, and their Distances from the Earth should seem to require: But as to its Interiness and the Beauty of its Colours, it was admirable. It continued about 10 Minutes before the Interposition of a Cloud hindered its Observation.

The *Marine* or *Sea-Rainbow*, is a Phænomenon sometimes observed in a much agitated Sea, when the Wind sweeping Part of the Tops of the Waves, carries them aloft, so that the Sun's Rays falling upon them, are refracted, *&c.* as in a common Shower, and paint the Colours of the *Bow*.

F. *Bourzes*, in the *Philosophical Transactions* observes, that the Colours of the marine *Rainbow* are less lively, distinct, and of less Duration than those of the common Bow; that there are scarce above two Colours distinguishable, a dark Yellow on the Side next the Sun, and a pale Green on the opposite Side.

But these *Bows* exceed as to Number, there being sometimes 20 or 30 Suns together; they appear at Noon-day, and in a Position opposite to that of the common *Bow*, *i. e.* the concave Side is turned upwards, as indeed it is necessary it should be, from what we have shewn in accounting for the Phænomena of the solar Bow.

To this Class of *Bows* may be referred a Kind of *white colourless Rainbows*, which *Mentzelius* and others affirm to have seen at Noon-day. M. *Mariotte* in his fourth *Essai de Physic*, says, these *Bows* are formed in Mists, as the others are in the Showers; and adds, that he has seen several both after Sun-rising and in the Night.

The Want of Colours he attributes to the Smallness of the Vapours which compose the Mist; we should rather account for it from the exceeding Tenuity of the little *Vesiculæ* of the Vapour; which being in effect little watery Pellicles bloated with Air, the Rays of Light undergo but little Refraction, in passing out of Air into them; too little to separate the differently coloured Rays, *&c.* Hence the Rays reflected from them.

M. *Rohault* mentions coloured *Rainbows* on the Grass, formed by the Refractions of the Sun's Rays on the Morning Dew.

Halo, called also *Corona*, is a *Meteor* in Form of a luminous Ring or Circle. It differs from the Rainbow in that it is almost always of one Colour, and is oftner round the Moon than round the Sun.

The *Halo* is supposed to arise from a Refraction of the Rays of Light in their passing through the fine, rare Vesiculæ of a thin Nubecula or Vapour, towards the Top of our Atmosphere; which Account is confirmed hence, that a Quantity of Water being thrown up against the Sun, as it breaks and disperses into Drops, it forms a Kind of *Halo* or *Iris*, exhibiting the Colours of the natural ones.

M. *Huygens* supposes Halo's, or Circles round the Sun, to be formed by small round Grains of a Kind of Hail, made up of two different Parts, one of which is opake, and inclosed in the other, which is transparent; which is the Structure actually observed in *Hail*.

After the same Manner he accounts for the *Parhelia*, only that there he imagines the icy Grains of an oblong Figure, and rounding at the Ends, like Cylinders with round convex Tops.—Where some of these Cylinders are in an erect Position, the Circle they form will be white, by reason of the Refraction of the Rays of the Sun on the Surface of these Cylinders.

He proceeds to account for the coloured *Halo's* and Parhelia, from the same Hypothesis, and produces an Experiment of a Glass Cylinder, a Foot long, having within it an opake Kernel (which was a Cylinder of Wood) and the ambient Space filled with Water: This Cylinder being exposed to the Sun, and the Eye disposed in a proper Place, the several successive Reflections and Refractions necessary to produce such an Effect did plainly appear.

The Light which comes through Drops of Rain, by two Refractions, without any Reflection, Sir *Isaac Newton* observes, ought to appear strongest at the Distance of about 26 Degrees from the Sun, and decay gradually both Ways, as the Distance from him increases and decreases; and the same is to be understood of Light transmitted through sperical Hail-Stones. Add, that if the Hail be a little flatted, as is often the Case, the Light transmitted may grow so strong at a little less Distance, than that of 26 Degrees, as to form a *Halo* about the Sun or Moon; which *Halo*, as often as the Hail-Stones are duly figured, may be coloured; and then it must be red within by the least refrangible Rays, and blue without by the most refrangible ones, as especially if the Hail-Stones have opake Globules of Snow in their Center to intercept the Light within the *Halo*, as *Huygens* has observed, and make the Inside thereof more distinctly defined than it would otherwise be.

Such Hail-Stones, though spherical, by terminating the Light by the Snow, may make a *Halo* red within, and colourless without, and darker in the Red than without, as Halo's us'd to be: For of those Rays which pass close by the Snow, the Rubiform will be less refracted, and so come to the Eye in the directest Lines.

Parhelium, or *Parhelion*, is a mock Sun or Meteor, in Form of a very bright Light, appearing aside of the Sun, formed by the Reflection of his Beams, in a Cloud properly posited.

The *Parhelia* usually accompany the Coronæ or luminous Circles; are placed in the same Circumference, and at the same Height. Their Colours resemble those of the Rainbow, the Red and Yellow on the Side towards the Sun, and the Blue and Violet on the other. Though there are Coronæ sometimes seen entire, without any *Parhelia*; and *Parhelia* without Coronæ.

Parhelia, are sometimes double, triple, *&c.* In the Year 1629, was seen at *Rome* a *Parhelia* of five Suns; and in 1666, another at *Arles* of six.

M. *Des Cartes* is of Opinion, *Differt. ultim. Meteor.* that *Parhelia* are formed by the Sun, painting his Image either double or triple, *&c.* in a high Circle drawn round a congealed and polished Cloud, by Means of a reflected or refracted Light; for by the Rays being vibrated from the Sun into that congealed Cloud, the Light being remitted, either by Reflection as in a Meteor, by Refraction as in Glass Lens's, must exhibit that large and white Circle, in which are seen one or several Mock-suns.

M. *Mariotte* accounts for the Appearance of *Parhelia*, from an Infinity of little Parcels of Ice floating in the Air, which multiply the Image of the Sun, either by refracting or breaking his Rays, and thus making him appear where he is not; or by reflecting them and serving as Mirrors.

The known Laws of Reflection and Refraction have given a Handle for geometrizing on these Phænomena's, and M. *Mariotte* has determined the precise Figure of the little Isicles, and their Situation in the Air, the Size of the Coronæ or Circles which accompany the *Parhelia*, and the Colours wherewith they are painted, by a geometrical Calculus.

M. *Huygens* accounts for the Formation of a *Parhelion*, in the same Manner as for that of the Halo, *viz.* by supposing a Number of small icy Cylinders with opake Kernels, carried in the Air, neither in a perpendicular nor parallel Direction, but inclined to the Horizon in a certain Angle, nearly a half one.

To make the Effect of these Cylinders manifest, M. *Huygens* produced to the Academy of *Paris* a Glass Cylinder

Cylinder a Foot long, with an opake Cylinder in the Middle, and the ambient Space filled with Water and transparent Ice, which Cylinder being exposed to the Sun, and the Eye put in the requisite Situation, there were successively seen all the Reflections and Refractions necessary for the Phænomena of the *Parhelia*.

The PARASELENE, or *Mock-Moon*, is a Meteor or Phænomenon encompassing or adjacent to the Moon, in Form of a luminous Ring; wherein is sometimes observed one, sometimes two apparent Images of the Moon.

The *Paraselenes* are formed after the same Manner as the *Parhelia*.

APPENDIX.

Of the Flux *and* Reflux, *or* Ebb *and* Flow *of the Sea*; *of* Earthquakes, *&c.*

Note, That I think it not improper to join to this Treatise of the different Phænomena which appear in the Air, a concise Dissertation, on those which appear on Earth, and particularly on that extraordinary one of the *Flux* and *Reflux* of the Sea, the Cause thereof has puzzled the greatest Philosophers, and of which we have not yet a very great Certitude.

The FLUX and REFLUX, or *Ebb* and *Flow* of the Sea, are two periodical Motions of the Waters of the Sea.

To speak pertinently of this grand Phænomenon, we must observe, that there are, not only one, but several Motions in the Sea. For, 1. There is that continual Flux, whereby it is carried from East to West, occasion'd by the circumfluent Breezes, which together with the Air, are always carried the same Way, or towards the same Part. This Flux is very sensible, particularly in the Torrid Zone; and which being reflected in a different Manner, by the Opposition of the different Part of the Earth, form those *Currents*, as they are called, which carry off Ships, even against the Violence of the Wind. Those who sail from the *Indies* to *Africa*, or from *Africa* to the Coast of *Brazil*, have an evident Proof of that Motion, for they sail then with a far greater Celerity, than when they return from *Africa* to the *Indies*, or from *Brazil* to *Africa*.

But where those *Currents* meet together in some Gulph, *viz.* in that of *Mexico*, there they stop, and after they have been assembled into a great Heap of Waters, they are forced to retire back or ebb, not directly towards those Parts whence they came, and whence flow, continually, new Waters, but Northward and Eastward.

But however, nothing in all Ages has more puzzled the Philosophers, than the *Flux* and *Reflux* of the Sea; though they almost all agree at present, that it must be attributed to the Moon; and though it could be perhaps very well explain'd by the Hypothesis of *Tycho Brahe*, we'll notwithstanding join that of *Des Cartes* with the rest, he being the first of all who has adapted with more Accuracy, that Phænomenon to the Motions of the Moon.

Therefore let the Earth be in our Vortex, which revolved every 24 Hours round its Center, according to the Series of the Signs, is by its annual Motion turn'd round the Sun placed in the Middle of the Vortex. Let also be round the Earth an elliptical Vortex, intercepted between the Heaven of *Mars* and *Venus*, in which the Moon accomplishes its monthly Motion; for we have already observed in our Treatise of *Astronomy*, that the Moon accomplishes its monthly Motion, in an elliptical, not in a spherical Vortex.

Now for a greater Perspicuity, let's place the Earth environ'd on all Sides with the Sea; then the Space intercepted between the Moon and the Water will be contracted, because of the Presence of the Moon. Therefore the ætherial Substance contain'd in that Space, will flow with more Celerity there, than in any other Space where the Moon is not present; and consequently press with more Violence the Water in that Part, than any where else; whence the *Flux*.

But as that Point pressed by the Moon, must be carried in the Space of six Hours, by the diurnal Motion of the Earth, into another, where the Moon is not present; and where, consequently, the Waters are not pressed by the æthereal Substance flowing with more Celerity, because of the Presence of the Moon; then it is necessary, that the Water, which by the Pression, had been forced to flow, should fall, by its own Weight, towards the same Place, whence it had flowed first: And thus, in the Space of about six Hours, the *Reflux* should happen.

Again, after six other Hours, the first Point will arrive by the same Motion to the third Point; and then there will be another *Flux*; for the Moon, if not by itself, at least by the interjected æthereal Substance, presses that Part underneath it, because of the contracted Space, the Earth recedes a little towards the opposite Part; which must happen the easier because the Earth is then in Equilibrio, between the Parts of the ambient Body. Whence the Space in which the æthereal Substance is moved, is coarctated, not only between the Moon and the Point, but likewise in the opposite Part; therefore a Pression of the Waters is made in both Parts; and there happens a *Flux* or *Flow* in both Parts, at the same Time.

Lastly, when the first Point is arrived at a fourth Point or Station, the Waters ebb again, as they did in the second Station: Thus the Sea *flows* and *ebbs* twice every Day: So that, notwithstanding the Flux happens later every Day by about 50 Minutes; because the Moon by its proper Motion from West to East, runs every Day very near the 28th Part of its Orb: Whence it happens, that it does not return to the same Point or Meridian of the Earth, till after 24 Hours and about 50 Minutes.

Then as the Heaven of the Moon coarctated between the Orbs of *Mars* and *Venus*, assumes an elliptical Figure; and forms two Diameters, *viz.* one great, and the other small; it follows hence, that the Moon has a greater Power to press the Waters, when it is in the less Diameter, *viz.* about the Time of its Conjunction and Opposition with the Sun, towards its Disappearing and Intervals, than when in the greater Circle, *viz.* towards the Quadratures: Therefore the Tides must be greater in the *Syziges*, or in the New and Full Moon, or at least, near the New and Full Moon.

Lastly, when the Moon in the Time of the Equinoxes, is either in Conjunction with the Sun, or in Opposition to it, *viz.* when it is in *Aries* or in *Libra*; for then it is more directly incumbent on the terraqueous Globe, than in the Time of the Solstices, when it is in *Cancer* or *Capricorn*: And therefore the æthereal Substances, intercepted between the Moon and the Earth, act with more Power on the Waters. For the Countries which approach nearer the Poles, by Reason of the Convexity of the terraqueous Globe, are less subject to the Impression of that æthereal Substance, or rather, in a great Part avoid it. Whence it happens, that the Tides about the Equinoxes, or in the Spring and Autumn, are much greater than in the Summer and Winter. Thus far of *Des Cartes*'s System of the *Flux* and *Reflux* of the Sea.

Dr. *Halley* has deduced a Theory of the Tides from the *Newtonian* Principles, in the following Manner: And says,

1. That as the Surface of the Earth and Sea is naturally globular; if we suppose the Moon perpendicularly over the Surface of the Sea; it is evident, that the Water nearest the Moon will gravitate towards it more than any other Part of the Earth and Sea in that Hemisphere. That Part of the Waters therefore must by this Means be raised towards the Moon, *i. e.* it will be lighter than usual, and therefore will swell there.

For the same Reason, the Water the most remote from the Moon, will gravitate less towards the same, than any other Part of the Earth or Sea in the same Hemisphere. The Water here, therefore, must approach less towards the Moon than any other Part of the Globe, *i. e.* it must be raised contrariwise, as being lighter than usual, and will therefore swell in that remote Part.

By this Means, the Surface of the Ocean must necessarily form itself into a spheriodal or oval Figure; having a Diameter longer than the other, as already observed in *Des Cartes*'s System. And thus the Moon

shifting her Position in her diurnal Motion round the Earth, this Oval of Water must shift with her; by which Means are effected those two Floods and Ebbs, observable every 25 Hours.

2. Since in the Conjunctions and Oppositions of the Sun and Moon, the Gravitation of the Water to the Sun conspires with its Gravitation towards the Moon; but in the Quadratures, the Water raised by the Sun is depressed by the Moon: Hence it is that the *Tides* are greater in the *Syzyges* than in the Quadratures.

That in effect there are two *Tides* every natural Day, from the Action of the Sun, as there are in the lunar Day from that of the Moon; all governed by the same Laws: Only those caused by the Sun are much less than those caused by the Moon; because though the Sun be ten thousand Times bigger than both the Earth and Moon, yet he is at so immense Distance, that the Earth's Semi-diameter bears no Proportion thereto.

Hence the different *Tides* depending on the particular Actions of the Sun and Moon, are not distinguished but confounded. The lunar Tide is somewhat changed by the Action of the Sun; and this Change varies every Day, by reason of the Inequality between the natural and lunar Day.

3. Since the greatest *Tides* about the Equinoxes (*viz.* those happening in the Syzyges) arise from the Sun and Moon being in the Equinoctial, and those about the Solstices from the Sun and Moon being in the Tropicks; for this Reason those greatest *Tides* about the Equinoxes are greater than those about the Solstices; since the greater the Circle is, wherein the Waters move, the greater is their Agitation. And if the Moon stood still in the Pole, the Swelling would become immovable above the Pole, and the high Water be fixed therein.

4. Since the *Tides* are somewhat changed by the Libration of the Waters, which us'd to retain a Motion impressed on them for some Time; for this Reason the highest *Tides* are not precisely in the very Conjunction and Opposition of the Moon, but two or three *Tides* afterwards.

5. Since the Sun is somewhat nearer the Earth in Winter than in Summer; hence it is that the greatest equinoctial *Tides* are observed to be a little before the vernal Equinox, and a little after the autumnal one.

6. Since the greatest of the two Tides happening in every diurnal Revolution of the Moon, is that wherein the Moon is nearest the Zenith or Nadir: For this Reason, while the Sun is in the northern Signs, the greater of the two diurnal *Tides* in our Climates, is that arising from the Moon above the Horizon; when the Sun is in the southern Signs, the greatest is that arising from the Moon below the Horizon.

7. Such would the *Tides* regularly be, if the Earth were covered with Sea very deep; but by reason of the Shoalness of some Places, and the Narrowness of the Straits in others, by which the *Tides* are propagated, there arises a great Diversity in the Effects not to be accounted for, without an exact Knowledge of all the Circumstances of the Place; as the Position of the Land, and the Breadth and Depth of the Channels, *&c.*

For a very slow and imperceptible Motion, of the whole Body of Water, where it is (for Example) two Miles deep, will suffice to raise its Surface 10 or 12 Feet in a *Tide's* Time; whereas if the same Quantity of Water were to be conveyed through a Channel of 40 Fathom deep, it would require a very great Stream to effect it in so large Inlets as are the Channel of *England*, or the *German* Ocean; whence the Tide is found to set strongest in those Places where the Sea grows narrowest, the same Quantity of Water being in that Case to pass through a smaller Passage.

This is most evident in the *Streights* between *Portland* and Cape *de la Hogue* in *Normandy*, where the *Tide* runs like a Sluice; and would be yet more between *Dover* and *Calais*, if the *Tide* coming round the Island did not check it.

And this Force being once impressed between the Water, continues to carry it above the Level of the ordinary Height in the Ocean, particularly where the Water meets a direct Obstacle, as it does in St. *Malo*; and where it enters into a long Channel, which running far into the Land, grows very strait at its Extremity, as it does at the *Severn* Sea, at *Chepstow*, and *Bristol*.

This Shoalness of the Sea, and the intercurrent Continents, are the Reasons that in the open Ocean, High-water is not at the Time of the Moon's Appulse to the Meridian, but always some Hours after it, as it is observed upon all the western Coast of *Europe* and *Africa*, from *Ireland* to the Cape of *Good Hope*; in all which a South-west Moon makes High-water, and the same is reported to hold in the West of *America*.

It would be endless to recount all the particular Solutions, which are only Corollaries from this Doctrine; as why the Lakes and Seas, such as the *Caspian* Sea, and the *Mediterranean* Sea, the *Black* Sea, and *Baltick*, have no sensible *Tides*: For Lakes having no Communication with the Ocean, can neither increase or diminish their Water, whereby to rise and fall; and Seas that communicate by such narrow Inlets, and are of so immense an Extent, cannot in a few Hours Time receive and empty Water to raise or sink their Surface any Thing sensibly.

To demonstrate the Excellency of this Doctrine, the Example of the *Tides* in the Port of *Tonquin* in *China*; which are so extraordinary, and different from all others we have yet heard of, may suffice. In this Port there is but one Flood and Ebb in 24 Hours, and twice in each Month; *viz.* when the Moon is near the Equinoctial, there is no *Tide* at all, but the Water is stagnant; but with the Moon's Declination there begins a *Tide*, which is greatest when she is in the tropical Signs; only with this Difference, that when the Moon is to the Northward of the Equinoctial, it flows when she is above the Earth, and ebbs when she is under, so as to make High-water at Moon-setting, and Low-water at Moon-rising: But on the contrary, the Moon being to the Southward, makes High-water at Rising, and Low-water at Setting, it ebbing all the Time she is above the Horizon.

The Cause of this odd Appearance is suggested by Sir *Isaac Newton*, to arise from the Concurrence of two *Tides*, the one propagated in six Hours out of the great *South Sea* along the Coast of *China*, the other out of the *Indian Sea* from between the Islands, in twelve Hours, along the Coast of *Malacca* and *Camboya*.—The one of these *Tides* being produced in North Latitude, is, as has been said, greater, when the Moon being to the North of the Equator, is above the Earth; and less, when she is under the Earth.—The other of them, which is propagated from the *Indian Sea*, being raised in South Latitude, is greater when the Moon declining to the South, is above the Earth, and less when she is under the Earth: So that of these *Tides*, alternately greater and lesser, there come always successively two of the greater, and two of the lesser together every Day, and the High-water falls always between the Arrival of the two greater Floods; and the Moon coming to the Equinoctial, and the alternate Floods becoming equal, the *Tide* ceases, and the Water stagnates; but when she has passed to the other Side of the Equator, those Floods which in the former Order were the least, now becoming the greater, that which before was the Time of the High-water, now becomes the Low-water, and the Converse: So that the whole Appearance of these strange *Tides* are, without any forcing, naturally deduced from these Principles, and is of great Argument, say the *Newtonians*, for the Certainty of the whole Theory.

The next considerable Phænomenon which happens in the terraqueous Globe, is an *Earthquake*.

EARTHQUAKE, is a vehement Shake or Agitation of some considerable Place, or Part of the Earth, from natural Causes; attended with a huge Noise like Thunder, and frequently with an Eruption of Water, or Fire, or Smoak, or Wind, *&c.*

Earthquakes are the greatest and most formidable Phænomena of Nature.—*Aristotle* and *Pliny* distinguish two Kinds, with respect to the Manner of the Shake, *viz.* a *Tremor*, and a *Pulse*; the first being horizontal, in alternate Vibrations, compared to the Shaking of a Person in an Ague; the second perpendicular, up and down: Which latter Kind are also called by *Aristotle*, Βραασσαι, from the Resemblance of their Motion to that of Boiling.

Agricola increases the Number, and makes four Kinds; which

which *Albertus Magnus* again reduces them to three; *viz. Inclination*, when the Earth librates alternately from Right to Left, by which Mountains have been sometimes brought to meet, and clash against each other (but on this we cannot depend). *Pulsation* when it beats up and down like an Artery; and *Trembling*, when it shakes and quavers every Way like a Flame.

Naturalists are divided on the Causes of *Earthquakes*. Some ascribe *Earthquakes* to Water, others to Fire, and others to Air; and all of them with a great Appearance of Reason. To conceive which it is to be observed, that the Earth every where abounds in huge subterraneous Caverns, Veins, and Canals, particularly about the Roots of Mountains: That of these Cavities, Veins, *&c.* some are full of Water, whence are composed Gulphs, Abysses, Springs, Rivulets; and others full of Exhalations; and that some Part of the Earth are replete with Nitre, Sulphur, Bitumen, Vitriol, *&c.*

This premised. Some are of Opinion, 1. That the Earth itself may be the Cause of its own shaking; when the Roots or Basis of some large Mass being dissolved, or wore away by a Fluid underneath, it sinks into the same, and with its Weight occasions a *Tremor* of the adjacent Parts; produces a Noise, and frequently an Inundation of Water. This, in my Sentiment, has not a very great Appearance of Truth: For if it was even probable that there could be underneath large Masses of the Earth, a Fluid capable to dissolve them, those Masses sinking under their own Weight, or the Impulsion of the ambient Atmosphere, could cause no *Tremor* but in the very Spot where they sink, and not even in the adjacent Parts the nearest to them; for if a *Tremor* should happen in the adjacent Parts, it would proceed either from the close Cohesion of the sinking Mass with those adjacent Parts, which in sinking could not be tore from them without shaking them, or from the Instability of the Basis on which it sinks; which Basis being common between the Mass sinking, and the other Parts which remain standing should be shaken first, and thereby communicate its Tremor to the standing Parts; but it is not probable, that the Mass sinking could be capable to shake the neighbouring Parts by its being torn from them; since if the Cohesion was ever so great, or so intimate with the adjacent Parts, the opposite Masses between which there must be as intimate an Union, and supposed of a much larger Volume than the sinking Mass, are capable to keep them steady and unmoveable; let the Separation be ever so violent: As to the Basis on which the sinking Mass falls, it exceeds likewise so far in Bigness the sinking Mass, and its placed in so firm a Foundation, that either it does not receive any *Tremor*, or if it be sensible of any it must be so small, that it is imperceptible, and consequently cannot be communicated to the other huge Masses placed upon it.

2. That the subterraneous Waters may occasion *Earthquakes*, by their overflowing, cutting out new Courses, *&c.* and that the Waters being heated, and rarified by the subterraneous Fires, may emit Fumes, Blasts, *&c.* which by their Action, either on the Water, or immediately on the Earth itself may occasion great Succussions. This second Opinion appears to me more improbable still than the first; for we have no Experience which can confirm, that the overflowing of Waters can cause such Convulsions in Nature as *Earthquakes* are; it is true, that their Overflowing, when very violent, carries off all they meet with; but there is a great Difference between an Overflowing, which is effected by Waters forcing a Passage through some Place where they were confined, or finding one already open; and fermenting in the Entrails of the Earth with that Violence which would be necessary to cause *Earthquakes*. It cannot be reasonably supposed besides, that there could be so monstrous a Heap of Waters, assembled together in one particular subterraneous Place, more than in another, to produce such prodigious Effects; since the Earth being very spungy, the Water meets but with few Obstacles to its being percolated throughout its whole Substance; and if we could think otherwise, we should attribute the same Elasticity to Water confined in a Place, as daily Experience shews us in Gunpowder set on Fire in a Mine, which is false, since according to Sir *Isaac Newton*, the Elasticity of Fluids consists only in their Particles being all endowed with a centrifugal Force, *i. e.* of that Force whereby they fly off from one another, and are reciprocally proportional to the Distances of their Center; which Force cannot be much accelerated by the Air, whose Compression is weakned by the Interposition of those huge Masses which cover the Waters; and as it must be supposed besides, that such a monstrous Heap of Water which would be necessary to cause an *Earthquake*, could not be gathered together in the same Place at once, but only by Succession of Time; and not all resort thither from the same Place, but from several different Places, and some of them very distant ones; it is reasonable to suppose, that not only those different Sources, in their different Courses to their common Rendezvous, should contribute to enlarge their common Bed, on Proportion to the Waters it is to contain; but the Waters likewise assembled in it by Degrees, should by their perpetual Fluctuation work to the same Purpose; as we see daily Waters do to gain Ground, and not be too narrowly confined. As to the Fumes and Blasts emitted by the Water, suppose to be heated and rarified by the subterraneous Fires, being capable to occasion great Successions, it is even a Kind of Stupidity to imagine it; for those Vapours, if even there could be such a Thing, being deprived of a sufficient Quantity of Air necessary for their Rarifications, would have no greater Elasticity, than have those thick Fogs, which are so commonly seen over Lakes, Rivers, *&c.* and would soon be resolved into the same Fluid whence they were exalted; nay, they could not even rise so high as to be distinguished from one another.

3. That the Air may be the Cause of *Earthquakes*; for Air being a Collection of Fumes and Vapours raised from the Earth and Water; if it be pent up in too narrow Viscera of the Earth, the subterraneous, or its own native Heat, rarifying, and expanding it, the Force wherewith it endeavours to escape, may shake the Earth: Hence there arise divers Species of *Earthquakes*, according to the different Position, Quantity, *&c.* of the imprisoned Air. This seems much more reasonable than the two former Suppositions; and would very well account for the *Earthquakes*, if it was demonstrated at the same Time, that the Air which penetrates the Earth with great Facility, and pervades it with the same Facility, could be confined in some Part thereof, so as to be impossible for it to fly back through the same Places it came, which would be an Absurdity. The Example of a Mine cannot be brought to confirm this Sentiment; for there must be supposed a far greater Volume of Air in a Mine, than in the Meatus of the Earths, which consequently makes a greater in its Rarefraction by the Fire, to set itself free from the Place it had been confined in by Art, before it could have Time to search some other Issue.

Lastly, that Fire is a principal Cause of *Earthquakes*; both as it produces the aforesaid subterraneous Aura, or Vapour; and as this Aura, or Spirit, from the different Matter or Composition, whereof arise Sulphur, Bitumen, and other inflammable Matters, is kindled either from some other Fire it meets withal, or from its Collision against hard Bodies, or its Intermixture with other Fluids; by which Means bursting out into a greater Compass, the Place becomes too narrow for it; so that pressing against it on all Sides, the adjoining Parts are shaken; till having made itself a Passage, it spends itself in a Volcano, or burning Mountain.

This last Sentiment is very near that of Dr. *Lister*, who says, that the material Cause of Thunder, Lightning, and *Earthquakes*, is one and the same, *viz.* the inflammable Breath of the Pyrites, which is a substantial Sulphur, and takes Fire of itself.

The Difference between these three terrible Phænomena's he takes only to consist in this; that this Sulphur in the former is fired in the Air; and in the latter under Ground: Which is a Notion that *Pliny* had long before him; *Quid enim*, says he, *aliud est in terrâ tremor, quam in nube tonitru?*

This he thinks abundantly indicated by the same sulphurous Smell being found in any Thing burnt with Lightning, and in the Waters, *&c.* cast up in *Earthquakes*, and even in the Air before and after them.

He adds, that they agree in the Manner of the Noise, which

which is carried on as in a Train fired; the one rowling and ratling through the Air, takes Fire as the Vapours chance to drive; as the other fired under Ground, in like Manner moves with a desultory Noise.

That Thunder, which is the Effect of the Trembling of the Air, caused by the same Vapours dispersed thro' it, has Force enough to shake our Houses; and why may not the Thunder and Lightning under Ground, in some vast Repositories there, he sees no Reason, especially if we reflect, that the Matter which composes the noisy Vapour above us, is in much larger Quantities under Ground.

Those who espouse Dr. *Lister*'s Sentiment, say, that every Body knows that the Earth abounds in Cavities; and that these subterraneous Cavities are, at certain Times, and in certain Seasons, full of inflammable Vapours, the Damps in our Mines sufficiently witness, which fired, do every Thing as an *Earthquake*, save in a lesser Degree.

That it is highly probable that the Pyrites alone, of all the known Minerals, yields this inflammable Vapour; No Mineral or Ore whatsoever being sulphurous, but as it is wholly, or in Part, a Pyrites; and there being but one Species of Brimstone, at least in *England*, which the Pyrites naturally and only yields; that the Sulphur or natural Brimstone, which is found in and about the burning Mountains, is certainly the Effect of Sublimation; and those great Quantities of it said to be found about the Skirts of Volcano's, is only an Argument of the long Duration and Vehemence of those Fires; that possibly the Pyrites of the Volcano's or burning Mountains, may be more sulphurous than ours: And that indeed it is plain, that some of those in *England* are very lean, and hold but little Sulphur, others again very much; which may be one Reason why *England* is so little troubled with *Earthquakes*, and *Italy*, and almost round the *Mediterranean* Sea so very much: Though another Reason is, the Paucity of Pyrites in *England*.

That comparing our *Earthquakes*, Thunder, and Lightning, with theirs, it is observed, that there it lightens almost daily, especially in Summer-time; here seldom: There Thunder and Lightning is of long Duration, here it is soon over; there the *Earthquakes* are frequent, long and terrible, with many Paroxysms in a Day, and that for many Days; here very short, a few Minutes, and scarce perceptible. That to this Purpose the subterraneous Cavities in *Englaud* are small, and few, compared with the vast Vaults in those Parts of the World; which is evident from the sudden Disappearance of whole Mountains and Islands.

This Sentiment of Dr. *Lister*, though very probable, is notwithstanding, at least in my Opinion, attended with several Difficulties; and some of the Reasons he attempts to support it with not at all satisfactory. For though I be ready to grant him, since he will have it so, that the material Cause of Thunder, Lightning, and *Earthquakes*, be one and the same, *viz.* the inflammable Breath of the Pyrites; the great Difficulty which he is not pleased to resolve, is in what Manner those Pyrites are set on Fire, unless he pretends to give us to understand, that those in the Air and those under Ground, which he takes to be of the same Nature, take also Fire in the same Manner; for to say that they take Fire of themselves, is to say nothing, unless it be demonstrated to render it credible. Besides, I utterly deny that either of them take Fire of themselves; for the Pyrites formed in the middle Region of the Air, and which he considers as the material Cause of Thunder being formed of the sulphurous and nitrous Particles exalted from the Vapours of the Earth, and of the Water, and condensed by the excessive Heat of the Sun, are also set on Fire by it, when brought to a certain Degree of Inflammability, as Gunpowder is render'd inflammable by the grinding and perfect Mixture of the Matter it is composed with, but remains unactive, till Fire be applied to it.—But the same Thing cannot be said of the subterraneous Pyrites, which, tho' they may be formed by the Heat of the Sun, that Heat notwithstanding being much impaired by the long Tracts it must run through, and the great Circumvolutions it is obliged to make before it arrives at the Places proper for the Formation of those Pyrites, cannot retain enough Force to set them on Fire; therefore that must be effected by the violent Friction of their sulphurous Particles against harder Bodies, in their Coadunation; and the igneous Particle being violently agitated by the ambient Air, rarify that same Air, whereby being put into a violent Motion in its Turn, and restored to its native Elasticity, obstructed by earthly Particles it had loaded itself with, in its Passage through the Meatus of the Earth, and making the most violent Efforts to conquer all the Obstacles which oppose its Explosion, he throws thereby the incumbent Earth into those Convulsions we call *Earthquakes*, which are greater or lesser, and consequently more or less sensible, according to the larger or narrower Capacity of the Place where the Pyrites are kindled; for the more capacious is the Place, the less violent is the *Earthquake*, since the Air has more Room to extend itself; unless the Fire be so violent, and of so large a Volume, that by rarifying the Air to its greatest Perfection of Elasticity, it produces the same prodigious Effects as if it was confined in a narrower Place. As to what Dr. *Lister* says, that in the *Earthquakes*, the Earth is shaken in the same Manner Thunder shakes our Houses, I deny it as an Absurdity, since there is this wide Difference in it, that the Earth is shaken immediately in the excessive Rarefaction of the Air by the subterraneous Fire, without the intermediate Concurrence of any other Agent; and our Houses are only shaken by the ambient Atmosphere, violently agitated by the Thunder. And if *Earthquakes* are more frequent, and of a longer Duration in hot than in cold Climates, it is because the Sun having a greater Power in one than in the other, his Heat penetrates the Earth with a far greater Facility, to separate, sublimate, and condense the sulphurous Particles its Entrails abound with, and form the inflammable Pyrites above-mentioned.

Dr. *Woodward* gives us another Theory of *Earthquakes*: He endeavours to shew, that the subterraneous Heat or Fire (which is continually elevating Water out of the Abyss, to furnish the Earth with Rain, Dew, Springs, and Rivers) being stopped in any Part of the Earth, and so diverted from its ordinary Course by some accidental Glut, or Obstruction in the Pores or Passages, through which it used to ascend to the Surface, becomes by such Means preternaturally assembled, in a greater Quantity than usual into one Place, and therefore causes a great Rarefaction, and Intumescence of the Water of the Abyss; putting it into great Commotions and Disorders, and at the same Time making the like Efforts on the Earth; which being expanded upon the Face of the Abyss, occasions that Agitation and Concussion we call an *Earthquake*.

This Effort in some *Earthquakes*, he observes, is so vehement, that it splits and tares the Earth, making Cracks and Chasms in it, some Miles in Length, which open at the Instant of the Shock, and close again in the Intervals betwixt them; nay, it is sometimes so violent, that it forces the superincumbent Strata, breaks them all throughout, and thereby perfectly undermines, and ruins the Foundation of them; so that these failing, the whole Track, as soon as the Shock is over, sinks down into the Abyss, and is swallowed up by it; the Water whereof immediately rising up, and forming a Lake in the Place where the said Tract before was: That this Effort being made in all Directions indifferently, the Fire dilating and expanding on all Hands, and endeavouring to get Room, and make its Way through all Obstacles, falls as foul on the Water of the Abyss beneath, as on the Earth above, forcing it forth which Way soever it can find Vent or Passage, as well through its ordinary Exits, Wells, Springs, and the Outlets of Rivers, as through the Chasms then newly opened; through the Camini, or Spiracles of *Ætna*, or other neighbouring Volcano's; and those Hiatus's at the Bottom of the Sea, whereby the Abyss below opens into it, and communicates with it. That as the Water resident in the Abyss, is in all Parts of it stored with a considerable Quantity of Heat, and more especially in those where these extraordinary Aggregations of this Fire happen; so likewise is the Water, which is thus forced out of it; insomuch, that when thrown forth, and mixed with the Waters of Wells, or Springs of Rivers, and the Sea, it renders them very sensibly hot.

He adds, that though the Abyss be liable to these Commo-

Commotions in all Parts, yet the Effects are no where very remarkable, except in those Countries, which are mountainous, and consequently stony and cavernous underneath; and especially where the Disposition of the Strata is such, that those Caverns open into the Abyss, and so freely admit, and entertain the Fire; which assembling therein, is the Cause of the Shock; it naturally steering that Way, where it finds the readiest Reception, which is towards those Caverns. Besides, that these Parts of the Earth, which abound with Strata of Stone or Marble, making the strongest Opposition to this Effort, are the most furiously shatter'd; and suffer much more by it, than those which consist of Gravel, Sand, and the like lazier Matter, which more easily give Way, and make not so great Resistance; but above all those Countries which yield great Store of Sulphur and Nitre, are by far the most injured and incommoded by *Earthquakes*; those Minerals constituting in the Earth a Kind of natural Gunpowder, which taking Fire upon this Assemblage, and Approach of it, occasions that murmuring Noise, that subterraneous Thunder, which is heard rumbling in the Bowels of the Earth during *Earthquakes*; and by the Assistance of its explosive Power, renders the Shock much greater; so as sometimes to make miserable Havocks and Destruction.

And it is for this Reason, that *Italy*, *Sicily*, *Anatolia*, and some Parts of *Greece*, have been so long and so often alarmed and harrassed by *Earthquakes*; those Countries being all mountainous and cavernous, abounding with Stone and Marble, and affording Sulphur and Nitre in great Plenty.

Further, that *Ætna*, *Vesuvius*, *Hecla*, and the other Vulcano's, are only so many Spiracles, serving for the Discharge of this subterraneous Fire, when it is thus preternaturally assembled. That where there happens to be such Structure and Conformation of the interior Parts of the Earth, as that the Fire may pass freely, and without Impediment from the Caverns, wherein it assembles into those Spiracles; it then readily and easily gets out, from Time to Time, without shaking or disturbing the Earth: But where such Communication is wanting, or Passage not sufficiently large and open, so that it cannot come at the Spiracles, it heaves up and shakes the Earth, with greater or less Impetuosity, according to the Quantity of Fire thus assembled, till it has made its Way to the Mouth of the Vulcano. That therefore there are scarce any Countries much annoyed with *Earthquakes*, but have one of these fiery Vents, which are constantly in Flames when any *Earthquake* happens; as disgorging that Fire, which while underneath, was the Cause of the Disaster. Lastly, that were it not for those Diverticula, it would rage in the Bowels of the Earth much more furiously, and make greater Havock than it doth.

This Theory of Dr. *Woodward* seems to me so very ridiculous, that it scarce deserves the Pains one would take in refuting it. It is true, that it has a very devout Foundation, which is that Abyss mention'd by *Moses*, but which none of the most learn'd Moderns have been capable to discover yet, and which is entirely contrary to the Motion of the Earth; since if there was so huge a Heap of Water underneath, it would far exceed in Bulk that of the Earth, though it should be carried along with it, in its Vortex, which is impossible. But that Abyss even supposed, it is false that there is a perpetual Fire between it and the Earth, continually pumping up Water to supply the Earth with Rain, Dew, &c. For to suppose such a Fire, it must be supposed likewise to have been preternatually lighted from the Creation of the World; and as it is consider'd as answering the Intentions of the Creator, in supplying the Earth with Part of what is absolutely necessary to maintain it in its natural State, *viz.* with Dew, Rain, Springs, Rivers, &c. it must be supposed, that he appointed a proper Place to that Fire, to keep it continually lighted, as it did to all the other Parts of this vast Universe; and certain Limits, beyond which it could not reach; having enough allowed to range in, in order to discharge its Functions, without causing any Disorders in Nature, without a special Leave from the Creator, for the Punishment of the Creature. But to be convinced of the Falsity of this Hypothesis of Dr. *Woodward*, we have only to consider, that the Earth has no Need of this perpetual Pumping of this pretended Fire from the Abyss to be supply'd with Water, since without the Help of so prodigious and incomprehensible a Phænomenon, it can easily borrow all its Humidity from that prodigious Heap of Water the Creator separated from it in the Creation, the Existence whereof our Senses render as certain, as of that of the Earth itself; giving us to understand in creating them both together, that there should be always so natural a Sympathy between them, that it was impossible they could exist without their mutually assisting each other; and that if they were separated, it was only to establish a more regular and beautiful Harmony between both. It was, in all Appearance, to maintain that Harmony, that the Earth was made porous, for the Filtration of the Water through its whole Substance, which accounts very well, without having Recourse to ridiculous Fancies, which are neither supported by our Senses, nor by Reason, for all the aqueous Phænomena, as Dews, Rain, Springs, &c.

To pretend, that that supposed Fire being stopped in any Part of the Earth, and consequently in a greater Quantity than usual in that Part, causes such an extraordinary Rarefaction and Intumescence of the Water of the Abyss, so as to put it into great Commotions and Disorders, which cause, in the Earth, which is imagined expanded on the Face of the Abyss, those Commotions and Agitations we call *Earthquakes*, is to entertain us with ridiculous Romances contrary to Reason and Experience; for if it was ever so true, that the imaginary subterraneous Fire, could have that Effect, and cause an Intumescence of the Water of the Abyss, that Intumescence could be but in that Place, where there is such a preternatural Quantity of Fire; and as that Abyss should be a continued Heap of Water, expanded all over underneath the Earth, without Interruption; the Intumescence could not make any great Effort upon the Earth in that, since its meeting with a greater Compression of the Air, in Proportion as it swells, the contiguous Water would give Way, and thereby make Room for the swelled Water re-assuming its former State; such as we see a Wave of the Sea, becoming smooth, at that very Instant we believe it ready to overflow the Shore. This Foundation of the Theory of Dr. *Woodward* being destroy'd, his whole Edifice falls to the Ground. For what can be more unreasonable than to pretend, that where his imaginary Fire has most Room to extend itself, as in those Countries which are the most cavernous underneath, it makes greater and more Efforts to break its Prison, whereby *Earthquakes* are more sensible and frequent; since, on the contrary, Fire never acts with greater Violence, than when closer confined, and has less Vent to break forth.

M. *Amontons*, a *Frenchman*, in the Memoirs of the Royal Academy of the Sciences, *Ann.* 1703, has an express Discourse to prove, that on the Foot of the new Experiments of the Weight and Spring of the Air, a moderate Degree of Heat may bring the Air into a Condition capable of causing *Earthquakes*. It is shewn, that at the Depth of 43528 Fathoms, below the Surface of the Earth, Air is only one fourth less heavy than Mercury. Now this Depth of 43528 Fathoms, is only a 74th Part of the Semi-Diameter of the Earth; and the vast Sphere beyond this Depth, in Diameter 6451538 Fathoms, may probably be only filled with Air, which will be here greatly condensed, and much heavier than the heaviest Body we know in Nature. But it is found by Experiment, that the more Air is compressed, the more does the same Degree of Heat increase its Spring, and the more capable does it render it of a violent Effect: And that for Instance, the Degree of Heat of boiling Water increases the Spring of the Air above what it has in its natural State, in our Climate, by a Quantity equal to a Third of the Weight wherewith it is pressed. Whence we may conclude, that a Degree of Heat, which on the Surface of the Earth will only have a moderate Effect, may be capable of a very violent one below. And as we are assured, that there are in Nature Degrees of Heat, much more considerable than that of boiling Water: It is very possible there may be [illegible] whose Violence, further assisted by the exceeding Weight

of the Air, may be more than sufficient to break and overturn this solid Orb of 43528 Fathoms, whose Weight compared to that of the included Air, would be but a Trifle.

This Sentiment of M. *Amontons*, is in some Part very agreeable to mine; for it may be seen in my Refutation of Dr. *Lyster*'s Theory, that I consider the Air and the Fire, as the two Causes of *Earthquakes*, though I have not Recourse to support my Sentiment to the tedious Calculations of M. *Amontons*, which though very ingenious, are not of a great Use. — That Fire which I admit for the primary Cause of *Earthquakes*, is not the imaginary perpetual Fire of Dr. *Woodward*, but only an occasional one, which has for Foundation and Fuel, the nitrous and sulphurous Particles of the Mass of the Earth, which is every where impregnated with a greater or less Quantity thereof, and is sublimated from it, by the Heat of the Sun, according as that Heat is more or less powerful or excessive. That in those Climates where it is the most powerful, that Sublimation of the sulphurous and nitrous Particles of the Earth being perfected, the same Heat which in colder Regions had exhausted itself in that Sublimation, and proceeded no further, being continually supplied with Abundance of igneous Particles, by the perpendicular Continuity of the Rays of the Sun, which recruits its weaken'd Strength, proceeds to the Assemblage of those sublimated Particles, and to their Condensation, whereby are formed those Compounds we call Pyrites; but as it is impossible, that in the Coadunation of these sulphurous and nitrous Parts, some heterogeneous and hard Bodies, should not be incorporated with them, and that Incorporation cannot be made without a violent Friction of the different Particles which enter into it, against one another, that of the sulphurous Particles against the nitrous, and other harder Bodies, heating them to Excess, and that Heat being heighten'd by that of the Sun, they take Fire, which is soon communicated to all the other inflammable Bodies they can be environ'd with. The immediate Effect produced by that Fire thus lighted, is the Rarefaction of the ambient Air (which recovering by that Rarefaction its native Elasticity, till then much embarassed in the aqueous and terrestrial Particles, which render'd the Springs of it loose and imbecile) which makes the most violent Efforts to gain more Room, or to break thro' its Confinements; but as it finds the Pores through which it had a free Ingress and Regress, closely stopped by the Vapours which the Heat of the Fire has agglutinated and harden'd, impatient of its Confinement, it renews its Efforts, by the Violence whereof it shakes the whole super incumbent Mass; which Shock is more or less violent, and consequently more or less sensible, according as the Volume of the Air rarified, is greater or less, and more or less confined.

As to the Phænomenon of *Earthquakes*, the *Philosophical Transactions* furnish us with Abundance of Histories of them; particularly one at *Oxford*, in 1665, by Dr. *Wallis* and Mr. *Boyle*. Another at the same Place, in 1683, by Mr. *Pigot*. And another in *Sicily*, in 1692-3, by M. *Hertop*, F. *Alessandro Burgos*, and *Vin. Bonajutus*; which last is one of the most terrible in all History. — It shook the whole Island; and not only that, but *Naples* and *Malta* shared in the Shock. It was of the second Kind, mention'd by *Aristotle* and *Pliny*, viz. a perpendicular Pulsation or Succussion. It was impossible, says the noble *Bonajutus*, for any Body in this Country to keep on their Legs, on the dancing Earth; nay, those that lay on the Ground, were tossed from Side to Side, as on a rolling Billow: High Walls leaped from their Foundations several Paces, &c. — The Mischief it did in Magazines was amazing: Almost all the Buildings in the Countries were thrown down; fifty-four Cities and Towns, besides an incredible Number of Villages, were either destroyed, or greatly damaged. We shall only Instance the Fate of *Catania*, one of the most beautiful, antient, and flourishing Cities in the Kingdom; the Residence of several Monarchs, and an University. This once famous, now unhappy *Catania*, to use the Words of F. *Burgos*, had the greatest Share in the Tragedy. F. *Anthon. Serrovita*, being on his Way thither, and at the Distance of a few Miles, observed a black Cloud like Night, hovering over the City, and there arose from the Mouth of Mount *Gibello*, great Spires of Flame, which spread all around. The Sea all of a sudden began to roar, and rise in Billows; and there was a Blow as if all the Artillery in the World had been at once discharged. The Birds flew about astonished, the Cattle in the Fields run crying, &c. His and his Companions Horses stopp'd short, trembling; so that they were forced to alight. They were no sooner off, but they were lifted from the Ground, above 20 Palms; when casting his Eyes towards *Catania*, he with Amazement saw nothing but a thick Cloud of Dust in the Air. This was the Scene of their Calamity; for of the magnificent *Catania*, there is not the least Foot-steps to be seen. *S. Bonajutus* assures us, that of 18914 Inhabitants, 18000 perished therein. The same Author, from a Computation of the Inhabitants, before and after the *Earthquake*, in the several Cities and Towns, finds that near 60000 perished out of 254900.

Jamaica is remarkable for *Earthquakes*. The Inhabitants, the famous Dr. *Sloan* informs us, expect one every Year. That Author gives us the History of one in 1687; another horrible one in 1692, is described by several anonymous Authors. In two Minutes Time it shook down and drown'd nine-tenths of the Town of *Port Royal*. The Houses sunk out-right, 30 or 40 Fathoms deep. The Earth opening, swallowed up the People; and they rose in other Streets; some in the Middle of the Harbour, and yet were saved; though there were 2000 People lost, and 1000 Acres of Land sunk. All the Houses were thrown down throughout the Island. One *Hopkins* had his Plantation removed half a Mile from its Place; of all Wells, from one Fathom to six or seven, the Water flew out at the Top with a vehement Motion. While the Houses, on one Side of the Street were swallow'd up, on the other they were thrown on Heaps; and the Sand in the Streets roll'd like Waves in the Sea, lifting up every Body that stood on it, and immediately dropp'd down into Pits; and at the same Instant a Flood of Water breaking in, rolled them over and over; some catching hold of Beams and Rafters, &c. Ships and Sloops in the Harbour were overset and lost; the *Swan* Frigate particularly, by the Motion of the Sea, and sinking of the Wharf, was driven over the Tops of many Houses. It was attended with a hollow rumbling Noise like that of Thunder. In less than a Minute, three Quarters of the Houses, and the Ground they stood on, with the Inhabitants, were all sunk quite under Water; and the little Part left behind, was no better than a Heap of Rubbish. The Shock was so violent, that it threw People down on their Knees, or their Faces, as they were running about for Shelter. The Ground heav'd and swell'd like a rolling Sea, and several Houses still standing, were shuffled and moved some Yards out of their Places. A whole Street is said to be twice as broad now as before; and in many Places, the Earth would crack, open and shut, quick and and fast. Of which Openings, two or three hundred might be seen at a Time; in some whereof People were swallow'd up; others, the closing Earth caught by the Middle, and pressed to Death; in others the Heads only appear'd. The larger Openings swallowed up Houses; and out of some would issue whole Rivers of Water, spouted up a great Height into the Air, and threatning a Deluge to that Part the *Earthquake* spared. The whole was attended with Stenches and offensive Smells, the Noise of falling Mountains at a Distance, &c. and the Sky in a Minute's Time was turn'd dull and reddish, like a glowing Oven. Yet as great a Sufferer as *Port-Royal* was, more Houses were left standing therein, than in the whole Island beside. Scarce a Planting-House, or Sugar-work, was left standing in all *Jamaica*. A great Part of them were swallowed up, Houses, People, Trees, and all at one Gape. In lieu of which afterwards appeared great Pools of Water, which when dried up, left nothing but Sand, without any Mark that ever Trees or Plants had been thereon. Above 12 Miles from the Sea, the Earth gaped and spouted out, with a prodigious Force, vast Quantities of Water into the Air; yet the greatest Violences were among the Mountains and Rocks; and it is a general Opinion, that the nearer the Mountains, the greater the Shock; and that the Cause thereof lay there. Most of the Rivers were stopped up for 24 Hours, by the falling

of the Mountains, till swelling up, they made themselves new Tracts and Channels, taring up in their Passage Trees, &c. After the great Shake, those People who escaped, got on board Ships in the Harbour, where many continued above two Months, the Shakes all that Time being so violent, and coming so thick, sometimes two or three in an Hour, accompanied with frightful Noises like a ruffling Wind, or a hollow rumbling Thunder, with Brimstone Blasts, that they durst not come ashore. The Consequences of the Earthquake was a general Sickness, from the noisom Vapours belched forth, which swept away above 3000 Persons.

After the Detale of these horrible Convulsions, the Reader will have but little Curiosity left, for the less considerable Phænomena of the *Earthquakes* at *Lima* in 1687, described by F. *Alvarez de Toledo*, wherein above 5000 Persons were destroyed; this being of the vibratory Kind, so that the Bells in the Church rung of themselves. Or that at *Batavia* in 1699, by *Witzen*; that in the North of *England* in 1703, by Mr. *Thoresby*; or lastly, those in *New-England* in 1679 and 1670, by Dr. *Mather*.

Note, That Chymistry furnishes us a Method of making *artificial Earthquakes*, which shall have all the great Effects of natural ones: This Operation is performed in the following Manner.

To twenty Pounds of Iron Filings add as many of Sulphur; mix, work, and temper the whole together, with a little Water, so as to form a Mass, half moist and half dry. This being buried three or four Feet under Ground, in six or seven Hours Time will have a prodigious Effect; the Earth will begin to tremble, crack and smoak, and Fire and Flame burst through. Which artificial Phænomenon confirms my Theory of the *Earthquake*. For this cannot happen without the sulphurous Particles excessively heating themselves by their violent Frictions against the Iron Filings, and in Process of Time taking Fire, which Fire rarifying the Air intercepted between it and the Earth, forces it to extend itself, and in that Dilatation shakes, cracks, &c. the same incumbent Earth.

Some are of Opinion, that *Earthquakes* would be more frequent, and make more dreadful Havocks, was it not for *Volcano's* or ignivomous Mountains, which serve as Spiracles or Vents to the subterraneous Vapours and Fires; which is likewise my Sentiment, for as the Air extremely rarified by the subterraneous Fires cannot be long confined, without making continual, and the most violent Efforts, to set itself more at large; it breaks its Prison, and forces all the Obstacles it can meet with, whereby it facilitates likewise the Passage of the Fire, till they both arrive at some Mountains, most commonly full underneath of Vacuities or Caves, where finding themselves more at large, the one rages with a still greater Violence than before, whereby the other being still more rarified, and consequently acquiring a greater Strength, lacerates, and breaks the Bowels of those Mountains, till it makes a Vent for itself and the Fire, whereby they are both entirely set at Liberty.

METHODISM.

METHODISTS, are the Followers or Disciples of two Priests of the Church of *England*, *John Wesley* and *George Whitefield*, who in our Days have made a Society a-part from that Church, under a Pretence of a more strict Reformation; or of adhering more scrupulously to those of the 39 Articles of her Belief, relating to *Absolute Predestination*, *Justification by Faith alone*, &c.

Note, That as *Methodism* is of a new Date, I hope this concise and impartial Account of the Beginning and Progress thereof, will please the Reader; especially when it does not come from a *Methodist*.

A *Methodist*, (according to the Definition the Reverend Mr. *John Wesley* gives of him) is *one who loves the Lord his God, with all his Heart, and with all his Soul, and with all his Mind, and with all his Strength*, *i. e.* that a *Methodist*, according to this last Definition, should be a true Disciple of Christ; and in that Sense all true Christians should be *Methodists*, or are obliged to be *Methodists*; since Mr. *Westley*'s Definition is nothing less than that great Command of Christ to his Disciples, in which, says he, consists all the *Law and the Prophets*; if Mr. *Wesley* adds to it, *and loves his Neighbour as himself*.

This new Reformation seems not to have been premeditated at first; for, as far as I can judge by the Circumstances, it is only the Effect of a pure Hazard; which the new Reformed have much more Reason to consider as a Miracle of the Grace of God, than had the Disciples of *Luther* or *Calvin*; and have besides, this farther Advantage over them, that theirs is not founded on Sedition, Rebellion, Tumult, War, Slaughter, and Blood. To prove this Assertion, without pretending to be a *Methodist* myself; and in order that my Readers may judge, without Partiality or Prejudice, if I accuse just; I think myself obliged to give here a concise Relation of the Beginning and Progress of *Methodism*.

The Name of *Methodists* was given, if I have been rightly informed, to Mr. *George Whitefield*, and Mr. *John Wesley*, and some others, from whom their Disciples have borrowed it, by their School-fellows at *Oxford*, while they studied Theology in that University, as a Name of Contempt, which, the Regularity of their Conduct, the Innocency of their Manners, and their Piety, Virtues rarely to be found in Colleges, and among young Students, and which was a tacit Condemnation of the licentious Life of those who first called them *Methodists*, merited them.

Conscious that the Ministry of the Word to which they designed to devote themselves, consisted rather *in godly Edifying, than in endless Genealogies*; that the necessary Qualifications of a Minister of Christ, besides Learning, were *Charity, a pure Heart, a good Conscience, and Faith unfeigned: That he should be neither self-willed, nor soon angry, nor given to Wine, nor to filthy Lucre; but a Lover of Hospitality, a Lover of good Men, sober, just, holy and temperate; holding fast the faithful Word, as he had been taught, that he may be able by sound Doctrine, both to exhort and to convince the Gainsayers*; which are the Instructions given by St. *Paul* to his beloved Disciple *Timothy* and to *Titus*; that to enter the Sanctuary in the Quality of a Minister of the living God, with a Heart full of Supineness and Ambition, &c. is to *turn the Back to the Altar, and adore the Rising-Sun*; they exercised themselves in the Practice of all those Perfections and Virtues, assisted therein by supernatural Succours; in order to acquire in Time a perfect Habit thereof; in which they succeeded so well, that they became soon the Jest of those who would know nothing of the *blessed Folly of the Cross of Christ*; and had conceived so great an Abhorrence for Vice, that they could not so much as suffer any Thing which could have the least Appearance of it; even disguised under the most ambiguous Terms, in the most polite Conversation, and in the Company of those esteemed as honest, in the common Opinion of the World; for they had agreed among themselves to make use of certain particular Signs, unknown to any Body else, whereby they gave Notice to one another to withdraw, when any Thing was said offensive to *Christian* Ears.

All this while their religious Practices had made no further Progress, than among the few Friends they had selected to themselves; but the divine Providence, always ready to advance the Glory of the Kingdom of Christ, and to establish it on the Ruins of Immorality and Irreligion, procured them soon the Occasion to communicate to others a Portion of that holy Spirit themselves had received, and shew them that Light which till then had been *hid under the Bushel*: For the Government of *England* having formed the Resolution to

to send Colonies to that Part of *Florida*, which is at present called *Georgia*, from the Name of his present *Britannick* Majesty; Mr. *George Whitefield*, Mr. *John Wesley*, &c. offered to accompany their Countrymen thither, actuated to it by no other Motive than the Glory of God, and the Propagation of the Gospel, under another Hemisphere, and in a Climate where the dark Clouds of *Paganism* and Idolatry, had not been yet penetrated by the divine Light of Truth; forsaking for that Purpose their native Country, and all that was capable to render it dear to them. But feeling within themselves a Kind of holy Reluctancy against quitting it, before they had communicated to it, in Gratitude for its having given them Birth and Education, part of the divine Light wherewith the *Sun of Justice* had enlighten'd their Understanding; and the Zeal for the Edification of the Lord's House, they were inflamed with, being divided, between the laudable Desire of contributing all in their Power to the Edification of their Countrymen, and that of the Conversion of the Infidels; they were permitted to take Leave of them in several of the Parish-Churches of *London*, and of its Suburbs, in an Apostolical Manner, by what these new Missionaries themselves call'd a *Farewel Sermon*.

Their Zeal, Eloquence, and the sacred Unction of their Discourses, accompanied with God's Grace, had soon so surprizing an Effect, that the most spacious Churches could not contain the People who crowded to hear them; and who, till then, used to hear the Gospel preached by too many, in the same Manner one would read any indifferent Book, to pass away some tedious Hours, admired these young Ecclesiasticks, who, without the Assistance of a Book, and imitating the Apostles, trusted entirely to their Memory, assisted by the Dictates of the Holy Ghost, and spoke, as it were, from the Plenitude of their Heart.

But if this new Manner of Preaching the Gospel pleas'd their Auditors, it soon alarm'd those, who falsly imagine, that they are introduced into the Sanctuary, for no other End than to receive what is offer'd to the Altar of the living God, and apply it to their own Use; and Jealousy coming to the Succours of Indolence and Lukewarmness, they were refused to appear any more in those same Places, where they had began to restore the Kingdom of Christ, on the Ruins of *Atheism*, *Socinianism*, *Profaneness*, *Irreligion*, and *Immorality*, with which this Age abounds. The Regularity of *Samuel*'s Conduct, was a tacit Condemnation of the criminal one of the Sons of *Eli*, and the strict Holiness of his Life, threaten'd a Reformation in the Sanctuary, which was entirely contrary to their Inclinations.

What will our new Missionaries do in this Dilemma? Must they *bury their Talent under Ground?* Must they keep silent, while the World is suffer'd to speak, and teach its pernicious Maxims? Can St. *Paul* be over-aw'd by the Areopage of *Athens?* No; conscious that Christ preach'd, though he was not suffer'd to do it in the Temple of *Jerusalem*; that the Apostles when first sent to teach all Nations, had no particular Places of Worship; that they preached wherever they found any favourable Opportunity to do it, in the Fields, on Mountains, or in any other Places, which could contain the Multitude who followed them; they thought that the Example of those Founders of the Christian Religion, could authorize them to do the same; and expected that those who had heard them with so much Satisfaction in the Churches, which Jealousy had shut against them, would make no Exception against the Place, when they could find in the open Fields, the same Persons who had fed them in the Churches; in which they were not disappointed; for I could venture to say, that the Success exceeded their Expectation; and the marvellous Progresses they have made since, throughout the whole Kingdom of *Great Britain*, and in foreign Parts, either by themselves, or their Disciples, confirm'd me in the Opinion I had conceiv'd at first, that the strong Opposition they met with, contributed much to those Progresses; as well as the Regularity of their Conduct, and the Innocency of their Life, which is entirely agreeable to the Morals they preach; notwithstanding what Calumny can say to the contrary.

What I admire most in the Societies they have established, is, that sincere Friendship, Unanimity, and unalterable Charity, which consists in the Love of God above all Things, and in that of our Neighbours, on which the Christian Religion is founded, and which calls to my Mind those fortunate Days of the primitive Church, when all Christians were but one Heart and one Soul. Oh could the different Sects which have lacerated Christ's seamless Gown, be persuaded to frequent sometimes those Societies, whence Medisance, Calumny, and all the other Vices contrary to a Christian Charity, are entirely banished, to learn from them the Practice of that excellent Virtue, without which we are but *Æs sonans, & Cymbalum tinniens*, we should soon see a thorough Reformation among us all; for few Christians, those excepted, have a true Notion of Charity, or at least neglect the Practice thereof as insignificant, even those who have among them all the other Marks of the true Church of Christ, want this, which is the most essential: For many I fear approach the Altar of the God of Mercy and Forgiveness, with a Heart full of Malice and Ill-will towards their Neighbour, and yet affect a great Outside-Shew of Religion and Piety; for of what Service, for Example, can it be to a *Roman Catholick*, to hear three Masses every Day; or to a *Protestant* to be assiduous at his Church, if while he prays God to forgive him, he is fully determined to forgive no Body; and when he promises to do it, is it not trifling with Heaven? Such a Conduct is not only prejudicial to their eternal Salvation, but is likewise very dangerous in a civil Society, for those *white-wash'd Walls* make use of their Hypocrisy to ravish the Reputation and Credit of their Neighbours with more Authority. Among the *Methodists* they are as jealous of the Reputation of others, as of their own; and put Calumny on a Level with Murder; since in fact there is no Difference before God, between robbing a Man of his Reputation, and depriving him of his Life.

What displeases most the Church of *England*, in the *Methodists* is, their attempting to reform that Church; without considering, that the *Methodists* have the same Right to reform the Church of *England*, that Church had to reform the *Roman* Church: Their Mission being the same, neither Party pretending to an immediate one, which is always confirm'd by Miracles; as was that of the Apostles, *Mark* xvi. 20. *And they went forth and preached every where, the Lord working with them, and confirming the Word with Signs following.*

Besides, if they really aim at a Reformation of the Church of *England*, I don't see that *that* Reformation extends further than the Discipline of the Church, and that only by awakening the languishing Zeal of some of her Ministers; and not be like those indolent and lazy Workmen, complain'd of in the Gospel, who expected their Salary, though they had not Work to deserve it; for their Belief in Matter of Faith is the same; they admitting *Absolute Predestination*, *Justification by Faith alone*, &c. agreeable to *Art.* 11, and 17, of their Church. In which I must confess I differ widely from them; for those Dogma's seem to me entirely contrary to God's infinite Mercy, who himself expresses an earnest Desire, that all Men should be saved; Christ his Son being dead for the Redemption of all Men; and to the Doctrine of the primitive Church, and of all the antient Fathers, confirm'd by the œcumenical Councils; though in the Manner Mr. *George Whitefield* explains that *Justification*, in his Answer to the Bishop of *London*'s Pastoral-Letter, he does not seem to deviate much from the Catholick Truth. Neither am I of Opinion, that all the Works done without Faith, have the Nature of Sin; since it is thereby asserting, that there is no Action morally good; that all the Virtues of the *Pagan* Heroes and Philosophers were Vices; and that an Infidel, who practises Generosity, Mercy, Compassion, *&c.* commits so many Sins; which would be destroying entirely the good Order of a civil Society: But if I differ from them in Belief; I admire their Christian Conduct, which is a Texture of all the Virtues recommended in the Gospel, between which, and that of the primitive Christians, there is no Difference.

These new Societies are the more intitled to the Protection of a Government, that they do not meddle with Politicks, nor lard their Discourses with political Reflections,

flections, to sow the Seeds of Disaffection in the Hearts of the Subjects, and excite them to Sedition; for though they acknowledge *Jesus Christ* for their King, and endeavour to establish his Kingdom among us, they know at the same Time, that that King who is eternal and in Heaven, commands us to obey and respect the temporal Princes, whom he has appointed his Vicegerents upon Earth, and that his Kingdom being not of this World, is to be established only in our Heart, by his Grace, and the Predication of the Gospel, not by Riots, Tumults, Confusion, Fire and Sword, as all the other Reformers have done.

Note, That Mr. *John Wesley* does not hold with Mr. *Whitefield* in Regard to the Doctrine of *Absolute Predestination*.

MIDWIFRY.

MIDWIFRY, is the Art of helping or assisting a Woman in Labour, so as to facilitate her Delivery, without any Danger to the Woman or to her Fruit.

I say, of *helping* or *assisting a Woman*, to give to understand, that they should not put too soon a Woman in Labour, or force Nature to unload itself of its Burthen, contrary to its Intention; for as it must be the chief Agent in those Cases, it wants nothing else then but a gentle and compassionate Hand, to ease it of Part of its Fatigues, and render them less tedious and painful; otherwise all the Efforts a Midwife makes, through Want of Experience and Skill, being opposed by Nature, which is not to be forced in its Operations, expose both the Woman and her Child to very great Dangers; and a Midwife, or a pretended one who acts otherwise, and wants the Qualifications requisite to her Profession, is answerable for all the Accidents which happen, and if the Woman or her Child die in her Hands, is guilty before God, of wilful Murder. To avoid these Inconveniencies, no Midwife should be suffered to practise, before she has been examined by a Body of Physicians and Surgeons, and licensed by them; which would save the Lives of several Thousands of unfortunate Women, who fall a Victim to the Ignorance of their Midwives; who have but too often no other Qualifications, but a great deal of Impudence, for which they should be severely punished.

It is to prevent the great Dangers Women are exposed to in their Labour, that I'll give here an entire Treatise of *Midwifry*, where Midwives, who are really such (though there be but very few in *England*) will find several curious Observations absolutely necessary to render them perfect in their Profession; and where those who are ignorant will learn it. But to proceed with the same Order on this important Subject, as I have done on all others, I must begin by *Pregnancy*, the *different Sorts thereof*, and the *Signs of a true*, or *false Pregnancy*, &c. for all that could be previous to it has been explained in my Treatise of *Anatomy*.

PREGNANCY, properly taken, is a Tumour of the Belly, caused by the Infant situated in the Matrice or Womb.

There are two Sorts of *Pregnancies*, one *true* or *natural*, and the other *false* or *preternatural*.

The *natural* PREGNANCY or *Conception*, is, when a live Child is in the Womb.

A *false* PREGNANCY, is when nothing but foreign Bodies are formed in the Matrice, as Winds mixed with some Waters, called *Hydropsy of the Matrice*, or false Conceptions, Moles, or some Membranes full of Blood and corrupted Seed.

The Symptoms of a *Pregnancy* are, when in a few Days after the conjugal Act, a small Pain is perceived about the Navel, attended with some gentle Commotions in the Bottom of the Abdomen, the Suppression of the Menses, or their flowing in less Quantity than usual, vomiting, loathing, longing, *&c.* the Breasts beginning to swell, grow hard and painful, and contain a little Milk. The Nipples also becoming larger, firmer, and darker coloured, a livid Circle appearing round them, the Eyes seeming sunk and hollow: But the most certain Sign is, if by introducing the Finger in the *Vagina*, the inward Orifice of the Matrice is found exactly shut, without any Hardness, and in a good Situation, as likewise a considerable Distension of the Body of the Matrice. The Woman being more or less big, and the Motions of the Embryo, are also two undubitable Proofs of *Pregnancy*.

Note, That the Motions felt in the Matrice, are not always an undubitable Proof of a *natural*, or *true Pregnancy*; because the Child has of himself a Motion of *Totality*, and of *Partiality*; of Totality when he moves his whole Body; and of Partiality, when he only moves Part thereof at once, as the Head, an Arm, a Leg, the rest of his Body remaining firm. Which two Motions make the Difference between a *true* and a *false Conception*; for a *false Conception* has the Motion of *Totality*, but not that of *Partiality*; a Woman, for Example, who has a large Mole in her Womb, the Mole falls always like a Lump of Clay, on that Side she turns herself, which does not happen in a *true Conception*.

The Embryo is perceived to move about the fourth Month, sometimes sooner, sometimes later, according to its Strength; for some Women feel him as soon as the second Month, or even sooner; and others about the third Month only, or later. At the Beginning his Motions are very small, and not unlike those of a Bird newly hatched; after which they become greater in Proportion as the Child grows stronger and bigger, and grow at last so violent, that they force the Matrice to unload itself of its Burthen.

Note, That Women who use daily of Coition, are often deceived, imagining themselves with Child when they are not; though their Menses cease to flow, and they are troubled with Nausea's, Vomiting, *&c.* for a false Conception is attended with almost the same Symptoms of a true one.

Women who have a *false Conception*, have their Belly equally distended on all Sides; and those big of a *true Conception* have theirs prominent in the Middle, and the Navel much more raised: Therefore in the Doubt of a *Pregnancy* of four or five Months or more, if the Navel of the Woman is found sunk, and the Orifice of her Womb small and hard, it is almost an infallible Sign that she is not big of a natural Conception; which is often caused, either by a great Quantity of Wind which swells and distends the Matrice in that Manner, or Water gathered in it in such a Quantity, that some Women have voided a Pail full of it without a Child, though all the while they imagined themselves with Child.

There are some Women who generate nothing but *false Conceptions* and *Moles*, which is discovered by the Signs abovementioned; and by the *Mole* remaining in the Matrice, after the full Term of Gestation is expired, which notwithstanding is very rare.

Note, That a *Mole* is a mishapen Mass of hard Flesh, or the Chaos of an Embryo, and would have grown to an Infant had not the Process of Conception been disturbed: Though it be without regular Bones, Viscera, *&c.* yet the Lineaments frequently are not so far effaced, but that there are some Remains of a Child; sometimes a Hand, and sometimes a Foot have been spied; but commonly the Secondines. It is rare that more than one Mole is excluded; though *Sennertus* observes, there are Instances of two, three, or even more. He adds, that though they usually come alone, yet they have been known to come with a Fœtus.

Fœtus, sometimes before it, and sometimes after it. The Mole is distinguished from an Embryo, in that it has a Placenta whereby to receive its Nourishment from the Mother. Instead of that, it grows immediately to the Womb, and is nourished thence. It has a Kind of vegetative Life, and continues growing in Bulk till the Time of Exclusion: Sometimes it has been borne in the Womb for two or three Years.

This Production is supposed to arise from some Defect or Indisposition of the Ovum or Egg, or perhaps from the Male's Seed wanting Force to penetrate it sufficiently in order to open, or expand the Parts: Or the Effect may be accounted for, by supposing an Ovum to drop into the Womb, without being impregnated by the Male: In all which Cases, the Egg continuing to grow, and yet wanting something necessary to organize and form it into an Embryo, becomes a shapeless Lump.

Authors are divided, whether or no Women ever bring forth *Moles* without any Intercourse with Men? Some say, there are *Moles* which derive their Origin from the menstruous Blood detained, coagulated, and hardened, through which the Blood and Spirits have made themselves Passages, *&c.*

In a *true Pregnancy* the Child must remain in the Matrice, till the Time appointed by Nature for his Exclusion; but a *false Pregnancy* indicates to us to procure, as soon as possible, the Expulsion of what it contains. Therefore in the Occasions where the Signs render Things dubious, one must not use too much Precipitation to form a decisive Prognostick of it. For even those who pretend the best Knowledge and Experience in those Affairs are often deceived: For we have an Infinity of Examples of Women, who by certain Signs which they thought infallible, imagined themselves pregnant, though they were not. I knew a Lady of the first Quality in *Britanny*, and very near related to me, who thought herself with Child at different Times, because she had then some Signs of *Pregnancy*, and had made all the necessary Preparations for her long expected and wished for Delivery, but notwithstanding died in the Expectation, though she liv'd with her Husband for above forty Years: Though she had the Opinion of very able Physicians and Midwives to countenance her in her imaginary Gestation. If they did it by being mistaken themselves in their Prognostick, or because it brought Grist to their Mill, is what I will not pretend to determine; all I know for certain, is, that she had always some of them attending her.

These false *Pregnancies* happen commonly to Women who are not regular as they should be, in the Evacuation of their Menses, either for Quantity or Quality, and for the Time they must flow; but particularly from 35 to 40 Years of Age; because that Evacuation begins at that Age, not to be so regular as before: Therefore in those Suspicions of *Pregnancy*, one must above all Things inform himself of the Manner Women used to have their Menses, as well as of all other Dispositions which preceded and accompanied the Swelling of the Belly, but particularly of the Disposition of the Navel, and of the internal Orifice of the Matrice.

It happens sometimes that those false Pregnancies are as good as a Cause; for after they are terminated, there happens a Change of the Disposition of the Matrice, which is the Cause that in Process of Time Women conceive a real Fœtus, provided there be no other Impediment.

If Physicians, Surgeons, and Midwives, want a great deal of Experience to know for certain, if a Woman be pregnant or not, and of a true or false Conception; they want no less to judge how long she has been pregnant, that they may be sure if she be quick or not: For if a Woman miscarry for having received some very violent Blow, if her Child was alive then, the Person who has struck her deserves Death; if not, he is only punished by a pecuniary Fine. Midwives must also take Care not to be themselves the Cause of the Death of the Child, by putting the Mother in Labour before her Time, as do those who are entirely ignorant of their Art, who falsely imagine that when the Woman with Child complains of violent Pains in her Belly and Loins, it is always her Labour; which is the Reason why, instead of endeavouring to appease those Pains, they on the contrary endeavour to make them grow stronger, and thus deliver her very unfortunately before Term.

Note, That the famous M. *Mauriçeau*, a *French* Man-Midwife, knew a Woman, who being six Months gone with Child, or thereabout, was surprised with violent Pains in her Belly, much like those of a Labour, which obliged her to send for her Midwife, who knowing but very little of her Art, used all Sorts of Means to deliver her, by encreasing her Pains, making her walk in the Room, *&c.* as if she had gone her full Time. But the Woman seeing that, notwithstanding her continual Pains which lasted two Days, there was no Appearance of Delivery, she sent for him, M. *Mauriçeau*, who having found her in that unhappy Condition, felt the internal Orifice of the Matrice, found it dilated so as to admit the Extremity of the little Finger into its Intetnal Part, and still more dilated towards the external: But perceiving that she had no other Accident but those Pains, he ordered her immediately to Bed, where she remained *eight or nine Days*; during which, all her Pains ceased, and her Matrice closed as exactly as it was before those Pains, and she went on three Months longer in Pregnancy, *i. e.* her full Time, when she was delivered of a very strong Girl, who lived.— M. *Mauriçeau* observes, that if he had continued as the Midwife had began, the Woman had, indubitantly, been delivered at six Months, which had caused the Death of the Child, either in her Womb, or soon after her Abortion: And advises Midwives to behave on such Occasions, as he did then, unless those Pains be attended with Accidents which would put the Mother in Danger of her Life, if she was not quickly delivered; as frequent Convulsions, or some considerable Flooding. As it happened to the Wife of a Pin-maker in *Jewin-street*, 1735, who being between five or six Months gone with Child, and taken all on a sudden with violent Pains in her Belly and Loins, attended with so violent a Flooding, that she had lost above six Quarts of Blood before she sent for me, I found that nothing could save her Life but her Delivery, which was effected a few Minutes after my Arrival; whereby I saved the Woman's Life, who has been pregnant since, and also delivered of several live Children: Though I was very ill a-bed, and knew that the Woman was not in a Condition to pay me, I went to her Assistance, and even paid the Apothecary for the Remedies I prescribed to her; contrary to the scandalous and most inhuman Practice of several of our Physicians that practise Midwifry, who either refuse to succour Women, whose Circumstances render them incapable to gratify their Avarice; or put a whole Neighbourhood under Contribution, by these mercenary and infamous Words, *Who'll pay me?* before they can be persuaded to do their Office; as if the Life of a poor Woman was not as precious before God, and as dear to the Commonwealth, as that of a rich one.

To be very sure of the different Times of a *Pregnancy*, one may make use of the Testimony of the Woman herself, though it is not always infallible; for she may be deceived, reckoning often either from the Time of the Retention of her Menses, or from that she first feels the Motions of the *Embryo*, which is not always a cetain Rule, no more than the Bigness of the Belly, for there are Women who are bigger at half-term, than others when they are ready to lye in; for that depends on Bigness of the Children, or of their Numbers, and likewise of the Quantity of Water contained along with them in the Matrice: But the just, and more certain Judgment that can be formed of it, proceeds from the inward Orifice of the Matrice, which the nearer her Term a Woman is, grows thinner, shorter, and more flattened.

Thus it is very easy to gratify the Curiosity of a Woman who desires to know if she be with Child or not; but it is absolutely impossible to discover if it be with a Boy or a Girl; though those who pretend to know

it, and found that Knowledge on the 42d Aphorism of the 5th Book of *Hippocrates*, where it is said, *that a Woman big with a Male Child has a fresh Colour; and one big with a Female, is pale.* And in the 48th Aphorism of the same Book, mention is made of a Boy being often situated in the right Side, and a Girl in the left. Some pretend to know it by the Woman with Child of a Boy being more pleasant, lively, healthy, and has a better Stomach than when with a Girl; others by Urine; but they are all mistaken in their Conjectures, for we are convinced by daily Experience, that Women with all those Signs are deliver'd of a Girl. M. *Mauriceau* is notwithstanding of Opinion, that a Woman who has had several Children of different Sexes, can guess of what Sex is the Child she is big with, by comparing the Dispositions she finds herself in, with those of her preceding Pregnancies; though I would not trust to that Comparison, since the Constitution of a Woman being much alter'd, and even impaired by several Gestations, her Dispositions must be different almost every Time she is with Child, let her be ever so strong and healthy.

Though it be impossible to know precisely if a Woman be with Child of a Boy or Girl; it is very easy to discover, especially when the Children have a manifest Motion, if she be big with several Children, for then there is an Eminence on each Side of her Belly, where she feels several and different Motions, which Motions are more frequent than common; because Children being pressed, are troublesome to one another, and excite themselves mutually to Motion, though they be separated by Membranes, and swim in different Waters. Besides which it has been observed, that Women, big with several Children, are much more indisposed during the whole Time of their Gestation, and have their Belly more extended round-wise, and not so prominent before as those who have but one Child; and towards their latter Months have always their Legs and Thighs very much swelled, and even sometimes the Labia of the Vulva, and all the Pubis.

From this I'll pass to the SUPERFETATION, which is an after or second Conception; happening when the Mother already pregnant, conceives of a later Coition; so that at once she bears two Fœtus's of an unequal Age and Bulk, and is deliver'd of them at different Times.

There is a great Dispute among Authors, to know if a Woman deliver'd of two Children at one Birth, or of a greater Number, has conceived them all of the same Coition, or of several. *Seneca* is of Opinion, that the Manner how the *Superfetation* is accomplished, is as unconceivable as the Ebbing and Flowing of the Sea. Some suppose two or more Children to be the Fruit of a single Coition; and others imagine it to be done by *Superfetation*; but there are Signs to discover the Difference, whereby one may know if two Children have been conceived at once of the same Coition, or successively one after another.

What makes some believe that *Superfetation* cannot happen is, that as soon as a Woman has conceived, her Matrice contracts itself, and closes very exactly; after which the Seed of the Man, which is indispensably necessary for the Conception, finding neither Room nor Entrance into it, cannot, as they imagine, be received into it to produce that second Conception. Add to this, that the Woman discharges her Seed, which is as requisite as that of the Man, through a Vessel which terminates at the Extremity of the inward Orifice, which by that Means falls in the Vagina, and not in the Matrice, as it would be necessary for a *Superfetation.*

Those of a contrary Sentiment answer to these Objections which are very strong, that it is very true, that the Matrice is most commonly exactly closed and contracted, when the Woman has conceived, she then discharging her Seed through another Vessel; but that general Rule has some Exceptions, and that the Matrice thus closed, opens sometimes to evacuate some serous and slimy Excrements, which by their sojourning in it, would offend it; or particularly when the Woman is enflamed with an excessive Desire of Coition, and that in the Heat of the amorous Embraces, she discharges sometimes through the Vessel which terminates at the Bottom of the Matrice, which is dilated and open'd a-new by the impetuous Effort of her Seed agitated and overheated: And that Orifice thus opening a little at that Time, if the Seed of the Man be darted at that Instant, they believe a Woman can conceive a second Time, which is called *Superfetation.*

Note, That this last Sentiment is confirmed by the History related by *Pliny*, *lib.* 7. *Natur. Histor. c.* 11. of a Maid Servant, who having been engaged in amorous Embraces twice in the same Day with two different Persons, was deliver'd afterwards of two Children, one resembling her Master, and the other his Steward; and of another Woman, who was likewise delivered of two Children, one like her Husband, and the other like her Gallant.

This second Conception is certainly a Thing as rare as the Decision thereof is uncertain; therefore we are not to imagine, that every Time a Woman is delivered of several Children at a Birth, there is a *Superfetation*, for they are almost always the Product of a single Coition, through the Abundance of two Seeds, which are sometimes divided in the Matrice, because the Ejaculation thereof is made by Intervals.

We must not believe that a *Superfetation* can happen in all the Times of a Pregnancy, for if it happens, she can be made neither in the first, nor in the second Day of the Conception; because if other Seed was received so soon in the Matrice, there would happen a Mixture thereof, and a Confusion with the first, which then is not yet covered with that Pellicle, which could make a Separation of both, the Embrio being not entirely formed before the sixth or seventh Day: Besides, that the Matrice opening anew, there would ensue an entire Evacuation of the first Seed, not yet enveloped with that first thin Membrane which could preserve it. Which is the Reason why the History of the Servant-Maid, related by *Pliny*, appears incredible. For though she had been known twice in a Day by two different Persons, she could not have conceived two Children, since the Seed of the last Gallant had infallibly spoiled the Work of the first, by a Confusion of Seeds.

Others are of Opinion, that if there be such a Thing as a *Superfetation*, it must happen from the sixth Day of the Conception, or thereabout, to the thirtieth at farthest, because then the Seeds are cover'd with Membranes, and the Fœtus contain'd in the Matrice is yet very little; but that after that Time, a *Superfetation* is impossible, or at least very difficult, because the Matrice filling up more and more by the Growth of the Embrio, if it could receive the Seed, could not retain it.

And others, who consider the *Superfetation* as a Thing almost impossible, alledge for Reason, that the Matrice embraces always so close the Things it contains, that it leaves no empty Place in its Capacity, was it even filled with a foreign Body.

We know, according to *Hippocrates*, that two Children are Twins, *i. e.* have been both conceived of the same Coition, or one after the other by *Superfetation*, because if they are Twins, they be both brought forth into the World, in the same Day, *Quæ gemellos gestat, eâdem die parit, velut concipit.* This is not always true, though Twins are known, by that they are both very near of an equal Bigness, and have most commonly but one Placenta, or After-Birth, which is common to both, being only separated one from the other by their Membranes, which envelope each of them in particular with their Waters; for they are not both in one same Membrane, and in the same Waters, as some have falsely imagined.

But if there be several Children, and there has been a *Superfetation*, they will be likewise separated by their Membranes, but have besides each his own particular Placenta, every one of them of a different Bigness, that made by *Superfetation*, much lesser and weaker, than the other who was conceived first. It happens, also sometimes, that Twins are not of an equal Bigness, which happens according as one has more Strength than the other, to draw to himself a greater Abundance of their common Food.

Note, That M. *Mauriceau* tells us, that he deliver'd a Woman once, who was gone her full Time, first of a very large Girl alive, which he drew by the Feet

Feet, having presented herself in that bad Posture; and afterwards brought with the After-Birth another Child, who was a Boy, twice lesser than the Girl, and did not appear by his Bigness, to be more than four or five Months; though they had been both conceived together of a single, and the same Coition, which was discover'd by both having one and the same Placenta. He adds further, the last Child, which was a Boy, was so little, that he drew it all at once, together with the Placenta, and enveloped yet in his Membranes, which he open'd immediately, to see if the Child was alive, but found, by his being already corrupted, that he had been dead a long Time. This last Circumstance of M. *Mauriceau's* Relation, seems contrary to Experience; for a Child so long dead in the Matrice so as to be corrupted, should have caused very dangerous Symptoms to the Mother, as well as to the other Child, and very likely the Death of one of them (*viz.* of the Child, by infecting the Womb with putrid Exhalations, wherewith she had been violently affected, if not entirely suffocated) if not of both; for the least Disorder of the Matrice, has always a very great Effect on the Woman; therefore it cannot be imagin'd, that so strong a Child as represented by M. *Mauriceau*, could have been extracted from so distemper'd a Matrice; nor that the Mother could have carried long that dead Fœtus, without being attacked with frequent and violent Convulsions, *&c.*

Note also, That having discover'd all the different Signs of a *Pregnancy*, we must next instruct the pregnant Woman, *in what Manner she is to govern herself during the whole Course of Gestation, when accompanied with no considerable Accidents, and how to avoid those she is exposed to.*

I'll not amuse myself to prescribe here an exact Regimen to a Woman with Child, from the Time of her Conception, to that of her Delivery; for as that Regimen is to be agreeable to her Constitution, and to the Dispositions she finds herself in, during that Time, which are almost always as different as there are different Women with Child, the Climate, the Seasons, altering or changing often those Dispositions, I refer them to the Advices of a judicious Physician, or experienc'd Man-Midwife; and I'll confine myself in this Place (which otherwise would make a Volume of itself) to caution them against the most dangerous Accidents they are exposed to; beginning by a concise and general Regimen.

That Regimen consists principally in refraining as much as possible, the depraved Appetite they are troubled with during the Time of Gestation; which they may do by avoiding with Care, all they are conscious could occasion or indulge those depraved Appetites, vulgarly called Longings; and consulting, in those Occasions, their Reason, the Health and Preservation of their Fruit, rather than their depraved Imagination, or their Sensuality; for I am really of Opinion, that all those Longings, Women of an inferior Rank are more subject to, than those of a superior one, and who are more in a Condition to gratify those Longings, proceed rather from an Excess of Sensuality, than from a natural and absolutely necessary Cause; and that the too great Indulgence of a Husband, which proves often very oppressive to himself, and the rest of his Family, deprived of Necessaries, to gratify the sensual Appetite of a longing Wife, is often the Occasion thereof; of which I have seen several Instances, particularly here in *England*, where some Women *long* for every Thing they see, without the least Regard to the Circumstances of their Husband. I would not have a Husband refuse his Wife, in those critical Times, all that she can ask for in Reason, and what he can afford without prejudicing the rest of his Family; neither would I have him infatuated with the ridiculous Notion, that all he cannot very well afford, and his Wife longs for, endanger her Life, or that of her Child; for all those ridiculous Longings, if they make any Impression on the Embrio, it cannot be but at the Beginning of its Formation; for two or three Months afterwards, that he acquires every Day new Strength; they can affect him no otherwise than by the Mother, if frustrated of what she longs for, fretting, or putting herself in a Passion, which causes some Disorders in the Preparation of the chylous Substance, the Fœtus is fed with.

It would be very proper, that a Woman should abstain from *Coition*, for several Days after she has conceived, for the great Emotions, during the amorous Embraces, can be a great Obstacle to the Formation of the Fœtus; according to this Advice of *Hippocrates*, *lib. de sterelibus*, *Si mulier*, says he, *se concepisse cognoverit, primo tempore non amplius ad virum accedat, sed quiescat.*

A Woman with Child, must also avoid if possible all Sorts of violent Exercises, particularly Dancing, Jumping, Riding, *&c.* because those violent Exercises, cause often an Abortion, by relaxing the Ligaments of the Matrice. Though I am not of the Sentiment of those, who falsly imagine, that an indolent and sedentary Life, during the whole Time of Gestation, renders the Delivery less laborious; since Experience has convinced me of the contrary; and that a moderate Exercise, contributes more to a safe and quick Delivery, than all the Means Art can supply us with, notwithstanding what is said, that Exercise forces Nature to unburthen itself sooner than it would do, to the great Danger of the Mother and of her Child; for if Nature has appointed the Middle of the Body for the Gestation of the Child, and if it has made it float in Water, during the whole Time he remains in the Womb; it is through a Consciousness that being placed in that Part, and floating in Water, which give Way to any violent Impulse, he is not so much subject to the Accidents, which an active Life (so natural to us, that without Action we become a Chaos of Diseases or Infirmities) would expose him to, was he placed higher. A moderate Exercise, besides, renders the Preparation and Coction of the Aliments the Fœtus is fed with in the Womb, more laudable, and free from that great Quantity of terrestrial and phlegmatick Particles, a bad Digestion, occasioned by the Inaction of the Mother, would leave them loaded with; whereby the Fœtus itself would become heavy, lumpish, and almost uncapable of moving in the Womb; and at last fix on one Side rather than the other, to which last Accident the little Quantity of the Water it floats in contributes; for as those Waters proceed from the Vapours transpiring from the Child, and condensed against the Membranes he is enveloped in; as those Waters are in a lesser or greater Quantity, according as the Transpiration is greater or lesser, and the Transpiration is greater or lesser, according as the Fœtus is more or less active, it must be reasonably supposed, that a Child who is almost entirely inactive in the Matrice, cannot be environ'd with much Water; and consequently must, in Process of Time, as he grows bigger and heavier, be adherent to the Membranes; which Accidents are prevented by a moderate Exercise, which not only spiritualises his Aliments, but awakes him, likewise, or quickens his Motions in a moderate Manner. I knew a Woman, who having been advised to use little or no Exercise during several Pregnancies, for fear of any Accidents happening to her Children during Gestation, had always a very tedious and painful Labour, till having been advised by me to stir and walk, even to the last Days of her Reckoning, she never was afterwards, longer than two or three Hours in Labour.

So soon as a Woman knows herself with Child, she is not to lace herself too close, for while she expects to save her fine Shape, she prejudices her Child, by confining him within those Stays, and thereby either hindering him from growing, or forcing him to come before his Time, or rendering him counterfeit; and missing besides her chief End; for those Women, who thus endeavour to appear of a fine Shape, though they be big with Child, spoil their Belly, which after their Delivery, remains hanging as a Bag; for the Belly, by being thus confined, finding no Room to dilate itself equally on all Sides, is forced to dilate only towards the Bottom, which bears all the Burthen.

Women with Child being often subject to be hard bound, because the Matrice, by its Weight pressing hard on the intesting *Rectum*, is an Obstruction to the natural Evacuation of the Excrements, those afflicted with

that Incommodity, muſt abſtain from all Sorts of Aliments which could contribute towards it, by increaſing the Heat of the Entrails, a Pregnancy is but too often accompanied by it; but above all, from the immoderate Uſe of thoſe pernicious Liquors, ſo much in Vogue at preſent among Women of all Ranks and Conditions, which prove always prejudicial both to the Mother and to her Fruit, whoſe tender organical Parts are ſo much parched and imbecillitated therewith, that he brings into the World a precarious Health, which is paſt the Skill of the beſt Phyſician to reſtore afterwards; whence that Degeneracy in the human Race, which in our Days ſeem rather compoſed of Skeletons, or Shadows of Men, than of real Men, occaſioned by the Intemperance of the Mother. The frequent Uſe of roaſted Apples, of boiled Prunes, of Figs, and of all that can open the Body, proves very beneficial to Women who find themſelves extremely conſtipated during Geſtation; and if thoſe Things are not ſufficient, Glifters muſt be adminiſtered to them, of a Decoction of Maſhmallows, Parietary and Anis ſeeds, in which will be diſſolved two Ounces of brown coarſe Sugar, adding to it a Spoonful of Sweet-Oil; avoiding above all Things thoſe irritating Glyſters which could excite a Looſeneſs, or a too great Evacuation, which could cauſe an Abortion or Miſcarriage.

A pregnant Woman ſhould never be frightned nor ſurprized by any bad News, capable to excite within her an exceſſive Uneaſineſs, or Sorrow; for thoſe Paſſions when violent, are capable to throw the whole Œconomy of the Generation into a Diſorder or Confuſion, and even make a Woman miſcarry at that very Inſtant.

Vomiting and the Suppreſſion of the Menſes, are often the firſt Signs whereby Women perceive that they are with Child. That Vomiting is not always excited, as it has been falſely imagined, by the Humours gathered in the Stomach by the Suppreſſion of the Menſes, eſpecially in the firſt Days of their Pregnancy; but it is occaſioned by the Sympathy which is between the Stomach and the Matrice, by reaſon of the Similitude of their Subſtance, and that the Nerves inſerted in the ſuperior Orifice of the Stomach, have Communication by the ſame Continuity, with thoſe which run to the Matrice, which are Portions of the ſixth Pair of thoſe of the Brain; ſo that the Matrice, which by reaſon of its membranous Compoſition, has a very exquiſite Senſe, happening to diſtend itſelf in the Pregnancy, is then ſuſceptible of ſome Pain, which being communicated at the ſame Time by means of the Continuity of the Nerves, to the ſuperior Orifice of the Stomach, cauſes thoſe Vomitings and Nauſea's which commonly happen, eſpecially in the firſt Month of Geſtation.

Prognostick of this Vomiting.

In the firſt Month of the Geſtation Vomiting is but a ſimple Sympton, not at all dangerous; but if it continues longer, it extremely debilitates the Stomach, renders the Digeſtion of the Aliments imperfect, which generates a great Quantity of Humours in that Viſcera, which muſt be purged. Add to this, that the continual Subverſions of the Stomach, cauſing a great Agitation and Compreſſion of the Belly of the Mother, would procure an Abortion.

Note, That the Remedies preſcribed by ſome Phyſicians, to ſtop theſe Vomitings when they laſt too long, and are too violent, are all Sorts of gentle Catharticks, which purge gently downwards, as Manna, Rhubarb, Tamarins, Caſſia, Syrops of Violets, of Chichoræe, *&c.* For my Part, though I approve this Practice, I would preſcribe previouſly to it ſome Drops of Laudanum, to appeaſe the convulſive Motions of the Stomach, and then preſcribe the Catharticks, to evacuate the Humours which debilitate the digeſtive Faculty of its Diſſolvent.

The *Pains in the Loins, Reins, and Groins*, to which the Women with Child are ſubject, proceed from the Dilatation of the Matrice, and its exceſſive Weight and Compreſſion on the neighbouring Parts, which are commonly greater in the firſt Pregnancies than in the following, where the Matrice only re-aſſumes the firſt Dimentions it has had already: For when it has not been dilated yet, it is much more ſenſible, and the Ligaments which keep it in its natural Situation, ſuffer much greater Efforts in the firſt Pregnancy, having not been extended yet, than afterwards.

But the Pains which Women with Child feel in their Reins, do not always proceed from the ſame Cauſe; but ſometimes from a nephretick Cholick, which often excite Vomitings, which by their Violence cauſe ſuch a Commotion in the Matrice, and ſuch an Agitation of the whole Body, that they throw the Woman in Labour.

Note, That the Pains cauſed by the Extenſion, Dilation, or even Laceration of the Ligaments of the Matrice, are often remedied by the Woman keeping her Bed for ſome Days, by bleeding, and by ſome Fomentations on the Part, made with emollient Herbs, boiled in Lees of Wine. If thoſe Pains, eſpecially thoſe in the Loins, are accompanied with ſome Excretions of the Matrice, which had not appeared before, and thoſe Excretions are tinged with Blood, it is certain that the Matrice begins to open, and there will be a Miſcarriage. If by ſome violent Shake or Fall the Ligaments of the Matrice be broken, and the Woman cannot be perſuaded to keep her Bed, her Belly muſt be ſupported by a Bandage made for the Purpoſe, and wait as patiently as ſhe can for the Time of her Delivery.

As to the Pains in the Breaſts. So ſoon as a Woman has conceived, her monthly Evacuations being ſtopped, though ſhe continues to make daily new Blood, it is neceſſary, that as there is none conſumed during the firſt Month of Geſtation, the Veſſels which are too full, ſhould overflow thoſe Parts which are the moſt diſpoſed to receive it: As are the Glands and glandulous Bodies, particularly the Breaſts, which receive Abundance of it, which filling and ſwelling them extremely, cauſes thoſe Pains which Women with Child feel in them, to which thoſe who have only a Suppreſſion of their Menſes are ſubject likewiſe.

In thoſe Beginnings a Woman muſt only take Care not to hurt thoſe Parts by lacing her Stays too cloſe, to avoid Contuſions, which would perhaps degenerate into Inflammations, and thoſe Inflammations into Abſceſſes: But when after the third Month of Geſtation, the Blood flows thither in too great Abundance, it *muſt* be evacuated by bleeding in the Arm, which is the ſureſt Remedy on thoſe Occaſions.

The moſt dangerous Symptoms a Woman with Child is ſubject to, are a *Cough*, and a *Difficulty of Reſpiration*, eſpecially if the Cough be very violent, which often cauſes a Miſcarriage: Becauſe by its Efforts the Lungs endeavouring to expel from the Breaſts what excites the Cough, there happens a Contraction of all the Muſcles of the Reſpiration, which thereby preſſing ſtrongly the Air contained within, preſſes likewiſe the Diaphragm downwards, and conſequently all the Parts of the Abdomen, but particularly the Matrice, which receives then ſuch a Commotion, if the Paroxyſm of coughing be ſtrong, and continues a long Time, that thereby the Placenta is ſometimes looſened; and then the Matrice being no longer able to contain it, is forced to open, to expel it before the Time appointed by Nature.

The Cough is ſometimes cauſed by acrimonious Serofities, which diſtill from the Brain on the Trachea, and on the Lungs; and ſometimes likewiſe, by an acrimonious Blood which overflows all the Parts of the Body towards the Breaſt, after the Suppreſſion of the Menſes; as alſo by having catched Cold. The Cough is often increaſed beſides by the Matrice preſſing hard on the Diaphragm, which hinders its free Motion.

Whatever may be the Cauſe of the *Cough* of a Woman with Child, ſhe muſt abſtain from all the Aliments which could increaſe it, ſuch as Salt, Pepper, and all Sorts of Acids; uſing thoſe which can help towards ſweetning the Maſs of the Blood. I would preſcribe to her every other Night, when ſhe goes to Bed, a large Glaſs of Emulſion, made with the four large Cold-Seeds, and the Syrup of Maidenhairs, and a Dyet Drink made with Jujubes, Dates, and Liquorice.

If the Difficulty of Reſpiration and Cough proceeds from the Matrice preſſing too hard on the Diaphragm, which happens oftner when a Woman is pregnant of

her first Child, than in any other Pregnancy, because the Ligaments of the Matrice are not yet very well extended; there is in my Opinion, no better Remedy than a moderate Exercise, and walking often up and down, whereby the Child being excited to move downwards, causes a greater Extension of those Ligaments, and sets the Diaphragm more at Liberty. Exercise, besides, dissipating the Winds, which otherwise would render the Respiration still more difficult: All other Remedies prescribed on that Occasion are needless.

As to the *various Swellings and Pains in the Thighs and Legs*: Those who have any Knowledge of the Circulation of the Blood, will conceive easily the Reason why several Women with Child have their Thighs and Legs swelled; with Varices in the inward Parts thereof: Which, in my Opinion, proceeds from that Nature being deprived of its ordinary Evacuations by the Suppression of the Menses; the Blood and other Impurities, which along with it used to be purged by means of those Evacuations, following still their natural Course downwards, but being stopped in the Middle thereof, are thrown by their Propensity downwards on the Right and Left, towards the inferior Parts of the Body, where finding no Vent, they force their Passage through the smallest Fibres remified in those Parts, which they overflow by the Laceration of a great Number of those Fibres; which Extravasation of the Blood and Humours, intercepting in some measure the Circulation of the Blood in those Parts, causes those varicous Swellings, always attended either with Wearinesses or Pains.

Some begin the Cure of this Distemper by bleeding the Arm, which cannot be disapproved, provided it be not too copiously done, *i. e.* not exceed three Ounces, since by that Means the Air being introduced into the Vessels, accelerates the Circulation of the Blood, whereby it disengages itself, either by insensible Transpiration, and sometimes by a gentle Sweat of the Humours, which otherwise must have fallen into those Parts. Fomentations made with aromatick Herbs boiled in Wine, are a very good Remedy to dissipate the Swelling and Varices, already formed; dipping Pieces of Flanel in the Wine, and applying them on the Parts, as hot as the Patient can suffer it. I would take Care also to purge gently once or twice, the Woman afflicted with those Symptoms.

The same superfluous Blood, stopped by the Suppression of the Menses, and which I have said causes the varicous Swelling of the Thighs and Legs, causes likewise the *Hemorrhoides* or *Piles*, almost all breeding Women are afflicted with; though they also proceed sometimes from the great Efforts a Woman with Child makes in going to Stool, when she is constipated; because the Matrice being situated on the *Rectum*, renders, by pressing it, the Evacuation of the Excrements contained in it very difficult; and by those Efforts the Blood which is in the neighbouring Vessels being pushed with Violence, swells up their Extremities, to which by its sojourning in them, happen those painful Tumours called Hemorrhoides, some of which are internal, and others external, the one small and with but little or no Pain at all.

If they be small and without Pain, whether internal or external, it suffices to hinder them from growing bigger; which may be done by Remedies proper to dissipate the Fluxion, but the Cure of those extremely swelled, must be began by appeasing the Pain, otherwise the Fluxion will increase still more and more; which is done by bleeding the Woman once or twice in the Arm, and ordering her to abstain from Coition, or any Thing else which can contribute towards overheating her. But if the Excrements stopped in the Rectum, be the Cause of the *Hemorrhoides*, they must be evacuated by a Glyster made only with a Decoction of Bran, and some Leaves of Marshmallows, adding to it a Spoonful of Honey, and another of Oil of Sweet Almonds; lining the Canulle or Clyster-Pipe with the Gut of a Chicken, for Fear it should hurt the Anus. The *Piles*, if they be external, must also be anointed with an Ointment made of *Populeum*, and an Oyster-shell calcined, very well pounded, and mixed afterwards with the Populeum. This Remedy, which is of my own Invention, I know by Experience to be very efficacious.

If the Tumour be not dissipated by the aforesaid Remedies, Leaches must be applied to the Anus, which by their sucking will empty the Blood stopped in those Parts.

Note, That though by means of the Hemorrhoides, there happens in Men an Evacuation which approaches very near the natural, they being eased by it, when they flow moderately, Nature being used to it; it is not so of Women, because the Evacuation which happens sometimes by means of the Hemorrhoides in Men, must be made through the Matrice in Women, when they are not with Child; which notwithstanding during Gestation it can in some measure, if the Women be plethorick, supply likewise, the Want of a natural Evacuation; for, provided the *Piles* flow moderately, and without Pain, the Woman can likewise be eased by it; but if they were to flow in too great Abundance, the Mother and Child could be weakned by it. To avoid that Accident, astringent Fomentations ought to be made to the Part, with a Decoction of Pomegranate's Peel, and red Roses, in the Water of a Forge, to which is added a little Allum; or a Cataplasm applied to it, made of Bole Armoniack, Sanguis Draconis, and Terra Sigillata, with the White of an Egg. A Revulsion should also be made by bleeding in the Arm, and dry Vantouses applied on the Loins.

It happens also, that a Woman with Child is often afflicted with an *immoderate Flux of the Belly*, or *Looseness*.

Note, That there are three different Sorts of these *Fluxes*, the first called *Lienterick*, in which the Aliments are evacuated with but very little Appearance of Digestion, proceeding from the Imbecillity of the Stomach: The second *Diarrhœick*, when the Excrements are evacuated without any considerable Pain in the Intestines: And the third, which is the most dangerous, is the *Dysentrick*, whereby the Patient voids Blood together with the Humours and Excrements, with violent Pains caused by the Ulceration of the Intestines.

Of what Sort soever be the Flux of the Belly, if it be immoderate, and continues long, it always puts the Woman with Child in a great Danger of Abortion. For if the Flux be *Lienterick*, the Aliments flowing from the Stomach almost undigested, and without being converted into Chyle, both the Mother and her Child being thereby deprived of their Food, must become extremely weak. If it be *Diarrhœick*, and continues long, it causes the same Accident, because a great Dissipation of Spirits is made with the Evacuation of the Humours: But the Danger is much greater when the Flux is *Dysenterick*, because then the Woman feels excessive Pains in the Intestines, caused by the Ulceration thereof, whereby she has continual Motions to go to Stool, which occasion a violent Commotion of the Matrice, and of the Child contained therein, and procures at last a Miscarriage; and sometimes causes the Death of the Mother, especially if the Flux does not stop after the Delivery.

To proceed with Safety in the Cure of those different Sorts of Flux, very often occasioned by the Stomach being weakned, by the immoderate Appetite of the Woman with Child, or extravagant Longings; the Nature thereof must be carefully examined. If it be a *lientrick Flux*, caused by the immoderate and extravagant Appetite of the pregnant Woman; that Appetite must be refrained above all Things; in lieu thereof she must make use of good Aliments of an easy Digestion, and in a small Quantity at once, till the Stomach has recovered its former Strength.

When the Flux is *Diarrhœick*, and nothing else is evacuated but the Excrements contained in the Intestines, there is not the least Danger, provided it be not attended with Pains, and does not continue long, when one must content himself then with moderating that Flux without stopping it. But if it lasts longer than four or five Days, it must be stopped by degrees, in purging, by means of gentle Cathartecks, the acrimonious Humours, which are the Cause thereof.

But if notwithstanding the aforesaid Regimen and Remedies,

medies, the Flux continues, and is changed into a Dysenteria, the Stools of the Patient being very frequent, painful, and bloody, then she is in a great Danger of miscarrying; which must be avoided if possible, by prescribing to her, besides the Remedy above-mentioned, some Drops of Laudanum; and Clysters made with a Decoction of the Leaves and Roots of Plantin, of Red Roses, and Pomegranate-Peel, boil'd in the Water of a Forge, to which may be added two Drachms of Sanguis Draconis. — I have prescribed, with great Success, for those Maladies, an Infusion of Rhubarb in good old red Wine, the Extract of Mars Astringent, and a Julep made of Planten Water, and Syrrup of Quinces, an Ounce of each, and fifteen Drops of Laudanum. But the Purgatives must be used before the Astringents, since they are prescribed to carry off the Cause of the Distemper, which otherwise would return, even with more Violence than before, if we minded nothing else but how to appease its Symptoms.

We know by a frequent Experience, that though a Woman be with Child, she may have notwithstanding her monthly Evacuations, especially if she is of a sanguine or pituitous Constitution; not through the Bottom of the Matrice, as it is done, when she is not with Chid, because that Passage is really stopped by the Placenta adhering to it, but through two Vessels which Nature has appointed for that Use, and which come from the spermatick Vessels.

When a Woman with Child voids Blood downwards, it must be carefully observed whence it flows, and in what Manner; if they be common Menses, or a true Loss of Blood. If they be common, they'll flow periodically as usual, though not from the Bottom of the Matrice, but from its Neck; which may be easily discover'd, if by introducing the Finger into it, its internal Orifice is found shut close, which would not be if the Blood flowed from the Bottom thereof; as likewise, if it flows without Pain, and in a small Quantity, all which Circumstances are not found in a Loss of Blood, vulgarly called *Floodings*, as we'll see by and by.

It must be examined, likewise, if that Flux proceeds from Superfluity only, or from the Acrimony of the Blood, or from the Debility of the Vessels which contain it; in order to apply proper Remedies.

If the Flux proceeds only from a too great Abundance of Blood, instead of being dangerous, it proves rather beneficial to the Mother and to her Child, when moderate; for if the Matrice was not eased of that superfluous Blood, the Child would be suffocated and drown'd in it; considering that at the Times of those Evacuations, which happens always in the first Months of a Pregnancy, the Child is yet very little.

But if there be no Sign of Abundance or Plenitude, in the Body of the Woman, who before she was with Child, had her Menses but in a very little Quantity, and which, notwithstanding, flow during her Pregnancy, it is a Sign that the Flux proceeds either from the Heat, and Acrimony of the Blood, or the Debility of the Blood-Vessels. It is of those Women *Hippocrates* speaks, *Aphorism* 6. where he says, that the Child of those who have the Menses in the Time of Gestation, is not healthy; because his being deprived thereby of the greatest Part of his Subsistence, an Abortion ensues.

To hinder that Flux from producing such an Accident, the Woman must abstain from all Sorts of Exercise, and from all that can over-heat her Blood. Notwithstanding which, if the Flux should continue, a Revulsion must be made, by bleeding in the Arm, if the Strength of the Woman will allow it; prescribing afterwards some pleasant Styptick.

There is a great Difference betwixt the Flux above-mention'd, and what is called *a Loss of Blood*, or Flooding; for in this the Blood flows from the Bottom of the Matrice, with Pain in Abundance, and without Interruption, unless some Clods of congealed Blood, seem sometimes to diminish the Accident, by stopping, for a short Time, the Place whence it flows; but soon afterwards, those Clods of Blood being expelled, or falling of themselves into the Matrice, it begins to flow anew, with still greater Violence than before; which soon causes the Death both of the Mother and Child, unless it be remedied, by the quick Delivery of the Woman; or if she be not far gone in her Pregnancy, by the Expulsion of the Embrio, which I know by Experience gives immediate Relief; and for which I have prescribed with great Success, *a few Drops of Oil of Gujacum.*

When that *Loss of Blood* happens in the first Month of a Pregnancy, it is commonly caused by a false Conception, whereof the Matrice endeavours to disburthen itself; because in the Efforts it makes for that Purpose, some Vessels open in the Bottom thereof, whence Blood flows, without Interruption, till the Matrice has expelled all the foreign Bodies contain'd in its Capacity.

But when that *Loss of Blood* happens to a Woman pregnant of a true Conception, it is likewise by the Opening of the Vessels in the Bottom of the Matrice, caused by some Blow, Fall, or the like; and principally from that the After-Birth, on those Occasions, or on others, happening to be separated either entirely, or in Part, from the Bottom of the Matrice (to which it must be adherent to receive the Aliments of the Child from the Mother) all the Orifices of the Vessels to which it was joined, remain thereby open, whence ensues immediately a great Flux of Blood, which the more advanced is the Term of the Pregnancy, is commonly the more abundant and dangerous; because the Vessels of the Matrice swell in Proportion as the Child grows bigger; and a Loss of Blood, thus caused, cannot be stopped otherwise than by the Delivery of the Woman, because the After-Birth being once separated from the Matrice, was it even but in Part, is never re-united to it; whenas the Matrice, on the contrary, contracting itself immediately after the Delivery, stops by that Contraction of its own Substance, the Orifices of the Vessels, whereby the Loss of Blood ceases; which otherwise continues, while the Matrice is distended by the Child, and the other Things contain'd in its Capacity.

Though it be said, that for the Reasons above-mention'd, the Woman must be deliver'd on that Occasion, to stop the Flux of the Blood; it is not pretended, that so soon as that Flux is perceived, one is to proceed in that Manner; for Losses of Blood, when little, are seen to continue for a whole Month; and others to stop sometimes, by the Woman keeping her Bed, or by bleeding in the Arm. Some Women with Child have been seen to void Blood through the Matrice, in a pretty considerable Quantity, and even in Clods, who, notwithstanding have gone their full Time. That Blood proceeded then from some Vessels which open towards the Outside of the inward Orifice, which notwithstanding remains close all the Time. For though the Blood flowing in Abundance, and in Clods, be commonly a Sign that it flows from the Vessels in the Bottom of the Matrice, and the Sign likewise of an approaching Abortion; it happens, sometimes, notwithstanding, though very seldom, that those Clods of Blood proceed only from that which flows from some Vessels which terminate to the Outside of the internal Orifice; which Blood not coming out of the Matrice so soon as it is out of its Vessel, is clodded in that Manner in the *Vagina*, by sejourning a little in it, by Reason of the Situation the Woman may have been in at the Time the Blood was extravasated. Therefore to judge safely if a Woman with Child, who voids Blood in Clods through the Matrice in a great or moderate Quantity, be ready to miscarry, she must be touched, for if the internal Orifice be found open, as far as into its inward Part, and through that Aperture the Child, or his Membranes, be felt with the Finger to present himself, it is then a very sure Sign, that the Blood comes from the Bottom of the Matrice, and that the Woman will soon miscarry.

If the Blood flows but in a small Quantity, and the Evacuation is of a short Duration, Nature then must be let to operate in the Delivery, provided the Woman has Strength enough, and is not attended with any other dangerous Accident. But when the Blood flows suddenly in so great Abundance, that the Woman falls in frequent Sincops or Convulsions, in that Case the Operation is not to be deferred; and it is absolutely necessary to deliver the Woman, whether she be at Term or not, has Labour-Pains, or none; because there is but that sole Expedient left to save her Life, and that of

of her Child, otherwise her Life will fly with her Blood.

Note, That in such a dangerous Occasion one must not always wait to deliver a Woman, for Pains which force downwards; for though a Woman in that deplorable Condition has felt those Sorts of Pains at first, she seldom has any of them when the Flooding is arrived to that Excess as to cause Sincops or Convulsions; neither ought a Midwife, or Man-midwife defer till the Matrice be much open, because that great Effusion of Blood humecting it much, and the Sincops relaxing it, cause that it may be then as easily dilated, as if she had had the strongest Pains; which must be done by putting the Woman in a convenient Situation for her Delivery; then the Surgeon or Man-midwife having anointed his Hand with Oil or Pomatum, shall introduce, by little and little, his Fingers joined together, into the Matrice, and part them from one another, when they'll be at the Entrance thereof, to dilate it sufficiently by little and little, and, if possible, without any Violence; which done, and having his Hand entirely in the Part, if he finds that the Membranes of the Water are not broken yet, he shall make no Difficulty to break them, to slide at the same Time his Hand inside of them; after which, whatever Part the Child presents first, was it even the Head (unless it be too far advanced in the Passage) he must always in that Occasion, go to search for the Feet of the Child to draw him out, observing all the Circumstances which I'll mention when I'll speak of the Delivery, where the Child presents the Feet first, because there is a better Hold, and a greater Facility, to draw the Child by the Feet than by the Head, or any other Part; this done, he shall deliver the Woman of her After-birth, which is always very little adherent in those Encounters; taking great Care to leave no Clods of Blood in the Matrice, otherwise the Flux would continue, whenas when nothing is left behind, it ceases by degrees, with all the dangerous Accidents it was attended with.

Note, also, that though I have said, that it is absolutely necessary to deliver the Women who have those great Losses of Blood, to endeavour through that Means to save her Life, and that of her Child; it is not to be expected that they are all saved thereby; for if that necessary Succour is deferred too long, some of them die soon after the Operation; and if the Loss of Blood proceeds from a Wound in the Matrice, or a Laceration of the Substance thereof, caused by a too great Distension, or otherwise, as it sometimes happens (and which cannot be discovered but by opening the Body of the Woman after her Death) then there is no Remedy, and all Women in that deplorable Condition die, though they be even delivered by the sole Operation of Nature, or succoured in Time by a skilful Surgeon; because the Matrice which has suffered Violence by some Wound, or some considerable Contusion, cannot contract itself so exactly after Delivery, nor so well re-unite its Fibres and Substance to stop the Orifices of the Vessels opened by Laceration, as it would do if it had received no Lesion, and the Vessels had been no otherwise opened but by a simple *Anastomosis*; besides, that if the Woman was to survive some Days to her Delivery, an Inflammation happens very easily in the wounded Matrice; which infallibly causes the Death of the Patient.

Note, again, That the frequent fainting Fits, with Loss of Knowledge, convulsive Motions, *&c.* are almost always certain Signs of Death, when they proceed from a great Loss of Blood in a Woman with Child; one must not neglect on all those Occasions, and even in the most desperate, the Delivery of the Woman, which is the only Remedy in those Cases, though it be not always certain. M. *Mauriceau* says, that he has observed, that the Women who have the internal Orifice of the Matrice, thin, soft, and smooth, are easier saved after the Operation, than those who have it thick, hard, and rough.

As in those great Losses of Blood, there happen always very frequent fainting Fits, one must endeavour to preserve what Strength remains in the Patient, and increase it if possible, that she may have enough to undergo the Operation, and to escape afterwards; which may be done by moderating the Flux of the Blood, with some efficacious Styptick, which I know by Experience is not impossible, and which is of more Effect than any Thing else which can be administred to the Patient, since it moderates the too excessive Dissipation of the Spirits, and keeps in a greater Quantity of them in the Space of few Minutes, than the greatest Restorative could make in several Hours; though it be not improper to have Recourse to these likewise, provided they be astringent; as good old Red Wine. I have prescribed on those Occasions, some Spoonfuls of Mutton's Juice, extracted without Water, either between two deep Dishes at a very slow Fire, or in Balneo Mariæ, given by Intervals; and the Styptick I have invented has never failed of Success.

As to *the Weight, and bearing down, or Relaxation of the Matrice in Women with Child.* The *Weight of the Matrice*, is when Women with Child feel at the Bottom of their Belly an extraordinary Weight, either by reason of the Suppression of their Menses, or because the Matrice, by the Weight of what is contained in its Capacity, falls on its Neck, and sometimes so low, that they cannot walk but with great Difficulty; at which time it is not likewise possible for them to use Coition.

We call that *bearing down*, or *Relaxation of the Matrice*, when it descends only into the *Vagina*, without coming out at the *Pudendum*; for in that Case it would be a Fall or Precipitation of the Matrice, which is a much more dangerous Malady; which does not happen commonly to Women with Child, because the Extent of the Matrice hinders it from thus precipitating itself entirely. The Precipitation of the Matrice can be seen, and likewise felt by introducing the Finger into the *Vagina*, for one meets presently with the Matrice, and its internal Orifice which is very near the *Pudendum*, particularly when the Woman is standing up.

This *bearing down* is often caused by a Relaxation of the Ligaments of the Matrice, and particularly of the large ones, which must keep it fast on each Side towards the Loins, to hinder it from falling down; which Relaxation proceeds either from the Weight of the Burthen it carries and contains, which causes an uncommon Extension of the Ligaments, or from some Fall, which giving it violent Shakes, produces the same Effects, and much more when the Burthen is heavier; as likewise from a hard Labour, and bad Delivery, which has preceded the present Pregnancy; but it is caused often, or at least facilitated, by an Abundance of Humidity, which soaking those Ligaments, relax them thus; to which are subject Women of a phlegmatick Constitution.

Besides that the *Bearing down* of the Matrice, hinders, as we have already observed, the Woman with Child from walking, and from using freely of Coition; it causes likewise, by its Weight, a Stupor in the Loins, Pains in the Groin, and Numbness in the Thighs: As also a Difficulty of making Water, and of going to Stool, by a Compression of the Bladder, and of the *Rectum*, between which it is situated.

A Woman is easier cured of a *Bearing down of the Matrice*, after her Delivery, than during her Pregnancy; because having been eased of her Burthen, the Ligaments are strengthened with more Facility. Add, that at that Time, Pessaries can be introduced into the Part, to keep it in its natural Situation.

Note, That whatever may be the Cause of the *Bearing down of the Matrice*, the best Remedy is for the Woman to keep her Bed; for while she is up, the Weight of the Part increases the Relaxation of the Ligaments; and if her Circumstances will not allow it, she must wear a Pessary, to keep the Part in its natural Situation: And if her Belly be very high, as it commonly is towards the latter Months, it must be supported by a large Bandage made for that Purpose, to hinder thereby the excessive Extension of the Ligaments. But if the Relaxation of those Ligaments proceeds from superfluous Humidities, the Woman must be purged gently from Time to Time, abstaining from Coition, because in the Action the

medies, the Flux continues, and is changed into a Dysenteria, the Stools of the Patient being very frequent, painful, and bloody, then she is in a great Danger of miscarrying; which must be avoided if possible, by prescribing to her, besides the Remedy above-mentioned, some Drops of Laudanum; and Clysters made with a Decoction of the Leaves and Roots of Plantin, of Red Roses, and Pomegranate-Peel, boil'd in the Water of a Forge, to which may be added two Drachms of Sanguis Draconis. —I have prescribed, with great Success, for those Maladies, an Infusion of Rhubarb in good old red Wine, the Extract of Mars Astringent, and a Julep made of Planten Water, and Syrrup of Quinces, an Ounce of each, and fifteen Drops of Laudanum. But the Purgatives must be used before the Astringents, since they are prescribed to carry off the Cause of the Distemper, which otherwise would return, even with more Violence than before, if we minded nothing else but how to appease its Symptoms.

We know by a frequent Experience, that though a Woman be with Child, she may have notwithstanding her monthly Evacuations, especially if she is of a sanguine or pituitous Constitution; not through the Bottom of the Matrice, as it is done, when she is not with Chid, because that Passage is really stopped by the Placenta adhering to it, but through two Vessels which Nature has appointed for that Use, and which come from the spermatick Vessels.

When a Woman with Child voids Blood downwards, it must be carefully observed whence it flows, and in what Manner; if they be common Menses, or a true Loss of Blood. If they be common, they'll flow periodically as usual, though not from the Bottom of the Matrice, but from its Neck; which may be easily discover'd, if by introducing the Finger into it, its internal Orifice is found shut close, which would not be if the Blood flowed from the Bottom thereof; as likewise, if it flows without Pain, and in a small Quantity, all which Circumstances are not found in a Loss of Blood, vulgarly called *Floodings*, as we'll see by and by.

It must be examined, likewise, if that Flux proceeds from Superfluity only, or from the Acrimony of the Blood, or from the Debility of the Vessels which contain it; in order to apply proper Remedies.

If the Flux proceeds only from a too great Abundance of Blood, instead of being dangerous, it proves rather beneficial to the Mother and to her Child, when moderate; for if the Matrice was not eased of that superfluous Blood, the Child would be suffocated and drown'd in it; considering that at the Times of those Evacuations, which happens always in the first Months of a Pregnancy, the Child is yet very little.

But if there be no Sign of Abundance or Plenitude, in the Body of the Woman, who before she was with Child, had her Menses but in a very little Quantity, and which, notwithstanding, flow during her Pregnancy, it is a Sign that the Flux proceeds either from the Heat, and Acrimony of the Blood, or the Debility of the Blood-Vessels. It is of those Women *Hippocrates* speaks, *Aphorism* 6. where he says, that the Child of those who have the Menses in the Time of Gestation, is not healthy; because his being deprived thereby of the greatest Part of his Subsistence, an Abortion ensues.

To hinder that Flux from producing such an Accident, the Woman must abstain from all Sorts of Exercise, and from all that can over-heat her Blood. Notwithstanding which, if the Flux should continue, a Revulsion must be made, by bleeding in the Arm, if the Strength of the Woman will allow it; prescribing afterwards some pleasant Styptick.

There is a great Difference betwixt the Flux above-mention'd, and what is called *a Loss of Blood*, or Flooding; for in this the Blood flows from the Bottom of the Matrice, with Pain in Abundance, and without Interruption, unless some Clods of congealed Blood, seem sometimes to diminish the Accident, by stopping, for a short Time, the Place whence it flows; but soon afterwards, those Clods of Blood being expelled, or falling of themselves into the Matrice, it begins to flow anew, with still greater Violence than before; which soon causes the Death both of the Mother and Child, unless it be remedied, by the quick Delivery of the Woman; or if she be not far gone in her Pregnancy, by the Expulsion of the Embrio, which I know by Experience gives immediate Relief; and for which I have prescribed with great Success, *a few Drops of Oil of Gujacum.*

When that *Loss of Blood* happens in the first Month of a Pregnancy, it is commonly caused by a false Conception, whereof the Matrice endeavours to disburthen itself; because in the Efforts it makes for that Purpose, some Vessels open in the Bottom thereof, whence Blood flows, without Interruption, till the Matrice has expelled all the foreign Bodies contain'd in its Capacity.

But when that *Loss of Blood* happens to a Woman pregnant of a true Conception, it is likewise by the Opening of the Vessels in the Bottom of the Matrice, caused by some Blow, Fall, or the like; and principally from that the After-Birth, on those Occasions, or on others, happening to be separated either entirely, or in Part, from the Bottom of the Matrice (to which it must be adherent to receive the Aliments of the Child from the Mother) all the Orifices of the Vessels to which it was joined, remain thereby open, whence ensues immediately a great Flux of Blood, which the more advanced is the Term of the Pregnancy, is commonly the more abundant and dangerous; because the Vessels of the Matrice swell in Proportion as the Child grows bigger; and a Loss of Blood, thus caused, cannot be stopped otherwise than by the Delivery of the Woman, because the After-Birth being once separated from the Matrice, was it even but in Part, is never re-united to it; whenas the Matrice, on the contrary, contracting itself immediately after the Delivery, stops by that Contraction of its own Substance, the Orifices of the Vessels, whereby the Loss of Blood ceases; which otherwise continues, while the Matrice is distended by the Child, and the other Things contain'd in its Capacity.

Though it be said, that for the Reasons above-mention'd, the Woman must be deliver'd on that Occasion, to stop the Flux of the Blood; it is not pretended, that so soon as that Flux is perceived, one is to proceed in that Manner; for Losses of Blood, when little, are seen to continue for a whole Month; and others to stop sometimes, by the Woman keeping her Bed, or by bleeding in the Arm. Some Women with Child have been seen to void Blood through the Matrice, in a pretty considerable Quantity, and even in Clods, who, notwithstanding have gone their full Time. That Blood proceeded then from some Vessels which open towards the Outside of the inward Orifice, which notwithstanding remains close all the Time. For though the Blood flowing in Abundance, and in Clods, be commonly a Sign that it flows from the Vessels in the Bottom of the Matrice, and the Sign likewise of an approaching Abortion; it happens, sometimes, notwithstanding, though very seldom, that those Clods of Blood proceed only from that which flows from some Vessels which terminate to the Outside of the internal Orifice; which Blood not coming out of the Matrice so soon as it is out of its Vessel, is clodded in that Manner in the *Vagina*, by sejourning a little in it, by Reason of the Situation the Woman may have been in at the Time the Blood was extravasated. Therefore to judge safely if a Woman with Child, who voids Blood in Clods through the Matrice in a great or moderate Quantity, be ready to miscarry, she must be touched, for if the internal Orifice be found open, as far as into its inward Part, and through that Aperture the Child, or his Membranes, be felt with the Finger to present himself, it is then a very sure Sign, that the Blood comes from the Bottom of the Matrice, and that the Woman will soon miscarry.

If the Blood flows but in a small Quantity, and the Evacuation is of a short Duration, Nature then must be left to operate in the Delivery, provided the Woman has Strength enough, and is not attended with any other dangerous Accident. But when the Blood flows suddenly in so great Abundance, that the Woman falls in frequent Sincops or Convulsions, in that Case the Operation is not to be deferred; and it is absolutely necessary to deliver the Woman, whether she be at Term or not, has Labour-Pains, or none; because there is but that sole Expedient left to save her Life, and that of

of her Child, otherwise her Life will fly with her Blood.

Note, That in such a dangerous Occasion one must not always wait to deliver a Woman, for Pains which force downwards; for though a Woman in that deplorable Condition has felt those Sorts of Pains at first, she seldom has any of them when the Flooding is arrived to that Excess as to cause Sincops or Convulsions; neither ought a Midwife, or Man-midwife defer till the Matrice be much open, because that great Effusion of Blood humecting it much, and the Sincops relaxing it, cause that it may be then as easily dilated, as if she had had the strongest Pains; which must be done by putting the Woman in a convenient Situation for her Delivery; then the Surgeon or Man-midwife having anointed his Hand with Oil or Pomatum, shall introduce, by little and little, his Fingers joined together, into the Matrice, and part them from one another, when they'll be at the Entrance thereof, to dilate it sufficiently by little and little, and, if possible, without any Violence; which done, and having his Hand entirely in the Part, if he finds that the Membranes of the Water are not broken yet, he shall make no Difficulty to break them, to slide at the same Time his Hand inside of them; after which, whatever Part the Child presents first, was it even the Head (unless it be too far advanced in the Passage) he must always in that Occasion, go to search for the Feet of the Child to draw him out, observing all the Circumstances which I'll mention when I'll speak of the Delivery, where the Child presents the Feet first, because there is a better Hold, and a greater Facility, to draw the Child by the Feet than by the Head, or any other Part; this done, he shall deliver the Woman of her After-birth, which is always very little adherent in those Encounters; taking great Care to leave no Clods of Blood in the Matrice, otherwise the Flux would continue, whenas when nothing is left behind, it ceases by degrees, with all the dangerous Accidents it was attended with.

Note, also, that though I have said, that it is absolutely necessary to deliver the Women who have those great Losses of Blood, to endeavour through that Means to save her Life, and that of her Child; it is not to be expected that they are all saved thereby; for if that necessary Succour is deferred too long, some of them die soon after the Operation; and if the Loss of Blood proceeds from a Wound in the Matrice, or a Laceration of the Substance thereof, caused by a too great Distension, or otherwise, as it sometimes happens (and which cannot be discovered but by opening the Body of the Woman after her Death) then there is no Remedy, and all Women in that deplorable Condition die, though they be even delivered by the sole Operation of Nature, or succoured in Time by a skilful Surgeon; because the Matrice which has suffered Violence by some Wound, or some considerable Contusion, cannot contract itself so exactly after Delivery, nor so well re-unite its Fibres and Substance to stop the Orifices of the Vessels opened by Laceration, as it would do if it had received no Lesion, and the Vessels had been no otherwise opened but by a simple *Anastomosis*; besides, that if the Woman was to survive some Days to her Delivery, an Inflammation happens very easily in the wounded Matrice; which infallibly causes the Death of the Patient.

Note, again, That the frequent fainting Fits, with Loss of Knowledge, convulsive Motions, *&c.* are almost always certain Signs of Death, when they proceed from a great Loss of Blood in a Woman with Child; one must not neglect on all those Occasions, and even in the most desperate, the Delivery of the Woman, which is the only Remedy in those Cases, though it be not always certain. M. *Mauriceau* says, that he has observed, that the Women who have the internal Orifice of the Matrice, thin, soft, and smooth, are easier saved after the Operation, than those who have it thick, hard, and rough.

As in those great Losses of Blood, there happen always very frequent fainting Fits, one must endeavour to preserve what Strength remains in the Patient, and increase it if possible, that she may have enough to undergo the Operation, and to escape afterwards; which may be done by moderating the Flux of the Blood, with some efficacious Styptick, which I know by Experience is not impossible, and which is of more Effect than any Thing else which can be administred to the Patient, since it moderates the too excessive Dissipation of the Spirits, and keeps in a greater Quantity of them in the Space of few Minutes, than the greatest Restorative could make in several Hours; though it be not improper to have Recourse to these likewise, provided they be astringent; as good old Red Wine. I have prescribed on those Occasions, some Spoonfuls of Mutton's Juice, extracted without Water, either between two deep Dishes at a very slow Fire, or in Balneo Mariæ, given by Intervals; and the Styptick I have invented has never failed of Success.

As to *the Weight, and bearing down, or Relaxation of the Matrice in Women with Child.* The *Weight of the Matrice*, is when Women with Child feel at the Bottom of their Belly an extraordinary Weight, either by reason of the Suppression of their Menses, or because the Matrice, by the Weight of what is contained in its Capacity, falls on its Neck, and sometimes so low, that they cannot walk but with great Difficulty; at which time it is not likewise possible for them to use Coition.

We call that *bearing down*, or *Relaxation of the Matrice*, when it descends only into the *Vagina*, without coming out at the *Pudendum*; for in that Case it would be a Fall or Precipitation of the Matrice, which is a much more dangerous Malady; which does not happen commonly to Women with Child, because the Extent of the Matrice hinders it from thus precipitating itself entirely. The Precipitation of the Matrice can be seen, and likewise felt by introducing the Finger into the *Vagina*, for one meets presently with the Matrice, and its internal Orifice which is very near the *Pudendum*, particularly when the Woman is standing up.

This *bearing down* is often caused by a Relaxation of the Ligaments of the Matrice, and particularly of the large ones, which must keep it fast on each Side towards the Loins, to hinder it from falling down; which Relaxation proceeds either from the Weight of the Burthen it carries and contains, which causes an uncommon Extension of the Ligaments, or from some Fall, which giving it violent Shakes, produces the same Effects, and much more when the Burthen is heavier; as likewise from a hard Labour, and bad Delivery, which has preceded the present Pregnancy; but it is caused often, or at least facilitated, by an Abundance of Humidity, which soaking those Ligaments, relax them thus; to which are subject Women of a phlegmatick Constitution.

Besides that the *Bearing down* of the Matrice, hinders, as we have already observed, the Woman with Child from walking, and from using freely of Coition; it causes likewise, by its Weight, a Stupor in the Loins, Pains in the Groin, and Numbness in the Thighs: As also a Difficulty of making Water, and of going to Stool, by a Compression of the Bladder, and of the *Rectum*, between which it is situated.

A Woman is easier cured of a *Bearing down of the Matrice*, after her Delivery, than during her Pregnancy; because having been eased of her Burthen, the Ligaments are strengthened with more Facility. Add, that at that Time, Pessaries can be introduced into the Part, to keep it in its natural Situation.

Note, That whatever may be the Cause of the *Bearing down of the Matrice*, the best Remedy is for the Woman to keep her Bed; for while she is up, the Weight of the Part increases the Relaxation of the Ligaments; and if her Circumstances will not allow it, she must wear a Pessary, to keep the Part in its natural Situation: And if her Belly be very high, as it commonly is towards the latter Months, it must be supported by a large Bandage made for that Purpose, to hinder thereby the excessive Extension of the Ligaments. But if the Relaxation of those Ligaments proceeds from superfluous Humidities, the Woman must be purged gently from Time to Time, abstaining from Coition, because in the Action the

Penis ſtriking with Violence againſt the internal Orifice of the Matrice, could chance to make it open before Term, and thereby cauſe a Miſcarriage.

As to the *Hydropſy of the Matrice*, it is nothing elſe but a Quantity of Water gathered in the Capacity of the Matrice. This Accident has often deceived Phyſicians, Surgeons, Midwives, and the Patients themſelves, who expecting to be delivered of a Child, void only Abundance of Water.

Theſe Waters are either generated in the Matrice, or carried thither from other Parts, as when in the Hydropſy of the Abdomen, they paſs by Tranſudation, through the porous Subſtance of the Membranes of the Matrice.

They are generated in the Matrice, when it is too much cooled or debilitated, by a bad and violent Delivery which has preceded, or becauſe the ſuperfluous Impurities it uſed to void, have been a long Time ſuppreſſed.

When the Waters contained in the Capacity of the Matrice come from other Parts, they are not unveloped in particular Membranes, and are only retained by the internal Orifice of the Matrice being exactly cloſed, and flow as ſoon as it begins to open.

But if they be generated in the Matrice (which happens principally after Coition, from the Seeds being too cold, aqueous, or corrupted) then they are ſometimes contained in Membranes; in which Caſe a Woman is not ſo ſoon delivered of them, but carries them often very near as long as a Child. It is this Sort of Hydropſy which cauſes that at the Beginning, ſhe imagines herſelf really with Child, but the Indiſpoſition continuing longer than the ordinary Term of Pregnancy, ſhe loſes all Hope; and the longer this Malady laſts, the more a Woman is in Danger of her Life, increaſing ſometimes to that Exceſs, that Women have been ſeen to have more than thirty Quarts of Water contained in their Matrice.

Note, That *Waſſale* ſays to have opened a Woman, in whoſe Matrice he found above ſixty Meaſures of Water, each Meaſure containing three Pints. *Schenkius, lib.* 4. *obſerv.* relates ſeveral Hiſtories of that Nature, particularly of a Woman whoſe Matrice was found ſo exceſſively full of Water, and ſo prodigiouſly extended, that it was capable to contain a Child of ten Years of Age.

One will be capable to know eaſily, and diſtinguiſh the *Hydropſy of the Matrice* from a true Pregnancy, if he reflects on all the Signs I have mentioned in ſpeaking of a true Pregnancy, which are not commonly diſcovered in that Malady. It is true, that a Woman will have then her Belly ſwelled, and a Suppreſſion of Menſes, as in a true Pregnancy; but there will be ſeveral other Signs to ſhew the Difference; for in the *Dropſy* the Breaſts are flabby, and hanging down, there is a greater Weight, and more Pains in the Belly, and the Complection of the Woman is much worſe, than if ſhe was really big with Child.

As this *Hydropſy* can happen alone, it alſo accompanies ſometimes a true Pregnancy, thoſe Waters being contained without the Membranes of the Child, in the Capacity of the Matrice; for though there be much Water in thoſe Membranes, it is not properly an *Hydropſy of the Matrice*, becauſe there is always ſome naturally, in which the Child ſwims; which notwithſtanding, they are ſometimes in it in ſo great a Quantity, and ſwell ſo prodigiouſly the Belly of the Woman, that ſhe is thought to be big with two or three Children, though ſhe be but with one, who is extremely weakned, becauſe the greateſt Part of his Food is diſſolved into Water, which almoſt extinguiſhes and ſuffocates what remains in him of natural Heat. Some Women have been ſeen to void two or three Pints of thoſe Waters, two or three Months before their Delivery; when that happens the Waters are then in the Matrice without the Membranes of the Child, for otherwiſe the Child would come out ſoon after the voiding of thoſe Waters.

Note, That the voiding of thoſe Waters during Geſtation, can alſo proceed from Part of thoſe the Child ſwims in, after a ſlight Rupture or Laceration of their Membranes. I ſay, of a Part only; for if they were voided entirely, the Labour would ſoon follow that Evacuation.

Note, alſo, that the *Hydropſy of the Matrice* can ſucceed to the Generation of the Child; but that a Generation can never be accompliſhed in a Matrice which is hydropſical, becauſe it ſhould open to receive the Seed, in which Caſe, the Waters contained in the Matrice would be either immediately voided, or corrupt the Seed received.

The beſt Remedy for thoſe Sorts of Hydropſies, if there be a Child with it, is to wait with Patience the Hour of the Delivery, uſing at the ſame Time of deſiccative Remedies. If there be nothing but Water contained in the Matrice, the Half-bath is very proper to make it open, as are likewiſe all the Remedies which provoke the Menſes, and if thoſe Remedies have no Effect, the Woman muſt be preſcribed the Uſe of Mineral Waters.

As to the *œdematous Swelling of the Labia of the Pudendum*. The Matrice is often ſo full of Humidities, that they overflow on the outward Parts, eſpecially on the neighbouring, *viz.* on the Labia of the Pudendum, whereby they become ſo big, and ſo much tumified in ſome Women, that they cannot approach their Thighs near one another; which is the Cauſe that they walk but with the greateſt Difficulty.

It has been obſerved, that Women big with ſeveral Children are very ſubject to that Indiſpoſition, towards the latter Months of their Pregnancy; and that at that Time they have always their Legs much ſwelled.

This Swelling of the Labia of the Matrice is then lucid and almoſt tranſparent, much like an Hydrocelle, becauſe of the great Quantity of clear Water it is filled with; and as it could be very painful, and troubleſome to the Woman during her Labour, becauſe by that Swelling the Paſſages are rendered narrower, it muſt be remedied before; which muſt be done by opening the Ways of the Urine, with ſome Diureticks; for thoſe Swellings proceed often from the Obſtruction of the Reins, or elſe by making, if it be neceſſary, ſome ſlight longitudinal Scarifications on thoſe Labia, whereby the Humidities are evacuated by degrees, anointing the Part afterwards with the Unguentum of Roſes, and applying upon it Compreſſes dipped in aromatick Wine, to hinder the Recidive.

When thoſe Tumours are œdematous only, and without Fever, though they be ever ſo big, they are not commonly dangerous, if they be remedied in the Manner above preſcribed; but when they proceed from an Inflammation of thoſe Parts, which is always attended with Fever; then the Woman dies of it, a few Days after her Delivery, becauſe the Inflammation which appears at thoſe external Labia, is but an Effect and Communication of that which is inſide of the Matrice. According to *Hypocrates, Aphoriſm.* 43. *lib.* 5. *Si muliери prægnanti fiat in utero eryſipelas, lethale eſt.*

Note, That the Labia of the Vulva have been ſeen in pregnant Women, much ſwelled by a Quantity of Varices, which rendered the Tumour very uneven, and cauſed in it a dolorous Pruritus. That Accident happens to Women who are of a too ſanguine Conſtitution, and are commonly very hard bound; which to remedy, they muſt be let Blood in the Arm, their Belly kept open, and they abſtain from Coition.

As to the *Venereal Diſeaſe a Woman with Child may be afflicted with*. It is not very difficult to conceive, how a Woman with Child, and infected with the *Venereal Diſeaſe*, communicates it to the Child in her Womb, becauſe that contagious Malady corrupting the whole Maſs of the Blood of the Mother, it is impoſſible the Child fed with that corrupted Subſtance, ſhould not be infected therewith.

The *Venereal Diſeaſe*, which is but of one ſame Kind in its Eſſence, and is only diſtinguiſhed by its Degrees into more or leſs, communicating itſelf to the Child, by Means of the Subſtance of the Mother he feeds upon, makes more or leſs Impreſſion on his tender Body, as the Degree thereof is greater or leſs: And if the Woman with Child has Ulceries very near her Matrice, *viz.* in its Neck, or the neighbouring Parts; the Venom, by that

†

that Proximity, will be ſtill eaſier carried to him.

As to the *Cure of this Diſtemper in Women with Child.* —When a Woman is in the latter Months of her Pregnancy, one muſt wait till after her Delivery to attempt the Cure, and likewiſe, that of her Child, if he be infected therewith; becauſe the Delivery happening, while the Woman is under Cure, ſhe would be in Danger of her Life; and if her Child at that Time was to come dead into the World, his Death would be attributed to the Violence of the Remedies, and the Surgeon accuſed of Temerity.

When the Diſeaſe is gone yet no farther than its firſt Degree, and is not attended with great Accidents, the eradicative Cure thereof, muſt be, likewiſe, deferred, till after the Delivery, and preſcribe but palliative Remedies, as a convenient Regimen, ſome gentle Purgatives, reiterated from Time to Time, to ſtop the Progreſs of the Diſeaſe. But if the Woman be yet but in the firſt Months of her Pregnancy, and has the Venereal Diſeaſe to the laſt Degree, accompanied with dangerous and continual Symptoms, which are Indications, that it is almoſt impoſſible ſhe could wait till her Delivery, to be treated; becauſe being yet very far from her Term, thoſe Symptoms increaſing more and more, would corrupt her Fruit, and cauſe a Miſcarriage; in that Caſe, to avoid the greateſt of the two Evils, if ſhe has a ſufficient Strength, the Cure may be attempted; which muſt be done by adminiſtering to her the Remedies gently, and with Circumſpection; ſo that the Evacuations be ſmaller and laſt longer; rather than procure them too violent, and too ſudden.

Some are of Opinion, that the Frictions, in the ſuperior Parts only, are to be preferred to any other Remedies; and that no mercurial Preparations are to be adminiſtered inwardly; becauſe, ſay they, they would put the Woman in Danger of miſcarrying, by the continual Efforts ſhe would be obliged to make to go to ſtool, whereby the Matrice would be extremely agitated. But my Sentiment is, that gentle mercurial Preparations, can be adminiſter'd inwardly, and ſafely, in thoſe Caſes, as well to a pregnant Woman, as to any other Perſon; ſince there are mercurial Preparations, which purge ſo very gently, and without the leaſt Effort, that they can be adminiſtered, even to Children, not above four or five Years of Age; and far preferable to the Frictions, which let them be made on what Part of the Body one pleaſes, ſhake always the whole Frame, relax the Parts, and conſequently the Ligaments of the Matrice with the reſt.

Note, That the Sentiment that the Cure of a Woman infected with the Venereal Diſeaſe, and with Child, can be attempted, even with Hope of Succeſs, during the Time of Geſtation, is confirmed by an Example given by the famous M. *Mauriçeau*, who ſays, that in 1660, while he practiſed *Midwifry*, at the *Hotel Dieu*, at *Paris*, a young Woman, which he took for a Lady of Pleaſure, came to lay in there of her ſecond Child; who having been infected with the Venereal Diſeaſe before her firſt Pregnancy, was delivered before Term, then, of a dead Child, and all rotten with that Diſtemper. But when ſhe was with Child for the ſecond Time, perceiving that the Accidents of her Malady increaſed more and more, ſhe judg'd that there was no Hope that her ſecond Pregnancy ſhould ſucceed better than the firſt; becauſe ſhe had all over her Body, and particularly in her Breaſts, a Quantity of malignant Ulcers, which increaſed daily; and was afraid they would turn at laſt into a Cancer, before ſhe could be ready to lay in, being but yet three Months gone: She took the Reſolution then to undergo a thorough Cure; and to run the Riſk of her Life, in order to go her full Time, and be deliver'd of a live Child, thinking that it was not poſſible ſhe could do it otherwiſe, or herſelf reſiſt the frequent dangerous Symptoms of her Malady, which increaſed more and more every Day. She communicated her Deſign to three or four Surgeons, telling them, at the ſame Time, that ſhe was with Child; who all three refuſed to undertake the Cure, while ſhe was pregnant, becauſe ſhe would be then in an imminent Danger of her Life, but adviſed her to wait with Patience till after her Delivery, when they would be at her Service. Therefore as ſhe ſaw, that none would perhaps undertake it, unleſs ſhe concealed her Pregnancy, which, ſhe being but three Months gone with Child was not very diſcernible, ſhe applied herſelf to another, who knowing nothing of her Pregnancy, treated her, as it is cuſtomary in thoſe Maladies, and beſides the other Remedies uſed on thoſe Occaſions, gave her by five or ſix reiterated Frictions, a copious Salivation, which laſted five whole Weeks, whereby ſhe was perfectly cured, without feeling afterwards the leaſt Symptoms of her former Diſtemper, went her full Time, at the End whereof ſhe was deliver'd, by the ſame M. *Mauriçeau*, of a ſtrong and healthy Child: And what was the more ſurpriſing, in that Caſe, is, that the After-Birth, which is the more ſuſceptible of Corruption, was clear, red, very fine, and very ſound.

I'll conclude this conciſe Detail of the Maladies a Woman with Child is ſubject to, *by the Abortion, and Cauſes thereof.* When a Woman voids what had been retained in the Matrice, after Conception, that's called *Efluxion*, i. e. running of the Seeds; becauſe at that Time they have not acquired yet any ſolid Conſiſtence. If ſhe throw out a falſe Conception (which commonly happens from the End of the firſt, to that of the ſecond Month) we call it *Expulſion*; but when the Child is already formed, and has began to have Life, let him be ever ſo little, if he happens to come out before the Time appointed by Nature, it is an *Abortion*; which can happen from the End of the ſecond Month, or even before, to that of the ſeventh only; for after that Time, it is always a true Labour; becauſe the Child being then ſtrong enough, and having a ſufficient Perfection, can live, which he cannot before that Time. This previouſly underſtood I'll ſay, that,

ABORTION, is the Child coming imperfect out of the Matrice, before the Time appointed by Nature; which is the Cauſe that he often comes out dead; or if he be alive, he dies ſoon after he is born.

All Sorts of violent Maladies, can be the Cauſe of *Abortion*, becauſe they kill the Child, who being dead cannot remain long in the Matrice; which alſo puts the Mother in Danger of her Life, who often periſhes ſoon after her Miſcarriage, or even before. Even intermittent Fevers alone, can cauſe an *Abortion*, by exciting falſe Pains in the Womb, which occaſion a real Labour; and are excited by the Fermentation of the Waters the Child ſwims in, extremely heated in the Time of the hot Paroxiſm of the Fever, and by that of the Blood, which is in great Abundance in all the Veſſels of the Placenta, of the Matrice, and of the neighbouring Parts; for thoſe Waters taking up much more Space than uſual, when thus over-heated, as well as the Blood, cauſe a great Diſtenſion of the Membranes they are contain'd in, whereby the Matrice is irritated; as alſo by the too frequent Motions of the Child, who ſtirs extraordinarily at the ſame Time the Fever redoubles.

The particular Cauſes of *Abortion*, are all the Accidents heretofore mention'd; and a violent and frequent Vomiting, which deprives both the Mother and Child of their Food, when the Aliments are thus expelled from the Stomach, and cauſes her to make violent Efforts, whereby the Matrice is violently compreſſed, and at laſt forced to diſburthen itſelf before the Time.— The Pains in the Loins, and the violent Cholicks, can alſo cauſe the ſame Accident. Likewiſe the Strangury, becauſe there happens then continually, very ſtrong Compreſſions of the Abdomen, for the Evacuation of the Urine. — A violent Cough by its frequent Agitation puſhing ſuddenly and with great Efforts the Diaphragm downwards, gives, likewiſe, violent Shakes to the Matrice. — A violent Looſeneſs puts a Woman with Child in Danger of miſcarrying; and much ſooner, if afterwards there happens a Teneſma, *i. e.* frequent and violent Motions to go to ſtool, whereby the Inteſtine *rectum*, endeavours to evacuate certain acrimonious Humours, which continually irritate its Membranes; for in that Occaſion the Matrice which is ſituated on that Inteſtine, receives a very great Commotion.

If the Menſes flow much during Geſtation, it is impoſſible

possible the Child should be strong, since in that Evacuation, there happens a very great Dissipation of the Spirits of the Mother; and the Matrice being too much humected, relaxes and opens easily.

But one of the most dangerous Accidents, which cause an *Abortion* or Miscarriage, is the Separation of the After-Birth from the Matrice heretofore mention'd.— The Hydropsy of the Matrice hinders the Child from being brought to Perfection; for the too great Abundance of Water extinguishes the natural Warmth, already much debilitated.

All that agitates, and shakes violently the Body of a Woman with Child, is capable to cause a Miscarriage; as a violent Work, a strong Contusion, or Motion, either in Falling, Jumping, Dancing, running a Foot, or on Horseback, riding in a Coach, or in a Cart, Hollowing, Laughing immoderately, or some Blow received on the Belly; because by those Agitations and Commotions, there happens a Relaxation of the Ligaments of the Matrice, which even break sometimes, as likewise the After-birth, and the Membranes of the Matrice are separated from it.— A sudden and unexpected violent Noise, like that of Thunder, Cannon, *&c.* can also cause an Abortion, if it be attended with Fear, especially in young Women, because their Body, says *Mauriçeau*, being more tender and transpirable than that of those more advanced in Years, the Air being excessively agitated by that Noise, introduces itself into the Pores, whereby it agitates violently both the Matrice and the Fœtus. But this Reason does not seem satisfactory to me; for I am rather of Opinion, that by the great Surprize caused by such an unexpected Noise, in a timorous Woman, there happens a Stagnation of the animal Spirits in her Body, whereby the Child being deprived of them all on a sudden, as of an indispensable and necessary Supply on which his Life depends, he struggles extremely for it, and in those violent Agitations, the Ligaments of the Matrice are either loosen'd or broken; and sometimes the After-birth separated from the Matrice, whence a Miscarriage ensues.— Fœtid and stinking Smells, can also contribute to a Miscarriage, and particularly that of Charcoal.

There are also Indispositions of the Matrice, which produce the same Accident; as when it is callous or so small, or so much compressed by the Epiplon, that it cannot extend itself so much as it is necessary to lodge the Child at Ease, with the After-Birth and the Waters he swims in.— This can happen, likewise, if the Woman, to appear a fine Shape, laces herself too close, or makes Use of a Busk.— The frequent Use of Coition, especially towards the latter Months of Gestation, can produce the same Accident; because the Matrice then being extremely full, inclines much downwards, and its internal Orifice being very near, is pushed upwards by the Penis, which thereby excites it sometimes to open sooner than it should.

If Women with Child miscarry without having suffered any of the Accidents above-mention'd, it is either by Reason of the Smallness of their Shape, lean Women who miscarry in the second or third Month, without any manifest Cause, because the Cotyledons of the Matrice (which are the inward Orifices of its Vessels) are full of a slimish Matter, which hinders it from retaining the Fœtus. Pituitous Women are very subject to that Accident, as well as those who have a great Abundance of the *Whites* (as they call it) the continual Affluence thereof, humect so much the Inside of the Matrice, and renders it so slippery, that the Placenta cannot adhere to it; which also relaxes it, and its internal Orifice in such a Manner, that the least Accident causes a Miscarriage. The same Thing happens to Women who have too much Blood, as those who have their Menses in great Abundance, before they are with Child: Because the great Quantity of Blood stopped by their being pregnant, breaks forth sometimes all on a sudden, whereby the Child is suffocated, and the Matrice opened for his Expulsion.

A passionate Woman, is also very subject to Abortion, because in the frequent Paroxisms of her Rage, the Circulation of the animal Spirits is so excessively accelerated and disturbed, that it throws the whole Matrice into a Sort of Convulsion.

There are likewise, Causes of Abortion which proceed from the Children themselves, as when they are monstrous; when they have not a natural Situation; which disturb them so much, that they force the Matrice to expel them; and likewise when they are so big that it cannot contain them till Term, nor the Mother supply them with a sufficient Quantity of Aliments.

As to *the Signs of an approaching Miscarriage.*— If one perceives, that after one, or several of the Accidents above specified, a Woman has a great Pain in her Belly, and about her Loins, and with it, some Clods of Blood are voided through the Matrice, and the Membranes of the Child are broken, they are sure Signs of an approaching Miscarriage, which in that Case cannot be prevented by any Remedy whatever. If a Woman feels a great Weight in her Belly, which falls as a Lump on that Side the Child lies, and her Matrice voids stinking and cadaverous Humidities, it is a Sign that she is to miscarry soon of a dead Child.

It is certain, that a Woman who miscarries, is in a much greater Danger of her Life, than one who goes her full Time; because, as I have observed already, Abortion is entirely against Nature, and is very often accompanied with a great Loss of Blood, which is more or less dangerous, according as the Cause of Abortion is more or less violent, whether it has been occasioned by Remedies taken inwardly, or by some Blow, Fall, *&c.*

Note, That first Miscarriages always put a Woman in Danger of a Recidive; and there are even many Women, who are afraid of being ever capable to have any Children, because they have miscarried the first Time; to which those newly married are very subject, occasioned by the violent Emotion of the whole Body, excited by ardent and frequent Coitions; which notwithstanding they preserve their Fruit after their Love has been a little satiated and cooled. *Aetius* says, that Abortion is more dangerous in a strong Woman, whose Matrice is tough and dense, than in any other. And *Hippocrates, lib. de septim.* assures us, that there happens more Abortions in the first two Months, than in all the others.

The best and most specifick Remedies for all the external Accidents, which can cause an Abortion, is the Repos; which must be proportioned to the Violence of the Accident. As for the other Remedies which can be administer'd on those Occasions, I refer the Reader to what I have said of them already, to avoid a Repetition; observing however, in this Place, that if a Woman is to be let blood, after a violent Fall, Blow, *&c.* to prevent a Miscarriage, it should be done as soon as possible, without any Fear of accellerating the Miscarriage; far from it, since there is not a better Remedy to keep the Child in the Womb, for by that Means, the Quantity of the Blood being diminished, it is hinder'd from flowing with too great Abundance towards the Matrice; and makes it take another Road.

Note, That all those who are called to treat Women with Child in their Maladies; must take a particular Care to prevent as much as possible, and by all Sorts of Remedies, a Miscarriage, in a Woman afflicted with a continual Fever; for almost all the Women to whom that Accident happens, die soon afterwards; and especially those whose Fever is accompanied with a Fluxion in the Breast. Without flattering themselves with the vain Hopes, that the great Evacuation occasioned by the Delivery, can abate the Fever; and the Woman render'd more capable to take the necessary Remedies. Far from it, for the Fever increases immediately after, and redoubles by the entire Suppression of the Evacuations, which always happens then, and those Impurities falling on the inward Parts, form there a Depositum, which is always mortal.

Note also, That from this theorical Part of *Midwifry*, treating of all that happens before, and after Conception; and of all the Maladies and Accidents a Woman with Child is subject to, during the whole, and different Times of her Pregnancy, I'll pass to the practical Part thereof; where I'll treat of a *natural Labour*, and of those which are *against Nature*, teaching the Man-

ner of helping a Woman in the former, and how to remedy to all the others; beginning by informing the Reader what we understand by *Delivery*, the *Differences*, and *different Terms thereof*.

We understand by Delivery the Emission, or Extraction of a Child at Term, out of the Matrice; which Definition includes both the *natural Labour*, and those *against Nature*.

To know the Difference between a *natural Labour*, and that *against Nature*, we must observe that there are four Conditions required, without which a Labour cannot be accounted *natural*. The first is, that it must be *at Term*; the second, that it be *quick*, and without any considerable Accident; the third, that the Child be *alive*; and the fourth, that he be *well formed*, and presents himself in a *natural Situation*: For if there be any of those four Conditions wanting, the Labour is against Nature; and much more so, if several of them are wanted.

Note, That several very great Disputes and Difficulties have arisen in all Ages, relating to the first of the Conditions above-mentioned; of which Women of a licentious Life have often attempted to take Advantage; we must notwithstanding inform them in this Place, that all Authors, Physicians, as well as Lawyers, have agreed at last among themselves, that the most ordinary Terms, are the seventh Month, and the Ninth, and particularly the ninth. *Hypocrates* is of Opinion, that a Child coming at eight Months cannot live, because he cannot bear to make so strong Efforts so near one another; having already endeavoured to come out at the seventh Month, which (says he) is the first legitimate Term of Delivery; which having been incapable to accomplish, and repeating the same Efforts at the eighth Month, if he comes into the World at that Time, he is so much debilitated, that it is impossible he could live; which cannot be said if he comes in the first Attempt he makes in the seventh Month, his Strength having not been exhausted before by vain Efforts.

Others on the contrary pretend, that *Hypocrates's* Sentiment is contrary to Experience, because none but the Matrice alone, assisted by the Compression of the Muscles of the Abdomen and of the Diaphragm makes the Expulsion of the Child, when being irritated by its Bigness and Weight, it can extend itself no further to contain him; which is not done, say they, according to this vulgar Opinion, that the Child (being grown so big, that the Aliments he receives from his Mother are no longer sufficient for his Subsistance, and wanting Room to stir) makes violent Efforts to come out, and in those Efforts breaks with his Feet the Membranes which contain the Waters he swims in, since if the Labour be *natural*, it is the Head, which pressing and pushing the Waters at every Pain the Woman feels, makes the Membranes to burst at last with Violence: Therefore those Gentlemen cannot agree, that the Children born at seven Months, live sooner than those born at eight, pretending, that on the contrary, they know by Experience, that Children are stronger, the nearer they approach the most natural Term, which is that of nine Months, for which Reason the Children born at eight Months live sooner than those born at seven.

My Sentiment is, that in natural Labours a Child falls from the Womb like a ripe Fruit from a Tree, when brought to its last Perfection; that after that Fall, the Part he is contained in, by its Contraction re-assumes its natural Form, and himself by the natural Propensity he has to break his Prison, conquer together the Obstacles which oppose his Passage, and make him answer the Intentions of Nature in his Formation. That the longer Time appointed by that wise and careful Mother of all sublunary Things, cannot exceed nine Months; and if a Child comes sooner in a natural Labour, *i. e.* at seven or eight Months, he can live, because then he comes always a Creature perfect in all his Parts, though sooner than usual, because those Parts in their first Delineation having taken less Room, and having been drawn as in Miniature, are sooner brought to their last Dregree of Perfection, and do not want so great a Number of *Touches* to fill up the *Desein*. For, contrary to the Sentiment of those who consider Children of seven Months almost as abortive, we have seen some of them live to a great Age; I have known one in *Britanny* who lived till he was 84 Years old; and the late Elector of *Cologn*, *Joseph Clement* of *Bavaria*, if I have been rightly informed, was born at the seven Month.

Note, also, That several Women imagine to have been delivered at seven or eight Months, and others to have carried their Child ten Months, though they were all delivered at Nine. What most commonly deceives them is, that they believe to be with Child ever since the Time of the Retension of their Menses, though they had them during the two first Months of their Pregnancy, and sometimes longer; and others are deceived likewise, because theirs were suppressed one or two Months before they conceived. It is also very easy to know that a Woman herself, though in good Order, cannot even be very sure by that Suppression, of the Time of Pregnancy. For, *v. gr.* if she cohabits with her Husband at the Time her Menses are ready to flow, and conceives, she'll begin to reckon from the Time of their Suppression; in which there will be little or no Mistake: But if she conceives immediately after the Suppression of her Menses (as it most commonly happens) and uses every Day for a whole Month of Coition, and at the End of that Time her Menses don't return, then she'll think herself with Child; notwithstanding which she cannot be sure by that Sign, which Time has done the Business, and may be mistaken in her Reckoning of three Weeks, or a Month, more or less. Therefore there is no Dependance on that Indication, which can serve only for a simple Conjecture, unless the Woman had abstained from Coition, from the very Instant she imagines to have conceived.

As we have said, that Children are more or less likely to live, as they approach nearer the End of the ninth Month; we can easily judge that those of six Months, much less those of five, four, *&c.* cannot live long, because they are yet too weak to resist the Injuries of the Air, *&c.*

A great Contestation has often happened between Physicians, to know if a Child, born eleven or twelve Months after the Death of his Father, be legitimate, and consequently can inherit his Estate, or be frustrated of it, as a spurious Child. This difficult Question was often agitated among the *Romans* as well as among us; and there were then, and have been since very learned Physicians, and famous Jurisconsults, *Pro* and *Con*. And though it was a great Temerity in the Physicians to attempt to prescribe Laws to Nature, which receives none but from her divine Creator, I am of Opinion, that the Legitimacy of a Child born eleven or twelve Months after his supposed Father's Decease, is very dubious, if not entirely impossible; and that those who would defend it could very well be guilty of Fraud, by introducing spurious Heirs in a Family, who are considered as such by the *French* Jurisconsults, when born so long after the Husband's Decease.

If a full Term be necessary for a *natural Delivery*, the good Situation of the Child is no less requisite; for he must come into the World the Head foremost, and in a direct Line, having his Face turned downwards, *i. e.* towards the Posteriors of his Mother, his Arms along his Sides, and his Legs extended upwards. This Figure is the best, and most convenient, because after the Head, which is of all the Parts of the Child the most firm and strong, is passed, all the others come out easily, and in that Posture, it being impossible that any of the Articulation, or Joints of his Body should bow, they cannot stop his coming out.—But any other Part which presents itself foremost in a Delivery, renders it laborious and preternatural, in which Case there is sometimes a great Risk for the Mother or the Child, and sometimes for both, if they be not quickly and dexterously succoured.

Note,

Note, That those who have not a perfect Knowledge of all the Parts of a human Body, cannot conceive how it be possible, that a Child who is so big should pass through the Aperture of the Matrice which is so little; and imagine with *Gallien*, and several other Authors, that the Bones *Pubis* of the Women are at that Time separated from one another, to make Way for the Child; without which, they believe that it is impossible the Child should have enough Room to come out; and that, for the same Subject, Women already advanced in Years, suffer much more than others in their first Labour, because their Bones *Pubis* cannot be so easily separated, which often causes the Death of the Child in the Passage. Others pretend, that it is the Bones *Ilium*, which are parted from the *Os Sacrum* for the same Subject. And the one and the other say, that the Bones thus separated at the Time of their Delivery, have been by degrees disposed to it before, by the slimy Humidities which run from the neighbouring Parts of the Matrice, which soften then the Cartilage which join them another Time. But these two Opinions are equally contrary to Truth and Reason, because the Anatomy shews us, that those Bones are so well joined, that it is even very difficult to separate them with the *Scapelle*, particularly the Bones *Ilium*, from the *Os Sacrum*, and almost impossible in Women advanced in Years, without very great Violence. Therefore, if they ask how a Child can come out of the Matrice without that Separation? I'll answer, that if we take the Pains to examine narrowly the different Figure and Structure of these Bones, in the Skeleton of a Woman, and in that of a Man, we'll find that there is a much greater empty Space, and a much more considerable Distance from one of those Bones to the other in Women, than in Men; and that the smallest Woman has the Bones *Ischion*, more distant from one another than the biggest Man. They have likewise the *Os Sacrum* more outward, and the *Os Pubis* more flattened; which renders the Going out of that Capacity much larger, and sufficient to give Passage to the Child in the Delivery. They have besides the Bone *Ilium* much more bent outward; that in the Pregnancy the Matrice may have more Room to extend itself Sideways, and be easier supported.

Neither can the Bladder and Rectum, after they have voided the Excrements they contained, hinder the Matrice, which has been made membranous for the Purpose, from dilating itself sufficiently as it does, to give Passage to the Child in the Delivery, thro' that large empty Space, which suffices without a Separation of those Bones; for if that Separation should happen, the Woman could not stand up, as several do, immediately after they have been delivered, because they serve to support all the other Bones, both of the superior and inferior Part of the Body.

Note, also, That having sufficiently discovered what a *Labour* is, and all the Differences thereof; we must examine next the Signs, which commonly both precede and accompany a *natural Labour* or *Delivery*: Therefore,

The *Signs which precede a natural Labour*, and which happen a few Days before, are, that the Woman begins to feel some uncommon Pains in her Loins, and the Tumour of her Belly which was very high, falls down all on a sudden, which hinders her from walking so easily as she used to do, and causes her frequent Motions of making Water; there flows then from the Matrice certain slimy Humidities, designed by Nature to humect the Passage, and render it slippery, that the inward Orifice thereof may be easily dilated when wanted; which beginning at that Time to open by degrees, voids those Slimes, proceeding from the Humidities transuding through the loose Texture of the Membranes of the Child, and acquire that slimy Consistence by the Heat of the Places it runs through.

The *Signs which accompany a present Labour*, i. e. indicate that a Woman is really in *Labour*, are that she feels great Pains towards the Region of the Reins and Loins, which coming and growing stronger by Intervals, are felt in the Bottom of her Belly. All her privy Parts are tumified, because the Head of the Child when near the Passage, pushes forward the neighbouring Parts, which appear tumified likewise; and when a Vomiting happens, it is commonly a Sign that the Woman shall be soon delivered, because thereby the Pains grow more frequently greater and longer; short and small Pains, though frequent, rendering most commonly a Labour very tedious, and exhausting the Strength of a Woman. When the Humidities, voided at that Time through the Matrice, are tinged with Blood, it is an infallible Mark that the Woman will soon be delivered; and then if the Finger be introduced into the Neck of the Matrice, its inward Orifice will be found open, and the Mouth thereof; the Membranes in which the Child is contained, present themselves, which Membranes are strongly compressed, at every Pain the Woman feels, during which they are felt to resist, and appear to the Finger more or less hard, as the Pains are more or less strong. Afterwards the Pains growing continually stronger and stronger, the Membranes break by the strong Impulsion of the Waters, which are evacuated in an Instant; and then the Child is easily felt, since it presents itself at the Aperture of the inward Orifice of the Matrice.

Note, That when all those Signs, or Part of them, meet together, whether the Woman be at Term or not, one may be sure that she'll soon be deliv[illegible] Sp[illegible] must not be put in Labour, before the Necessity thereof be known by those Signs; otherwise it would be tormenting the Mother and her Child in vain, and put them both in Danger of their Lives; for though the inward Orifice of the Matrice, be sometimes enough dilated, for the Introduction of the Finger into it, and the Head of the Child is even felt through the Membranes, and the Woman feels some Pains in the Abdomen, one must not always conclude hence, that she is then really in Labour; for though there be a great Appearance of it, the Thing notwithstanding is not entirely sure, unless those Pains be felt at the Bottom of the Belly, and the Waters to range themselves between the Head of the Child and the Membranes: Therefore that Circumstance must be carefully observed, to avoid Mistakes in the Prognostick. This necessary Caution is confirmed by the Example of two Midwives of *Paris*, who having been sent for by the Wife of a Merchant, told her that she was really in Labour, because having felt the inward Orifice of the Matrice, they found it open of an Inch Breadth; but as the Patient thought her Labour very tedious, she sent for a Man-midwife, who having found the Orifice in the same Situation, and learned from her, that for six Days successively she had had some Pains in her Belly, which notwithstanding were not at all felt downward, as the Pains of a true Labour should, and he feeling no Preparation of the Waters of the Child, he advised her to content herself only with the Use of some Glysters, and to keep her Bed; which having done, her Pains ceased, after which she went a whole Month longer, at the End whereof she was happily delivered of a Child alive; though it is certain, that if one had contributed ever so little, to put that Woman in Labour, she had been delivered at eight Months; which had proved perhaps very prejudicial both to the Mother, and to her Child by accelerating his Birth a whole Month.

Note, also, That a Woman has sometimes what we call false Pains, caused commonly by a windy Cholick, which Pains are neither fixed nor felt toward the Matrice; and are dissipated by applying hot Cloths on the Belly, and administring carminative Glysters, all which increase the Pains of a true Labour, instead of dissipating them.

Note again, That all this suffices to know a *natural Labour*; I'll speak afterwards in a pretty ample Manner of the laborious and difficult Labours; and of all the preternatural ones, by treating of every one of them in particular. Examining previously to it, all that is with the Child in the Matrice, during Gestation; and beginning by a Description of the Things which present themselves first to come out at its Orifice, when the Woman is on the Point of being delivered; which Things are

the *Membranes* and the *Waters*, in which the Child is contained.

As the Membranes of the Fœtus, are the Parts which are formed first, after the Conception, in order to preserve the Seed of the Man, and hinder the Dissipation of the Spirits it is impregnated with, whereby the Intention of Nature would be frustrated; they are likewise those, which together with the Waters, present themselves first at the Passage in the Time of the Delivery.

Note, That most Authors are so very obscure in the Description they give of those Membranes, that it is very difficult to conceive the Thing as it is by their Description. They do not so much as agree among themselves on their Number; for several of them admit three Membranes, as well for a Child, as for Beasts, *viz.* the *Chorion*, *Amnios*, and *Allantoides*; though it appears, by Inspection, that there are but two, which are so intimately joined, that it could be very well said, that there is but one Membrane, which can be separated in two.

The inward Part of that Membrane, or double Envelope, and if we will reckon two, the first Membrane which presents itself outward is called *Chorion* or *Horion*; because it contains and environs immediately the other, called *Amnios* because it is very thin. The Membrane *Chorion*, is a little rough and uneven throughout its outward Part, where may be observed a Quantity of capillary Vessels, which run around it, and likewise a great many small Threads with which it is tied on all Sides to the Matrice; but it is a little more smooth inside, and is joined on all Sides with the *Amnios*; so that they both appear but as one and the same Membrane. That *Chorion* recovers the Placenta, and is very adherent to it on its Face towards the Child, which is done by the interwoving of a great Number of Vessels. It comes, likewise, towards the Circumference of the Placenta, to fasten itself to the Matrice, in which Place it is a little thicker.

The *Amnios*, which is the second Membrane, is six Times thinner than the *Chorion*, it is very smooth on the Inside; but it is not juttty so on that Side it is joined with the *Chorion*. That Membrane is so thin, that it is quite transparent, and no Vessels are seen in it; touching in no Manner the Placenta, though it recovers it, but lines only the Inside of the *Chorion*, from which it can be separated, if one goes softly to work, as I have often experienced it.

With regard to the pretended, or rather imaginary Membrane, called *Allantoides*, and which they say is like a Girdle, environing the Child in the Manner of a large Gut, from the Cartilage *Xiphoides*, to underneath the Flanks only, it is certain, that it is never observed in a human Fœtus.

Sometimes Children are born with those Membranes on their Head, which the *French* call *Né coiffé*, and which the most ignorant among all Nations, particularly old Women, consider as a Sign of a future Happiness; but it is a pure Superstition; since that proceeds from that those Membranes were so hard, that they could not be lacerated by the Impulsion of the Waters, and by the Efforts of the Woman in her Delivery; or from that the Passages being very large, and the Child very small, he came into the World without any Violence: For in difficult Labours, Children are never born with a Cawl, as they call it in *England*; because being much tormented and squeez'd in the Passage, those Membranes break and remain there, till the Placenta, to which they are fasten'd, be extracted from the Matrice.

Inside of the Membranes of the Child, disposed as above-mentioned, the Waters are contained, in the Middle whereof he swims, and is placed.

Note, That the Origin of those Waters will likewise appear very uncertain, if one consults the different Sentiments of Authors; for some of them will have it, that they proceed from the Urine voided from the Bladder through the Ouraque, founded on that no straiter, and more easy Way appears for that Evacuation; and say that it is easy to know, that it is the Urine, by the Colour and Taste. Though it be very certain, that such a Thing cannot be; because the Ouraque is neither perforated in the Fœtus, nor comes out of his Navel. Because in that Part, where it is fasten'd to it, it is always nervous, and not unlike the Chord of a Violin, through which nothing can certainly pass, let it be ever so subtil.

Others, who believe likewise that those Waters proceed from the Urine, are of Opinion, that they are evacuated through the Penis, which is always open, and not through the Ouraque, which is never perforated. But I would ask all those Gentlemen, if it could be possible, that the Child, whose Parts are so tender, could be kept so long floating in Urine, without being excoriated thereby, and exposed besides to a great Number of other Accidents, which would hinder his Growth, render him of a cacochimous Constitution, and perhaps put his Life in Danger, when it has the same Effect upon it, even two or three Years after his Birth, if through Negligence or otherwise, he be left in his Urine for some short Space of Time.

For my Part, I am of Opinion, as I have already declared, that those Waters are generated from the vaporous Humidities, transuding and exhaling continually from the Body of the Child, and meeting his Membranes, which they cannot penetrate by Reason of their Density, are dissolved into Water.

Note also, That when there are several Children, they are never in the same Envelope, unless their Bodies be join'd, and adherent to one another, (which is very rare, and monstrous when it happens) but each of them has always his distinct Membrane and Waters.

The Waters thus gather'd in the Membranes, have several very considerable Uses. They serve to facilitate the Motion of the Child, by his swimming in them, and lest by his frequent Motions he should wound the Matrice, in striking against it, which would sometimes cause Abortion. They defend him, besides, against external Injuries, in eluding the Violence of the Blows which the Woman could receive on her Belly; and contribute much towards rendering the Extraction of the Child easy in the Delivery, because they render the Passage very slippery; and humecting the Orifice of the Matrice, makes it to dilate itself much better, when they come to flow, when the Child is ready to come into the World, or a little before; for otherwise the Delivery would be attended with more Difficulties, and the Mother more tormented.

Note, That from this Explication of the Membranes, and of the Waters of the Fœtus, I'll pass to the Research of the Parts by Means whereof the Child receives his Food in the Matrice; which Parts are the Placenta, and the umbilical Vessels.

The PLACENTA is a fleshy and spongeous Mass, semblable, in some Measure, to the Substance of the Melt; for the greatest Part composed of an Infinity of Veins, Arteries, and lacteal Vessels.

The *Placenta* is formed of an Accumulation of the menstrual Blood of the Matrice. Its Figure is flat and round, of the Breadth of a Plate, and two Fingers Breadth thick towards the Middle, to which the umbilical Vessels are fasten'd; but it is a little less thick towards the Extremities of its whole Circumference. It is cover'd with the *Chorion* and *Amnios*, only on that Side towards the Child; and the other is joined and fasten'd to the Bottom of the inward Part of the Matrice. Its strongest fastening with it, (which is in its Circumference) is made by Means of the Chorion, which adheres so strongly to the *Placenta*, by the Interwoving of an Infinity of Vessels which appear very big in its Surface, that it cannot be separated from it without Laceration of its Substance. If the *Placenta* be consider'd on the Side it is joined with the Matrice, the whole Face on that Side will be seen as intersected of several Lines, not much unlike those observed on the Surface of an Ox's Kidney. There appear in it, likewise, several small Orifices, through which the Blood which transudes through the porous Substance of the Matrice distills into that fleshy Substance.

When there are two Children in the Matrice, and even where there are three, if they be true Twins, *i. e.* generated of one and the same Coition, they have commonly

monly but the ſame *Placenta* with only as many Strings terminated to it, as there are Children; which notwithſtanding, are entirely ſeparated from one another by their particular Membranes, in which each Child is contain'd with his Waters a-part; unleſs they have, as heretofore obſerved, their Bodies joined and adherent to one another; in which Caſe Twins of that Nature, who, therefore are monſtrous, have likewiſe the ſame Waters, and the ſame common Membranes. But if there be a Superfetation, there will be as many *Placenta's* as there are Children: And in a Superfetation (if there was ever ſuch a Thing) happens but very ſeldom, few Women are ſeen to have ſeveral ſeparated After-Births, when they are delivered of ſeveral Children. But tho' a ſingle After-Birth be oftener common to ſeveral Children, it has been obſerv'd, that the Veſſels of the Navel-ſtring of each Child, both the Vein and Arteries, diſtributed or ramified throughout the whole Subſtance of that common After-Birth, are always entirely ſeparated from one another; ſo that the Veſſels which ſerve to feed one Child, have no Communication by Anaſtomoſis, nor otherwiſe, with thoſe deſtined to feed the other Children. Which is the Cauſe that each Child having his Principle of Food and Life, ſeparately from one another, and being lodg'd in different Membranes and Waters, one of thoſe Children can ſometimes be dead in the Womb, while the other remains alive; provided the dead Child does not remain long enough in the Matrice to be corrupted, for the Corruption would ſoon infect the whole Capacity of the Matrice, and being communicated thereby to the other Child, cauſe his Death, likewiſe; beſides the Accidents the Mother would be expoſed to from that Corruption.

Note, That when a Woman with Child has ſome Indiſpoſition of the whole Habitude, let it be ever ſo little, there is almoſt always ſome Mark or Impreſſion of it, either in the Colour or Subſtance of the After-Birth ſhe voids in her Delivery; becauſe that Part being of a very ſoft and ſpungy Subſtance, is eaſily drenched with the bad Humours of the Body, which uſed to diſcharge themſelves through the Matrice. Its natural Colour ſhould be of a fine Red, when the Woman is healthy; and its Subſtance ſound and equally ſoft.

From the Middle of the After-Birth ariſes a String, compoſed of ſeveral Veſſels join'd together. Some Authors reckon four of thoſe Veſſels, *viz.* two Veins, and two Arteries; and others five, adding the Ouraque to it: But it is very certain, that there are but three Veſſels to the human Fœtus, *viz.* a Vein, and two Arteries. The Vein having ſhot in the Placenta an Infinity of ſmall Branches ſemblable to the Roots of Trees, runs by a ſingle Channel, all along the Navel-String to the Navel of the Child, through which it paſſes, to terminate at laſt in the Middle of the Sciſſure, which is in the inferior Part of the Liver; and the two Arteries iſſuing from the ſame Placenta, by a great Number of ſemblable Roots, run by two Channels along the ſame String, piercing likewiſe the Navel of the Child, to terminate in his iliack Arteries, and ſometimes in the Hypogaſtricks.— The Vein is much bigger than the Arteries; its Cavity is large enough to contain a Gooſe's Quill, and that of the Arteries, leſs by half. — The Arteries make ſeveral unequal Windings along their Way; but the Vein runs more directly throughout all its Progreſs.

Thoſe three Veſſels which compoſe the String, are enveloped with a pretty ſtrong and thick Membrane, proceeding from the *Chorion*, and inveſted with a Production of the *Amnios*, which can be eaſily ſeparated from it. The firſt Membrane ſerve them not only as a Scabbard in which they are all three lodg'd, but by its Foldings, ſeparate them likewiſe from one another. When the Veſſels of that String are full of Blood, it is about the Bigneſs of a Finger, and commonly half a Yard long, *Paris* Meaſure, and ſometimes three Quarters of a Yard. It muſt have that Length, that the Child may have a free Motion in the Matrice, and to come out at the Time of the Delivery, without making any Violence to the After-Birth to which it is faſten'd, as it ſometimes happens, when that String is too ſhort; or its Length much diminiſhed, by its making ſeveral Turns round the Neck of the Child; which renders a Labour very laborious, and dangerous; becauſe the Child being thus ſtopped, and as bridled by that String, remains ſuſpended, and cannot eaſily deſcend to the Paſſage, nor be forced down by the Pains of the Woman, without pulling hard, at the ſame Time, on the After-Birth, and ſeparating it from the Matrice, which is always followed by a dangerous Loſs of Blood, if that Separation precedes the Birth of the Child.

Note, That there are commonly ſeen in the *Navel-String* ſeveral Inequalities like Knots, which proceed only from the Turnings and Windings of its Veſſels, which being varicous and fuller of Blood in one Place than in another, produce thoſe Eminences.— Some Midwives believe ſuperſtitiouſly, or would make one believe, that the Number of thoſe pretended Knots is proportioned to that of the Children the Woman is to have afterwards; which is without Reaſon; becauſe ſhe who is deliver'd at forty-five Years of Age, or for the laſt Time, has as many Knots in the Navel-String of her Child, as ſhe who is deliver'd at fifteen of her firſt Child, and who may have, perhaps, twelve more. — They ſay, beſides, that if the firſt Knot towards the After-Birth be red, the firſt Child the Woman is to have afterwards will be a Boy; and if white it will be a Girl: But this Opinion is as groundleſs and unreaſonable as the other; for thoſe Knots appear red, or rather of a dark blue, only according as the Veſſels are more or leſs full of Blood, which Colour is much more manifeſt, as the Veſſels are Superficial.

As ſoon as the Child is born, thoſe Veſſels which are bigger in the Fœtus, than in a Man, grow dry, and that Part thereof which is out, falls five or ſix Days afterwards.

Note, That having thus far obſerved all that is found with the Child in the Matrice; we muſt examine next his different *natural Situations in it, according to the different Times of the Pregnancy*; whereby a true Knowledge may be acquir'd of thoſe which are *preter-natural.*

All Children, whether Males or Females, are commonly ſituated in the Middle of the Matrice; for tho' the Belly of a Woman with Child be ſometimes higher on one Side than on the other, that proceeds only from the Globe of the Matrice inclining more on one Side than on the other; and that ſidewiſe Situation muſt be underſtood only with Regard to the Belly of the Mother, and not to the Matrice, in the Middle whereof the Child is always placed, becauſe there is but one ſingle Cavity in a Woman's Matrice, only marked lengthwiſe by a ſmall Line; and not by two, or ſeveral Separations, as is ſeen in that of other Animals.

Note, That ſome Authors pretend, that thoſe two imaginary Cavities, are the Occaſion of Women bearing, ſometimes two Children, and ſometimes more; and that the Males are generated on the right Side, and Females on the left; though there be no certain Rule for it; ſome Women carrying the Males on the right Side, and others the Females on the Right; and when there are two Children, they are ſometimes both of the ſame Sex, other Times not, and are indifferently ſituated on the right or the left Side. Thus far of the *general Situation of the Child in the Matrice.*

As to the *particular Situation* of the Child, which is conſidered by his different Poſtures and Figures, it is different according to the different Times of the Pregnancy. For in the firſt Months, the Embrio is always found of a round Figure, a little oblique, having his Back-bone moderately bowed inward, the Thighs folded, and a little rais'd, to which the Legs are joined; ſo that the Heels approach the Buttocks, and the Extremities of the Feet are turned inwards; his Arms are bowed, and his Hands near his Knees, towards which his Head inclines, leaning forwards in ſuch a Manner, that his Chin touches his Breaſt. He has then his Back-bone turn'd towards that of his Mother, his Head upwards, his Face forwards, and his Feet downwards, and on Proportion as he grows, he extends his Members, which he had exactly folded during the firſt Months. We

We muſt not imagine, notwithſtanding, that the Child is always preciſely in the Poſture above deſcribed, ſince he changes ſometimes that of his Arms and Legs, in bending or extending them more or leſs, throwing them from one Side to the other, according as he is excited to it, by ſeveral different Cauſes, as Women with Child can witneſs, who feel him move his Parts in a different Manner, after which he generally re-aſſumes his former Situation above deſcribed; in which he repoſes himſelf eaſily, becauſe all the Parts of his Body have then, a Figure between an extream Extenſion, and an exact Flexion, which Figure is the moſt natural, and moſt indolent they can have.

The Child keeps commonly that firſt Situation, till the ſeventh or eighth Month, when his Head being grown very big, he tumbles downwards by its own Weight, againſt the inward Orifice of the Matrice, his Feet being then upwards, and his Face turn'd towards the Buttocks of the Mother; and when it is turned contrary-wiſe, that is not natural; for beſides that, the Face of the Child coming outward, would be much bruiſed by the Bones of the Woman; the Labour-Pains could not puſh the Child ſo eaſily out of the Matrice, as they do when he has his Body and Face downwards; in which Caſe the Matrice, as well as the Muſcles of the Abdomen of the Mother, contracting themſelves at the Time of the Pains, on the Back of the Child, who reſiſts the Pain by that Situation, his Head is much eaſier forced through the Paſſage.

Note, That when the Child has changed that Situation by that tumbling, he being not yet uſed to this laſt, ſometimes moves and ſtirs ſo much, that the Woman, by the Pains ſhe feels then, believes herſelf in Labour; though ſhe goes afterwards her full Time.

Note alſo, That if one reflects ſeriouſly on that Circumſtance, he'll know, that this is the firſt pretended Tentative, the Child (in ſome Authors Opinion) makes to come out at ſeven Months; and he being incapable to do it, remain'd in that Situation till the ninth; unleſs he reiterates it at the eighth, and if he ſhould chance to come into the World then, could not live long; becauſe he could not undergo two ſuch great Efforts ſo near one another. But that Opinion is falſe; for if the Child turns thus his Head downwards, it is but by a natural Diſpoſition of the Weight of the ſuperior Parts of his Body; and if he moves himſelf much at that Time, and immediately after; it is not that he wants yet to come out; but becauſe he is very uneaſy in that new Situation, to which he is not uſed yet.

When there are ſeveral Children, they muſt keep the ſame Figure, to be natural, as if there was but one. Though by their different Motions, ſome of them take moſt commonly a bad Situation in the Time of the Delivery, or even before; which is the Cauſe that often one comes his Head foremoſt, and the other his Feet, or in a ſtill worſe Situation; and ſometimes both preſent themſelves in a bad Poſture.

Whatever may be the Situation of the Child in the Womb of the Mother, and whatever may be the Figure he preſents himſelf in, it is always preter-natural, if it be not in the Manner above deſcribed; and the natural Situation of the Child is ſo neceſſary to an eaſy and happy Delivery, that the preternatural ones are the Cauſe of moſt of the hard and difficult Labours.

Note, That when a Woman with Child is happily gone her full Time, and falls in Labour, ſhe muſt be ſuccoured in the following Manner.

When by the Signs heretofore mentioned, which precede and accompany the Labour, one is convinced, that a Woman is ready to lay in, the principal thereof are, that ſhe feels ſtrong Pains in her Belly, which puſh the Child downwards towards the Matrice, and that in touching it with the Finger, its Orifice is found dilated, and the Water is forming; every Thing requiſite to aſſiſt the Woman in her Labour, muſt be prepared. Some are of Opinion, that previouſly to any Thing elſe, a Clyſter ſhould be adminiſter'd to her, to procure the Evacuation of the Excrements, whereby the Inteſtine *Rectum*, being emptied, there is more Space for the Dilatation of the Paſſage of the Child; though, in my Opinion, this Precaution, though very good, is not neceſſary, unleſs the Woman be naturally conſtipated, and has been ſeveral Days without going to ſtool; for it might happen that the Child would be ready to come into the World, at the very Time the Clyſter operates, which perhaps would cauſe ſome Trouble to the Midwife, and hinder her from taking all the Advantage ſhe otherwiſe could, of a favourable Opportunity of delivering the Woman at that Time; beſides that, there is an Infinity of Women who have a natural Repugnance for Clyſters; and nothing ſhould be done then, contrary to their Inclination, ſince fretting weakens them, and hinders them from minding their Pains as they ſhould. Therefore to proceed with a greater Facility, in that Caſe, leſs fatiguing for the Woman in Labour, and leſs troubleſome for the Midwife, ſhe is to begin by making the Patient walk in her Apartment, if her Strength permits, giving her from Time to Time, eſpecially immediately after ſhe has took a Pain, two or three Spoonfulls of white Wine, burnt with Cinnamon, but never any ſpirituous Liquor, unleſs it be when the Labour is tedious, two Spoonfuls of Cinnamon-Water, though I would prefer to it a Drachm of Confection Alkermes; recommending her above all Things to reap all the Fruit ſhe can of her Pains, by ſtopping her Breath, and forcing ſtrongly downwards, while ſhe feels them.

The Midwife muſt feel from Time to Time the inward Orifice of the Matrice, to diſcover if the Waters are ready to break, and if the Delivery will ſoon follow; keeping all the while near the Patient, to obſerve narrowly her Motions, and Complaints; for thereby one may judge well enough if the Work goes forward, without being obliged to feel the Woman often downwards.

Note, That there are ſome Women, the inward Orifice of whoſe Matrice cannot be felt at the Beginning of their Labour. Becauſe they have that Orifice ſituated very high towards the *Rectum*; which is the Cauſe why none can then preciſely foretel the Time of the Delivery; and even can be deceived, by not believing her in Labour, if he had not regard to the other Signs above-mention'd. Notwithſtanding which, if the Child be well turn'd, and the Woman be really in Labour, the Head of the Child is felt, through the Subſtance of the Matrice, to come down by Degrees, and to reſiſt ſtrongly enough, to feeling, when the Woman takes her Pains.

The Patient may lie down by Intervals, to recruit her exhauſted Spirits; but ſhe muſt take Care not to lie long; though when a Woman begins to be in Labour, and her Pains are ſmall and tedious, without any Preparation of the Water, ſhe muſt not be fatigued by making her ſet up too long, ſince thereby ſhe often exhauſts her Strength at the Beginning of her Labour, after which ſhe is ſo weak, that ſhe cannot take the Advantage ſhe could of her laſt and ſtrongeſt Pains: Therefore it is much better to make thoſe Sort of Women lie down, and keep them very warm in their Bed, to ripen their Labour, till the Waters begin to form themſelves as it ſhould be; after which ſhe may get up, if the Midwife judge proper, to increaſe by that Situation the ſtrong Pains which come at that Time.

When the Waters of the Child are well prepared and formed, the Midwife muſt let them break of themſelves, without attempting to do it; for under Pretence of forwarding her Work by thus lacerating the Membranes, ſhe on the contrary retards it, by that accelerated Evacuation of the Waters, which muſt ſerve to make him ſlide with more Facility, and leaves him dry; which afterwards hinders the Pains from forcing him out ſo eaſily as they would have done.

When the Waters are broken of themſelves, the Midwife will eaſily touch the Child by the Part which preſents itſelf firſt, and be ſure if he comes naturally, *i. e.* the Head foremoſt, which ſhe'll feel hard, big, round, and even; but if it be another Part, ſhe'll feel ſomething uneven, and hard, or ſoft, more or leſs according to the Part which preſents itſelf.

Immediately after ſhe muſt make Haſte to put the Woman

Woman to Bed, if she is not there already, to help her in her Delivery, which commonly happens soon after, if it be natural. But if she finds that the Child presents itself in a Situation quite different from the natural, and knows herself not capable to perform the Operation, so as to save the Mother and the Child, she is obliged in Conscience to send as soon as possible for a Man-midwife, without waiting to the last Extremity, as some of them do.

Note, That certain Midwives are so much afraid that the Surgeons should take their Practice from them, or to appear ignorant before them, that they chuse to run all Risks, rather than send for them in a desperate Case.—Others are so presumptuous, that they believe themselves capable of undertaking any Thing: And others, who (though they have not those Vices) for Want of Knowledge and Experience in their Art, hope often in vain, that the Child will re-assume in Time a good Situation, and that the Accidents will cease. Some of them have the Malice to frighten so much the poor Woman in Labour, with the Idea of a Man-midwife, whom they represent as a Butcher and Murderer, that she rather chuses to die in Labour than to send for one; but those infamous Midwives do not consider, that if the human Laws take no Notice of the atrocious Crime they are guilty of, if the Woman dies without that Succour, an all-seeing God will call them to an Account, and punish them severely for it. I must confess, that I pity with all my Heart, the deplorable Condition of most of the *English* Women, who are but too often attended with pretended Midwives, who know nothing of that dangerous Profession; and by some Men-midwives likewise, who are very little more learned, unless we make their Capacity to consist in an Equipage, as the Women themselves do, and which, I am convinced by Experience, is the principal Merit of some of them; though I know likewise, that there are some very experienced ones in *London*, who are not perhaps the most employed, though I have not the Pleasure of being acquainted with them; though I know that Sir *Richard Manningham* has performed several very good Operations in that Art.

Therefore when the Waters are broken (to use the common Expression, and be better understood) and the Midwife finds that the Child does not come out well, she'll bid the Patient to make no more Efforts, lest thereby the Child being too much engaged in the Passage, the Surgeon could not turn him but with great Difficulty, whom she must send for as soon as possible.

Note, That having instructed the Midwife what she is to do while the Woman is in Labour; she must learn next how *to help and ease her in a natural Delivery, when there is one or several Children.*

Though it be the Practice of several Midwives and Men-midwives, to wait till after the Waters are broken of themselves in a natural Labour, before they put the Woman in the Posture they would have her, or she chuses to be delivered; I am of Opinion, that it is rather too late, and that it should be done as soon as the Midwife perceives the Pains to grow stronger and stronger, and more frequent, since it is a sure Sign that the Child will soon be born.

Note, That Women in Labour are not all delivered in the same Posture; for some will be delivered on their Knees, some standing, others laying on Matrasses, laid on the Floor in the Middle of the Room; and others, which is the best and safest Manner, in their own Bed, which should be made then of several Matrasses, over which are put Sheets folded into several Doubles, to hinder the *Lochia* from hurting the Patient, which must be laid on her Back on that Bed, so that she be neither entirely sitting, nor entirely lying; then she must open her Legs, and approach a little her Heels near her Buttocks, under which there must be a Pillow, that the Coccyte may give Way backwards, her Feet resting on something which can resist, and she holding something with her Hand, that she may force stronger downwards: Her Belly must not be pressed with the Hands, as some Midwives do, because it is to be feared that such Compressions would make some Contusions to the Matrice, which is extremely tender at that Time.

The Woman in Labour being placed in that Posture, or in any other she thinks more easy for her, and the Waters broken, the Man-midwife or Midwife, shall introduce a Finger into the inward Orifice of the Matrice, to know if it be the Head of the Child which presents itself; then having anointed his Hand with Pomatum or Fresh Butter, or without anointing it if he pleases, he'll put, at the Time of the Pains, the Ends of his Fingers into the Orifice of the Matrice to dilate it, in parting them from one another. When the Head of the Child shall begin to appear, the Midwife must push up the Sides of the Matrice towards the back Part of the Head of the Child, who when advanced forward as far as to the Ears, must be taken with both Hands on the two Sides, and at the first great Pain drawn, not in a direct Line, but wavering, and his Face downwards, observing carefully, that the Navel-string may not be turned round the Child, for it would be broke, and one would pull too hard on the Matrice. When the Shoulders shall appear, the Midwife must slide her Fingers under the Arms, and draw the Child, who must be put on his Side, his Face towards her, lest the Blood and Waters which flow immediately, should suffocate him, by falling into his Mouth and Nose.

The next Thing a Man-midwife or Midwife must do, is to see if there be no other Child left in the Matrice, for it happens often, that there are two, and sometimes more; which is easily discovered by that the Labour's Pains continue after the Birth of the Child, and the Woman's Belly is still extremely big; but to be better convinced of it, if she introduces her Hand into the Entrance of the Matrice, she'll feel other Waters in other Membranes, with a Child presenting himself at the Passage.

In that Case the Woman must not be delivered of the After-birth till after she has been delivered of her other Children, because Twins having most commonly but the same Placenta for all, though there be several Navel-strings with as many Separations of the Membranes, if it was extracted after the Birth of the first Child, the other Children would be in some Danger of their Lives, because that Part is absolutely necessary to them while they are in the Matrice; and that Extraction would cause a great Loss of Blood to the Mother. Therefore the Navel-string of the first Child must be cut off, after it has been tied with a strong Thread four Times double, as I'll say more precisely hereafter, fastning the End thereof to the Thigh of the Woman, not for Fear it should re-enter the Matrice, but to hinder it from discommoding the Woman, in hanging between her Legs, making likewise another Ligature at its Extremity, to hinder the Evacuation of the Blood; After which, having given that first born Child to another Person, the Midwife shall make no Difficulty to break immediately the Membranes of the other Child, for the Evacuation of the Waters (in case they are not broken of themselves) because the first having made the Passage, the Birth of the second is thereby accelerated, of whom she must be delivered, observing all the same Circumstances prescribed for the first; which done, she must be delivered of the After-birth.

A Woman must be delivered of the After-birth, as soon as the Child is out of the Matrice, and even before the Navel-string is tied and cut; for Fear the Matrice, which as soon as delivered of its Burthen, contracts itself as fast as possible to re-assume its natural Situation, should close itself, and thereby hinders (as it happens but too often) the Extraction of the After-birth, which corrupting soon in the Matrice, if it be left in it, either entire, or in Part, causes very dangerous Symptoms to the Mother, and sometimes her Death; though several ignorant Midwives have but little Regard to the After-birth, and are sometimes a whole Quarter of an Hour before they make any Attempt to extract it; so that the Passage being by that Time much contracted, they put the Woman, already almost entirely spent, in a new Labour, sometimes more painful and laborious than the first; and at last, bring perhaps but Part of the After-birth.

To

To deliver the Woman of the After-birth, the Midwife muſt make two Turns round her Left-Hand with the Navel-ſtring, or with the ſame Hand lay hold of it with a dry Cloth, leſt it ſhould ſlip between her Fingers, and with the Right take it only, above the Left, near the Pudendum, drawing likewiſe very ſoftly with that Hand, and leaning the Ends of two Fingers joined together, or only that of the Index of the ſame Right-Hand, extended and carried to the Entrance of the Vagina, on that Navel-ſtring, according to its Length; obſerving always, to render the Thing more eaſy, to draw, and lean particularly towards the Side where the After-birth is leſs adherent, and not take the Navel-ſtring covered over with the Membranes of the Child, which hanging ſometimes at the Outſide, after the Birth of the Child, which hinders one from holding ſo faſt the Navel-ſtring, as when it is held alone, becauſe thoſe Membranes render it ſlippery; which commonly happens in Deliveries, where the Membranes of the Waters come out very far at the Paſſage before they break.

Particular Care muſt be taken, not to draw and uſe the Navel-ſtring with too much Violence, for fear it happening to break very near the Placenta, one ſhould be obliged to carry afterwards the Hand into the Matrice, to extract it; or that the Matrice, to which that After-Birth is ſometimes very adherent, ſhould be drawn out along with it, as it happens ſometimes; and likewiſe, that being ſeparated from it with too much Violence, it ſhould happen, at the ſame Time, an exceſſive Loſs of Blood, which would be of a very dangerous Conſequence.

To facilitate the Expulſion of the After-birth, the Woman muſt blow hard into one of her Hand ſhut, as ſhe would do into a Bottle, to diſcover if it be flawed, or blow her Noſe hard, or thruſt a Finger into her Mouth, as if ſhe would excite herſelf to vomit; or ſtoping her Breath, force downwards, as if ſhe would go to Stool; ſince all theſe different Motions and Agitations produce the ſame Effect.

If notwithſtanding all theſe Efforts, the Woman cannot be delivered of the After-birth, the Nurſe or ſome other ſkilful Woman, muſt paſs ſoftly her Hand over the Belly of the Patient, drawing it downwards in manner of Friction, and if all this will not do, the Hand muſt be introduced at laſt into the Matrice, to extract it in the Manner I'll ſhew by and by.

After the Extraction of the After-birth, it muſt be carefully examined to diſcover whether it be whole or not, and great Care taken, that no Part thereof, or of the Membranes, or even Clods of Blood ſhould remain in the Matrice, which muſt alſo be extracted, leſt they ſhould cauſe afterwards very exceſſive Pains to the laying-in Woman; and if ſhe has complained, during Geſtation, of ſome Pain, Hardneſs, or extraordinary Weight in her Belly, greater in one particular Place than in another, one muſt examine, if there be not remaining in the Matrice ſome foreign Bodies, in the Manner of a Mole or falſe Conception, that it may be extracted in Time.

Note, That when the Woman has two Children ſhe muſt be delivered of the After-birth in the ſame Manner as if ſhe had but one, obſerving only, for the Reaſons heretofore mentioned, not to do it before the two Children are born, after which it may be done without any Danger; ſhaking and drawing ſoftly, ſometimes one of the Navel-ſtrings, ſometimes the other, and ſometimes both together; and thus alternately till all come out, obſerving however, in drawing thoſe Navel-ſtrings, to make always that of the Child who is born firſt, to precede a little the other; that thereby the After-birth to which it is faſtned, be eaſier drawn out of the Matrice.

Note, alſo, That when the Child comes naturally, the Woman is delivered with very little Help; but there are ſeveral other Things to do, when the Delivery is againſt Nature, in which the Dexterity and Prudence of an experienced Man midwife is indiſpenſably requiſite.

As the After-birth is left in the Matrice; becauſe the Midwife wanting to extract it breaks the Navel-ſtring, either by pulling too hard upon it, or becauſe it is ſometimes ſo weak, or ſo corrupted when the Child is dead, that though it be ever ſo gently handled, it parts from the After-birth, which remains afterwards in the Matrice, or becauſe it is too adherent to it, or that not having been drawn ſoon after the Birth of the Child, the Matrice is ſo contracted, that there is no Room for it to come out; unleſs the Part be dilated, which cannot be done without great Difficulty; for it remains dry when the natural Lochia, which commonly follow the Delivery, have been evacuated for ſome Time.

Note, That the After-births which are very thick, and as it were, Scyrrhous, are much more difficult to be extracted from the Matrice, than thoſe whoſe Subſtance is ſoft, and moderately thick, which rendering them more pliable than the others, facilitate their running through the Paſſage, when one pulls on the Navel-ſtring, before they be ſeparated from their Maſs; and it has been obſerved that the Navel-ſtrings which are frizeled, though ever ſo big, are more ſubject to break in delivering the Woman than the others. There are ſometimes likewiſe, After-births ſo monſtrouſly big, that it is impoſſible to extract them, though the Navel-ſtring holds faſt to them, without fetching them with the Hand, myſelf have meaſured one twelve Inches broad, very adherent beſides to the Matrice, in a very tall Woman, and which it had been impoſſible to draw out, if I had not fetch'd it immediately after the Birth of the Child.

In thoſe Occaſions, the Man-midwife having well anointed his Hand with Oil or Pomatum, and pared his Nails, muſt introduce it into the Matrice, to ſeparate the After-birth from it as gently as poſſible, and draw it out together with the Clods of Blood, which might be along with it. When the Navel-ſtring is not broken, it ſerves to guide the Hand to the Place where the After-birth is ſituated; but when it is broke, the Operator muſt take a particular Care not to miſtake one Part for the other, and draw the Matrice; which will be eaſily avoided, if one has learned, that having introduced his Hand into the Matrice, he'll ſoon diſcover the Difference between it and the After-birth, in that the After-birth is full of little Unequalities, produced by the Roots of the umbilical Veſſels on that Side they terminate in it; beſides, the Veſſels ramified throughout its whole Subſtance are eaſily felt, which Subſtance is much more ſoft than that of the Matrice. But if the After-birth be entirely ſeparated from the Matrice, it will not be difficult to draw it out; and if it be adherent, having diſcover'd on what Side it is leſs, one muſt begin on that Side to ſeparate it gently, by thruſting ſome Fingers between it and the Matrice; for it is much eaſier ſeparated, when drawn by that Part which is leſs adherent, than if it was attempted by that which is cloſer to the Matrice; continuing thus, gently, till it be entirely ſeparated; after which it muſt be drawn out, taking a ſpecial Care not to go too roughly to work; leaving rather, if it cannot be done otherwiſe, a ſmall Portion of the After-birth behind, than to ſcratch the leaſt Part of the Subſtance of the Matrice, leſt Flooding ſhould enſue, or an Inflammation or Gangrene, which would prove mortal. —But it is not ſo often the Adherence of the After-birth to the Matrice, which retains it inſide, as it is the Contraction of its inward Orifice; for that Orifice being not dilated in Proportion to the Bigneſs of the After-birth, ſtops it, and is the Cauſe that the Navel-ſtring breaks.

When a Man midwife is ſent for, if the Matrice be not open wide enough to introduce his Hand into it, he muſt anoint the Parts of the Woman with Pomatum, that he may dilate them with leſs Difficulty; after which he'll introduce it little by little, without uſing any Violence, or only two or three of his Fingers, with which he'll lay hold of a Portion of the After-birth, which preſents itſelf almoſt always at the inward Orifice, and draw gently, a little ſidewiſe, and wavering, endeavouring always, without parting with his firſt Hold, to catch another further; ſo that in the Hold there may be part of the Membranes of the After-birth; for if he was to draw only its ſpungy Subſtance, it would break in Pieces, becauſe

cause of its extreme Softness; and at the same Time, the Woman, on her Side, will contribute much to that Dilatation, as likewise to the Expulsion of the After-birth, if she forces hard downwards, by stopping her Breath and exciting herself to vomit, &c.

But if notwithstanding all these Endeavours, the After-birth cannot be extracted, and if the Matrice, because of its Inflammation, cannot be dilated enough to go and fetch it without an extreme Violence, or if it be so adherent that it cannot be separated from it; then to avoid a greater Evil, most Physicians and Men-midwives are of Opinion, that the Operation should be left to Nature, helping it by means of Remedies which can bring the After-birth to Supuration.

Note, That the Remedies used in those Cases are Injections into the Matrice made with a Decoction of Mallows, Marshmallows, Parietary, and Lin-seed, to which must be added Oil of Sweet Almonds, or of white Lillies; administring besides to the Patient pretty strong Glysters, that the Efforts she'll make to go to Stool, may accelerate the Evacuation of the After-birth, by which Means several evacuate it with the Stools, without being sensible of it.

Note also, That at the same Time to avoid a Fever or any other dangerous Accidents, she may be let Blood in the Arm or in the Foot, according as it will be judged proper or necessary; strengthening her the while with good Cardiacks, good Broth, made with Veal and Chickens, and now and then a Glass of very good Wine, mixed with Water, provided she has no Fever.

Note again, That the dangerous Accident of the After-Birth being left in the Matrice, proceeds but too often from the Ignorance of the Midwives, or their Want of Experience; leaving often the Woman in a worse Condition than she had been if they had never touch'd her: For to my certain Knowledge, most of them boast of being capable to do Man's Work, as they call it. For some of them, when they leave Part of the After-Birth behind, and consequently cannot shew it whole to the Assistants, as they should do, have the Impudence to tell them, that there is not the least Danger for the Woman, and what is left will come out of itself; though all the while the poor Patient runs the Risk of her Life.—What is left behind, in those Occasions, can be extracted by introducing, if possible, the Index into the inward Orifice of the Matrice, and dilating it by Degrees, so as to introduce another Finger, wherewith the Pieces of After-Birth can be seized, as a Lobster would seize something with his Claws.

It often happens, that in the Abortions of the first Months, which are always attended with some Loss of Blood, the Child being very little, is expelled from the Matrice, with some Membranes stuffed with Clods of Blood, at a Time when perhaps a Midwife is not near the Patient to help her; and that the Persons who know nothing of the Matter, do not examine precisely if the After-Birth be among the Lochia; which is then left behind, because the Matrice closes immediately after the Child is come out; and which the Midwife herself, when arrived, does not always mind; which Negligence renders the Thing very difficult; and the Woman subject to very dangerous Accidents; principally to Losses of Blood, which do not cease till the foreign Body left in the Matrice be extracted.

Note, That it is always better to extract the After-Birth with the Hand, if it can be done without Violence, than to excite the Expulsion thereof with Remedies taken inwardly; for all the Drugs which can produce that Effect, being either purgative or diuretick, and extremely hot, contribute much to cause a Fever to the Patient, and excites her to make needless Efforts, which occasion Losses of Blood, or increase that she may have already; an immoderate Loosenesss, Inflammations, Ruptures, or Fallings of the Matrice, which are always much more prejudicial to the Woman, than could be the little Violence done in extracting the After-Birth with the Hand.—But as it happens commonly, that in Abortions made in the first Months, the inward Orifice of the Matrice does not happen, but in Proportion of the Smallness and Softness of the Body of the Child expulsed, there is often no more Room but for the Introduction of a single Finger; in that Case, it is best, if there be no imminent Accident, to commit entirely the Expulsion of those little After-Births to Nature, in assisting it with the Injections and other Remedies above described, than to use any great Violence to extract them with the Hand.

Note also, That most commonly, in Abortions which have been preceded for some Time with strong Pains, the After-Birth is easily enough expulsed from the Matrice, or extracted together with the Child; but when the Abortion happens almost all on a sudden, without any previous Pains which could have caused its Separation from the Matrice, then it remains often in it, and cannot be expelled, or drawn without Difficulty.

Note again, That the aforesaid Instructions are sufficient for a *natural Delivery*, therefore I'll pass to those *relating to each of the different preternatural ones.*

There are three Sorts of *preternatural Deliveries*, viz. the *laborious*, the *difficult*, and that entirely against Nature.

A *laborious Delivery*, is that whereby the Mother and her Child (though he comes into the World in a natural Situation) suffer much.—The *difficult* is no otherwise different from the *laborious*, than by its being attended with some Accidents which retard it, and render it difficult.

But the *Delivery against Nature*, is that which by reason of the Situation of the Child, can never be done without the Assistance of the Operation of the Hand.

In the *laborious Delivery*, and in the difficult, Nature works always a little, but in that which is entirely against Nature, all its Efforts are vain and of no Effect; and none but an experienced Man-midwife is capable to bring the Child into the World.

The Difficulties a Delivery is attended with, happen either from the Part of the Mother, or from the Child, and often from both.

From the *Part of the Mother*, because of the bad Disposition of her whole Body, or of some Part thereof, or by reason of some strong Passion.

By reason of the *bad Disposition of her whole Body*; as if she was too young, and had the Passage too narrow, or too old, being pregnant of her first Child; because then her Parts which are very dry and hard, cannot be so easily dilated; as it happens likewise to those who are too lean; besides which, those old ones have the Articulation of the Cocyte too firm, which is the Cause that it does not give Way so easily, when the Child forces his Passage into the World, as it does in young Women, who have yet that Part cartilaginous. She who is short and thick, or ill shaped, as crooked, has not her Breath strong enough, to make her Pains worth any Thing, and push downwards; as likewise that she who is weak, either naturally or by Accident; and the Lame have sometimes the Bones of the Passage ill conformed. Those of a tender Constitution or fearful, have still much more Pain than others, because that hinders them to force themselves; as likewise those whose Pains are very short, small, and do not come but by long Intervals; or have none at all. Violent Cholicks, prove also very prejudicial to a Delivery, because they hinder the true Pains. All violent Maladies, as a violent Fever, a Pleurisy, an excessive Flux of Blood, frequent Convulsions, Dysentery, and the like, render a Delivery laborious. A Retention of the Excrements, cause likewise a great Difficulty to a Woman in Labour; as when there is a Stone in the Bladder, or it is extremely full of Urine with a Retention thereof; or when the intestine *Rectum* is full of hardened Matters; when the Woman has large Hemorrhoids, and very painful. The violent Passions can also much contribute towards rendering a Labour difficult; as Fear, Melancholy, Sorrow, &c. and when the Woman who miscarries has as much Pain as that who goes her full Time; as likewise that who is wounded, though she be very near her Time.

As

As to *the Difficulties occasioned by the Matrice alone*, they proceed either from that it is not well situated, or from its bad Conformation, having its Neck too narrow, too hard and callous, either naturally, or by some unforeseen Accident, as by some Tumour, Ulcer, or superfluous Flesh, either in its Neck, or its inward Orifice, or because of some hard Cicatrice, proceeding from some preceding violent Delivery.

The Things contained in the Matrice with the Child render likewise a Delivery difficult; as if its Membranes be so hard that they cannot break, which hinders him, sometimes, from advancing to the Passage; or so weak, that the Waters break too soon; for they being evacuated before the Time, he remains dry in the Matrice; if there be a Mole; if the After-birth comes out first, which causes an excessive Flooding to the Mother, and infallibly the Death of the Child, unless he be out of the Matrice, or brought immediately into the World.

As to *the Difficulties happening from the Part of the Child*, it is when the Head is too big; when his Abdomen is hydropsical; when he is monstrous, having two Heads, or being joined to another Child, or with some Mole, or any other foreign Body; when he is dead, or so weak, that he can by no Means contribute to his Birth; and when he presents himself in a bad Situation; as likewise when there are two Children or more, because the Situation of those Children, who are then in each Side of the Belly, hinders the Labour-Pains from answering in a direct Line downwards.

Besides the general Difficulties abovementioned, it has been observed often, that the Women-Labour is rendered more tedious, and very laborious by the three particular Causes following; *viz.* either by the excessive Bulk of the Child, which is the Cause that he remains long before he can be forced into the Passage; which does not happen but after the great Pains have lasted a long Time; or because the Child has his Neck, or some of his Members embarrassed in the Navel-String, whereby the Pains which should force downwards fly back towards the Reins; for then the Pains cannot push the Child downwards, without the Navel-String, then much shortened (especially if the Neck be environed with it) pulling hard on the After-birth: And the third of those particular Causes is when the Child comes his Face upwards; because at the Time of the Pains of the Mother, her Belly, by contracting itself, compresses the Matrice on the Inequalities of the Arms and Legs of the Child, which are outward; whereby the Motion of the Pain being intercepted, cannot so easily force the Child out, as if the Compression was made on the Back of the Child, as it happens when it has its Face downward, which is the natural Situation.—There is, besides, another Difficulty, which is sometimes caused by the Ignorance of the Midwife, who, for want of Experience, hinders Nature from operating, instead of assisting it.

Having thus discover'd all the Difficulties which render a Delivery either laborious or difficult, or entirely against Nature, I must speak next of the most efficacious Means of conquering all those Difficulties: Therefore,

If the Difficulty proceeds from the Part of the Mother, she being too young, and too strait; she must be handled gently, and her Passages softned with Oil, Pomatum, or Fresh Butter, anointing them with those Things long before the Hour of her Delivery, to relax them, and render them more easy to be dilated, left a Laceration of some Parts should happen when the Child comes into the World.

If the Woman be advanced in Years, and pregnant of her first Child, she must likewise anoint her Parts, to soften the inward Orifice of the Matrice, which being harder, cannot be so easily dilated as in young Women, which renders the Labour of Women advanced in Years always much more tedious than that of others.

Little, or ill-shaped Women, must not be put to Bed to be delivered, till after the Waters are broken; but are to stand up, and walk in the Room if their Strength permits it, being supported under the Arms; for thus they will have their Respiration more easy and free, and take a far greater Advantage of their Pains, than if they were on their Bed.

A lean Woman must humect her Parts, by anointing them with Oil, Pomatum, &c. to render them softer, and more slippery, that the Head of the Child may not remain long in the Passage, nor be compressed or bruised, by the Hardness of the Bones of the Mother which form the Passage.

A weak Woman must be cheared up, that she may support the Pains of her Labour, with some good burnt Wine, or other Comfortatives, according to the Exigency of the Cases. If she is fearful, she must be comforted with the Hope of being soon delivered; if on the contrary her Pains be small, short, with long Intervals between, and of a bad Sort, flying back towards the Reins, or if she has none; they must be provoked by giving her pretty strong Glysters, and other proper Remedies: For I most commonly prescribe in those Cases a large Spoonful or two of a strong Tincture of Cinnamon, to which I add a few Drops of that of Ambergrease, and three Drops of Oil of Gujacum; which Remedy serves likewise, when the Pains which were very good at the Beginning, are quite gone.

If the Woman has a violent Flooding, or Convulsions, she must be delivered as soon as possible. If the Excrements be retained, and she cannot void them of herself, the Expulsion thereof must be excited by Glysters, for they cause violent Pains which are needless and bad, because they are dispersed throughout the Belly, without forcing downwards. And if she cannot make Water because of the excessive Compression of the Matrice on the Neck of the Bladder, the Woman herself must lift up her Belly a little with her Hands, and if it cannot be done otherwise, a hollow Probe must be introduced into the Bladder to facilitate the Evacuation of the Urine. If the Difficulty of the Delivery proceeds from the bad Situation of the Woman, she must be put into another agreeable to her Shape, observing all the Circumstances heretofore mentioned.

If the Woman be surprized with some Malady, the Cure thereof must be undertaken according to the Nature thereof, but with still more Precaution than at another Time:—If it be by reason of the Indispositions of the Matrice alone, as of its obliquous Situation, one must remedy to it as well as he can by that of the Body. If it be by its vicious Conformation, having its Neck hard, callous, and too narrow, it must be anointed with Oil or Pomatum, as above-mentioned. If it was by some strong Cicatrice which could not be softned, proceeding from an Ulcery which had preceded, or of some Laceration made by a violent Delivery, which had likewise been glutinated, the Separation thereof must be made with a proper Instrument, left another Laceration should happen in another Place, which would render the Case worse afterwards; and which must be made in the Place that is judg'd most convenient; avoiding to do it towards the superior Part, because of the Bladder.

If the Membranes of the Waters be so strong, that they cannot break at the Time of the Delivery, they may be broken with the Fingers, provided the Child be then very far advanced at the Passage, and follows soon after that Laceration, the inward Orifice of the Matrice being sufficiently dilated and well softned; for otherwise there would be some Danger, that the Waters being evacuated, the Child should remain a long while dry, and one would be obliged to supply to it, by humecting those Passages, with Fomentations of emollient Herbs and Oils; which has never so good an Effect as when Nature operates of itself, by means of the Waters.

Those Membranes sometimes advance so far out at the Pudendum before the Child comes out, that they hang the Length of more than four Fingers Breadth, resembling a Bladder full of Water; there is then no very great Danger to break them, if they be not broken already; for the Child is always at the Passage ready to come out when that happens. One must take Care not to draw those Membranes with the Hand, because thereby the After-birth, to which those Membranes are very adherent, would be separated from the Matrice before its Time. Sometimes also, the Waters are insensibly evacuated through a Laceration made inwardly to the Membranes of the Child, which remaining whole at the fore Part of his Head, to which they serve as a Forehead Cloth, and line it immediately, hinder him from being forced out by the Pains: In that Case the Membranes must be broke, provided the Passage be

ſufficiently dilated, that the Head of the Child may be at Liberty to advance into it.

If the *Navel ſtring* falls out of the Matrice, it muſt be immediately puſhed back into it, hindering it, if poſſible, from falling out again, otherwiſe the Woman muſt be delivered as ſoon as poſſible: But if the After-birth falls out, it muſt never be puſhed back into the Matrice, becauſe, when once out of it, it is of no Uſe to the Child; on the contrary, it would be an Obſtacle to his Birth, if it was puſhed back; in that Caſe it muſt be cut off after the Navel-ſtring has been tied, and the Child taken out as ſoon as poſſible; for if he was left in the Matrice he would be ſoon ſuffocated, if he was not dead already, as it almoſt always happens, when the After-birth, or even the Navel-ſtring comes out firſt.

When the Difficulty proceeds only from the Part of the Child who is dead, one muſt obſerve the ſame Method as in the natural Delivery; beſides which the Woman muſt make all the Efforts ſhe can to force him out, for a dead Child cannot help himſelf, no more than when he is extremely weak; taking at the ſame Time ſome Confortatives, leſt the putrid Vapours which exhale from a dead Child, ſhould cauſe her ſome Syncops. But if the Child be ſo hydropſical in his Belly or Head, that he can never come out becauſe of the great Diſtenſion and Bulk of thoſe Parts; then the Membranes muſt be broke to evacuate the Waters; and if he be of a monſtrous Bigneſs in his whole Body, or Head only, or there be two Heads, or he be joined to another Child; in thoſe Caſes (to ſave the Mother) one muſt either dilate the Paſſage, in Proportion to the Bigneſs of the monſtrous Child (if ſuch a Thing be poſſible) or extract him with the Inſtruments, if one be indiſpenſably obliged to it, to hinder the Mother from periſhing with her Child.

Note, That the Inſtruments are ſo much in Vogue at preſent (either through the Ignorance of the Men-midwives, or their Impatience) that they are uſed by them for the leaſt Difficulty a Delivery is attended with, even when the Child is alive, well formed, and preſents himſelf in a natural Situation, without the leaſt Regard to the Terror thoſe Inſtruments cauſe to the Woman, or to the Life of the Child; when thoſe Inſtruments ſhould never be uſed but in caſe of an extreme Danger; and when all other Means have proved ineffectual, or are judged entirely needleſs. What little Value muſt thoſe Butchers have for the Life of the Mother, and that of her Child! can they believe, in treating thus that innocent Victim of their Ignorance, that he has been formed at the Reſemblance of God, and created in the original Sin, of which he muſt be waſhed by the ſalutary Waters of Baptiſm before he can enter into the Kingdom of Heaven, and of which Benefit he deprives him by his murdering Hands? Can he reaſonably imagine, that God will not make him account in another World, for the Loſs of both the Soul and Life of that Child, he has had the Cruelty to trifle with, as if they were both of no Signification?

Note, alſo, That if a Midwife finds herſelf uncapable of conquering all the Difficulties heretofore mentioned, ſhe muſt ſend immediately for an experienced Man-midwife, and not put the Life of the Mother, and that of her Child in the moſt imminent Danger, by waiting till the Strength of both be entirely exhauſted, and the Man-midwife muſt act on thoſe Occaſions according to the Manner I am going to deſcribe in the following Paragraphs; beginning by the Obſervations he is obliged to make before he goes to work.

Hippocrates, in his Book of the Nature of the Child, admits but of three general Poſtures in which the Child can preſent himſelf to come into the World, *viz.*—The *Head foremoſt*, which is the ſole natural Figure, when it comes in a direct Line. The ſecond, the *Feet foremoſt*. The third, *Croſs-ways*; which two laſt are entirely againſt Nature.

But to render the Thing more intelligible, I'll ſay that the Child can preſent himſelf in a Poſture againſt Nature, four different general Ways, which are, firſt, *by all the anterior Parts of the Body*:—Secondly, by the *Poſteriors*:—Thirdly, *by the Alterales*:—And fourthly, *by the Feet*:—To which all the other different Poſtures the Child preſents himſelf in, can be reduced; according as they approach nearer one of them than the other: And as the Number of the different preternatural Deliveries is very great, I'll content myſelf with treating of each of the Principals of them in particular; for one will eaſily perform all the others, which are not of ſo much Conſequence, if he be capable to remedy all thoſe mentioned hereafter. But before we proceed to inſtruct a Man-midwife in the Means of helping a Woman in thoſe difficult Times, it is proper I ſhould diſcover the Qualifications requiſite in a Man midwife, who wants to practiſe thoſe Operations, with the Obſervations he muſt make before he undertakes them.

Note, That the Qualifications of a Man-midwife conſiſt in thoſe of his Body, and thoſe of his Mind.—Thoſe of his Body are, that he ſhould be pretty ſtrong; have ſmall Hands, and pretty long Fingers, particularly the Index, the better to reach, and touch the inward Orifice of the Matrice; his Nails being pared cloſe to the Fleſh, without any Aſperities, for fear he ſhould ſcratch the Part; and without Rings on his Fingers, while he is doing the Operation: He muſt be of a pleaſant Aſpect, decent in his Cloaths as well as in his Perſon, leſt he ſhould frighten the poor Woman who wants his Aſſiſtance; for otherwiſe he would look rather like a Butcher than a Man-midwife.—As to the Qualifications of his Mind, he muſt be particularly very ſober, not at all addicted to Wine, that he may always be in a Condition to practiſe whenever called for; ſober, modeſt, and keeping religiouſly the Secret he is entruſted with, without divulging to Strangers the Incommodities or Maladies of his Patients, or any other Secret whatever; for he who has the cruel Perfidy to do it, deſerves to be treated as the greateſt Scoundrel, and abhorred by all Mankind, as a publick Nuſance.—He muſt alſo be wiſe, prudent, and of a ſound Judgment, to govern himſelf in his Operations; very compaſſionate, without too much Weakneſs, whereby he could be hinder'd from doing his Duty, according as the Caſe requires it.—He muſt aſſiſt *gratis* the poor Women who want his Help, and treat them with the ſame Humanity and Tenderneſs he does the Rich; and, far from extorting any Thing from them, as is but too cuſtomary in this Iron Age, relieve them, if it be in his Power, out of his own Pocket; and not act as a famous Man-midwife did ſome Years ago, who being come in his Coach to a poor Woman in Labour, aſked, before he could be perſuaded to deliver her, who ſhould pay him? and when he ſaw that neither the Woman herſelf, nor the Perſons preſent could do it, went away without doing his Office; and the poor Woman had infallibly died for Want of Help, if one of the Company who knew where I lived, had not ſent for me; whereby the Life of the Mother and that of her Child were ſaved; all that troubled me was, that I was not in a Condition of relieving the poor Woman otherwiſe, which is alſo the Cauſe that I want the chief Qualification of a Man-midwife, *a Coach*.

A Man-midwife, beſides all the aforeſaid Qualifications, muſt be very learned and expert in his Art, and particularly in the practical Part thereof.

The Obſervations a Man-midwife is obliged to make before he undertakes to deliver a Woman, are firſt to take Care that the Woman has Strength enough to undergo the Operation; which he will diſcover, if by feeling her Pulſe, he finds it ſtrong or weak, unequal and intermittent; examining beſides her Face, and particularly if her Eyes be heavy and ſunk, and her Speech weak; if the Matrice, and all the lower Part of her Belly be extremely high and inflamed, if all the Extremities of her Body be cold, if ſhe has frequent Sincops attended with cold Sweats, if ſhe falls into Convulſions with Loſs of Knowledge; and laſtly, if all her Countenance indicates that the Operation would be needleſs, and is not to be undertook without the imminent Danger of the Woman dying in the Man-midwife's Hand.

But when there is yet ſome Hope, let it be ever ſo little, either for the Mother or for the Child, one is obliged in Conſcience to do what the Art preſcribes; But before the Man-midwife undertakes it, he muſt let the Huſband and Aſſiſtants know the great Danger the Patient is in, that they may not be ſo much ſurprized if ſhe was to die in the Operation, or ſoon after.

But when a Woman has all her Strength, the Man-midwife conſcious that ſhe is capable to undergo the Operation, muſt inform himſelf if ſhe be at Term or not; and if any Accident has happened to her, which he'll know by the Account of the Patient, of the Midwife, and of the Aſſiſtants, as likewiſe by the Signs which will appear, obſerving in what Figure the Child preſents himſelf, and in what Circumſtances, if he be dead or alive, and if there be but one, or ſeveral. Having obſerved all thoſe Things, he'll endeavour to make the Patient underſtand, the Impoſſibility of her being delivered without his Aſſiſtance, perſuading her at the ſame Time that the Operation will not be ſo painful as ſhe imagines.

Afterwards, he muſt place her on her Back acroſs the Bed, that he may work with more Eaſe, her Buttocks a little higher than her Shoulders, or at leaſt her Body equally ſituated, when it is neceſſary to turn the Child to make him take another Situation.

But when the Child is to be extracted, the Woman muſt be placed in the Situation mentioned, when I have ſpoke of the natural Delivery, ſo as to have her Head and Breaſt a little higher than the reſt of her Body, to eaſe her Reſpiration, and that ſhe may act her Part in the Expulſion of the Child, by ſtraining and forcing downwards, when the Midwife bids her. Thus ſituated, ſhe muſt have her Legs folded in ſuch a Manner that her Heels be pretty near her Buttocks, and her Thighs ſeparated from one another, and kept in that Poſture by two pretty ſtrong Perſons; another holding her under the Arms left her Body ſhould follow in the Extraction of the Child, which is moſt commonly attended with a great Effort on the Part of the Man-midwife, who ſhould make all the Deliveries againſt Nature, ſetting on a Chair of a Height proportioned to the Situation of the Woman, the outward Entrance of whoſe Matrice muſt anſwer to very near the Height of the Man-midwife's Elbow while ſetting, that he may operate with a greater Security and Facility, without fatiguing himſelf to Exceſs; for when he has once fatigued himſelf in operating, he cannot work afterwards with the ſame Dexterity, nor ſo quick.

Thus done, he muſt anoint the whole Matrice with Oil or Pomatum, that he may eaſily introduce his Hand into it, which muſt be anointed likewiſe, and have the other Conditions above-ſpecified; after which he'll govern himſelf in his Operation, in the Manner I am to deſcribe hereafter, ſhewing previouſly to it the *Signs which indicate that a Child is living, or dead, in the Matrice.*

Note, That in all the *Deliveries againſt Nature*, which proceed only from the bad Situation of the Child, without being accompanied with any other conſiderable Accident, one muſt wait to extract the Child, till the Matrice be paſſably open, and its inward Orifice ſufficiently prepared and ſoftned, particularly if it be a firſt Child. Therefore when it is perceived that the Child preſents himſelf in a bad Situation at the Beginning of the Labour, the Membranes which contain the Waters muſt not be broken, but at the Time the Paſſages are found diſpoſed to permit the Extraction of the Child without much Violence; and if the Waters are evacuated before the Matrice can be ſufficiently open, one ſhould notwithſtanding wait a little the Preparation of the Paſſages, if there be any Appearance of it, without however ſuffering the Parts to grow dry by the entire Evacuation of the Waters. For though the Child be in a bad Situation, he is notwithſtanding ſufficiently vivified by the Navel-ſtring while he remains in the Matrice, and is not yet much engaged in the Paſſage in his bad Situation; and the Mother on her Side is no otherwiſe incommoded thereby, than by the Tedioufneſs of her Labour. If a Man-midwife ſhould act otherwiſe, the Child would be in a much greater Danger to periſh in the Paſſage at the Time of the Operation, becauſe of the Narrowneſs of the Space, which would detain him longer, the Operation itſelf be attended with much more Difficulty, and the Mother treated with more Violence.

Note, alſo, That in ſuch premature Labours, as at the Term of four or five Months, or thereabouts, and much more in all the other Terms of Pregnancy, which are leſs advanced, particularly if a Woman is already gone her full Time with other Children, a Man-midwife need not take much Trouble to reduce thoſe Abortives into a better Situation than that they preſent themſelves in; for the Orifice of the Matrice having been once dilated by the Paſſage of a Child of a full Proportion, and at Term, can dilate itſelf enough by the ſole Operation of Nature, to leave a free Paſſage to this laſt Abortive, whoſe Bigneſs (tho' he be in double) does not equal that of the firſt who came at Term; and for that Reaſon it is more ſafe to commit entirely to Nature, the Expulſion of thoſe Abortives of three or four Months, who are in a bad Situation; though I know by Experience, that in ſome Conjunctures, eſpecially when the Woman is extremely weak, the Hand of a Man-midwife is of a very great Service; for I once delivered a very young Woman of an Abortive of five Months, and which was her firſt Child, where I was obliged to do the whole Work, Nature being then ſo weak, that I had not the leaſt Aſſiſtance from it; notwithſtanding which I extracted the Child without Inſtruments, and the Woman has been pregnant ſeveral Times ſince, and has at this preſent Time ſeveral fine Children.

If there be an Occaſion where a Man-midwife wants more Reflections, and muſt uſe more Precaution in Things which relate to his Art; it is where it is queſtion to judge if the Child in the Matrice be alive or dead; for it happens ſometimes that Children, thought dead, have been extracted alive, and maimed of both Arms, or of ſome other Parts of their Body; and others have been miſerably killed with Hooks, who could have been extracted alive, if the ignorant Man-midwife had not been miſtaken; though moſt of our Men-midwives here are *Gentlemen of the Hooks*, and without conſidering if the Child be alive or not, draw him with ſome Inſtrument, though it could be very well done with the Hand, if they were not in ſuch Haſte to receive their exorbitant Fee; ſo that if by Chance the Child lives, well and good, if not, he has done his butchering Operation, and muſt be paid.

But however, without following ſo barbarous an Example, a Man-midwife before he fixes on the Manner of making the Extraction of the Child, and to avoid ſo great a Misfortune as that of killing a little innocent Creature, and not be reproached with being the Author of ſo deplorable a Spectacle, he muſt take a particular Care not to be deceived, Timidity on that Occaſion being far preferable to a too great Temerity.

He'll know that the Child is alive (when he is at Term, and the Woman has not been wounded) if the Mother had her Health during the whole Time of Geſtation, and is in Health at the Time of her Labour, and feels her Child move; which to know with a ſtill greater Certainty, he muſt himſelf lay his Hand on the Belly of the Woman; for ſome of them have pretended to have felt their Child a little before their Labour, though he was dead then; and others whoſe Child was alive, though they pretended they had not felt him ſtir for two or three Days before their Labour; becauſe after the Evacuation of the Waters the Child is ſometimes ſo preſſed by the Contraction of the Matrice, that it leaves him no Room to move as he did before the Evacuation of the Waters.

If by the Motion of the Child, a Man-midwife cannot be ſure that he is alive, when the Waters are broke, he muſt ſlide as ſoon as poſſible his Hand gently into the Matrice, where he'll feel the Pulſation of the umbilical Arteries, which will be much ſtronger if he touches it very near the Belly of the Child; or having found one of the Child's Hands, he'll feel the Artery of the Wriſt,

Wrist, but it has not then so sensible a Motion as that of the umbilical Arteries; if then he feels the Pulsation of those Arteries, he may be sure that the Child is alive; as likewise, if having put the Extremity of his Finger into his Mouth, he feels the Tongue stir.

But on the contrary, the Child is dead, if he has not stirred for a considerable Time; if the Matrice voids fetid and cadaverous Humidities; if the Woman feels excessive Pains, and a great Weight in her Belly; if the Child falls like a Lump always on the Side she lays; if she has Syncops, and frequent Convulsions; if it is long since the Navel-string, or After-Birth is come out; if introducing the Hand into the Matrice the Child is felt cold, his umbilick without Pulsation, and his Tongue immoveable; and if feeling his Head, it is found soft, and the Bones vacillent, the Brain being without Pulsation when the Child is dead; who, in the Opinion of most Men-Midwives, is more corrupted in two Days, he thus remains in the Matrice after the Evacuation of the Waters, than he would be in four, out of the Matrice; which happens, say they, because of the Heat and Humidity of the Place, which are the two Principles of Corruption; but they pretend, that sometimes Children have been seen to remain whole Weeks dead in the Matrice, without any great Corruption, when there is no Evacuation of the Waters, in which they are preserved as in a Pickle.

But we can only draw Conjectures of the Death of the Child, if the Woman has been wounded, if she has a great Flooding, if she is not at Term; if there be four or five Days since her Waters are broken; if she has a leaden Colour, her Eyes much sunk; and a dejected Look; if her Breath be very bad, her Breasts flabby, and the Bigness of the Bottom of her Belly has been diminishing for some Time, without the Evacuation of the Waters.

Note, That most of the Signs above-mentioned, as well the most sure, as those by Conjectures, must meet together to certify that a Child is dead, for several of them are equivocal, when they are alone; as for Example, that of the fetid and cadaverous Excretions, which could easily deceive those, says M. *Mauriceau*, who do not consider, that there may be two Children in the Matrice, one dead and corrupted, and the other alive and sound; which, he says, he saw happen several Times; and especially on an Occasion where he deliver'd a Woman of two Boys, the first of whom was dead, and entirely corrupted, whence flowed the stinking Lochia the Woman had voided; and the other alive.

Note also, That the Excretions of the Matrice can be render'd fetid and cadaverous by the sole Corruption of some Clods of extravasated Blood, which has sojourned for some Time in the Matrice; which does not hinder the Child from being alive; and the greenish and blackish Waters which some Women void before their Delivery, are not always a sure Sign that their Child is dead; for some Women have been deliver'd who voided such Waters having the Navel-string and After-Birth of a livid Colour, and appearing much corrupted, notwithstanding which, their Children were alive. But when those Waters have, together with those strange Colours, a cadaverous Smell, as of rotten Flesh, then it is very likely that the Child is dead.

As to the Sign taken from the Length of Time the Woman has been without feeling her Child stir, it is likewise uncertain; for there are Children, who tho' they be alive, are sometimes two whole Days in the Matrice, after the Waters have been evacuated, without a manifest Motion; because the Matrice by its Contraction, leaves no more Room for that Motion; to which the Debility of the Child can also much contribute.

Note again, That it is not a Sign that the Child is dead in the Matrice, because he has voided the *Meconium*; since nothing is more common in preternatural Deliveries, than to see Children alive, who have eased themselves in the Matrice, as do all those who present themselves the Backside foremost, who void always the *Meconium*, as well as several others who present themselves in other bad Postures, because their Belly is much pressed on those Occasions, and particularly when the Man-Midwife is obliged to turn the Child in the Extraction.

Note besides, That having described all the Signs which can indicate if the Child be alive or dead in the Matrice, I must shew at present what is to be done in each of the *preternatural Deliveries*, which the Man-Midwife ought never to undertake, before he has baptized the Child, if alive, and there is Appearance of a hard Labour, on the Part which presents itself first; lest it should be too late to do it after the Operation, in which several, already very weak, die.

How to help a Woman when the Child presents one or two Feet foremost.

Though several Authors are of Opinion, that a Child who presents one or two Feet foremost, is to be turn'd in the Matrice, and reduced to his natural Situation, *viz.* his Head foremost; that's impracticable, by Reason of the extreme Violences the Mother and her Child would suffer on that Occasion, and the great Risk they would run of their Lives. Therefore so soon as the Man-Midwife has discover'd that the Child comes in that Situation, he must place the Woman in the Posture heretofore described for preternatural Deliveries; and having anointed his Hand with Oil or Pomatum (always supposing that the Matrice is sufficiently open to give Passage to it) introduce it gently into the Entrance thereof, where finding the Feet of the Child, he'll draw him out in that Posture, in the Manner I am going to describe.

But if the Child was to present but one Foot, the Man-Midwife must carefully examine if it be the Right or the Left, and in what Figure it presents itself; for those Reflections will let him know, on which Side the other Foot can be; which having observed, he must go to fetch it, and having found it, draw it gently out, with the former; taking Care, previously to this, that *that* Foot be not that of another Child; for if it was, he could sooner kill the Mother and the Children than extract them thus; which he'll easily discover, if having introduced gently his Hand along the Leg and Thigh of the former, as far as to the Groin, he finds that both Thighs belong to one and the same Body; which is also an easy Means of finding the other Foot, when there is but one which presents itself at first.

So soon as the Man-Midwife has found the two Feet of the Child, he must bring them out; then taking them with both his Hands, above the Ankles, and holding them near one another, he'll draw them equally in that Manner, till the Thighs and Hips of the Child be extracted, laying hold sometimes, likewise, of the Thighs above the Knees, so soon as there will be Room to do it, taking Care to envelope those Parts with a Piece of dry Cloth, lest his Hands which are greasy, should slip on the Body of the Child, very slippery of itself. Which done, holding always the Child by his two Feet, and above the Knees, he'll draw him thus, till the Top of the Breast; after which, he'll pull down, on each Side, the two Arms of the Child along his Body; observing to take them rather by the Hands towards the Wrist, than by any other Place, and to disengage them gently, from the Passage one after another, without forcing them too much, for fear of breaking them, as those who operate without Method, often do; and taking Care, then, that the Belly and Face be directly downwards; to avoid the Head being stopped at the Chin by the *Os Pubis*, therefore if he was not in that Situation, he should be turned; which may be easily done, if when one begins to draw the Child by the Feet, they be inclin'd, in turning them by Degrees, in Proportion as the Extraction is made, till his Heels regard directly the Belly of the Woman; and if they were not quite in that Situation, when the Child has been drawn as far as to the Top of the Thighs, before he be drawn further out, the Man-Midwife must introduce one of his Hands, as far as it is sible, so far as to the Pubis of the Child, and with his other Hand hold the two Feet, to turn, at the best Time, his Body on that Side it is the most disposed to [illegible]

receive a good Situation, till he has his Breast and Face downward; and having thus brought him up as far as towards the Top of the Shoulders, he must take great Care to take his Time (bidding the Woman to make some Effort at that very Instant) that his Head may take the Place of the Feet at the same Moment they have quitted it, whereby he will not be stopped at the Passage.

Note, That notwithstanding all these Precautions, some Children have the Head so big, that it remains stopped at the Passage, after the Body is entirely out of the Matrice. In that Case the Operator must not amuse himself to draw only the Child by the Shoulders; for sometimes the Head would sooner be separated from the Neck, than be drawn out in that Manner; but while some other Person draws gently the Body of the Child, holding him by the two Feet, or below the Knees, the Operator must disengage by little and little, the Head of the Child from between the Bones of the Passage; which he'll do in sliding gently one or two Fingers of his left Hand into the Mouth of the Child, to disengage the Chin first, and with his right he'll embrace the back Part of the Neck of the Child above his Shoulders, to draw the Head afterwards with the *Help of one of the Fingers of his left Hand*, thrust into the Mouth of the Child, to disengage the Chin, as above-mention'd; the Chin being the Part which contributes more towards stopping the Head at the Passage, which cannot be disengag'd till the Chin has been disengag'd first; taking Care, likewise, to do it at quick as possible, for fear the Child should be suffocated, which would infallibly happen, if he was to remain long thus stopped; because the Navel-string which is out, being cooled and strongly pressed by the Body or Head of the Child, which remains too long in the Passage, the Child cannot then be kept alive by Means of the Substance of the Mother, the Circulation whereof is stopp'd in the Navel-string. Therefore when a Man-Midwife has once began to extract the Child, he must draw him out entirely as soon as possible; and immediately after deliver the Woman of the After-Birth, in the Manner heretofore described.

Note also, That when the Child is alive, it is not very difficult to give to the Head that Situation downwards; because all the Parts of a live Child, having some Support and Stability, the Head follows most commonly the Body, and turns itself on the same Side; which does not happen to the Head of a dead Child, because his Neck being grown limp, and without Solidity, does not contribute towards making the Head take a good Situation, though the Man-Midwife has given it to the Body; in which Case the Body of the Child being entirely out, his Head is stopped at the Passage, because it is not directly situated downwards as the Body is. Therefore he must not amuse himself to draw the Body of the Child, before he has likewise reduced the Head in a right Figure, *i. e.* made it look downwards, which is done by sliding the Hand very flat on the Face of the Child, to cover the Inequalities thereof, which Help, with embracing it, to make it turn easier, and to give it a commodious Situation, thrusting likewise a Finger into the Mouth to disengage the Chin from the Passage; taking Care, however, to turn with the other Hand the Body of the Child, or to have it turn'd by another Person, that it may follow, at the same Time, the Motion is given to the Head; observing the same Thing, likewise, when the Head of a live Child is stopped, in the same Manner, at the Passage, because of his bad Situation. For if one should make the Head turn without the Body, or the Body without the Head, the Child would be killed in the Operation.

Though a Man-Midwife takes all the Precautions above mention'd for the Extraction of the Child by the Feet, there are sometimes Children so much corrupted, that with the least Effort, their Head is separated from their Body, and remains alone in the Matrice, out of which it cannot be extracted but with much Difficulty; it being extreamly slippery, by Reason of the slimy Humidity of the Place where it is, and likewise because it is of a round Figure, where there is no Hole: If notwithstanding the Head, which is thus left in the Matrice, is small and soft, as that of abortive Children, it may be easily extracted; but if it be very large and solid, the Difficulty is commonly so very great, that two or three Men-Midwives have sometimes attempted it without Success, whence the Death of the Woman has ensued; though they had perhaps prevented that Misfortune, if they had operated in the following Manner.

When the Head of the Child, separated from his Body, remains alone in the Matrice, either by Reason of Putrefaction, or for another Cause; the Man-Midwife must immediately, without Delay, and before the Matrice closes itself, introduce his right Hand into it, and search the Mouth of that Head (which is the only Hold remaining then) and having found it, thrust one or two Fingers into it, and his Thumb under his Chin, after which he'll draw it softly, holding it thus by the inferior Jaw-bone. But if that Bone was to part from the Head, in the Efforts made to extract it, as it happens often when there is Putrefaction; in that Case he must take his right Hand out of the Matrice, to slide the left into it, with which he'll support that Head, and with the right take a narrow, but very strong Hook, and with a single Branch, which he'll slide along the Inside of his other Hand, turning the Point towards it, for fear of wounding the Matrice; and thus introduced shall turn it towards the Head, to run it into the Orbit of the Eye, or into the Holes of the Ears, or into that of the Occiput, or between the Sutures, according as he'll find it most practicable, endeavouring always to lay hold of the Place he'll fix it to, as fast as possible; after which drawing that Head thus fasten'd to the Hook, and helping with the left Hand to guide it, he must make the entire Extraction thereof; taking Care, when brought near the Passage, to draw his Hand out of the Matrice, lest the Passage should be streighten'd therewith, leaving only some Fingers towards the Side of the Head, to disengage it with more Facility, and to hinder the Matrice from being wounded by the Hook, in case it should chance to lose its Hold.

Note, That in a Case of Necessity, and for Want of a Hook, take a Piece of soft Tape, three Fingers broad, and two Yards long, or thereabout, folded in two, and laying hold of both Ends with the left Hand, introduce with the right the Middle thereof into the Matrice, so that it may be placed on the hind Part of the Head, as a Stone in a Sling; and then drawing the Tape by the two Ends joined together, make the Extraction of the Head, without the least Fear that the Tape should stop the Passage, since it takes but very little Room. — For my Part, I am of Opinion, that this is the safest Manner of making that Extraction, and have always preferred it to a Hook, with very great Success; since with a Hook, unless it be guided with a great Dexterity indeed, one is always in Danger of scratching the Matrice; besides that in the Efforts one makes, especially when the Head is putrified, the Hook comes out with only that Part of the Head it was fasten'd to, so that it renders the Operation tedious, and very laborious, both for the poor Patient and the Operator, who is obliged to introduce his Hook at several different Times in the Matrice, before he can accomplish the whole Operation; when as the Tape never misses bringing out the whole Head at once. Some will have that Tape anointed with Oil or Pomatum; but I am of a contrary Sentiment, and provided it be very soft, I would introduce it as dry as possible, since there is always Humidity enough in the Passages, to hinder it from hurting them; and if it was too slippery, it would not be so soon, nor so easily fasten'd on the Head, and would be more apt to quit its Hold.

If notwithstanding all these different Manners the Man-Midwife cannot extract the Head because it is too large, he must diminish the Bigness thereof with a bowed Knife; introducing first his left Hand into the Matrice, and with the right sliding likewise that Knife into it, taking great Care in doing it, that the Point of the Knife be turn'd towards the Inside of his left Hand, for fear of wounding the Matrice; which done, he'll turn it

it again towards the Sutures of the Head, and particularly towards the Place of their Junction, where he'll make an Incision with that Instrument; whereby having separated some Pieces thereof, he may with a greater Facility draw the rest; or at least having emptied Part of the Brain through the Aperture he had made, the Bigness of the Head being thereby much diminished, the Extraction may be less penible.

Note, That the Left-Hand being thus introduced into the Matrice, will serve to place the Knife for the Division and Separation of the Parts of the Head, as likewise to hinder the Matrice from being wounded through Inadvertency; and the Right with which he'll hold the Handle of the Instrument, which must be pretty long, will serve to carry it and move it, on what Side he'll think proper. For my Part I would make use on that Occasion, of a Hook with several small and short Points, proper to fix into the Sutures of the Head, and introducing it into the Matrice in the same Manner, and with the same Precautions the Knife above-mentioned is introduced, forces those Points into the Sutures, which are then pretty loose, and with the Right-Hand, which holds the Handle of the Hook (that Handle being like that of the Knife) turn and shake gently the Hook, whereby the Bones of the Head are shaken likewise, and forc'd at last to part from one another, and are afterwards easily extracted with the Hand, without putting the Woman to that tedious Torture of paring or cutting them with the Knife, for this Operation is very soon done, especially if the Head be corrupted.

After the Extraction of the Head out of the Matrice, no Portion thereof must be left in it; after which the Woman is to be delivered of the After-birth, if she was not deliver'd of it before.

Note, That it is asked on this last Subject, if when the Head of the Child is thus left in the Matrice, the Woman being not yet delivered of her After-birth, one must begin the Operation by the Extraction of the Head, before that of the After-birth? Which Question may be answered by a Distinction: For if the After birth be quite separated from the Matrice, it must be extracted first, otherwise it would be an Obstacle to the Extraction of the Head: But if it be yet adherent to the Matrice it must be left in it, till after the Extraction of the Head; for if the Man-midwife was to separate it then from the Matrice, there would ensue a very great Flooding, which would be increased by the Agitation of the Operation; for the Vessels to which it is joined remain commonly open, while the Matrice remains in the Distension caused by the Head retained in it, and do not close till after it has been delivered of that foreign Body; besides which, the After-birth remaining thus fastned during the Operation, hinders the Matrice from being easily contused and wounded.

Note, also, That M. *Mauriçeau* says, that he delivered a Woman, whose Child had been killed by her Midwife, who wanting to draw him by the Feet, which he presented foremost, had not had the Precaution, nor the Dexterity to turn his Face downwards to give him a good Situation, which was the Cause that his Head remained at the Passage, stopped by the Chin, under the Os Pubis of the Mother, where he had perished. That famous Operator sliding his Right-Hand as far as on the Face of the Child, and thrusting one of the Fingers of the same Hand into his Mouth to loosen the Chin, and disengage it from the Passage, turned his Face downwards, and at the same Time his Body, which he supported with his Left-Hand, to give it the same Motion of the Head, after which he extracted easily the Head of that Child dead for Want of a timely Assistance.

The Manner of delivering a Woman when the Child pushes out foremost the Neck of the Matrice.

If we consider the Manner of the Child coming into the World in this Delivery, we may say that it is natural; but if we consider the Disposition of the Matrice which is in Danger of coming out in the Delivery, or Extraction of the Child, we'll know, that it is not quite so; for his Head pushing out the Matrice foremost, can easily cause that Accident, if the Woman is not assisted with Dexterity. On that Occasion the Vagina is seen to come out in large Wrinkles in Proportion as the Child advances.

Women, whose Matrice used to fall before they were pregnant, or have it very humid, are subject to that Accident, because of the Relaxation of its Ligaments.

In this Case the Woman is not to walk in her Room as in a natural Delivery, but must be in her Bed, her Body almost equally situated, and not so much risen as in a natural Delivery; and to help her effectually, at every Pain, when her Child begins to come forward and to push out thus the *Vagina*, the Midwife must always keep one Hand on each Side of his Head to repulse, in resisting to the Pains of the Woman, the Matrice alone inside, leaving Room at the same Time for the Child to advance forward; continuing thus till the Mother of herself forces the Child quite out; for he is by no Means to be drawn out by the Head, as in a natural Delivery, for Fear of causing thereby the Fall of the Matrice, which, at that Time is much inclined to it.

But if notwithstanding, the Child having his Head out at the Passage, was to be stopped so long there, as to be in Danger of being suffocated, then one would be obliged to call a second Person, who should draw him gently by the Head, while the Midwife holds and pushes up the Matrice with her Hands, lest it should follow the Body of the Child in drawing him out in that Manner.

After the Woman has been thus delivered, she must be delivered likewise of her After-birth in the Manner heretofore described, taking Care for the same Reason not to draw it, and shake it with too much Violence; which done, the Matrice must be put and kept in its natural Situation, if it was come out.

Note, That if a Midwife does not observe the Method above described, she is the Cause sometimes that the Matrice falls, and comes out quite at the *Pudendum*; becoming then of an extraordinary Length and Bigness, because the Humours flow thither in great Abundance; as it happened, says M. *Mauriçeau* to the Wife of a Joyner of *Paris*, who being in Labour, could not be delivered, because the *Vagina*, was entirely come out at the *Pudendum*, of a prodigious Length and Bigness, that it exceeded half a Foot in Length, and was once bigger than the Head of a Child. At its Extremity was seen the inward Orifice of the Matrice, which represented a Kind of large *Phymosis*, the Borders whereof were above three Fingers thick in its whole Circumference; which streighned so much the Passage, that the Child being stopped in it, pushed still more and more the Matrice outwards, and the Humours flowing thither in Abundance, because of the vain Efforts the Woman made, swelled extraordinarily the *Vagina*, and had infallibly caused a Mortification in that Part, if the poor Woman had not been quickly delivered; which was done, not by reducing the *Vagina* thus fallen, a Thing impracticable then, not only because of its extreme Bigness, but likewise because the Head of the Child being too much advanced into the Passage, could not have been pushed up without an extreme Violence, which had proved prejudicial both to the Mother and Child; but by introducing by degrees the Hand, anointed with Oil, into the Aperture of that large *Phymosis*, bidding the Woman to push downwards, guiding the Head of the Child at every Pain, and making it thus advance little by little into the Passage, prepared to it by the Hand, stretching the Fingers in the Form of a Dilatory, and drawing them out by Degrees in Proportion as the Head of the Child advanced forward, till it was quite brought out, by the sole Pains of the Woman, which were very strong; after which having laid hold of it on both Sides, the Child was easily brought into the World alive: Which done, the Matrice was immediately reduced into its natural Situation; the Midwife being ordered to foment every Day the lower Parts, for Fear of a Mortification, to which they were much disposed. I hope that this Accident could not have arrived to that Pitch

gree of Danger, but through the Negligence or Ignorance of the Midwife, which otherwise she could have prevented in some measure, if when she perceived at first the *Vagina* inclined to come out at the *Pudendum* (which could not happen but through the excessive Humidity of the Matrice, and the Difficulty its inward Orifice had to dilate itself) she had introduced by degrees some Fingers into that Orifice to facilitate its Dilatation, in the Manner practised in natural Deliveries, supporting at the same Time the *Vagina* with the other Fingers.

How to assist a Woman whose Child presents himself by the Side of the Head; *and likewise when he presents himself* the Face foremost.

Though a Delivery where the Child presents himself by the Side of the Head seems to be natural, because the Head comes foremost, it is notwithstanding very dangerous both to the Mother and the Child, because of that bad Posture; for he would sooner break his Neck, than to come into the World in that Manner; and then he is much more embarrassed in the Passage, that the Mother makes Efforts to push him out; which it is impossible for her to do, unless the Head of the Child be set right, that he may come out in a direct Line. Therefore as soon as it is found that the Child presents himself in that bad Posture, the Woman must be bid to lie down, for Fear it would be very difficult to push in the Child (as it must be done, to make him take a natural Situation) if he was advanced further into the Passage.

To perform this Operation, the Woman must be put in a commodious Situation, making her to lean a little on the Side opposite to the bad one of the Child; then the Man-midwife shall slide his Hand, well anointed with Oil, on the Side of the Head of the Child, to set it right; bringing it, gently, with his Fingers, placed between it and the Matrice, to a right Situation; but if the Head was so much engaged, that the Thing could not be effected in that Manner, he must slide his Hand as far as the Shoulders of the Child, that pushing them back a little into the Matrice, he may put him in a natural and convenient Situation.

Note, That it would be still better if the Man-midwife could push thus the Child back by the Shoulders, with his two Hands; but his Head occupies then the Passage in such a Manner, that it is often with the greatest Difficulty that he introduces one into it, with which he is obliged to perform the Operation, assisted with the Ends of the Fingers of the other, carried as far as it is necessary; which done, he must procure the Birth of the Child, in the same Manner of a natural Delivery; taking Care to set the Child's Head right as soon as possible, after the Evacuation of the Waters; for if it is not soon remedied, the Head being fallen back on the Shoulders, engages itself so much into the Passage, and the Unequalities of the Face, being thrust into the Substance of the Matrice, it is very difficult afterwards to give it a good Situation.

But if the Head cannot be reduced, because of the bad Situation of the Body of the Child, which hinders its being set right; then one must have Recourse to the last Remedy to save the Child's Life, which is to turn him entirely, by going to fetch the Feet, to draw him by them in that same Moment.

At other Times *the Child presents himself with his Face foremost*, having his Hand bent backwards, in which Posture it is very difficult to bring him into the World; and if he remains long in it, becomes so livid and puffed up, that he appears monstrous.

A Man-midwife must proceed in this Delivery in the Manner prescribed, when the Child presents his Head Sidewise, which must be set right with the Hands, observing always to do it as gently as possible, for Fear of hurting the Face of the Child.

The Method of Delivering a Woman, when the Body of the Child is stopped at the Passage by the Shoulders, *after the Head is come out.*

When a Child will be thus stopped by the Shoulders, a Man-midwife must make Haste to deliver him out of his Prison, otherwise he would soon be suffocated. To avoid therefore that Accident, he must endeavour to make the Shoulders follow and pass, by drawing gently the Head of the Child, sometimes by the Sides, and sometimes likewise by taking it with one Hand under the Chin, and with the other on the back Part of the Head, and thus proceeding alternately from one Side to the other, to facilitate the Thing, taking great Care that the Navel-string be not embarassed round the Neck; and observing always not to draw the Head with too much Violence, for Fear of separating it from the Body, as it sometimes happens through the Imprudence of the Midwife.

If the Shoulders don't pass after the Head has been pulled in that Manner, the Man-midwife must slide one or two Fingers of each Hand under each Arm-pit, with which, bending them inwards, the Shoulders will be drawn by degrees; but when they have entered the Passage, and are entirely disengaged from it, if he cannot have the Child yet, holding him thus under the Arm-pits, then it is sure that he is stopped by some other Impediment, and is certainly monstrous in some Part of his Body; or, as it happens often on that Occasion, he is hydropsical of the Abdomen, which hinders him from being extracted from the Matrice, by reason of the Eminence and Bigness of his Belly, without a Punction to procure the Evacuation of the Water; which is done by introducing the Left-Hand into the Matrice, as far as to the Place where the Belly is, and then running along the Inside of the same Hand with the Right, a Hook, or a bowed Knife, the Point thereof turned towards the Belly of the Child, that Point must be thrust into it at once; and when it is extracted from the Hole it has made, two Fingers must be introduced into it to dilate it, whereby all the Waters are evacuated in an Instant; after which the rest of the Body of the Child stopped in the Matrice, is extracted without Difficulty.

The Manner of assisting a Woman in a Labour where the Child presents one or both Hands together with the Head.

When some Part of the Child presents itself with the Head, it is most commonly one of his Hands, or both; which hinders him from coming out, because the Hands fill up Part of the Passage, and make likewise the Head to lean on one Side. When the Child comes in this Manner, the Labour is preternatural, and the Woman wants Assistance.

To give her that Assistance, if a Midwife, or Man-midwife, finds that one of the Hands presents itself thus, together with the Head of the Child, he must not be suffered to advance further, and to engage himself more in the Passage in that Situation; therefore having made the Woman to lay down, so as to have her Buttocks a little risen, he must push back with his Hand, as far as possible, that of the Child, or both, if they both present themselves, giving Room by that Means to the Head of the Child to advance forwards alone; which done, if the Head was Sidewise, he must reduce it to the natural Situation, *i. e.* place it in the Middle of the Passage, to make it come out in a strait Line.

Note, That if a Woman is soon succoured in that Manner, when it is not long since the Waters have been evacuated, if she has good Pains, and her Matrice be sufficiently dilated, she will have a happy Delivery:— But if the Matrice be dry, and is not sufficiently dilated, the Hands of the Child will not be pushed back without much Difficulty, and without doing some Violence to the Mother; and if she has not good Pains, the Head will not so easily, nor so soon descend to the Passage to fill the Place which was occupied by the Hands, before they were pushed back. Therefore the Man-midwife must endeavour, as much as possible, in pushing back thus the Hands of the Child with his own, not to draw his out of the Matrice, but at the Time of a new Pain to the Woman; that at that very Instant he may bring the Head of the Child to the Passage, to hinder thereby his Hands from taking again their former Situation.

How to assist a Woman in Labour, when the Child presents one or both Hands alone.

When the Child presents one or two Hands alone, or an Arm, which sometimes comes out as far as the Elbow, and even as far as the Shoulder, it is one of the worst and the most dangerous Postures he can present himself in, either for himself, or for the Mother, because of the violent Efforts a Man-midwife is always obliged to make, to one and the other, to fetch his Feet, which are at a great Distance, by which he is always to be drawn on those Occasions, after he has been turned.

Therefore when a Hand alone, or a whole Arm presents itself foremost, or both Hands or Arms, the Woman having been placed in a proper Situation, the Hands or Arms of the Child which present themselves at the Passage, must be quickly pushed back into the Matrice, the Man-midwife sliding afterwards his Hand into the Matrice, under the Breast and Belly of the Child, and so far that he may reach the Feet, which he'll draw gently to himself to turn him, and extract him by them; taking Care to do it with as little Violence as he can; without amusing himself to give the Child a natural Situation; which it would be very difficult to do, because he has his whole Body cross-wise, when he presents thus an Arm alone, as far as the Elbow or Shoulder; observing when he thus introduces his Hand into the Matrice, that he must slide it Inside of the Membranes of the Child, and not between the Membranes and the Matrice; for those Membranes, which line the whole Inside of the Matrice, facilitate by their polished slippery Substance, the turning of the Child, and hinder, by their Interposition, the Matrice from being hurted by the Hand of the Man-midwife in the Operation.

As soon as the Man-midwife has thus turned the Child by the Feet, if he was to lay hold but of one, he must search the other to bring it along with the first; that holding both, he must govern himself in the Extraction of the Child, in the Manner described for the Delivery where the Child presents his Feet foremost.

But if the Arm was so far advanced, so big and so tumified, that he could not be put back without much Difficulty, *Ambrose Pare* advises, if the Child is dead, to cut the Arm, as far as possible; though it is far better, and safer to wring it off, because its being very tender, it will be easily separated from the Body, at the Articulation of the *Humerus* with the Shoulder Bone. But when a Child is to be mutilated thus, or extracted with a Hook, the Man-midwife must be very sure that he is dead, and not follow the cruel Practice of some of our great Men-midwives, who for the least Difficulty have always Recourse to that murdering Instrument, whether the Child be dead or not.

How to deliver a Woman when the Child presents his Feet and Hands.

If the Child presents his Hands and Feet together, it is absolutely impossible he should come out in that Situation; therefore the Man-midwife carrying his Hand towards the Orifice of the Matrice, will feel nothing but a Quantity of Fingers near one another; and if the Matrice be not well open yet, he will not be so soon able to distinguish precisely the Feet from the Hands, because they are so close together, that they seem almost all of the same Figure. But so soon as the Matrice will be dilated enough for to introduce the Hand into it, he'll distinguish easily which are the Hands, and which the Feet; and then he'll slide it as far as towards the Head of the Child, which he'll find pretty near, he'll push it back gently, together with the Hands towards the Bottom of the Matrice, leaving the Feet in the same Place where he has found them; then placing the Woman in a commodius Situation, *i. e.* her Buttocks a little rising, he'll take the Child by both Feet, and draw him in the Manner heretofore described, when I treated of extracting a Child by the Feet.

Note, That it happens pretty often, that when the Waters have not been long evacuated, the Child being then drawn only by the two Feet, his Body turns of itself in the Matrice, without it be necessary to push it back, as above-mention'd. But when the Matrice is dry, and the Child far engaged in the Passage, one is obliged to push the Head and Hands back, to turn him with more Facility; for if the Operator would then content himself with only drawing the Feet, that would be of no other Service than to engage the Body still more and more in the Passage.

How to deliver a Woman when the Child presents his Knees.

If the Child, because he has not turn'd himself as he should have done towards the last Months to come into the World, the Head foremost, presents himself by the Knees, having his Legs folded near the Buttocks; then the Man-Midwife, because of their Hardness and Roundness, in feeling but one of them, could mistake it for the Head, especially if the Child being yet very high, he cannot feel it but with the Extremity of the Finger; but when he is fallen lower, and the Matrice is more dilated, he can easily make the Difference, as well between the Head and the Knee, as between the Knee and the Elbow; because the Roundness of the Knee is much more ample and even than that of the Elbow, which is more peaked.

Therefore having discover'd that it is the Knees the Child presents, he must not suffer him to advance further; but having placed the Woman in a convenient Situation, he must push the Knees of the Child gently back into the Matrice, to be more at Liberty to unfold his Legs one after another; which to effect, he must put one or two Fingers under the Ham, and guiding it slowly along the hind Part of the Leg, which he'll draw always a little obliquely, till he has found the Foot, that having disengaged one of them, he may do the same to the other, proceeding in the same Manner, as he has done to the first; after which having drawn them both out, he'll make the Extraction of the Child, as if he was to come his Feet foremost; observing always to extract him the Face downwards.

Of a Delivery where the Child presents the Shoulders, Back, or Buttock.

The worst of these three Situations, in which the Child presents himself, sometimes, is that of the Shoulders, because it is the most distant from the Feet of the Child, the Man-midwife must search to draw him out by the Feet; that of the Back is next to it, and that of the Buttock, the less difficult of the three; not only because the Feet are very near to it, but likewise because in that Figure the Head and Neck of the Child are not so constrained as in the other Situations.

To perform the Operation, where the Shoulder presents itself first, the Man-midwife must push with his Hand, the Shoulder a little back into the Matrice, that he may have a greater Facility to introduce his Hand into it; and sliding it afterwards along the Body of the Child, on the Side he'll find the Thing more easy, he'll search the Feet, to turn the Child entirely in bringing them to the Passage; after which he'll extract him, as it is done when the Child presents the Feet foremost.

If the Child presents his Back foremost, the Man-midwife must slide his Hand along the Back towards its lower Part till he has found the Feet of the Child, extracting him afterwards, as when he presents his Feet.

But when the Child comes the Buttock foremost, if he be small or of a middle Size, and the Mother tall, having the Passage pretty large, he can very well come out in that Posture, with a little Help; for tho' he has then his Body bent, the Thighs being folded towards the Belly which is softish, force their Passage over-against it, without much Difficulty. Which, notwithstanding, as soon as the Man-midwife has discover'd that the Buttock of the Child presents itself foremost, he must not suffer him to advance further, nor engage himself in that Posture into the Passage; for he might chance to remain too long there, and meet with much Difficulty before it could be disengaged from it, unless he was small, or of a middle Size, or the Passage was large, as already observ'd. He must next push back the Buttock, if he can do it without Violence; and sliding afterwards his Hand along the Thighs, as far as the Legs and Feet of the Child, he must bring them gently one after another, out of the Matrice unfolding, extending, and turning them towards the most easy Side; taking great Care to do it without any Contorsion or Dislocation; and extracting

the rest of the Body, as if the Child was to come his Feet foremost.

Note, That the Child is sometimes so far advanced into the Passage with his Buttock foremost, that it is absolutely impossible to push it back, and therefore must necessarily come into the World in that bad Situation; but to help him to it, the Man-midwife must slide one or two Fingers of each Hand on the Side of the Buttocks, to introduce them towards the Groin, as soon as he'll be capable to do it without Violence, and having bent them inwards, he must draw the Backside out as far as the Thighs; then drawing them a little obliquely on one Side and the other, he'll disengage them from the Passage, as likewise the Legs and Feet one after another, without Fracture or Dislocation, ending afterwards the Extraction of the rest of the Body, as if he was come the Feet foremost.

Note also, That a Man-midwife must take particular Care, when he extracts a Child who presents his Backside foremost, to bring him out his Face downwards; for commonly when he comes his Backside foremost, he has his Face and Feet towards the Belly of the Mother, and if he was drawn in that Manner, in a direct Line, without turning him by Degrees, in Proportion as the Extraction goes forward, the Face being thus upwards, the Chin of the Child would be fasten'd underneath the *Os Pubis*, and the Head stopped at the Passage, where he would soon perish.

Of a Delivery, where the Child presents the Belly, the Breast, or the Side.

The Back-bone can very well bend forward, but not backward, unless it be through an excessive Violence; therefore the worst and most dangerous Situation a Child can have in the Matrice, is that in which he presents the Belly or the Breast; for then his Body is forced to bend backward; therefore, notwithstanding all the Efforts a Woman can make, she never can make him advance to the Passage in that Situation; and is therefore in great Danger of her Life, unless she be immediately succour'd. What renders the Danger still greater, is, that the Navel-string most commonly falls out of the Matrice, when the Child presents his Belly foremost.

To prevent all the dangerous Consequences so unsafe a Labour could be attended with; the Operator, after he has placed the Woman in a convenient Situation, must run gently his Hand, well anointed with Oil or Pomatum, towards the Middle of the Breast of the Child, to turn him quite (because in that Situation he is half turned) then slide his Hand under the Belly, till he has found the Feet of the Child, which he must bring to the Passage, to draw him out in the same Manner, as if he had presented his Feet foremost.

When the Child presents the Breast, or the Belly foremost, the Man-midwife must proceed in the same Manner, in both Occasions, because they require semblable Circumstances.

The Child can also present himself sidewise; which is not so dangerous a Situation as the two others, because he does not die so soon. To deliver a Woman when the Child presents himself in that Situation; the Woman being placed in a convenient Posture, the Operator must push a little back the Body of the Child, that he may introduce his Hand with more Facility into the Matrice, which he shall slide along the Thighs till he has found the Legs and Feet, by which he'll turn him, and extract him afterwards.

Note, That a Man-midwife must not amuse himself in those three Sorts of Delivery, to endeavour to bring out the Child his Head foremost, since while he remains in those strange Situations, let it be ever so short a Time, he is in great Danger of dying, if he be not soon brought into the World; which cannot be done, but by bringing him out by the Feet.

Of a Labour where there are several Children, who present themselves in the different Postures heretofore mentioned.

If all the Figures and preternatural Situations heretofore described, in which the Child being alone, presents himself to come into the World, cause all the Difficulties and Dangers I have mention'd, a Labour where several Children together come in those bad Situations, is still more laborious, not only for the Mother and the Child, but likewise for the Man-midwife; because they are in so uneasy a Posture, and so crouded, that they hinder one another from coming out; and then the Matrice is so much filled with them, that the Operator cannot, without much Effort, introduce his Hand into it, as he must, when it is necessary to turn the Children, or push them back, to give them another Situation than that they present themselves in.

When the Woman has two Children, they do not present themselves ordinarily both togther, at the Passage to come out; for most commonly one of them is more advanced than the other; which is the Cause there is but one felt; and sometimes one does not perceive that the Woman has two Children, but when wanting to deliver her of the After-Birth, after she has been deliver'd of the first Child, the second is found coming out.

When two Children present themselves both in a bad Situation; or when but only one of them presents himself in a bad Situation, as it most commonly happens, the first coming Head foremost, and the second the Feet foremost, or in some other still worse Posture, the Operator must, as soon as possible, procure the Birth of the first, that immediately after, he may go search the second, to draw him by the Feet, without attempting to give him a natural Situation, was he even disposed to it, because he has been so much fatigued and debilitated, and likewise the Mother, during the coming out of the first, that he would be often in Danger of dying before he could come out.

Sometimes, likewise, after the first is come out naturally, the second presents himself the Head foremost. In that Case, Nature must be left to accomplish the rest, providing she be not too long about it; for the Child might chance to die, though in a natural Situation, through the Tediousness of the Labour: And the Woman who has been much tormented to bring the first Child into the World, is commonly so fatigued, and so much discouraged, when she knows, that after she has suffer'd so much, she has done yet but half her Work, loses Courage, and is besides so much weaken'd and debilitated, that she has no more Pains, or but very small ones. Therefore, when the Man-midwife sees, that the Labour is too long, he must introduce his Hand into the Matrice, to search the Feet of the Child, to bring him out that Way; and if the Waters were not broke yet, he must make no Difficulty to lacerate the Membranes with his Fingers; and it is even better to do it soon after the first is come out, who having then made the Passage, the coming out of the second is thereby accelerated.

So soon as the Operator shall have brought the first Child into the World, he must separate him from the After-Birth, in tying and cutting the Navel String, taking afterwards the Feet of the other to bring him out in the same Manner; after which he'll draw the After-Birth to extract it with the Help of its two Navel Strings.

Note, That the Man-midwife must take particular Care not to be mistaken, when the Children present both together, the Hands or the Feet foremost, and if they be not joined together, or monstrous; as likewise which are the Parts of the one, and which are those of the other, to draw them one after another, and not both together; which can be easily discover'd, if when two or three Feet of different Children present themselves at the Passage, having took a right Foot, and a left one, and sliding his Hand along their Legs and Thighs, as far as to the Groins, if it be forward; or towards the Buttocks, if it be backwards, he finds that they are of the same Body; of which being sure, he'll begin, first, to draw by the Feet him who is further advanced; putting a little aside, to clear the Way, those of the other Child, without any Regard if he be the strongest or weakest, the biggest or smallest, dead or alive; bringing out that first, such as he is, as soon as possible, observing the same Thing as if there was but one, *i. e.* endeavouring that he should come his Breast and Face downwards, with the Circumstances mentioned in the

Deliveries, where the Child presents his Feet foremost; and not to draw the After-birth till after the second Child is come out; for most commonly there is but one After-birth common to both Children, which being separated from the Matrice would cause a great Flux of Blood.

Note, also, That when there are two Children in the Matrice, Nature is not regular in making one come out sooner than the other, the first or the last, as it would be more convenient, *i. e.* that if one is strong, and the other weak, the strongest comes first, as likewise when one is dead and the other alive, the live one expells the dead one; for it is sure that there is no Order in that; for the nearest to the Passage, whether it be dead or alive, the strongest or weakest, comes always the first, or must be extracted first if he could not come out of himself.

Of the Delivery where the Navel-string comes foremost.

Every Time the *Navel-string* comes out first, the Child does not always present the Belly; for though he comes out naturally, as to the Figure of the Body, *i. e.* the Head foremost, the Navel-string notwithstanding falls sometimes, and comes out first; and then the Child is in a great Danger of his Life, unless the Woman be quickly delivered, because the Blood which circulates through the Vessels which compose that String, being thereby coagulated, stops the Circulation, by reason of the Compression of those Vessels at the Passage. For if those Vessels be not exactly compressed, but there be some Interval left to let the Blood flow, the Child may live, though the Navel-string has been out for several Hours.

In feeling the Navel-string, one may easily know if the Child be alive or dead in the Matrice; for if he be alive, the Umbilick is warm, big, full of Blood, and pretty firm, and the Pulsation of the Arteries is felt in it: But when he is dead, that String is commonly empty, flabby, shrivelled, small, cold, and no Pulsation is felt in it.

Women, whose Children have much Water, and the Navel-string very long, are very subject to this Accident; for those Waters flowing in great Abundance, at the Time the Membranes break, carry off along with them that String which floated in them, and the easier because the Head is not yet far advanced in the Passage, to hinder it from falling; and often likewise, the Navel-string falls out of the Matrice, when the Child comes in a preternatural Posture, because he cannot easily descend into the Passage when he is in a bad Situation; for the Parts he presents then foremost not filling up exactly the whole Entrance of the Matrice, because of their Inequality, there most commonly remains some Vacuity, through which the Navel-string slides.

To remedy that Accident, and prevent if possible, the fatal Consequences it is attended with, the Patient must be kept in her Bed very warm, and the Navel-string immediately put back into the Matrice to hinder it from cooling, endeavouring to thrust it quite behind the Head of the Child, if the Head presents itself foremost, lest it should be pressed and contused by it, and the Motion of the Blood intercepted; keeping it fast, by means of the Ends of the Fingers of one Hand, in the Place whereinto it has been pushed, keeping always those Fingers on the Side it comes out at, till the Head be entirely come down and lodged at the Passage, can hinder it from falling another Time, taking the Occasion of a good Pain, to bring it to it with more Facility; or if the Operator draws out his Hand, he must thrust a small Piece of very soft Linnen between the Side of the Head and the Matrice, to stop the Place through which the String could fall, observing to let one End of that Linnen hanging out, that it may be extracted when it is judged proper; putting likewise a Compress dipped in hot Wine, before the Entrance of the Matrice, to hinder the Navel-string from cooling, in case it was to fall again.

But, notwithstanding all those Precautions, it happens sometimes, that the Navel-string falls at every Pain, which the Woman takes: In which Case the Operation ought not to be deferred, but the Child must be extracted as soon as possible by the Feet, which the Man-midwife must go to search, was even the Head to present itself first, since there is but that sole Remedy which can save his Life.

Therefore having placed the Woman in a commodious Situation, he must push back gently the Head of the Child, which presents itself first, if it be not too far advanced between the Bones of the Passage, and he can do it without tormenting the Woman too much (in which Case it is best to leave the Child in Danger of his Life than to expose that of the Mother). Afterwards he'll slide his Hand (well anointed with Oil or Pomatum) under the Breast and Belly of the Child to search his Feet, by which he'll draw him out.

Of a Delivery where the After-birth presents itself foremost, or is entirely come out before the Child.

The coming out of the After-birth before the Child, is still much more dangerous, than the coming out of the Navel-string: For besides, that the Child most commonly dies then, if he be not succoured, almost at the same Instant; the Mother herself is also very often in Danger of her Life, by reason of the great Loss of Blood, which commonly happens when the After-birth is separated from the Matrice, before the Time appointed by Nature, because it leaves open all the Orifices of the Vessels to which it was adherent, from which the Blood flows in Abundance, and without Discontinuation, till the Child be out of the Matrice; for while he remains in it, it makes continually some Efforts to expell him, by means whereof it continually squeezes the Blood out of the Vessels. Therefore if one must be diligent to succour the Child when the Navel-string comes out first, he must be still more quick to do it when the After-birth is quite out of the Matrice, since a Delay in that Case, let it be ever so little, causes always the immediate Death of the Child, if he be not soon brought into the World, for then he cannot remain long without being suffocated, because he wants Respiration through the Mouth, as soon as his Blood is no longer vivified by its Preparation in the After-birth, whose Functions and Uses cease as soon as it is separated from the Vessels of the Matrice to which it was joined; which occasions immediately that great Flooding, which proves so dangerous to the Mother, that if it be not quickly remedied she soon loses her Life.

When the After-birth presents itself thus first at the Passage, nothing is felt but a soft Body, without any solid Part; and the Blood flows in Abundance from the Matrice with several Clods, the Woman fainting away often.—In that deplorable Case, the Operator must make Haste to deliver the Woman, if he will save her Life, and that of her Child, if he be yet alive. Therefore, if the After-birth only presents itself first, without being quite out, and the Waters be not yet broken, as it sometimes happens, he must put a little aside that Part of the After-birth which presents itself first, till he be over-against its Membranes, which he must break with his Fingers, for the immediate Evacuation of the Waters, and at the same Time to turn the Child, in case he should present himself in another Posture but the Feet foremost, by which he must immediately draw him out: For it must be observed, that though the After-birth which thus presents itself first, be but a foreign Body in the Matrice, when entirely separated from it, as it is then; for which Reason one would think that it should be extracted before the Child; notwithstanding as it is strongly fastened to the Membranes it is environed with, such a Thing could not easily be done; because the After-birth could not be easily extracted, without extracting at the same Time the Membranes which envelope the Body of the Child; besides that those Membranes, which line the whole Inside of the Matrice, serve, by their polished and slippery Substance, to the easier turning of the Child, and to hinder the Matrice, by their Interposition, from being hurted in the Operation; which would not succeed so well, if the After-birth was extracted first.—But if the Operator was to find that the After birth is almost quite out of the Matrice, and the Membranes thereof entirely broken, or lacerated, in that Case he must extract it quite; for, besides that it would be needless to thrust it back into

the Matrice, it would be very troublesome to the Man-midwife during the Operation, and hinder him from giving an immediate Succour to the Child.

If the After-birth, which is almost quite out of the Matrice, and whose Membranes are broken, is not to be put back, much less that which is quite out. For all that is to be observed then, is that the Operator ought not to amuse himself to tie and cut the Navel-string before the Child be extracted likewise, who is then always in Danger of his Life; as likewise to stop as soon as possible the Flooding of the Mother, which ceases as soon as she is delivered.

Of a Delivery accompanied with a great Loss of Blood, or, with Convulsions.

Whether a pregnant Woman be at Term or not, the most efficacious Remedy for a great Loss of Blood, to save the Life both of the Mother and of her Child, is to deliver her quickly, in searching the Feet of the Child to draw him out.—But when the Loss of Blood is but small, and the Woman has Strength enough to bear it, the Delivery must be left to Nature; provided the Woman's Pains be strong enough, to give Room to hope, that she may be delivered in that Manner. Notwithstanding which, if at the Time the Flooding begins, the Membranes of the Waters of the Child were not broken yet, they must be broke as soon as the Matrice is a little dilated, without waiting for those Membranes breaking of themselves: For as the Losses of Blood which exceed a Mediocrity, proceed always from a Separation of the After-birth from the Matrice, if those Membranes are left whole, as they are fastned on all Sides to the After-birth, they would cause a still greater Separation, being agitated and pushed forward at the Time of the Pains of the Women; but being broken, they give Room to the Child to advance forward into the Passage, through their Laceration, without pulling hard, as they did before, on the After-birth.

The *Convulsion*, is no less dangerous to the Woman in Labour, and to her Child, than the Loss of Blood, unless she be quickly delivered, which is also the best Remedy in that Case. But the Matrice sometimes being not sufficiently open when the Convulsion happens, one must have Recourse to common Remedies, which are bleeding in the Arm, and even in the Foot (if the Convulsion does not proceed from Loss of Blood) to provoke sneezing, and giving her from Time to Time pretty strong Glysters, in order to excite Pains for the Dilatation of the Matrice, which must be humected likewise, with reiterated emollient Fomentations.

Note, That the Convulsions proceed most commonly from these three Causes, *viz.* either from a too violent Agitation of the Spirits, which crowding with a too great Impetuosity through the Nerves, during a very laborious Labour, intercept by Intervals, their own Circulation; or by reason of the great Quantity of Blood evacuated by an excessive Flooding; or, as it often happens in the first Labour, by the violent Pains the Matrice suffers in its first Dilatation; I would not advise a Man-midwife to prescribe to his Patient any violent Remedy, as Emeticks, strong Catharticks, or Sternutatories, which, instead of appeasing those dangerous Symptoms, serve rather to increase them; for if the Convulsions proceed from a too violent Agitation of the Spirits, I would rather endeavour to calm them with some Drops of Laudanum, administred inwardly, or some Glasses of Emulsions; which can serve not only to appease the too great Agitation of the Spirits, but likewise to cool the Blood, and repair the exhausted Strength of the Woman, by procuring her a gentle Sleep, or by applying outwardly on her Forehead, a Dissolution of Opium; the same Remedy is also of great Service when the Convulsions proceed from a great Loss of Blood. If they be caused by the great Pains occasioned by the extreme Distention of the Matrice, the Man-midwife must with his Finger, and some Embrocations, facilitate the Dilatation thereof, that he may as soon as possible deliver the poor Woman of her Burthen, otherwise the violent Efforts caused by other Remedies, would occasion a mortal Laceration of the proper Substance of the Matrice.

Therefore since a quick Delivery is the most salutary Remedy in that dangerous Case, the Man-midwife must procure it as soon as possible; which should be done in the following Manner.

If the Child be supposed alive, though he presents himself in a natural Posture, the Operator must turn him entirely in the Matrice, to draw him out by the Feet, after having broke the Membranes of the Waters, if they were not broke already.

If on the contrary the Child is known to be dead, and his Head is too strongly engaged in the Passage, the Operator must make no Difficulty to draw him with the Hook.

Note, That there are certain Women, who are never delivered without falling in Convulsions, either before or after their Delivery. To avoid and prevent so dangerous an Accident, those Sorts of Women must be let Blood twice or three Times during their Pregnancy, and likewise at the Beginning of their Labour, in order to diminish the Quantity of Blood of which their Vessels are too full, and which is the Cause in Part of the Convulsions, by flowing to the Head, by reason of the excessive Pains a Labour is attended with.

Note, also, That when a Woman does not recover her Senses when the Convulsion is over; but on the contrary remains stupified, foams at the Mouth, and snoars very loud, she most commonly dies with her Child, unless they be both quickly succoured by the Delivery; which Remedy is not notwithstanding infallible.

How to deliver a Woman when the Child is hydropsical, or monstrous.

A Child can be hydropsical in the Matrice, either of his Head, or of his Breast, or of his Belly; and if those Parts are so full of Water, as to be much bigger than the Passage is wide, through which the Child is to come out; then whatever Efforts the Woman can make to push him out, she can never do it without Succour; as likewise if he is monstrously big, either of his whole Body, or only of some Part thereof, or by being joined to another Child.

If the hydropsical Child be alive at the Time of the Delivery, his Life cannot be saved; for to save that of his Mother, his Head must be pierced, or his Breast, or his Belly, *i. e.* that Part where the Water is contained, to procure the Evacuation thereof, without which he could not be extracted, and remaining in the Matrice, would kill his Mother: Therefore to save her Life, it is absolutely necessary to extract the Child by Art, which is done in the following Manner.

The Woman being placed in a convenient Situation, the Operator shall introduce gently, his Left-Hand into the Matrice opposite to the Head of the Child, if the Water be contained in it, and with the Right slide along the Left a bowed Knife, and sharp at its Extremity (which Extremity must be turned towards the Inside of the Hand for Fear of wounding the Matrice) and having guided it as far as to some of the Sutures of the Head, which are then very loose, he'll turn it towards those Sutures, and make an Aperture for the Evacuation of the Waters; which done, he'll meet with no more Difficulty in the Extraction of the Child, because his other Parts are then most commonly very slim. If those Waters were in the Breast or in the Belly, as the Head then is not big out of Measure, it could easily come out of the Matrice without the rest of the Body, which is extremely tumified by those Waters; in which Case the Operator must slide his Left Hand, and the Instrument with his Right, as far as the Belly, or the Breast of the Child, to open it for the Evacuation of the Waters; after which the Operation will be ended without Pain.

Note, That it is much more difficult to draw a monstrous big Child, or joined to another, out of the Matrice, than one who is hydropsical, because the Bignesses of the hydropsical Parts, is easily diminished by a single Aperture, which is capable to evacuate the Waters which make the Distention thereof; after which

which the reſt of the Operation is very eaſy; but when a large monſtrous Child, or joined to another is to be extracted, a ſingle Aperture avails nothing, for it is ſometimes neceſſary to ſeparate whole Members from that Body, which renders the Thing much more difficult and laborious, and wants a very dexterous Hand. In this Caſe the Left-Hand muſt be introduced into the Matrice, and the bowed Knife with the Right, as far as to the Parts which are to be ſeparated, cutting them at their Articulation; and if there are two Children joined together, they muſt likewiſe be ſeparated at the Place where they are joined; which done, they'll be extracted one after another, and always by the Feet, if poſſible.

Of the Extraction of a dead Child.

When the Child is dead in the Womb, the Delivery is almoſt always very long, and very laborious; becauſe his Body having no more Support, and being grown quite flabby, his Parts fall on one another, which does, that he moſt commonly comes in a bad Situation; and though he preſents himſelf in a natural Poſture, the Head foremoſt, the Pains of the Woman are ſo weak and ſo ſlow, on that Occaſion, that they cannot cauſe the Expulſion of the Child; and ſometimes ſhe has none at all; becauſe Nature half exhauſted by the Death of the Child, who cannot help her, works ſo little, that often ſhe cannot end the Work ſhe has begun; and would infallibly fall under her Burthen if ſhe was not aſſiſted by Art.

But, however, before the Man-midwife undertakes the Operation, he muſt endeavour to excite ſome Labour Pains, by Means of ſtrong Glyſters, to facilitate the Expulſion of the Child, if he be in a good Situation; but if thoſe Remedies have no Effect, he muſt proceed to the Extraction of the Child, which is the ſureſt Means; for all the other Remedies taken inwardly, and preſcribed by ſome Phyſicians, to facilitate the Expulſion of a dead Child out of the Matrice, being commonly very hot, and Purgatives, can cauſe afterwards very dangerous Accidents, as a Fever, Looſeneſs, Dyſentery, Loſs of Blood, Relaxations, and bearing down of the Matrice.

Note, That all Authors forbid the Extraction of a dead Child, when there is Inflammation of the Matrice, and order, in that Caſe to humect it with emollient Fomentations, and half Baths, and with Embrocations of Oil, often reiterated, to appeaſe the Inflammation, before the dead Child be extracted: But it is entirely impoſſible the Inflammation ſhould diminiſh, while the dead Child, which is the true Cauſe thereof, remains in the Matrice. Therefore ſo ſoon as the Operator finds Room to introduce his Hand into it, he muſt extract the Child without Delay; which is the only Means to appeaſe the Inflammation; for if the Operation was deferred, the Inflammation would ſtill increaſe more, and cauſe at laſt the Gangrene in the Part, after which there would be no more Hope of ſaving the Woman's Life.

The Extraction of a dead Child is made, by puſhing back the Head of the Child (if it comes foremoſt, and is not too much engaged in the Paſſage) into the Matrice, that the Operator may have the Liberty to introduce his right Hand into it, ſliding it under the Belly of the Child, to ſearch his Feet, in order to turn and draw him in the Manner abovemention'd; taking great Care that the Head ſhould not be ſtopped, nor ſeparated from the Body at the Paſſage.

But if the Head of the Child was ſo much engaged in the Paſſage, that it could not be puſhed back, then the Operator, if he be very ſure that he is dead, ſhall extract him in that Poſture, by Means of a Hook, which he muſt puſh as far as poſſible, without Violence, between the Matrice and the Head of the Child, guiding it along the Inſide of one of his Hands, its Point turned towards the Head, which he'll hook in, by fixing it, if poſſible, on the Skull; in ſuch a Manner, that it may not ſlip, or part from its Hold. This Hook being thus well faſten'd to the Head, he muſt draw it out, placing the Extremity of the Fingers of his left Hand on the Side oppoſite to the Hook, to help to diſengage it better, in ſhaking it a little by Degrees, and to guide it more directly out of the Paſſage; uſing then, if it be neceſſary, a ſecond Hook, in the ſame Manner as the firſt, and placing it on the oppoſite Side of the Head, that the Extraction be made equally on both Sides.

It would be better if the Hook could be puſhed at once ſo far as to give it a ſufficient Hold, to extract entirely the Head of the Child; but as there is often no Room to introduce it farther than the Middle of the Head, it muſt be hooked in firſt, in the Manner abovemention'd, on the Middle of one of the parietal Bones, to give it a firm and ſtable Hold; and when by this firſt Hooking, the Operator has drawn the Head a little out, and began to diſengage it, then he'll draw the Hook out of that firſt Hole, to put it farther in, and thus ſucceſſively taking it out, and putting it in again, till he has entirely brought out the Head, after which, drawing it immediately with his Hands only, he'll make the Shoulders enter the Paſſage, ſliding, if it be neceſſary, one or two Fingers of each Hand, as far as under the Arms, to draw by that Means the Child entirely out. This done, he'll proceed to the Extraction of the After-Birth, in the Manner heretofore ſo often mentioned. But the Extraction of a dead Child is made with a ſtill greater Facility, by Means of an Inſtrument of the Invention of the famous M. *Mauriçeau*, which he calls *Head Screw*; of which hereafter.

Note, That before the Operator attempts the Extraction of a dead Child, who preſents his Head foremoſt, he muſt take particular Care, that the Head be in a good Situation; for if it was ſidewiſe, it would be much more difficult to draw it in the Manner abovementioned, becauſe the Head of a dead Child, which is very flabby, being longer than broad, its Length is converted into Breadth and Bigneſs, when it is not in a direct Line in the Paſſage; which hinders it from coming out. He muſt take Care, likewiſe, to draw it whole, as much as poſſible, and not in Pieces, that by its coming out thus, it may make the Paſſage for the reſt of the Body; and for ſeveral other very important Reaſons heretofore mentioned.

But if the dead Child was to preſent an Arm as far as the Shoulder, and ſo much ſwelled and tumefied, that it could not be puſhed back into the Matrice, without hurting much the Woman, it muſt be ſeparated from the Body, by twiſting it three or four Times, as already deſcribed; whereby occupying no longer the Paſſage, the Operator will have more Room to introduce his Hand into the Matrice, to fetch the Feet of the Child, to extract him by them; obſerving always, when he has made the Extraction of a dead Child, to re-aſſemble into one all the Parts he has ſeparated, to ſee if he can compoſe a whole Body of them, and diſcover thereby if nothing remains in the Matrice.

Note, That tho' a Man-midwife be ſure that the Child is dead in the Matrice, and that it is neceſſary to make the Extraction thereof by Art; he ought not, notwithſtanding, uſe always at firſt his Hooks, or any other Inſtruments; which are never to be employed but when the Hands are not ſufficient, and the Child is not to be extracted otherwiſe, to ſave the Woman from the Danger ſhe is in; for though, very often, he has done all that the Art preſcribes, Perſons who know nothing of the Matter, believe that, with his Inſtruments, he has kill'd the Child; and is even the Cauſe of the Death of the Mother, if ſhe was to die in her Lying-in.—He muſt, likewiſe, if poſſible, extract the Child whole, and not in Pieces; though he muſt always act on theſe Occaſions according to his Conſcience and Knowledge, without minding what People can ſay. Theſe ſalutary Advices are only for Men-midwives, who have generally more Knowledge than Fortune, and whoſe Conduct, let it be ever ſo regular, is expoſed to the Cenſure of every illiterate Fellow, and ignorant, tattling Woman; but not for thoſe *Aſſaſins en Houſſe*, to whom that Jilt, *Dame Fortune*, has given the Privilege to kill *impuné per totam terram*.

Here

How to extract a Mole, and a false Conception.

For the Extraction of a Mole, after the Man-midwife has placed the Woman in the same Posture, as if it was for the Extraction of a dead Child, he must slide his Hand into the Matrice, if it be sufficiently dilated, to draw out the Mole, using, if it be so big that it cannot pass whole, of a Hook or Knife, to extract it, or divide it in two, or several Parts, according as the Necessity requires it.—If the Operator find it adherent to the Matrice, he must separate it from it gently, with the End of his Fingers, thrusting them by Degrees, between the Mole and the Matrice, beginning at the End which is not so adherent, and continuing thus till it be entirely separated; taking great Care, if it be much adherent, not to lacerate the proper Substance of the Matrice; using the same Precautions then as in the Extraction of the After-Birth, when the Navel-string has parted from it.

If the Mole cannot be extracted in the Manner abovementioned, the Expulsion thereof must be procured by some Purgatives, if the Woman has no Fever, nor Loss of Blood; and when the Remedy begins to operate, she must take a pretty strong Glyster; which shall be reiterated, as often as it will be judged necessary to excite thereby Pains capable to cause the Dilatation of the Matrice, which ought to be humected often with emollient Embrocations of Oil or Grease.

By means of these Remedies, the Mole will be expelled out of the Matrice, provided it be not too big, nor too adherent to it.

Note, That the Mole has no Navel-string affixed to it; nor likewise any After-Birth for its Subsistance, but is fed immediately from the Vessels of the Matrice, to which it is almost always adherent, and joined in some Place. The Substance of its Flesh is also much more hard than that of the After-Birth, and even sometimes scyrrhous; wherefore it is much more difficult to separate it from the Matrice; even sometimes the Substance of the Mole and that of the Matrice, are so confused together, that they both compose but one and the same Body; whereby the Malady is render'd incurable; for as that Sort of Mole can be neither expelled, nor extracted out of the Matrice, it always increases in Bulk, till it kills the Woman at last.

As to the *false Conception*, though it be much smaller than the Mole, it notwithstanding puts often the Woman in Danger of her Life, because of the great Loss of Blood it is almost always attended with, when the Matrice endeavours to expel it, which seldom ceases till after it is come out; because it makes continually new Efforts to force it out, whereby the Blood is excited to flow, and as it were squeez'd out of the Vessels.

I have never found a more specifick Remedy to help the Matrice, in the Expulsion of a false Conception, than the Oil of Cinnamon, and of Gujacum, of each six Drops, taken in an Ounce of Water of Parietary; which is a Remedy of my own Invention, and which has never fail'd of Success; though I have prescribed it to Women who had Sincops through an excessive Loss of Blood.

But if a Man-midwife wants to extract the *false Conception*, with his Hand, after he has well anointed it with Oil, he must slide it into the Vagina, as far as to the inward Orifice of the Matrice; which he'll find sometimes very little dilated; then he'll introduce gently into it one of his Fingers, turning immediately and bending it from one Side to the other, till he has found means to slide a second, and afterwards a third, or more, if he can do it without Violence; though sometimes it is with the greatest Difficulty, he can introduce only two. This done, he'll take between his two Fingers the *false Conception*, drawing it gently out, together with the Clods of Blood, he could meet with; after which the Loss of Blood will cease infallibly, unless he was to leave behind some Portion of that foreign Body; which he has done if the Flooding continues.

But if the inward Orifice of the Matrice could not be dilated, but for the Introduction of a single Finger, and that with great Difficulty; the Operator having introduced into it, the Index of the right Hand, as far as he is able, without Violence, he'll turn it gently around the false Conception to loosen it from the Matrice, that it may be expelled from it as soon possible; or that being thereby mortified, it may be dissolved by Degrees into Suppuration afterwards; for Losses of Blood, caused by simple false Conceptions, have been often stopped, as soon as those foreign Bodies had no more Communication of Life with the Matrice, as it happens at the very Instant they are no longer adherent to it.

But if notwithstanding all these Precautions, the Flooding should continue, with that Violence as to put the Woman in Danger of her Life, then the Operator having introduced the Index of his left Hand into the Matrice, must take with his right a Kind of Pinchers, made for the Purpose, called *Tenette*, the End whereof he'll slide along his Finger, to draw out, with that Instrument, the foreign Body which is in the Matrice, taking particular Care not to pinch the Matrice; and observing that the Instrument should always be guided by the Finger introduced first; which by its feeling, will make the Operator distinguish the foreign Body from the Substance of the Matrice.

Note, That a Man-midwife, in making the Extraction of the *false Conception*, in the Manner abovemention'd, must take Care that the Portion of the foreign Body first laid hold of, should not part from the rest; which would certainly happen, if he was to pull too hard at first; for it is most commonly the most fragile, and softest Part thereof which presents itself at the inward Orifice to come out. Therefore having laid hold of it with his Fingers, he must draw it out gently, and a little obliquely from one Side to the other; endeavouring always, by preserving that first Hold without breaking, to get one higher, in Proportion as the foreign Body is made to advance further, till it be entirely extracted; the Woman helping towards it all the while, by stopping her Breath, and pushing hard downwards.

Note also, That the Operator must take great Care not to be mistaken in these Cases, and thinking to procure the Expulsion of a Mole, or of a false Conception, cause a true Abortion, as some ignorant Men-midwives have often done.

Note besides, That having thus treated in an ample Manner, both of the natural Delivery, and of those against Nature, or preternatural; and instructed my Pupil Midwives and Men-midwives, of all the best Means to help a Woman in the first, and to remedy to all the others, according to the different Occasions which can occur; I must proceed to inform them, likewise, *Of the Maladies and Symptoms which happen to Women during their lying in; how to treat Children newly born; of their most common Maladies; and of the Conditions requisite in the Choice of wet Nurses, as they are called in* England. Beginning by *what is to be done to a Woman as soon as she is deliver'd, in a natural Delivery.*

So soon as the Woman has been deliver'd of her After-Birth, the Midwife must take great Care that its Separation be not followed by a too great Loss of Blood; and place before the Entrance of the Matrice a pretty soft Cloth, folded into five or six Doubles, left the cold Air penetrating into it, should stop the Evacuation of the Lochia, by a too sudden Obstruction of the Vessels; the Suppression whereof would be unavoidably attended with very dangerous Accidents, as excessive Pains, and Gripings in the Belly, Inflammation of the Matrice, a Fever, Pleurisy, and several others, which I design to mention hereafter; and not unlikely Death itself.

The Entrance of the Matrice being thus well stopped, if the Woman has not been deliver'd in her Bed, she must be immediately carried into it, unless there was a Flooding, as it happens sometimes, for then she should be left above a Quarter of an Hour, in the Place where she has been deliver'd, left by moving her so soon, the Loss of Blood should increase; which, on the contrary, is moderated, by the Air, which introduces itself into the Matrice; while other Remedies are administer'd to the same Purpose. But if there be no Fear of that Accident, the Woman must be carried to her Bed, by one or two Persons, rather than be suffer'd to walk to it; though if there was some Part of the After-Birth left behind,

hind, that walking (provided it was not too far) would contribute to the Expulsion thereof. The Bed having been made as requisite in those Occasions, and well warmed before she is put to it, where she must be placed in a Situation, proper to take her Repose, which is so indispensably necessary to repair her exhausted Strength, and recruit her Spirits; which Situation ought to be such as to have her Head and Body a little rising, as well to facilitate her Respiration, as to procure the Evacuation of the Blood which flows then, and which being intercepted, would cause violent Pains to the poor Patient; as it often does here in *England*, where a poor Woman being left, sometimes three Quarters of an Hour, or an Hour, in the miserable Condition she has been delivered, with all her Cloaths wet about her, great Clods of Blood are formed in the Matrice by the Introduction of the cold Air into it, which cause those Pains, they call After-Pains; and which the ignorant Midwife makes her believe to be the necessary Consequences of a Delivery. It is true, that it is impossible the Woman should be quite free from Pains, at that Time, since whatever Care may be taken, either in the Delivery, or immediately after, there is always some Air introduced in the Matrice, whereby some of the Blood, which is to be evacuated, is clodded, which Clods making some Violence, lesser or greater, according to their Bigness or Smallness, to the Matrice, then very sensible and tender, cause those After-Pains: But it is equally true, that if greater Care was taken of a Woman in her Delivery, and immediately afterwards, those Pains would be neither so violent, so frequent, nor so long.

The most common Custom here in *England*, is to give to the Woman soon after she is in Bed, a Spoonful of *Sperma Ceti*. In *France*, they give her an Ounce of Oil of sweet Almonds, extracted without Fire, and as much of Syrup of Maiden Hairs mixed together; which serves to soften inwardly the Throat, which has been heated, and is hoarse, by the great Efforts she has made to retain her Breath during her Labour; as likewise, that the Stomach and Intestines being anointed with it, may not be griped so much; this last Remedy is far more agreeable than the *Sperma Ceti*, and has the same Efficacy, if not more. Others give her only some good Broth, which they think better than any Draught. Then the Patient is left to take some Rest.

Note, That with Regard to the Bandage, which is convenient to a Woman after she is delivered, it must be very loose the first Day, when the Labour has been very hard; because if the Belly was kept too tight, it would hurt the Woman, which has it very painful at that Time, and likewise the Matrice which has been much fatigued; therefore that Bandage should be no tighter than to keep up the Belly, during the whole Time of the Evacuation of the Lochia. Though some keep it very tight, under Pretence of restoring the Belly to its former fine Shape, by diminishing, by Means of that tight Bandage, the Bigness thereof; but they are grosly mistaken, for in pretending to restore the Shape of the Woman, they, on the contrary, push by that Compression, the Matrice downwards, which is often the Cause, that the Woman remains a long while afterwards, incommoded by a great Weight in the Matrice, and that her Belly, instead of diminishing, is rather render'd bigger, because of the Fluxion which that painful Weight produces in that, and all the neighbouring Parts.

If the Woman is not to suckle her Child, there must be Remedies applied on her Breasts to dissipate the Milk; but if she designs to do it, her Breasts should be only kept close, and cover'd with soft and warm Cloths, for fear the Milk should grow knotted; and if it flows into it with too much Impetuosity, Embrocations are to be made on them, with Oil and a little Vinegar mixed together, dipping in it some Cloths to apply on them; observing, if the Woman will suckle her Child, that she should not give him the Breast but three, or even five Days after she is deliver'd, *i. e.* till the Humours, which have been in a great Ferment, and flow in great Abundance to the Breasts, in the first Days, be much abated.

As to the Regimen a lying in Woman is to observe, when no Accidents happen. — She must be treated in the first Days, with Regard to her Diet, as if she had a Fever; therefore she should be fed, particularly during the three or four first Days, with Chicken-Broth, Jellies, and the like; and likewise some boiled and even roasted Chickens, provided it be in a moderate Quantity. — As for her Drink, she may be suffer'd, if she has no Fever, to drink some white Wine, mixed with warm Water, for she is not to drink any Thing cold.

Note, That all I have said relating to the Conduct to be observed, with lying-in Women, is only when their Lying-in is not attended with any Accidents; for when it is, that Conduct must be different according to the different Accidents, such as *a great Flooding, a Fall of the Matrice, the Contusions and Lacerations thereof, After-Pains, Suppression of the Lochia, Inflammation of the Matrice, Scyrrhe of the Matrice, Cancer of the Matrice, violent Loosenes, Inflammation of the Breasts, Knotting of the Milk, Swelling of the Legs and Thighs, Suffocation of the Matrice*, &c.

The *Flooding*, or *Loss of Blood*, which happens sometimes to a Woman immediately, or soon after she has been deliver'd, is caused by the Separation of the After-Birth from the Matrice, the Orifices of whose Vessels, are become three or four Times bigger during Gestation, than they were before; the Blood flowing then in greater Abundance, that it is more subtile, and naturally heated, either by the Fatigues of a tedious and long Labour; or by the Woman being of a sanguine Complexion, and has the Vessels of the Matrice bigger.

This Accident can often proceed from that the After-Birth has been separated from the Matrice, with too much Haste or Violence; or because some Portion thereof, or a false Conception is left in the Matrice; for that Part endeavouring then to expel it, squeezes and makes the Blood flow out of the Vessels newly open; and sometimes from a large Clod of that Blood remaining in the Substance of the Matrice.

The Loss of Blood is an Accident more dangerous than all the others which can happen to a Woman newly deliver'd, and sometimes causes her Death, before one has Time to remedy it: Therefore proper Remedies must be administer'd to the Patient, as soon as possible, examining what can be the Cause of such a Flooding; for if it be a false Conception, or a Portion of the *After-Birth*, or some Clods of Blood left behind in the Matrice, they must be immediately extracted, or the Expulsion thereof procured by some specifick Remedy; such as *a few Drops of the Oil of Gujacum in Plantin Water*. But if the Blood flows immoderately, though there be nothing left behind in the Matrice, the Woman must be let Blood in the Arm, if her Strength will permit it, observing while she bleeds to close by Intervals the Orifice of the Vein, the better to make Diversion of the Blood, without exhausting her Strength; she should lay her Body equally situated, without being rais'd; to hinder the Blood from flowing too much towards the inferior Parts; remaining still, without moving on one Side or the other. Her Belly must not be kept tight at all, especially if she feels Pains in it; neither is she to be much cover'd in her Bed; and Care should be taken, that the Air of her Chamber be a little cooled; though I know no better, nor quicker Remedy on that Occasion, than my Styptick; for a large Spoonful of it, stops the most immoderate Flooding, a few Minutes after it has been taken, without having Recourse to any others; which, on that Occasion, fatigues always very much the poor Patient, and very often accellerates her Death, instead of saving her Life, by exhausting entirely the little Strength she has left. But this, instead of exhausting it, chears her up, at the same Time it stops her Flooding.

In Places where this Remedy is not be had, if notwithstanding bleeding in the Arm, and other Remedies, the Flooding continues to Excess, the Woman must be laid on fresh Straw, with a single Sheet over the Straw, without any Matrass, that she may not have her Reins so much heated, putting along her Loins, Napkins dipped in cold Oxycrat; unless it was in Winter, in which case it must be warmed a little; giving her the Juice of Pre-

celine alone, or mixed with her Broth. Warming, likewise, the Region of the Heart with hot Cloths, and aromatized with *Hungary* Water, or some other proper Liquor. She must take every half Hour, a few Spoonfuls of good Broth, or one or two of good old red Wine.

But if, notwithstanding all these Remedies, the Blood continues always to flow (which never happens if she takes the Styptick above-mention'd) the Woman falls often into Syncope, and is in great Danger of her Life; because no proper Remedies can be applied on those Places where the Vessels are open; or if the Woman recovers after an excessive Loss of Blood, she has a few Days afterwards, a violent Pain in her Head, proceeding from the Fermentation of the new Blood; with a Fever, which is sometimes continual, and sometimes intermitting.

Note, That several Women having the first Evacuation of their Menses, after their Lying-in, much more abundant than usual, some of them take that Evacuation for a Loss of Blood; though they be only their Menses, much more abundant, because the Vessels of the Matrice, which have been much dilated, during Gestation, being not yet very well strengthen'd and contracted, let the Blood flow thus abundantly. This Evacuation, let it be ever so abundant, is never dangerous, when it proceeds from the Cause abovemention'd; and the only Remedies requir'd in that Case, are Repose, and Abstinence from Coition, till the Evacuation be entirely ceased.

As to the *bearing down and Fall of the Matrice, and of the Anus*; and *of the Hemorrhoides in a lying-in Woman.* To understand well the *bearing down of the Matrice*, we must distinguish two Kinds thereof.

The *first Kind of bearing down*, or *Relaxation*, is where the Body of the Matrice falls into the *Vagina*, in such a Manner, that introducing the Finger into it, the inward Orifice is felt very near. The second Sort, is when the Matrice being still lower, that inward Orifice is manifestly seen to appear on the Outside at the *Pudendum.*

The *Fall of the Matrice*, is also of two Sorts. — In the first, the Matrice falls quite out, though notwithstanding the Bottom thereof be not entirely fallen, or seen inwards, but only its Orifice, which appears at the Extremity of a big fleshy Mass, which composes the Body of the Matrice. And the other Sort of Fall of the Matrice, which is the most troublesome of all, is where the Matrice is entirely turn'd upside down, so that it appears without Orifice at all. The Matrice thus fallen, seems to be nothing else but a big Piece of bloody Flesh, much like a *Scrotum*, which hangs between the Legs of the Woman.

The *bearing down*, and *Fall of the Matrice*, proceeds either from the Relaxation, or Rupture of its Ligaments. Women who have a great Quantity of the Whites, are very subject to those Relaxations. The Ligaments are also much stretched, and relaxed, by tedious, and hard Labours; as likewise by a too frequent Gestation of large and heavy Children; sometimes by a violent Cough; by frequent and strong Sneezings; by Jumping, Falling, Riding, or any other violent Shakes; for having lifted up heavy Burdens, for having strain'd too hard in going to Stool, *&c.* For all those Things shake and push the Matrice downwards, with much Violence, when there is a Child in it; and the Ligaments thereof, being thereby relaxed, or broken, cannot keep it up; which is the Cause that it descends, and falls easily, when the Child is out.

Note, That though it is said, that the Ligaments of the Matrice are broken by the Causes above specified, we must not imagine that there happens a total Rupture thereof, which would be very difficult to remedy, but there happens only a Separation of its Fibres, which stretch themselves afterwards more than they should.

But the most frequent Cause of the *bearings down*, and *Falls of the Matrice*, is that which proceeds from violent and tedious Labours; which happens principally when the Child presents himself in a Situation, in which he cannot come out, and when he has the Head too big; or when the inward Orifice is not enough dilated for his Passage, at the Time; for then the Matrice is pushed with so much Force downwards, though the Child cannot advance forwards, that its Ligaments are extremely relaxed: Which is also occasioned by the strong Glysters indiscreetly administred to the Woman in Labour, to procure the Expulsion of a dead Child; as likewise when there is a Disposition towards it, the Midwife pulls hard, and all on a sudden the After-birth, which is much adherent to the Bottom of the Matrice; and much sooner still, if introducing the Hand into it she lays hold on, and draws instead of the After-birth the Body of the Matrice.

A Woman who has a Fall of the Matrice, feels a great Weight at the Bottom of her Belly, with a Difficulty of making Water, and an extreme Pain in the Reins and Loins, towards the Place where its Ligaments are fastned, and yellowish and bloody Humidities are seen to flow through that fleshy Mass which hangs between her Thighs.

If one remedies quickly to the Relaxation and Fall of the Matrice, by reducing it into its proper Place, that Malady is easily cured; and much sooner if the Woman be young, and the Distemper of a fresh Date; but if the Woman be old, and the Distemper of a long standing, it is incurable.

The Fall of the Matrice, which happens immediately after the Delivery, can cause the Death of the Woman in a few Hours, if it be not immediately reduced into its proper Place.

Note, That the *Fall of the Matrice*, causing the Woman's Death after she has been delivered, for Want of that Part having been reduced into its proper Place, must be attributed to the Ignorance of the Midwives, who mistaking that great Piece of bloody Flesh they see coming out at the Pudendum, for some Mole which Nature wants to expel, make very violent Efforts to draw it out with their Hands; which causes insupportable Pains to the poor Patient, and but too often her Death, for Want of having sent, in a convenient Time, for some Person very well skilled in the Art of *Midwifry*; for it happens then a great Flooding, and the Matrice thus fallen, is seen so much tumified, that it is impossible to reduce it afterwards; whence an immediate Death ensues.

For the Cure of this dangerous Malady, a Manmidwife must have Regard to two Things:—The first is to reduce the Matrice in its proper Place:—And the second to keep it up and strengthen it.

To *reduce the Matrice*, if it be entirely fallen, the Operator must, previously to any Thing else, procure the Evacuation of the Urine, and likewise that of the coarser Excrements by means of a gentle Glyster, that the Reduction thereof may be performed with more Facility. Afterwards, the Woman must be placed on her Back, with her Thighs a little higher than her Head: Then all that comes out at the Pudendum, must be fomented with warm Wine or Milk; and afterwards it must be pushed back gently with a soft Cloth, and if the Thing be very painful, by reason that what is already come out is very big and tumified, it must be anointed with Oil of Sweet Almonds, to make it slide easier; observing, after the Reduction is made, to wipe off that Oil as clean as possible, to prevent a Recidive. But if, notwithstanding all these Endeavours, the Reduction of the Matrice is unpracticable, because it is excessively inflamed and tumified, then there is a great Danger of a Gangrene, and consequently of the Life of the Woman; though *Aëtius* and *Paul Æginette* say, that some Women have escaped, to whom for such an Accident, the Matrice has been entirely extirpated. *Paré* relates some Histories of that Kind, as well as *Rousset* in his *Cesarian Delivery*; but those Examples are very rare.

The second Manner of curing that Malady (which consists in keeping up the Matrice in its proper Place, and in strengthning it, after it has been reduced) is to place the Woman on her Back, her Buttocks a little risen, a little cross legg'd, and the Thighs joined together, to hinder it from falling back again.

The best Means to keep the Matrice in its natural Situation, is to place a *Pessary* in the Vagina; observing notwith-

notwithstanding that the bearing down of the Matrice, where the inward Orifice does not come out at the Labia of the Pudendum so as to be seen, wants no Pessary. Therefore they are not to be used in those Sorts of pretended Bearings down or Relaxations of the Matrice, which proceed only from that the Matrice being drenched and swelled with Humours, the Evacuation thereof is suppressed, causes that a Weight is felt in it; wherefore in those Dispositions the Globe of the Matrice being much more tumified than usual, its inward Orifice is felt very near the outward; and in those Circumstances, a *Pessary*, far from being useful, would only prove very painful to the Woman, by pressing hard on the Matrice.

When the Matrice evacuates its Lochia, the best Remedy to strengthen it, is to keep it in its natural Situation, by means of a *Pessary*; for the astringent Remedies which would be proper to hinder its Relaxation, would cause a great Prejudice to the Woman, by a Suppression of those Superfluities: Abstaining in those Cases from keeping her Belly tight, in which most Midwives are mistaken, who, thinking to keep the Matrice in its natural Situation, keep the Belly very tight with a Bandage, for in pressing it thus, they force the Matrice still more downwards. The Patient must make use at that Time of a Bed-Pan, that she may go to Stool while she lays, during which she'll have always her Hand before her Matrice to keep it from falling. But when the Time of her Purgations is entirely over, and there has been a sufficient Evacuation thereof, astringent Injections may be used without any Danger. Regard must be had likewise to the whole Constitution of the Body, to dry off all its Humidities by an universal Regimen; and the lying-in Woman must not get up, but after five or six Weeks, observing likewise to abstain from Coition during that whole Time; that the Matrice and its Ligaments may be strengthned in their natural Situation.

It happens also, sometimes, that by the violent Efforts the Woman makes during her Labour, the Anus is entirely pushed out; in that Case, if the Child be very far advanced in the Passage, the Midwife shall content herself, before that Accident happens, to hinder it, if she can, by desiring the Woman not to make such violent Efforts; but if it be entirely fallen, she shall wait till the Child be entirely out of the Matrice, to reduce it to its natural Situation; for it would be very difficult to do it before, without causing a great Contusion to the Intestine. Therefore as soon as the Woman is delivered, the Reduction thereof must be made in the same Manner of that of the Matrice, by fomenting, stewing, and anointing the Part, if it be necessary.

As to the *Hemorrhoides* or *Piles*, wherewith lying-in Women are troubled, they must be anointed Morning and Evening with an Unguentum made of Populeum, and Oyster-shells calcined; which I know to be a specifick Remedy in that Case.

As to the *Contusions* and *Lacerations of the external Parts of the Matrice caused by the Delivery.*—Almost all Women complain in their first Labour, when their Child is at the Passage, that the Midwife pricks and scratches them in those Parts; and believe that the Contusions which are seen in those Parts after the Delivery, proceed from that they have been too roughly handled. But they are grosly mistaken, since that proceeds from that the Head of the Child makes in its Passage thro', a violent Distension and Separation of the four Caruncles, and other neighbouring Parts, which are sometimes lacerated; and hence the Pains, they say they feel then as if they were pricked or scratched, of which they never complain so much in the Labours following, because those Parts having given once Passage to the Child, are relaxed and extended afterwards much more easier.

Those Contusions and Lacerations ought not to be neglected, for Fear they should turn into malignant Ulceries; for the Heat and Humidity of those Places, besides the Lochia which flow continually from them, would contribute to those Ulceries, if the Application of proper Remedies was neglected.

Therefore as soon as the Woman is delivered, if there be but simple Contusions and Scratches, there must be applied on the lower Parts to appease the Pains, a small Cataplasm made with new-laid Eggs, the Yolk and White mixed with Oil of Sweet Almonds, done on hot Embers, or very slow Fire, and stirred till the whole be pretty well mixed together; then having been spread on very soft Tow or Linnen, it must be applied over all the Outside of the Vulva, and remain there during five or six Hours; after which it must be taken off to apply on each Labia, small Pieces of Cloth dipped in Oil of St. Johnwort, renewing them four or five Times a-day, and washing those Parts with Barley-Water and Honey, to cleanse them of the Excrements which flow from the Matrice; and when the Woman shall want to make Water, they must be covered with a Piece of Cloth, to hinder the Urine from hurting them. But if those Lacerations be very painful, the Balsam of Peru is, in my Opinion, preferable to any other Remedy.

The Contusion of those Parts is sometimes so great, that they cause an Inflammation of the great Labia, where a pretty considerable Abscess is formed, occasioned by the Midwife handling those Parts in a very rough Manner. In that Case the Evacuation of the Matter formed in it, must be procured towards the most commodious Place, and which has the greatest Declivity. That Evacuation must be immediately followed by a detersive Injection, made into the Cavity which contained it, with the Water of a Forge, and Honey, quickned with a little Spirit of Wine, if there was any Danger of Corruption; treating besides the Ulcery, as the Art requires it.

But it happens sometimes by a still more deplorable Accident, that all the inferior Part of the Sleet is lacerated, by the Child coming out, as far as the Anus, whereby both Holes are made into one. To rectify this great Disorder, which otherwise would be very troublesome to the Woman, and loathsome to the Husband, the Re-union of the Parts thus lacerated must be made immediately after the Delivery, by washing first with strong Red Wine, made warm, all the Place lacerated, and making to it afterwards a pretty strong Suture, of one, or two, or more separated Stitches, according to the Length of the Separation, and taking at every Stitch a pretty deal of Flesh, to hinder it from parting. This done, the Wound must be dressed with the Balsam of Peru, or that of Arceus, covering the whole with a Cloth, to prevent the Urine from reaching to the Part. And that those Parts may re-unite with more Facility, the Woman must keep always her Thighs joined together, till the Cure be perfected.

If after this Re-union the Woman happens to be with Child, she'll be obliged, to avoid the like Accident, to anoint her Parts often with Oil, and emollient Pomatums; and when in Labour, ought not to make violent Efforts at first, suffering Nature to operate by degrees, and the Help of an experienced Man-midwife, who being informed of the first Disgrace, will endeavour to avoid a second; for commonly those Parts having been lacerated once, it is very difficult to prevent it in the Labour next following; because the Cicatrice renders the Places narrower still; therefore it would be much better if Women in that Condition could be persuaded to abstain from having any more Children, to avoid being exposed to the same Accident.

Note, That those exterior Parts of the Vulva are much less subject to a Laceration, in Women who have the Labia of the Pudendum hanging, than in those who have them plump and fleshy; and that the more violent and sudden the Labour-Pains are, the more considerable are those Lacerations; for those Labias in moderate Pains dilating themselves by Degrees, are not so soon lacerated, as when they suffer all on a sudden a violent Effort.

Note, also, That it happens sometimes that the Neck of the Bladder, which has suffered a hard Compression during three or four Days by the Head of the Child remaining in the Passage, it being impossible during that whole Time, that the Urine retained in the Bladder should be freely evacuated, is inflamed and separates entirely by the Putrefaction which happens commonly at the lower Parts of the Woman, in a hard Labour; which Suppuration degenerates at last into a Fistula, which causes an unvoluntary Emission of

of Urine, which proves very troublesome to the poor Patient afflicted therewith, and is even incurable, when the Fistula is large, and proceeds from an entire Loss of the Substance of the Neck of the Bladder which has thus suppurated. But if the Fistula be but small, and there is but a small Portion of the Substance lost, it is sometimes cured after two or three Months of Uneasiness. This Accident happens oftener in the first Labour, because the Head of the Child makes then a greater Contusion on those Parts, which have not been yet dilated, than in the other following Labours, where they bear easier and without any Prejudice, the Distension they have already received, unless the Bigness of the last Child should exceed much that of the first; in which Case, the same Accident could very well happen for the same Subject.

As to the *After-Pains*, and *their different Causes*. — The *After-Pains* are most commonly caused either by *Winds* contained in the Intestines, wherewith they are easily filled, immediately after the Delivery; or by some *foreign Body* left in the Matrice, whether it be a false Conception, or a Portion of the After-Birth, and very often Clods of Blood; and then those Pains are very like the Labour-Pains, and are not appeased by Glysters, like those caused by Winds, but, on the contrary, are excited and increased till those foreign Bodies be entirely expelled, or extracted from the Matrice; or by *a sudden Suppression of the Lochia*, the Matter thereof filling up with Plenitude the whole Substance of the Matrice, makes a great Distension of it, and causes, by its sojourning in it, an Inflammation, which is communicated by Means of the Peritoneum to all the Parts of the lower Abdomen, wherefore it swells, and grows extreamly hard; which Accident, when it continues, causes often the Death of the Woman in a very short Time; or lastly, *by the violent Extension* of the Ligaments of the Matrice, proceeding from a hard Labour. In that Case the Pains are more fix'd in the Reins, Loins, and Groin, than in any other Part, because the Ligaments of the Matrice are fasten'd to those Places; notwithstanding which, those Pains are often communicated, by a Continuity to the whole Matrice, and much sooner if it has suffer'd some Contusion in a hard Labour.

Note, That it is a vulgar Opinion, that a Woman is not so much troubled with After Pains in her first Labour, than in the following; which, notwithstanding, is entirely contrary to the Sentiment of *Hippocrates*, who says, *lib.* 1. of the Maladies incident to Women, that Women are much more troubled with After-Pains in their first Labour, than in those which follow; but a daily Experience shews us, that there is no infallible Rule for such a Thing; which happens according as the present different Dispositions of the Woman contribute more or less to it; since there are Women as much troubled with After-Pains, in their first lying in, as they are in the following; which depends on the greater or less Disposition the Blood has, in some Women than in others, to coagulate itself in the Matrice: That Disposition proceeding from two Causes, the first, according as the Blood is more or less in Motion, by the Agitation of the Labour; and the second, according as it is more or less fibrous. — But the first Labour of a Woman being most commonly more laborious than the others, her Blood has less Disposition towards coagulating itself immediately after the Delivery, either because it is then in a greater Motion, which is the Cause that it flows liquid out of the Cavity of the Matrice, without sojourning in it, as soon as it is out of its Vessels, or because it is then more serous; for Women drinking much to appease the great Thirst caused by the Agitation of their Labour, the Fibres of their Blood are more divided by the Abundance of the Liquor, wherewith their Arteries and Veins are extraordinarily filled; which can contribute, in some Measure, towards hindering the Women from being so much troubled with After-Pains, in their first lying in, as they are in the following. A third Cause may be added to the two others, which is, that the inward Orifice of the Matrice, which had never been dilated, suffering a greater Violence in the first Delivery, by the coming out of the Child, and being thereby more debilitated, it cannot be so soon contracted as in the following, or suffering not so much Violence, it contracts itself much sooner after the Delivery; which done, it retains in the Matrice, the Blood which flows from the Vessels, which being thus stopped, forms in it great Clods, which supplying the Place of a strange Body, and increasing in Volume by the Addition of new Blood, which flows into it, make a painful Distension of that Part, in hindering it from contracting itself, as it endeavours to do after the Child is come out.

All Sorts of *After-Pains* are to be remedied, according to their different Causes. — Therefore to prevent the *After-Pains excited by Wind*, the Woman must take, soon after she is deliver'd, either half an Ounce of Oil of sweet Almonds, and an equal Quantity of Syrup of Maiden Hairs, mixed together, or some Sperma ceti, or fifty Drops of Oil of Anniseed, with some Syrup of Marsh-mallows; or some good Broths.

Note, That Women of Quality in *France*, take most commonly, after they are deliver'd, some Broth, made of an old Partridge, boiled together, pretending that such Broth has a particular Virtue to appease the *After-Pains*; others prefer boiled Milk, in which are mixed two or three Walnuts, pounded with some Sugar; straining the whole Mixture, very hot, through a Cloth; though this Remedy would be consider'd, in *England*, as a Kind of Poison.

If the *After-Pains* proceed from a foreign Body being left in the Matrice, the Expulsion thereof must be procured, or it must be extracted by introducing the Fingers into its Entrance, as I have said, in speaking of the Extraction of a false Conception; or if it be great Clods of Blood, which being likewise stopped in the Matrice, cause those Pains, they infallibly cease, so soon as they are expelled or extracted; but the same Accident begins again, soon after, if new Blood flows into the Bottom of the Matrice, and if it be coagulated a-new, as it happens pretty often; for it can suffer nothing in its Capacity after the Delivery.

Those Clods of Blood are also formed and stopped in the Cavity of the Matrice, because its inward Orifice which contracts itself soon after the Woman is deliver'd, hinders the Blood from being evacuated as soon as it is out of the Vessels.

When a Woman has a sudden Suppression of her Lochia, which flowed at first in Abundance, that Suppression causes always *After-Pains*; and the most salutary Remedy is to procure the Evacuation thereof; which is done by hot Glysters, and aperitive Fomentations on the genital Parts, and by bleeding in the Foot.

As to the Pains which the Woman may feel *in the Loins and Groins*, proceeding from the too great Distension, or Rupture in that Part of the Ligaments fastened towards those Places, Repose alone, and a good Situation of the Body, will suffice to strengthen and consolidate them, without any other Remedy; because other Remedies cannot be conveyed actually to the Place where they are situated; observing, notwithstanding, a good Regimen; without forgetting, in those different Causes, of the *After-Pains*, to govern well the natural Evacuation of the Lochia.

As to *the Suppression of the Lochia*, and *the Accidents it causes*. The Causes of *the Suppression of the Lochia*, proceed either from a violent Loosenesss, because there happens then a too great Evacuation of the Humours, which stops that of the Lochia; or from some strong Passions of the Soul, as Fear, Sorrow, Wrath, &c. because the Humours are thereby concentred, and by their too quick and sudden Return, they cause sometimes a Suffocation: A great Cold stops, likewise, the Lochia; because it contracts the Vessels, and the Pores of the Matrice, and thereby hinders all the Humours which had flowed into the Matrice, by the Labour-Pains, from excluding with Ease: The Use of astringent Remedies produces, likewise, that Accident, as well as the strong and frequent Agitation of the Body.

To procure or facilitate the Evacuation of the Lochia, the Woman must be easy in her Mind; lie on her Back, with her Head and Breast a little rising, keeping herself very

very ſtill, that the Humours may be the eaſier carried downwards by their natural Propenſity; ſhe muſt alſo obſerve a good Regimen, uſing rather boil'd than roaſted Meat, for Fear of a Fever, abſtaining from all Things which are aſtringent; and drinking by Intervals, ſome Glaſſes of Hyſterick and Penny-Royal Waters, mixed together, and warm Glyſters ought to be adminiſter'd to them to draw the Humours downwards; bathing the lower Parts with an emollient and aperitive Decoction; made of Mallows, Parietary, Camomile, Melilot, Roots of Aſparagus, and Linſeeds; making, with the ſame Decoction, an Injection into the Matrice; making of the Herbs, after they have been well boiled, ſo as to be eaſily ſtrained through a Sieve, a Cataplaſm, to which muſt be added Oil of white Lillies, or Axonge of Pork, which ſhall be applied hot on the lower Abdomen, heating it from Time to Time, in the ſame Decoction: Beſides which, ſtrong Frictions ſhall be made on her Thighs and Legs, particularly towards the Inſide; without forgetting bleeding in the Foot, or in the Arm, according as the Accidents cauſed by the Suppreſſion of the Lochia require it. Though, in my Opinion, a few Drops of Oil of Cinnamon, in a Glaſs of Hyſterick and Penny-Royal Waters, ſeveral Times reiterated, if the Accidents require it, anſwer very well in thoſe Caſes all the Intentions of a Man-midwife.

The Suppreſſion of the Lochia abovemention'd, cauſes very often, and particularly if it happen ſoon after the Delivery, an Inflammation of the Matrice, which is a very dangerous Malady, and kills moſt of the Women to which it happens. It proceeds alſo, ſometimes, from a Contuſion, or Wound in the Matrice, cauſed by a Blow or a Fall; and particularly when a Woman has been very ill uſed in a hard Labour, by an ignorant Midwife; or becauſe ſome foreign Body, or a Portion of the After-Birth has been left in the Matrice, which is corrupted in it; or becauſe the Belly of the Woman is kept too tight.

The Inflammation of the Matrice is known in that it is very painful, and much more tumified after the Delivery than it ſhould; the Woman feeling a great Weight at the Bottom of her Belly, which ſwells, and becomes almoſt as big as it was before ſhe was delivered: She has a Difficulty of making Water, and of going to ſtool; ſhe feels likewiſe an Increaſe of Pains, while ſhe voids her Excrements, becauſe the Matrice preſſes then the Inteſtine *Rectum* on which it is ſituated, and by its Proximity, communicates to it, its Inflammation, as well as to the Bladder; having, beſides, a violent Fever, and a great Difficulty of Reſpiration, attended with a Hickup, Vomiting, Convulſions, Delirium, and then Death, if the Malady be not ſoon remedied.

Note, That a Woman who has received ſome Contuſion, or a violent Compreſſion of the Matrice, is in great Danger after the Inflammation (if ſhe don't die of it) of having an Abſceſs formed there, or a ſcyrrhous Tumour, and even, ſometimes, an incurable Cancer, which will render the reſt of her Days miſerable and languiſhing.

The Inflammation muſt be remedied as ſoon as it is perceived, which is done in temperating the Heat of the Humours, and in evacuating their Abundance as ſoon as poſſible; making firſt the Extraction, or procuring the Expulſion of the foreign Bodies left in the Matrice after the Delivery, in the Manner heretofore mentioned; treating the Woman gently at that Time, without uſing any Violence, for fear of increaſing the Diſtemper.

The Humours will be temperated by a good and cooling Regimen; the Woman contenting herſelf then, for her whole Food, with Broth made of Veal and Chickens, abſtaining from Wine, in lieu whereof, ſhe'll drink a Piſtane, made with the Roots of Chicory, of Strawberries, Barley, and Liquorice, uſing beſides, of Emulſions made with the cold Seeds, and Barley-Water; keeping ſtill in her Bed, and her Belly being kept loſe, as well on the Outſide, by its being free of all Bandages, and the Inſide with Anodyne Glyſters, made only of Bran boiled in River-Water, to which is added a Spoonful of ſweet Oil.

The Humours are evacuated by Bleeding, which muſt be firſt in the Arm, and not in the Foot, reiterating it without Loſs of Time, till the greateſt Plenitude be evacuated, and the Inflammation of the Matrice a little abated; after which it may be done in the Foot. An Embrocation of Oil of ſweet Almonds, mixed with a little Vinegar, ſhould alſo be made on the Belly; and even ſome Injections into the Matrice, provided it be not with any Thing aſtringent, for fear that, by cauſing a ſtill greater Suppreſſion of the Lochia, which always flow a little on that Occaſion, the Malady ſhould grow worſe. Therefore none but Remedies which temperate without any Aſtriction, ſhould be uſed then, as Barley-Water, and warm Milk; abſtaining likewiſe from uſing any Thing too cooling, and from all Sorts of Diureticks; but more particularly from Purgatives.

The *Inflammation of the Matrice* turns ſometimes into an Impoſthume, which produces a great Abundance of Matter; then there is a great Danger of Corruption in the Part, either by Reaſon of its Heat and Humidity, which are the Principles thereof, or becauſe proper Remedies cannot be applied to it: Therefore as nothing elſe can be done, one muſt preſcribe to the Woman a good Regimen, with ſome deterſive Injections to cleanſe the Part of the Matter, leſt by ſojourning too long in it, it ſhould grow too abundant. But if the Impoſthume turns into a cancerous Ulcer, as it often happens; then whatever Remedies may be adminiſter'd to the Patient, that Malady will accompany her to the Grave; in which Caſe, palliative Remedies only are of ſome Service.

As to the Scyrrhe of the Matrice.—The Matrice being continually drenched with the Superfluity of the Humours which flow from all the Parts of the Body, it becomes often ſcyrrhous, becauſe of the Obſtruction of the Parts through which thoſe Superfluities ſhould be evacuated; which *Scyrrhe* is often a fatal Conſequence of the Inflammation, which has not been well diſſolved, and has not well ſuppurated.

Sometimes none but the inward Orifice of the Matrice is ſcyrrhous; then the Orifice is not much bigger than uſual; but at other Times its whole Body is ſcyrrhous, as well as its inward Orifice, and extreamly tumified; as it happens often, after an Inflammation happening after a Delivery;. or, at other Times, after a long Suppreſſion of the Menſes.

The *Scyrrhe* of the Matrice is eaſily known in feeling it, either by laying the Hand on the Woman's Belly, or introducing a Finger into the Vagina; for the Body of the Matrice is felt much bigger than uſual, and harder; its inward Orifice is likewiſe bigger, harder, more unequal and ſhorter, and without any conſiderable Pain, when the *Scyrrhe* does not participate of the Inflammation, and is not diſpoſed to degenerate into a Cancer; for then the Part would be very painful.

A Woman who has a *ſcyrrhous Matrice*, feels a great Wearineſs in her whole Body, a great Weight at the Bottom of her Belly, Pains in the Reins, Groins, Thighs, frequent Motions to make Water, and the Pains increaſing when ſhe goes to ſtool, by Reaſon of the Compreſſion of the Matrice on the Inteſtine *Rectum*, and on the Bladder; her Menſes are either entirely ſuppreſſed, or flow in a very ſmall Quantity without any Rule, becauſe of the Obſtruction of the Part.

The Matrice being a Part appointed for the Evacuation of all the ſuperfluous Humours of the Woman's Body, it is certain, that the *Scyrrhe* which happens to it, is a very dangerous Malady, often followed by ſeveral others, which are mortal; becauſe thoſe Superfluities being debarred of their uſual Evacuation, flow back over the whole Body, and particularly towards the principal Parts which they vitiate; and corrupt afterwards. And thoſe Humours being kept a long Time in the Subſtance of the Matrice, and fermenting there, acquire a malignant Quality, which is often the Cauſe, that the *Scyrrhe* degenerates into an incurable Cancer.

Ætius is of Opinion, that the *Scyrrhe* of the Matrice is eaſily cured, when only in its Orifice, or in the Vagina; and with Difficulty when in the Bottom of the Matrice; but that Malady is commonly ſo very rebellious to Remedies, that it cannot be truly ſaid that the *Scyrrhe* of the Vagina is eaſily cured, but with Reſpect to that which is in the Body of the Matrice.

The Cure of the *Scyrrhe*, of what Nature ſoever it may be,

be, is to be attempted at first by bleeding in the Arm, and gentle Purgatives, using afterwards of emollient Remedies, as well those which can be applied on the Belly, *viz.* Oils, Axonges, Cataplasms, or Fomentations; as of those which can be introduced in the Matrice, in Injection, Vapour, *&c.* which should have no Acrimony; which done, the Woman may make use of the Half-bath, or Whole-bath for some Days before she is let Blood in the Feet, abstaining above all Things from Coition, and observing a good Regimen during the whole Time of the Cure: Whey and Ass's Milk are of great Service in that Malady.

The Scyrrhe of the Matrice is often succeeded by a *Cancer* in the same Part; which happens when the Humours the Substance of the Matrice is soaked with, come to be over-heated by a Fermentation thereof, because of their sojourning too long in that Part.

The *Cancer* is likewise occasioned by the Inflammation of the Matrice after a Delivery: It can also happen at other Times, and to all Sorts of Persons, whether young or old, and even to Maids, tho' very seldom.

The *Ulcer of the Matrice*, is absolutely incurable, either because it cannot be extirpated, as that of the Breasts, or because the Matrice receives continually the Superfluities of the whole Body of the Woman; whereby the Malignity of the Ulcer increases daily, notwithstanding all the Remedies which can be used during that cruel Malady, which never ends but by the Death of the Patient.

Therefore, since the Cancer of the Matrice is incurable when confirmed, one should neglect no Means to prevent it, when a Woman has some Disposition to it; to which are subject all Women who have their Matrice scyrrhous, or have had some Imposthumes in that Part; as likewise those who are subject to Losses of Blood, and those who have not regularly their Menses, or are of an Age to lose them entirely; for Women are much more afflicted at that Time with that Malady, than at any other. The most sovereign Remedy a Woman of that Age can use to prevent a *Cancer of the Matrice*, is bleeding in the Arm, often reiterated; and to supply the Want of a menstrual Evacuation, and to hinder the Blood and Humours from flowing in a too great Abundance towards the Matrice, she must make use of the same Remedy from Time to Time, for several Years, till Nature has entirely lost the Habit it had contracted of sending the Blood towards the Matrice for the Evacuation of the Menses, and the Vessels from which the Blood flowed be entirely contracted; and if the Woman be subject to frequent Losses of Blood, she must abstain entirely from Coition, it being extremely prejudicial to her, because the Matrice being much heated and agitated in the Action, the Loss of Blood is thereby very often excited. She'll make use of a cooling and humecting Regimen, avoiding all Things aperitive, and Diureticks, as likewise, all violent Purgatives: And to temperate as much as possible the Acrimony of the Humours, after having took some gentle Purgative, she must live for some Time on new Milk, using by Intervals some Chicken-Broth.

Note, That I knew a Woman here in *London*, who died about six Years ago of a *Cancer* in the Matrice, which a famous Surgeon told her could be cured if she could keep her Appetite, to recruit the Blood she voided through the natural Parts; which Advice engaged her to be always eating something, and all Things indifferently; though I told her that it was the only Means of accelerating her Death, which happened two or three Months afterwards.

The *Loosenes* which happens sometimes to a Woman newly delivered, proceeds, in my Opinion, from her Stomach having been weakned by the violent Efforts she was obliged to make during her Labour; which is some Time before it can recover its former digestive Faculty, for the perfect Coction of the Aliments; and sometimes likewise from the Ripopées given by Midwives to a Woman in Labour, under Pretence of helping and accelerating her Delivery, particularly those poisonous Cordials, as they are pleased to call them, which serve only to blunt the Dissolvent of the Stomach.

Of what Nature soever the Loosenes of a Woman newly delivered may be, and from what Cause soever it may proceed, it is always of a bad Consequence, and often puts the Woman in great Danger of her Life, because it hinders the Evacuation of the Lochia of the Matrice; which being suppressed causes always very dangerous Accidents, and but too often Death itself. What's the most fatal in this Malady is, that all Remedies proper to stop a Loosenes, increase always the Suppression of the Lochia; and those which can procure the Evacuation of the suppressed Lochia, increase the Loosenes; therefore a Physician don't dare to prescribe any Astringent to be taken inward; neither is the Patient to be purged at the Beginning of her Lying-in. Notwithstanding which, one must endeavour as much as is possible at that Time, to administer some Remedies proper for that Malady, by giving the Patient some good Broth to restore her Strength, much impaired by the Loosenes. Some Spoonfuls of Mutton Juice (extracted in Balneo Mariæ, or between two deep Dishes without Water, and without the least Fat) given by Intervals to the Patient, I know by Practice to be a Specifick in that Malady; giving her likewise, if the Loosenes continues, some Drops of Laudanum. But if the Loosenes be accompanied with a Fever and other Accidents, the Patient must be let Blood in the Arm to supply the Want of Purgatives; and if the Loosenes puts her in greater Danger of her Life than would do the Suppression of the Lochia, all the Remedies used at other Times for that Malady, are to be administred then; and the Loosenes being stopped, the Evacuation of the Lochia, which had been suppressed, is to be procured as well as one can.

As to the *Tumours of the Belly*, called *ventral hernies*. The Matrice grows so prodigious big during Gestation, that it fills the greatest Part of the lower Abdomen, which in its natural Situation, being uncapable to contain it, is forced to extend itself, in Proportion as the Matrice increases, which is done sometimes in so extraordinary a Manner, and with such Violence, that the Peritoneum being incapable to dilate itself sufficiently, breaks; whence follows a Separation of the Muscles, and a Tumour in the same Place, into which the Intestine, or the Epiploon, and sometimes the Matrice itself with the Child falls.

That Rupture of the *Peritoneum* happens sometimes above, and sometimes underneath the Navel, between the two right Muscles; it happens likewise, very often at the Umbilick, or towards the Groins, because those Parts are the weakest of the Abdomen. It is most commonly caused by the violent Efforts of a hard Labour; or by those of a violent Vomiting, frequent Sneezing, or by some Blow which the Woman has received in her Belly, or by a Fall, or other Things capable to do her some sudden Violence; to which Women with Child contribute much, by lacing themselves too tight, to appear a fine Shape still; whereby their Belly having not the Liberty to extend itself equally on all Sides, suffers a greater Violence than it should, towards the inferior Part.

This Malady is not only very deform, but is besides attended with bad Consequences, for it causes Indigestions, Vomitings, Cholicks, and several other Accidents, which sometimes put the Woman in Danger of her Life; as it happens when the Intestine which is fallen through the Laceration of the Peritoneum, cannot be pushed back into the Abdomen, without making an Incision to the Part: The Matrice has even been seen forced out of the Abdomen, at the Beginning of a Pregnancy, by Tumours of that Nature, which could not be reduced; and therefore are the Cause of the Woman's Death; because by the Increase of the Child the Tumour grows so big, that it is impossible to reduce the Matrice into its natural Situation.

Note, That *Sennerte*, 1. *part. lib.* 2. *c.* 9. of the Maladies incident to Women, mentions a semblable Accident, which happened to the Wife of a Cooper at the Beginning of her Pregnancy, who helping her Husband to bend a Pole, received a violent Blow of that Pole towards the left Groin, which caused a Rupture of the Peritoneum, which was followed by a Tumour, which increased soon to such a Degree, that the Matrice

which

which was contained in that Tumour, could never be pushed back into the Abdomen, because of the Increase of the Child in it, whom she carried thus out of her Belly, as in a Sack, being only cover'd with the Matrice and the Skin; till the Time of her Labour happening, the Surgeon was obliged to extract her Child by the *Cesarian* Operation, by Reason of the Impossibility of reducing the Matrice into the Belly, in order for her Delivery in the ordinary Way. That Operation saved the Child's Life, but it proved destructive to the Mother, who died sometime afterwards.

Women can preserve themselves against those Ruptures of the Abdomen, if they avoid during Gestation, all that can cause them some sudden and violent Effort; leaving the Liberty to their Belly of extending itself equally on all Sides; therefore they are never to lace themselves too tight, while they are with Child; and if notwithstanding that Precaution, that Accident should happen through the violent Efforts of a hard Labour, the best Remedy they can use, is to wear a proper Bandage, garnished with Compresses well adjusted on the Tumour of the Belly, to push back the Parts which could fall into it; and if the Rupture was in a Place where the Matrice could be pushed entirely into it, as it happen'd to the Woman abovementioned, and the Woman perceives that she has conceived, she must use a very great Precaution to avoid that Accident, and likewise, to hinder the Rupture from growing bigger by the Pregnancy; as it almost always happens; therefore it would be very proper that she should keep her Bed, all the Time she is with Child.

As to the Inflammation of the Breasts of a lying-in Woman. — All the Blood and Humours are so heated and agitated during the Labour, that the Breasts, all composed of glandulous Bodies, receiving in too great Abundance those Humours which flow thither from all Parts, are easily inflamed, because that Repletion makes a very painful Distension thereof; to which the Suppression of the Lochia of the Matrice, and the universal Plenitude of the Body, contribute much. — That Inflammation proceeds also, sometimes, from that the Woman has pressed too much her Breasts within her Stays, or has received some Blow in those Parts, or has laid on them; or because she has abstained from giving the Breast to her Child, because the Milk which is in great Quantity in the Breasts, being not evacuated by suckling, is heated and corrupted by sojourning too long in them.

But whatever may be the Cause of the *Inflammation of the Breasts* of a lying-in Woman, proper Remedies must be applied to it, as soon as possible, lest they should break out, or for Want of Suppuration, remain in them a scyrrhous Hardness, which, in Process of Time, could degenerate into a Cancer; which is a very dangerous Malady, and almost always incurable, when confirmed.

Besides the Danger of the *Inflammation of the Breasts*, degenerating into those dangerous Maladies, it most commonly happens, that the Woman feels in those Parts an extream Pain, which causes her often an Ague, to which succeeds a Fever, with such a Heat of the whole Body, that she can scarce suffer any Covering upon her, and when she uncovers herself ever so little, even only to keep her Arms out of the Bed, she has another Ague, which increases afterwards the Heat of the Fever; which will not appear surprising, if one considers, that the Breasts being very near the Heart, they communicate easily their Inflammation to it; which even sometimes excites Delirium, and Frenzy, if the Blood be carried to them with too much Impetuosity, and gathered in them in too great Abundance.

The principal and surest Means to hinder the Humours from being carried in too great Abundance to the Breasts, is to procure a good and ample Evacuation of the Lochia, through the Matrice; for by that Evacuation, all the Humours will take their Course towards the lower Parts.

The Cure is began by bleeding in the Arm, to empty the too great Plenitude of the Vessels of the whole Body; proceeding to that in the Foot, for a greater Diversion of the Humours, and to make the Lochia flow in greater Abundance; during which, topick Remedies are to be applied on the Breasts, *viz.* at the Beginning, Embrocations of Oil of sweet Almonds and Vinegar mixed together, applying afterwards Emplasters of the cooling Cerat of *Galian*, with one Third of Populeum; and if the Pain was very great, a Cataplasm must be made of Crumbs of Bread and Milk, adding to it Oil of sweet Almonds, and some Yolks of Eggs, putting over it Compresses dipped in *Oxycrat*, or Plantin Water; observing, however, that the Remedies applied on the Breasts be only cooling and refraining, without any great Astriction; otherwise they would cause a scyrrhous Tumour, which would continue a long Time, and perhaps degenerate at last into a worse Malady.

When the greatest Rage of the Inflammation is over, and most of the antecedent Humour is evacuated, one must use resolutive Remedies, to digest, dissolve, and consume the Milk, which is in the Breast in too great Abundance; for fear it should be corrupted by sojourning in them. Therefore it must be evacuated, either by the Child, or some other Person sucking it, or be Resolution, otherwise it should be evacuated by Suppuration. Though it is best to dissolve it, than draw it in that Manner, when the Woman does design to suckle her Child; for suckling draws other Milk to the Part, which would cause the same Accident, if it was not evacuated in its Turn. — But if the Milk chances to flow of itself from the Breasts, it must not be stopped; because then an Evacuation thereof is made without Attraction.

The Dissolution of the Milk is made by applying on the Breasts a Cataplasm of Honey alone; or by rubbing red Cabbage Leaves with it, which must be applied on the Breasts, after they have been a little soften'd over the Fire, and have been separated from their large Ribs; taking great Care not to press the Breast too hard, and that the Cloths put upon it be very smooth, without any Pleats or Seams. A very good Remedy for the same Distemper, is to boil a red Cabbage whole in River Water, till it be very soft, and there be but very little Water left, after which it must be pounded a little in a Wooden or Marble Mortar, to strain it through a Sieve, like Pap, and make it afterwards into a Cataplasm, adding to it some Honey, and Oil of Camomile, which Cataplasm is to be put on the Breasts.

While the Woman is under Cure, she must observe a cooling Regimen, and very little nourishing, to hinder the Generation of too much Blood and Humours, of which there is already a too great Abundance. Her Body ought to be kept open, that the Humours, which otherwise would flow to the Breasts, may be carried downwards. During the whole Time the Inflammation will last, she must keep her Bed, and lay on her Back, that she may rest better; for if she was up the Breasts which are heavy, by Reason of the Humours they are filled with, would be very painful when they hung down; abstaining, as much as possible, from moving her Arms; because the principal Muscles appointed for that Motion, being situated under the Breasts, cannot act without agitating the Breasts, which are then very painful; and after the fifteenth Day of her Delivery, when she will have had a pretty ample Evacuation of the Lochia, and the Height of the Inflammation will be over, and the Fever quite gone, she must be purged once or twice, according as the Case requires it, to evacuate the rest of the bad Humours.

But if, notwithstanding all these Remedies, the Swelling of the Breasts be not abated, and they remain still very painful, the Patient feeling a great Pulsation in them, being harder in one Place than in another, one may be sure that an Impostthume is forming in them; of which hereafter.

As to the Knotting of the Milk. — In the first Days after a Woman has been deliver'd, her Milk is not yet well purified, because of the great Motion of her whole Body, during the violent and frequent Efforts of her Labour; and it is then mixed with a great Quantity of other Humours, which flowing at that Time, in too great Abundance towards the Breasts, cause the Inflammation above-mentioned; but when the Child has already sucked, during fifteen or twenty Days or more, then the Milk alone, without any Mixture of other Humours, is contained in them; but that Milk being sometimes retained

tained *too* long, without any Evacuation, curdles and knots, and by its being over-heated, renders the Breasts very painful.

Note, That several Authors make a Distinction between this Curdling of the Milk, and another Malady which they call *Caseatio*, in which the Milk is converted into Cheese, which happens by means of the Heat, whereby a Dissolution of the most subtile Part of the Milk being made, the coarser Part thereof is indurated in the Glands of the Breasts.

The Signs that the Milk is curdled or knotted are, that the Breasts which before were soft and smooth, grow hard, uneven, and lumpy every where, without any Redness; whereby the Distinction and Separation of all their Glands, filled with that curdled Milk, is easily felt. They are very painful to the Patient, who feels a shivering in the Middle of her Back, as if she had a Piece of Ice there; which Shivering is commonly followed by a Fever, which lasts no longer than twenty-four Hours, and sometimes less Time, unless that knotting degenerates into a true Inflammation of the Breasts, which would certainly happen if the Milk was not evacuated, or dissipated, or resolved.

That *Curdling of the Milk*, proceeds very often from that the Woman is not enough drawn, either because she has a too great Abundance of Milk, or because her Child is so small, or so weak, that it cannot suck, or because it wants to leave off suckling; for then the Milk remaining in the Breasts after its Coction, without being evacuated, loses its Sweetness, and by means of the Heat it acquires there, by reason of its too long sojourning in them, growing sour, it curdles and knots. That Accident happens often likewise to the Woman, for having suffered a great Cold, and had her Breasts too much exposed to the Air; because the Milk being thereby too much chilled, curdles, as the Blood does when exposed to the Cold.

The quickest and surest Remedy in this Malady, let the Cause thereof be what it will, is that the Woman should have her Breasts sucked dry; but as her Child, if he be small or weak, cannot have Strength enough to do it, she must be drawn by another Woman till her Breasts be put in a Condition of being easily drawn afterwards, and in order that she may not generate more Milk than is sufficient for the Food of the Child, she must use light Aliments, and her Body be kept open. But as it happens sometimes that the Woman will not, or cannot suckle her Child, then other Means must be used for the Cure of this Malady, and not by sucking the Breasts; for by drawing other Humours into them, the Malady would always be renewed, therefore it is necessary to hinder the Milk from flowing thither any more, and to dissolve and dissipate that which remains in them; to effect which, the Plenitude of the Body must be evacuated by bleeding in the Arm, and the Humours drawn downwards by pretty strong Glysters, and even by bleeding in the Foot, using likewise Purgatives if it be necessary; and to dissolve, digest, and dissipate the Milk knotted in the Breasts, an Embrocation of Populeum is used with Success; applying afterwards on the Breasts a Cataplasm of Honey, or a Plaister of *Diachylon de Gummis*.

As to *the Imposthumes of the Breasts of lying-in Women*. As those *Imposthumes* follow most commonly the Inflammation caused by the Corruption of the Milk, and by the too great Abundance of Blood and Humours carried thither; when a Man-midwife has done all he can to appease that Inflammation, either by the universal Evacuations of the Body, or by bleeding in the Arm and in the Foot, or by exciting the Evacuation of the Lochia, by repelling Remedies, and simple Resolutives applied on the Breasts; if the Woman continues to feel in them a violent Pain, and a strong Pulsation more in one Place than in another, together with a Hardness of a livid Colour, it is a Sign that there will be an Abscess; then one must abstain from applying any longer those former Topicks, to have Recourse to Remedies maturative of the Imposthume, which in that Case, it is best to bring to a Suppuration, rather than to use any longer Repellings and Resolutives, for Fear of hardning the Matter in repelling or dissolving the most subtile Part thereof, and leaving the coarser behind, which would cause a scyrrhous Tumour very difficult to be dissipated; or which remaining a long while, as it happens sometimes, would degenerate into a *Cancer*.

To help the Suppuration of the *Imposthumes*, there must be applied on the Breasts an emollient and maturative Cataplasm, composed of Mallows, Marsh-mallows, Roots of white Lillies, and Linseed bruised, which must be boiled together till they be extremely soft, so as to be strained through a coarse Sieve, for Fear any Thing hard should remain in it, which could bruise the Breasts at that Time very painful; mixing with it afterwards a good Quantity of Axonge of Pork, or of *Basilicum*; and on the Place where the Imposthume seems to be ready to break, there must be applied a small Plaister of the said *Basilicum*, and the Cataplasm over it, renewing it twelve Hours afterwards, continuing the same Remedy till the Imposthume be ripe.

As soon as the Imposthume is ripe it must be opened, if it does not break of itself; and the Time of opening it will be known, when the Pulsation which the Woman felt before in her Breasts has ceased, when the Pains and Fever are much abated, and when the Middle of the *Imposthume* is a little risen in Point, is entirely soft, and the Inundation of the Matter contained in it is felt with the Finger.

Therefore when all those Signs appear, the Imposthume must be opened in the most proper Place for the Evacuation of the Matter. The Aperture must be made with a Lancet, and large enough for the Evacuation of the small Clods of Blood ordinarily mixed with the Matter, taking a particular Care not to touch the large Vessels, the Principal whereof are under the Arms. After the Matter has been evacuated, the Imposthume ought to be deterged and mundified as usual, observing only not to introduce too long and too hard Tents into it, but only some very soft Lint, which must not be pushed too far in. If there be a violent Pain, the Pledgets must be dipped in Oil of Eggs, or in *Basilicum* mixed with the Digestive, if something be left in it to suppurate; after which Mundicatives and Detersives are to be used, as Honey, or the *Apostolorum*, applying over it a Plaister of *Unguentum Divinum*, to soften and dissipate the Hardness which could be left behind.

Sometimes all the Glands of the Breasts happen to suppurate, and to form as many Imposthumes as there are Glands; so that they break sometimes in five or six Places, which all flow with Sania; the Surgeon then ought not to amuse himself to make so many Apertures as there are small Holes, but it suffices to make a good one, or two in the Places which have more Declivity; for the whole Matter which has an easy Communication from one Place to the other, by the Breasts being all spongious, will be easily evacuated, and one or two good Issues made in a commodious Place, will drain in a short Time all the others.

But the surest Means to cure the Imposthumes of the Breasts after the Evacuation of the Matter, and to hinder the Apertures from being too long fistulous, is to dissipate entirely the Milk from both Breasts, whereby the Ulcers will be sooner and easier dried; wherefore the Body of the Woman must be kept open; and she is to be purged by Intervals, to evacuate the superfluous Humours and carry them downwards, she observing all the while a very little nourishing Regimen.

Note, That the Matter of the Abscesses must not be suffered to sojourn too long in the Breasts after its Maturity, as several Women do, who chuse that the Imposthume should break of itself, rather than suffer that it should be opened with a Lancet, which is the Cause that the Matter being kept too long in the Breast corrupts the proper Substance of its Gland, whereby communicating itself to the Reservoirs of the Milk, it renders the Cure very tedious, because the Evacuation of the Milk and of the Serosities which have took their Course through the Apertures of the Abscess, hinders the Consolidation of the Part; and particularly who, notwithstanding they have an Imposthume in one Breast, suckle their Child with the sound one, because of the mutual Communication of

which was contained in that Tumour, could never be pushed back into the Abdomen, because of the Increase of the Child in it, whom she carried thus out of her Belly, as in a Sack, being only cover'd with the Matrice and the Skin; till the Time of her Labour happening, the Surgeon was obliged to extract her Child by the *Cesarian* Operation, by Reason of the Impossibility of reducing the Matrice into the Belly, in order for her Delivery in the ordinary Way. That Operation saved the Child's Life, but it proved destructive to the Mother, who died sometime afterwards.

Women can preserve themselves against those Ruptures of the Abdomen, if they avoid during Gestation, all that can cause them some sudden and violent Effort; leaving the Liberty to their Belly of extending itself equally on all Sides; therefore they are never to lace themselves too tight, while they are with Child; and if notwithstanding that Precaution, that Accident should happen through the violent Efforts of a hard Labour, the best Remedy they can use, is to wear a proper Bandage, garnished with Compresses well adjusted on the Tumour of the Belly, to push back the Parts which could fall into it; and if the Rupture was in a Place where the Matrice could be pushed entirely into it, as it happen'd to the Woman abovementioned, and the Woman perceives that she has conceived, she must use a very great Precaution to avoid that Accident, and likewise, to hinder the Rupture from growing bigger by the Pregnancy; as it almost always happens; therefore it would be very proper that she should keep her Bed, all the Time she is with Child.

As to the Inflammation of the Breasts of a lying-in Woman. — All the Blood and Humours are so heated and agitated during the Labour, that the Breasts, all composed of glandulous Bodies, receiving in too great Abundance those Humours which flow thither from all Parts, are easily inflamed, because that Repletion makes a very painful Distension thereof; to which the Suppression of the Lochia of the Matrice, and the universal Plenitude of the Body, contribute much. — That Inflammation proceeds also, sometimes, from that the Woman has pressed too much her Breasts within her Stays, or has received some Blow in those Parts, or has laid on them; or because she has abstained from giving the Breast to her Child, because the Milk which is in great Quantity in the Breasts, being not evacuated by suckling, is heated and corrupted by sojourning too long in them.

But whatever may be the Cause of the *Inflammation of the Breasts* of a lying-in Woman, proper Remedies must be applied to it, as soon as possible, lest they should break out, or for Want of Suppuration, remain in them a scyrrhous Hardness, which, in Process of Time, could degenerate into a Cancer; which is a very dangerous Malady, and almost always incurable, when confirmed.

Besides the Danger of the *Inflammation of the Breasts*, degenerating into those dangerous Maladies, it most commonly happens, that the Woman feels in those Parts an extream Pain, which causes her often an Ague, to which succeeds a Fever, with such a Heat of the whole Body, that she can scarce suffer any Covering upon her, and when she uncovers herself ever so little, even only to keep her Arms out of the Bed, she has another Ague, which increases afterwards the Heat of the Fever; which will not appear surprising, if one considers, that the Breasts being very near the Heart, they communicate easily their Inflammation to it; which even sometimes excites Delirium, and Frenzy, if the Blood be carried to them with too much Impetuosity, and gathered in them in too great Abundance.

The principal and surest Means to hinder the Humours from being carried in too great Abundance to the Breasts, is to procure a good and ample Evacuation of the Lochia, through the Matrice; for by that Evacuation, all the Humours will take their Course towards the lower Parts.

The Cure is began by bleeding in the Arm, to empty the too great Plenitude of the Vessels of the whole Body; proceeding to that in the Foot, for a greater Diversion of the Humours, and to make the Lochia flow in greater Abundance; during which, topick Remedies are to be applied on the Breasts, *viz.* at the Beginning, Embrocations of Oil of sweet Almonds and Vinegar mixed together, applying afterwards Emplasters of the cooling Cerat of *Galien*, with one Third of Populeum; and if the Pain was very great, a Cataplasm must be made of Crumbs of Bread and Milk, adding to it Oil of sweet Almonds, and some Yolks of Eggs, putting over it Compresses dipped in *Oxycrat*, or Plantin Water; observing, however, that the Remedies applied on the Breasts be only cooling and refraining, without any great Astriction; otherwise they would cause a scyrrhous Tumour, which would continue a long Time, and perhaps degenerate at last into a worse Malady.

When the greatest Rage of the Inflammation is over, and most of the antecedent Humour is evacuated, one must use resolutive Remedies, to digest, dissolve, and consume the Milk, which is in the Breast in too great Abundance; for fear it should be corrupted by sojourning in them. Therefore it must be evacuated, either by the Child, or some other Person sucking it, or be Resolution, otherwise it should be evacuated by Suppuration. Though it is best to dissolve it, than draw it in that Manner, when the Woman does design to suckle her Child; for suckling draws other Milk to the Part, which would cause the same Accident, if it was not evacuated in its Turn. — But if the Milk chances to flow of itself from the Breasts, it must not be stopped; because then an Evacuation thereof is made without Attraction.

The Dissolution of the Milk is made by applying on the Breasts a Cataplasm of Honey alone; or by rubbing red Cabbage Leaves with it, which must be applied on the Breasts, after they have been a little soften'd over the Fire, and have been separated from their large Ribs; taking great Care not to press the Breast too hard, and that the Cloths put upon it be very smooth, without any Pleats or Seams. A very good Remedy for the same Distemper, is to boil a red Cabbage whole in River Water, till it be very soft, and there be but very little Water left, after which it must be pounded a little in a Wooden or Marble Mortar, to strain it through a Sieve, like Pap, and make it afterwards into a Cataplasm, adding to it some Honey, and Oil of Camomile, which Cataplasm is to be put on the Breasts.

While the Woman is under Cure, she must observe a cooling Regimen, and very little nourishing, to hinder the Generation of too much Blood and Humours, of which there is already a too great Abundance. Her Body ought to be kept open, that the Humours, which otherwise would flow to the Breasts, may be carried downwards. During the whole Time the Inflammation will last, she must keep her Bed, and lay on her Back, that she may rest better; for if she was up the Breasts which are heavy, by Reason of the Humours they are filled with, would be very painful when they hung down; abstaining, as much as possible, from moving her Arms; because the principal Muscles appointed for that Motion, being situated under the Breasts, cannot act without agitating the Breasts, which are then very painful; and after the fifteenth Day of her Delivery, when she will have had a pretty ample Evacuation of the Lochia, and the Height of the Inflammation will be over, and the Fever quite gone, she must be purged once or twice, according as the Case requires it, to evacuate the rest of the bad Humours.

But if, notwithstanding all these Remedies, the Swelling of the Breasts be not abated, and they remain still very painful, the Patient feeling a great Pulsation in them, being harder in one Place than in another, one may be sure that an Imposthume is forming in them; of which hereafter.

As to the Knotting of the Milk. — In the first Days after a Woman has been deliver'd, her Milk is not yet well purified, because of the great Motion of her whole Body, during the violent and frequent Efforts of her Labour; and it is then mixed with a great Quantity of other Humours, which flowing at that Time, in too great Abundance towards the Breasts, cause the Inflammation above-mentioned; but when the Child has already sucked, during fifteen or twenty Days or more, then the Milk alone, without any Mixture of other Humours, is contained in them; but that Milk being sometimes retained

tained too long, without any Evacuation, curdles and knots, and by its being over-heated, renders the Breasts very painful.

Note, That several Authors make a Distinction between this Curdling of the Milk, and another Malady which they call *Caseatio*, in which the Milk is converted into Cheese, which happens by means of the Heat, whereby a Dissolution of the most subtile Part of the Milk being made, the coarser Part thereof is indurated in the Glands of the Breasts.

The Signs that the Milk is curdled or knotted are, that the Breasts which before were soft and smooth, grow hard, uneven, and lumpy every where, without any Redness; whereby the Distinction and Separation of all their Glands, filled with that curdled Milk, is easily felt. They are very painful to the Patient, who feels a shivering in the Middle of her Back, as if she had a Piece of Ice there; which Shivering is commonly followed by a Fever, which lasts no longer than twenty-four Hours, and sometimes less Time, unless that knotting degenerates into a true Inflammation of the Breasts, which would certainly happen if the Milk was not evacuated, or dissipated, or resolved.

That *Curdling of the Milk*, proceeds very often from that the Woman is not enough drawn, either because she has a too great Abundance of Milk, or because her Child is so small, or so weak, that it cannot suck, or because it wants to leave off suckling; for then the Milk remaining in the Breasts after its Coction, without being evacuated, loses its Sweetness, and by means of the Heat it acquires there, by reason of its too long sojourning in them, growing sour, it curdles and knots. That Accident happens often likewise to the Woman, for having suffered a great Cold, and had her Breasts too much exposed to the Air; because the Milk being thereby too much chilled, curdles, as the Blood does when exposed to the Cold.

The quickest and surest Remedy in this Malady, let the Cause thereof be what it will, is that the Woman should have her Breasts sucked dry; but as her Child, if he be small or weak, cannot have Strength enough to do it, she must be drawn by another Woman till her Breasts be put in a Condition of being easily drawn afterwards, and in order that she may not generate more Milk than is sufficient for the Food of the Child, she must use light Aliments, and her Body be kept open. But as it happens sometimes that the Woman will not, or cannot suckle her Child, then other Means must be used for the Cure of this Malady, and not by sucking the Breasts; for by drawing other Humours into them, the Malady would always be renewed, therefore it is necessary to hinder the Milk from flowing thither any more, and to dissolve and dissipate that which remains in them; to effect which, the Plenitude of the Body must be evacuated by bleeding in the Arm, and the Humours drawn downwards by pretty strong Glysters, and even by bleeding in the Foot, using likewise Purgatives if it be necessary; and to dissolve, digest, and dissipate the Milk knotted in the Breasts, an Embrocation of Populeum is used with Success; applying afterwards on the Breasts a Cataplasm of Honey, or a Plaister of *Diachylon de Gummis*.

As to *the Impostbumes of the Breasts of lying-in Women*. As those *Impostbumes* follow most commonly the Inflammation caused by the Corruption of the Milk, and by the too great Abundance of Blood and Humours carried thither; when a Man-midwife has done all he can to appease that Inflammation, either by the universal Evacuations of the Body, or by bleeding in the Arm and in the Foot, or by exciting the Evacuation of the Lochia, by repelling Remedies, and simple Resolutives applied on the Breasts; if the Woman continues to feel in them a violent Pain, and a strong Pulsation more in one Place than in another, together with a Hardness of a livid Colour, it is a Sign that there will be an Abscess; then one must abstain from applying any longer those former Topicks, to have Recourse to Remedies maturative of the Impostbume, which in that Case, it is best to bring to a Suppuration, rather than to use any longer Repellings and Resolutives, for Fear of hardning the Matter in repelling or dissolving the most subtile Part thereof, and leaving the coarser behind, which would cause a scyrrhous Tumour very difficult to be dissipated; or which remaining a long while, as it happens sometimes, would degenerate into a *Cancer*.

To help the Suppuration of the *Impostbumes*, there must be applied on the Breasts an emollient and maturative Cataplasm, composed of Mallows, Marsh-mallows, Roots of white Lillies, and Linseed bruised, which must be boiled together till they be extremely soft, so as to be strained through a coarse Sieve, for Fear any Thing hard should remain in it, which could bruise the Breasts at that Time very painful; mixing with it afterwards a good Quantity of Axonge of Pork, or of *Basilicum*; and on the Place where the Impostbume seems to be ready to break, there must be applied a small Plaister of the said *Basilicum*, and the Cataplasm over it, renewing it twelve Hours afterwards, continuing the same Remedy till the Impostbume be ripe.

As soon as the Impostbume is ripe it must be opened, if it does not break of itself; and the Time of opening it will be known, when the Pulsation which the Woman felt before in her Breasts has ceased, when the Pains and Fever are much abated, and when the Middle of the *Impostbume* is a little risen in Point, is entirely soft, and the Inundation of the Matter contained in it is felt with the Finger.

Therefore when all those Signs appear, the Impostbume must be opened in the most proper Place for the Evacuation of the Matter. The Aperture must be made with a Lancet, and large enough for the Evacuation of the small Clods of Blood ordinarily mixed with the Matter, taking a particular Care not to touch the large Vessels, the Principal whereof are under the Arms. After the Matter has been evacuated, the Impostbume ought to be deterged and mundified as usual, observing only not to introduce too long and too hard Tents into it, but only some very soft Lint, which must not be pushed too far in. If there be a violent Pain, the Pledgets must be dipped in Oil of Eggs, or in *Basilicum* mixed with the Digestive, if something be left in it to suppurate; after which Mundicatives and Detersives are to be used, as Honey, or the *Apostolorum*, applying over it a Plaister of *Unguentum Divinum*, to soften and dissipate the Hardness which could be left behind.

Sometimes all the Glands of the Breasts happen to suppurate, and to form as many Impostbumes as there are Glands; so that they break sometimes in five or six Places, which all flow with Sania; the Surgeon then ought not to amuse himself to make so many Apertures as there are small Holes, but it suffices to make a good one, or two in the Places which have more Declivity; for the whole Matter which has an easy Communication from one Place to the other, by the Breasts being all spongious, will be easily evacuated, and one or two good Issues made in a commodious Place, will drain in a short Time all the others.

But the surest Means to cure the Impostbumes of the Breasts after the Evacuation of the Matter, and to hinder the Apertures from being too long fistulous, is to dissipate entirely the Milk from both Breasts, whereby the Ulcers will be sooner and easier dried; wherefore the Body of the Woman must be kept open; and she is to be purged by Intervals, to evacuate the superfluous Humours and carry them downwards, she observing all the while a very little nourishing Regimen.

Note, That the Matter of the Abscesses must not be suffered to sojourn too long in the Breasts after its Maturity, as several Women do, who chuse that the Impostbume should break of itself, rather than suffer that it should be opened with a Lancet, which is the Cause that the Matter being kept too long in the Breast corrupts the proper Substance of its Gland, whereby communicating itself to the Reservoirs of the Milk, it renders the Cure very tedious, because the Evacuation of the Milk and of the Serosities which have took their Course through the Apertures of the Abscess, hinders the Consolidation of the Part; and particularly who, notwithstanding they have an Impostbume in one Breast, suckle their Child with the sound one, because of the mutual Communication of

the Veſſels of both Breaſts; therefore the Matter muſt be evacuated as ſoon as it is arrived to a perfect Maturity; and while it is not yet contained in the Teguments; for in proceeding thus the Abſceſs is ſooner cured; and much ſooner ſtill, if the Woman abſtain from ſuckling her Child, and her Body be kept open.

As to ſore Nipples. — Sometimes Nurſes, eſpecially for the firſt Time, are ſubject to have ſore Nipples, which are Parts of an exquiſite Senſe; becauſe ſeveral ſmall nervous Threads come to terminate in them; which cauſes them an exceſſive Pain, eſpecially when, notwithſtanding that Indiſpoſition, they will ſuckle their Child. And much more if their Breaſts are hard to be drawn; as it often happens, when they lay in of their firſt Child; at which Time the Milk has not yet forced its Way through the Breaſts; which is the Cauſe that the Child pulls much harder, than when the Milk flows as it were of itſelf; and ſometimes the Soreneſs increaſes to that Exceſs, by the continual ſucking of the Child, that he carries at laſt the Nipple quite off; after which the Woman can ſuckle him no longer, and it remains an Ulcery, which is ſometimes very difficult to be cured. Often, likewiſe, that Accident proceeds from that the Child is ſo droughty and famiſhed, that he does not take Time to ſuck gently, and finding that the Milk does not come ſo ſoon as he could wiſh, he bites, and chaws ſo hard the Nipples, thinking thereby to make it come, whether he has Teeth or not, that he ſcratches them, and thus continuing always carries them quite off. It happens ſometimes, likewiſe, that Children have their Mouth ſo over-heated, or ſo full of thoſe little Ulceries, called *Aphtes*, that therefrom the Nipples are ulcerated; and much eaſier if they have the Venereal Diſeaſe, which they communicate to their Nurſes; and then the Ulceries proceeding from ſuch a poiſonous Source, are not cured by the common Remedies; but, on the contrary, increaſe always more and more.

So ſoon as a Woman perceives that ſhe begins to have ſore Nipples, it would be very proper ſhe ſhould abſtain from ſuckling her Child, till they be quite cured; during which the Milk muſt be diſſipated for ſome Time, for Fear of an Inflammation in her Breaſt, proceeding from a too great Abundance of Milk; notwithſtanding which, if there was but one Nipple ſore, ſhe could very well give the other to her Child.

There muſt be applied on the ſore Nipples, ſome Oil of Eggs, or Oil of new Wax, for ſeveral Days ſucceſſively; uſing afterwards of deſiccative Remedies, as Aluminous, and Lime-Water; bathing them firſt with Plantin-Water only, and applying over it Bits of very ſoft Cloth, dipped in the Aluminous, and Lime-Water; but, in my Opinion, the beſt Remedy is either Cream, or Honey of Roſes, eſpecially when the Nipples are not yet exceſſively ſore.

Note, That ſome uſe Emollients inſtead of Deſiccatives; but it muſt be obſerved, that Emollients are only proper to prevent a Soreneſs of the Nipples; but when that Soreneſs has happened, the Emollients are no longer of any Service, in lieu thereof, Deſiccatives ought to be uſed.

To hinder the Woman from being hurted in thoſe Parts which are ſo tender, and the Cloaths from adhering to them, the Ends of the Breaſts muſt be cover'd with a little Hat made of Wax, Wood, or Lead, perforated with ſeveral Holes, as well for the Iſſue of the Sania, which flows from the little Ulceries, as for the Evacuation of the Milk which diſtills continually from the Nipple.

When the Child has carried the Nipple quite off, the Milk muſt be entirely diſſipated, in order to dry, as ſoon as poſſible, the Ulceries left behind, which otherwiſe could not be cured ſo eaſily, but, on the contrary, would become callous and malignant in Time; and while the Child ſuckles, it is very difficult to cure the Ulceries, which he has cauſed to the Breaſts, by his having the Venereal Diſeaſe; therefore he muſt have another Nurſe, to which preſervative Remedies ought to be adminiſter'd. But if he had only ſmall Ulceries in his Mouth, without any Malignity, his Mouth muſt be waſhed with Barley Water, mixed with a little Quantity of Lemon Juice; tho' I prefer to it a Decoction of Mulland. And to temperate the Heat of the Humours, the Nurſe must observe a cooling Regimen, and be blooded, if it be judged proper.

When the Nipples are carried off quite, it is very difficult for the Woman to ſuckle her Child, because he has no Hold to ſuck the Milk; and likewiſe, becauſe the ſmall Holes of the Breaſt are obtorated by the Ulceries. If notwithſtanding theſe Difficulties, ſhe deſires to do it, another Woman muſt make her, by Degrees, other Nipples, after the Ulceries are cured; or uſe a Glaſs Inſtrument, made for the Purpoſe, by Means whereof, ſhe'll be able to ſuck herſelf five or ſix Times a Day, and thereby form new Nipples; and to form and keep up the new Nipple, ſhe muſt cover it with the little Hat abovementioned.

The *Swelling of the Legs and Thighs of a lying-in Woman*, proceeds often, from a Reflux happening over all her Parts of the Humours, which ſhould be evacuated together with the Lochia, wherewith the large Nerve of the Thigh is ſometimes ſo much drenched, that a Woman runs the Riſk of remaining lame afterwards.

If thoſe Swellings be extremely large and painful, as are thoſe which participate of Inflammation, and precede the Evacuation of the Lochia, and are accompanied with a Fever, with a Difficulty of Reſpiration, and an exceſſive Tenſion, and great Pains in the Abdomen, they are the much more dangerous, that thoſe Accidents are great, and they meet ſeveral or all together. But when the Swellings are moderate, and without a Fever, they are often eaſily diſſipated by Urine, and Purgatives: For thoſe Sorts of Swellings moſt commonly happen, by Reaſon of ſome Obſtruction towards the Region of the Reins; which is the Cauſe that the Excretion of Urine being but ſmall, the ſuperfluous Humidities of the Bodies which are not well purged, flow back on the lower Parts, whereby they are thus tumified.

To remedy to that Accident, there muſt be procured an ample and free Evacuation of the Lochia, as well as of the Urine, by adminiſtring to the Woman, fifteen Grains of Salt of Urine, in Conſerve of Hips; and by Intervals, a Glaſs of an aperitive Ptiſane made with Fennel, Parſley Roots, and Betony; mixing in each Glaſs thereof, half an Ounce of Syrup of Marſh-mallows.

As to the hyſterick Paſſion, vulgarly called, *Suffocation of the Matrice.* This Malady is commonly accompanied with a great Number of different Accidents, according to the different Diſpoſition of the Perſons afflicted therewith; and cauſes ſo many Changes, and ſo many Alterations in the Functions of the Body, and of the Soul of a Woman, that it may be very well compared to the Faculty, *Proteus* had of changing himſelf into all Sorts of different Forms; for we ſee that among Women afflicted with that Indiſpoſition, ſome have their Pulſe high, others low and ſmall; in ſome it is ſo weak, that it is ſcarce to be felt; others are pale, and remain cold and immoveable during the whole Paroxiſm of the Malady, as if they were dead; and others have a freſh Colour, agitating themſelves extraordinarily; ſome have at that Time convulſive Motions, others breathe almoſt imperceptibly, and without any manifeſt Motion of the Muſcles of Reſpiration; and others with the greateſt Difficulty: Some remain without Knowledge, till after the Paroxiſm, when they remember nothing of what they have ſaid and done during the whole Time; and others preſerve all the while, their Memory, Reaſon, and Judgment: Some are more merry than uſual, laughing and ſinging all the Time; and others are ſorrowful and cry; ſome ſuffer in the Paroxiſms of that Malady ſeveral other Symptoms, which do not appear alike in all Sorts of Women, but ſome in one rather than in others, according to the different Diſpoſition of thoſe afflicted therewith. This Diſtemper uſually takes by Paroxiſms, which return ſometimes often, and ſometimes ſeldom; which Paroxiſms laſt, ſometimes, ſeveral Hours, and often whole Days; and other Times are diſſipated, and paſs quickly; according as the Cauſes laſt more or leſs Time.

The Cauſe of all thoſe Accidents can very juſtly be attributed to the Matrice, when that Part ſuffers ſome Intemperies, either becauſe of the Suppreſſion of the Menſes, or by the Abundance of the Whites, or becauſe of ſome other Humour or corrupted Matter, proceeding

from an Ulcery in that Part, or of some foreign Body, retained in its Cavity, as likewise of some false Conception corrupted in it; whereby the Nerves distributed to the Matrice, being irritated, excite the others which have Communication with them, to cause in the Parts where they are inserted, an irregular Motion, which produces Accidents according to the Irregularity of that Motion.

But, notwithstanding, the Cause of all the Accidents, observed in the hysterick Passion, is not always to be attributed to the bad Disposition of the Matrice, and of the Parts depending thereon, no more than to the Retention and Corruption of the Menses, and of the Seed; because often a corrupted Humour happening to ferment in the Foldings of the Mesentery, or in the *Pancreas*, or in the Melt, or in the Kidneys, can cause almost all the same Accidents, by the same Communication of the Nerves of the sixth Conjugation, distributed in all those Parts, without the Matrice being in the least indisposed; in Confirmation whereof, several Widows, who, though they never use Coition, as they used to do before their Viduity, and Nuns, who live in Chastity, are subject to those Indispositions, as well as old Women, who have neither Menses nor superfluous Seed.

This Malady is most commonly more frightful than dangerous, though some Women, after they have been troubled, during those Paroxisms, with very violent convulsive Motions, have fallen into a mortal Apoplexy, and others have remained Paralyticks, afterwards, of half of their Body, for several Years.

Two Things are chiefly observed in the Cure of the hysterick Passion; one is to hinder the Woman before the Paroxism happens, from being afflicted therewith; and the other to remedy, even in the Time of the Paroxysm, to the Accidents which accompany it.

To answer the first Intention, if the Menses, or Lochia of the lying-in Woman be suppressed, they must be provoked by Fomentations of all the neighbouring Parts of the Matrice, Half-baths, Bleeding in the Foot, Glysters, Purgatives, and other proper Remedies; and if that Malady was caused by a false Conception, or a Portion of the After-Birth left in the Matrice, they must be either expelled, or extracted from it as soon as possible.

No better Remedy can be administer'd to a lying-in Woman, during the Paroxisms of the hysterick Passion, than a Glass of Hysterick, or Cinnamon Water, or if such a Thing is not be found, a Spoonful or two of Brandy, or a Glass of Wine; I have also prescribed with great Success, twelve Drops of Spirit of Sal-Armoniack, more or less, according to the Violence of the Paroxism.

Note, That having thus far carefully examined all the Maladies a lying-in Woman is subject to; discovered the principal Causes thereof, their Diognosticks and Prognosticks, and inform'd my Pupil how to treat each Malady in particular, I'll conclude this useful Treatise, by teaching him how to behave towards a Child newly born; and how to cure the different Maladies he is subject to; therefore,

As to the Manner of treating a Child newly born; and first, *how to tie and cut the Umbilick.*—So soon as the Child is out of the Matrice, some Midwives tie and cut the Navel-string (which is the common Practice of the *English* Midwives) before they deliver the Woman of her After-Birth; which is a very bad Practice, for they should always, if possible, defer cutting the Navel-string, till after they have extracted the After-Birth; for the Matrice, which is extremely open, after the Child is come out, is in Danger of being too much cooled, while the Midwife amuses herself to make the Ligature of the Umbilick; besides that, its inward Orifice beginning to contract itself so soon as the Child is out, renders the Delivery of the After-Birth much more difficult.

Therefore, so soon as the Woman is delivered of the After-Birth, the Midwife having put at the Entrance of the Matrice a Cloth folded into several Doubles to hinder the Air from penetrating into it, shall take a strong Thread in four or five Doubles, of the Length of a Quarter of a Yard or thereabout, tied with a single Knot, at each End; with this Thread she shall tie the Navel-String, at a Finger's Breadth from the Belly, with a double Knot, at first, then turning the two Ends of the Thread on the opposite Side, she'll make there another double Knot, reiterating the same Thing, if it be necessary, for a greater Safety; which done, the Navel-String must be cut at another Finger Breadth from the Ligature, on the Side of the After-Birth, so that there remains of the Navel-String only the Length of two Fingers Breadth, in the Middle whereof the Ligature is made; which must be so tight, that not one single Drop of Blood may run from the Vessels, but not too much, for fear the Ligature should cut the said Vessels; therefore the Thread should be a little big for that Purpose, and tied with some Sort of Mediocrity, tho' it is best it should be rather tight than loose; for some Children have unfortunately lost their Lives with their Blood, before it could be perceived, by having their Umbilicks tied too loose.—The End of that Umbilick, thus tied and cut, must be wrapped in a dry Piece of Cloth, anointed with some fresh Butter, or Oil of Roses; then having put another small Piece of Cloth, in double, on the Belly of the Child, towards the superior Part thereof; the Umbilick, thus wrapped, must be placed upon it, the End thereof upwards, that, in case the Vessels were not tied tight enough, the Blood should not so soon be lost, and unperceived, as it would if that End was placed downwards; for it happens, sometimes, that the Navel-String is so big, in some Children, that though it has been tied ever so tight, at first, the Ligature, notwithstanding, happens to slack, when it begins to wither and dry, whereby the Blood would flow, if it was not well minded. In that Case, therefore, in Proportion as the Umbilick withers, it must be tied with a new Knot.

The Umbilick thus tied withers daily, and most commonly falls out at the End of six or seven Days, sometimes sooner, and never later than the eighth or ninth Day. It must always fall of itself, without exciting it to it, for fear that was it to fall too soon, and before the Vessels are entirely closed and re-united, there should happen a Flux of Blood, which would prove very dangerous; or an Ulcer should be left, very difficult to cure.

Note, That I must not pass, in this Place, a Thing of the utmost Consequence unobserved, and which is sometimes capable to kill a new-born Child, without any Body knowing the Cause thereof; though it is the pernicious Custom some Midwives have, who, before they make the Ligature of the Navel-String, thrust into the Belly of the Child all the Blood contained in the Vessels thereof, under Pretence of strengthening the Child if he be weak; but the contrary happens, for so soon as the Vessels are a little cooled, the Blood they contain loses its Spirit, and is half coagulated; so that by its being thrust thus into the Liver of the Child, it is capable to cause several very great Accidents, not by its Abundance, but because having entirely lost its natural Warmth, it is soon corrupted; and happening to be mixed with that of the Child, it spoils it; for if the Child should want Blood to strengthen him, it should be a good and laudable Blood, and not a Blood half coagulated, and destitute of its native Warmth. Therefore, whether the Child be weak or strong, the Blood of the Navel-String must not be thrust into the Body.

Note, also, That some good old Women are superstitious enough, especially here in *England*, to believe that the Ligature of the Navel-String is to be made, nearer, or further from the Belly of the Child, according to the Difference of the Sex; that to Boys it should be made two large Fingers distant from the Belly, at least, that they may have their *Penis*, as they call it, longer; and to Girls much nearer, because thereby drawing the Matrice further inside, it remains deeper, and the *Vagina* narrower, which is a mere Abuse; for in what Place soever the Navel-String be tied, whether nearer or further, was it even half a Foot long, it parts always at the same Place, *viz.* joining the Belly; because it is a Part which remains entirely unanimated, after the Child is out of the Matrice; besides, that the Ligature can neither relax, or draw in either the Yard of the Male, or the

Matrice

Matrice of the Female; ſince thoſe Parts have no particular Communication with the Navel-String of the Child.

Note, beſides, That the next Thing I muſt teach my Pupil Midwife, is *the Manner of waſhing the Child of his Excrements; and of dreſſing him.*

After the Midwife has dreſſed the Umbilick of the Child, ſhe muſt carry him to the Fire, to cleanſe him of his Excrements; of which ſome are inſide, *viz.* the Urine and *Meconium*; and others outſide, which are a Kind of whitiſh and unctuous Scurff, proceeding from the Slime of his Waters.—This *Scurff* muſt be waſhed off with Wine and Water, a little warm; and if it was much adherent, ſome freſh Butter ſhould be melted in the warm Wine and Water, or ſome Oil of ſweet Almonds, which is ſtill better, added to it. To uſe this Mixture, the Midwife muſt dip a Piece of a ſoft Cloth, or a ſoft Sponge into it, and with it waſh the Child all over, particularly the Places which are the dirtieſt, as the Head, the Groin, and under the Arms, cleanſing the Ears and Noſtrils with ſmall Tents of Linen roul'd; as for the Eyes, they ought not to be waſhed with the Wine, for fear of making them ſmart; but they muſt be cleanſed with a Piece of dry Cloth.

The Child, thus waſhed and cleanſed of his Immondices, muſt have afterwards all the Parts of his Body carefully examined, to ſee if they be not vitiated; if ſome of them be not diſlocated, or broken; if his Noſe be ſtreight, if he be not Tongue-tied, if he has not ſome Contuſion on the Head, and if the Bones thereof be not awry, if the *Scrotum* (in caſe he is a Boy) be not ſwelled and tumified; in ſhort, if he has ſuffered no Violence in any of the Parts of his Body, and if they be well conformed, in order to remedy it, according to the Nature of the Indiſpoſitions.

But as it does not ſuffice to have cleanſed the Outſide of the Body of the Child, one muſt take particular Care beſides that he may eaſe himſelf of the Excrements retained within; in order to which the Midwife muſt ſee if he has the Conduits of the Urine, and of the Anus well open; for Children have been born without being perforated, who died for Want of voiding their Excrements, becauſe the Midwives had not minded it ſoon enough. As to the Urine, all Children whether Males or Females, void it as ſoon as they are born, and particularly when they feel the Heat of the Fire; and ſometimes likewiſe the *Meconium* of the Inteſtines, but moſt commonly a little later, if the Child was to keep it longer than twenty-four Hours, ſome ſmall Suppoſitory ſhould be thruſt into his Fundament, to excite him to void it, leſt it ſhould gripe him much; a Stalk of Parſly rubbed over with Honey, or Oil, or Freſh Butter, is of great Service on that Occaſion, making him take beſides, ſome Syrop of Roſes, or of Marſhmallows, mixed with Oil of Sweet Almonds. It is known that the Child has voided all the *Meconium*, when the Excrements change Colours; which moſt commonly happens the ſecond or third Day.

Note, That it would be in vain to give here any Directions how to dreſs the Child after it has been waſhed, and carefully examined, ſince all Midwives, and even Nurſes, let them be ever ſo ignorant in all other Things, muſt certainly know this; all I can ſay in general relating to it is, that particular Care ſhould be taken to cover his Head ſo, eſpecially the Mold, which is not inveſted with Bone yet, that he may not catch Cold, and not to roll him too tight on the Breaſt and Stomach; for if the Breaſt be too tight it obſtructs the Reſpiration; and if the Stomach, it hinders the Coction of the Aliments, and cauſes a frequent Vomiting.

Note, alſo, That from this I'll paſs to *the Regimen the Child is to obſerve, and how he is to be treated.*

The firſt Aliments which are to be given to a Child newly born, are either ſome Wine with Sugar, or ſome Freſh Butter with Sugar; but I prefer the Wine to the Butter, becauſe it anſwers better the Purpoſe it is adminiſtred for; which is to incite, and make him evacuate the Phlegms he has in his Stomach, to hinder the Milk, which he is to ſuck afterwards, from being corrupted, by being mixed with thoſe Phlegms.

If the Child is to ſuck his Mother, it would be beſt to wait (if it could be done without any Prejudice to the Mother, or to the Child) till after the eighth Day of her Lying-in, that the Humours of her Body being well temperated, and recovered from the Agitation they have received during the Labour, as likewiſe their Superfluities having been entirely evacuated by means of the Lochia, her Milk be much more purified; beſides which the ſmall Holes of the Nipples being not yet very well unſtopped, they are hard to ſuck in the firſt Days, during which Time the Child ſhould ſuck another Woman. But as all lying-in Women, without Diſtinction, are not in a Condition to uſe all thoſe Precautions, they muſt have their Breaſts drawn firſt by ſome Woman, or a ſtronger Child than theirs, or they'll draw it themſelves by means of a Glaſs Inſtrument made for that Pupoſe; till the Milk has made itſelf an eaſy Way through the Breaſts, and can be ſucked without Difficulty by her own Child.

Note, That ſome are of Opinion, that the Milk proves more beneficial to the Child at firſt, than if it was purified, ſince it ſerves to keep his Belly open, and to purge the *Meconium*; I am likewiſe of that Sentiment, as to that Effect; but by its not being eaſily digeſted in the Stomach of the Child, if he may be ſuffered to ſuck ſome of it, it muſt be but in a very little Quantity, and to anſwer only thoſe Purpoſes; otherwiſe that Sort of Milk being of a very difficult Digeſtion, would much weaken the Child's Stomach, and cauſe very frequent Vomitings afterwards of the beſt prepared Milk.

If the Nurſe has a great Quantity of Milk, ſhe muſt give no other Victuals to her Child, for two Months at leaſt: And as to the Quantity of the Milk a Child ſhould ſuck, it muſt be proportioned to his Age and Strength, never ſo much in the firſt Days, nor ſo often; that his Stomach not uſed yet to the Coction thereof, may digeſt it better; increaſing by degrees till he be ſuffered at laſt to ſuck his Fill. As to the Time and Hour it cannot be limited, ſince he may ſuck at any Hour of the Day or Night, when he pleaſes; for it is beſt it ſhould ſuck little and often, rather than to over-load his Stomach at firſt, which being uncapable to contain ſo much Milk, would be forced to vomit it; notwithſtanding which, it would be very proper if poſſible to uſe the Child to ſuck but every two Hours in Day-time, and never at Night but when he awakes of himſelf.

Note, That I have ſeen Women, both in *France* and *England*, who though of a very ſtrong Conſtitution, very healthy, and having Abundance of Milk, had the Cruelty to refuſe ſuckling their Children, becauſe truly they would not be diſturbed in the Night, or their Huſband, ſay they, would not have their Breaſts ſpoiled; therefore abandon thoſe innocent Victims of their Senſuality and Cruelty, to the Care of a ſtrange Woman they often know nothing of but by Report, who it is almoſt abſolutely impoſſible ſhould have the ſame Tenderneſs for other Children ſhe has for her own, though ſhe muſt, if ſhe deſigns to nurſe them as ſhe ought. Hence ſo many Skeletons of Children, ſo many Cripples, and ſo many of them murdered, through the Negligence of Nurſes, and the Inhumanity of Mothers. For how can they expect, if they, of whoſe Subſtance thoſe Children have been formed in Part, have no natural Inclination for them, and rather chuſe to put their Life in Danger than to diſcompoſe themſelves, that a ſtrange Woman who is nothing at all to a Child, but what Lucre makes her, will not uſe the ſame Precautions, and conſult as much her own Eaſe? I muſt however do this Juſtice to the *Engliſh* Women, that more of them ſuckle their own Children, and even Ladies of the firſt Rank, than of my Countrywomen; for in *France* none but the pooreſt Sort, and thoſe who are not in a Condition to pay a Nurſe, ſuckle their own Children, it is even a Mark of Poverty to do it, of which Perſons above the common Sort, would be aſhamed.

After the Child has been fed with the Breaſt only, for

for two or three Months, more or less, as it will be thought proper; having a greater Regard on those Occasions to the Strength of the Nurse, and to the Abundance of her Milk, than to any other Considerations whatever; for if the Nurse be strong and healthy, and has a great Quantity of Milk, and her Child on the contrary be puny and weak, she should suckle her Child as long as possible; since all other Aliments, let them be ever so good, discompose always more or less his Stomach. But if the Nurse be weak and has but little Milk, she must give her Child Pap, at first but once, or to the utmost twice a Day, and in a little Quantity, to use his Stomach to it, giving him the Breast soon after he has eat it, to help to the Digestion thereof.

Note, That there are different Manners of making Pap for Children: In *France* they make it with Flour and Milk, and to render the Flour of a more easy Digestion, they put it to bake in the Oven, then mix some of it with Milk, to make of that Mixture what the *English* call Thick Milk. My Opinion is, that this Sort of Pap, when made pretty thin, and well boiled, so as to smell no more of the Flour it is made of, and when poured on a Silver or Pewter Plate, to part from it, without soiling it, like a Jelly, is a very good Food for a Child, if given in a little Quantity at once. For it does not fill him with Wind, and with so much Phlegm, as does the *English* Pap, made with Bread and Water, neither is it so much griping; and is much more strengthning.

Note, also, That I can by no means approve the Conduct of Mothers, who pretend to bring up their Children without the Breast, and, as they call it, by the Hand; for being thereby deprived of their first and natural Food, it is very rare that any of those thus fed are brought to the Age of Maturity: If those Mothers are forced to it through Want, or some other indispensible Necessity, I cannot blame them; but if they do it through Indolence or Self-Preservation, they are nothing else but sly and secret Murderers of their own Flesh and Blood; why do they marry, those Sorts of Women? or why do they get Children, if it is to kill them? Wretches, who to hide their Shame kill their Bastard Children, are put to Death (and well they deserve it) and those who kill them by Degrees, either to preserve their handsome Breasts, or for Fear of losing a few Hours Rest, are suffer'd to live.

When the Child has sucked sufficiently, the Nurse should put him to sleep in a Cradle, and not in the same Bed with her, for fear of over-laying him; an Accident which is very frequent here in *London*, where seldom a Week passes, without finding in the Bill of Mortality, five or six Children, more or less over-laid; occasioned, but too often, by the infamous Nurses making themselves drunk with spirituous Liquors. I am surprized, that the Legislature takes no Notice of that destructive Evil, and makes no Law for the Punishment of Nurses who over-lay a Child, by suffering themselves to be intoxicated with Liquor, for they certainly deserve Death as much as a Man who shoots another thro' the Head.

There is no Term limited for the Repose of a Child newly born, for he may sleep at any Hour of the Day and Night, when, and as long as he pleases, since the longer he sleeps, especially in the first three Months, the better he has his Health; though when it is observ'd, that his Sleep exceeds a certain Mediocrity, the Nurse may awake him by taking him gently in her Arms, singing to him softly, not hollowing in his Ears, as I have seen some Nurses do, which is enough to throw a Child into Convulsions, and shewing him the Light. It must be observed, likewise, that while in his Cradle, or on his Nurse's Knees, his Face should be turn'd towards the Light, which is in the Room, that he may not be obliged to turn his Eyes sidewise; and contract thereby the ill Habit of squinting, which is very disagreeable; which to avoid, it is best to cover the Cradle with something, to hinder him from seeing the Light, because his Sight being thereby fixed, without vacilling on either Side, is much more strengthened. — Let's examine next how the Nurse must *cleanse the Child of his Excrements*, or as they vulgarly call it, *turn him dry*.

A new-born Child must be turned dry, at least three or four Times a Day; or to speak better, as often as he fouls himself, without leaving him any Time in his Excrements, unless he be asleep. This Operation must be done before the Fire; and the Clouts very warm and dry, before they are put to him, for if they were damp, and cold, they would cause him the Cholick and Gripes. When she undresses him quite, which must be done twice a Day, at least, she must put small Pieces of Cloth behind his Ears, and under his Arms, to suck the Humidity of those Places. Examining every Time very carefully, if the Ligature of the Navel-string be not loose, and if the Blood does not flow from it. And when it is quite fell, she must continue to keep the Navel tight with a Belly-Band, leaving a Compress over it, till it be well cicatrized, quite depressed, and drawn inside.

The Nurse must also take a particular Care, that her Child may not cry too much and too long, especially the first Days, for fear his Navel should start out, and there should happen by its Dilatation an *Exomphale*, or a Rupture; without minding what old Women say, that it is best to let him cry to purge his Brains. The two best Means to appease him when he cries, is to give him the Breast, and turn him dry; she must also endeavour to shew him something capable to divert him. — They must not pretend to suck or press the Breasts of the Child, under Pretence of forming the Nipples, if they be Girls, or to draw out some Serosities, which are in them; for such a Thing causes often very painful Tumours in those tender Parts.

Note, That all I have said relating to the Regimen, and nursing of a new-born Child, must be understood only of those who are in perfect Health; for if some Indispositions happen to them, they must be treated according to the Difference of those Indispositions, and to the Directions I am a going to give relating to them; beginning by *the Weakness of the Child.*

The first Accident to which a new-born Child is subject, is Weakness; not that they are always weak of their Nature, but it proceeds from a hard or tedious Labour, during which they have suffer'd so much, that they are sometimes so weak after they are born, that it is difficult to discover at first, if they be alive or dead, because they are not seen to move any Part of their Body, which is sometimes so blue and livid, particularly the Face, that they are thought to be quite suffocated; tho' after they have been whole Hours in that Condition, they recover by Degrees, as if they were returning from Death to Life.

One may judge that the Child is not actually dead (though in some Measure he appears so at that first Instant) if the Mother has felt him stir with Vigour, a little before she was deliver'd, if she had not too great a Flooding, and if her Labour was not extremely hard. But one would be quite convinced that he is alive, tho' he does not cry, and does not move any Part of his Body, after he is born, if putting the Hand on his Breast, the Motion of the Heart is felt; and if feeling the Navel-string, near the Belly, there is yet a Pulsation of the Arteries; then all Endeavours must be used to bring him to Life. — First, being put in a warm Blanket, he must be carried to the Fire, where the Midwife having taken some Wine in her Mouth, shall squirt a small Quantity thereof into his, repeating the same Thing if it be necessary; putting, likewise, on his Breast and Belly other Compresses, dipped in other Wine, which must be warmed for the Purpose; keeping his Face uncover'd, and his Mouth a little open to facilitate his Respiration, cleansing his Nostrils with small Tents dipped likewise in Wine to make him smell it, warming all the Parts of his Body, to excite in them the native Warmth, and accelerate the Circulation of the Blood and Spirits; whereby the Child recovering his Strength by Degrees, will begin to move his Members one after another, after which he'll cry, though very weakly at first.

Sometimes, also, Children are naturally weak, as when

when they come before Term, or have been begotten by infirm or weak Parents. In that Case, it is very difficult to remedy to it, and all that can be done, is to nurse them well; notwithstanding which, such Children are seldom of a long Life, and often die of the least Indisposition which happens to them.

As to the Contusions and Bruises of the Head and other Parts of the Body of a new-born Child. — The most common and most frequent *Contusion*, is that made at the Top of their Head; where they have, sometimes, at their coming into the World, a *Contusion* as big as half an Egg, or even bigger; as is particularly seen in the first Lyings-in, which happens much sooner when the Woman is advanced in Years, because the inward Orifice of their Matrice being more callous, is dilated with greater Difficulty; wherefore the Head of the Child happening to be pressed against it, and being encircled with it as with a Crown in its superior Part, which presents itself naturally foremost, is swelled and tumified because of the Blood and Humours which fall and are stopped in that Part by the Compression thereof made by that inward Orifice, and particularly when it begins to be pushed out strongly, and remains thus too long without being capable to make her Way, after the Waters, which supported it a little, have been evacuated, to which the Midwife can contribute, likewise, if she touches it too often, and too roughly with her Fingers, when it presents itself to the Passage.

Those Tumours are sometimes so big, that they can (the Woman having not yet the Orifice of the Matrice sufficiently dilated) hinder a Midwife from knowing easily, which Part the Child presents foremost; mistaking those Tumours for a Shoulder, a Knee, or the Buttock of the Child; though by feeling it, the Mistake is soon rectified; for though those Tumours are very fleshy, they notwithstanding feel harder than a Shoulder or the Buttocks, those Parts being always much softer, and have not those Hairs felt on the Head. If the Child presents first any other Part than the Head, as an Arm, or a Leg, and those Parts remain likewise a long Time pressed in the Passage, they are also tumified.

To dissolve those Tumours, so soon as the Child is born, they must be bathed with warm Wine, or Brandy, dipping a Compress in it, to put over the Tumour, or Bruise; and if, notwithstanding, they were to come to a Suppuration, the Matter ought not to be left to sojourn long in it, for fear the Bones of the Head, which are very tender, and very thin in new-born Children, should be alterated and carriated, in which Case the Tumour must be opened in a proper Place, applying over it a Plaister of Betony. If an Arm or a Leg was tumified, likewise, it must be wrapped in Compresses dipped in Wine or Brandy, in which have been boiled Camomile-Flowers, or Mellilot. Which Remedy is likewise of very great Service, when Boys have their Scrotum swelled.

But the greatest Accident is when a Man-midwife, or a Midwife, through Want of Skill, or Dexterity, breaks or dislocates an Arm or a Leg; which Accident must be remedied, by setting the Member in its Place again, and keeping it up with proper Bandages.

As to the Mole of the Head of new-born Children, and Sutures too much open. — Often Children born before Term, having not yet acquired their entire Perfection, as likewise those weak of their Nature, have the Mole of the Head, and the Sutures so open, proceeding from the Bones being at a great Distance from one another, that it is quite soft, and almost without Support, because its Bones vacillate on all Sides. These Children most commonly do not live long; and one must not pretend then to approach the Bones near one another, by a too close Compression, otherwise the Brain would be thereby deprived of its Motion by being too narrowly confined; therefore the Midwife must only take care then to keep up gently, and without the least Violence, the whole Structure, by Means of a Beguin, and leave the rest of the Operation to Nature, which will join those Sutures by Degrees, in generating, drying, and consolidating the Bones of the Head, which had not been yet entirely formed.

Note, That there are Children who have the Mole of their Head open, till they are three Years of Age; and even sometimes after that Time; which is a great Sign of the Weakness of their natural Warmth. It is most commonly entirely closed, at the End of two Years, sooner or later, according as the Children are more or less humid, and more or less strong. Till those Bones be entirely consolidated, it is the Practice in *France* to have on the Place a Compress of Cloth, in several Doubles, to defend the Brain against the Cold, or any other external Injury.

It sometimes happens, that though the Bones of the Head be large enough to be joined on all Sides, if they were not hinder'd from it; they are notwithstanding very distant from one another at the Place of the Sutures, because of the Quantity of Water contained between them and the *Dura Mater*. This Malady is called *Hydrocephale*, of which there are several Sorts, according as the Waters are nearer or more distant from the Brain, or even contain'd in its Ventricles. If the Waters are between the Skin and the *Pericranium*, or between the *Pericranium* and the *Cranium*, the Malady may be cured, if the Tumours be not too large, by dissolving the Waters, or making an Aperture for the Evacuation thereof; but if they be in too great Abundance under the Bones, between them and the *Dura Mater*, pushing them thus outwards, and widening the Sutures, Children cannot recover; which is still much more impossible, if those Waters be contained between the *Dura Mater* and the *Pia Mater*, or in the Brain.

As to new-born Children who have their Fundament closed. — It happens, sometimes, that Children, both Male and Female, are born with their Fundament closed and stopped, wherefore they cannot void their Excrements; of which Malady they infallibly die, if it be not quickly remedied.

The Fundament is closed in two Manners, either by some simple Membrane, as by the Skin, through which some Trace is seen, or a livid Mark proceeding from the Excrements retained; and there is felt with the Finger a Softness in the Inside, at the Place where it should be perforated. Or it is entirely closed by a Thickness of Flesh, so that nothing appears outward, which could denote its true Situation.

When nothing but a Skin stops the Fundament, the Operation is easy; and Children can recover, by the Surgeon making the Aperture thereof, with a small Bistoury, rather cross-wise, than single or longitudinal, to give it a round Figure, and that the Place may not be reunited afterwards, taking a particular Care not to wound the Sphincter of the *Rectum*. The Incision thus made, the Excrements will have an Issue, but if they could not be evacuated, by their having grown too hard, in sojourning so long in the Belly, a gentle Glyster ought to be administer'd to the Child, to excite that Evacuation; after which a Tent must be introduced into the Anus to hinder the Re-union thereof, which should be cover'd at first with Honey of Roses, and at the End with some deficcative and cicatrizing Unguentum, as the *Album rasis*, and the *Pompholix*; taking particular Care to cleanse the Child well of his Excrements, and to dress the Wound immediately after, and every Time he goes to stool, lest by leaving him too long weltering in them, the Wound should degenerate into a malignant Ulcery.

But if the Fundament be so closed, that there is not the least Trace or Mark thereof remaining, the Operation is much more difficult; and it is a very great Hazard if the Child escape with Life. Therefore if it be a Girl who voids her Excrements through an Aperture which Nature has made in the Inside of the Vagina, to supply the Want of an Anus (as it often happens in those Cases) the Operation ought not to be attempted, lest that wanting to cure only an Incommodity, one should procure the Death of the Child: But if there be no Issue for the Excrements, the Operation must be undertaken, though very dangerous, since without it the Child would infallibly die.

To operate well, in this Case, though there be no Trace seen on the Outside of the proper Place, because of the Thickness of the Flesh, which covers the Intestine, the Surgeon shall introduce as far as into the Vagina, a small Bistory edged only on one Side, taking the Bis-

of the Instrument underneath, and at half a Finger's Breadth of the Rump-bone of the Child, which is the Place where he shall find the Intestine; and pushing it so far, that it may be wide enough for the Evacuation of the Excrement, taking Care to preserve as much as possible the *Sphincter*; this done, the Wound shall be dressed as above; having Regard to the Accidents which could follow.

When it happens that the Conduct of the Urine is stopped, it must be open'd likewise to give Issue to the Urine contained in the Bladder; after which a small Leaden Pipe shall be introduced into it, to keep the Passage open, till the Punction and Incision, which has been made with the Lancet, be cicatrized. But as it is very difficult to keep such a Pipe in the Yard of small Children, on which, by its being too short, a proper Bandage cannot be applied, it is as well without it, since the Urine they void, almost continually, will keep the Aperture open.

Note, That the next Accident I design to examine in a new-born Child (though not at all dangerous, though it would be very troublesome and disagreeable, if it was not remedied in Time) is that commonly called in *English*, *Tongue-tied*, and in *French*, *Le filet*.

The Tongue is naturally fasten'd with a pretty strong Ligament, which fastens it underneath, and is extended as far as the Middle thereof, to keep it subject, and to serve as a *Pivot*, on which being supported, it may make on all Sides all its different Motions. That Ligament must leave it the Liberty to be carried into all the Parts of the Mouth; therefore it must not be too short, nor fasten'd, but at a reasonable Distance from its Extremity, which must be free on all Sides. But it happens often, that new-born Children have on the fore Part of that Ligament, a small membraneous Production, continued almost as far as to the End of their Tongue, which depriving them of the Liberty of its Motion, hinders them from sucking with Ease; because the Tongue being kept down, and as bridled by that String, he cannot raise it as it would be necessary, to press with it the Nipple against his Palate, and suck it to draw the Milk from it; nor likewise move it commodiously for the Deglution of the said Milk.

To rectify that Imperfection, a Surgeon must cut the String as much, or as little, as he'll judge necessary, with Scissars very sharp at the Point; avoiding above all Things from making the Incision of the proper Ligament of the Tongue, as likewise from Opening the Vessels which are underneath.

Note, That when a Surgeon, or a Midwife, through Ignorance, or Want of Dexterity, in attempting to cut the String above-mention'd, opens the Vessels which are under the Tongue, there ensues an Hemorrhage, which would infallibly cause the Death of the Child, if it was not soon stopped; therefore when such an Accident happens, the Surgeon must heat the End of a single Probe, to cauterize the Vessels which are open.

After the String has been cut, the Nurse must pass her Finger two or three Times a Day, under the Tongue, to hinder the Re-union of the Part cut; but it must be done very gently, for fear that by irritating that small Wound, an Inflammation should happen, which afterwards could degenerate into an Ulcery.

As to the Gripes which new-born Children are subject to. This is often the first and most common Malady which happens to Children after they are born, which makes them cry Day and Night, through the excessive Pains they feel in their Belly, and which sometimes causes their Death; which Malady proceeds most commonly from the sudden Change of the Food of the Child, and of the Manner of receiving it; for while they are in the Matrice, they are fed through the Navel-string of the Substance of the Mother; and when born, they suck their Aliments with the Mouth from her Breasts, of which are generated much Excrements; because the Stomach cannot digest well those Aliments, nor the Intestines make a Distribution thereof, at first, by not being yet used to them.

Besides this general, there are other particular Causes of this Malady, *viz.* the Want of evacuating the *Meconium*, which grows hard, and pricks the Intestines with its Acrimony; the Child sucking more Wind than Milk, by the Difficulty it meets with in drawing the Breast, either from his being too weak, and the Breast too hard; which Wind sliding into the Intestines, make a painful Distension thereof; but those Gripes proceed oftener from giving too much Pap to the Child, or from that Pap being not done enough; because that Food which is coarse and viscous, cannot be easily digested by new-born Children, who have not yet their Stomach used to it.

To remedy the Gripes which torture new-born Children, Regard must be had to the different Cause thereof. Therefore, if they proceed from Change of Food, the Child must be kept from sucking till he be two or three Days old, for fear the Milk should be corrupted, by being mix'd with the Phlegm which he has then in his Stomach; and at the same Time some Oil of sweet Almonds extracted without Fire, and mixed with Syrup of Marshmallows, must be administer'd to him, to incise those Phlegms. If from the *Meconium*, which is stopped and harden'd in the Intestines, the Evacuation thereof must be procured by Means of some laxative Syrups, as that of Roses, or *Rhubarb cum Chicor.* &c. If the Child cannot suck easily; Regard must be had to what hinders him from it; for if it be by his being Tongue-tied, the String must be cut off; or from that the Breasts of his Nurse are too hard, he must have another Nurse, whom he shall suck a little at a Time and often; since his Stomach cannot contain and digest much Milk at once: And while he is griped he must eat no Pap, because that Food causes by its Viscosity Obstructions, whence Winds are generated, which increase in such a Manner the Pains of the Gripes, that it causes mortal Convulsions in several Children.

If the Child has Worms, a Piece of Cloth dipped in Oil of Wormwood mixed with the Gall of an Ox, must be applied on his Belly; and if he can take any Thing inwardly, I have prescribed a weak Infusion of Rhubarb in red Wine, which has very well succeeded.

When the Gripes are caused by the Winds, as it most commonly happens, or by some acrimonious Humours contained in the Intestines, the Belly of the Child must be anointed with the Oil of sweet Almonds, Walnuts, and Camomile mixed together, and warm, dipping a Piece of Cloth to put upon it, keeping besides the Child very warm.

As to the Inflammation, Ulceration, and Eminence of the Navel of new-born Children. — The continual Cries of small Children, occasioned by the excessive Pains they feel at first, cause them so much Agitation in their Belly, that the Navel-string happening to fall too soon, and before it be entirely re-united and cicatrized, there happens an Inflammation and Ulceration in the Place; at other Times, though it be entirely re-united outwardly, but not inwardly, it dilates itself, and starts out of the Bigness of a small Egg, and sometimes more; which we commonly call *Exomphale*, or *Eminence of the Navel.*

Some imagine that when it is thus inflamed and ulcerated, it is because the String has been tied too near the Belly, which causes a great Pain, and afterwards an Inflammation; others say, that Nature being used to void the Urine through that Place, while the Child is in the Womb of his Mother, sends it thither still during the first Days, and causes that Accident by its Acrimony; which Sentiment has not the least Appearance of Reason; for it is impossible that the Urine should flow from the Bladder to the Navel through the *Ouraque*, which is not perforated in a human Fœtus; and let the Ligature of the Navel-string be ever so near the Belly, and so tight, it being a dead Part, so soon as the Child is born, it cannot hurt it, unless the Skin of the Belly, which is very sensible, be tied along with it.

Therefore this *Inflammation* and *starting out* of the Navel-string proceed from that the Child feeling violent Pains in his Belly cries continually, whereby the Umbilick is hindered from re-uniting itself; it can proceed likewise from a violent and frequent Cough, because by the violent Efforts thereof the Blood is forced in to that End of the umbilical Vein which is left, which it keeps always dilated, and happening to be corrupted by its long Sojourning in it, it infallibly causes an Inflammation

to the Navel; and what is tied happening to fall before the Re-union is made, there remains an Ulcery in the Place, which is often followed by a Loſs of Blood, and ſometimes even by Death.

The chief Thing to be obſerved in the Cure of this Malady is, to endeavour to appeaſe the Cough and the Cries of the Child, having Regard to what can be the Cauſe thereof, otherwiſe it would always increaſe; and if he was griped he muſt be eaſed as above preſcribed. If there be an Inflammation of the Navel, a Plaiſter of the *Cerat* of *Galian*, mixed with half *Populeum*, or a ſmall Compreſs dipped in Oil of Roſes, and a little Vinegar, muſt be applied to it: *Unguentum* of Roſes and *Album raſis* mixed together, are alſo very good. If the Navel remains ulcerated after the Ligature is fallen, aſtringent and deſiccative Remedies muſt be applied to it, ſuch as ſmall Pieces of Cloth dipped in Lime-Water, or Plantin-Water, in which ſome Allum has been diſſolved. If the Ulcer be ſmall, nothing but a Pledget of dry Lint ſhould be uſed.

As to the *Eminence of the Navel*, whether it be big or ſmall, the Cure thereof ought not to be undertaken otherwiſe than by the Bandage, and Compreſſes, which muſt be well appropriated to that Uſe, till the Child has acquired a pretty reaſonable Age; when, if the Malady was not cured by the Bandage, the Operation may be attempted; but if in Conſequence of the Inflammation of the Navel, an Impoſthume was formed in it, which cauſes that Eminence, and the Tumour being very big, the Child can never be cured, and infallibly dies of it. For if the Tumour be opened, tho' the Matter will be thereby evacuated, there is great Danger of the Inteſtines coming out along with it, the firſt Time the Child cries after the Operation is made; therefore *Ambroſe Paré* would not have a Surgeon attempt it, for Fear of being accuſed by thoſe who know nothing of the Matter, with having killed the Child; though this Advice of *Paré* is to be followed with a Diſtinction; for if the Impoſthume be ſmall, and the Strength of the Child will allow it, the Operation is to be made, becauſe when there is ſome Hope of Succeſs, let it be ever ſo little, it is beſt to practiſe what the Art commands, than leave the Patient in an imminent Danger of his Life.

As to the *Soreneſs, Redneſs, and Inflammation of the Groins, Buttocks, and Thighs of the Child.*—If the Nurſe does not keep her Child very clean, by changing his Cloaths every Time he has fouled himſelf, his Groins, Buttocks and Thighs will be ſubject to Excoriations, which often degenerate into Inflammations. To avoid which the Nurſe muſt not only change her Child often, but alſo keep thoſe Places very dry, and free from all Sorts of Humidities, and if notwithſtanding her great Care, thoſe Parts, by their being very tender, ſhould happen to be galled, ſhe muſt waſh them with cold Water, which I know to be the moſt ſovereign Remedy in thoſe Caſes; ſome uſe when there is a great Soreneſs, *Album raſis*, or *Pompholix* ſpread on ſmall Pieces of Cloths in Form of a Plaiſter. But when that Accident happens through the exceſſive Heat of the Urine of the Child, his wet Nurſe muſt uſe a cooling Regimen, avoiding all that could contribute towards over-heating her Milk, eſpecially thoſe ſcandalous Cordials ſo much in Vogue at preſent among the fair Sex.

Another Malady to which new-born Children are ſubject, as the *Aphtes*, or *Ulceries*, or *Cankers of their Mouth.*

The *Aphtes* proceed either from the Milk of the Nurſe, who being red-hair'd, or amorous to Exceſs, or addicted to Wine, her Milk can by its Heat and Acrimony ulcerate the Mouth of the Child; or from the Milk being corrupted in the Stomach of the Child, through the too great Debility of that Part, or ſome other Indiſpoſition, in which acquiring an Acrimony inſtead of its being well digeſted, there ariſes from it a viſcous Scurf, which adhering throughout the whole Capacity of the Mouth, generates in it thoſe little *Ulcers* or *Aphtes*.

Some of thoſe *Aphtes* are ſimple, as thoſe cauſed by the ſole Heat of the Milk of the Nurſe, or by the Blood and Humours of the Child, which are a little too much over-heated: Then they are very ſuperficial, and of a ſhort Duration, and eaſily cured; and others are malignant, ſuch as thoſe cauſed by a venereal *Virus*, or thoſe which happen after a malignant Fever, or participate of the Nature of Scurvy, which are putrid, corroſive, and ambulant, and occupy not only the Superficy of the Membrane which lines the Inſide of the Mouth and all the Tongue, but making deep Excoriations, are communicated beſides to all the inward Parts of the Throat, which are the Properties of all thoſe cauſed by the *grand Pox*, which cannot be cured by the common Remedies, but by their Specificks, otherwiſe they would grow worſe every Day, and cauſe at laſt the Child's Death, often too weak to bear the Effects of the Remedies which are proper to ſave his Life.

When thoſe *Aphtes* are ſmall, and without any Malignity, by waſhing the Mouth of the Child with Barley or Plantin-Water, mixed with Honey of Roſes, or a Decoction of the young Buds of the Leaves of Blackberry-Trees, which is a Remedy of my own Invention, and which I know by Experience to be an excellent one, eſpecially if a Spoonful of common Honey be boiled in it, and well ſkimmed, the Nurſe muſt dip a Piece of very ſoft Cloth tied to a Stick, into this Decoction warm, and waſh the Mouth of the Child gently with it; for if ſhe was to go too roughly to work, an Inflammation would happen, which would render the Malady worſe.

If the Ulcers were to participate of ſome Malignity, topick Remedies muſt be uſed, whoſe Operation ſhould be very quick, to correct the bad Quality of the Humour which cauſes them, and hinder them from growing worſe; becauſe as they cannot be left long on thoſe Parts, their Effects and Virtues would be hindered or much diminiſhed by the Humidities of the Mouth, which Remedies muſt be eſcarotick: Therefore thoſe Ulcers muſt be touched with ſome *Second Water*, mixed with Plantin-Water, or with ſome Spirit of Vitriol, taking great Care that the Child ſhould not ſwallow any of it, and the Remedy ought to be much more ſtrong and acrimonious as the Ulcers are deeper and malignant; being cauteriſed thus, by touching them ſimply once or twice, according to their Breadth, Depth, and Corruption (leſt ſome acrimonious Seroſities ſhould diſtil on the Places which are not ulcerated, and into the Child's Throat) his Mouth muſt be waſhed with my Decoction of Buds of Blackberry-Buſhes, and Honey of Roſes, and touched afterwards with Lime-Water; tho' ſeveral prefer to this laſt Operation the cauterizing thoſe Ulcers with ſmall Tents dipped into boiling Oil. But if thoſe Ulcers proceed from a venereal Virus, thoſe Remedies can hinder them from proceeding further, but they cannot be cured without the Specificks I am to mention hereafter.

As to *Children breeding their Teeth with Pain*, and to *their Convulſions.*—Their Teeth which were hidden in the Jaw-Bones, begin commonly to come out, not all at once, but one after another, towards the fifth or ſixth Month, ſometimes ſooner and ſometimes later, piercing the Gums they were covered with. Then becauſe of the exquiſite Senſe of thoſe Parts, Children feel ſuch exceſſive Pains, that a great Number of them, who before had always continued in perfect Health, are in great Danger of their Life, and often die, by reaſon of ſeveral bad Accidents which happen to them at that Time, the Principal whereof are mentioned by *Hippocrates*, *Aphorism.* 25. *l.* 3. 'When, ſays he, the Teeth begin to ſprout 'out in Children, there happens a dangerous Itching of 'the Gums, Convulſions, Looſeneſs, and particularly 'at the coming out of the Eye-Teeth, in thoſe particularly who are very large and fat, and hard bound.' Though the ſame *Hippocrates* ſays in his Book, *De Dentitione*, that all the Children who have Convulſions when they breed their Teeth don't die, and that ſeveral of them recover. He ſays likewiſe, that thoſe who breed them in Winter recover ſooner than at another Time, if they be well taken Care of.

The Eye-Teeth cauſe much more Pain to the Child than all the others, becauſe they have a very deep Root and a more conſiderable ſmall Nerve, which has Communication with that which moves the Eyes; and as *Hippocrates* obſerves, the Children who are very big and have their Belly very hard, are for that Reaſon in a more

a much greater Danger than the others, becauſe the Agony, in thoſe, cauſes a much greater Fluxion of Humours on the ſick Part. The Teeth which come out firſt are the *inciſive*, either becauſe they are ſooner perfect, or becauſe being ſmaller and ſharper they ſooner cut the Gums.

The Signs that a Child is breeding his Teeth are, that his Gums and Cheeks are ſwelled; where he feels a great Heat and an Itching, which makes him put often his Fingers into his Mouth to rub them, and he drivels a great Abundance of Humidities, which the Pains he ſuffers make to overflow his Mouth; the Nurſe in giving him the Breaſt, feeling it much hotter than uſual: He cries almoſt continually, and can have but very little Sleep, and the firſt Points of the Teeth are felt and ſeen through the Gums, which appear thin and whitiſh over them, and are ſwelled and red on the Sides; and if the Teeth have a great Difficulty to come out, or come out too many at once, the Child is in Danger, and if the Accidents which happen then do not ceaſe, they often cauſe his Death.

Regard muſt be had on that Occaſion to two Things; the firſt is, to preſerve the Child from the ſad Accidents which could happen by reaſon of the violent Agony; and the ſecond, to facilitate as ſoon as poſſible the Cutting of the Teeth.

To preſerve the Child from the Accidents he is expoſed to, his Nurſe muſt obſerve a good Regimen to cool and temperate her Milk, leſt the Dentition ſhould be accompanied with a Fever; and to hinder the Humours from flowing in too great Abundance on the inflamed Gums, his Belly ought to be kept open to evacuate them downwards; though this laſt Precaution is almoſt always needleſs, ſince there are but few Children who do not breed their Teeth with a Looſeneſs.

As to facilitating the Cutting of the Teeth, that muſt be done by the Nurſe, who muſt from Time to Time rub the Gums of the Child with her Finger, preſſing moderately upon them, that being thereby rarified, they may be eaſier penetrated, and cut by the Teeth which are ready to come out; to which the Child himſelf can contribute, by giving them to mumble a Piece of Stick Liquorice, or of a ſmall Wax-Candle, which is very proper to ſoften the Gums. The moſt common Thing given to Children on thoſe Occaſions, is a Coral ſet with ſmall Bells, to divert the Child from the Pain he feels then; for one muſt not imagine with a Pack of old Women, that there is any particular Virtue in the Coral, which is of no other uſe in that Caſe but by reaſon of its ſolid even Matter, for the Child preſſing his Gums againſt it to eaſe the Itching he feels in them, he thereby diminiſhes by degrees the Thickneſs thereof, ſo that they are inſenſibly cut by the Teeth underneath. But if all thoſe Means prove inefficacious, by reaſon of the Hardneſs and Thickneſs of the Gums, to hinder the Child from falling into the Accidents he is threatned with, then a ſmall Inciſion muſt be made with a Lancet, on the Gum which is diſpoſed for it.

There are ſeveral other Remedies which ſome Perſons imagine to have a particular Virtue to facilitate the Cutting of Children's Teeth; but as thoſe Virtues are ſo very occult that no Body can account for them, are founded neither on Reaſon nor Experience, and have not the leaſt Relation, nor the leaſt Appearance of Sympathy with the Humours the Teeth are formed of, I will not amuſe myſelf to refute all the nonſenſical and ridiculous Prodigies falſely attributed to thoſe Noſtrums: For can any Body who has the leaſt Notion of the marvellous Structure of the human Body, and of the Production of the ſeveral Parts thereof, be perſuaded (unleſs he has made an entire Divorce with his Reaſon) that there can be any Thing in Nature, which applied outwardly can operate on an inward Part which is at a great Diſtance from it, and between which, and that outward Part it is applied upon, there is not ſo much as a Relation of Conveniency; for has the Anatomy diſcovered yet, in its moſt curious Reſearches, any Relation between the Parts which enter in the Compoſition of the Neck, for Example, and the Teeth? And if there be none, how can thoſe Noſtrums applied on the Neck, influence the Teeth as to facilitate their Cutting? Do they operate by Sympathy, or by Perſpiration? If it be ſaid that they operate by Sympathy, it is the ſame as if it was ſaid that they do not operate at all; for even that Sympathy admitted (which I reject as frivolous, and founded only on the empty Reaſonings of ſome crazy Philoſophers) and which ſhould conſiſt in the Interchangeableneſs of the Corpuſcles which flow continually from the Bodies, between which that Sympathy is pretended to ſubſiſt, which cannot be admitted, without admitting at the ſame Time an uninterrupted Continuity of thoſe reciprocal Corpuſcles; how could ſuch a Continuity ſubſiſt between the outward Part of the Neck and the Teeth? When on the contrary they ſhould make ſeveral Circumvolutions, and meet with almoſt inſeparable Obſtructions, which ſhould abſolutely hinder them from hooking in reciprocally one another. What could beſides put into Motion and ſeparate from their coarſer Particles, the Effluvia, which ſhould flow from thoſe Noſtrums to procure thoſe prodigious Effects? Can it be the natural Heat? Has that Heat Power enough outwardly to operate with ſuch Efficacy? And is that Power attractive and directive? For it ſhould be both, to make the Effluvia of thoſe Noſtrums have the deſired Effect; it ſhould be attractive, to help thoſe Effluvia's to conquer the Obſtacles they would meet with in penetrating the Pores; and directive, to ſend them to the Place of their Deſtination; but far from that Heat being capable to operate outwardly, it is ſo far out of its Center when diſſipated through the Pores of the Body, that it is thereby rendered imbecile and uncapable of operating with the leaſt Efficacy; and likewiſe, far from its being attractive, it is rather repulſive, ſince the greater it is, the more Power it has to expell the Humours through the Pores, which then it renders looſer and wider: As to its directive Faculty, it has no other but that of contributing by accelerating the Circulation of the Blood to a more eaſy Separation of the Humours, and to the Exaltations of the vital Spirits, which it is impoſſible ſhould have any immediate Effect on the Teeth, were even thoſe Corpuſcles to be introduced into the Maſs of the Blood, and carried along with it in its Circulation, which is a ridiculous Problem.

As to the *Convulſions* little Children are ſubject to, they are cauſed either by the Gripes or by the Teeth. If by the Gripes, one muſt remedy to it according to our Preſcriptions for that Malady; and if by the Teeth, the moſt ſalutary Remedy is to open the Gums with a ſmall Biſtory, till the Operator feels with the Point of the Inſtrument the Teeth which are diſpoſed to come out, and to cut an Iſſue behind the Head of Children who have it very big; as likewiſe to keep the Body open of thoſe who are hard bound, abſtaining from giving them Pap for ſome Time. That dangerous Accident can alſo be prevented by bleeding the Child in the Arm when there is Plenitude, giving him ſome purgative Syrup, and anointing the hind Part of his Neck with Oil of white Lillies.

Moſt of the Indiſpoſitions of new-born Children are attended with a Looſeneſs, to which contributes much the Humidity of their Belly, which is natural to them; and likewiſe the Aliments they uſe while they ſuck, which are very liquid and fluid, and conſequently of a quick Evacuation.

That Looſeneſs is often cauſed by their Teeth, whereby all the Humours are ſo much over-heated, that they are then much droughty, wherefore they endeavour to quench their Thirſt by ſucking much more Milk than their Stomach can digeſt, where being corrupted, it never fails to cauſe them a Looſeneſs: It can alſo proceed ſometimes from the Vice of the Milk he ſucks, which is too much heated.

If the Looſeneſs be not accompanied with a Fever, or ſome other Accident, it is not dangerous, becauſe it is an Indiſpoſition agreeable to his Nature, and likewiſe to the Aliments he is fed with. But if notwithſtanding it ſhould continue too long, one muſt remedy to it, leſt the Child, who is of a tender and ſoft Subſtance, very eaſy, if I may uſe the Expreſſion, to be melted, ſhould be too much weakened, by reaſon of a too great Diſſipation of the Spirits, made by a too great Evacuation of the Humours.

Therefore the Child muſt ſuck but little at a Time, that

that his Stomach may the better digeſt the Milk; and be purged with that weak Infuſion of Rhubarb in red Wine, heretofore mention'd, by Means whereof I have ſaved the Life of a Child five Weeks old, who had been given over by all thoſe who had ſeen him. This Remedy alone ſuffices, without torturing the poor Infant with Glyſters, or any other Remedies. To take off Part of the Bitterneſs of that Infuſion, ſome Sugar-candy may be melted in it.

As to the vomiting of new-born Children. — It is an Accident which is more common to them than any other; and is therefore very little minded, unleſs it be too frequent and too violent; in which Caſe it muſt be remedied, for fear it ſhould be attended with dangerous Conſequences.

This *Vomiting* proceeds moſt commonly from Children ſucking much more Milk than their Stomach can bear or digeſt, of which being over-loaded, it muſt be thrown out. That Accident proceeds ſometimes, likewiſe, from the bad Quality of the Milk, or from the Efforts of a violent Cough, or from their Nurſes dancing them too much, or too ſoon after they have ſucked; for by thoſe Motions the Milk being too much agitated in the Stomach, cannot be well digeſted. The Sweetneſs and Warmth of the Milk, contributes alſo much to all thoſe Cauſes.

If the *Vomiting* be too frequent, it muſt be ſtopped, leſt the Child ſhould be much debilitated by ſo great and ſo frequent an Evacuation of his Aliments; and the digeſtive Faculty of the Stomach ſo much impaired, that it could not be eaſily reſtored afterwards.

For the Cure of the *Vomiting*, Regard muſt be had to the Cauſes thereof: For if it proceeds from that the Child ſucks too much, the Nurſe muſt not ſuffer him to do it, that his Stomach may eaſier contain and digeſt what he has ſucked: If it be from the bad Quality of the Milk, the Nurſe muſt be changed: If from a Cough, it muſt be checked, according to the different Cauſes whereby it is excited. Care muſt be taken, likewiſe, that he be not rolled too tight on his Stomach, that it may have the Liberty to extend itſelf according to the Quantity of the Milk it has received; beſides which, if ſome bad Humours were contained in it, it would be proper to purge the Child with the Syrup of *Rhubarb cum Chicor.* and having been thus purged, ſome Syrup of Quinces ſhall be given him to rejoice his little Heart; applying on the Region of his Stomach, Pieces of Cloth dipped in burnt Wine. I have once preſcribed to a Child but ſix Months old, fatigued with a frequent and violent Vomiting, two Drops of Laudanum, which had a marvellous Effect after all other Remedies had been attempted in vain.

As to the Ruptures of little Children. — Not to deviate much from our Intention, which is to obſerve only ſome Particularities relating to the Maladies of new-born Children, I will not attempt to explain all the different Sorts of *Hernies*; but I'll content myſelf with only examining ſlightly, that which moſt commonly happens to Children, which is the Inteſtinale, and is ſometimes compleat in Children, as well as in Men, happening when the Inteſtine falls as far as to the Bottom of the *Scrotum*; and other Times incompleat, when it goes no farther than the Groin. The Rupture may be cauſed likewiſe, though very ſeldom, by the *Epipleon* falling into the *Scrotum*, either alone or together with the Inteſtine.

The moſt frequent Cauſes of the *Hernies* of ſmall Children, are the violent Efforts they make when they cry or cough, to which contributes much the Humidity and Softneſs of their Body, as likewiſe their Belly being rolled too tight, becauſe as it cannot then dilate itſelf in Width, when they happen to cry or cough, it is violently forced downwards, which occaſions thoſe *Hernies* or Ruptures.

This Malady ſhould be remedied ſo ſoon as it is perceived, for the more it is neglected, the more it is difficult to cure; becauſe by the continual falling of the Inteſtine, the Place through which it falls, is ſtill more and more dilated: But if Children are more ſubject to *Ruptures*, than grown Perſons, they are alſo much eaſier cured; becauſe the Re-union of the Parts dilated is made with greater Facility, as well by Reaſon of their being very tender, as becauſe the Inteſtine being reduced and contained in its natural Place, while the Child grows bigger, likewiſe, in Proportion to the other Parts of the Body, and the Place of the Dilatation grows ſtraiter by Degrees, by Means of the Compreſſion of the Bandage applied upon it.

Some are of Opinion, that while Children are in their Swaddling-Cloths, the Cure of the Ruptures which happen to them, is not to be attempted otherwiſe than by the Bandage, which alone, ſay they, is capable to remedy either the compleat, or the incompleat. This Bandage is made of a Band rolled, putting a Compreſs directly on the Place of the Dilatation, having previouſly to it reduced the Inteſtine, and the Epiploon likewiſe, if it was fallen, in their natural Situation. Which to perform, the Child muſt be laid a-croſs the Knees of his Nurſe, his Head pretty low, then with both Hands, the Reduction muſt be made by Degrees, puſhing up gently the Tumour with one Hand, and with the other, placed directly under the Dilatation, reducing the Inteſtines, keeping up with it that Part which has been reduced to hinder it from falling back again, continuing thus till the whole Reduction be perfected; which done, a pretty thick Compreſs muſt be applied on the Place dilated, keeping it up by Means of a Bandage made in the following Manner. The Operator ſhall take a Band rolled of a Breadth and Length proportioned to the Bigneſs of the Body of the Child, round which it muſt make three or four Turns; placing firſt one End of the Band on the Belly of the Child, towards the Side oppoſite to that of the Rupture, carrying the Band afterwards under the Buttock of the Patient, then conducting it by raiſing it upwards over the Compreſs, and from thence under the Reins of the ſame Side, then round the Body: After which it muſt be carried back, as the firſt Time, continuing thus all the other Turns to the End; obſerving always, that the Circumvolutions which paſs over the Groin, be made from downwards upwards, to riſe up better, and pin them all with ſmall Pins on the Compreſs, whereby the Bandage is kept more ſteady.

Note, That I have invented a Mixture, which can contribute to the entire Re-union of the dilated Part in ten or twelve Days, to keep the Inteſtine up, without the Help of a Bandage, which, let it be ever ſo well made, and ſo eaſy, is always very troubleſome to the Child; this Mixture is ſpread on a Kind of Plaiſter, which does not faſten to the Skin; and which produces its Effect in 24 Hours, ſo as to hinder the Inteſtine from falling any more; ſo that the Operator is put but once to the Trouble of reducing the Inteſtine.

Note alſo, That this Accident is ſometimes occaſion'd by the Negligence of Nurſes, in their refuſing the Breaſt to the Child when he wants it, which throws him into violent Fits of crying, and thereby cauſes a Rupture. I was deſired, ſome Years ago, by one Mr. *Clark*, a famous Taylor, in *Cecil-Court*, *St. Martin's Lane*, to viſit a Child he had at Nurſe at *Twickenham*, whom I found afflicted with an uncompleat Rupture, having beſides the whole Capacity of the Scrotum filled with Winds. I attempted the Cure by preſcribing firſt what I judged proper to diſſipate thoſe Winds in the Scrotum; which could not be eaſily effected; for a few Days after I had ſeen the Child, he was taken with a violent Cough, which I was obliged to appeaſe before I could expect to ſucceed on the other Side; but however, after much Care on my Side, I ſucceeded in both, ſo as to be capable to make the Reduction of the Inteſtine, and apply my Remedy; but though it had at firſt the Effect I expected, the Inteſtine fell back again, ſome Weeks after I had left off viſiting the Child, thinking him then quite cured; therefore I was deſired to viſit him anew, and found this Time that this ſecond Accident was cauſed by the Nurſe being far gone with Child, and refuſing the Breaſt to the Child, of which I informed the Father, who being infatuated with the pretended Honeſty of his Nurſe would not believe at firſt, that ſhe was with Child, till being convinced of it afterwards, removed his Child to another Nurſe, where he was far better used, and ſoon after cured of his Indiſpoſition.

Beſides

Besides the true Ruptures above-mentioned, there are others, which cannot be properly called by that Name, because they do not happen by the Fall of any Part, but only by the Distension of the Membranes of the *Scrotum*, and of the Testicles, occasioned by the Matter which has been gather'd in them, either thro' the natural Debility of those Parts, or because they have been contused or pressed in a hard Labour; among which the watery and *windy* happen often; for the fleshy or varicous seldom or never happens in Children.

For the Cure of the watery, called *Hydrocelle*, formed of the Waters contained either in the common or proper Membranes of the Testicles, Remedies must be applied on the Tumour, capable to dissolve the Waters contained therein, or to dissipate the Winds; after which the Parts must be strengthen'd. They must be dissolved with Fomentations of Brandy, or of a Decoction of Camomile, Melilot, Rue, Marjoram, and Fennel, in which Compresses must be dipped to apply on the Part, drying it afterwards with Lime Water, in which some Allum has been dissolved; and after the Resolution and Desiccation of the greatest Part of the Waters, the Parts ought to be strengthen'd by applying on them Compresses dipped in strong red Wine, boiled with red Roses and Allum; having regard always to the Cause of the Hydrocelle, and to that which feeds it. But if the Remedies prove ineffectual, and the Tumour be extremely big, the Aperture thereof must be made for the Evacuation of the Waters, by the single Punction of the Lancet, which must suffice for young Children, who through the Imbecility of their Age, and the Delicacy of their Body, cannot bear another greater Operation for the Cure of the *Hydrocele*: And if even the Tumour was but moderately big, that Operation ought not to be made; for it is often cured and dissipated without any Remedy.

As to the Scab which sometimes covers the Head or the Face, and often both of young Children. — I design to speak here only of the Scab which has no Malignity, caused by the single Superfluity of some Humours, which being only heated, are easily carried to the Head and Face of the Child, where they form humid Pustules, in which those Humours sojourning are corrupted, and degenerate into a Sania, which corrodates and ulcerates afterwards the single Superficy of the Skin, from which it flows, and drying round the Place, grows hard, and forms those Crusts, vulgarly called *Scab*, wherewith the Head and Face of some Children are cover'd all over.

Some are of Opinion, that this Scab, as well as the Meazles and the Small Pox, proceeds often from some Superfluities, and from the Residue of the menstrual Blood, which the Child evacuates after he is born, as an Impurity. But it is often caused by the Child sucking more Milk than he can digest, which is corrupted in the Stomach; as likewise by the bad Quality of the Milk, which generates a great Quantity of viscous and corrupted Humours which cause that Scab; which happens oftener to the Head and Face; because those Parts abound more in Humidities, particularly in Children, than any other of the Body.

If the Scabs be superficial, humid, and of a yellowish Colour, and if when risen, the Skin appears red, and without being deeply ulcerated, they are not malignant.

The Course of those Humours is by no Means to be stopped by Repercutives, because the Evacuation thereof is a Preservative against several other Maladies; and we most commonly see, that those whose Body has been very well purged of those Superfluities, are very healthy afterwards, therefore all that must be done in that Case, is to hinder the Child from generating any more bad Humours, by giving him a very wholesome Nurse, keeping his Body always open, and purging him, if it be necessary, with some Syrup of Roses, or of Chicory. For fear the Sania, stopped under the Scabs, happening to gnaw and corrodate the Skin, should make some deep Ulcers, it is very proper to carry off those Scabs to facilitate the Evacuation of that Sania; which is done by rubbing the Scabs with fresh Butter, to humect them, or with a Liniment of Oil of sweet Almonds; after which must be applied on them Cabbage Leaves, changing them three or four Times a Day, to avoid the Stink and Corruption of the Humidities those Things draw. These Remedies are to be continued till the Child be entirely cured. All that Time the Child's Hands must be tied, for fear that happening to scratch himself, because of the great Itching he then feels, he should excite an Inflammation in those Parts, by Means whereof a greater Quantity of Humours would flow.

Note, That my Method, in those Cases, is to purge often the Child, with gentle Purgatives, without fatiguing him too much, especially with Whey, in which has been melted some Pulp of Cassia; and when I perceive that the Scabs begin to dry, I have them cover'd over with a Piece of soft Cloth, dipped in my Stiptick, which must be dipped a-fresh every other Day, continuing thus the same Process for ten or twelve Days, at the End thereof the whole Cap will fall entirely off, and the Head or Face appear as clean as can be, without any Scar or Soreness remaining behind. This I know by Experience. Which Remedy is quicker in its Operation, surer in its Efficacy, than any of those above-mention'd; and not at all offensive.

As to the Small Pox and Meazles. — The *Small Pox* is a contagious Malady incident to Children; and likewise (though very seldom) to Persons advanced in Years, in which is seen a great Quantity of Pustules all semblable, to arise on the Superficies of the Skin, tending to Suppuration, and attended with a Fever.

The Origin of the *Small Pox* is uncertain: We find no mention of it before the *Arab* Physicians. It bears a great Resemblance to the Meazles; so that for the two or three first Days, it is difficult to distinguish them: They both arise from an impure Blood and other Humours which Nature expels, as in the universal Emonctory, to purge the whole Body of that Corruption: With this Difference, that in the *Small Pox* the peccant Matter is more thick and viscid; in the *Meazles* more subtile, hot, and bilious; and neither of them are known to return after having passed them once.

Dolæus says, that the Cause of the *Small Pox* is brought into the World with us, and lies hid, till it finds an Opportunity of bursting forth. He adds, that there is scarce one in many Thousands, that escapes it all his Life.

Dr. *Drake* observes, that the *Small Pox* not being founded in any permanent habitual Disposition, has its Period within a limited Time necessary for the Extrusion of the peccant Matter out of the Pores of the Skin. For the salt Serum of the Blood being in this Disease, by an accidental Fever, thrown out in great Quantities on the Glands of the Skin, acts much after the Manner of *Lepra Arabum*; but when the Blood is despumated, the Scales dry and fall off. So that he thinks it would be no great Impropriety to call the *Small Pox*, a temporary, critical *Lepra*.

The *Small Pox* are of two Kinds: The *distinct*, where the Pustules stand apart; and the *confluent*, where they run into one continued Cake.

The *distinct* or *regular Small Pox*, *Sydenham* observes, begins with a Shivering and Chillness, which is succeeded by an intense Heat, violent Pain of the Head and Back, Vomiting, Drowsiness, especially in Children, and sometimes epileptick Fits; which shew the *Pox* to be ready to burst forth, and that they will be mild; Weariness, and Pains in the Reins and Loins, Difficulty of Respiration, frequent Gapings, Sneezings, Prurit, and Itching of the Nose, Redness of the Eyes, *&c.*

The Eruptions are usually on the fourth Day; upon which the feverish Symptoms vanish, except that Adults are prone to sweat. The Pustules first appear in the Face, then the Neck, *&c.* They are at first reddish, by Degrees swell and grow whiter: On the eleventh Day the Swelling and Inflammation of the Face vanish, and the Pustules begin to wither.

The Symptoms of the *distinct Small Pox*, as enumerated by Dr. *Shaw*, are, 1. A Pain in the Head, Back, and Scrobiculum Cordis. 2. A Fever which decreases as the Eruption increases, with Redness of the Eyes. 3. Nausea, and Reachings. 4. Little reddish Spots, or beginning Pustules appearing on the Neck, Face, Breast, *&c.* about the third or fourth Day inclusive from the Beginning of the Illness. 5. Restlessness. 6. About

the

the ſeventh or eighth Day, other little red Spots uſually appear between the growing Puſtules. 7. The Puſtules about the ninth Day are at their State; being then generally as big as a large Pea, the Matter in them well concocted of a whitiſh Colour inclined to yellow; at which Time, 8. The Patient is uſually light-headed, and feveriſh. 9. About the tenth Day the Puſtules begin to dry on the Face. 10. And about the fifteenth, they appear ſhrunk, and begin to ſcale off; and now the Danger is eſteemed to be over.

Note, That the diſtinct Kind is here conſider'd unattended with a Looſeneſs, and other Symptoms, which ſometimes happen in it, as well as in the other.

Note alſo, That when this Sort of *Small Pox* is accompanied but with a ſimple Emotion of Fever excited from the ſingle Ebullition of Blood and Humours; which ceaſes the very firſt Days, without any dangerous Accidents, growing ripe, ſuppurating, and being cured eaſily: The Puſtules thereof are riſen in Points, and their Matter white, even, and well concocted, the Children recover eaſily, and ſoon, when they are well treated. But there is another Sort which is totally malignant, and is that which proceeds from ſome contagious and peſtilential Humour, the Puſtules thereof are flat, brown, dark, and livid, having ſmall, black Spots in their Middle; they come out ſlowly, and do not ſuppurate, or if they do, the Suppuration is bad, ſanious, ſerous, and accompanied with dangerous Accidents, *viz.* a malignant Fever, Phrenzy, Difficulty of Reſpiration, Syncop, Dyſenteria, and others, which very often cauſe Death, or at leaſt malignant Ulceries, Caries of the Bones, Loſs of Sight, and a great Deformity in the Face; or ſome Lameneſs, according to the Parts or Members of the Body, where thoſe vicious Humours are carried and ſtopped.

The *confluent*, or *flux Small Pox*, have the ſame Symptoms with the *diſtinct*, only in a more violent Degree; they uſually come out on the third Day, not ſeparate as in the *diſtinct Kind*, but ſpread into one another, and at length appear all alike one whitiſh Pellicle over the whole Skin; after the eighth Day the Pellicle darkens. In Adults this Kind is attended with a Salivation; in Children with a Diarrhæa. The Salivation frequently ſucceeds immediately after the Eruption, the Diarrhæa later.

The Symptoms of the *confluent* Kind, according to Dr. *Shaw*, are, 1. Violent Pain in the Head, Back, and Scrobiculum cordis. 2. Nauſea and Reaching, with a Fever, which rather increaſes than decreaſes after the Eruption. 3. In Children a Diarrhæa, which uſually precedes the Eruption, and attends the Diſtemper throughout. 4. A Ptyaliſmus in Adults, and but ſeldom a Diarrhæa. 5. Deliria, Convulſions, Hoarſeneſs, Difficulty of Breathing, Fixedneſs of the Eyes, and Reſtleſsneſs. 6. The Spots are here more red, thick, and cloſe, than in the diſtinct; and the Species between them more inflamed and ſwelled; Purple or livid Spots alſo often appear in thoſe Spaces, whence the *Small Pox with Purples*. At other Times in theſe Spaces, or on the Heads of the Eruptions, appear Bladders full of clear Water, vulgarly called the *White Hives*. Laſtly, theſe Eruptions are frequently depreſſed in the Middle, and there turn black; whence the *black Small Pox*.

The Eruptions often riſe and ſink in the Progreſs of the Diſtemper; they uſually firſt appear about the fourth or fifth Day, and come to their State about the fifteenth.

Morton divides the Diſeaſe into four Stages: The *Apparatus* or Preparation, from the Time of the firſt Infection to the Eruption of the Puſtules. The *Eruption* which comprehends three States, *Eruption*, *Maturation*, and *Declenſion*, wherein the Puſtules are firſt incruſted with a Scab, then wither and dry off.

Note, That the Prognoſtick of the *Small Pox* is drawn from the different Cauſe thereof; for if the Fever be ſlight, and diminiſhes in Proportion as the Puſtules come out, if thoſe Puſtules be not in too great Quantity, and grow ripe and white in a ſhort Time, it is a good Sign. But if the Fever be ſtrong at the Beginning, and increaſes daily, with a Difficulty of Breathing, and other Accidents in Proportion as the Puſtules come out, if they be in great Numbers, black, flat, dry, and without Suppuration, it is a Sign of Death. But Children are not in ſo great Danger in this Malady as the Adults, either becauſe it is agreeable to their Age and Nature, or becauſe having their Skin more tender, the Matter is eaſier expelled through it, than through that of Perſons advanced in Years, who have it harder, and the Pores thereof leſs open.

As to the *Meaſles*, the Eruptions uſually appear about the fourth Day like Flea-bites over the whole Body; but thicker and redder, and with greater Inflammation, than thoſe of the *Small Pox*, and vaniſh in four or ſix Days after the Appearance, being, when at the Height, not larger than Pins Heads.

The *Meaſles* are more ſickly than dangerous, though it often inclines to Conſumptions by a Cough, which it leaves behind.

Note, That ſeveral very learned Men of all Ages, ever ſince the Diſcovery of the *Small Pox*, have attempted to account for its viſiting a Perſon ſcarce above once, though none of them have been capable to do it to the entire Satisfaction of the learned World. Dr. *Drake* does it from the Alteration made in the Skin by that Diſeaſe: For, ſays he, the Diſtenſion the Glands and Pores of the Skin ſuffer therein is ſo great, that they ſcarce ever recover their Tone again, ſo as to be able any more to arreſt the Matter in its Courſe outwards long enough, or in Quantity enough, to create thoſe ulcerous Puſtules, which are the Diagnoſticks of the Diſeaſe. For though the ſame feveriſh Diſpoſition ſhould ariſe again in the Blood, yet the Paſſages through the Skin being more open, the Matter will never be ſtopped, ſo as to exhibit the Appearance of the *Small Pox*. Accordingly we find, that in Perſons ſeverely handled with this Diſeaſe, the Face (which is ordinarily the fouleſt from the extraordinary Obſtruction the Matter meets with by the great Conſtipation of the Pores) ſeldom returns to its former Dimenſions; which Enlargement he accounts for from the Dilatation of thoſe Glands and Pores of the Skin, not from any Augmentation of the Subſtance itſelf. He pretends, that what confirms this Hypotheſis is, that Nurſes, *&c.* who attend Perſons ſick of the *Small Pox*, are frequently a little affected with it, and have now and then two or three Eruptions; that they have no more, ſeems to follow from the free Courſe of the Matter through the Skin. That with this too agrees that conſtant Obſervation, that People of coarſe Skins, in whom the Pores are largeſt, are always more favourably treated by this Diſtemper than others; and that it conſtantly leaves fine Skins coarſer than it found them.

Some are of Opinion, that this Solution would ſeem more probable, were it not that ſome have ſo very few of thoſe Eruptions, perhaps not above twenty or thirty, which cannot be fairly allowed ſo far to enlarge the Pores of the Skin as to prevent any Return.

Others hold, that in a genuine Eruption the Cauſe of the Diſtemper is ſo far evacuated, as ſcarce to leave a Poſſibility of a Return; and that if Part of the original Cauſe did remain behind, it might, when the Air favours it, or when by other Accidents it is ſecreted from the Blood, appear in the Form of Eruptions, and ſo prove to be the *Meaſles*, *Chicken-Pox*, &c. To which it may be objected, that theſe laſt mentioned often happen before the *Small Pox*; but it is anſwered, that whatever be the Cauſe of the *Small Pox*, the ſeparating Power muſt be in ſuch a determined Proportion, or it will fail to cauſe a regular *Small Pox*, and ſo acting proportionably, may produce any of the other Diſtempers juſt mentioned.

Note, alſo, That my own Sentiment on this Subject is, that as I really believe that the original Cauſe of the *Small Pox*, is an exceſſive Fermentation of the whole Maſs of the Blood, whereby it endeavours to unburthen itſelf of all the Impurities the Child has contracted in the Womb, and brought along with him into the World, excited to it by the Intromiſſion of

the Air necessary to accelerate its Circulation, which Air acts in a different Manner on the Humours which compose the Substance of the Blood, according to the different Qualities it acquires by the Changes of the Seasons, which are subject to as many Vicissitudes as all other sublunary Things: Therefore when the Air is impregnated with a greater Abundance of acid Particles in one Season than in another, meeting then with the alkine ones of the Blood, it consequently causes a greater Fermentation in the whole Mass, whereby all the Impurities it is charged withal, are impelled towards the Superficy of the whole Body, and crowding into the Pores force their Way through, till meeting with the outward Skin, which obstruct their Passage, they raise it up in Pustules, where by their continued Fermentation they extend still more and more, till the Points of their Ferment be blunted by the great Abundance of the viscous and tenacious Matter, whereby it is over-powered, they acquire a Sort of Rest, which we call *Maturation* of the Matter; and as the Blood has very seldom so much Impurities during the whole Course of our Life, as it has in the Beginning, being then loaded with those it has brought from the Womb, together with the other it has contracted since; that excessive Fermentation happens ordinarily at that Time, and when thereby it has been purged of all those Impurities, it is not surprising then if that extraordinary Phænomenon happens but once during the whole Course of one's Life; all the other Fermentations which happen afterwards being not attended with the same surprising Effects, since they serve only to purge the Blood of its own Impurities, which is done by means of the natural Evacuations; and if it happens that Persons die without having been ever afflicted with the *Small Pox*, it is because their Constitution was so strong as to force those Impurities to follow the Course of the common Evacuations; for the Blood must be totally purified soon or late of those Impurities it has extracted in the Matrice, one Way or other; which is the Reason why some have the *Small Pox* but when they are advanced in Years, which is occasioned both by the Weakness of their Constitution, uncapable to force those Impurities to take another Course, and by the Quality of the Air mixed with the Blood.

There is also another cutaneous Disease frequent in Children, called in *England* the *Chicken Pox*, wherein the Skin is covered with Pustules like those of the *Small Pox* as to Figure and Magnitude; and only distinguishable therefrom in that those of the *Small Pox* appear with a Redness and Inflammation, and those of the *Chicken Pox* whiter, resembling Vesiculæ full of a scyrrhous Humour, which in three Days Time burst, and dry away without any Danger, and usually without any Fever.

The *Chicken Pox* and *Swine Pox*, seem to be the *Small Pox* in a less Degree, though they sometimes precede, and sometimes succeed the *Small Pox*. The Pustules appear to be of the same Kind; only in the *Swine Pox* they are much larger, and in the *Chicken Pox* sometimes less than in the *Small Pox*. There commonly appear five or six, sometimes twenty or thirty on the Face, and but very few on the Body.

The Patient is very little indisposed, either before, at, or after their Appearance, though the sudden sinking of them often causes some Disorder; but it is presently relieved by a little Sack and Saffron, or a Dose of Treacle-Water.

Grown Persons seldom keep within Doors for either; and upon that Account the Eruptions may continue the longer, because the cold Air is supposed to hinder their ripening, so that it is sometimes three Weeks or a Month before they totally disappear.

Dr. *Freind*, Dr. *Cade*, &c. recommend Purging and Bleeding, after an imperfect Crisis of the *Small Pox*, i. e. where the Fever remains after the Pustules decline; many oppose it. *Alsabaravius*, in the first Stage of the Small Pox, prescribes Bleeding even to a Swoon, and great Quantity of cold Water to be drank. In the malignant Small Pox, Dr. *Lister* found the Blood when cold, excessively tender and friable, so as the softest Feather would easily divide its Globules. *Etemuller* says, there is nothing to be more regarded than the Breath and Voice; where these are good it is an excellent Sign. He adds, that Horse-dung is an admirable Medicine, in that it promotes a Sweat, and saves the Throat.

Notwithstanding all these different Sentiments, mine is, that the Cure of the *Small Pox* depends chiefly on the Strength of Nature, who endeavours to expell those malignant Humours; therefore it must be help'd to conquer them as much as possible, and be strengthned, that it may succeed in the Task it undertakes; taking a particular Care not to divert it from its Operation, by any bleeding out of Season, or any other Remedy improperly applied.

The Patient must observe a good Regimen, abstaining from solid Aliments, and using none but liquid ones, such as Broth made of Veal and Chicken, Jelly, *&c.* his Drink should be a Ptisane made of *French* Barley and Raisins; if he be at the Breast, he must eat no Pap during the whole Time, nor be carried in the Air, but he must be kept in a close Room, neither too hot nor too cold; for a too great Heat weakens the Child extremely, by making a too great Resolution and Dissipation of the Spirits; and the cold Air pushes back the Humours into the Body, and hinders the *Pox* from coming out. He ought to sleep moderately, that thereby the Humours being better concocted and digested, the coming out of the Pustules may be facilitated: his Body should be kept moderately open, by gentle Glysters for the Evacuation of the Excrements, in case they were detained too long in the Intestines.

But when the *Small Pox* is accompanied at the Beginning with a great Fever, a Difficulty of Breathing, and other Accidents, the principal Remedy is Bleeding, tho' several, who know nothing of the Matter, will not suffer it, imagining falsly that it hinders the Pox from coming out; and when Children who have been let Blood happen to die, though it be through the malignity of the Distemper, they attribute the Cause thereof to Bleeding; but it is certain, that it is the best Remedy in the first Days of that Malady, for thereby all the Humours are cooled, and the Plenitude thereof being evacuated, Nature governs, and conquers better what remains. As to Purgatives, they are not to be used at the Beginning, for Fear, that by putting the Humours in too great a Ferment, Nature should be disturbed in its Separation: But they must be administered towards the End, to evacuate what may be left of Impurities.

During the whole Time, the Patient must be given all that is capable to rejoice his Heart, strengthen his Stomach, and resist to the Putrefaction of the Humours, *viz.* Orange-Juice, Syrups of Lemons and Pomegranates, mixed with his Dyet-drink, or a little Wine and Water, which is the best of all Cardiacks, if there is no great Fever; but if he be a Child at the Breast, Milk alone must suffice him for all.

As to what relates to Remedies applied outwards, that the Pustules may ripen with more Facility, as soon as they begin to appear, they should be all anointed, and particularly those of the Face, with Oil of Sweet Almonds, with a Feather dipped in it; some mix Cream with it, and others use only Fresh Butter. And when the Pustules are very ripe, which is known by their Whiteness, and the Itching, which ordinarily happens about the ninth Day, the biggest may be pierced to evacuate the Matter, lest by its sojourning too long it should ulcerate and corrodate too deeply the Parts; this must be done with a Gold or Silver Needle, or in cutting them with the End of Scissars; anointing the Face afterwards to dry them, with a Liniment made of Cream mixed with Chalk, continuing this Remedy till the Scabs be all fallen, and renewing it every Day, Morning and Evening.

To hinder the *Small Pox* from causing a too great Fluxion on the Eye, it is proper to use at first some cooling Remedy, as of Rose and Plantin-Waters mixed together, wherewith the Eyes are bathed from Time to Time. The Milk of the Nurse is also very good to appease the Pain of the Eyes; Care must be taken likewise from Time to Time, to unstop the Nose of the Child with small Tents, and to soften his Throat,

which

which is always worse, he may drink some Syrup of Violets mixed with his Dyet-drink, which I know by Experience to be of great Use in that Case; helping the Expectoration of the Phlegms which stick to it, by means of that of Lemon or of Pomegranate; but Milk alone suffices for a Child that sucks.

Note, That the most innocent Remedies, when the *Small Pox* is favourable, are best in that Malady; for in that Case I am contented to prescribe a good Regimen, without any of those Compositions, Powders, or other Repopees, which are of no other Use than to render the Symptoms worse, and expose the Patient to several Accidents, which otherwise he had avoided.

Note, also, That of late Years a Practice has prevailed here in *England* (which in the *Roman* Catholick Countries is condemned as a criminal Presumption, and injurious to the Divine Providence) of inoculating, or ingrafting the *Small Pox*; which is performed in the following Manner.—After the Body is disposed and prepared with proper Dyets and Evacuations, two small Incisions are made, one in the muscular Part of the Arm, about the Place where an Issue is usually cut, and the other in the Leg of the opposite Side; then being provided with a small Quantity, as a Drop or less of well concocted variolous Matter, chosen from the distinct or best Sort of Pustules, before the Turn of the Distemper, and imbibed by two small Dossils of Lint; these are immediately put into the Incisions whilst the Matter remains warm, and are kept on by a proper Bandage: In a Day or two the Bandages are open'd and the Lint thrown away, and only Colewort-Leaf applied over the Incisions; this Dressing is continued daily. The Incisions usually grow sore, inflame, and enlarge of themselves, and discharge Matter more plentifully as the Distemper rises. The Eruptions generally appear within eight or ten Days after the Operation; during which Time the Patient is not confined, or obliged to observe a very strict Regimen. Those who approve this Practice pretend that it is very beneficial, because the most proper Age, the most favourable Season of the Year, most regular Method of Preparation, and all possible Precautions may here be used according to the Wishes of the Patient, his Parents, and Physician; Advantages impossible to be had, say they, when the Distemper is caught in the natural Way. They pretend further, that it has been almost constantly observed, that the best Sort of *Small Pox* is hereby occasioned; that the Eruptions are few, the Symptoms light, the Danger next to none, the Recovery easy, and that the Patient is equally secured from this Distemper for the future, as he would be by having gone through it in the natural Manner; which is not my Sentiment, for though the *Inoculation of the Small Pox* seems entirely agreeable to my System of the original Cause thereof (*viz.* a general and excessive Fermentation of the Humours of the Body, which ordinarily happens once, since that variolous Matter introduced into the Body by means of the Incisions, may be considered as a Leaven which excites that Fermentation) it is notwithstanding a Sort of Presumption to violate Nature in its Operations, by putting the Humours into a Ferment, when it is not yet disposed to it, and consequently put the Life of the Patient in the most imminent Danger, at a Time which the divine Providence seemed not to have yet appointed for it. That Leaven besides, thus introduced, though it was of a laudable Consistence in the Body where it was naturally produced, may change Qualities in another where it is artificially introduced, and produce a quite different Effect, either by reason of the different Constitution, or because the Humours are otherwise disposed; as all Stomachs do not digest equally well the best Aliments, whatever Precautions may be used to dispose the Tone thereof towards it; therefore it is not surprising if for one Child who recovers by this criminal Practice, ten at least are killed; which is perhaps the Reason that we have not heard of late so much of inoculating for the *Small Pox*, as we did formerly. The *Sorbonne* at *Paris* has fulminated this Practice as criminal, which is perhaps one of the principal Reasons it has been so much in Vogue here.

If the Small Pox be a contagious Malady, it is not ordinarily so, but with regard to Children, for it seldom happens to Adults by Frequentation; but it is not so of the *Grand Pox*, whose Venom is so contagious and catching, that one Child infected with it, is capable to communicate it to whole Generations, both old and young.

Those who have that Distemper so young, have either brought it into the World along with them, having contracted it in the Womb of their Mother; which is discovered by their being born with Pustules and Ulcers in several Parts of their Body, and particularly on their Belly, towards the Fundament, and Inside of the Thighs, and likewise on the Head; or have contracted it since, by taking it from their Nurse; for then the first Impressions will appear towards the Mouth of the Child, where Ulcers will grow, because of the Acrimony of the bad Milk he sucks, which being his common Food, will infallibly communicate that Venom to all the Parts of his Body.—It must be observed, notwithstanding, that several Children who suck a Nurse much overheated, are seen, for that Cause alone, to have several Pustules on their Buttocks, and Inside of their Thighs, which renders the Nurse suspected of having the venereal Disease; but it may be easily judged that those Pustules, though large and risen, are simple, and without Malignity, if they be not accompanied with any other Accident; in which Case, those Pustules are cured by only giving the Child to a wholsomer Nurse.

It is very difficult to cure a Child born with the venereal Disease; and they almost always die some time afterwards; because their whole Substance cannot be restored, having had for Foundation so bad a Principle as the Blood of their Mother infected with such a Venom, of which they have been conceived, formed, and fed; but with regard to those who have taken it from their Nurse only, they are not incurable; because the Venom of the bad Milk, being not introduced presently with the whole Substance of the Milk into the Vessels of the Body of the Child, does not cause so great Ravages there, in this, as in the other Case; for it is then but the purest of that pocky Milk, or, to speak better, the less impure, which having been changed into Chyle in the Stomach, and purged through the Intestines of the greatest Part of its Excrements, can, by mixing with the Blood, alterate and corrupt it, by the bad Quality it retains still, notwithstanding the different Preparations it has received. But, however, the Child who has taken the Distemper from his Nurse, will never be cured while he sucks her, because her Milk is always infected with that Venom; and the worst is that in giving him another, (as it must be done to cure him) it is a great Hazard if he does not communicate to her that contagious Malady.

It may be said, in general, that the Cure of the venereal Disease is very difficult in all Children at the Breast; because through the Weakness of their Age they cannot take, then, nor bear, without great Danger of their Life, the necessary Remedies; therefore it could be wished that by a palliative Cure, the true one could be deferred till they be three or four Years old; but as several of those in that deplorable Condition perish before they be only a Year old, because that cruel Distemper goes always increasing, and the Accidents thereof make a greater Impression on their Body, because of the Tenderness and Delicacy thereof, than on that of those more advanced in Years, one's obliged, notwithstanding, at that Time, to undertake the Cure thereof, though the Child be still at the Breast: Which though a very dangerous Undertaking, a Surgeon is obliged to determine himself to it, when there is no Appearance to save the Child otherwise: Therefore he must proceed in the following Manner.

The first Thing to be done is to change the Nurse, when infected with the same Venom, to give him a very wholsome one; and for fear she should contract the same Distemper, she must wash her Nipple, after the Child has sucked, with Wine; and be purged, from Time

Time to Time, to keep her Body clean, and less susceptible of the Infection.

But often those Children thus afflicted, are so unhappy, that few Nurses will expose themselves, by giving them the Breast, to the Danger of catching that Distemper; in which Case one should be chosen with so great Abundance of Milk, as to be easily squirted into the Mouth of the Child; or having milked it into a Glass, to give it him afterwards, either in a Boat, Spoon, &c. but the surest Means is to make him suck a young Goat.

As for the Child, it is certain, that he'll never be cured of a confirmed Pox, but by the Use of Remedies, in the Composition thereof Mercury enters. Therefore after he has been let Blood, and purged with Syrup of Roses, or Chicory, his Pustules and Ulcers only, must be slightly anointed (if his Strength will allow it) with Unguentum of Mercury, and this Unction being reiterated by Degrees, a Salivation will be provoked, which ought to be almost insensible, for fear the Humours being thrown into a too great Motion, and carried with too much Impetuosity towards the Mouth, should make it swell to Excess, and cause in it malignant Ulcers, which would hinder him from sucking. Therefore the Unguentum should be but slightly charged with Mercury; for the Cure ought not to be precipitated. Which to do, after a slight Friction or two to the utmost, the Surgeon must abstain from it for five or six Days, to discover to what Degree the Child is moved thereby; and then, by the Effects of the first, one may easily judge if it be necessary to reiterate them, and in what Dose, which cannot be easily described; because there is as much Difference in Children's Constitutions, as in those of Men.

One may, likewise, instead of Frictions, or with them, wrap the Child in Blankets, perfumed slightly with Mercury, and even give him some Grains of *Mercurius Dulcis*, mixed with his Pap; and as to the Ulcers of his Mouth, the Nurse must wash them with Barley-Water, and Agrimony, mixing with it a little Honey of Roses, or Syrup of Wormwood, with white Wine, cleansing often therewith the Spittle which gathers in it. To evacuate it with more Facility, he must lie on his Side, and not on his Back, for fear that slimy Matter falling on his Lungs, or in the Stomach, should suffocate him. He must be kept very warm, and not be carried in the Air, watching carefully the Effect of the Remedy, which must be left to the Direction of an experienced Surgeon.

The common Manner of making the Unguentum, is to take half an Ounce of Mercury, which ought to be cleansed well of its Dirt, by making it run several Times through a Piece of Shamoy, after which it must be stirred in a Mortar, with four Ounces of Axonge of Pork, so much, and so long, that it may be well incorporated. Two Drachms of that Axonge must be taken for each Friction; and more or less according as the Child appears strong, and disposed to be moved.

As to the Manner to hinder Children being squint-ey'd, awry, crooked, and lame. The Body of young Children, by Reason of its Tenderness, is like soft Wax, or a young Tree, to which one may easily give what Figure one pleases at first; therefore particular Care must be taken, at that Time, that the good Conformation of their Members be not vitiated, through Negligence; or when even it is vitiated, it may be reduced into its natural State, through a necessary Care.

Therefore to hinder the Child from being squint-ey'd, he must have a Nurse which has no Irregularities or Disorders in her Eyes, lest if she had any, he should, by being obliged to look continually at her, follow her Example. His Cradle also should be always situated in such a Manner (as we have already observed elsewhere) that while he lies, he may see directly the Light; for fear that if he was side-wise, he should turn continually his Eyes towards the Place, whereby he would be in great Danger of becoming squint-ey'd.

Note, That *Paul Eginette* and *Paré* pretend, that the Sight of a squint-ey'd Child can be rectified, by putting a Mask on his Face, with only two small Holes, straight against his Eyes, through which he may see; whereby perceiving no other Light but through those Holes, he'll be obliged to keep his Eyes fixed towards that Place, whereby they'll be strengthen'd in a direct Situation, and leave off, by Degrees, the bad Habit they had contracted of looking side-wise. This Advice seems good in Appearance, but several are of Opinion, that the Use of that Mask would be troublesome to the Child.

To hinder a Child from growing awry, crooked, or lame, the Child must be swathed very straight, his Arms, and Legs equally extended, rolling him sometimes on one Side, and sometimes on the other; for fear that by rolling him always in the same Manner, his Parts should take a bad Form. He must be laid in his Cradle directly on his Back, without being bent, but be supported every where; and when his Nurse holds him in her Arms, she must carry him some time in one, and some time in the other; for in pressing his Legs against her always on the same Side, she would run the Risk of bending them.

When those Parts shall have some bad Conformation, they must be mended with Bands and Compresses, applied on the Places where they are wanted, to keep them in a right State, while the Child is in his Swaddling-Cloaths: But I condemn much the Practice of making him wear *small Boots* when he is bigger; for I have seen Children, whose Legs had certainly grown very straight with Age, and in Proportion as their Strength had increased, have them monstrously deform'd, by having wore those Sorts of Boots.

When the Breast, or the Back-bone are deform'd, that Vice must be remedied, if possible, or at least, hinder'd from increasing, or the Imperfection hid by padding the Cloaths of the Child, in the Places where the Surgeon shall judge proper, to rectify the ill conformed Parts, and give them a better Figure.

Note, That so far I have treated of the most common Maladies incident to Children; and that it is not necessary to make in this Place a more ample Description thereof; and for the others I have not mention'd as they happen to young and old indifferently; they have nothing particular with Regard to Children, either for their Knowledge, or their Cure, unless it be by Reason of the Tenderness, and Delicacy of their Body; therefore I'll terminate this Treatise by discovering the *Qualities necessary in the Choice of a good Nurse.*

The *Qualities necessary to a good Nurse*, are ordinarily taken from her Age, from the Time and Manner she was deliver'd, from the Constitution of all the Parts of her Body, and particularly of her Breasts, from the Nature of her Milk, and lastly from her good Conduct.

As to her Age, the most convenient is from twenty-five to thirty-five; because during that Space of Time, a Woman is more wholesome, strong, and vigorous: She is not so proper under twenty-five, because her Body having not yet acquired then all its Dimensions, cannot be so robust; and above thirty-five, having not so great Abundance of Blood, she has not Milk enough to feed the Child; tho' some Women are pretty good Nurses at twenty, and others as far as forty, but very seldom above and under those Ages.

For the Time and Manner in which she is deliver'd, some are of Opinion, that she must have been deliver'd five or six Weeks before she suckles a Child, that her Milk may be entirely purified; because then her Body is purged of all the Impurities which follow the Delivery; but there should not be more than three or four Months, that one may not be obliged to give him another; neither is it to be after an Abortion, but she must have been deliver'd at Term; and some will have it, that it should be of a strong healthy Boy; which is a Sign of a good Constitution; who should be her second or third Child, that she may be well skill'd in the Manner of governing her Child. But in my Opinion, a new Milk of twelve or fifteen Days is preferable to any other.

But a good Constitution is the principal Quality of a Nurse, and on which all the others depend. Therefore she must be very healthy, without being subject to any Malady; born of Parents who were not subject to the Stone or Gravel, nor to the King's Evil, Epilepsy, or some other hereditary Malady; she should not have the

least

leaſt Spot on her Body, nor even be ſuſpected of the Venereal Diſeaſe; without Scab, Itch, or any other Imperfection of that Nature: She muſt be robuſt, and of a moderate Height, neither too little, nor too tall, too fat, nor too lean; of a ſanguine Complexion; and not ſubject to have her Menſes while ſhe ſuckles, which would be a Sign that her Blood is over-heated; nor to the Whites, becauſe thoſe Superfluities are an Indication of a bad Conſtitution. She ought not to be red-hair'd, nor freckled; but ſhe ſhould be black or brown; ſhe ſhould be well ſhaped, clean in her Cloaths, and handſome, having a briſk Eye, and ſtraight Sight, wholeſome and white Teeth, without any of them rotten, for fear her Mouth ſhould have a bad Smell, for as ſhe kiſſes often her Child, ſhe would infect his Lungs, by making him breathe her ſtinking and corrupt Breath. Her Breaſts muſt be ample enough to contain a ſufficient Quantity of Milk, but not large to Exceſs; whole, and without Cicatrices, proceeding from Impoſthumes; moderately firm and fleſhy, not flabby, nor hanging down; that the natural Heat may be ſtronger. The Cheſt of a Nurſe muſt be large, that the Milk may have more Space, to be well prepar'd and digeſted, and becauſe a broad Cheſt, denotes Abundance of natural Warmth. As to the Nipples, they muſt be well ſhaped, neither too big, nor too hard, nor callous, nor too deep in the Breaſt; but they ſhould be a little riſen of a moderate Bigneſs, perforated of ſeveral little Holes, that the Child may not have much Trouble in ſucking.

If a Nurſe has all the good Qualities above-mention'd, in what regards the Parts of her Body, one may very well judge that her Milk is very well condition'd; which will be known firſt at its Quantity, which muſt be ſuch, that it may ſuffice to feed the Child; but it ſhould not be in too great Abundance, for fear the Child being not capable to ſuck it all, it ſhould grow knotted, and corrupted in the Breaſt, by ſojourning too long in them; though it is much better ſhe ſhould have more than leſs; for ſhe may very well make another Child ſuck the Surplus. That Milk muſt be of a moderate Subſtance and Conſiſtence, *i. e.* neither too watery, nor too thick; which may be eaſily known, if the Nurſe having milked ſome Drops of it on the Hand, in inclining it a little, it preſently runs, which is a Sign that it is too watery, and not enough concocted; if, on the contrary, the Drops remain faſt on the Hand, without running, when it is inclin'd, that Milk is too coarſe and viſcous. The beſt is that which is between the two Conſiſtences, which runs ſoftly in Proportion as the Hand is inclined, leaving the Place whence it runs a little tinged. As to its Colour, the whiteſt is the beſt, and the more it deviates from that Colour, the worſe it is; it muſt be of a ſweet and agreeable Smell; the contrary is known in red-hair'd Women, whoſe Milk is of a fouriſh, ſtinking, and bad Smell; and to be perfect in all the good Qualities, it muſt be well taſted, *i. e.* ſweet, without any Acrimony, or ſtrange Taſte, and not too hot.

We muſt not forget the principal and beſt Qualities of a Nurſe, which conſiſt in her good Conduct, therefore ſhe ſhould be vigilant, and careful in cleanſing her Child ſo ſoon as he wants it; wiſe, prudent, and not ſubject to Paſſion, or quarrelſome, either for fear of giving in thoſe Beginnings, bad Impreſſions to her Child, or becauſe that Paſſion over-heats extremely the Milk. She ſhould not be melancholy, but chearful and gay, laughing often and moderately; ſhe muſt be very ſober, not at all addicted to Wine, much leſs to ſpirituous Liquors, nor to Coition; though ſhe ſhould not abſtain quite from the laſt, if her Conſtitution requires it; provided ſhe uſes it with Moderation: This Liberty is founded on Experience, for we ſee daily a great Number of Women, eſpecially of the pooreſt Sort, who though they be every Night with their Huſbands, and in all Appearance are careſſed by them, rear up very well their Children; for the Seed kept too long in the Veſſels (particularly in Women accuſtom'd to uſe often Coition) being over-heated too much for Want of Evacuation, cauſes ſuch an Itching in thoſe Women, who are forced, in Spite of themſelves, to abſtain from it, that it is ſoon corrupted; after which it cauſes a great Agitation, as well of the Humours of the Body, as of the Paſſions of the Soul. Therefore there is no Danger if the Nurſe uſes moderately Coition, only to evacuate the too great Plenitude; abſtaining only from giving the Breaſt to her Child ſoon after it, but muſt wait at leaſt one or two Hours.

Note, That the principal Quality of a good Nurſe, is to be the own Mother of the Child ſhe ſuckles; as well by Reaſon of the Report of the Conſtitution of one to the other, as becauſe a Mother having much more Love for him, ſhe is more careful than a hired Nurſe, in whoſe Love there is very little Sincerity, and has no other End but the Reward ſhe expects for her Trouble; therefore an own Mother, though perhaps not quite ſo good, is always to be preferred to a ſtrange Nurſe: For can thoſe be juſtly called Mothers, who againſt the Laws of Nature, throw off from them their Child, ſo ſoon as he is born, and deny him the Milk of their Breaſt, while they ſee him imploring with Tears the Succours thereof? Brutes, and even the wildeſt among them, would be moved at ſuch a Spectacle, which is not capable to make the leaſt Impreſſion on a barbarous Woman, though at the ſame Time ſhe has the Impudence to call herſelf Mother.

MINERALS.

MINERALS are compound Foſſils, wherein there is ſomething diſcover'd in all Reſpects like Metal, only that it is not malleable; joined or compounded with ſome other Foſſil, as Salt, Sulphur, Stone, or Earth.

Thoſe *Minerals* are *Antimony*, *Cinnabar*, *Biſmuth*, *Calaminaris*, *Vitriol*, *Pyrites*, *Marcaſites*, *Cobalt*, *Oker*, the *Magnet*, *Lapis Hematites*, *Armenus*, and *Stellatus*.

I conſider moſt of the *Minerals* as imperfect Metals, the Imperfection whereof proceeds either from the bad Diſpoſition of the Subject, worked upon; or from the unconquerable Obſtacles the Agents have met with in their Operation, or from their Imbecility; or from the Exceſs of their Power. The Badneſs of the Subject is occaſioned, either from the vitiated Conformation of the Matrice, where it is elaborated; or from the too great Abundance of the heterogeneous Particles it is enveloped with, and from which it cannot be ſeparated perfectly enough to form a Compound capable to anſwer the Intentions of Nature.

The Agents are interrupted in their Operation, either by the Interpoſition of impervadable Bodies, or the too great Obliquity of the Meatus through which they muſt reach the Subject they are to operate upon; and which cauſes that their Power is more than half exhauſted, before it arrives at the Place where it is to operate; whence its Efforts being too weak, the metalline Particles, though excited to Motion, and diſpoſed in order for a cloſe Union between them, are ſtill kept at a too great Diſtance by the Interpoſition of the heterogeneous ones they are mixed with. in lieu of which a looſe and deformed Texture enſues, compoſed of Particles almoſt all heterogeneous to each other, and almoſt all of a different Direction, we call *Mineral*.

Sometimes alſo, the Imbecility of the Agent, or the too great Exceſs of its Power, proceeds from the Climate; where the Agent is either at too great a Diſtance from the Subject it is to work upon, or too near it; if it be at too great a Diſtance from it, the Separation of the metalline Particles is imperfect, as well as their Union; and if it be too near it, that Separation is

is made with so much Precipitation, that the Particles, by a too violent Agitation and Friction, as well against heterogeneous Bodies, as against one another, are half wore out, before their Union can be effected; so though they are not mixed with Abundance of heterogeneous Particles, their Texture is notwithstanding loose, because deprived of the Parts most proper for a close Cohesion. Hence the Difference found in *Minerals*; some of them being more compact than the others; of which we shall be better persuaded, by the following Examen of each *Mineral*, in particular, beginning by *Antimony*.

ANTIMONY, is what we properly call a *Semi-Metal*; being a fossil Glebe, composed of some undetermined Metal, combined with a sulphurous and stony Substance.

I say that *Antimony* is composed of *some undetermined Metal*, for in Reality it has nothing but the Appearance of a Metal; for its most subtile Particles, which if exhaled by a powerful Agent, could perhaps receive a Direction to a more intimate Union between themselves, so as to form a Metal (though it does not appear by the Analysis made of *Antimony*, what Sort of Metal it would be, since it has no Report to any of the known Metals) are buried under so great a Heap of undigested Sulphur and Earth, that Art itself has not yet discover'd the Secret, notwithstanding the different Sorts of Operations it has invented for that Purpose, to make a Separation thereof, perfect enough, to form a compact Compositum; since after all those Operations which give *Antimony* so many different Forms, that it seems a *Proteus*, there remains yet so great a Quantity of Sulphur, that it cannot form a compact Compositum, so as to deserve the Name of Metal, or rather it is nothing else but a Texture of sulphurous Particles loosely joined together, by a few saline ones: So that I consider it as the Dross or Scoria of other Metals, separated from them in their Preparation in the Matrice.

Antimony is found in Mines of all Metals, but chiefly those of Silver and Lead: That in Gold Mines is usually held the best, which confirms my Opinion of its being the Dross of Metals; since Gold being the most perfect of all Metals, the Dross separated from it in its Matrice, must also be the less impure. — It has also its own Mines, particularly in *Hungary*, *Transilvania*, and *Germany*, and in several Provinces of *France*. That of *Hungary* is the best, being full of long Needles.

Antimony is found in Clods or Stones of several Sizes, bearing a near Resemblance to Black Lead, only that it is lighter and harder; whence also it is called *Marcasite of Lead*, but very improperly, and its metalline Parts supposed to be of that Species: Its Texture is somewhat particular, being full of little shining Veins or Threads like Needles, brittle as Glass. Sometimes there are Veins of a red or golden Colour intermixed, which is called *Male Antimony*, that without them being denominated *Female*. It fuses in the Fire, though with some Difficulty, and dissolves more easily in Water.

When dug out of the Earth it is put into large Crucibles, fused by a violent Fire, and then poured into Cones, or antimonial Horns, which make the common or crude *Antimony* of the Shops, the Apex whereof is always the best and purest Part, as the Basis or broadest Part is the foulest.

Antimony is supposed by many of the Chymists to contain the seminal Principles of all kind of Bodies; and accordingly the Character whereby it is denoted in their Writings, is the same with the Character of the Earth; to denote that *Antimony* is a Kind of Microcosm.

The Uses of *Antimony* are very numerous and important.—It is a common Ingredient in Specula, or burning Concaves, serving to give them a finer Polish. It makes a Part in Bell-Metal, and renders the Sound more clear. It is mingled with Tin to make it more hard, white and sounding, and with Lead in the casting of Printers Letters, to render them more smooth and firm. It is a general Help in the melting of Metals, and especially in the casting of Cannon Balls.

As I have described in my Treatise of Chymistry, the different Preparations of *Antimony*, and its different Uses in Pharmacy, it would be needless to repeat them in this Place: Therefore,

CINNABAR, is a mineral Stone, red, heavy, and brilliant, found chiefly in the Quicksilver Mines.

Some have imagined *Cinnabar* to be Dragon's-Blood, gathered, as *Pliny* and *Solinus* have it, when the Dragon and Elephant fight together: This Fable is refuted by *Dioscorides* and *Scaliger*.

Cinnabar is either *native* or *factitious*.

Native, or *mineral Cinnabar*, which is that above-mentioned, is found in most Places where there are Quicksilver Mines; yet it is true also, that it has Mines of its own: Those in *Spain* are very famous; the *French* have theirs in *Normandy*.

It may be esteemed as Marcasite of Quicksilver, or rather as Quicksilver petrified and fixed, by means of Sulphur, and a subterraneous Heat; for the globulous Particles of Quicksilver being put into a natural Motion, by the subterraneous Heat roll themselves in the Sulphur, already softned by the same Heat, wherein being wrapped, at last their whole Motion is intercepted; and the whole Composition being hardned afterwards by the same graduate Heat, becomes that red, heavy, and brilliant Stone, we call *native Cinnabar*.

Each Pound of good *Cinnabar* yields fourteen Ounces of good Mercury; accordingly, the principal Property and Use of this *Mineral* is to yield a most excellent Mercury; and that which the Alchymists maintain to be the best disposed for attaining to the Transmutation of Gold.

The best *mineral Cinnabar* is of a high Colour, brilliant, and free from the Stone. It is used by Physicians in venereal Cases, and others occasioned by sharp Serosities: It is also esteemed a good Cephalick, accounted of Service in Epilepsies, and other nervous Distempers; Add, that it is reckoned of Efficacy in cutaneous Cases, as the Scurvy.

Factitious, or *artificial Cinnabar*, is formed of a Mixture of Mercury and Sulphur sublimed, and thus reduced into a kind of fine red Glebe. The best is of a high Colour, full of Fibres like Needles.

The *factitious Cinnabar* is prepared, by melting one Part of Sulphur in a Pipkin; then putting to it by a little at a Time, three Parts of Quicksilver, stirring them together till no Mercury appears; then letting them cool, they grind the Mixture, put it in a Bolt-head, bake it, and place it over a naked Fire, which they augment by Degrees, a coloured Fume arises first to the Top of the subliming Vessel, which in the further Progress of the Heat, becomes at length of a red Crimson Blue; taking it off the Fire, the *Cinnabar* is found above the Fæces.

This serves for the same medicinal Purposes with the *native Cinnabar*; besides which, it is likewise used by the Farriers, to make Pills for their Horses, and by Painters as a Colour; as being a very vivid Red, but drying with some Difficulty, and not comparable to the *Carmin*; which I have the Secret to make, and no Body else in *England*.

The *Cinnabar*, called also by the Painters *Vermillion*, is rendred more beautiful by grinding it with Gum-Water, and a little Saffron, those two Drugs preventing its growing black.

There is likewise a blue *Cinnabar*, made by mixing two Parts of Sulphur with three of Quicksilver, and one of Sal Ammoniack; those being sublimed produce a beautiful blue Substance, whereas Quicksilver and Sulphur alone produce a Red; but this Blue falls very short of the *Ultramarine*, of which I have also the Secret.

BISMUTH, is a mineral Body, half metallick, composed of the first Matter of Tin, while yet imperfect; and found usually in Tin-Mines, sometimes also in Silver Mines.

Its Substance is hard, ponderous, and brittle, of a large Grain, glossy, white, and shining. It is also called *Tin-Glass*, because when broke it shews a vast Number of little polished Laminæ like Glass: It is also called *Marcasite*, by way of Excellence, because surpassing all others in Whiteness and Beauty.

Bismuth contains an arsenical Salt, very dangerous to take inwardly. It is this arsenical Salt which coroding its Texture, renders it so brittle, and hinders that intimate Cohesion of its constituent Parts, which otherwise would render it a perfect Metal, since it has less Impurities than Tin itself.

There

least Spot on her Body, nor even be suspected of the Venereal Disease; without Scab, Itch, or any other Imperfection of that Nature: She must be robust, and of a moderate Height, neither too little, nor too tall, too fat, nor too lean; of a sanguine Complexion; and not subject to have her Menses while she suckles, which would be a Sign that her Blood is over-heated; nor to the Whites, because those Superfluities are an Indication of a bad Constitution. She ought not to be red-hair'd, nor freckled; but she should be black or brown; she should be well shaped, clean in her Cloaths, and handsome, having a brisk Eye, and straight Sight, wholesome and white Teeth, without any of them rotten, for fear her Mouth should have a bad Smell, for as she kisses often her Child, she would infect his Lungs, by making him breathe her stinking and corrupt Breath. Her Breasts must be ample enough to contain a sufficient Quantity of Milk, but not large to Excess; whole, and without Cicatrices, proceeding from Imposthumes; moderately firm and fleshy, not flabby, nor hanging down; that the natural Heat may be stronger. The Chest of a Nurse must be large, that the Milk may have more Space, to be well prepar'd and digested, and because a broad Chest, denotes Abundance of natural Warmth. As to the Nipples, they must be well shaped, neither too big, nor too hard, nor callous, nor too deep in the Breast; but they should be a little risen of a moderate Bigness, perforated of several little Holes, that the Child may not have much Trouble in sucking.

If a Nurse has all the good Qualities above-mention'd, in what regards the Parts of her Body, one may very well judge that her Milk is very well condition'd; which will be known first at its Quantity, which must be such, that it may suffice to feed the Child; but it should not be in too great Abundance, for fear the Child being not capable to suck it all, it should grow knotted, and corrupted in the Breast, by sojourning too long in them; though it is much better she should have more than less; for she may very well make another Child suck the Surplus. That Milk must be of a moderate Substance and Consistence, *i. e.* neither too watery, nor too thick; which may be easily known, if the Nurse having milked some Drops of it on the Hand, in inclining it a little, it presently runs, which is a Sign that it is too watery, and not enough concocted; if, on the contrary, the Drops remain fast on the Hand, without running, when it is inclin'd, that Milk is too coarse and viscous. The best is that which is between the two Consistences, which runs softly in Proportion as the Hand is inclined, leaving the Place whence it runs a little tinged. As to its Colour, the whitest is the best, and the more it deviates from that Colour, the worse it is; it must be of a sweet and agreeable Smell; the contrary is known in red-hair'd Women, whose Milk is of a sourish, stinking, and bad Smell; and to be perfect in all the good Qualities, it must be well tasted, *i. e.* sweet, without any Acrimony, or strange Taste, and not too hot.

We must not forget the principal and best Qualities of a Nurse, which consist in her good Conduct, therefore she should be vigilant, and careful in cleansing her Child so soon as he wants it; wise, prudent, and not subject to Passion, or quarrelsome, either for fear of giving in those Beginnings, bad Impressions to her Child, or because that Passion over-heats extremely the Milk. She should not be melancholy, but chearful and gay, laughing often and moderately; she must be very sober, not at all addicted to Wine, much less to spirituous Liquors, nor to Coition; though she should not abstain quite from the last, if her Constitution requires it; provided she uses it with Moderation: This Liberty is founded on Experience, for we see daily a great Number of Women, especially of the poorest Sort, who though they be every Night with their Husbands, and in all Appearance are caressed by them, rear up very well their Children; for the Seed kept too long in the Vessels (particularly in Women accustom'd to use often Coition) being over-heated too much for Want of Evacuation, causes such an Itching in those Women, who are forced, in Spite of themselves, to abstain from it, that it is soon corrupted; after which it causes a great Agitation, as well of the Humours of the Body, as of the Passions of the Soul. Therefore there is no Danger if the Nurse uses moderately Coition, only to evacuate the too great Plenitude; abstaining only from giving the Breast to her Child soon after it, but must wait at least one or two Hours.

Note, That the principal Quality of a good Nurse, is to be the own Mother of the Child she suckles; as well by Reason of the Report of the Constitution of one to the other, as because a Mother having much more Love for him, she is more careful than a hired Nurse, in whose Love there is very little Sincerity, and has no other End but the Reward she expects for her Trouble; therefore an own Mother, though perhaps not quite so good, is always to be preferred to a strange Nurse: For can those be justly called Mothers, who against the Laws of Nature, throw off from them their Child, so soon as he is born, and deny him the Milk of their Breast, while they see him imploring with Tears the Succours thereof? Brutes, and even the wildest among them, would be moved at such a Spectacle, which is not capable to make the least Impression on a barbarous Woman, though at the same Time she has the Impudence to call herself Mother.

MINERALS.

MINERALS are compound Fossils, wherein there is something discover'd in all Respects like Metal, only that it is not malleable; joined or compounded with some other Fossil, as Salt, Sulphur, Stone, or Earth.

Those *Minerals* are *Antimony*, *Cinnabar*, *Bismuth*, *Calaminaris*, *Vitriol*, *Pyrites*, *Marcasites*, *Cobalt*, *Oker*, the *Magnet*, *Lapis Hæmatites*, *Armenus*, and *Stellatus*.

I consider most of the *Minerals* as imperfect Metals, the Imperfection whereof proceeds either from the bad Disposition of the Subject, worked upon; or from the unconquerable Obstacles the Agents have met with in their Operation, or from their Imbecility; or from the Excess of their Power. The Badness of the Subject is occasioned, either from the vitiated Conformation of the Matrice, where it is elaborated; or from the too great Abundance of the heterogeneous Particles it is enveloped with, and from which it cannot be separated perfectly enough to form a Compound capable to answer the Intentions of Nature.

The Agents are interrupted in their Operation, either by the Interposition of impervadable Bodies, or the too great Obliquity of the Meatus through which they must reach the Subject they are to operate upon; and which causes that their Power is more than half exhausted, before it arrives at the Place where it is to operate; whence its Efforts being too weak, the metalline Particles, though excited to Motion, and disposed in order for a close Union between them, are still kept at a too great Distance by the Interposition of the heterogeneous ones they are mixed with. in lieu of which a loose and deformed Texture ensues, composed of Particles almost all heterogeneous to each other, and almost all of a different Direction, we call *Mineral*.

Sometimes also, the Imbecility of the Agent, or the too great Excess of its Power, proceeds from the Climate; where the Agent is either at too great a Distance from the Subject it is to work upon, or too near it; if it be at too great a Distance from it, the Separation of the metalline Particles is imperfect, as well as their Union; and if it be too near it, that Separation is

is made with so much Precipitation, that the Particles, by a too violent Agitation and Friction, as well against heterogeneous Bodies, as against one another, are half wore out, before their Union can be effected; so though they are not mixed with Abundance of heterogeneous Particles, their Texture is notwithstanding loose, because deprived of the Parts most proper for a close Cohesion. Hence the Difference found in *Minerals*; some of them being more compact than the others; of which we shall be better persuaded, by the following Examen of each *Mineral*, in particular, beginning by *Antimony*.

ANTIMONY, is what we properly call a *Semi-Metal*; being a fossil Glebe, composed of some undetermined Metal, combined with a sulphurous and stony Substance.

I say that *Antimony* is composed of *some undetermined Metal*, for in Reality it has nothing but the Appearance of a Metal; for its most subtile Particles, which if exhaled by a powerful Agent, could perhaps receive a Direction to a more intimate Union between themselves, so as to form a Metal (though it does not appear by the Analysis made of *Antimony*, what Sort of Metal it would be, since it has no Report to any of the known Metals) are buried under so great a Heap of undigested Sulphur and Earth, that Art itself has not yet discover'd the Secret, notwithstanding the different Sorts of Operations it has invented for that Purpose, to make a Separation thereof, perfect enough, to form a compact Compositum; since after all those Operations which give *Antimony* so many different Forms, that it seems a *Proteus*, there remains yet so great a Quantity of Sulphur, that it cannot form a compact Compositum, so as to deserve the Name of Metal, or rather it is nothing else but a Texture of sulphurous Particles loosely joined together, by a few saline ones: So that I consider it as the Dross or Scoria of other Metals, separated from them in their Preparation in the Matrice.

Antimony is found in Mines of all Metals, but chiefly those of Silver and Lead: That in Gold Mines is usually held the best, which confirms my Opinion of its being the Dross of Metals; since Gold being the most perfect of all Metals, the Dross separated from it in its Matrice, must also be the less impure. — It has also its own Mines, particularly in *Hungary*, *Transilvania*, and *Germany*, and in several Provinces of *France*. That of *Hungary* is the best, being full of long Needles.

Antimony is found in Clods or Stones of several Sizes, bearing a near Resemblance to Black Lead, only that it is lighter and harder; whence also it is called *Marcasite of Lead*, but very improperly, and its metalline Parts supposed to be of that Species: Its Texture is somewhat particular, being full of little shining Veins or Threads like Needles, brittle as Glass. Sometimes there are Veins of a red or golden Colour intermixed, which is called *Male Antimony*, that without them being denominated *Female*. It fuses in the Fire, though with some Difficulty, and dissolves more easily in Water.

When dug out of the Earth it is put into large Crucibles, fused by a violent Fire, and then poured into Cones, or antimonial Horns, which make the common or crude *Antimony* of the Shops, the Apex whereof is always the best and purest Part, as the Basis or broadest Part is the foulest.

Antimony is supposed by many of the Chymists to contain the seminal Principles of all kind of Bodies; and accordingly the Character whereby it is denoted in their Writings, is the same with the Character of the Earth; to denote that *Antimony* is a Kind of Microcosm.

The Uses of *Antimony* are very numerous and important. — It is a common Ingredient in Specula, or burning Concaves, serving to give them a finer Polish. It makes a Part in Bell-Metal, and renders the Sound more clear. It is mingled with Tin to make it more hard, white and sounding, and with Lead in the casting of Printers Letters, to render them more smooth and firm. It is a general Help in the melting of Metals, and especially in the casting of Cannon Balls.

As I have described in my Treatise of Chymistry, the different Preparations of *Antimony*, and its different Uses in Pharmacy, it would be needless to repeat them in this Place: Therefore,

CINNABAR, is a mineral Stone, red, heavy, and brilliant, found chiefly in the Quicksilver Mines.

Some have imagined *Cinnabar* to be Dragon's-Blood, gathered, as *Pliny* and *Solinus* have it, when the Dragon and Elephant fight together: This Fable is refuted by *Dioscorides* and *Scaliger*.

Cinnabar is either *native* or *factitious*.

Native, or *mineral Cinnabar*, which is that above-mentioned, is found in most Places where there are Quicksilver Mines; yet it is true also, that it has Mines of its own: Those in *Spain* are very famous; the *French* have theirs in *Normandy*.

It may be esteemed as Marcasite of Quicksilver, or rather as Quicksilver petrified and fixed, by means of Sulphur, and a subterraneous Heat; for the globulous Particles of Quicksilver being put into a natural Motion, by the subterraneous Heat roll themselves in the Sulphur, already softned by the same Heat, wherein being wrapped, at last their whole Motion is intercepted; and the whole Composition being hardned afterwards by the same graduate Heat, becomes that red, heavy, and brilliant Stone, we call *native Cinnabar*.

Each Pound of good *Cinnabar* yields fourteen Ounces of good Mercury; accordingly, the principal Property and Use of this *Mineral* is to yield a most excellent Mercury; and that which the Alchymists maintain to be the best disposed for attaining to the Transmutation of Gold.

The best *mineral Cinnabar* is of a high Colour, brilliant, and free from the Stone. It is used by Physicians in venereal Cases, and others occasioned by sharp Serosities: It is also esteemed a good Cephalick, accounted of Service in Epilepsies, and other nervous Distempers; Add, that it is reckoned of Efficacy in cutaneous Cases, as the Scurvy.

Factitious, or *artificial Cinnabar*, is formed of a Mixture of Mercury and Sulphur sublimed, and thus reduced into a kind of fine red Glebe. The best is of a high Colour, full of Fibres like Needles.

The *factitious Cinnabar* is prepared, by melting one Part of Sulphur in a Pipkin; then putting to it by a little at a Time, three Parts of Quicksilver, stirring them together till no Mercury appears; then letting them cool, they grind the Mixture, put it in a Bolt-head, bake it, and place it over a naked Fire, which they augment by Degrees, a coloured Fume arises first to the Top of the subliming Vessel, which in the further Progress of the Heat, becomes at length of a red Crimson Blue; taking it off the Fire, the *Cinnabar* is found above the Fæces.

This serves for the same medicinal Purposes with the *native Cinnabar*; besides which, it is likewise used by the Farriers, to make Pills for their Horses, and by Painters as a Colour; as being a very vivid Red, but drying with some Difficulty, and not comparable to the *Carmin*; which I have the Secret to make, and no Body else in *England*.

The *Cinnabar*, called also by the Painters *Vermillion*, is rendred more beautiful by grinding it with Gum-Water, and a little Saffron, those two Drugs preventing its growing black.

There is likewise a blue *Cinnabar*, made by mixing two Parts of Sulphur with three of Quicksilver, and one of Sal Ammoniack; those being sublimed produce a beautiful blue Substance, whereas Quicksilver and Sulphur alone produce a Red; but this Blue falls very short of the *Ultramarine*, of which I have also the Secret.

BISMUTH, is a mineral Body, half metallick, composed of the first Matter of Tin, while yet imperfect; and found usually in Tin-Mines, sometimes also in Silver Mines.

Its Substance is hard, ponderous, and brittle, of a large Grain, glossy, white, and shining. It is also called *Tin-Glass*, because when broke it shews a vast Number of little polished Laminæ like Glass: It is also called *Marcasite*, by way of Excellence, because surpassing all others in Whiteness and Beauty.

Bismuth contains an arsenical Salt, very dangerous to take inwardly. It is this arsenical Salt which coroding its Texture, renders it so brittle, and hinders that intimate Cohesion of its constituent Parts, which otherwise would render it a perfect Metal, since it has less Impurities than Tin itself.

There

There is an artificial *Bismuth*, which is that ordinarily found in the Shops, made by reducing Tin into thin Laminæ or Plates, and cementing them, by a Mixture of white Tartar, Saltpetre, and Arsenick, stratified in a Crucible over a naked Fire. The same is also made of a *Mineral* called Rink, using Lead instead of Tin, and a little Calamine.

Calamine Stone, or *Lapis Calaminaris*, is a Kind of fossil, bituminous Earth, of some Use in Medicine, but of more in Foundry; being used to dye Copper yellow, *i. e.* to convert it into Brass. It is either of a brownish Colour, as that of *Germany* and *England*; or reddish, as that about *Liege*, and in some Parts of *France*, accounted the best, because turning yellow by Calcination.

Calamine is dug out of Mines, usually in some Pieces, having always Eyes, sometimes Veins of Lead; though it be not always found in Lead-Mines. In *England* there are Mines of *Calamine*, at *Wrington* in *Somersetshire*, and elsewhere. It is generally dug in barren rocky Ground, its Courses running usually, at 6 o'Clock, as they call it, *i. e.* from East to West; sometimes at 9, and sometimes at 12; or perpendicular, which is accounted the best.

When dug it is washed, or buddled, as they call it, in running Water, which carries off the impure and earthy Parts, leaving the Lead, Calamine, and other sparry Parts at Bottom; they then put it in a Sieve, and shaking it well in Water, the Lead mixed with it sinks to the Bottom, the sparry Parts get to the Top, and the *Calamine* lies in the Middle: Thus prepared they bake it in an Oven four or five Hours, the Flame being so contrived as to pass over, and so to heat and bake the Calamine, stirring and turning it all the while with Iron Rakes: This done, they beat it to Powder and sift it, picking out of it what Stones they find; and thus it is fit for Use.

Besides the two *natural Calamines*, there are two artificial ones; the best is that called *Pampholyx*.

VITRIOL, is a mineral Substance, composed of an acid Salt, intermixed with something metalline.

It is defined by *Boerhaave* a saline, metallick, transparent Glebe, dissoluble in Water, and fusible and calcinable by Fire.

It acquires different Names, according to the different Places where it is dug, and the *Vitriols* of those also, differ from each other in Denomination and Colour, some being white, others blue, and others green.

Roman and *Cyprus* Vitriol, for Instance, is blue; and that of *Sweden* and *Germany* greenish; besides which there is also a white Kind.

White Vitriol partakes but little of any Metal; *blue* partakes of Copper, and *green* of Iron.

M. *Geoffroy* the Elder observes, that they all consist of an acid Salt, like that found in Allum and Sulphur, excepting that in Allum the Acid is mixed with an absorbent Earth or Calx; in Sulphur it is united with fat bituminous Parts, and in *Vitriols* with metallick Parts.

According to *Boerhaave*, *Vitriols* consist of a metallick Part, with a Sulphur adherring, a menstruous Acid, and Water. In *blue Vitriol*, the Metal wherewith the Acid, *&c.* is joined, is Copper. In *white Vitriol*, called also *white Copperas*, it is mixed with Lapis Calaminaris, or some ferruginous Earth, intermixed with Lead or Tin. In *green Vitriol* the Acid is joined with Iron.

The Antients give the Name *Chalcitis*, or *Chalcanthum* to *native Vitriol*, or that which acquires its full Perfection in the Entrails of the Earth, and which is a Kind of mineral Stone of a reddish Colour. Of this they observe three different States or Transformations; *Chalcitis* in its first State they called *Misi*; this afterwards turned into *Melanteria*, and that into *Sori*.

Some Moderns take this *Chalcitis* to be the same with the Colchotar brought from *Sweden* and *Germany*, the best whereof is of a brownish red Colour, and a vitriolick Taste, and dissolves easily in Water; and when broke is of the Colour of shining Copper.

All the other *Vitriols* above-named are really factitious, being only a Kind of Crystals, drawn by means of Water, from a Sort of Marcasite ordinarily found in Mines, and called by Naturalists *Pyrites*, or *quis*.

Roman Vitriol, is made by exposing the Pyrites to the Air, till such Time as they calcine, and change into a greenish, and vitriolick Calx or Dust; in which State they are thrown into the Water, and afterwards, by Boiling and Evaporation, reduced into that Kind of Crystals sent us from *Italy*.

All other *Vitriols* are made after the same Manner; that is much after the same Manner as Allum is made in *England*, or Saltpetre in *France*.

For green Vitriol, they add a great Number of Pieces of Iron to the Liquor in the Boiling; these raise a great Ebullition. As soon as the Iron is dissolved they evaporate the Dissolution to a certain Degree, and so let it crystalize. The Crystals being furnished, there remains a thick, reddish, unctuous Styptick and astringent Liquor, which M. *Geoffroy* calls *eau mere de vitriol*; as containing all the Principles of the *Vitriol*, tho' disunited.

The Powder of this *Vitriol* is exceedingly styptick, and excellent for the Cure of Wounds, and the stopping of Blood. Its Effects this Way have been raised by the Knavery of some, and Credulity of others, to a Kind of Miracle; it being this that makes the Basis of the famous sympathetick Powder.

The medicinal Virtues of *Vitriol* are very great, but allowed to the Iron, or other metallick Parts mixed with it, and therefore follow the Kind of Metal. Thus those of *green Vitriol* depend on the Styptick or Astringency of Iron or Mars.

The *Eau mere* drawn from *green Vitriol*, M. *Geoffroy* observes, does not differ any Way essentially, from a great Number of Preparations, which the Chymists have given us of Vitriol, Iron, and the Lapis hæmatites; as the fixed and anodyne Sulphurs of *Vitriol* or Mars, Arcana and Magisteries of *Vitriol*, Tinctures, *&c.* of Vitriol, Mars, *&c.* The common Basis of all which is Iron exceedingly subtilized and attenuated.

PYRITES, from the *Greek* πυρίτης, q. d. Firestone, is a sulphurous inflammable Kind of *Mineral*, composed of an acid Salt, incorporated with an oily or bituminous Matter.

Pyrites bears a near Affinity to *Marcasite*, with which the Generality of Authors confound it. Dr. *Woodward* makes this Distinction between the two, that *Pyrites* is restrained to the Nodules, or those Pieces found lodged in Strata of another Kind; and Marcasite to those found in Strata of the same Kind. Add that the Marcasite frequently contains Arsenick, which the *Pyrites* does rarely, if ever.

Pyrites has always a metalline Part in it, and sometimes a cretaceous or okerous Part. — In Proportion as any of these prevails, the Body commences a Sulphur, Allum, or Vitriol.

The Metal in *Pyrites* is chiefly Iron; sometimes there is Copper in it, and always a little Gold, rarely Silver, and never Lead or Tin.

Dr. *Slare* tells us of a Heap of *Pyrites*, consisting of two or three hundred Tuns, which being cover'd up from the Air five or six Months, took Fire, and burnt for a Week. Some of it look'd like melted Metal, others like red-hot Stones. He adds, it emitted a most noisome Smoke.

Dr. *Lister* attributes Thunder, Earthquakes, *&c.* to the sulphurous and inflammable Breadth of the *Pyrites*.

MARCASITE, is a Sort of metallick Mineral, making as it were the Seed or first Matter of Metals.

On this Principle there should be as many different *Marcasites* as Metals; which is true in Effect; the Name being applied to every Mineral Body, that has metalline Particles in its Composition, though not enough to make it worth working, in which Case it would be called Ore.

There are only three Kinds in the Shops, *viz.* *Marcasite* of Gold, of Silver, of Copper; though some repute the Load-stone, *Marcasite* of Iron; Bismuth, *Marcasite* of Tin; and Rink or Spelter, *Marcasite* of Lead.

Marcasite of Gold, is in little Balls or Nodules, about the Bigness of Nuts, nearly round, heavy, of a brown Colour without. — *Marcasite* of Silver, is like that of Gold, only paler colour'd: Within, the Colour differs much, the one having a Gold Colour, and the other a Silver Colour, both shining and brilliant. — The *Marcasite* of Copper, is about the Bigness of a small Apple, round

round or oblong, brown without, yellow and cryſtalline within, brilliant and ſhining.

Marcaſites are found in Mines of Metals; they all contain Sulphur and a vitriolick Salt, eſpecially that of Copper: Some of them alſo contain Antimony and Biſmuth.

COBALT, is a Kind of Marcaſite, ſuppoſed to be the Cadmia of the Antients, out of which is drawn Arſenick and Smalt.

Cobalt uſually contains a little Silver, ſome Copper, but much Arſenick. There are various Mines of *Cabalt*, eſpecially in *Saxony*, ſome in *France*, and *England*.

OKER, or OCHER, a yellow, dry, foſſil Earth; harſh to the Touch; found in Copper and Lead Mines, ſometimes in thoſe of Silver, and ſometimes in Mines of its own.

Others ſeem more rightly to refer *Oker* to the Claſs of Semi-Metals, than of Earths. It conſiſts, according to them, of Earth and a Metal, particularly Iron, combined.

Mr. *Boyle* aſſures us, he has ſeen a Piece of *Oker*, richer in Metal than moſt Iron Ores; and which was even render'd magnetical by heating, and then cooling it in a perpendicular Poſition.

Oker, in Effect, is always impregnated with Iron, and is what generally gives to the Chalybeat Springs their medicinal Virtues; many of which we ſee upon the Waters ſtanding, will depoſite the *Oker* at the Bottom of the Veſſel.

Some Authors eſteem *Oker* proper to promote the melting of Metals, when they are too harſh and brittle; but its chief Uſe is in Painting.

It is only the yellow *Oker* is natural; the red is prepared from the yellow, by calcining it in the Fire, till it has acquir'd its Redneſs.

The Beds are uſually from one hundred and fifty, to two hundred Foot deep; and their Thickneſs from four to eight Inches, between a white Sand which covers them atop, and a yellow argillous Earth underneath.

The beſt *Oker* is that of *Berry* in *France*. There are ſeveral Kinds dug up in *England*, all bordering on the red; ſome of them uſed in poliſhing Looking-Glaſſes.

LAPIS HÆMATITES, called alſo *Blood-ſtone*, is a Kind of ruddy Mineral in a Form of a Stone; thus called, either on Account of its reſembling dry, curdled Blood, or of the Faculty it has of ſtanching of Blood.

Pliny reckons five Kinds, *viz.* the *Ethiopick*, the *Androdamas* or Black, the *Arabick*, the *Elalites*, or *Miltites*, and the *Schiſtos*; beſides that commonly called the *Magnes Hæmatites*, from the Property it has of attracting Iron.

The five Sorts differ chiefly in Point of Hardneſs: The beſt, according to *Dioſcorides*, is that which is friable, hard, black, and ſmooth, without either gritty Parts or Veins.

That commonly uſed by the Painters is factitious; being made of *Armenian* Bole, and other Drugs.

The native or foſſil Kind comes from *Egypt*, *Bohemia*, &c. It has divers Uſes in Medicine; being held cooling and aſtringent, and in that Quality preſcrib'd in Hemorrhages. It is given in Subſtance, in Form of a fine Powder.

The Gilders uſe it for Burniſhers, to poliſh their Gold withal.

The ARMENIAN STONE, LAPIS ARMENUS, is a Mineral Stone or Earth, of a blue Colour, ſpotted with green, black, and yellow; antiently brought only from *Armenia*, but now found in *Germany*, and *Tyrol*.

The *Armenian Stone* bears a near Reſemblance to *Lapis Lazuli*, from which it ſeems only to differ in Degree of Maturity: They are diſtinguiſhed by this, that the *Lapis Armenus* is ſofter, and inſtead of Sparks of Gold, is ſpeckled with green.

Boerhaave ranks it among Semi-Metals; and ſuppoſes it compoſed of Metal and Earth. *Woodward* ſays it owes its Colour to an Admixture of Copper.

Its chief Uſe is in Moſaick Work, though it has ſome Place alſo in Phyſick.

APPENDIX.

Beſides the above-mention'd *Minerals* or *Foſſils*, there are others, as all Kinds of *Bitumen*, which in a general Senſe, is a fatty, tenacious, mineral Juice, very inflammable; or a foſſil Body, which readily takes Fire, yields an Oil, and is ſoluble in Water.

Naturaliſts diſtinguiſh three Kinds of *Bitumens*, *hard*, *ſoft*, *liquid*, or *oily*; each of which they ſubdivide into ſeveral others.

Among the *hard Bitumens*, are ranked *yellow Amber*, ſometimes *Amber-greaſe*, *Jet*, *Aſphaltum* or *Jews-Pitch*, *Piſſaſphaltum*, *Pit-Coal*, *Black Stone*, and *Sulphurs*.

YELLOW AMBER, *Succinum*, or *Karabe*, is a yellow tranſparent Subſtance, of a bituminous Form or Conſiſtence, but a reſinous Taſte, or Smell like Oil of Turpentine; chiefly found in the *Baltick Sea*, and along the Coaſts of *Pruſſia*, &c.

Naturaliſts are infinitely divided as to the Origin of *Amber*: Some referring it to the Vegetable, others to the Mineral, and ſome even to the Animal Kingdom.

Thoſe who refer it to the Vegetable Kingdom, ſay with *Pliny*, that it is a reſinous Juice, oozing from aged Pines and Firs, (others ſay from Poplars, whereof there are whole Foreſts on the Coaſts of *Sweden*) and diſcharged thence into the Sea; where undergoing ſome Alteration, it is thrown in this Form upon the Coaſts of *Pruſſia*; which lie very low: He adds, that it was hence the Antients gave it the Denomination *Succinum*; from *Succus*, Juice. — This was alſo *Ovid*'s Opinion, *Lib.* 2. *Metamorp.*

Inde fluent lacrimæ, ſtillataque ſole regeſcunt,
De ramis electra novis, quæ lucidus amnis
Excipit, & nuribus mittit geſtanda Latina.

But the moſt modern Naturaliſts, who ſuppoſe it a compound Subſtance, ſay, that *Pruſſia*, and the other Countries which produce *Amber*, are moiſten'd with a bituminous Juice, which mixing with the vitriolick Salts abounding in thoſe Places, the Points of thoſe Salts fix its Fluidity, whence it congeals: And the Reſult of that Congelation makes what we call *Amber*; which is more or leſs pure, tranſparent, and firm, as thoſe Parts of Salt and Bitumen are more or leſs pure, and mixed in this, or that Proportion.

There are ſeveral Indications, which I have already taken Notice of in my Treatiſe of *Chymiſtry*, diſcovering where *Amber* is to be found. — The Surface of the Earth is there cover'd with a ſoft ſcaly Stone; and Vitriol in particular abounds there, which is ſometimes found white, ſometimes reduced into a Matter like melted Glaſs, and ſometimes figured like petrified Wood.

Amber aſſumes all Figures in the Ground; that of a Pear, an Almond, a Pea, *&c.* Among others there have been found Letters very well formed; and even *Hebrew*, or *Arabick* Characters. Within ſome Pieces of *Amber* have alſo been found Leaves, Inſects, *&c.* included; which ſeems to indicate, either that the *Amber* was originally in a fluid State; or that having been expoſed to the Sun, it was ſoften'd, and render'd ſuſceptible of the Leaves, Inſects, *&c.* which came in its Way. The latter of theſe ſeems the more agreeable to the Phænomenon, in regard thoſe Inſects, *&c.* are never found in the Center of the Piece of *Amber*, but always near the Surface.

The moſt remarkable Property of *Amber* is, that when rubbed, it draws or attracts other Bodies to it; and this it is obſerved it does, even to thoſe Bodies which the Antients thought it had an Antipathy to; as oily Bodies, Drops of Water, the Baſiliſk, Sweat of human Bodies, *&c.*

The *Peripateticians* attribute the Cauſe of this attractive Virtue to Sympathy only. But who can believe, that the Succinum, Glaſs, and the Lacca, with which the Sealing-Wax is made, *&c.* have ſuch an Affinity with ſo many different Kinds of Corpuſcles, as to have, all on a ſudden, an Inclination to be joined with them? Beſides that the Term Sympathy, expreſſes nothing clearly, but, on the contrary, confounds our natural Ideas.

Gaſſendus, *Sect.* 1. *Phyſic. lib.* 6. *de qualit. rer. c.* 14. imagines, that the Effluvia which flowing from the *Amber*, being repelled by the Occurrence of the external Air, and loſing their Motion, fall back on the Succinum with the lighteſt Corpuſcles. But as the precious Stones and Glaſs, which have the ſame attractive Virtue with the Succinum, ſeem to have no ſuch Viſcoſity, he ſhould have

have assigned a more proper Cause to it.

Des Cartes, therefore, 4 *Part. princip. num.* 184. and following, is of Opinion, that some very thin Particles flow from the *Amber*, and other Bodies of that Kind, especially when they are strongly rubbed, which repel immediately the neighbouring Air, but as they do not, in the least, disorder in that Motion, the Meatus appropriated to themselves, they are immediately pushed back by the same Air, towards the same Place whence they flowed; and along with them are carried those light Corpuscles, which consequently are joined to the Succinum, or Glass, or other Bodies of that Kind, rather by Impulsion than Attraction.

For my Part I am Opinion, that by the violent Friction, the Pores of those Bodies being extremely dilated, there then flow from them, and with Impetuosity, a great Quantity of small Corpuscles, which being all very tenacious, according to the Nature of the Body whence they flow, form by a continued Concatenation, a Kind of Chain, one End therefore remains, and the other lays hold or sticks to those light Bodies; but as that fastening cannot be made without some Motion of the Body fastened, in the very Instant of that Motion, that Body being sublivated by the ambient Air, is forced back by it, together with the Chain, which being also very light, cannot resist the Impulsion, towards the Body, whence the Chain proceeds. What can be said further of *yellow Amber*, may be seen in my Treatise of *Chymistry*.

JET, *Gagates*, called also *black Amber*, is a light, smooth, pitchy, fossil Stone, extremely black; formed of a bituminous Juice in the Earth, in the Manner of Coal.

It works like Amber, and has most of its Qualities: It abounds in *Dauphiné* in *France*; but the best in the World is said to be produced in *Yorkshire*. It readily catches Fire, Flashes, and yields a bituminous Smell.

There is also a factitious *Jet*, made of Glass, in Imitation of the Mineral *Jet*: This is drawn out into long hollow Threads, which are cut and fashioned at Pleasure. It is much used in Embroideries, and in the Trimmings of Mourning, and may be made of any Colour, though it is usually black and white; and of late denominated *Bugles*.

ASPHALTUM, or ASPHALTOS, is a solid, brittle, black, inflammable, bituminous Substance, resembling Pitch, brought from the East, and particularly *Judea*; whence it is also called *Jew Pitch*.

The *Asphaltos* of the *Geeeks*, is the Bitumen of the *Latins*. Though modern Naturalists, who make a Class of Bitumens, place *Asphaltos* at the Head of it, as being the furthest maturated and concocted of the whole Tribe; but consisting of the same simple Principles as the rest. It is chiefly found swimming on the Surface of the *Lacus Asphaltites*, or Dead Sea, where antiently stood the Cities of *Sodom* and *Gomorrha*. It is cast up from Time to Time, in the Nature of a liquid Pitch, from the Earth, which lies under this Sea; and being thrown upon the Water, swims like other fat Bodies, and condenses by little and little, through the Heat of the Sun, and the Salt that is in it: It burns with great Vehemence; in which it resembles *Naphtha*, but is thicker as to Consistence.

The *Arabs* use it to pitch their Ships withal, as we do common Pitch. Besides, there was a deal of it employ'd in the embalming of the Antients.

It is supposed to fortify, and resist Putrefaction; resolve, attenuate, cleanse, and cicatrize Wounds: But is little used among us, either externally or internally.

It is usual to sophisticate the *Asphaltos*, by mixing common Pitch along with it; the Result whereof makes the *Pissasphaltum*, which the Coarseness of the black Colour, and the fetid Smell easily discover. Others, however, will have its pitchy Quality natural to it, and suppose *Pissasphaltum* to be the native *Asphaltum*.

ASPHALTUM also denotes a Kind of bituminous Stone, found near the antient *Babylon*, and lately in the Province of *Neufchatel*; which mixed with other Matters, makes an excellent Cement, incorruptible by Air, and impenetrable by Water; supposed to be the Mortar so much celebrated among the Antients, wherewith the Walls of *Babylon* were laid. It yields an Oil which defend Ships from Water, Worms, *&c.* much better than the ordinary Composition; and which is also of good Service for cleansing and healing of Ulcers, *&c.*

PISSASPHALTUM, denotes a native, solid Bitumen; found in the *Ceraunian* Mountains of *Apollonia*; of an intermediate Nature between Pitch and Asphaltum.

Pissasphaltum, is also a Name given to a factitious Substance, compounded of Pitch and Asphaltos, or Bitumen Judaicum.

PIT-COAL, is ranked among the Number of Minerals, and the Places it is dug out of are called *Coal-Mines*, or *Coal-Pits*. — It is common in most Countries of *Europe*; though the *English* Coal is of most Repute, even in foreign Countries; notwithstanding some pretend, that of the *Fosse* in *Auvergne* is not any Thing inferior to it.

The Goodness of Coal consists in its being as free as possible from Sulphur, in its heating Iron well, and in its burning a long Time in the Smith's Forge. The *English* Coal has this Particular to it, that it never lights so perfectly, as when Water is thrown on it.

In the Memoirs of the Royal *French* Academy, we have an Account of two Experiments on the common *Pit-Coal*, made by M. *des Landes* while in *England*, and which he thinks have escaped the *English* Philosophers.

1. Pounding some *Coal*, and putting half an Ounce of it in a Vial of Water, the Mixture becomes quite black: But leaving it exposed to the Air in a Window, during a cold Winter Night, in the Morning it was found frozen, and turn'd to a reddish Colour. The Reason of this Change must be, that the sulphurous Particles of the *Coal* having been penetrated by the saline ones of the Water, had formed together a certain Coagulum; whereby those Particles acquiring a Position different from that they had before the *Coal* was reduced into Powder, reflected the Light, likewise, in a different Manner.

2. From an Infusion of Cinders in Brandy, mixed with Iron-filings, arises a black Tincture, which brightens in Proportion as it is heated; when arrived at the Heat of boiling, the Colour becomes perfectly fine and soft, and gives a Dye to Cloth, which no Workman can imitate. — To account for this Phænomenon, I say, that the igneous Particles introduced into that Mixture, lacerate, and disunite, by their violent Agitation, the Texture both of the sulphurous Particles of the *Coal*, and of the oleaginous ones of the Brandy, whereby the Reflection of the Light is less, than when the Cohesion of those Particles was closer; and grows still less and less, in Proportion as the Quantity of the igneous Particles increases, and their Agitation is more vehement; since from thence ensues a greater Disunion of the Parts, and consequently a more free, and wider Passage to the Light.

The Strata, or Veins of Coals in Coal-Pits, are numerous, and their Order, Quality, *&c.* different in different Places.

In those at *Dudley* in *Staffordshire*, the Strata below the Turf, two or three Clays, a grey Stone, and a hard grey Rock, are expressed in the *Philosophical Transactions*, to be, 1. *Coal*, called *Bench-Coal*. 2. *Slipper-Coal*, less black and shining than the former. 3. *Spin-Coal*, more black and shining. 4. *Stone-Coal*, much like *Canal-Coal*.

These Strata's have between each of them a Bat, or Bed, of a peculiar Sort of Matter, about the Thickness of a Crown-Piece. Below these are divers metalline Strata's, as a black Substance, called *Dun-Row Bat*; a grey Iron Ore, called the *Dun-Row Iron-Stone*; a bluish Bat, called *White-Row*; a blackish Iron Ore, called *White-Row Grains*, or *Iron-Stone*; a dark grey Iron Ore, called *Bubble Iron-Stone*; lastly, the *Table Bat*.

Then, 5. Comes a coarse Sort of *Coal*, called *Fest-Coal*; a black brittle Bat. 6. The *Heathen Coal*. 7. A Substance like coarse *Coal*, though called a *Bat*, because it does not burn well. And, 8. *Bench-Coal*.

BLACK-STONE, or BLACK-LEAD, is a Kind of Mineral Stone, of a black Colour, but silver'd, and shining, found chiefly in Lead-Mines, and appearing to be nothing else but Lead not yet arrived at Maturity; much used for Pencils, or Crayons for Designing. It is melted like the common Lead.

SULPHUR,

SULPHUR, is a fat, unctuous Sort of Mineral Substance, fusible, and inflammable by Fire; of which there is an ample Description in my Treatise of *Chymistry*. Thus much of hard *Bitumens*.

Soft BITUMENS, are the *Maltha*, *Bitumen* of *Calco*, of *Surinam*, and *Copal*. The *Naptha* of *Italy*, *Petroleum*, and *Zacinthius*.

The MALTHA is a Kind of Bitumen, wherewith the *Assyricks* plaister'd their Walls. When this is once set on Fire, Water will not quench it, but serves rather to make it burn more fiercely.

The antient Writers make mention of *factitious Maltha*, of different Kinds. One of them much in Use was composed of Pitch, Wax, Plaister, and Grease.

Another Kind, wherewith the *Romans* plaistered and whiten'd the Inside of their Aqueducts, was made of Lime slaked in Wine, incorporated with melted Pitch, and fresh Figs.

The NAPHTHA, is a Kind of liquid Bitumen, very oily and inflammable, exuding out of the Earth in several Places in *Chaldea*; particularly the Place where the antient *Babylon* stood: And found also in some Provinces of *Italy* and *France*, particularly *Auvergne*; and near *Ragusa*.

The *Naphtha* is found swimming on the Surface of the Water of some Springs. It is usually of a black Colour; though that found in certain Springs about *Babylon*, is said to be whitish.

That of *France* is soft and black, like liquid Pitch, and of a fetid Smell; that of *Italy* is a Kind of *Petrol*, or a clear Oil, of various Colours, oozing out of a Rock, situated on a Mountain, in the Dutchy of *Modena*.

The *Naphtha* is esteemed penetrating, resolutive, and vulnerary; but its Virtues are little known in Medicine: Its chief Use is in Lamps, *&c.* on account of its Inflammibility.

The *Turks* call the *Naphtha*, *Carah Sakiz*, black Mastick, to distinguish it from Pitch. *Vossius* has an express Treatise on *Naphtha*, antient and modern: He says it is a Flower of Bitumen, of more Virtue than any other Bitumen.

PETROL, PETROLEUM, q. d. *Petræ Oleum*, Rock Oil, is an oleaginous Juice, supposed to issue out of the Clefts of Rocks; and found floating on the Water of certain Springs.

Besides artificial and vegetable Oils, *i. e.* those drawn from Plants, *&c.* by Expression; there are also natural and mineral Oils, issuing of themselves from the Entrails of the Earth; called by a common Name *Petrols*, or *Petrolea*.

These, according to all Appearance, must be the Work of subterraneous Fires, which raise or sublime the more subtile Parts of certain bituminous Matters that lie in their Way. These Parts being condensed into a Liquor by the Cold of the Vaults of Rocks, are there collected, and ooze thence through Clefts and Apertures, which the Disposition of the Ground furnishes them withal. *Petrol*, then, is a black liquid Bitumen; only differing by its Liquidity from other Bitumens.

Hitherto there has been little *Petrol* found, except in hot Countries. *Olearius* says, he saw above 30 Springs near *Scamachia* in *Persia*: There are also *Petrols* in the Southern Provinces of *France*; but the best are those in the Dutchy of *Modena*, first discovered by *Ariosto*, a Physician, in 1640, in a very barren Valley, twelve Leagues from the City of *Modena*.

There are three Canals dug with great Expence in the Rock; by which three different Kinds of *Petrol* are discharged into little Basons or Reservoirs: The first, as white, clear, and fluid as Water, of a brisk penetrating Smell, and not disagreeable: The second of a bright yellow, less fluid, and a less brisk Smell than the white. The third a blackish red, of thicker Consistence, and a Smell more approaching that of Bitumen.

M. *Boulduck* has made several Experiments on the *Petrol*, described in *The History of the Academy of Arts and Sciences*, *An.* 1715. he observes, that he could not raise from it any Phlegm or saline Spirit by any Distillation, either in Balneo Mariæ, or in a Sand-heat: All that would rise was Oil; at the Bottom of the Pellican remain'd an exceeding small Quantity of a thickish brownish Matter.

Hence to use *Petroleum* in Medicine, it must be prescribed just as it is. It is a Remedy Nature has prepared to our Hands: It is found very warm and penetrating; and commended in many outward Complaints, rheumatick, and arthritick Pains, and paralytick Limbs.

Note, That from a Mixture of oleaginous, and saline Juices with the Earth, arise several Concretions, as *Sand*, *Argilla*, *Bole*, *Stone*, *Flint*, &c. every one thereof deserves a particular Attention, since each of them is a Kind of *Fossil*: Therefore I'll begin by *Sand*.

SAND is a fine, hard, gravelly Sort of Earth, or rather Stones, divided into small Grains.

Sand is formed of a perfect Dissolution of a small Portion of Earth, made by saline Juices, which have formed themselves with that Earth, into little Globules, which Men have been pleased to call *Sand*, which having been liquid in its Formation, or perforated on all Sides, by the Particles of Light, retain still, after it is harden'd, the same Faculty of transmitting Light.

The Production of ARGILLA (which is a white dry Earth, like Chalk, but more friable) is almost the same with that of Sand; unless that *Argilla* being composed of much smaller Grains, seems to contain more oleaginous Juice than Sand.

Some are of Opinion, that *Stones* arise from the various Disposition and Configuration of the argillous Particles; since Stones are commonly found in Places where there was *Argilla* before. *Des Cartes* is of this Sentiment, and says, that Stones arise from *Argilla*, i. e. from Earth, Salt, and Sulphur mixed together.

M. *Tournefort*, a *Frenchman*, on his Return from the East, in the Year 1702, proposed to the Royal Academy at *Paris*, a new Theory on the *Origin* and *Formation of Stones*.

On a curious Survey of the famous Labyrinth of *Crete*, he observed, that several People had engraven their Names in the living Rock, whereof its Walls are formed; and what was very extraordinary, the Letters whereof they consisted, instead of being hollow, as they must have been at first (being all cut with Knife-Points) were prominent, and stood out from the Surface of the Rock, like so many Basso-Relievo's.

This is a Phænomenon no otherwise accountable for, than by supposing the Cavities of the Letters filled insensibly, with a Matter issuing from out of the Substance of the Rock; and which even issued in greater Abunbundance than was necessary for filling the Cavity. This is the Wound made by the Knife healed up; much as the Fracture of a broken Bone is consolidated by a *Callus*, formed of the extravasated nutritious Juice, which rises above the Surface of the Bone: And this Resemblance is the more just; as the Matter of the Letters was found whitish, and the Rock itself greyish.

M. *Tournefort* supports its Opinion by several Callus's apparently formed in several other *Stones*, which had reunited, after by Accident they had been broken.

From these Observations, M. *Tournefort*'s Partisans infer, that there are *Stones* which grow in the Quarries, and of Consequence that are fed; that the same Juice which nourishes them, serves to rejoin their Parts when broken; just as in the Bones of Animals, and the Branches of Trees, when kept up by Bandages, and in a Word, that they vegetate.

There is then no room to doubt, say they, but that they are organized, or that they draw their nutritious Juice from the Earth: This Juice must be first filtrated and prepared in their Surface, which may be here esteemed as a Kind of Bark; and hence it must be conveyed to all other Parts.

They believe, that it is highly probable, that the Juice which filled the Cavities of the Letters, was brought thither from the Bottom of its Roots; nor is there any more Difficulty in conceiving this, than in comprehending how the Sap should pass from the Roots of our largest Oaks, to the very Extremity of their highest Branches.

It must be owned, the Heart of these Trees is exceedingly hard, and yet those of Brazil, called *Iron Wood*,

have assigned a more proper Cause to it.

Des Cartes, therefore, 4 *Part. princip. num.* 184. and following, is of Opinion, that some very thin Particles flow from the *Amber*, and other Bodies of that Kind, especially when they are strongly rubbed, which repel immediately the neighbouring Air, but as they do not, in the least, disorder in that Motion, the Meatus appropriated to themselves, they are immediately pushed back by the same Air, towards the same Place whence they flowed; and along with them are carried those light Corpuscles, which consequently are joined to the Succinum, or Glass, or other Bodies of that Kind, rather by Impulsion than Attraction.

For my Part I am Opinion, that by the violent Friction, the Pores of those Bodies being extremely dilated, there then flow from them, and with Impetuosity, a great Quantity of small Corpuscles, which being all very tenacious, according to the Nature of the Body whence they flow, form by a continued Concatenation, a Kind of Chain, one End therefore remains, and the other lays hold or sticks to those light Bodies; but as that fastening cannot be made without some Motion of the Body fastened, in the very Instant of that Motion, that Body being sublivated by the ambient Air, is forced back by it, together with the Chain, which being also very light, cannot resist the Impulsion, towards the Body, whence the Chain proceeds. What can be said further of *yellow Amber*, may be seen in my Treatise of *Chymistry*.

Jet, *Gagates*, called also *black Amber*, is a light, smooth, pitchy, fossil Stone, extremely black; formed of a bituminous Juice in the Earth, in the Manner of Coal.

It works like Amber, and has most of its Qualities: It abounds in *Dauphiné* in *France*; but the best in the World is said to be produced in *Yorkshire*. It readily catches Fire, Flashes, and yields a bituminous Smell.

There is also a factitious *Jet*, made of Glass, in Imitation of the Mineral *Jet*: This is drawn out into long hollow Threads, which are cut and fashioned at Pleasure. It is much used in Embroideries, and in the Trimmings of Mourning, and may be made of any Colour, though it is usually black and white; and of late denominated *Bugles*.

Asphaltum, or Asphaltos, is a solid, brittle, black, inflammable, bituminous Substance, resembling Pitch, brought from the East, and particularly *Judea*; whence it is also called *Jew Pitch*.

The *Asphaltos* of the *Geeeks*, is the Bitumen of the *Latins*. Though modern Naturalists, who make a Class of Bitumens, place *Asphaltos* at the Head of it, as being the furthest maturated and concocted of the whole Tribe; but consisting of the same simple Principles as the rest. It is chiefly found swimming on the Surface of the *Lacus Asphaltites*, or Dead Sea, where antiently stood the Cities of *Sodom* and *Gomorrha*. It is cast up from Time to Time, in the Nature of a liquid Pitch, from the Earth, which lies under this Sea; and being thrown upon the Water, swims like other fat Bodies, and condenses by little and little, through the Heat of the Sun, and the Salt that is in it: It burns with great Vehemence; in which it resembles *Naphtha*, but is thicker as to Consistence.

The *Arabs* use it to pitch their Ships withal, as we do common Pitch. Besides, there was a deal of it employ'd in the embalming of the Antients.

It is supposed to fortify, and resist Putrefaction; resolve, attenuate, cleanse, and cicatrize Wounds: But is little used among us, either externally or internally.

It is usual to sophisticate the *Asphaltos*, by mixing common Pitch along with it; the Result whereof makes the *Pissasphaltum*, which the Coarseness of the black Colour, and the fetid Smell easily discover. Others, however, will have its pitchy Quality natural to it, and suppose *Pissasphaltum* to be the native *Asphaltum*.

Asphaltum also denotes a Kind of bituminous Stone, found near the antient *Babylon*, and lately in the Province of *Neufchatel*; which mixed with other Matters, makes an excellent Cement, incorruptible by Air, and impenetrable by Water; supposed to be the Mortar so much celebrated among the Antients, wherewith the Walls of *Babylon* were laid. It yields an Oil which defend Ships from Water, Worms, *&c.* much better than the ordinary Composition; and which is also of good Service for cleansing and healing of Ulcers, *&c.*

Pissasphaltum, denotes a native, solid Bitumen; found in the *Ceraunian* Mountains of *Apollonia*; of an intermediate Nature between Pitch and Asphaltum.

Pissasphaltum, is also a Name given to a factitious Substance, compounded of Pitch and Asphaltos, or Bitumen Judaicum.

Pit-Coal, is ranked among the Number of Minerals, and the Places it is dug out of are called *Coal-Mines*, or *Coal-Pits*. — It is common in most Countries of *Europe*; though the *English* Coal is of most Repute, even in foreign Countries; notwithstanding some pretend, that of the *Fosse* in *Auvergne* is not any Thing inferior to it.

The Goodness of Coal consists in its being as free as possible from Sulphur, in its heating Iron well, and in its burning a long Time in the Smith's Forge. The *English* Coal has this Particular to it, that it never lights so perfectly, as when Water is thrown on it.

In the Memoirs of the Royal *French* Academy, we have an Account of two Experiments on the common *Pit-Coal*, made by M. *des Landes* while in *England*, and which he thinks have escaped the *English* Philosophers.

1. Pounding some *Coal*, and putting half an Ounce of it in a Vial of Water, the Mixture becomes quite black: But leaving it exposed to the Air in a Window, during a cold Winter Night, in the Morning it was found frozen, and turn'd to a reddish Colour. The Reason of this Change must be, that the sulphurous Particles of the *Coal* having been penetrated by the saline ones of the Water, had formed together a certain Coagulum; whereby those Particles acquiring a Position different from that they had before the *Coal* was reduced into Powder, reflected the Light, likewise, in a different Manner.

2. From an Infusion of Cinders in Brandy, mixed with Iron-filings, arises a black Tincture, which brightens in Proportion as it is heated; when arrived at the Heat of boiling, the Colour becomes perfectly fine and soft, and gives a Dye to Cloth, which no Workman can imitate. — To account for this Phænomenon, I say, that the igneous Particles introduced into that Mixture, lacerate, and disunite, by their violent Agitation, the Texture both of the sulphurous Particles of the *Coal*, and of the oleaginous ones of the Brandy, whereby the Reflection of the Light is less, than when the Cohesion of those Particles was closer; and grows still less and less, in Proportion as the Quantity of the igneous Particles increases, and their Agitation is more vehement; since from thence ensues a greater Disunion of the Parts, and consequently a more free, and wider Passage to the Light.

The Strata, or Veins of Coals in Coal-Pits, are numerous, and their Order, Quality, *&c.* different in different Places.

In those at *Dudley* in *Staffordshire*, the Strata below the Turf, two or three Clays, a grey Stone, and a hard grey Rock, are expressed in the *Philosophical Transactions*, to be, 1. *Coal*, called *Bench-Coal*. 2. *Slipper-Coal*, less black and shining than the former. 3. *Spin-Coal*, more black and shining. 4. *Stone-Coal*, much like *Canal-Coal*.

These Strata's have between each of them a Bat, or Bed, of a peculiar Sort of Matter, about the Thickness of a Crown-Piece. Below these are divers metalline Strata's, as a black Substance, called *Dun-Row Bat*; a grey Iron Ore, called the *Dun-Row Iron-Stone*; a bluish Bat, called *White-Row*; a blackish Iron Ore, called *White-Row Grains*, or *Iron-Stone*; a dark grey Iron Ore, called *Bubble Iron-Stone*; lastly, the *Table Bat*.

Then, 5. Comes a coarse Sort of *Coal*, called *Feet-Coal*; a black brittle Bat. 6. The *Heathen Coal*. 7. A Substance like coarse *Coal*, though called a *Bat*, because it does not burn well. And, 8. *Bench-Coal*.

Black-Stone, or Black-Lead, is a Kind of Mineral Stone, of a black Colour, but silver'd, and shining, found chiefly in Lead-Mines, and appearing to be nothing else but Lead not yet arrived at Maturity; much used for Pencils, or Crayons for Designing. It is melted like the common Lead.

SULPHUR, is a fat, unctuous Sort of Mineral Substance, fusible, and inflammable by Fire; of which there is an ample Description in my Treatise of *Chymistry*. Thus much of hard *Bitumens*.

Soft BITUMENS, are the *Maltha*, *Bitumen* of *Calco*, of *Surinam*, and *Copal*. The *Naptha* of *Italy*, *Petroleum*, and *Zacinthius*.

The MALTHA is a Kind of Bitumen, wherewith the *Asiaticks* plaister'd their Walls. When this is once set on Fire, Water will not quench it, but serves rather to make it burn more fiercely.

The antient Writers make mention of *factitious Maltha*, of different Kinds. One of them much in Use was composed of Pitch, Wax, Plaister, and Grease.

Another Kind, wherewith the *Romans* plaistered and whiten'd the Inside of their Aqueducts, was made of Lime slaked in Wine, incorporated with melted Pitch, and fresh Figs.

The NAPHTHA, is a Kind of liquid Bitumen, very oily and inflammable, exuding out of the Earth in several Places in *Chaldea*; particularly the Place where the antient *Babylon* stood: And found also in some Provinces of *Italy* and *France*, particularly *Auvergne*; and near *Ragusa*.

The *Naphtha* is found swimming on the Surface of the Water of some Springs. It is usually of a black Colour; though that found in certain Springs about *Babylon*, is said to be whitish.

That of *France* is soft and black, like liquid Pitch, and of a fetid Smell; that of *Italy* is a Kind of *Petrol*, or a clear Oil, of various Colours, oozing out of a Rock, situated on a Mountain, in the Dutchy of *Modena*.

The *Naphtha* is esteemed penetrating, resolutive, and vulnerary; but its Virtues are little known in Medicine: Its chief Use is in Lamps, *&c.* on account of its Inflammibility.

The *Turks* call the *Naphtha*, *Carah Sakiz*, black Mastick, to distinguish it from Pitch. *Vossius* has an express Treatise on *Naphtha*, antient and modern: He says it is a Flower of Bitumen, of more Virtue than any other Bitumen.

PETROL, PETROLEUM, q. d. *Petræ Oleum*, Rock Oil, is an oleaginous Juice, supposed to issue out of the Clefts of Rocks; and found floating on the Water of certain Springs.

Besides artificial and vegetable Oils, *i. e.* those drawn from Plants, *&c.* by Expression; there are also natural and mineral Oils, issuing of themselves from the Entrails of the Earth; called by a common Name *Petrols*, or *Petrolea*.

These, according to all Appearance, must be the Work of subterraneous Fires, which raise or sublime the more subtile Parts of certain bituminous Matters that lie in their Way. These Parts being condensed into a Liquor by the Cold of the Vaults of Rocks, are there collected, and ooze thence through Clefts and Apertures, which the Disposition of the Ground furnishes them withal. *Petrol*, then, is a black liquid Bitumen; only differing by its Liquidity from other Bitumens.

Hitherto there has been little *Petrol* found, except in hot Countries. *Olearius* says, he saw above 30 Springs near *Scamachia* in *Persia*: There are also *Petrols* in the southern Provinces of *France*; but the best are those in the Dutchy of *Modena*, first discovered by *Ariosto*, a Physician, in 1640, in a very barren Valley, twelve Leagues from the City of *Modena*.

There are three Canals dug with great Expence in the Rock; by which three different Kinds of *Petrol* are discharged into little Basons or Reservoirs: The first, as white, clear, and fluid as Water, of a brisk penetrating Smell, and not disagreeable: The second of a bright yellow, less fluid, and a less brisk Smell than the white. The third a blackish red, of thicker Consistence, and a Smell more approaching that of Bitumen.

M. *Bouldieck* has made several Experiments on the *Petrol*, described in *The History of the Academy of Arts and Sciences*, *An.* 1715. he observes, that he could not raise from it any Phlegm or saline Spirit by any Distillation, either in Balneo Mariæ, or in a Sand-heat: All that would rise was Oil; at the Bottom of the Pellican remain'd an exceeding small Quantity of a thickish brownish Matter.

Hence to use *Petroleum* in Medicine, it must be prescribed just as it is. It is a Remedy Nature has prepared to our Hands: It is found very warm and penetrating; and commended in many outward Complaints, rheumatick, and arthritick Pains, and paralytick Limbs.

Note, That from a Mixture of oleaginous, and saline Juices with the Earth, arise several Concretions, as *Sand*, *Argilla*, *Bole*, *Stone*, *Flint*, &c. every one thereof deserves a particular Attention, since each of them is a Kind of *Fossil*: Therefore I'll begin by *Sand*.

SAND is a fine, hard, gravelly Sort of Earth, or rather Stones, divided into small Grains.

Sand is formed of a perfect Dissolution of a small Portion of Earth, made by saline Juices, which have formed themselves with that Earth, into little Globules, which Men have been pleased to call *Sand*, which having been liquid in its Formation, or perforated on all Sides, by the Particles of Light, retain still, after it is harden'd, the same Faculty of transmitting Light

The Production of ARGILLA (which is a white dry Earth, like Chalk, but more friable) is almost the same with that of Sand; unless that *Argilla* being composed of much smaller Grains, seems to contain more oleaginous Juice than Sand.

Some are of Opinion, that *Stones* arise from the various Disposition and Configuration of the argillous Particles; since Stones are commonly found in Places where there was *Argilla* before. *Des Cartes* is of this Sentiment, and says, that Stones arise from *Argilla*, i. e. from Earth, Salt, and Sulphur mixed together.

M. *Tournefort*, a *Frenchman*, on his Return from the East, in the Year 1702, proposed to the Royal Academy at *Paris*, a new Theory on the *Origin* and *Formation of Stones*.

On a curious Survey of the famous Labyrinth of *Crete*, he observed, that several People had engraven their Names in the living Rock, whereof its Walls are formed; and what was very extraordinary, the Letters whereof they consisted, instead of being hollow, as they must have been at first (being all cut with Knife-Points) were prominent, and stood out from the Surface of the Rock, like so many Basso-Relievo's.

This is a Phænomenon no otherwise accountable for, than by supposing the Cavities of the Letters filled insensibly, with a Matter issuing from out of the Substance of the Rock; and which even issued in greater Abunbundance than was necessary for filling the Cavity. This is the Wound made by the Knife healed up; much as the Fracture of a broken Bone is consolidated by a *Callus*, formed of the extravasated nutritious Juice, which rises above the Surface of the Bone: And this Resemblance is the more just; as the Matter of the Letters was found whitish, and the Rock itself greyish.

M. *Tournefort* supports its Opinion by several Callus's apparently formed in several other *Stones*, which had reunited, after by Accident they had been broken.

From these Observations, M. *Tournefort*'s Partisans infer, that there are *Stones* which grow in the Quarries, and of Consequence that are fed; that the same Juice which nourishes them, serves to rejoin their Parts when broken; just as in the Bones of Animals, and the Branches of Trees, when kept up by Bandages, and in a Word, that they vegetate.

There is then no room to doubt, say they, but that they are organized, or that they draw their nutritious Juice from the Earth: This Juice must be first filtrated and prepared in their Surface, which may be here esteemed as a Kind of Bark; and hence it must be conveyed to all other Parts.

They believe, that it is highly probable, that the Juice which filled the Cavities of the Letters, was brought thither from the Bottom of its Roots; nor is there any more Difficulty in conceiving this, than in comprehending how the Sap should pass from the Roots of our largest Oaks, to the very Extremity of their highest Branches.

It must be owned, the Heart of these Trees is exceedingly hard, and yet those of Brazil, called *Iron Wood*,

Guiacum and Ebony are much harder. Coral is as hard in the Sea as out of it; and Sea Mushrooms, which every Body allows to grow, are true *Stones*, and so like the common *Stones*, are used in *America* to make Lime of.

None, they believe, ever doubted that Shells grow by means of a nutritious Juice; and yet this Juice is conveyed along the narrow Canals of these excessive hard Bodies, as well as through those of Plants, which are much less hard.

Some *Stones* then, conclude they, must be allowed to vegetate and grow like Plants; but this is not at all probable; they are generated in the same Manner, at least there are Abundance of *Stones*, whose Generation is inconceivable, without supposing they come from a Kind of Seeds, wherein the organical Parts of the Stones are wrapped up in little, as those of the largest Plants are in their Grains.

The *Stones* called *Cornu Ammonis*, *Lapis Judaicus*, *Astroites*, those of *Bologna* and *Florence*, the several Kinds of Pyrites, Sea Mushrooms, Crystals of the Rock, and an Infinity of others, suppose, in their Opinion, their several Seeds; as much as Mushrooms, Truffles, and various Kinds of Mosses, whose Seeds were never yet discovered.

They ask how the *Cornu Ammonis*, which is constantly in Figure of a Volute, should be formed without a Seed, containing that same Structure in little? Who moulded it so artfully? And where are the Moulds? Far from this, say they, these Kinds of Stones are found in the Earth like common Flints. Nor were either Moulds, or any Thing like them ever discovered.

M. *Tournefort* examines the several Kinds of Stones above-mentioned, and finds them under the same Necessity of Seed. Again that immense Quantity of Flints wherewith the Crow of *Arles* is covered, is a strong Argument in behalf of this Theory.

The Country there for twenty Miles round, as I have already observed in another Place, is full of roundish Flints; which are still found in equal Abundance, to whatever Depth you dig. M. *Peiresc*, who first proposed the Generation of *Stones* by means of Seeds (tho' he took the Word Seed in a very different Sense from M. *Tournefort*) first brought this extraordinary Campagne as a Proof thereof. He asks, how could so many similar Flints be formed? There is no saying they are coeval with the World, without assenting at the same Time, that all the Stones on the Earth were produced at once; which were to go directly contrary to the Observations above-mentioned.

Among the Seeds of *Stones* M. *Tournefort* observes, there are some which do not only grow soft by the Juices of the Earth, but even become liquid. These then, if they penetrate the Pores of certain Bodies, grow hard, petrify, and assume the Figure or Impression of the Body: Thus what we call *Putinites*, *Conchites*, *Mytulites*, *Ostracites*, *Nautilites*, *Echinites*, &c. are real *Stones*; the liquid Seeds whereof have insinuated into the Cavities of the Shells called *Puten*, *Concha*, *Mytulus*, *Ostrea*, *Nautilus*, *Echinus*.

On the contrary, if those liquid Seeds fall on Flints, on Shells, Sand, *&c.* they inclose those several Bodies, and fixing between them form a Kind of Cement, which yet grows like other Stones. It is highly probable, that such Rocks as are only an Assemblage of masticated Flints, have been formed by a Number of these liquid Seeds, in like Manner as the Quarries full of Shells; unless the Rocks have unveloped those Bodies in their Growth.

He adds, that there are Seeds of real *Stones* inclosed in the Spawn of certain Shell-fish, as well as that hard solid Matter, destined to the forming their Shells.

There is a particular Kind of Shell-fish, called *Pholas*, which is never found any where but in the Cavities of Flints, which are always found exactly fitted to receive them. Now, it is highly improbable the Fish should come and dig such a Nitch to spawn in; it is much more likely, the *Stones* they are found inclosed in were at first soft, and that the Matter they are formed of was originally found in the Spawn, in like Manner as the Matter which forms the Egg-shell, is really found in the Seed thereof.

From the whole he concludes, that the Seed of *Stones* and even of Metals, is a Kind of Dust which probably fall from them when they are alive, *i. e.* while they continue to vegetate as above. This Dust may be compared to the Seeds of several Plants, as those of Ferns, Capillaries, Mokes, Truffles, *&c.* which no Microscope ever yet discovered; though their Existence is not at all to be doubted.

Some imagine, that Flints and Pebbles are among *Stones* what Truffles are among Plants; nor is this Opinion new: *Pliny* assures us, that *Theophrastus* and *Mutianus* believed, that *Stones* produced *Stones*; and *Gregory Nazianzen* adds, that there were Authors who even believed that *Stones* made Love.

This Theory of M. *Tournefort*, on the Origin and Formation of *Stones* is very ingenious, and has a great deal of Probability in it; but it does not seem to me entirely satisfactory; for though he tells us that Stones are produced from Seeds and formed by Vegetation, he does not inform us how those Seeds are fecundated in the Entrails of the Earth, and in what Manner the organical Vessels, through which the nutritious Juice circulates, are configurated, and disposed throughout the whole Body of the *Stone*; how that Circulation is accomplished, and what gives its first Impulsion.

For my Part, was I to espouse his Sentiment, and account for it, without having Recourse to that chimerical Dust, which he admits for the Seed of *Stones*; I would say, that the Matrices where *Stones* are formed, contain, like those of Metals and Minerals, certain saline Particles, and a Kind of Earth naturally disposed from the Beginning of the World, to be configurated so as to form together a certain Compound, when put into Motion, and approached nearer one another by a powerful Agent, by which Approximation, and closer Union of their Parts, they are rendered capable of being fecundated by the same powerful Agents; therefore I would consider the Matrices of *Stones* as a Kind of Ovary, where Nature keeps always a vast Quantity of those first Principles, which I will call Eggs, ready to receive the Impressions of the Agent, which loosening them from the Earth they were adherent to, after it has thus united them together, brings them into a Place more convenient for the Formation of an Embrio, on which it continues working, till by degrees it has unfolded all the organical Parts, and appropriated every one of them to the particular Use Nature has designed it for; leaving in them, after it has perfected its Work, the first Principle of Motion, to usher through them the nutritious Juice, which they receive from the Matrice they have been formed in, as from a Placenta, by means whereof the Stone vegetates and grows, till it has acquired the Bulk prescribed by Nature. And when that *Stone* is taken out of its Matrice, another Egg is loosened from the Ovary, and brought in the same Place for the same Purpose; and where a new *Stone* is formed, unless the Matrice be vitiated.

M. *Geoffroy* accounts for the Origin and Formation of *Stones* in a different Manner. He lays it down as a Principle, that all *Stones* without Exception have been fluid, or at least a soft Paste now dried and hardned; witness the *Stones* where are found foreign Bodies, witness also figured Stones, *&c.*

On this Principle he examines the Formation of the different Kinds of *Stones*; and shews, that the Earth alone suffices for the same, independant of all Salts, Sulphurs, *&c.* The metallick Particles contained in Flints give them their Colour, but these are only Accidents, for Proof of which he instances the Saphires and Emeralds of *Auvergne*, which lose all their Colour by a moderate Fire consuming their metallick Parts; but without any Damage to their Transparence, their being hereby rendered mere Crystals.

To view Rock Crystal, indeed, one would not take it for Earth; and yet Earth it must be, not Water congealed, as the Antients imagined.

M. *Geoffroy* conceives two Kinds of primitive Particles in the Earth. Those of the first Kind are exceedingly fine, thin Lamellæ, equal to each other, or nearly so. Now, when these meet together from any Cause whatever, in a sufficient Quantity, the Regularity and

Equality of their Figures determines them to range themselves equally and regularly; and thus to form a homogeneous Compound, which is very hard, from the immediate Contact of the Parts, and very transparent by reason of their regular Disposition, which leaves a free Passage to the Rays of Light every Way; and this is Crystal.

The Parts of the second Kind have all Sorts of irregular Figures, and must accordingly form Assemblages which are much opaker and less hard. Now Crystal is formed wholly of Parts of the first Kind, and all other *Stones* of a Mixture of two Kinds of Parts together: This Mixture is absolutely necessary, in order to unite and bind together the Parts of the second Kind, and give them a Hardness and Consistence, without which they would only make a Sand, or Dust. Water now appears the fittest Vehicle, to carry the Parts of the first Kind. This is seen from several petrifying Springs, which incrustates the Pipes through which their Waters are conveyed, or even solid Bodies laid in the Earth for some Time: The Water does not dissolve those earthy Parts, it only keeps them in Fusion, as it does the Juices wherewith Plants are fed.

This Water, thus charged with earthy Particles of the first Kind, M. *Geoffroy* calls the *stony*, or *crystalline Juice*, whereof those Bodies are primarily formed.

Neither is this Sentiment of M. *Geoffroy* entirely satisfactory: For though he lays down two Kinds of primitive Particles in the Earth for the Formation of *Stones*, *viz.* exceedingly fine, and thin Lamellæ, for the Formation of transparent *Stones*: The Regularity and Equality of the Figures thereof determine them to range themselves equally and regularly. And others, which have all Sorts of irregular Figures, for the Formation of *opake Stones*, he seems to go no further; and leaves us in the Dark, as to the Increase of Stones. He also appoints Water for the Vehicle of those Particles; but he is not so kind to inform us how that Operation is performed; for though he says that the Water keeps those earthy Parts in Fusion, as it doth the Juices wherewith Plants are fed, as he is pleased to imagine, he does not pretend that there are Vessels in *Stones*, as in Plants, to convey that Water through.

Therefore, to support his Sentiment, I would say, rejecting all Kinds of Vehicles whatever, that those exceedingly fine and thin Lamellæ, which he considers as the primitive Particles of transparent *Stones*, are nothing else but Salts much depurated of earthy Particles, and crystalised in the Entrails of the Earth: That those *Crystals* being very soft in their first Formation, are united together by a *juxta Position*; and form a larger, or lesser Compound in Proportion, as there is in the Quarry a greater or less Abundance of those Salts they are formed of; that as that saline Matter is most commonly very deep in the Earth, and most commonly reaches from thence to its Superficy, hence arise those *Stones* of an immense Bulk, which offer themselves to our Sight; by the Earth around it giving Way to fill the Cavities, left by the saline Matter uniting itself thus closer to form the Compound.—That the *transparent Stones* are always much smaller than the opake ones, because there is but a very small Quantity of that purified Salt they are formed of, in Comparison to the coarse saline Particles, which with a vast Quantity of earthy ones, enter into the Composition of *opake Stones*.

Mr. *Boyle* observes, that a competent Knowledge of the Nature of the Sap or Juice found in *Stones* used in Building, is of the last Importance; the same Stone dug out of the same Quarry at one Season, being found to moulder away in a few Winters, which dug at another Season, will brave the Weather for many Ages; and there are others, which, though dug at the proper Season, yet make but ruinous Buildings, if used at an improper Season.

The same Author adds, that as there are some Sorts of *Stones* which will decay in a few Years, there are others will not have attained their full Hardness in thirty or forty Years, or even much more.

Bishop *Wilkins* divides *Stones* into *vulgar*, *middle Price*, and *precious*.

Vulgar Stones, or such as are of little Price, are distinguishable by their different Magnitudes, Uses, and Consistence, into the

- Greater Magnitudes of *Stone* used either about
  - Buildings, whether of
    - Walls; chiefly being of a
      - Softer Consistence, whether natural or factitious,
        - 1. *Free-Stone*, *Brick*.
      - Harder Consistence; not easily yielding to the Tool of the Workman, growing either in
        - Great Masses,
          - 2. *Raggs*.
        - Lesser Masses; whether such as are for their Figure,
          - More knobbed, and unequal, used for striking of Fire, either the more common, which is less heavy; or less common, which is more heavy; as having something in it of a metalline Mixture,
            - 3. *Flint*, *Marcasite*. Fire-*Stone*.
          - More round and even,
            - 4. *Pebble*, Thunderbolt.
    - Roof, or Pavement, being of a luminated Figure, either natural, or factitious.
      - 5. *Slate*, *Tyle*.
  - Metals, either for the
    - Sharpening or trying of them,
      - 6. *Whet-Stone*, *Touch-Stone*.
    - Polishing, or Cutting them; being either of a more spungy and soft, or of a more hard Consistence.
      - 7. *Pumice*, *Emery*.
  - Lesser Magnitudes, either more, less, or minute.
    - 8. *Sand*, *Gravel*.

2. *Middle priced* Stones, are either of a

- Shining Politure, or capable of it; whether of a
  - simple white Colour, and more soft Consistence,
    - 1. *Alabaster*.
  - Sometimes white, sometimes black, or green, and sometimes variegated with Veins, growing in greater or less Masses,
    - 2. *Marble*, *Porphyry*, *Agat*.
  - Spotted with red, upon a greenish Colour, or with Spots of Gold Colour upon blue,
    - 3. *Jaspis*, *Heliotryx*, *Lazuli*, *Azure Stone*.
  - Transparency, either
    - brittle; whether natural or factitious,
      - 4. *Crystal*, *Glass*.
    - Fissilk into Flakes, either greater or lesser,
      - 5. *Selenite*, Muscovia *Glass*, *Ising-Glass*, *Talc*. [*Spar*,
  - Relation to Metals, attracting Iron, or making of Brass.
    - 6. *Load-Stone*, *Cadmia*, *Calaminaris*.
  - Incombustible Nature,
    - 7. *Amiantus*, *Asbestus*.
  - Strange Original; not being properly Minerals, tho' usually reckoned among them; but either a submarine Plant, or supposed to proceed from a liquid Bitumen,
    - 8. *Coral*, *Coralline*, *Amber*.

Precious Stones he subdivides into *more* and *less transparent*.

The *less transparent* he distinguishes by their Colours, into red, as the *Sardian* and *Cornelian*; pale, fleshy Colours, like that of a Man's Nail, as the *Onyx*; blueish, as the *Turquois*; pale Purple, as the *Chalcedony*; and those of various Colours, as *Opal* and *Cat's Eye*.

The *more transparent* he distinguishes into such as are colourless, as the *Diamond* and *white Sapphire*; and coloured, which are either red, as the *Ruby*, *Carbuncle*, and *Granate*; yellow, as the *Chrysolite* and *Topaz*; green, as the *Emerald*, *Smaragd*, and *Beyl*; blueish,

as

as the *Sapphire*; and purple or violaceous, as the *Amethyst* and *Hyacinth*,

EARTH, as we take it in this Place, is also a fossil or terrestrial Matter, whereof our Globe principally consists; whose Character is to be neither dissoluble by Fire, Water, nor Air; not transparent, more fusible than Stone, and generally containing some Degree of Fatness.

Of such *Earths*, some are simple and immutable; others compound and fatty. Of the first Kind is *Chalk*, *Pumice*, and *Rotten-Stone*. Of the second or compound Kind, are *Boles* of all Kinds, red, white, and brown; *Fuller's Earth*, the divers Kinds of medicinal Earth, as e *Cretica*, *Hungarica*, *Turcia*, *Suecia*, *Lemnian Earth*, *Malta Earth*, *Terra Sigillata*.

With Regard to the *simple Earths*. CHALK, is a white fossil Substance, usually reckoned as a Stone; but Dr. *Slare* thinks, without Reason; since when examined by the hydrostatical Ballance, it is found to want much of the Weight and Consistence of a real Stone: So that he thinks it more justly ranked among the Earths.

This he observes to be the Case, not only in *Chalk*, but various other Bodies, taken for granted to be Stones; some whereof are nearer to Earth than Stone; others nothing but Earth, Sulphur, Metal, *&c.*

PUMICE, reckoned by a great Number of Naturalists, as a Kind of spongeous Stone, very porous and friable; is by others consider'd as a Kind of Earth: Neither are they agreed about the Nature and Origin of *Pumice*. Some look on it as Pieces of Rock half-burnt and calcined, cast up in Eruptions of Vulcano's, particularly *Ætna* and *Vesuvius*, into the Sea; and which being there washed in the Salt-Water, lays aside the black Colour, that the Impression of the subterranean Fires had given it, and becomes whitish, or sometimes only greyish, according as it has floated more or less in the Sea.

Dr. *Woodward* considers *Pumice*, as only a Sort of Slag, or Cinder; and affirms, it is only found either where Forges of Metals have antiently been, or near some Vulcano or burning Mountain.

Other Authors will have the *Pumice* to rise from the Bottom of the Sea; whence they suppose it detached by subterraneous Fires. And hence account both for its Lightness and Porosity, and its saline Taste; alledging, in Confirmation hereof, that *Pumice* is frequently found in Parts of the Sea far remote from all Vulcano's; and adding, that several Parts of the *Archipelago* are frequently found cover'd with it, all at once, after a few inward Shakes and Heavings of the Bottom of the Sea.

Pumice makes a very considerable Article in Commerce, and is much used in the Arts and Manufactures, to polish and smooth several Works.

Its Pieces are of several Sizes: The Parchment-makers and Marblers use the largest and lightest. The Curriers the heaviest and flattest. The Pewterers the smallest.

Pliny observes, that the Antients made considerable Use of *Pumice*, in Medicine; but it is out of the present Practice.

As to the second, or *compound Kind of Earths*. BOLES abound with Salts of different Forms or Figures. For the Spirit of Vitriol, which is an acid, poured upon the *Armenian Bole*, causes no Ebullition; but if it be poured upon the *Terra Sigillata*, or *Lemnian Bole*, it will excite a very great Effervescence, or Ebullition; which denotes a very great Variety of Salts in those Earths, or Boles.

The *Armenian* BOLE, popularly, though corruptly called in *English*, *Bole Armoniack*, is a soft, friable, fatty Earth, of a pale red Colour; easily pulverized, and which adheres to the Tongue; esteemed a good Dryer, styptick, and vulnerary; and in these Qualities used in divers Diseases, both internally and externally.

This *Bole* is easily falsified; and the Druggists frequently sell *Lemnian*, or other Earth in lieu thereof. *Matholius* says, it is found in Gold, Silver, and Copper-Mines.

BOLE *of the Levant*, is a medicinal Earth brought from the *Levant*; nearly of the same Nature, and having the same Uses with the *Armenian Bole*.

Pomet says, there is no such Thing among us, as either true *Bole Armoniack*, or *Bole of the Levant*; and that all the *Boles* now in Use, are brought either from the Provinces of *France*, or the neighbouring Countries: But this does not seem sufficiently warranted; and the new *Tarifs*, or Duties on Goods, imported into *France*, which mention them both, make it credible, that there are of either Kind imported into that Kingdom. Indeed it appears, that it is the *Levant Bole*, which usually passes among us for the *Armoniack*.

FULLERS-EARTH, is a fatty, fossil Earth, abounding in Nitre; of great Use in the Woollen Manufacture.

TERRA *Sigillata*, is a Kind of Earth or Bole, dug in the Isle of *Lemnos*, and thence also called *Lemnian* Earth, of considerable Use in Painting and Medicine.

It is of different Colours, but most commonly red; heavy, soft, and friable; held very astringent, and as such used in Hæmorrhages; as also against the Plague, and Poison, though I would not trust to it in those dangerous Cases. *Pliny* attributes to it several other Virtues, which Experience does not justify; nor is it in that Esteem it antiently was; yet it is still an Ingredient in Venice-Treacle.

It was antiently found in a Mountain, in the Neighbourhood of the City *Hephæstia*; where *Diana*'s Priests went at certain Times with great Ceremony to dig it up. After a little Preparation they made it up in *Troches*, and sealed them with *Diana*'s Seal; whence the Appellation of *Sigillata*, *sealed*.

It is now brought from *Constantinople* in little flat Cakes, round on one Side, flat and sealed on the other.

MINERAL-WATERS.

MINERAL-WATERS, are those which at their springing forth from under Ground, are found impregnated with some *Mineral* Matter, as Salt, Sulphur, Vitriol, *&c.*

Most of the Matters wherewith the *Mineral-Waters* are impregnated, are not discernible in them, and the divers Mixtures made in them of several of those Matters together, constitute so many different Kinds of *Mineral Waters*, either wholesome or pernicious, that it is impossible to know and determine them all.

The Waters of the same Springs, can, in divers Times, receive notable Alterations or Changes, by new Mixtures, or by those which have been made being entirely exhausted.

Some have imagined, that *Mineral-Waters* are produced entirely of the *Mineral* Vapours exhaling from Mines, and condensed; but it is not very likely, that there are, in the Earth, Mines abundant enough to furnish Vapours, capable, being condensed, to keep out the perpetual Course of those Waters, in Sources which are inexhaustible. But it may happen, that some *mineral* Vapours or Exhalations, are mixed with the common Waters which run through the Earth, where they are to be met with, and condensed; and that those Waters remain impregnated with their Qualities, and with some volatile Salts, not concrete, sublimated in those dry Exhalations, or in those humid Vapours. It is not very easy to discover those Exhalations and Vapours. The Variety of their Matters is very great, their Mixtures are accidental; the Qualities of the Places they run through, and where they are stopped, are not evident, and the Alterations they produce in the Waters they are mixed with, are not always manifest.

It is equally difficult to discover the Juices which can be mixed with the *Mineral Waters*, and particularly those which receive no Concretion, and communicate no sensible Quality to those Waters; for those liquid and entirely volatile Juices, pass in the Distillation, with the Matter of the Water, and are only manifested by Effects which simple Water cannot produce.

The Juices, called Concretes, because they can be condensed, and resolved, have Sediments, which render them visible and palpable after the Distillation or Evaporation of the Water they are mixed with. But it is very difficult to discover their Kind and Properties, if they have no respect to those which are already known, or if they be several together.

The Salts and Earths, are the most sensible, and most common Matters, mixed in Springs and Well Waters. There is seldom any Earth which does not participate of some Salt dissoluble in the Waters which pass through them; and the Current of those Waters, carries off always likewise some subtle Earth; and this is what is found the most manifest in those Waters: But the Knowledge of those Salts and Earths mixed in the Waters, is not always so distinct, that one can determine the Species thereof, and form a sure Judgment of their Properties.

There are but very few concrete Salts known to us. There may be several of them, which have respect to the common Salt, Nitre, Allum, and Vitriol, which are the four most common Kinds of *mineral* concrete Salts. Those whose Propensity to Concretion is not accomplished, and which are yet in Embrio, and as in their Seminary or first Being, are less discernible in that State, and those which are better formed, and already Concretes, or capable of Concretion, which some call *enixi*, i. e. born, and came out of their Matrices, have no simple and homogeneous Substances in each Species.

The common Salt has two different Portions mixed together; one is condensed and crystallised, in the Cold, and in a damp Place, after the Evaporation of Part of the Water, in which that Salt has been dissolved; the other is neither condensed nor crystallised, but by the total Evaporation of the rest of the Water. That the Portion crystallised in the Cold, or in a damp Place, is the most sulphurous, and by its Sulphurity is easily mix'd with sulphurated Salt of Tartar, calcined and resolved in a damp Place, or in common Water, without Coagulation: But that Part of the common Salt which is not condensed but by the total Evaporation of the Water, in which it has been dissolved, has an Acidity, which immediately coagulates the Salt of Tartar in Solution, and all other fixed, sulphurous and nitrous Salts.

The Vitriol which crystallises, in a damp Place, on sulphurous Marcasites, has, likewise, a succulent Portion, condensible only by the total Evaporation of its aqueous Humidity, of a very acid Taste, of an unctuous Substance, and soon resolved in a humid Place; which different Portion is very different from that, which is condensed first, and crystallised in the Cold, in the Water where that Vitriol has been dissolved. Those Crystals are a pure, acid, austere Vitriol; a great deal of the *mineral* Earth whereof is precipitated by the Mixture of the sulphurous and nitrous Salts, with which the other Coction can be easily mixed, having not, like the first, that Acidity, on which the sulphurous Salts can act. Which is otherwise in the common Salt, the first Portion whereof is the most sulphurous, and the second the most acid.

True Nitres, are, likewise, composed of two different saline Portions, one more sulphurous, which can be crystallised in a cold or damp Place, and another which dissolved after that Crystallisation, and which is not condensed but by a Heat strong enough to expel all the dissolutive Humidity, is less sulphurous, and has some Acidity, which the other has not.

The first Beings or Embrio's of the *mineral* Salts are but Vapours, or Juices not concrete, entirely vaporous, some of which can be condensed and fixed in Part, by the Action of Fire; or be disengaged from their Matrices, and rendered capable of Concretion by means of the Air; which is observed in certain nitrous, aluminous, and vitriol Salts. The sulphurous Salt, found in the Calx of certain hard Stones burnt in the Fire, and which is a kind of true Nitre, had its Seminary in the Stones before they were burnt; and in that State of its first Being, is very different from that it requires in the Fire, which of cold and coagulative, renders it caustick and resolutive. The cold and coagulative Quality of that stony Salt, in its first being, manifests itself sufficiently in the Waters of the Springs of certain Rocks; which are very limpid and cold, and causes cold and scirrhous Tumours, to those who use it for common Drink. That Seminary of stony Salt, is rendered nitrous, sulphurous, caustick, and resolutive by Fire, which could exhaust it; but not produce it, in calcining those Stones, no more than that of burnt Shells of Oysters, of which also they make Chalk, which has no less of sulphurous Salt. This Salt embrioned in the Stones of Chalk, is a stony Juice, which can be mixed with the Waters which run between the Beds and Interstices of those Stones in the Rocks; but which is not easily discovered in the Waters impregnated therewith.

The Seminary of Allum and that of Vitriol must be likewise in the Matters whence those Sorts of Salts are extracted by means of Water, after their Calcination in the Fire, and their Maceration in the Air. The Fire and Air which have exalted them, could not produce them. The Seminary of Allum in the aluminous Stones, and that of Vitriol in the sulphurous Marcasites, are not, in that State, manifest to our Senses; and often are no otherwise known in *Mineral Waters*, but by some Effects, and even that without any Certainty, because those Effects can be equivocal.

All those Varieties of mineral Salts embrioned, *enixi*, chrystalin, succulent, sulphurous, not sulphurous, of the first, and of the second Concretion, those of their Genders, Species, Mixtures, Proportions, Alterations, *&c.* render difficult and uncertain, the Judgment of the Properties of the Waters participating thereof.

The subtile Earth mixed likewise in the *Mineral-Waters*, can be likewise of several Sorts difficult to discover: Those Earths are found in them, of divers Colours, white, grey, yellowish, red, brown, and of different Qualities. The one is dissoluble in distilled Vinegar, the others indissoluble; the one fusible, the other not fusible in the Fire, where they assume divers Colours; the one argillous, the other cretaceous, bolar, sandy, talquous, calcinous; the one produced by the Concretion of certain saline, or sulphurous Juices, the others not; the one simply mineral, the other metallick. Most of those Kinds being not easily discerned separately, are still less discovered when mixed together.

The simple Infusions of certain sulphurous mineral Earths, can cause a notable Alteration in common Waters, though nothing of those Earths is left in their Sediments after Distillation, as there's none seen in certain Liquors rendered reunitive by the simple Infusion of Antimony.

Hot Mineral-Waters can contract some Alteration by the sulphurous and bituminous Matters they meet with in their Course; for those Matters partake of certain subtile Salts, which those Waters can dissolve and carry off along with them.

Some Mineral-Waters cold, or luke-warm, have a sourish or vinous Flavour, which is not discovered in any of those which are not notably hot; but that Flavour is so easily lost by the least Heat, or in the Air, that it is difficult to discover what causes it. There is not so much as any found in the Waters thought to be aluminous and vitriolick, but likewise in the Waters which are manifestly nitrous, and which abound in sulphurous Salts opposed to Acids.

The Causes of Heat of certain *Mineral-Waters* are little known. There is Room to doubt if there be subterraneous Fires capable of heating them, or if they have received that Heat by the Exhalations of some fermentable mineral Juices, or wherein an Ebullition arises from the Mixture of other Juices.

To discover the Nature and Qualities of *Mineral-Waters*, the following Method is to be observed.

1. From what Place they are.—2. In what Time, or Disposition of the Air they have been taken in their Springs.—3. If they are sent in Bottles to the Physician who is to examine them, he must enquire how long they have been in Bottles, and if the Bottles were clean, and have been well corked.—4. If they have made some Sediment in the Bottles, and of what Kind.—5. If those

Waters are limpid or muddy.—6. If they have ſome Smell and ſome manifeſt Flavour.—7. If their Weight differs notably from that of ſimple and common Water.—8. If they change Colour by being mixed with Galls, or Oak-Leaves, or Pomegranate's Peel, Myrabolans, &c.—9. If having been expoſed to the Air, or a little heated, they are no longer ſuſceptible of Colour.—10. If being put in Diſtillation through the Alembick, in Balneo-Mariæ, there ariſes and diſtills firſt ſome Liquor more ſubtile than the reſt, and if there be found ſome Differences between the diverſe Portions of the ſame Water diſtilled, received ſeparately.—11. If in the Evaporation or Diſtillation of thoſe Waters, at a very moderate Heat, ſome Pellicles be formed on the Surface of the Water; or if ſome terreſtrial Concretions be made floating by Flakes in the Water, or adhering to the Sides of the Veſſels, or ſettling at the Bottom, and which.—12. If after an almoſt total Diſtillation or Evaporation of thoſe Waters, ſome ſaline, fibrous, granulated, or otherwiſe figurated Concretion, be made in the Liquor left, and expoſed in a cold Place.—13. If the Water being all evaporated, or diſtilled dry, leaves a Settling, how much, and what Sort of Settling.—14. If the terreſtrial Settling contains ſome Portion of Salt or not.—15. To which Salts, of thoſe commonly known, the Salts of thoſe Waters can have a Report.—16. If they precipitate into a red, or yellow Colour ſublimate Mercury diſſolved in common Water; and if they precipitate likewiſe, the ſulphurous Earths of common Vitriol, as do the true Nitre of the Antients, the Natron of *Egypt*, the white Lode, and the foſſil Borax.—17. If they change green the Colour of Syrup of Violets, and if they reſtore the blue Colour of the Tourneſol, turned red by ſome alluminous vitriolick Acid or other, as the true Nitres do.—18. If they turn red the Tourneſol, as the Allum and Vitriol do.—19. If they thicken and coagulate quickly, the Liquor of the fixed Salt of Tartar, as does the ſucculent and ſecond Portion of common Salt, which is not condenſed but by a total Evaporation of the Water in which that Salt has been diſſolved.—20. If they cauſe no Changes in the Waters of the Diſſolutions of ſublimate Mercury and Vitriol, nor on the Syrup of Violet, nor on the Liquor of the Salt of Tartar reſolved, no more than do Saltpetre, and the firſt Portion of common Salt, which is cryſtalized when expoſed in a cold or damp Place.—21. If the earthy Settlings of thoſe Waters, after the Separation of their Salts, are entirely, or in Part diſſoluble in diſtilled Vinegar, and with ſome Ebullition, as certain Sorts of Chalks, as does the white Earth of the Curds of nitrous and alkali Salts, produced by the Mixture of the ſecond Portion of common Salt.—22. If thoſe terreſtrial Settlings diveſted of Salts, put to the Fire and ſtrongly heated in *German* Crucibles, be fixed if they change Colour, if they are vitrified or calcined, and if by means of the reductive Salts, ſomething metallick can be extracted from it or not.—23. And if their Salts purified, after they have been melted at the Fire, in Crucibles of a good vitrified Earth, aſſume ſome extraordinary Colour.

According to this Examen made on *Waters* of different Springs, both hot and cold, there may be obſerved particularly, Salts and Earth of divers Qualities, and in different Quantities.

The Salts condenſed after a ſlow Diſtillation or Evaporation, may be reduced to two Genders, the one to the Nitre of the Antients, which is a ſulphurous mineral Salt ſemblable to the Alkali of the Plants, the others to the common Salt conſidered in one, or the other of its different Portions, or according to the Mixture of both together. For in all the Analyſes made of all Sorts of *Mineral Waters*, by the Academy of the Sciences at *Paris*, there has been found neither Allum nor true Vitriol.

All *Mineral-Waters* are either hot, or luke-warm, or cold; they alſo differ in the Taſte, for ſome of them are ſour or vinous, ſome auſter or ferruginous, and others without any manifeſt Flavour, or inſipid.

All thoſe ſenſible Differences, joined to thoſe which are the moſt remarkable in the ſettling of thoſe Waters, after Diſtillation or Evaporation, and particularly in the Participation of certain Salts, ſome of which have ſome Report to common Salt, and others to the Nitre of the Antients, have given Occaſion to diſtribute *Mineral-Waters* into ſeveral Claſſes, to diſpoſe in ſome Order the hiſtorical Detale of the Obſervations made in examining them.

In the firſt of theſe Claſſes are the *hot Waters*, in which is found a Salt which has a Report to common Salt.

In the ſecond are the hot Waters, whoſe Salt is found ſemblable to the Nitre of the Antients.

In the third are the inſipid *luke-warm Waters*, which participate of ſome Salt, either common or nitrous, and ſome which have no Salt at all.

In the fourth, are the *luke-warm Waters* of a ſourith or vinous Taſte, which participate ſomething of the true Nitre.

In the fifth, are the inſipid *cold Waters*, which participate of ſome Salt ſemblable to common Salt, and ſome in whoſe Analyſis no Salt is found.

In the ſixth, are the *cold Waters*, whoſe Flavour is ferruginous or auſter.

In the ſeventh, are the *cold Waters* of a ſourith or vinous Taſte, which participate of common Salt.

And in the eighth, are the *cold Waters*, of a ſourith or vinous Taſte likewiſe, which participate of the true Nitre.

Note, In the ſeveral Experiments which have been made on *Mineral-Waters*, none of the hot ones have been found ſourith, and none of the inſipid cold ones nitrous.

Note, alſo, That none have took ſo much Pains to examine the different Qualities of the ſeveral Kinds of *Mineral-Waters*, as the Royal Academy of Sciences at *Paris* has done. I'll give here an Account of all the curious Diſcoveries they have made in that Examen, particularly of thoſe which are found in the Kingdom of *France*; ſince by the Report thoſe Waters may have with others found any where elſe, one may eaſily judge of the Qualities of thoſe Waters: But previouſly to it, I muſt ſpeak of the moſt conſiderable Springs of *Mineral-Waters* found here in *England*, which are of the firſt Claſs, *viz.* hot.

The chief hot mineral Springs in *England*, are thoſe near *Wells* in *Somerſetſhire*, and thoſe others at *Buxton* and *Matlock* in *Derbyſhire*; which latter however, are rather warm or tepid than hot.

In the City of *Bath* are four hot Baths; one triangular called the *Croſs Bath*, from a Croſs that formerly ſtood in the midſt of it; the Heat of which is more gentle than the others, becauſe it has fewer Springs. The ſecond is the *Hot Bath*, which heretofore was much hotter than the reſt, when it was not ſo large as it now is. The other two are the King's and Queen's Baths, divided only by a Wall; the laſt having no Spring, but receiving the Water from the King's Bath, which is about ſixty Feet ſquare, and has in the Middle of it many hot Springs, which render its healing Quality more effectual. Each of theſe is furniſhed with a Pump to throw out Water upon the Diſeaſed, where it is required.

The *Engliſh* pretend, that theſe Waters abound with a mineral Sulphur; they are hot, as already obſerved, of a bluiſh Colour, and ſtrong Scent, and ſend forth thin Vapours. They do not paſs through the Body like moſt Mineral Waters, though if Salt be added they purge preſently. On Settlement they afford a black Mud, which is uſed by way of Cataplaſm in Aches, of more Service to ſome than the Waters themſelves; the like they depoſite on Diſtillation and no other.

Dr. *Aſtendoff* found the Colour of the Salt drawn from the King's and Hoth Bath, yellow; and that from the *Croſs-Bath*, white; whence he concludes, that the *Croſs Bath* has more Allum and Nitre than the hot, which, tho' it abounds more with Sulphur, I conclude hence that it is all Nitre and no Allum. The *Croſs-Bath* is ſuppoſed to prey on Silver, and all of them on Iron, and none on Braſs.

Note, That the Uſe of theſe Baths is found beneficial in Diſeaſes of the Head, as Palſies, &c. in cutaneous Diſeaſes, as Leproſies, &c. Obſtructions and Contipations of the Bowels, the Scurvy and Stone, and in moſt

most Diseases of Women and Children. The Baths have performed many Cures, and are commonly used as a last Remedy in obstinate chronick Diseases; where they succeed well, if they agree with the Constitution of the Patient; but whether they will agree or not, one cannot be known without Trial.

The most considerable *Mineral-Waters* in the Kingdom of *France*, which are also hot, are those of *Bourbon Lancy*, in the *Bourbonese*. The great Number of Springs, the Magnificence of the Baths, the Antiquity of the Buildings, and the Care our Kings have taken of their Re-establishment for a Century past, give those Waters some Prerogative to be the first considered in that Kingdom.

The Examen has been made of the Waters of the *Lymbo*, of the *Queen's Fountain*, of that of *Escures*, and of that of *St. Leger*.

The Water of the great Well, call'd the *Lymbe*, is the hottest in its Source; it is limpid and without Taste. Slowly distilled, no Difference is found between what passes first, and what comes through at the latter End of the Operation. It leaves at the Bottom of the Curcubite about $\frac{1}{14}$ of a white and saline Sediment, of which is separated $\frac{1}{10}$ of Earth, and the $\frac{9}{10}$ are a pure Salt, of the Taste of common Salt, which is condensed into Grains of a cubick Figure, like the Sea Salt: This Water always remains limpid in the Curcubites during the Distillation.

To examine the Quality of those Salts by comparing them with common Salt, the Academy caused to be dissolved, separately, of the one and the other Salt, in four Times as much of common Water; then some of it was mixed in other common Water in which had been dissolved sublimate Mercury; and it was observed, that by the Mixture of the Salt of the Water of the *Lymbe*, neither Disturbance, nor Precipitation was made in the Water where the Sublimate had been dissolved, as none was made by the Mixture of common Salt. The same was observed in the Dissolution of Vitriol, which was disturbed neither by the Salt of the Water of the *Lymbe*, nor by common Salt. Those two Salts put separately on the Tincture of Indigo, changes not its blue Colour, as Allom, Vitriol, and all the other Acids do, which turn it red: But they have equally precipitated the Salt of Saturn also dissolved in common Water, and filtrated thro' the grey Paper.

Having thus compared the Salt of the Water of the Lymbe with the common Salt, and observed the Report of one to the other, they observed afterwards the Differences of that Salt of the Water of the Lymbe, from the Allom and Vitriol, as well by the Light and Taste, which found in them notable Differences, as by the Mixtures made separately of those three Matters dissolved in common Water on a Tincture of Indigo, the blue Colour whereof, which was changed into a clear Red by the Mixture of Allom, and into a brown Red by the Mixture of Vitriol, was not at all changed by the Salt of the Water of the Lymbe, nor by the common Salt.

By comparing that Salt of the Water of the Lymbe with the other mineral Salts vulgarly known, it was observed, that it did not fulminate in the Fire with combustible Matters as Salt-petre does; that the Savour of the one had no Report to that of the other; that Salt-petre dissolved in common Water changed a little the Tincture of Indigo into Red, which the Salt of the Water of the Lymbe did not; and that Salt-petre dissolved in common Water did not disturb the Dissolution of the Salt of Saturn, as the Salt of the Water of the Lymbe did.

It was also discovered, that the Salt of the Water of the Lymbe was different from the true Nitre, in that the true Nitre, such as the Natron of *Egypt*, and the natural Borax precipitates into an orange Colour the sublimate Mercury dissolved in common Water, what the Salt of the Water of the Lymbe did not, nor even disturbing that Dissolution of the Sublimate, as the Salt Gem does, which renders it a little milky.

By all these Comparisons of that Salt of the Water of the Lymbe with the other known Salts, it was observed, that it had no Report but to the Sea-Salt, and other such common Salts employed in preserving and seasoning Meat.

And because the Salt Gem and fixed Salt, separated from Saltpetre in refining it, appear semblable to the common Salt, they were both examined to see, to which of the two, the Salt of the Water of the Lymbe had more Report; and it was observed, that it was more semblable to the fix'd Salt of Saltpetre, than to the Salt Gem; and agrees likewise in that with common Salt. The Salt Gem dissolved in Water, and put to evaporate at a slow Heat, produces continually Crusts on the Surface of the Water, it disturbs and renders white the limpid Dissolution of Sublimate; it turns yellow the green Dissolution of *German* Vitriol, and in a short Time is condensed into transparent and long Fibres in that Dissolution of Vitriol, what the Salt of the Water of the *Lymbe* does not, no more than the common Salt, and the fixed Salt of Salt-petre.

Nothing bituminous and sulphurous has been discovered in the Water, nor in its Settlement.

The other Waters of *Bourbon Lancy*, which are those of the *Queen*'s Fountain, and of the Fountains of *Escures*, and of *St. Leger*, and which in their Sources have different Degrees of Heat, the first being the hottest, though less hot than that of the *Lymbe*; the second less than the first, and the third only warm or tepid, have been found to have the like Settlings, and in the like Proportion. All three had proportionably a little less Salt than that of the *Lymbe*; but otherwise their Salt was the same with that of the *Lymbe*; in five Pounds of those Waters there were almost a whole Drachm of Salt.

The Salt of those Waters melted, at the Fire, in *German* Crucibles, is only turned grey; and the Earth separated from the Salt of the Water of the Lymbe has changed Colour at the Fire, is turned very brown, and has contracted some Salt Taste; but that of the Waters of the other Springs has not changed.—These are the Remarks which have been made on the Water of the first Class, where has been discovered a *Salt semblable to common Salt*.

The *hot Waters*, in which is found a Salt semblable to the Nitre of the Antients, are, particularly, those of *Bourbon l'Archambault*, in the *Bourbonese* likewise.

The Water of the *Baths* of *Bourbon l'Archambault*, taken in the Spring, was of a nitrous Taste.

During the Evaporation made at a slow Heat, to observe its Settlement, there were formed on its Surface white Pellicles, which were precipitated afterwards into Flakes: The whole dry Settlement was found to be $\frac{1}{310}$ of the Weight of the Water, and that Settlement contained $\frac{11}{10}$ of white Earth, and $\frac{9}{10}$ of Salt.

In examining that Salt it was observed that it had a lixival Savour, and was purely nitrous. The Nitre to which Messieurs of the Academy have judged proper to refer the Salt of the Water of the *Baths* of *Bourbon l'Archambault*, is the true Nitre of the Antients, which has a Report to the sulphurous fixed Salt of burnt Plants, and is different from Salt-petre, which some Chymists mistake for the Nitre.—There is a fossil Nitre dug out of the Earth, into grey, compact, and pretty hard Masses. There is some soft, less compact, and pretty white, which blows on the Earth in some hot Climates: There are Waters impregnated therewith, as that of the *Nile*; the Natron of *Egypt*, and the natural *Borax*, are Species thereof.—All those nitrous Salts have some Sulphureity, which is not found in Salt-petre, unless it be alkalized, *i. e.* reduced by Means of the Sulphur of the Coals, to the Nature and Quality of the Salt of the Herb Kali, which is the black Sode. The sulphurous fix'd Salts of Plants, and the true Nitres, cause the Dissolution of sublimate Mercury in common Water, to precipitate into an orange Colour; they turn that of the Syrup of Violets into green, and restore the blue Colour of Indigo, changed red by acid Liquors; what the Salt of the Waters of the Baths of *Bourbon l'Archambault* has done likewise, and which Salt-petre, common Salt, Vitriol, and Allom do not.

Nothing bituminous was found in that Water; and no other Sulphureity was discovered in it, but the nitrous one of its Salt: The Earth of its Settlement had nothing fat, and could be dissolved in Part in distilled Vinegar.

In four Pounds of that Water was found one Drachm and a half of nitrous Salt, and that Quantity of that Salt

was sufficient to purge by Stools as the Alkali do.

This great Quantity of true Nitre in the Water of the hot Springs of *Bourbon l'Archambault*, can be considered as the principal Cause of the Effects of that Water in those who drink it; and by the Consideration of the Properties of that Kind of Salt, which to warm, to attenuate, to resolve, to deterge, to purge, *&c.* one may judge of the Conveniency of that Water to the Constitution of the diseased Persons, and to the Quality of their Maladies, to prescribe them the Use thereof. The Properties of the Water of the Bath of *Bourbon l'Archambault*, are, in my Opinion, the same with those of the Water of the Baths in *England*, since the Salt in both is the same.

The third Class is that of the *insipid*, *warm*, or *tepid Waters*, some of which participate of some Sort of Salt, and the others have none.

Of this Kind of *Mineral-Waters*, is that of *Premeau* in *Burgundy*, which taken towards the End of the Summer, is limpid and without Savour, and pretty agreeable to drink. It has some detersive Quality.

To discover if that Water participates of some bituminous Matter, smelling like Amber, as it had been reported, Messrs. of the Academy, caused some of it to be distilled in Glass Alembicks, in Balneo Mariæ, which passed into the Recipients, had no Smell, and did not appear different from what had been put in Distillalation: And nothing was found in the Settlement, having either Consistence, or Smell of Amber or of Bitumen.

They caused, likewise, some of the same Water to be evaporated in earthen Pans, at a slow Heat; but what was evaporated had no Smell. During the Evaporation, there were seen swimming in that Water some small Mucilages of a grey Colour; and toward the End of the Evaporation, the Surface of the Water was cover'd with a grey, and sandy Pellicle, and the Sides of the Pans lined with a subtile grey Salt. Towards the Bottom were the Mucilages which had nothing bituminous. These Mucilages being dried, dissolve themselves into a heavy Earth, and the whole Settlement, was but in a small Quantity, less than $\frac{1}{5120}$ of the Weight of the Water.

In that Settlement there was a very small Quantity of Salt, of the Taste and Quality of common Salt. The Earth was not dissoluble in the Spirit of Vinegar. Being put in the Fire, and made red-hot, it turned white.

Among the *Mineral-Waters* of the fourth Class, which are the warm or tepid, of a sourish or vinous Taste, and which participate of the true Nitre, the Academy examined more particularly that of *Jaude* in *Auvergne*, taken in the Spring, from the three Springs which flow there, which are the *small Spring* of *Jaude*, that of the *Field of the Poor*, and that of *Beaurepaire*.

The Water of the small Source of *Jaude*, was very limpid, and of a sourish and vinous Taste, leaving some dry Impression on the Tongue.

In emptying the Bottles to put that Water to evaporate, there were found at the Bottom some Settlements of the Colour of a dead Leaf, which were separated.

In the Evaporation, the Water did not appear thick or muddy, and there were formed in it neither Pellicles nor Flakes. What remained dry, made $\frac{1}{555}$ of the Weight of the Water. It was a greyish Matter almost half Salt, which had a Report to the true Nitre, and which being melted in a Crucible at a violent Heat assumed a red Colour.

The Earth of that Settlement was almost all dissolved in distill'd Vinegar, with a great Effervescence. It was not changed in the Fire.

The Water of the *Field of the Poor*, was in all Things semblable to that of the small Spring, its Settlements the same, and its Salt nitrous likewise.

That of *Beaurepaire* had nothing different from the two others.

The Salts of those three Waters, having been separately melted in Crucibles at a violent Heat, assumed a red Colour, more or less dark, according to the Degree of the Fire.

The Academy examining the Waters of the fifth Class (containing the insipid cold Waters which participate of some Salt, semblable to common Salt, and some in which Settlements there is no Salt found) took a particular Notice of the *Fountain of Jonas*, at *Bourbon l'Archambault*. That Water, which had been taken in the Beginning of the Spring, was limpid, and without a manifest Taste.

That Water being evaporated, left only [illegible] very white and heavy Settlement, environ'd with [illegible] reddish Terrestriety. That Settlement had so little Salt, that it was not sensible to the Taste; and notwithstanding coagulated the Liquor of Salt of Tartar dissolved, as does the second Portion of the Sea-Salt.

That Earth could be dissolved in Part, in distill'd Vinegar, but was not changed at the Fire.

Among several Waters of the sixth Class, *viz.* the cold ones of a ferruginous and austere Taste, that of *Vahls* in *Dauphiné*, of a Spring called the *Dominick*, taken in the Month of *May*, appeared singular, and very different from other ferruginous Waters, having something vitriolick.

It was limpid and without Smell: Its Savour was vinous and styptick, like that of small white Wine, in which Vitriol had been dissolved. Its Stypticity was strong and disagreeable. It assumed a black Colour, inclining to blue, when mixed with Gall, much like the Water in which *English* Vitriol has been dissolved. It changed the Tincture of Indigo into a purple-red Colour, as does the same Vitriol; but being mixed with the Liquor of Salt of Tartar, no Precipitation happen'd, as it happens with Vitriol, and the whole Liquor turn'd very green. There was at the Bottom of the Bottles a small yellowish Settlement, such as is seen in Water where there is a ferruginous Vitriol.

Having put that Water in Alembicks, to have it distill'd at a slow Heat, so soon as it began to grow warm, it lost its former Savour, and was no more acid; but had only a ferruginous Taste. What began to distil was insipid, as well as what passed afterwards; and all that could be distilled was like pure Water. It remain'd but about $\frac{1}{5000}$ of a grey Matter, which had some Report to Vitriol slightly calcined; it had its Taste but moderate. That saline Matter being dissolved in common Water, and mixed with the Liquor of Salt of Tartar, became as Ink with some Precipitation. The Vitriol causes no such Blackness with the Liquor of Salt of Tartar.

Those who have drank that Water of the Spring of the *Dominique* at *Vahls*, have found it heavy on the Stomach, and vomitive, that it purges downwards, and renders the Stools black.

Of the Waters of the seventh Class, which are cold, have a sourish or vinous Taste, and participate of common Salt, that of St. *Peter* of *Clermont* in *Auvergne*, taken in the Beginning of the Spring, was limpid, but had deposited in the Bottles some whitish Settlements. Its Savour was a little sourish and vinous.

During the Evaporation of that Water, Pellicles were formed on its Surface, which were precipitated into small Flakes. The whole dry Settlement amounted to $\frac{1}{1[illegible]}$ of the Weight of the Water, and almost half Salt was extracted from it, semblable to that Portion of the Sea-Salt, which is crystalized at the Bottom in a damp Place, and which is mixed without Trouble with the Alkali, or sulphurous fixed Salts of Plants dissolved in common Water.

The Earth of that Settlement deprived of its Salt, as much as could be separated from it, by Means of hot Water, could be dissolved with a great Effervescence in Spirit of Vinegar. It contracted in the Fire a notable saline Taste, and its Whiteness turned grey.

The Water of *Pougues*, in the *Nivernois*, which is of the eighth Class, *viz.* cold, of a sourish or vinous Taste, and participates of a Salt, which has a Report to the Nitre of the Antients, taken in the Spring, was limpid, of an acid and disagreeable Taste.

In the Evaporation, its Surface was cover'd with white Pellicles, which fasten'd afterwards to the Sides of the Vessels, in Proportion as the Water diminished in evaporating. There remained, at last, a whitish and heavy Settlement, of a saline Taste, which amounted to $\frac{1}{[illegible]}$ of the Weight of the Water. Almost $\frac{1}{2}$ of Salt was extracted from it, which had the Qualities of the Nitre, discover'd by Experiments like those made

on the Salt of the hot Water of *Bourbon l'Archambault*.

Note, That Messrs. of the Academy of the Sciences at *Paris*, made likewise a very curious Examen of the Spaw-Water, and as there is a vast Quantity of that Water imported into *England*, where it is much in Vogue, though perhaps of very little Service; I'll give in this Place the Discoveries those ingenious Gentlemen have made on that Water.

The *Spaw-Water* brought to *Paris* in Bottles, full and very well corked, was very limpid, of a sourish and vinous Taste. Mixed with Galls, it assumed a brown Colour.

That Water mixed with the Dissolution of sublimate Mercury, made in common Water, disturbed and render'd it milky; and mixed with Water, in which had been dissolved *German* Vitriol, it disturbed it likewise, and in a short Time happen'd a Precipitation of a subtile reddish Earth; which is done by Waters which contain a sulphurous Salt. The Acidity of that Water did not hinder it from disturbing and precipitating the Salt of *Saturn* dissolved in common Water: It changed but very little the Tincture of Indigo, which a lesser Acidity turn'd very red: Which makes one judge that the Acidity of that Water is not simple.

Having put that Water in Distillation at a very small Heat; in a Glass-Alembick very high, to separate from it what it has the most volatile and subtile, what passed first was not found different from what followed, and from what remain'd in the Cucurbite, in interrupting the Distillation, after about a fourth Part of it had been extracted, and it was no more acid. What remained in the Cucurbite having been put in an earthern Pan to evaporate slowly on hot Embers, to observe if some Concretion should happen during the Evaporation, that Water remained always limpid; and when there was left not above two Ounces of it in the Pan, new Essays were made to know the Quality of the Salt it contained, pouring a little of that Water, as well over the Dissolution of sublimate Mercury made in common Water, which is disturbed, as over that of *German* Vitriol, which it disturbed, likewise, precipitating a reddish Earth; and over the Syrup of Violets, which it changed green. All which Effects have been Proofs of a sulphurous Salt.

The Vessel in which the Evaporation was made, was found lined in its superior Part, towards the Edge, and all round, with a saline Concretion; and lower, towards the Bottom, it was lined with a yellowish Earth, almost insipid, but a little astringent.

The Evaporation ended, it remained of the whole Quantity of that Water, which was 7 Pounds, 6 Ounces, and 6 Drachms, an earthly and saline Settlement, which lined the whole inward Surface of the Pan. That Settlement being taken out, weighed only 48 Grains, three Quarters whereof were a light and subtile reddish Earth, and the other Quarter was a sulphurous Salt, which precipitated the sublimate Mercury into a whitish Colour, as do the volatile Salts of the Plants and Animals; and not into a red or orange Colour, as do the true Nitres, and the Alkali.

Note, That the great Quantity of *Mineral-Waters* the Physicians prescribe to their Patients for the Cure of certain rebellious Maladies, which cannot be conquer'd by ordinary Remedies, give Occasion to judge, that the Effect their Patients hope from it, is to cleanse the Viscera by that inward washing. That Effect is very considerable, because most of the chronick Maladies proceed from the Obstruction of the Viscera, which that great Quantity of Drink can resolve. The Relief which Patients receive from it, is the Cause that few Physicians take the Pains to seek after the particular Qualities of those Waters, which, notwithstanding are very different, and of that Consequence, to deserve our Attention, in order to make a better Use of it, according to the Differences of the Maladies, and of the divers Constitutions of the Patients.

It is easy to judge, that all Spring-Waters, such as the *Mineral*, which are employ'd in Medicine, can have different Qualities, if one considers, that some of them come from Places less distant from the Surface of the Earth; and the others from deeper Places. Those which could not penetrate very deep, because of the Beds of Stone, or of Clay, which are underneath, remain on those Beds, and flow only through those Places where they find a Passage. They have their Origin, either from the falling of the Rain, or from the Transcolation of the Waters of Rivers, Lakes, or of the Sea through the nearest Grounds, and in those where they can extend themselves; and in running through those Grounds, they dissolve the Salts they meet with, and load themselves with some subtile terrestrial Particles, found in them in the Evaporation. The Water which comes from the deepest Places, where it has been carried by its own Weight, through the Places it could penetrate, cannot re-ascend in its liquid Consistence, without being forced; but being rarified by some subterraneous Heat, it rises into Vapours; then re-assuming its former and natural liquid Consistence, from the Cold towards the Surface of the Earth, it forms, in coming out, Fountains, and even Lakes on very high Mountains, where it can very well rise thus, since some of it rises as far as to the middle Region of the Air, where the Clouds are formed, and whence the Rain falls. Those Waters rarified in the Depths of the Earth, whence they arise, receive easily the Mixtures of the Exhalations, and *Mineral* Vapours, which are frequent in those Places; but those Mixtures being not very often discover'd in those Waters flowing from their Sources, neither by the Smell, nor by the Taste, cannot be known but by their Effects, the Report whereof to their Causes, is not always very easy and certain.

The Knowledge I give here of the Salts and Earths of several *Mineral-Waters*, will not satisfy plainly the Curiosity of those who would be informed likewise of the other Causes of the Properties of those Waters, since besides the Mixture of the concrete Matters found in them, according to the Observations related in this Treatise, there could be found, likewise, in them, Matters which are concrete, so subtile, and so volatile, that nothing can be discovered of them, in the Settlements, different from the Salts and the Earths, and which is no more found in what passes through Distillation. That sourish or vinous Taste, which vanishes when the Water is exposed to the Air, or to the Heat, must have for a Subject a very volatile spirituous Matter, which it would be very proper to know. The Heat which some of them have in their Sources, and at their sallying out of the Earth, can be attributed to hot Vapours mixed with them in their Course, in the subterraneous Depths where the cold Air cannot have a free Access; and certain particular Effects of those Waters, on divers Subjects, give occasion to judge that they are not pure and simple.

However, the Observations made on the Salts and Earths of those Waters can serve as well in Medicine, as in the mechanical Arts, to form a Judgment of the Conveniency of some of those Waters, for some Uses purpos'd.

The two Sorts of Salts, under which have been reduced those of these Waters, can have Differences which divide each of those Sorts into several others, as the Physicians of the Royal Academy have observed it in the Salts extracted from the Ashes of divers Plants, which they have found to have some Report to the true Nitre, and the other Salts to the common Salt, retaining the Participation of the specifick Properties of their Subjects.

Some of the Earths found with those Salts, in the Settlements of evaporated or distill'd *Mineral-Waters* may have, likewise, particular Uses according to their Differences. Some *Germans* have observed, that the white Earth of the *Mineral Water* of *Schwalbach* is purgative. They have had in the Academy some Bottles of that Water, whose Flavour was vinous and strong. The Salt of its Sediment was nitrous and precipitated into a nacarate Colour the sublimate Mercury dissolved in common Water, as do the Alkali of the Plants. The Earth separated from that Sediment was white like Chalk, but there was not enough to experience

rience its purgative Virtue. The true Nitre of the Antients being sulphurous, and having a Report to the Alkali of the Plants, has like them that purgative Faculty. And that white Earth found with the nitrous Salts of the *Mineral-Waters*, can participate of the same Quality, as the Chalk of the Salt of Tartar coagulated by the second Salt of Sea-Water, retains some Properties of its Salt, though it be insipid, and not dissoluble in Water, but only in acid Liquors, as is the distilled Vinegar, which dissolves it with Effervescence: Which has been observed, likewise, in several white Earths of the nitrous *Mineral-Waters*.

The vaporous Matter of the sourish and vinous *Mineral-Waters*, is very likely, the first Being of the mineral Sulphur, and of the Concretions which result from it. There are found Earths impregnated with that sulphurous and vitriolick *Mineral*. And often no concrete *Mineral* is formed of them, which could be discover'd in those Earths, where neither mineral Sulphur, Vitriol, nor Metal is found.

This vaporous and indigest mineral Matter, can very well be the Principle of Vitriol, but in its first State, it cannot be a vitriolick Product, if there be any found in Earths, where there is no Vitriol yet. It is more easy to observe it in its Products, when it has received some mineral Concretion. The humid Air penetrating the Stones of the Mine, which are insipid, but impregnated with a mineral Sulphur, which is easily felt, when disengaged by the Fire, renders manifest to the Taste, a sulphurous Acidity, which was not felt before. And of the concrete Sulphur of those Stones of the Mine, or Marcasites, penetrated with the humid Air, a concrete vitriolick Salt is formed, which is the Product of that mineral Sulphur, whose Principle was an acid and very vaporous Matter. Which has been observed in several argillous Earths exposed to the Air, which resolving themselves into Powder, contracted first an Acidity most sensible to the Nose, then to the Tongue; because there were formed in them sulphurous and inflammable Concretions, and afterwards saline Concretions, which were reduced into Vitriol.

This subtile, vaporous, and acid, or rather acerb Matter, does not produce always vitriolick Concretes; and it happens in several Earths, that for Want of the requisite Dispositions, it remains in its first State. Then it is not a Vapour of Vitriol; and the *Mineral-Waters* which run through the Earths where that subtile Matter is found, and which contract an Acidity by its Mixture, ought not to be called vitriolick. It has been observed in several Waters, impregnated with that acid Liquor, that they neither contained a true Vitriol, nor any Matter which had a Report to Allum, and that the Salt remaining in their Sediment was a Nitre, such as described by the Antients, and which is as different from Vitriol and Allum, as all the Alkali or sulphurous fixed Salts of the Plants.

The Salts, Vitriols, Allums, and other concrete Matters, resolvable in Water, can be mixed in *Mineral-Waters*, so as not to be discover'd but in their Settlement; but the Sulphurs and Bitumens are always easily discovered in the Waters impregnated therewith, because they reside in them, or swim a-top, it being impossible they could be mixed with them as the Salts are. Messrs. of the Academy, perceived none in the Waters sent them. Those which were very hot in their Source, did not appear more sulphurous and bituminous than the others; and if some Sulphur or Bitumen be found in their Basons, or in their Muds, it may be, that it is not such enflamed Matters in the Earth which have heated them. It is more likely, that they contract that Heat by the Mixture of some hot Vapours they meet with in the deep Places they pass through. For Experience informs us, that no combustible Matter takes Fire, or preserves it long, without Air; and that to extinguish the Fire in lighted Bitumens, there wants nothing else but to deprive them of the Communication of the Air, by covering the Vessels close which contain those Matters. The Sulphurs which burn in certain deep open Places of some Mountains, do not take Fire, but where they take Air, and when what was uncover'd is consumed, the Fire ceases in what is cover'd, though it be equally combustible. And if some Matters take Fire strong enough not to be smother'd under Ground, it burts what covers it, to gain more Room, and take Air, as that of Gun-powder does in Mines.

If there be no perpetual subterraneous Fires, the Heat of certain *Mineral-Waters*, which continue hot in their Sources, cannot be attributed to them. It is more likely, that there are in several Places of the Earth hot Vapours and Exhalations, the Heat whereof is preserved in deep and very close Places, where the Air does not penetrate to cool them; and where those rarified Matters have not Room enough to rarify themselves more, and receive some Abatement or Dissipation of their Heat, by a greater Rarifaction. But the Heat of those Vapours can be increased by forcing through their narrowest Conduits; and if they meet with Waters which run through the same Conduits, they may heat them, by mixing with them.

Some Experiments have been made, which give Room to judge, that the Waters of hot Springs and natural Baths, are heated by hot Vapours which pass along with them.

1. Because those hot *Mineral-Waters* do not burn the Mouth and the Tongue of those who drink them, as they flow from their Source, as would common Water heated at the Fire to the same Degree of Heat: Which seems to proceed from the Tenuity of the Matter which causes that Heat in the Water. The Flame of Spirit of Wine does not burn so violently the Hand it touches, as would do a red hot Coal.

2. Because the Heat of *Mineral-Waters*, does not act on certain tender Matters, as does that of common Water contracted at the Fire in the same Degree: For it has been seen that Sorrel-Leaves, which grow soft, very easily in common Water moderately heated on the Fire, do not grow soft in the *Mineral-Waters* of the *Nerii* in the *Bourbonese*, which are the hottest in *France*, and the Excess of the Heat thereof, renders difficult to be drank; but those Leaves only changed Colour, and became yellowish like dead Leaves. Which makes one judge that that Heat proceeds from some Vapour, or some Exhalation different from the Water, and more proper to dry than to soften.

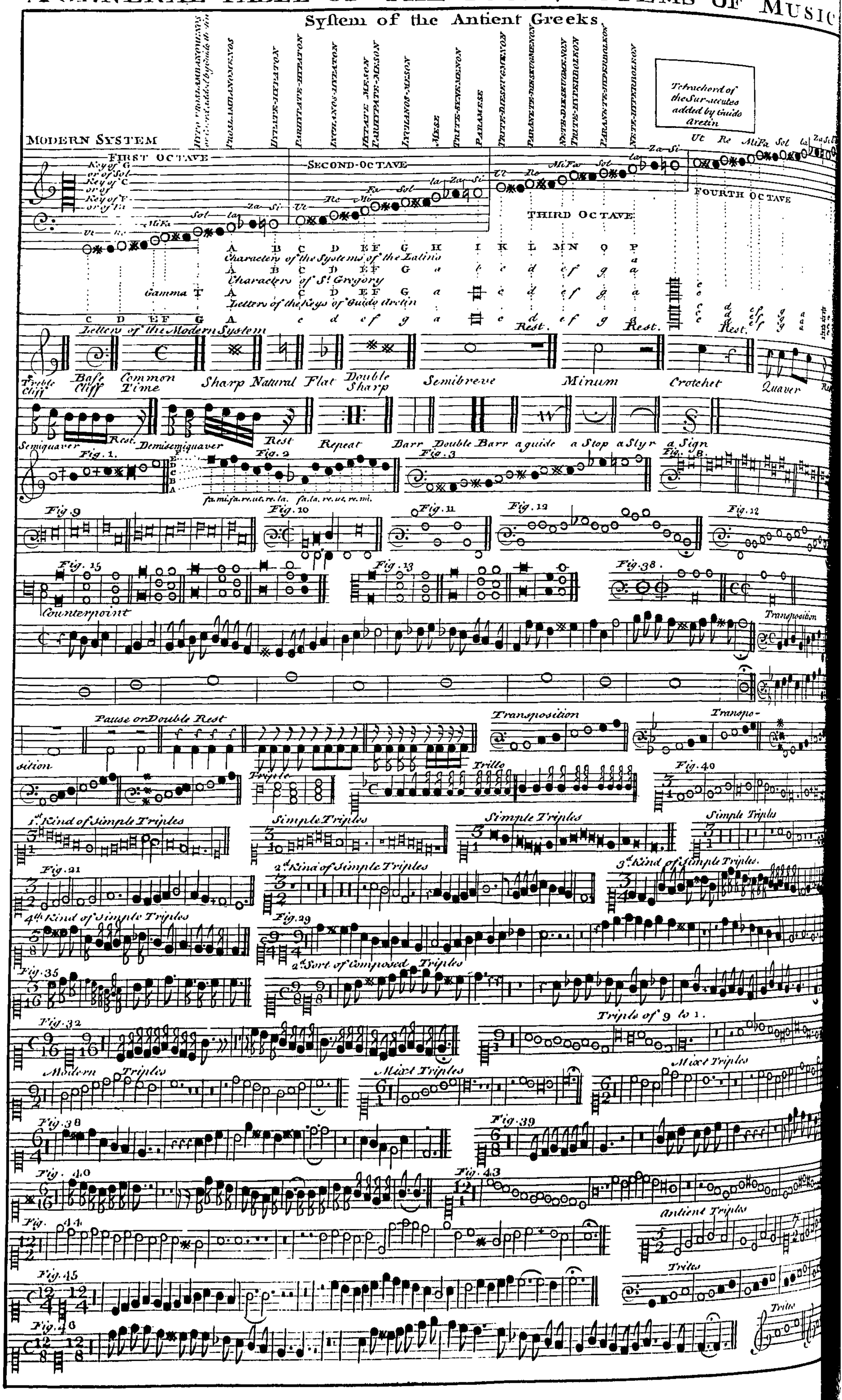
3. Because those Waters are found hotter in their Springs at Night, than in Day-time; which may be caused by the Coolness of the Air; which hinders the Dissipation of the hot Vapours and Exhalations mixed in those Waters.

4. Because those Waters exposed to the Air out of their Sources, do not grow cold so soon, as does common Water heated at the Fire; because the cold Air, which soon stops the Motion excited in the common Water by the Fire, retains the hot Vapours which heat the *Mineral-Waters* by their Mixture, and hinders them from being so soon dissipated.

5. Because the hot *Mineral-Waters* have not a greater Disposition to boil on the Fire, than the common cold Water; for the one takes as much Time to boil as the other. Which shews very well that the Heat contracted by the *Mineral-Waters* in the Earth, does not proceed from the Motion of their Particles excited by some subterraneous Fire; for that Motion continued or increased by the Fire of a Chimney or Furnace, would make them boil sooner than those which are cold, and have not that Disposition by a Motion began. That Heat of the *Mineral-Waters* proceeds then from some hot Vapours or Exhalations mixed with them, and which the Fire expels from them, before they can boil on the Fire.

If there be in the Earth, without Fire, some Heat strong enough to heat the Waters of certain Springs, that Heat, which communicates itself to Waters which have been hot for some thousand Years past, and have, perhaps, always been hot, must, in order to be perpetuated, preserve itself in the deepest Places of the Earth, and the most distant from the Surface of its Globe, where the Air, wherewith it is environ'd, could weaken it by its Coldness, which seems to be the most excessive. According to that Supposition, the Difference of the Waters of hot, and of cold Springs, some of which have been found to deposite the same Sediments, and to have the same Sort of Salts, should proceed from that those Wa-

A General Table of the Four Systems of Music



ters run in the Earth through Places more or less deep. We must observe, that the Waters which run on the Earth are cold, if they are not heated by the Sun; and we find not a very manifest Heat in the Parts of the Earth which are not very deep: Which gives occasion to judge, that whatever notable Heat there be in the Earth, it must be very deep in it.

It is not very easy to discover the Qualities of those Vapours or Exhalations, which are mixed in *Mineral-Waters*, and heat them. It does not seem necessary that they should be all bituminous or sulphurous, tho' some of them be such. At *Aix la Chapelle*, are seen Flowers of Sulphur, exalted against the Walls of the hot Springs which are there. And in the burning Spring of *Dauphiné*, in *France*, a Flame is seen coming out with the Water, and which very likely was not Flame under Ground, where it had not Air enough to burn, and the Water which comes out along with it, is scarce heated by it. But in several other Springs of hot *Mineral-Waters*, nothing is seen either sulphurous or inflammable. There are many other Mines which are heated without taking Fire, and whose Vapours are mixed in the hot *Mineral-Waters*, but the Qualities thereof are no otherwise known but by the Effects they produce.

Messrs. of the Royal Academy of the Sciences, had no Occasion to observe the various Effects of the different Kinds of *Mineral-Waters* in different Uses. The Observations of the Effects of those Waters on those who drink them, or use them in Baths, Lotions, Embrocations, *&c.* are reserved to Physicians, who must know the particular Dispositions of those Persons, and the State of their Health altered or restored. As to their Uses in the mechanical Arts, it will be easy to observe what the one and the other of those Waters can do in the Maceration of Hemps, in the Whitening of Linen, in the Dying of Wools and Silks, in Dressing Leathers, in Tempering Iron-Tools, in Boiling Pulses, in Watering Plants, *&c.*

As to the Observations of the divers Weights and Consistences of *Mineral-Waters*, they can be better made in the Places where they flow, where they are not yet alter'd neither in their Composition, nor in their Consistence, as they can be by their being transported and kept, having lost some Portion of the vaporous Matters mixed with them, and which made up their most subtile Consistence; either having contracted some Corruption which has render'd them thicker, and almost mucilagenous; or having deposited certain mineral Terrestreities, which render them less subtile, when they are imperceptibly mixed in them, and which most commonly are not left to separate, before those Waters are drank, which are judg'd more efficacious when they are new, than when kept.

The Means used by that illustrious Company to observe the Weight and Consistence of those Liquors, have been the *Araiometer*, and the composed Ballance.

Note, That the *Araiometer* is a small hollow Globe of Glass, having at the Bottom a small Cavity to contain as much Quick-silver as is necessary to make that Globe to plunge into the Liquor. In its superior Parts is a small Tube or Pipe an Inch long; and at the Extremity of that Tube is a small Bason to receive the Weights which are to make it plunge into different Liquors, to a certain Mark made in the Middle of that Tube. By Means of this Instrument put into divers Liquors, it is discovered, not only if their Consistence be different, but likewise of how much is that Difference, by the Observation of the Weight of the Instrument, and of that which is put on the Bason to make it plunge equally into those divers Liquors.

The *composed Ballance*, is a common Ballance very moveable and very just, to one of the Basons whereof is suspended, with some Horse-Hairs, a Cylinder of Tin well polished, of about four Inches in Height, and as much of Diameter, that it may occupy in the Water the same Space, a Pint of Liquor *Paris* Measure, would occupy, and of such a Weight, that it may plunge in all Sorts of Waters. That Cylinder being put into the Water, whose Weight and Consistence is to be observed; in the other opposite Bason of the Ballance, is put as much Weight as is necessary to keep the two Basons in Equilibrio; and according to the Difference of the Weight requir'd for that Equilibrium in divers Waters, one judges of the Difference of their Consistence, and of their Weight in the like Quantity. And to know the Weight of that Quantity of Water occupied by the Cylinder, that of the Cylinder must be observed, and the Weight put in the opposite Bason, substracted from it. — This may be practised on *Mineral-Waters*, taken in their Sources, and examined on the Spot.

Note also, That the like Observations can be made on common Waters, either for drinking or to prepare Victuals, that by the Knowledge of their Properties, one may be capable to judge how they can contribute to Health. Those Waters called common, being not pure and simple, can have divers Properties, acquired by the Diversity of the Mixtures made in them, either in the Air, or in the Earth. And tho' they participate in nothing of those Sorts of Minerals, which have a Report to the metallick Gender, and the Participation thereof gave us Occasion to call *Mineral* the Waters impregnated therewith, they have, notwithstanding, something mineral; for the Salts and Earths found always mixed with them are mineral Productions. And in most of the Waters sent to the Royal Academy for *Minerals*, nothing but Salt and Earth, in different Proportions, has been found. The more and the less of those Mixtures, make the Distinction between the Waters of that Kind, employed only in medicinal Uses; and of those for common Uses, the most subtile, less heavy, and less mixed, are esteemed the best.

MUSICK.

MUSICK (from *Musa*, Muse, the Muses being supposed to be the Inventors thereof) is a Science that teaches how Sounds, under certain Measures of Tune, and Time, may be produced, and so order'd or dispos'd, as either in Consonance or Succession, or both, they may raise agreeable Sensations.

MUSICK divides itself naturally into *speculative* and *practical*.

Speculative MUSICK, is that which consists in the Examen of the Nature, Properties, Effects, *&c.* of the Sounds, and in reasoning on them.

Practical MUSICK, is that which shews how the Knowledge acquired by the speculative Part is to be applied; or how Sounds in the Relations they bear to *Musick*, may be order'd, variously put together, in Succession, and Consonance, so as to answer the End. And this we call *the Art of Composition*, which is properly the practical Part of *Musick*.

The first Branch, which is the contemplative Part, divides itself into these two, *viz.* the Knowledge of the *Relations and Measures of Tunes*, and the *Doctrine of Time*.

The former is properly what the Antients called *Harmonica*, or the *Doctrine of Harmony in Sounds*, as containing an Explication of the Grounds, with the various Measures, and Degrees of the Agreement of Sounds, in Respect of their Tune.

The latter is what they call *Rhythmica*, because it treats of the Numbers of Sounds, or Notes with Respect to Time; containing an Explication of long and short,

of

of swift and slow, in the Succession of Sounds.

The second Branch of the *practical Part of Musick*, as naturally divides into two Parts, answering to the Parts of the first.

That corresponding to the Harmonica, the Antients called *Melopœia*, because it contains the Rules of making Songs, with respect to Time and Harmony of Sounds; though we have no Reason to think the Antients had any Thing like Composition in Parts.

That which answers to the Rhythmica they call *Rhythmopœia*, containing Rules for the Application of the Numbers and Time.

Note, That we find a great Diversity in the ancient Writers, as to the Nature, Office, Extent, Division, *&c.* of *Musick*.

Hermes Trismegistus defines *Musick* to be the Knowledge of the Order of all Things, which is also the Doctrine of the *Pythagorean* School, and of the Platonists, who teach that every Thing in the Universe is Musick. Agreeable to which wide Sense, some divide *Musick* into *divine* and *mundane*. *Divine Musick* is that respecting the Order and Harmony which obtains among the celestial Minds. *Mundane Musick*, is that which respects the Relation and Order of every Thing else in the Universe. Though *Plato* by *divine Musick*, understands that which exists in the divine Mind, *viz.* those archetypal Ideas of Order and Symmetry, according to which God formed all Things. And as this Order exists in the mundane Creatures, he calls it *mundane*. This last Species the Antients again sub-divided into four, *viz. elementary Musick*, or the Harmony of the Elements of Things.—*Celestial Musick*, or the *Musick of the Spheres*, comprehending the Order and Proportions in the Magnitudes, Distances and Motions of the heavenly Bodies, and the Harmony of the Sounds resulting from those Motions.—*Human Musick*, which consists chiefly in the Harmony of the Faculties of the human Soul, and its various Passions; and is also considered in the Proportion, Temperament, and mutual Dependance of the Parts of the Body.—Lastly, *Musick*, properly so called, which has for its Object Motion, considered as under certain regular Measures and Proportions, by which it affects the Senses in an agreeable Manner. Now as Motion belongs to Bodies, and as Sound is the Effect of Motion, and cannot be without it, but all Motion does not produce Sound; hence this last Branch of *Musick* became further sub-divided. Where the Motion is without Sound, or as it is only the Object of Sight, it was either called *musica orchestica*, or *saltatoria*, which contains the Rules for the regular Motions of Dancing. Or *musica hypocritica*, which respects the Motion and Gestures of the Pantomines. When the Motion is perceived only by the Ear, *i. e.* when Sound is the Object of *Musick*, there were three Species, *viz. Harmonica* which considers the Differences and Proportions with respect to grave and acute. *Rhythmica*, which regards the Proportion of the Sounds as to Time, or the Swiftness and Slowness of their Successions. And *Metrica*, which belongs properly to Poets, and regards the Art of making Verses.

Aristides, *Quintilianus*, *Bacchius*, and some other antient Writers, define *Musick* the Knowledge of Singing, and of the Things belonging thereto; which they explain by the Motions of the Voice and Body; as if Singing consisted only in the different Tones of the Voice. The same *Aristides* considering *Musick* in the largest Sense of the Word, divides it into *contemplative* and *active*. The first, he says, is either *natural* or *artificial*. The *natural* is either *arithmetical*, which considers the Proportion of Numbers, or *physical*, which examines the Order of the Things of Nature. The *artificial* he divides as above, into *harmonica*, *rhythmica*, and *metrica*. The *active*, which is the Application of the *artificial*, is either enuntiative (as in Oratory) *organical* (or instrumental Performance), *odical* (for Voice and Singing), *hypocritical*, in the Motions of the Pantomimes. To which some add *hydraulical*, though in Reality no more than a Species of the organical; in which Water is used for the production or modifying of Sound.

Porphyry makes another Division of *Musick*, taking it in the limited Sense, as having Motion both dumb and sonorous for its Object; and without distinguishing the speculative and practical, he makes its Parts these six, viz. *rhythmica*, for the Motions of Dancing; *metrica*, for the Cadence and Recitation; *organica* for the Practice of Instruments; *poetica*, for the Numbers and Feet of Verses; *hypocritica*, for the Gestures of the *Pantomimes*; and *harmonica*, for Singing.

Note, also, That from these different Divisions of *Musick* by the Antients, I'll re-ascend to my first Division of that divine Science and Art, into *speculative* and *practical*; and enter first into a very particular and exact Detail, of all that regards the *speculative* or *theorical Part* of *Musick*, passing from thence to as exact a one, of the *practical Part*.

The *speculative* or *theorical Musick*, has for Object the *Sound*, which in *Musick* denotes a Quality, in the several Agitations of the Air, considered as their Disposition, Measure, *&c.*

The principal Affection of *Sound*, whereby it is fitted to be the Object of *Musick*, is that whereby it is acute, or *high* and *grave*, or *low*.

This Difference depends on the Nature of the sonorous Body; the particular Figure and Quantity thereof; and even in some Cases, on the Part of the Body where it is struck, and is that which constitutes what we call different Tones.

The Cause of this Difference appears to be no other than the different Velocities of the Vibrations of the sounding Bodies. In Effect, the Tone of a *Sound* is found by abundance of Experiments, to depend on the Nature of those Vibrations, whose Difference we can conceive no otherwise than as having different Velocities: And since it is proved, that the small Vibrations of the same Chord are all performed in equal Time, and that the Tone of a Sound, which continues for some Time after the Stroke, is the same from first to last: It follows, that the Tone is necessarily collected with a certain Quantity of Time in making each Vibration, or each Wave; or that a certain Number of Vibrations or Waves, accomplished in a given Time, constitute a certain and determinate Tone. From this Principle are all the Phænomena's of Tune deduced.

From the same Principle arise what we call *Concords*, &c. which are nothing but the Result of frequent Unions and Coincidences of the Vibrations of two sonorous Bodies, and consequently of the Waves and undulating Motions of the Air occasioned thereby.

On the contrary, the Result of less frequent Coincidences of those Vibrations, is what we call a *Discord*.

Sounds are again distinguished into *long* and *short*, not with regard to the sonorous Bodies retaining a Motion once received, a longer, or a less Time, though gradually growing weaker; but to the Continuation of the Impulse of the efficient Cause on the sonorous Body, for a longer or a shorter Time, as in the Notes of a Violin, *&c.* which are made longer or shorter, by Strokes of a different Length or Quickness.

This Continuity is properly a Succession of several Sounds, or the Effect of several distinct Strokes, or repeated Impulses of the sonorous Body, so quick that we judge it one continued Sound; especially if it be continued in the same Degree of Strength: And hence arises the Doctrine of *Measure* and *Time*.

Another Distinction of *Sounds* is into simple and compound, and that two Ways. In the first, a *Sound* is said to be *compound*, when a Number of successive Vibrations of the sonorous Body, and the Air comes so fast upon the Ear, that we judge them the same continued *Sound*; as in the Phænomenon of the Circle of Fire, caused by putting the fired End of a Stick in a quick circular Motion; where supposing the End of the Stick in any Point of the Circle, the Idea we receive of it there, continues till the Impression is renewed by a sudden Return.

A *simple Sound* then, with regard to this Composition, should be the Effect of a single Vibration, or of so many Vibrations as are necessary to raise in us the Idea of *Sound*. In the second Sense of *Composition*, a simple Sound is the Product of one Voice, or one Instrument, *&c.*

A

A *compound Sound*, consists of the *Sounds* of several distinct Voices, or Instruments all united in the same individual Time and Measure of Duration, that is, all striking the Ear together, whatever the other Differences may be. But in this Sense again, there is a two-fold Composition, a natural and artificial one.

The natural Composition, is that proceeding from the manifold Reflections of the first *Sound* from adjacent Bodies, where the Reflections are not so sudden as to occasion Echo's, but are all in the same Tune with the first Note.

The artificial Composition, which alone comes under the Musician's Province, is that Mixture of several *Sounds*, which being made by Art, the ingredient *Sounds* are separable, and distinguishable from one another. In this Sense the distinct *Sounds* of several Voices or Instruments, or several Notes of the same Instrument, are called simple Sounds; in Contradistinction to the *compound* ones, wherein to answer the End of *Musick*, the Simples must have such an Agreement in all Relations, chiefly as to Acuteness and Gravity, as that the Ear may receive the Mixture with Pleasure.

Sounds are distinguished besides into *smooth* and *even*, or *rough* and *harsh*, also *clear* and *hoarse*; the Cause of which Differences depends on the Disposition and State of the sonorous Body, or the Circumstances of the Place; but the Ideas of the Differences must be sought from Observation.

Smooth and *rough Sounds*, depend principally on the sounding Body; of this we have a notable Instance of Strings that are uneven, and not of the same Dimension or Constitution throughout.

M. *Perrault*, to account for Roughness and Smoothness, maintains there is no such Thing as a simple *Sound*, but that the Sound of the same Chord or Bell, is a Compound of the *Sounds* of the several Parts of it; so that where the Parts are homogeneous, and the Dimensions or Figure uniform, there is always such a perfect Mixture and Union of all the *Sounds*, as makes one uniform and *smooth* Sound; contrary Conditions produce Harshness. In Effect, a Likeness of Parts and Figures makes an Uniformity of Vibrations, whereby a great Number of similar and coincident Motions conspire to fortify and improve each other, and unite for the more effectual producing of the same Effect.

This Account he confirms from the Phænomenon of a Bell, which differs in Tone according to the Part it is struck in; and yet strike it any where, there is a Motion over all the Parts. Hence he considers the Bell as composed of an infinite Number of Rings, which, according to their different Dimensions, have different Tones, as Chords of different Lengths have; and when struck, the Vibrations of the Pars immediately struck specify the Tone, being supported by a sufficient Number of consonant Tones in other Parts. This must be allowed, that every Note of a stringed Instrument is the Effect of several simple *Sounds*; for there is not only the *Sound* resulting from the Motion of the String, but that from the Motion of the Parts of the Instrument, which has a considerable Effect in the total Sound, as is evident from hence, that the same String on different Violins sounds very differently.

But M. *Perrault* affirms the same of every String in itself, and without considering the Instrument. Every Part of the String, he says, has its particular Vibrations different from the gross and sensible Vibrations of the whole; and these are the Causes of different Motions and *Sounds* in the Particles, which uniting, compose the whole *Sound* of the String, and make an uniform Composition, wherein the Tune of the particular Part struck prevails; and all the others mixed under a due Subordination with it, so as to make the Composition smooth and agreeable. If the Parts be unevenly or irregularly constituted, the *Sound* is harsh, which is the Case in what we call *false Strings*, and various other Bodies, which, for this Reason, have no certain and distinct Tone, but a Composition of several Tones, which do not unite and mix, so as to have one Predominant to specify the total Tone.

As to *clear* and *hoarse Sounds*, they depend on Circumstances which are accidental to the sonorous Body; thus a Voice or Instrument will be hollow and hoarse, if raised within an empty Hogshead; that yet is clear and bright out of it: The Effect is owing to the Mixture of other and different *Sounds* raised by Reflection, which corrupt and change the Species of the primitive *Sound*.

For *Sounds* to be fit to obtain the End of *Musick*, they ought to be smooth and clear, especially the first, since without this they cannot have one certain and discernable Tone capable of being compared to others, in a certain Relation of Acuteness, of which the Ear may judge, and of Consequence can be no Part of the Object of Musick.

Upon the whole then, with M. *Malcom*, some call that an *harmonic*, or *musical Sound*, which being clear and even, is agreeable to the Ear, and gives a certain and discernable Tone (called *tunable Sound*) which is the Subject of the whole Theory of Harmony. But M. *Sauveur*, a *Frenchman*, calls by that Name such *Sounds* as always make a certain Number of Vibrations, in the Time that some other fundamental *Sound*, to which they are referred, makes one Vibration.

Harmonical Sounds, are produced by the Parts of Chords, *&c.* which vibrate a certain Number of Times while the whole Chord vibrates once. By this they are distinguished from the third, fifth, *&c.* where the Relations of the Vibrations are four to five, or five to six, or two to three.

The Relations of Sounds had only been considered in the Series of Numbers, 1 : 2, 2 : 3, 3 : 4, 4 : 5, *&c.* which produced the intervals, called *octave*, *fifth*, *fourth*, *third*, &c. M. *Sauveur* first considered them in the natural Series, 1, 2, 3, 4, *&c.* and examined the Relations of the *Sounds* arising therefrom.—The Result is, that the first Interval, 1 : 2, is an octave; the second, 1 : 3, a twelfth; the third, 1 : 4, a fifteenth, or double octave; the fourth, 1 : 5, a seventeenth; the fifth, 1 : 6, a nineteenth, *&c.*

This new Consideration of the Relations of *Sounds*, is more natural than the old one; and does express and represent the whole of *Musick*, and is in Effect all the *Musick* that Nature gives us without the Assistance of Art.—The String of an Harpsichord, or a Bell, besides their general *Sound*, which is proportionate to their Length, Tension, *&c.* do also at the same Time yield other subordinate and acuter *Sounds*, which a nice Ear, with a good Attention, clearly distinguishes.

These subordinate Sounds arise from the particular Vibrations of some of the Parts of the Strings, or Bell, which are as it were, detached from the rest, and make separate Vibrations: In Effect, every Half, every Third, every Fourth, *&c.* of the Chord, performs its Vibrations a-part, while a general Vibration is made of the whole Chord. Now all these subordinate Sounds are *harmonical*, with regard to the whole *Sound*; the least *Acute* which we hear is *octave* with the whole Sound; the least *Acute* that follows makes a *Twelfth* with the whole Sound; the next, a *Seventeenth*, &c. till they grow too acute for the Ear to perceive them. Now throughout the whole, we hear no such Thing as a *Sound* which makes a Fifth or a Third, *&c.* with regard to the whole *Sound*; none, in short, but what are comprized in the Series of *harmonical Sounds*.

Add, that if the Breath or Bellows that blow a Wind-Instrument, be played stronger and stronger, the one will be continually raised, but this only in the Ratio of the *harmonical Sounds*. So that it appears that Nature, when she makes as it were a System of *Musick* herself, uses no other but this Kind of Sounds; and yet they had hitherto remained unknown to the Musicians, not but that they frequently fell into them, but it was inadvertently, and without knowing what they did. M. *Sauveur* shews, that the Structure of the Organ depends entirely on this unknown Principle.

The Difference between two Sounds, in respect of *acute* and *grave*, or that imaginary Space terminated by two Sounds, differing in Acuteness or Gravity, is called *Interval*.

When two or more Sounds are compared in this Relation, they are either equal or unequal in the Degree of Time: Such as are equal are called *Unisons*, with regard to each other, as having one Tune; the other being at a Distance from each other, constitute what we call an *Interval* in *Musick*; which is properly, as we have

have already obſerved, the Diſtance in Tune between two Sounds.

Intervals are diſtinguiſhed into *ſimple* and *compound*.

Simple INTERVAL, is that without Parts, or Diviſion: Such are the *Octave*, and all that are within it; as the *ſecond*, *third*, *fourth*, *fifth*, *ſixth* and *ſeventh*, with their Varieties.

Compound INTERVAL, conſiſts of ſeveral leſſer *Intervals*; ſuch are all thoſe greater than the *Octave*; as the *ninth*, *tenth*, *eleventh*, *twelfth*; which Diſtinction of *Intervals* is clearly ſeen, at one View, in the following Table:

1	2	3	4	5	6	7	*Simple.*
8	9	10	11	12	13	14	*Double.*
15	16	17	18	19	20	21	*Triple.*
22	23	24	25	26	27	28	*Quadruple.*
29	&c.						

Thoſe of the upper Rank mark the *ſimple Intervals*; and the other three, the *compound* ones, *viz.* either *double*, as thoſe of the ſecond Rank; or *triple*, as thoſe of the third Rank; or *quadruple*, as thoſe of the fourth Rank, *&c.*

To reduce at once a *compound* to a *ſimple Interval*, there's nothing elſe to do, but to take 7 off the Number which gives it the Name; if nothing remains, the *ſeventh* will be the *ſimple Interval*; if ſomething remains, the Figure left will be the Name of the *ſimple Interval*. As for Example, if one will know what is a *thirteenth*, he muſt take off 7 from the Number 13, and there remains 6; a *thirteenth* therefore is properly a 6th doubled. Or if we want to know what is a *twenty-ſixth*, we muſt take off three times 7, or 21, and there remains 5, the 26th therefore is a 5th Quadrupled. All *compound Intervals* are always reputed of the ſame Nature with the *ſimple*, which anſwer to it.

Of the twenty-nine *Intervals* which compoſe our Table, ſome are called by the *Italians*, *Conſonanti*, Conſonants; others *Diſſonanti*, Diſſonants.

The *Conſonanti*, or CONSONANTS, are all the *Intervals* which pleaſe the Ear, whether they be perfect, as the *Octave*, and the *fifth*; or *imperfect*, as the *ſixth* and *third*.

Dr. *Holder*, on this Principle, defines *Conſonancy*, a Paſſage of ſeveral tunable Sounds, through the Medium, frequently mixing and uniting in their undilated Motions, cauſed by the well-proportion'd commenſurate Vibrations of the ſonorous Bodies, and conſequently arriving ſmooth and ſweet, and pleaſant to the Ear.

The *Diſſonanti*, or DISSONANCE, is in general a falſe *Conſonance*, or Concord. A *Diſſonance* is properly the Reſult of a Mixture, or Meeting of two Sounds, which are diſagreeable to the Ear; and the Epithet given to all the *ſuperfluous* or *diminiſh'd Intervals*, as the *Ditones*, *Tritones*, *falſe fifth*, *redundant fourth*, *ſeventh*, &c. *Diſſonances* are uſed in *Muſick*, and have a good Effect therein, though it be only by Accident.

Others they call *vitiati*, or *prohibiti*, i. e. *forbidden*, or which are never to be made in the Sequel of a Piece of *Muſick*, through the Difficulty of tuning them one after another, either in *aſcending* or *deſcending*. Such are, for Example, the *ſixth Major*, the *Tritone*, the *fifth*, and all the other *ſuperfluous Intervals*, the *ſeventh*, the *ninth*, or all thoſe which are at ſo great a Diſtance, that the Voice cannot naturally reach it. Some are *forbidden* in *aſcending*, and *permitted* in *deſcending*, ſuch are the *fourth*, the *fifth*, the *ſeventh* diminiſhed, *&c.*

Note, That the Antients were extremely divided about the Manner of meaſuring *Intervals*. *Pythagoras* and his Followers, meaſured them by the Ratio's of Numbers. They ſuppoſed the Differences of Gravity and Acuteneſs, to depend on the different Velocities of the Motion, which cauſes Sounds, and therefore concluded, that they could only be accurately meaſured by the Ratio's of thoſe Velocities. Which Ratio's are ſaid to be firſt inveſtigated by *Pythagoras*, on Occaſion of his paſſing by a Smith's Shop, and obſerving a Concordance betwixt the Sounds of Hammers ſtriking on the Anvil.

Ariſtoxenes oppoſed this; he thought Reaſon and Mathematicks had nothing to do in the Caſe, and that Senſe was the only Judge in the Diſpute; the other being too ſubtile to be of any Uſe. He therefore determined the *Octave*, *fifth*, and *fourth*, which are the moſt ſimple Concords, by the Ear; and by the Difference of the fourth and fifth, he found out the Tone, which once ſettled as an *Interval*, the Ear could judge of, he pretended to meaſure every *Interval* by various Additions and Subſtractions made of theſe mentioned one with another: But this is very inaccurate.

Ptolemy keeps a middle Courſe between the two. He finds Fault with the one for deſpiſing Reaſon, and with the other for excluding Senſe; and ſhews how theſe two may mutually aſſiſt each other in this Matter.

A *Compound Interval*; or an Interval compoſed of ſeveral leſſer, is called SYSTEM, in *Muſick*; ſuch is the *Octave*, &c. The Word is borrowed from the Antients, who called a ſimple Interval *Dyaſtem*, and a compound one *Syſtem*.

As there is not any Interval in the Nature of Things; ſo we can conceive any given Interval, as compoſed of, or equal to the Sum of ſeveral others. This Diviſion of Intervals, therefore, only relates to Practice; ſo that a *Syſtem* is properly an Interval which is actually divided in Practice, and where along with the Extremes, we conceive always ſome intermediate Terms.

The Nature of a *Syſtem* will appear plain, by conceiving it as an *Interval* whoſe Terms are in Practice, taken either in immediate Succeſſions, or the Sound is made to riſe and fall, from the one to the other, by touching ſome intermediate Degrees: So that the whole is a Syſtem or Compoſition of all the Intervals between one Extreme and the other.

Syſtem of the ſame Magnitude, and conſequently of the ſame Degree of Concord and Diſcord, may yet differ in Reſpect of their Compoſition; as containing, and being actually divided into more, or fewer Intervals: And when they are equal in that Reſpect, the Parts may differ in Magnitude. Laſtly, when they conſiſt of the ſame Parts, or leſſer Intervals, they may differ as to the Order and Diſpoſition thereof between the two Extremes.

There are ſeveral Diſtinctions of *Syſtems*; the moſt remarkable is into *Concinnous* and *Inconcinnous*.

Concinnous SYSTEMS, are thoſe conſiſting of ſuch Parts as are fit for *Muſick*; and thoſe Parts placed in ſuch an Order between the Extremes, as that the Succeſſion of Sounds, from one Effect to the other, may have a good Effect.

Inconcinnous SYSTEMS, are thoſe where the ſimple Intervals are *inconcinnous*, or ill diſpoſed betwixt the Extremes.

Syſtems, again, are either *particular* or *univerſal*.

Particular SYSTEMS (at leaſt called ſo by the Antients) were a Compound at leaſt of two *Diaſtems*, or Intervals, and conſequently of three Sounds at leaſt; ſuch as all Kinds of *Thirds*; and more all the Compounds of three, four, five, *&c.* Dyaſtems or Intervals, ſuch as are the *fourth*, *fifth*, *ſixth*, and *octave*.

Whence *Boetius* calls the *Modes* or *Tones*, *Conſtitutions* or *Syſtems*; ſince in Effect a *Mode* is properly an Aſſemblage of ſeveral Sounds, of ſeveral Intervals, and of ſeveral particular Syſtems, which conſtitute a whole, called *Melody* or *Song*.

Hence we commonly call *General* SYSTEM, a *Gamut*, a *Scale*, an Aſſemblage of ſeveral *Words*, *Syllables*, *Letters*, *Figures*, &c. which ſerve to denote the *Grave*, and *acute Sounds*, their *Differences*, *Intervals*, *Proportions*, &c. ſo that *Syſtem* and *Gamut* are very near the ſame Thing in *Muſick*, *Alphabets* are in Grammar; and as there have been different Alphabets, according to the Diverſity of Languages, Times, Places, *&c.* there have been likewiſe ſeveral Syſtems of Sounds.

The firſt, or at leaſt the moſt antient we have Knowledge of, is that of the *Greeks*, which began at firſt by a Tetrachord, *i. e.* a Sequel, of four Chords only, the loweſt whereof anſwer'd to our *mi*, and the two others to the Notes *fa*, *ſol*, *la*, which is what *Boetius* calls the Order or Syſtem of *Mercury*, to which

the Invention thereof is attributed about the Year of the World 2000.

It was soon perceived, that that *Tetrachord* was not sufficient to express all the Sounds; therefore several Persons added, at different Times, three other Chords underneath the four above, which answer'd to what we call, at present, *si*, *ut*, *re*, and which formed with them two *Tetrachords*, but two *Tetrachords* joined; since the *mi* served as highest Chord to the first or lowest; and of the lowest Chord to the highest, as in the following Example:

Mi fa sol la
Si ut re mi.

Sometime afterwards, *Pythagoras*, according to the most common Opinion, having established Rules to find the Proportion of Sounds, perceived soon, that the two Extremes of those two Tetrachords, *viz. si*, and *la*, making the Interval of a seventh were *Dissonants*, which obliged him to add underneath the most *grave Chord* of those two *Tetrachords* an eighth Chord which made the *Octave* with the highest, *viz. la*, whence it was called *Proslambanomenos*, or *added*.

Lastly, as in Process of Time, it was found that those eight Sounds were not sufficient to express all the Sounds of the human Voice, several Persons added, by Degrees, other Chords, enough to form, besides, two other *Tetrachords* joined together, the Sounds whereof were an *Octave* higher, than the Sounds of the two first; thus the *System* was found composed of fifteen Chords, or four *Tetrachords*, the two Extremes whereof made between themselves the *Dis-diapason* or double *Octave*; of which, to please the Curious, I give in the following Tables, the *Order*, *Proportions*, with the Name given them in the *modern System*.

TABLE *of the fifteen* DIATONICK CHORDS *of the* SYSTEM *of the Antients.*

TETRACHORD *of the most* ACUTE, *or* HIGHEST.

The last of the most excellent, or most acute. —	LA	*Tone Minor.*
The Penultieme of the Excellents.	*Key of* SOL.	
The third of the Excellents.	FA	*Semi Tone.*

TETRACHORD *of the* DISJOINED.

The last of the Disjoined.	MI	*Tone Minor.*
The Penultieme of the Disjoined.	RE	*Tone Major.*
The third of the Disjoined.	*Key of* UT.	*Semi Tone.*
Paramese. —	SI	*Tone Major.*

TRITE SYNEMENON.

It is now the *Si mi*

TETRACHORD *of the* MESE.

MESE —	LA	*Tone Minor.*
MESON-DIATONOS	SOL	*Tone Major.*
PARHYPATO-MESON	*Key of* FA	*Semi-Tone.*

TETRACHORD *of the* PRINCIPALS.

HEPATEMESON	MI	*Tone Minor.*
HYPATON-DIATONOS	RE	*Tone Major.*
PARHYPAME-HYPATON	UT	*Semi-Tone.*
HYPATE-HYPATON	SI	
PROSLAMBANOMENOS	LA LA.	

For the Intelligence of this Table, it must be observed, 1. That as the *Proslambanomenos*, or added, does not contribute towards forming the first or lowest of the four *Tetrachords*, it is separated from it, and was added only to perfect the lowest Octave, and make the *Mese* the Middle of that System, according to its Signification, and to join so well the two Octaves which compose that said System, that it be the highest Chord of the lowest Octave; and the lowest Chord of the highest Octave, according to *Boetius*'s Observation.

2. That between the two lowest Chords of each *Tetrachord*, i. e. between *mi*, *fa*, and *si*, *ut*, there is an Interval of five Comma's, or of a *Semi-Tone Major*; that between the two highest, as *re*, *mi*, and *sol*, *la*, there is a *Tone Minor*; and between those which make the middle, such as *ut*, *re*, and *fa*, *sol*, there is a *Tone Major*, at least in the Opinion of the Antients.

3. That to discover better the Conjunction of the *Tetrachords*, I have on Purpose redoubled the *mi* of the two Octaves, where that Conjunction is made, so that the first terminates above the lowest of the *joined Tetrachords*, and the second, which notwithstanding is but the Emission of the first, begins under the highest of those *Tetrachords*. This the Antients called the greatest of all *Systems*, the *immutable System*, *Diatonick*, *Pythagorical*, &c.

Thus far, in fact, the System is purely *Diatonick*, is composed only of *Major Tones* and *Semi Tones*; which Nature alone, without the Assistance of Art, teaches the most ignorant how to tune, provided they have the Ear, and the Organs of the Voice well disposed. But as it was observed, in Process of Time, that between the *Mese* and the *Paramese* there was a full Tone, which render'd the fourth from *fa* to *si* superfluous, and very disagreeable, a fifth *Tetrachord* was invented to make full a middle Chord, to divide the Interval from the *Mese* to the *Paramese*, into two *Semi-Tones*, one *Major*, and the other *Minor*, called at present *si b*, and which has been marked since by a *b mol*.

This, without doubt, gave Occasion to *Timothy* the *Milesian*, to divide likewise in two Intervals *ut re*, and *fa sol*, which make the Middle of each *Tetrachord*, and a *Tone Major*, and that by Means of a double *Diezes*, which has been the Origin of the chromatick Gender; and has been the Cause that those Sounds or Chords, have been called moveable Sounds. But he did not divide in the same Manner the Intervals *re mi* and *sol la*, which terminate above each *Tetrachord*, because they make but one *Tone Minor*; whence they are called *stable* Sounds or Chords.

Lastly, one *Olympius*, refining on that Division, pretended, that at the Example of the *Tones Major*, the *Semi Tones Major* should also be divided in two; which engaged him to put 1. A middle Chord, between the two lowest Chords of each *Tetrachord*, viz. betwixt *si ut*. and *mi fa*. And 2. Another middle Chord, betwixt the second *Diatonick* Chord of each *Tetrachord*, and the *Chromatick* Chord, which was a *Semi-Tone* higher than the *Diatonick*; which was the Origin of the *Enharmonick* Gender, and consequently of the *Enharmonick* and *Chromatick* Diezes.

Note, That the *Enharmatick* is one of the three Genders of *Musick*, in which the Modulation proceeds by little Intervals less than the Semi-Tone, *i. e.* by *Quarters of Tones*; therefore it has two *Diezes* or Signs to raise the Voice, which are peculiar to it, *viz.* the *Diezes* Enharmonick Minor, marked by a Cross thus +; and the Major, or triple Diezes marked by a triple Cross thus ✠. This Gender was antiently much in Use in the *Musick* of the *Greeks*, especially for the *Dramatick*, or *Recitative* Musick; but as those almost insensible Elevations of the Voice are of a too great Difficulty, and would, besides, render often the Accords false; hence the Use thereof is lost; what Efforts soever have been made, from Time to Time, by illustrious Authors to revive it.

Therefore having gathered those three Genders into a single System, each Tetrachord was composed 1. Of four Diatonick Chords, such are, for Example, *si*, *ut*, *re*, *mi*. 2. Of one Chromatick Chord, which was a Semi-Tone above the *ut*, called at present *ut Diezis*. 3. Of two Enharmonick Chords, the first whereof divided the Semi-Tone from the natural *ut*, to the *ut Diezis*, into four Quarters of a Tone. With Regard to the Intervals from the *ut Diezis* to *re*, and from *re* to *mi*, they were not divided in the antient System, because they were thought then *Minor Intervals*, uncapable therefore of that Division.

There is to be seen in our Plate of *Musick*, fig. 1. an Example thereof by the common Notes of *Musick*, where the four white Notes are *Diatonick*; the two first black, *Enharmonick*; and the third black and square *Chromatick*.

I have put there but one of the *Tetrachords*, because we must speak of the others in Proportion.

This was the Disposition of the *Lyra*, or antient *System* of the *Greeks*. But as the Names of all those Chords were too long to be written under the Syllables of the Text, they substituted in their Place certain Letters

ters of their Alphabet, ſometimes upright, and ſometimes laying, and ſometimes upſide-down, *&c.* but it muſt be obſerved, that they were contented with placing thoſe Characters on the ſame Line immediately above each Syllable of the Text.

In Proceſs of Time the *Latins* finding that thoſe Characters, either by reaſon of the Variety and Extravagance of their Figures, or becauſe of their Multitude (which, according to ſome Authors, amounted to 1240) were too difficult to retain, or remember, ſubſtituted in their Place, the firſt fifteen Letters of their Alphabet, *viz.* A, B, C, D, E, F, G, H, I, K, L, M, N, O, P. which formed as a *ſecond Syſtem*, which notwithſtanding differed in nothing from the former but in the Number of Figures.

Some Time afterwards Pope St. *Gregory*, according to *Gaffurius* and *Kircher*, having obſerved that the Letters H I K, *&c.* were properly nothing elſe but a Repetition of a higher Octave of the firſt ſeven Sounds, A, B, C, D, *&c.* reduced all the Characters of the Sounds to the firſt ſeven Letters of the Alphabet, which were repeated more or leſs, either high or low, according to the Extent of the Voices, Inſtruments, *&c.* but then they contented themſelves ſtill with marking them, as the *Greeks* uſed to do, above each Syllable of the Texts, which were to be ſung, and always on the ſame Line.

But in the eleventh Century, about the Year 1024, according to *Baronius*, *Guido Aretin*, a Benedictine Monk, born in the City of *Arezzo* in *Tuſcany*, invented a third *Syſtem*, for which the two preceding ones were ſoon abandoned, and this univerſally received, having ſerved beſides for Foundation to the modern one.

This Author then, having obſerved, 1. That the Names the Antients gave to the Chords of their *Syſtem* were too long, ſubſtituted in their Place he ſix famous Syllables, *ut*, *re*, *mi*, *fa*, *ſol*, *la*, which came into his Mind, by a Kind of Inſpiration, in ſinging the firſt Staph of the Hymn of St. *John Baptiſt*, in which, as is plainly ſeen in this Place, they are in fact included thus:

UT *queant laxis* RE *ſonare fibris*
MI*ra geſtorum* FA*muli tuorum*
SOL*ve polluti* LA*bii reatum*
Sancte Joannes.

Which *Angelo Bernardi*, an *Italian*, has ingeniouſly included in the following Verſe:

UT RE*levet* MI*ſerum* FA*tum* SOL*itoſque* LA*bores.*

2. The Shortneſs of thoſe Monoſyllables could very well have procured them the Means of writing them with great Facility above each Syllable of the Text, as it had been practiſed till then. But finding, and with Reaſon, that ſuch a Manner of writing the Notes or Sounds on the ſame Line, could not make a ſufficient Diſtinction of the grave *Sounds* from the *acute*, and conſequently help enough the Memory, nor Imagination, he introduced the Uſe of ſeveral parallel Lines, on which, and between which, he placed certain round or ſquare Points, immediately above each Syllable of the Text, called ſince *Notes*, and which by the high or low Situation of the Degrees they occupied on, or betwixt thoſe Lines, made at once the Diſtinction of the *grave Sounds* from the acute.

Note, That thoſe horizontal Lines, on which, and between which, the *Notes* are placed at preſent, were, before *Guido Aretin*, as many as the Extent of a Tune or Song contained different Sounds, becauſe then the Points which marked the Sounds were placed on the Lines only; but afterwards, thoſe Points were placed likewiſe in the Spaces betwixt thoſe Lines, and the Number of thoſe Lines reduced to four, which made 9 Degrees to place 9 different Sounds, the Songs of thoſe Times having ſeldom a greater Extent. But as a greater one was given to them afterwards, the Number of thoſe Lines was increaſed to five (the loweſt of which is always the firſt, and the higheſt the fifth) which make eleven Degrees, the two Spaces underneath, and a top thoſe five Lines included; with Leave to add to them ſome other ſmall Lines, if thoſe Degrees be not ſufficient to expreſs all the Sounds of a *Melody* or *Song*.

3. But to mark more preciſely which Sound each of thoſe Points repreſented, he took the firſt ſix Letters of the *Latins*, a-top of which he placed the Γ or *Gamma* of the *Greeks* (to mark in the Opinion of ſome Authors, that *Muſick*, at leaſt the Art of noting it, come from thoſe People, or according to others, becauſe his Name beginning with a G, he was glad to inform Poſterity that he was the Inventor of that new Method) he named thoſe Letters *Keys*, becauſe they were to ſerve to open, or give the Knowledge of the Sounds, and having joined them with thoſe ſix Syllables, *ut*, *re*, *mi*, *fa*, &c. he formed a Table of them, Part whereof may be ſeen in our Plate of Miſcellany, fig. 1. and which has been called ever ſince *Gamma* or *Gamut*, becauſe of the Addition of the *Gamma* of the *Greeks*, and Scale for its Figure.

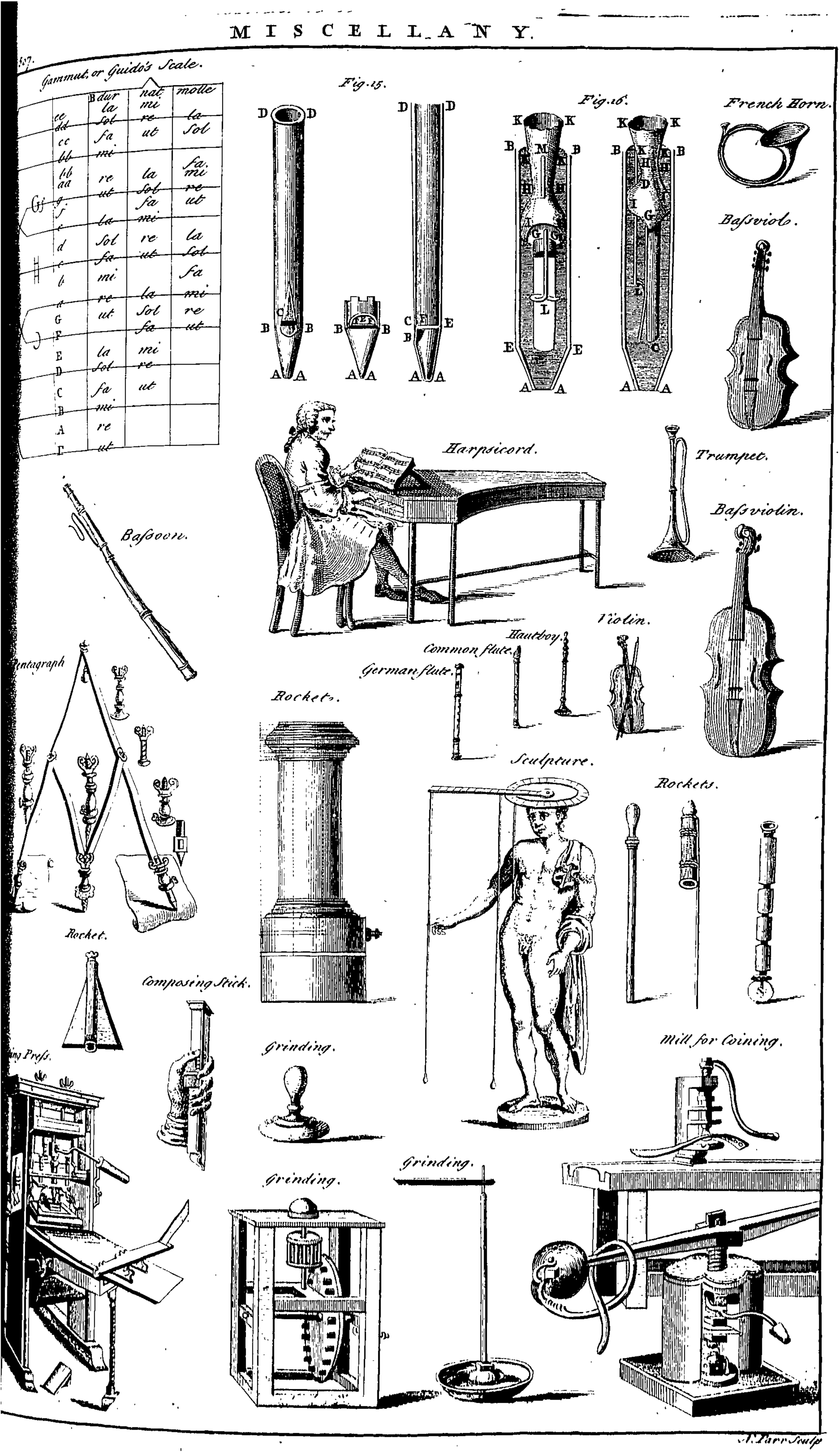
4. It is probable enough that he placed, firſt, at the Head of each Line, and between each of them, one of thoſe ſeven Letters or Keys, which marked the Name to be given to all the Points or Notes, found on or betwixt thoſe Lines, as fig. 2. in our Plate of *Muſick*.

Fa mi fa re ut re la fa la re ut re mi fa mi re.

Therefore it is eaſy to ſee that the firſt, 3d and 14th Notes are called *fa*, becauſe they are on one Line marked with the Letter F; the ſecond, 13th and 15th, muſt be called *mi*, becauſe they are in a Space marked with the Letter E, and thus of the others: But it is not leſs probable, that in Proceſs of Time he contented himſelf with marking the Letters of each Line, without marking thoſe of the Spaces, as ſeveral Examples of it are ſeen yet in antient Manuſcripts. They contented themſelves afterwards to mark only one of thoſe 7 Keys at the Beginning of the Lines, becauſe by the natural Order they have between themſelves, ſo ſoon as one is ſure that on a Line there is, for Example, a *fa*, it is eaſy to know that on the Degree above it there is a *ſol*, and under it a *mi*, and thus ſucceſſively of the others, *&c.* Laſtly, of thoſe ſeven Letters, or *Keys*, three have been choſen, *viz.* that of G, that of C, and that of F, called *Claves ſignatæ*, or *marked Keys*, becauſes it ſuffices to put one of them at the Beginning of the Lines to give the Intelligence of all the others: Each *Key* giving the Opening for the Name of the Notes, for the Quality of their Sound, and for the Sorts of Voices which are to ſing them. When immediately after there are ſeveral ♭♭, or ſeveral ♯♯ they are called tranſpoſed Keys, and when there is nothing *natural*.

Note, That though the *Key* be not tranſpoſed, through the Negligence and Forgetfulneſs of placing to it the *Diezes* or *b-mols*, the Piece is notwithſtanding ſometimes tranſpoſed, by the accidental *Diezes* or *b-mols*, found before certain Notes in the Courſe of the Piece, and which ſhould have been placed at the Key.

Note, alſo, That to give a more diſtinct Notion of the *Key*, we muſt obſerve, that the Octave contains in it the whole Principle of *Muſick*, both with reſpect to Conſonance or Harmony, and Succeſſion or Melody; and if either Scale be continued to a double Octave, there will in that Caſe be ſeven different Orders of the Degrees of an Octave, proceeding from the ſeven different Letters with which the Terms of the Scale are marked. Any given Sound therefore, *i. e.* a Sound of any determinate Pitch or Tune, may be made the *Key* of the Piece, by applying to it the ſeven natural Notes ariſing from the Diviſion of an Octave, and repeating the Octave above and below at Pleaſure. The given Note is applied as the principal Note or *Key* of the Piece, by making frequent Cloſes or Cadences upon it; and in the Progreſs of the Melody, no other but thoſe ſeven natural Notes are to be admitted, while the Piece continues in that *Key*, every other Note being foreign to the fundamental or the natural. For Inſtance, ſuppoſe a Song begun in any Note, and carried on upwards or downwards, by Degrees and harmonical Diſtances, ſo as never to touch any Notes, but what are referable to that firſt Note as a fundamental, *i. e.* are the true Notes of the natural Scale proceeding from the fundamental; and let the Melody be ſo conducted through thoſe natural Notes, as to cloſe and terminate in the fundamental, or any of


Gammut, or Guido's Scale.
B dur
nat.
molle
Fig. 15.
Fig. 16.
French Horn.
Basviol.
Harpsicord.
Trumpet.
Basviolin.
Basoon.
Violin.
Hautboy.
Common flute.
German flute.
Pentagraph
Rocket.
Rocket.
Sculpture.
Rockets.
Composing Stick.
Grinding.
Mill for Coining.
Grinding.
Grinding.

of its Octaves above or below, that Note is called the *Key* of the Melody, because it governs all the rest, limiting them so far, as that they must be to it in the Relation to the seven essential Notes of an Octave, when any other Note is brought in, it is called *going out of the Key*. From which Way of speaking, *viz.* a Song's continuing in, or going out of the *Key*, it may be observed, that the whole Octave, with its natural Notes, come under the Idea of a *Key*; though the fundamental, or principal Note is, in a peculiar Sense, called *Key*. In which last Sense of the Word *Key* (*viz.* where it is opposed to one fundamental Note) another Note is said to be out of the *Key*, when it has not the Relation to that Fundamental of any of the natural Notes belonging to the concinnous Division of the Octave. Here too it must be added, with respect to the two different Divisions of the Octave, that a Note may belong to the same *Key*, i. e. have a just musical Relation to the same Fundamental in one Kind of Division, and be out of the *Key* with respect to another. Now a Piece of *Musick* may be carried through several *Keys*, i. e. it may begin in one *Key*, and be led out of that into another, by introducing some Note foreign to the first, and so on to another: But a regular Piece must not only return to the first *Key*, but those other Keys too must have a particular Connection with the first. It may be added, that those other Keys must be some of the natural Notes of the principal Key, tho' not any of them at Pleasure.

As to the Distinction of *Keys*, we have already observed, that to constitute any given Note, or Sound, a *Key*, or fundamental Note, it must have the seven essential or natural Notes added to it; out of which, or their Octaves, all the Notes of the Piece must be taken, while it keeps within the *Key*, i. e. within the Government of that Fundamental. It is evident therefore, there are but two different Species of *Keys*, which arise according as we join the greater or less Third, these being always accompanied with the sixth and seventh of the same Species; the third G, for Example, with the sixth and seventh G, and the third L, with the sixth and seventh L. This Distinction is expressed under the Name of *sharp Key*, which is that within the third G, *&c.* and the *flat Key*, which is that within the third L, *&c.* Whence it is plain, that how many different Cases soever there be in a Piece, there can be but two Keys, if we consider the essential Difference of *Keys*, every *Key* being either *flat* or *sharp*, and every sharp *Key* being the same as to Melody, as well as every *flat* one. It must be observed however, that in common Practice the *Keys* are said to be different, when nothing is considered but the different Tune, or Pitch of the Note, in which the different Closes are made. In which Sense, the same Piece is said to be in different Keys, according as it is begun in different Notes, or Degrees of Tune.

To prevent any Confusion which might arise from using the same Word in different Senses, M. *Malcolm* proposes the Word *Mode* to be substituted instead of the Word *Key*, in the former Sense; that is, where it expresses the melodious Constitution of the Octave, as it consists of seven essential or natural Notes, besides the fundamental; and in regard there are two Species of it, he purposes, that that with a third G, be called the greater Mode; and that with a third L, the lesser Mode, appropriating the Word *Key* to those Notes of the Piece in which the Cadence is made; all of which may be called different *Keys*, in respect of their different Degrees of Tune. To distinguish then, accurately, between a *Mode* and *Key*, he gives us this Definition, *viz.* an Octave, with all its natural and essential Degrees, is a *Mode*, with respect to the Constitution, or Manner of dividing it; but with respect to its Place in the Scale of Musick, *i. e.* the Degree, or Pitch of Tune, it is a *Key*; though that Name is peculiarly applied to the Fundamental. Whence it follows, that the same Mode may be with different *Keys*, i. e. an Octave of Sounds may be raised in the same Order and Kind of Degrees, which makes the same Mode, and yet be begun higher or lower, *i. e.* be taken at different Degrees of Tune, with respect to the whole, which makes different Keys; and *vice versâ*, that the same *Key* may be with different Modes, *i. e.* the Extremes of two Octaves may be in the same Degree of Tune, yet the Division of them be different.

5. *Guido Aretin*, finding that the *Greeks* had good Reasons to divide in two Semi-tones the Intervals between the *Mese* and *Paramese*, which he calls in his System A and B, and the modern *la* and *si*, that obliged him, 1. To put some Time on the Degree of B or *si*, *a b* to shew that from A to B, the Voice should not be raised but of a Semi-tone, and as that Intonation has something more softer and sweet than when the Voice is raised of a full Tone, he gave to that *b* the Epithet of *mol*; which engaged him, 2. To put in his *Gamma* or *Gamut*, a Column, to be seen in our Plate of Miscellanies, called for that Reason the Column of *b-mol*.

Lastly, not satisfied with having added under the *Proslambanomenos*, or lowest Chords of the Antients, a Chord marked with the Γ, and which he called *Hypo-proslambanomenos*, i. e. *subadded*, he added to *Nete-hyper-boleon*, or highest Chord of the *System* of the antient *System*, four other Chords, which formed a fifth *Tetrachord*, which he called Tetrachord of the *Sur-acutes*. So that his *System* was composed of 22 Chords, *viz.* of 20 *diatonick*, which make what has been called since the Order *b-quarre*, or natural; and the two lowered a Semitone lower than the natural, which changing the natural Order of some Notes in the Order of *b-quarre*, have produced the Order called *Diatonick b-mol* or simply *b-mol*.

I know that *Meibornius*, and after him *Bontempi*, wanted to rob *Guido Aretin* of the Glory of those Additions, but rather by a Principle of Jealousy and Envy, than with the least Appearance of Reason. But let it be how it will, that *System* was certainly very ingenious, and has freed the Musick of several Difficulties and Embarasses, caused by the antient *Systems*. It is not surprising then, if it was so generally received and applauded; and if it was the only one followed during very near six Centuries successively, notwithstanding which he had three or four very great Inconveniencies.

The first, was that which was called *Muances*, i. e. the different Names one was obliged to give every Moment to the same Note, when the Extent of the Songs obliged to go higher than the *la*, or lower than the *ut*, so that they were obliged very often to call, for Instance, *re*, the same Note, which a Moment before had been called *la*, &c. therefore it is easy to judge what Embarass that caused; and if an ingenious Author was in the wrong to call those *Muances*, *Crux tenellorum ingeniorum*, the *Cross of Pupils*.

The second Inconveniency, was that except the *b-mol*, there was *chromatick* Chords: And it is certainly surprising, that so ingenious and so perfectly instructed in the System of the *Greeks* as *Guido Aretin* was, he had not at least introduced in his *System* the *chromatick* Chords found in that of the *Greeks*; and which are so frequently used, and so necessary in the Harmony, or Composition in several Parts, that it is almost impossible to make a good Harmony without them.

The third Inconveniency, is the little Extent, or Narrowness of his System; for ever since the Composition in several Parts or different Songs has been in Vogue, it is certain, that neither the two Octaves of the Antients, nor the Additions of *Guido Aretin* have been sufficient.

The fourth Inconveniency was, that the Notes of that *System* being almost all of an equal Value, that Variety of Measures and Motions could not be marked, which notwithstanding render Musick much more agreeable.

To remedy all those Inconveniencies, it was necessary to form as a fourth *System*; which notwithstanding, if well considered, is nothing else but an Augmentation or Perfection of that of *Guido Aretin*, and which I call the modern *System*; therefore,

1. As the Sounds are not naturally found every seventh Degree, precisely in the same Intervals, and can be repeated every *Octave*, as it were, *in infinitum*, a seventh Syllable

Syllable has been added, *viz. si*, to the six of *Aretin*, which give the Facility to express all the Degrees of the Octave, to fill all the Intervals thereof, and consequently to make that endless Repetition without changing, but very seldom, the Name of any of the Notes. I say, but very seldom, for some will have it, that when there is a *b*, either after the Key, or in the Sequel of the Song, on the Degree of the *si*, which marks that from *la* to *si*, the Voice ought not be raised but of a Semi-Tone; it is proper, to facilitate the Intonation of that Semi-Tone, to say *za*, or *sa*, instead of *si*; but there are several others, who without changing the Name of the *si*, content themselves with lowering it of a Semi-Tone; and in Effect, provided that lowering be made just, it is very indifferent what Name be given to that Note.

2. As it was found that between the Chords which are distant, or make the Interval of a Tone, a Partition-Chord could as well be placed to divide them into two Semi-Tones, as between the *Mese* and *Paramese* of the Antients, or which is the same Thing, betwixt the *la*, and the *si*; they have not been contented with adding to the System of *Guido Aretin* the Chromatick Chord, commonly called *b mol*; but have added to it besides the Chromatick Chords of the Antients, *i. e.* those which divide the Major Tones or Intervals which are in the Middle of each Tetrachord, into two Semi-Tones, which is effected by raising of a Semi-Tone, the lowest of these Chords, which is marked with a double Diezes, thus ✕, placed on the left Side, on the same Degree, and immediately before that lowest Note. And as it was observed, that the Tones Minor, or Intervals, which terminate upwards, each Tetrachord is no less susceptible of that Division, than the Tones Major, those Chromatick Chords which were wanted in the Systems of the *Greeks*, have been added to them; so that each Octave is composed at present, of 13 Sounds or Chords, or of 12 Intervals or Semi-Tones, *viz.* of 8 Diatonick or natural Sounds, marked with white Notes; and of 5 Chromatick or Diezes, *i. e.* raised of a Semi-Tone, marked with black Notes, as fig. 6.

With Regard to the enharmonick Chords of the System of the *Greeks*, they have all been absolutely rejected out of the modern System, for the Reasons heretofore mentioned, when I have spoke of the enharmonick Sounds.

3. To remedy the Narrowness of the antient Systems, and to have different Chords enough to multiply the Parts which make Harmony, the Number of those Chords has been increased by Degrees, as far as 29, Diatonick or natural; and 20, Chromatick. So that instead of four Tetrachords, or two Octaves of the Antients, we have at present 8 Tetrachords, all composed like those of the Example, fig. 6. of 8 Diatonick, and 5 Chromatick Sounds.

Those four Octaves make the ordinary Extent of the modern System, or of the Organs, or harpsical (for there is seldom any found, especially for Organs, which exceed that Extent, either upwards or downwards) and the first Touch or March of the Keys on the left Side, are commonly called, for that Reason, *C*, *sol*, *ut*, or simply *ut*.

4. Lastly, as the Notes of the System of *Guido Aretin*, rendered the Tunes so uniform, that it deprived them of that Variety of Motion, sometimes slow, sometimes quick, which make all the Grace or Charm thereof, and obliged often to pronounce in a very disagreeable Manner, the Syllables of the Text, the famous *John de Muris*, a *Dominican*, and a Doctor of *Paris*, invented about the Year 1320, or 1333, the different Figures of the Notes, which show at once how long precisely each Sound must last.

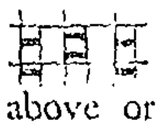
There are three Things to be consider'd in these Notes of *John des Murs*, — 1. The Quantity, *i. e.* the Size and Figure of the Head. — 2. The Quality, *i. e.* the Colour of the Head, whether it be white or black, full or open. — 3. The Properties, as the *Italians* express themselves, *viz.* whether the Note is accompanied with a Virgula, or Comma, or not. It must, likewise, be considered whether the Notes be separate and distinct, or bound together.

There are most commonly eight Sorts of Notes, the *Names*, *Figures*, and *Measures* thereof are as fig. 7.

Note, That the ninth Figure was of antient Use, but has been rejected by the Moderns.

Note also, That the Mathematicians compute, that one may make 720 Changes or Varieties with six Notes, without ever repeating the same twice; and that of the Notes of each Octave, one may make 40320 different Tunes or Songs.

Note again, That the large Note, which is, as it may be seen by the Figure, a long square Note, with a Tail on the right Side, and is worth 8 binary Measures, *i. e.* at two times, is not of any Use in the modern *Musick*, ever since the Usage has prevailed to separate the Measures, and to bind the Rounds with a Semicircle to mark the Continuity of their Sound. That the long, which by Inspection appears to be a square Note with a Tail on the left Side, and is worth four binary Measures, for at two times, and consequently eight times, unless it be bound with a Breve or Square. That the Breve of a square Figure, called for that Reason, *Square*, by the *French*, is worth under the Signs of the Measure at two or at four Times, two Measures; under the Signs of a triple Major, or perfect Time, is worth three Times, when followed by one or several semblable Squares, thus ▭ ▭ ▭ or by a Point thus ▭ • But when it is followed by a Note of less Value, as by one ○ or two Whites, it is worth but two Times. That a *Minim*, or White, under the Sign *C*, is worth half a Measure. In the Triple is worth, sometimes one Time, sometimes two: Sometimes also, there want two to make one Time.

As to the Notes bound together, we must observe, 1. That none but the square Notes and the Breves are capable of being bound together, their Figure allowing that they should be approached so near one another, that they appear to make but one Figure, only placed on different Degrees, thus  without it be necessary to put a Semicircle, above or under it, to mark the binding. 2. That it is only a Question here of the binary Measure, or at two Times. 3. That they may be consider'd as simple, as having a Tail. 4. As being of different Colours.

If they be simple, they either go in ascending, and then they are all worth their natural Value, *i. e.* two Measures each. See A. But if they go in descending they'll be worth each, four Measures, if there be but two together as B. But if there be three or four together, then the first and last will be worth each four Measures; and those in the Middle will be worth but two, as A B C, fig. 8.

If they have a Tail (though commonly, none but the first of each Ligature has one, which is ordinarily on the left Side of the Note) either that Tail ascends upwards, and then all the Breves or Squares, as well in descending as in ascending, are worth each but one Measure, as *D*, which was invented because the Rounds and Minims are not of a Figure to be bound together, and that the Use of the Demi-circle or Ligature, was not yet introduced. But if that Tail hangs downwards, then it gives the Breve its natural Value of two Measures, as well in descending as in ascending, like E, fig. 9.

Lastly, if they be of different Colours, *i. e.* if the first be white, and the second black; then the first is worth one Measure, and the second one white pointed, or a Time and a half; for Example, fig. 10.

These are the principal Ligatures, and those most in Use at present; and we must observe, before we leave this Subject; that they are either of two Notes, or of more than two, or of a single Body, or right or indirect, or with a Virgula or Tail, or without a Tail, or perfect, or imperfect.

Note, That Virgula's or Tails, are those strait Lines added to the Body or Head of the Notes. *Bontempi* distinguishes several Sorts of them in his *Historia Musica*, viz. the *ascending Tail*, which is that which ascends upwards; the *descending*, that descending downwards.

wards. Both can be placed on the right of a square Note, and are then called *ascending Tail*, or *pendente della parte destra*; or on the left, and is called then, *pendente della parte sinistra*. Those different Situations, cause much Difference in the Value of the Notes, especially when they are bound together. *Virgule diritta*, is a *straight Tail*, like those of the Whites and Blacks. *Virgula obliqua*, is a Tail with a little Hook at its Extremity, like those of the Crotchets, whether Whites or Blacks. Whether that Hook be turn'd towards the Right or the Left, it matters not. *Virgula bistorta*, is a Tail which has a double Hook at its Extremity, like those of the double Crotchets, whether White or Black, *&c.*

Note also, That thus far I have given the History and Explication of the different Systems of *Musick*, at least of those which are come to our Knowledge; and in our Plate of *Musick* the Curious will see at once all that I have hitherto said of those Systems; and here follows, at the same Time, the Use that can be made of it; and the Advantages which can be drawn from it: For,

1. There are seen in it the Names of the fifteen Diatonick Chords, and of the *Trite-Synemmenon* of the System of the *Greeks*, with that remarkable Circumstance, that the Chords whose Names are written quite near one another, make between themselves but a Semi-Tone, and those between whose Names there is a White, make between themselves a whole Tone.

2. In it is seen the Chord *Hypo-Proslombenomenos*, or *Gamma* added underneath; and the Tetrachord of the four *Sur-Acutes*, added a-top the antient System, by *Guido Aretin*.

3. It shews the Use of the Lines, and of their Spaces, and how much the different Degrees they form, serve to make the Distinction between the *grave* and *acute Sounds*.

4. It shews us clearly the modern Figure, the Position or Situation, and the principal Uses of the three Keys of our practical *Musick*; since we see plainly in it, 1. That all the Notes placed on the Line where the Key *G* is situated, are *sol*; that those on the Line *C* are *ut*; and those on the Key *F* are *fa*; whence it is easy to know, in discounting (whether in ascending or descending) which Notes are on the other Lines, and in the Spaces. 2. In it is clearly seen that the Key *G*, marking one Part of the Notes of the third Octave, and all those of the fourth, is designed for the highest or most acute Sounds of the modern System: That, on the contrary, the Key *F*, marking all the Sounds of the first or lowest Octave, and the greatest Part of the Sounds of the second Octave, is designed for the most grave Sounds of the System: And lastly, that the Key *C*, marking one Part of the Sounds of the second and third Octave, is designed for the Sounds between the most grave and the most acute.

5. I have placed above each Note, the modern Name of each Sound, whereby it is easy to discover the Use of the Syllable *si*, which gives leave to repeat and multiply as it were, *in infinitum*, the Sounds of *Musick*, either in ascending or descending, without changing the Names.

6. In it are all the Notes or Chords, which form the common Extent of the Keys of an Organ, not only the Diatonick or natural, marked with white Notes; but likewise the Chromatick, *i. e.* those with a *b mol*, and with Diezes, marked with black Notes; and all that so distinctly divided into four Octaves, that one must see at once, 1. In what Octave each Sound is situated. And, 2. What Degree precisely each Sound occupies in that Octave.

7. Underneath all that, are found, 1. The Letters or Characters the *Latins* used, ever since *Boetius*'s Time, to that of St. *Gregory*. 2. The Letters of St. *Gregory*. 3. The Letters or Keys of *Guido Aretin*. 4. The Letters of the modern System, used by some for the Tablature of an Organ, and commonly used in the *Facture*, especially of Organs and Harpsichords, to mark the Measures of the Pipes or Chords.

8. But what must be particularly observed for the Use and Commodiousness of this Table, is, that by Means of the punctued Lines, which run perpendicularly through it, may be seen in an Instant, the Report which all those Systems have with one another, and the Degree which each Chord occupies in the modern System, with the Name given to it. For Example, to know with Regard to our *Musick*, what was the *Proslambanomenos* of the Antients, one must only search in the System of the *Greeks*, which is a-top of the Table the Word *Proslambanomenos*, and afterwards descend along the punctuated Line, answering to it, as far as to the modern Names of the Notes, and he'll find that that Chord answers to the *la* of the first or lowest Octave, of the Organ or modern System. Thus the *Mese* answers to the *la* of the second Octave; the *Paramese* to the *si* of the second Octave; the *Nete-Hyperboleon*, to the *la* of the third Octave, *&c.*

Likewise, if one will know, for Example, how the *Greeks* called the *re* of our second Octave, he should search in the second Octave of the modern System the Note *re*, and from thence ascending along the punctuated Line, which answers to it, as far as to the System of the *Greeks*, he'll find that our *re*, was their *Lychanos-Hypaton*.

Besides, as several antient Manuscripts are found yet, where the Sounds were marked only with the Letters of the *Latins*, or of St. *Gregory*, or of *Guido Aretin*, if one ascends from the Letters in Question, to the Notes of the modern System, he'll find not only the Name given at present to the Sound marked by that Letter, but likewise, what Octave, and what Degree of that Octave, that Sound occupies in the modern System.

Lastly, if examining the *Diapason* of an Organ or *Harpsichord Builder* (i. e. a certain Table where the Length and Bigness of the Pipes or Chords are marked by Lines) you'll find for Instance, a great *C*, at the End of one of those Lines, search that great *C*, among the Characters of the modern System, which make the last Line downwards of our Table; from thence re-ascending along the punctuated Lines, as far as the modern System, you'll find that that Line is the Measure of the Pipe or Chord which must sound the *ut* of the first or lowest Octave. If there be but a small *c*, it will be for the *ut* of the second Octave. If there be two, thus $\begin{smallmatrix} c \\ c \end{smallmatrix}$, or thus *c c*, it will be for the *ut* of the third Octave. If there be three, it will be for the *ut* of the fourth Octave. If four, it will be for the *ut* of the fifth Octave, or last Touch of the Organ, *&c.* all which is to be seen in the Table in our Plate of *Musick*.

Note, That besides the Sorts of Systems heretofore explained, there are several others found in Authors, which I'll only mention in this Place. The first is that of the *Italians*, called *Systema Massimo, immutabile, Diatonico, Pythagorico*, and with the *Greeks*, *Bis-diapason*, because it contains two Octaves. This is the System of the *Greeks* heretofore explained. The second is *Systema unguale*, invented by *Aristoxenes*. The third is *Systema reformato*, under which is included *Systema temperato*, or *participato*. Lastly, there is a *Systema Enharmonico, Chromatico, Diatonico, Tonico, Antiquo, Moderno*, &c.

Note also, That M. *Sauveur*, a *Frenchman*, has invented a System of *Musick*, very different from those heretofore mentioned. He divides the Octave into 43 Parts, which he calls *Merides*, and even subdivides it into 301 Parts, which he calls *Eptamerides*. His System has this Advantage, besides several others, that giving different Names to each *Meride*, the diezed Notes have a Name different from the natural, which helps much towards their Intonation: What appears troublesome in it, is to be obliged to retain 43 different Names or rather 301, which one must know when he will make Use of the Octave divided into *Eptamerides*. That *System* is very ingeniously invented, but it will meet always with many Difficulties, especially in the Execution of a Piece of Musick with strong Parts; by it being almost impossible to play the thorough Base thereof on a Harpsichord cut according to that Division, if even that thorough Base was worked with Care and Attention.

Note,

Note, again, That from those different *Systems* I'll pass to the *Genders of Musick*.

Genus, in *Musick*, is a Manner of running through different Degrees or Sounds, and the sensible Intervals, which compose the Extent of the Octave, or of its Replies.

The Antients distinguished commonly three Kinds of Genera's, *viz.* the *Diatonick*, *Chromatick*, and *Enharmonick*.

The Diatonick, is that Genus, the lesser Intervals whereof, are the Semi-tone Majors and the Tones; and is when the Modulation follows the natural Order of the Sounds, *i. e.* that Distance put in it by Nature, and which the most ignorant observe naturally, if they have a good Ear, and the Organs of the Voice just. According to that natural Order there is a Tone between all the Notes of Musick, except between *mi*, *fa*, and *si*, *ut*, which are Semi tones major; when they are changed by means of the *Diezes* or *b-mols*, that Order is either altered or changed, or it is changed every where, so that all those Intervals are divided in two Semi-tones, *viz.* the major and minor; then it is the pure *chromatick* modern, which is not of great Use: But if that Alteration be made in some Places only, and when it is wanted, then it is a mixed Genus, called *Diatonick-chromatick*, which is the only one proper for good Harmony, and the only one in Use in the modern *Musick*.

The Chromatick, is when the Modulation proceeds by Semi tones major and minor, and generally as often as the *Diatonick* or natural Order which is between the Sounds is changed in altering them, *i. e.* raising them by Degrees, or lowering them by *b-mols*; for it is not, as several pretend, when there are several *b-mols*, or several Diezes after the Key; since it is then but a Transposition made by means of the *chromatick* Signs; for if the Tune does not proceed otherwise than by Tones and Semi-tones major, it can be to the utmost but a transposed *Diatonick*.

As to the *enharmonick* Genus, which is of no Use at present, I have given elsewhere an Explication thereof.

Note, That the three *Genera's* could be of no Use, when Musick consisted only in the Melody and simple Songs, *i. e.* in several Songs disposed, and heard one after another; but ever since Songs have been disposed, so that being heard together they do not offend the Ear (which is properly called Harmony) it has been absolutely necessary to leave out the third, the almost insensible Intervals whereof can contribute but very imperfectly to a good Harmony, and form a fourth Genus of the two first, *viz.* of the *Diatonick* and *Chromatick*; which Genus is called sometimes *Diatonick-chromatick*, when the *Diatonick* is dominant, *i. e.* when there are but few *Diezes* or *b-mols* in the Parts; and sometimes *Chromatick-diatonick*, when on the contrary the *Diezes* and *b-mols* are frequently employ'd in the Course of the Songs. And as the *b-mols* produce commonly major *Semi-tones*, and the *Diezes*, minor *Semi-tones*, the *Chromatick-diatonick* is divided into three Species, the first whereof is the *Chromatico-diatonico* per *semituoni maggiori*, and is when the *b-mols* are dominant, or more frequent than the Diezes; The second is the *chromatico diatonico* per *semituoni minori*, when the Diezes are dominant: The third is *chromatico-diatonico per semituoni maggiori é minori*, when the *Diezes* and *b-mols* are very near equally employ'd.

Note, also, That the next Thing which falls under our Consideration, are the *Modes* or *Tones*.

Mode, in *Musick*, is a particular Manner of beginning, continuing, and ending a Song, whereby we are engaged to make use of certain Notes, or Chords, preferable to, or oftner than others.

Mode, is defined by some Authors the particular Manner of constituting the Octave, or the melodious Constitution of the Octave, as it consists of seven essential, or natural Notes besides the Key, or fundamental.

To understand well what a *Mode* is, according to our first Definition, we must observe, 1. That in every Tune or Song there is three principal Chords; the first, is that whereby a Song is almost always begun, and where it must be always ended, wherefore it is called the *final*. The second, is that which is repeated, and which is heard oftner than any other, wherefore it is called the *dominante*. And the third, as being between the other two, is called the *mediante*, and is commonly a Third above the *final*. These three Chords are otherwise called the *essential Sounds* of the *Mode*.

2. The Antients formed their Modes of the *diatonick* or natural Chords; therefore as there are but seven *diatonick* Chords in the Extent of the Octave, it can be said that there are but seven Chords whereby a Song can be terminated, and consequently but seven Sorts of Finals, at least diatonick ones, *viz.* C, D, E, F, G, A, B, or, according to the modern Manner, *ut*, *re*, *mi*, *fa*, *sol*, *la*, *si*.

3. Each of those Chords has another eight Degrees higher, whose Sound is more acute, and which serves for an Octave to it, making up therefore seven Kinds of *Octaves*, in the two Extremes thereof, are limited the *Circumference*, *Extent* and *Capacity* of each *Mode*; therefore in their Opinion, to *modulate*, and *Modulation*, was nothing else but to make a Song pass through all the Sounds comprized between those two Extremes, so notwithstanding, as to pass oftner through the essential Sounds than through the others, and that always *diatonically*.

4. Among all the Songs comprized in the Extent of the *Octave*, there is always one which divides it *harmonically*, i. e. which is just a Fifth above its lowest Chord; and another which divides it *arithmetically*, i. e. which is a Fourth higher than its lower Chord; for Instance, fig. 11.

This double Division has formed the two Classes of *Modes*, so often mentioned in Authors, *viz.* that of the authentick *Modes*, and that of the *Modes plagal*. For when in a Song the Sound, which is one Fifth above the lowest Chord of the Octave of a Mode, is repeated and often heard, then a Mode is *authentick*; and when that which is but of one Fourth distant from it, or another which makes a Third against its final is repeated, it is a *plagal Mode*; for Instance, fig. 12.

5. But as among the seven Species of *Octaves* abovementioned, there are but six which can be divided *harmonically*, or by the just Fifth, *viz.* the *Octaves*, C, D, E, F, G, A, because the Fifth of the *Octave B* or from *si* to *fa* in ascending, is *diatonically* false or diminished: There are also but six *authentick Modes*; as on the other Side there are but six Octaves which can be divided *arithmetically*, or by the just Fourth, *viz.* the Octaves C, D, E, G, A, B, because the fourth of the Octave F, or from *fa* to *si*, in ascending, is superfluous. There are likewise but six *plagal Modes*; therefore the Octaves, C, D, E, G, A, have each two Modes, one *authentick* and the other *plagal*; the Octave F has but one which is *authentick*; and the Octave B has but one likewise, which is *plagal*; which makes up twelve in Number, to which *Glarean* and *Zarlin*, and several others after them, have fixed the Number of *Modes*. In fig. 13. is a Table which contains all that in a very clear Manner.

The antient *Modes*, besides their general Division into *authentick* and *plagal*, had also their respective Names from the several *Greek* Provinces, where they are supposed to have been invented. Originally indeed there were but three, *viz.* *Doric*, *Lydian*, and *Phrygian*; which were particularly called *Tones*, because at a Tone's Distance from one another. The rest were added afterwards, and were some of them named from the Relations they bore to the former, particularly the *Hypo-dorick*, as being below the *Dorick*.

The *Dorick* Mode, was a Mixture of Gravity and Mirth, invented by *Thamyras* of *Thrace*.

The *Phrygian* Mode, was adapted to the kindling of Rage, invented by *Marupas* the *Phrygian*.

The *Lydian* Mode, was proper for Funeral Songs, invented, according to *Pliny*, by *Amphion*.

The Myxolodian, was invented by *Sappho*. The *Æolick*, *Ionick*, and *Hypo-dorick*, by *Pholixenus*, and the *Hypo-Lydian* by *Polymnestes*. Besides those Names are found those of *continuo*, *commune*, *misto*, &c.

The Continuo, is mentioned by *Julius Pollux*, and was, according to *Zarling*, much like the perpetual [illegible]

though harmonious the Buzzing of a Musette, or Bag-pipe.

The COMMUNE, according to the Philosopher *Gaudencius*, is the same with the *Hypo-dorick*, the lowest Chord whereof is A, *mi*, *la*; its Final, which divides arithmetically its Octave, *i. e.* one Fourth above the lowest Chord, is D, *la*, *re*. The Chords it repeats oftner are D, *la*, *re*, whereby it most commonly ends; and F, *ut*, *fa*, which serves for *dominante* to it. In the *plein Chant*, it is the second Tone; it is transposed in Musick, one Fourth higher in G, *re*, *sol*.

The MISTO, or MIXTO, *mixt*, is the Name which the Antients gave to some of their *Modes*, when they participated of the *authentick*, and of the *plagal*.

Note, That the *Hypo-eolick* abovementioned, is the *plagal* of the *Eolick-Mode*. Its lowest Chord is E, *si*, *mi*; its final, which divides arithmetically its Octave, is A, *mi*, *la*; the Chords which it repeats are C, *sol*, *ut*, and E, *si*, *mi*; which serves to it of dominante. It ends commonly by A, *mi*, *la*, and is therefore very near our third Tone. That the *Hypo-ionick* is the Plagal of the *Ionick Mode*, its lowest Chord is G, *re*, *sol*, its final is C, *sol*, *ut*, one Fourth above; the Chords it repeats are C, *sol*, *ut*, and E, *si*, *mi*, which serves it for dominante: It ends by C, *sol*, *ut*, it is very near our fifth Tone. That the *Hypo-lydian* is the *Plagal* of the *Lydian Mode*; its lowest Chord is C, *sol*, *ut*, its final one Fourth higher is F, *ut*, *fa*. the Chords it repeats are F, *ut*, *fa*, and A, *mi*, *la*, which serve for dominante to it; it ends commonly by F, *ut*, *fa*, and is very near our sixth Tone, meaning in the *plein Chant*. That the *Hypo-mixolydian* is the *plagal* of the *Mixolydian Mode*; its lowest Chord is D, *la*, *re*, its final one Fourth higher is G, *re*, *sol*; The Chords it repeats are G, *re*, *sol*, and B, *fa*, *si*, and often C, *sol*, *ut*, which serves of dominante to it. It ends in G, *re*, *sol*, it is our eighth Tone, meaning in the *plein Chant*.

6. This Manner of settling and explaining the Modes was supportable, when only *diatonick* Chords were used, but ever since the Use has been introduced of dividing the Octave in 12 *chromatick Semi-tones*, that Distinction of *plagal* and *authentick Modes* has soon been rejected. It has been seen that a *plagal Mode* was not properly a true Mode; that it was to the utmost but an Extention of the *authentick Mode*, and that all Modes should be *authentick*. In a Word, an Infinity of very fine new Discoveries have been made, unknown to the Antients; therefore here is a new System of *Modes*, received at present by all Persons of a good Taste.

7. All Modes must have three Chords, called *essential*, viz. the *Final*, *Dominante*, and *Mediante*: The *Final* may be any Chord whatever, whether *diatonick* or *chromatick*, of the Twelve comprized, which is one Fifth just above the *final*; and if it be not so naturally, it must be rendered just *accidentally* by means of the Diezes or *b mols*, placed commonly immediately after the Key on the Degree of that dominante. Lastly, the *mediante* is that which dividing the Interval which is between the *dominante* and the *final* in two Thirds, makes likewise what is called the *harmonic Trio*. These are what should be properly called the *essential* Chords of a Mode.

8. It must be observed, that the third made above the *final*, can either be *major* or *minor*; if it be *major*, i. e. composed of two full Tones, as *ut*, *mi*, then the Mode is, and is called *major*, or *beccare*; if that third be *minor*, i. e. is composed but of one Tone and a Semi-tone, as *re*, *fa*, then the Mode is, and is called *minor*, or *b-mol*. Therefore as there are but two Sorts of Thirds, there are in general but two Classes of *Modes*, viz. that of the *majors*, and that of the *minors*; and as of the twelve Sounds, whether *chromatick* or *diatonick*, which are within the Extent of the Octave, there is none on which one could not make, either *naturally* or *accidentally*, a third *major*, there are then twelve *Modes major*; and as a third *Minor* can be made on every one of them, there are likewise twelve *Modes minor*.

9. It must be observed again, that besides the three *Essential Chords* abovementioned, there are in each Mode two other natural ones, because a fine Song cannot be made, nor even a *gracious Harmony*, without their Assistance. Those two Chords are, 1. In each *Mode* whatever, a *Semi tone major*, whether *natural*, or *accidental* under the *final*. 2. For the *Modes minor*, a *Semi-tone major*, above their *dominante*. 3. For their *Modes major* a full Tone above their *dominante*.

Lastly, there are besides two other Chords, which, though not *essential* like the three first, nor so *natural* as the two last, can very well be called *necessary*, which are the full Tone above the *final*, and another full Tone under the *dominante*.

10. If all those Chords are found placed *naturally*, as I have just now said, then the *Mode* is *natural*, but if one is obliged to have Recourse to the *Diezes*, or *b mols*, either immediately after the Key, or in the Course of the Song, to establish that Order between the Chords of a *Mode*, it is then a transposed *Mode*. On that Principle there is but the Mode C, *sol ut*, which is truly *diatonick*, or *natural*, all the others wanting some *Diezes* or *b-mols*, either to put the final in the Degree wanted, and then they are *chromatically transposed*, or to render the fifth just; whether to make their *third major* or *minor*, or to make that there should be but a Semi-tone above the *dominante*, or under the final; or lastly, to make that there should be a full Tone under the dominante, and above the final.

11. One can, and it is even proper, to make a Song go out of the Mode, by making it enter into another, and from that into a third, *&c.* but one must return, and end by the final Cadence of the Mode, whereby one has began: While one stays in that *Mode*, no Cadence is to be made but on the essential Chords of that *Mode*; if any be made on other Chords, from that Time he declares ~~that~~ he will go out of it; and even no perfect Cadence can be made on the *mediante* of the *major Modes*, without going out of it; and some pretend that it is the same Thing for the *mediante* of the *minor Modes*.

12. It is also a Principle equally sure as the preceding one, that one is not thought to remain in his Mode, unless he causes to be heard, either in the Base, or in some of the superior Parts, or, what is still better, in several Parts at once, several, or one at least, of the *essential*, or *natural Chords* of the Mode; to act otherwise, is to go out, or declare that one will go out of the *Mode*. It is for that Reason that the sixth, and even often the *superfluous Fifth*, are better on the *mediante* of a *Mode*, than the fifth just, unless a Cadence be made upon it: For the same Reason the *sixth major* is best on the Note which follows immediately, in ascending, the final of the *Modes minor*, than the *sixth minor*; and the *third minor* is better on the Note which is immediately under the *dominante* of the *Modes minor*, than the *third major*. Lastly, it is for that Reason that the *dominante* of what Mode soever requires *naturally*, rather the *third major*, than the *minor*; and that the final of the *Modes minor* requires on the contrary rather the third *minor* than the *major*, unless it be at the End of a Piece, where Use will have it; and the Ear requires that the *third major* be rendered accidentally, if it was not so naturally.

Note, That this which the Moderns have been pleased to call *Modes*, the Antients called *Tune*, and is more properly adapted to Church Musick, in *French* called *plein chant*, than to any other; and though this Sort of *Tune* be very little in Use here in *England*, except it be in the Cathedral Churches, where they have retained something like it, as my Work has the Character of Universality, I must say something further on the same Subject, which is very essential, reserving to speak afterwards of *Tune* with regard more particularly to *Musick*; therefore,

We'll observe, 1. That eight *Tones* are commonly and regularly reckoned, in what we call at present, in general, *Gregorian Tune*, or *plein chant*, four of which are *authentick*, and four *plagal*.

The four *Tones authentick* are properly the *Dorick*, *Phrygian*, *Lydian*, and *Mixolydian*, of the antient *Greeks*, chosen by St. *Ambrose* in the Year 370, to compose of them the *Musick* of the Church of *Milan*.

To form those four *Tones*, they employ'd but eleven Chords of the antient *System*, the *Lychanos hypaton*, i. e. the *re* of our second Octave, being the lowest Chord of the *first Tone*; and the *Paramete-hiarbeion* being the

highest of the fourth; therefore the *Note*, which is the highest, and the *Perypate-Hypaton*, the *Hypate-Hypaton*, and the *Proslambanomenos*, which are the three lowest Chords of the System, were not employ'd in it.

It is, without doubt, what gave the Idea to St. *Gregory*, about 230 Years after St. *Ambrose*, to add to those four *authentick Tones*, the four *Plagal*, viz. the *Hypo-Dorick*, *Hypo-Phrygian*, and *Hypo-Mixolydian* of the Antients, in order to introduce into the Church-Musick, the 13 Chords of the antient System; the *Hypo-dorick*, having for its lowest Chord the *Proslambanomenos*, or added, which is, also, the lowest of the whole System.

2. Whence the four *authentick Tones*, have each one of the Plagals for Collateral, *i. e.* to serve as of Supplement to it, *&c.* which is the Reason why they are separated into four Classes, placing the first and second Tone in the first Class; the third and fourth in the second Class; the fifth and sixth in the third, and the seventh and eighth in the fourth; as in the following Table.

Tones	1.	3.	5.	7.	*Authentick.*
Tones	2.	4.	6.	8.	*Plagal.*

3. There are two Things to be observed in this Table; the first, that the four *authentick Tones* are expressed in it, by the uneven Numbers, 1. 3. 5. 7. whence they have borrowed the general Name of *uneven Modes*, or *Tones*; and the four *Plagal* by the even Numbers 2. 4. 6. 8. whence their Name of even *Modes*, or *Tones*. These two Denominations are very frequent in Authors who have treated on this Subject, therefore it is necessary to know the Signification thereof.

The second Observation is, that the *authentick Tones* are here placed above the *Plagal*, because they are in fact the *superior*, the Principal, the Keys, the Dominant, *&c.* and the *Plagals*, on the contrary, are in the lower Rank, because they are collateral, subordinate, dependant, *&c.* of the *Authenticks*.

2. To determine justly what Tone is used to compose a Song, Regard must be had to three Things. 1. To the *final*, or last Note of that Song. 2. To the *Extent* which has been given to it, as well upwards as downwards. 3. To the *Dominant*, i. e. commonly to the Note which is oftener repeated in the Piece. For by the *final*, we shall infallibly know of what Class the Tune of that Song is, since each of those four Classes has a Note so particularly affected to it, that it serves always of *final* to the two Modes or Tunes it includes; thus,

The two Tones of the first Class, *viz.* 1. and 2. have always for *final* a RE.

The two Tones of the second Class, *viz.* 3. 4. have always for *final* à MI.

The two Tones of the third Class, *viz.* 5. 6. have always for *final* a FA.

Lastly, those of the fourth, *viz.* 7. 8. have always for *final* a SOL.

Therefore when a Piece ends for Instance by a *Re*, it may be concluded, that it is composed on one of the Tones of the first Class; and consequently of the first or of the second; when it ends by a *Mi*, it is of the second Class, and consequently of the third or fourth Tone; and thus of the others.

It may be objected to this, that there are several Songs, which end with a *la*, others with a *si*, others with an *ut*, &c. to which I answer, that as the Notes *la*, *si*, *ut*, are precisely in the same Proportion with the Sounds expressed by the Notes *re*, *mi*, *fa*; it may be said that the *la* supplies the Place of the *re*; the *si* that of *mi*; and the *ut* that of *fa*. Therefore it is always the same Song, but transposed a 5th higher or a 4th lower; without that Transposition changing any Thing in the Essence of that Song, nor the natural Order of the Tunes; and consequently cannot make it change Class, it being very easy to reduce the three Notes *la*, *si*, *ut*, to the Notes *re*, *mi*, *fa*, whose Place they supply. Therefore it must be said, for Instance, that the two Tones of the first Class have naturally and commonly a *re* for final, and sometimes *la* for Transposition; and thus of the others, as it appears by Inspection in the following Table:

First Class.	*Second Class.*	*Third Class.*	*Fourth Class.*
1. RE or LA 2. By *Transposition.*	3. MI or SI 4. By *Transposition.*	5. FA or UT 6. By *Transposition.*	7. SOL. 8.

But this is not sufficient, for as each Class includes two Tones, one of which is *Authentick* or *uneven*, and the other *Plagal* or *even*; it remains still to determine, on which of those two Tones the Piece is composed; but to know it, one must examine which is the Extent, either upwards or downwards of the Tune of that Piece.

For if the Tune of the whole Piece extends as far as to 8 or 9 Degrees upwards, and goes no farther than one Degree lower than the final, then the Tone will be *authentick* or *uneven*; and consequently the first of each Class.

Note, That when the Songs of the *authentick Tones* rise higher than 9 Degrees above their final, they are called *exceeding Modes*, or *superfluous Tones*; notwithstanding which they are still *authentick*. That if, on the contrary, a Song descends 4 or 5 Degrees under the final, and does not rise to the utmost higher than 5 or 6 Degrees above it, then the Tone will be *Plagal* or *even*, and consequently the second of each Class. But if a Song has so great an Extent, as to go as far as to 8 or 9 Degrees above its final, and to descend 4 or 5 Degrees under it; then it is a *mixt Tone*, or *Mode*; because it includes the Extent both of the *Authentick* and of the *Plagal*.

To know at once, and without Difficulty, which are the final, and the *Dominant* of each Tone, here are two Verses which contain both, according to the Method of the *si*.

Pri. *re*, *la*. Sec. *re*, *fa*. Ter. *mi*, *ut*. Quart. Quoque *mi*, *la*.

Quint. *fa*, *ut*. Sex. *fa*, *la*. Sept. *sol*. *re*. Oct. Quoque *sol*, *ut*.

Note, For the Intelligence of these two Verses, 1. That the Monosyllables *Pri*, *Sec*, *Ter*, *Quart*, &c. are Abbreviations of *Primus*, *Secundus*, *Tertius*, &c. 2. That after each of those Monosyllables are found the Names of the Notes, the first whereof is the *final*, and the second the *Dominant* of each Tone.

TUNE, or *Tone*, in *Musick*, is also taken for one of its Intervals, and even for the first, the Foundation, the Source, Rule, and Measure of all other Intervals. In that Sense the Antients, and the Mathematicians distinguish two Sorts of Tunes, *viz.*

The TONE *Minor*, whose Proportion is *Sesqui-ninth*, as from 10 to 9, and which is always the third Interval of each Tetrachord. And,

The TONE *Major*, whose Proportion is *Sesqui-eighth*, as from 9 to 8, and which is always the Interval of the Middle of each Tetrachord; as in the following Example:

MI	———	FA	——— for 9 to 8.	SOL	——— from 9 to 10.	LA.
	Semi-Tone.		*Tone-Major.*		*Tone-Minor.*	

It is also in that Sense, that the Moderns (supposing that all the Tones in the temperate System be very near equal) say, that the *Tone is the Interval between all the Degrees or diatonick and natural Notes of the Octave, except between* mi, fa, *and* si, ut, *which are naturally but* Semi-Tones.

Lastly, in that Sense it is said, that the Tone is a second Major, because it is the Distance from one Sound to another, which are distant from one another of 9 Comma's, *&c.*

A TONE from which 4 Comma's have been retrenched, is called a SEMI-TONE; which is consequently an Interval of 5 Comma's, called otherwise *Semi-Tone Major*, or second Minor. The same Word is used to mark the other half of Tone, which has but 4 Comma's of Extent; but it is called for that Reason *Semi-Tone Minor*, or Second diminished.

To understand well what is that *Second diminished*, we must observe, that a Second is one of the Intervals of

of *Musick*, which is properly but the Distance from one Sound to the nearest other Sound, either in ascending or descending. But as nine Sounds, sensibly different, which form those small Intervals called *Comma's*, cannot be distinguished in the Extent of a Tone, it could be reasonably said, that there are eight Sorts of Seconds; but as those small Intervals, though sensible, are not sufficient to contribute to the Harmony, that's the Reason, that we distinguish but four Sorts of them.

The first, called *Second diminished*, contains four Comma's, and is the Difference for Instance, from a natural *ut*, to the same *ut* risen of four Comma's, by the Chromatick Diezes; which is otherwise called, as already observed, a *Semi-Tone Minor*.

The second, called *Second Minor*, contains five Comma's; and can be made, either *naturally*, as from *mi* to *fa*, or from *si* to *ut*; or *accidentally*, by Means of a *b mol*, as from *la* to *si b mol*; or by Means of the *fa* Diezis to *sol*; which is called otherwise *Semi-Tone Major*, or Second imperfect.

The third is the *Second Major*, which contains the 9 Comma's which compose the Tone, whether that happens *naturally*, as between *ut* and *re*, *re* and *mi*, &c. or *accidentally*, as between *mi* and *fa Diezis*, &c. this is otherwise called *Second imperfect*.

Lastly, the fourth is the *superfluous Second*, composed of a Tone, and of a Semi-Tone Minor, as from the *fa* to the *sol Diezis*, &c.

In the System of the Antients, the Second had but one *Replick*, which is the 9th. In the Modern, it has besides that *Replick*, the 16th for *Triplick*, and the 23d for *Quadriplick*, &c. which are all marked indifferently in the *Thorough-Base*, when the Base sincopes by a 2, and when the Treble sincopes by a 9. When there is a *b mol* before or after the Figure, it is the Second Minor; and when a Diezis, it is the Second superfluous.

These four Sorts of Seconds, are all naturally *Dissonant*; which notwithstanding in the Melody, *i. e.* in the Course of a Song one must very well use the three first, but never, or at least very seldom the fourth. When a Song proceeds thus by Seconds, that is called *conjoined Degree*.

With Regard to Harmony, one must never use the *diminished*, and seldom the *superfluous*; there is properly but the Major and Minor, which can enter in it: But neither one nor the other must be in a *good Time* of the Measure, or if they are, that must be done by *Sincope*; and when the Treble sincopes, then they want to be followed naturally by the Unison in the following Time, or of the Octave, if they be doubled; and of the third if the Base Sincopes. The Seconds, especially in the Expressions of Anguish or Sorrow, have a marvellous Effect; and much more the Minors than the Majors.

As to MUTATIONS, when the *Gamut*, called *Muances*, was in Use, the Change to be made continually, in the Names of the Notes or Sounds, was called *Mutation*, or *Muance*; so that, for Instance, the same Note which had been called *la*, was to be called *re* a Moment afterwards; which used to be very troublesome, and to which the Gamut by *si* has remedied.

But the Word *Mutation* signifies, likewise, one of the Accidents which happens in the Order of the Sounds which compose a Song, or a Melody, which Accident happens by a Change; which Change is made in four Manners.

The first in changing the Genus, *i. e.* passing from the *Diatonick* to the *Chromatick*, or *Enharmonick*, and reciprocally from the *Chromatick* to the *Diatonick*, &c. which is called *Mutation by Genus*.

The second in making the Tune of a very acute Sound, to descend to a grave one, the better to express some Words of the Text. That's called *Mutation by System*.

The third is, when to express some Passion, *&c.* one passes from a Mode into another, as from the Mode Major to the Mode Minor, *&c.* which is called *Mutatione per tuono o modo*.

The fourth is, when one passes from a Manner of singing male and vigorous, called *maniera distendente*, to a sweeter, more languishing, softer, and more effeminate, called *maniera restringente*; or to a tranquil Manner which keeps a Medium between the two, and is called *maniera quieta*. All these Manners, and the other Changes, are pathetick, *i. e.* very proper to express the different Passions or Motions of the Soul and Heart.

Note, That having thus far consider'd and explained the first Branch of the *contemplative Part of Musick*, viz. the Grounds, with the various Measures and Degrees of the Agreement of Sounds, in Respect of their Tune; or the Relations and Measures of Tune; I'll pass to the second Branch, which treats of the Numbers of Sounds or Notes with Respect to Time; containing an Explication of the Measures of long and short, or swift and slow, in the Succession of Sounds.

The Word TIME has several Significations in *Musick*, 1. It signifies in general one of those three Signs of the Measure, which the *Italians* call *Gradi*, viz. *Time*, *Relation*, and *Sincope*.

TIME, according to the Antients, was a certain Sign placed after the Key, to mark how many Semi-breves or Rounds were contain'd in one Breve or Square. They distinguished two Sorts of Times, *viz.* perfect and imperfect. A Circle whole or cut, perpendicularly, but without a Point, was the Mark of a perfect Time, under which a Breve, even without a Point, was worth three Semi-breves, as A fig. 8. A Semi-Circle, either whole or cut, was the Sign of an imperfect Time, under which a Breve was worth but two Semi-breves or Rounds; as B, fig. 38.

Others more modern, though they agreed with the Antients on the Division of Time into perfect and imperfect, pretended; 1. That the Signs of the perfect Time, or the Example A, had not the Virtue of rendering the Breve more perfect, unless they were followed by the Figures $\frac{3}{1}$ or $\frac{3}{2}$ and 2, that by Means of those Figures the Signs of the Example B, had the Power to render the Breve more perfect, or to give it the Value of three Semi-breves, as well as those of the Example A.

But if the Signs of the Example B, were not followed by Figures, they made them serve not only for the Measure of the Breve, with Regard to the Semi-breve, but, likewise, for all Notes of less Value without Distinction; and admitted two Kinds thereof, *viz.* the simple C, which the *Italians* call simply *tempo*, and the C cut perpendicularly, which they call *tempo tigliato*.

The simple C is seen in two Manners, 1. Turned from the left to the right thus C, and then the *Italians* call it *tempo ordinario*, because it is oftener used than any other; or *tempo allo Semi-breve*, because under that Sign a Semi-breve or round O is worth a Measure, or four Times, and the other Figures in Proportion. 2. But it is sometimes found turned from the right to the left, thus Ɔ, then all the Figures are diminished of half their Value; thus one round O is worth but two Times; one Minim or White but one Time, and thus of the rest.

The C cut, is found likewise either turned from the left to the right, thus Ȼ, or from the right to the left, thus Ↄ. When on the left, the *Italians* call it, *tempo alla breve*, because antiently, all the Figures under that Sign were diminished of half their Value: But at present it marks that the Measure must be beat at two Times grave, or at four Times very quick, unless there be *largo*, *adagio*, *lento*, or some other Term, which advises to beat the Measure slowly. And when with that Sign the Words *da capella*, and *alla breve*, are seen, it marks two very quick Times; which it marks, likewise, when turned upside down; but it is seldom found in that Situation.

Lastly, others still more modern, divide Times into two single Species; the first is *tempo maggiore*, or *Time Major*, which is marked by a Ȼ cut, and signifies, that all the Notes can be sung *alla breve*, i. e. in making them worth but half their Value. The second is *tempo minore*, or *Time Minor*, which is marked by a single C, under which all the Notes are worth their natural Value. And if one and the other of those two Times are followed by three, or any of the other Signs, I'll mention when I speak of the *triple*, then they are called *ternary major*, or *minor Time*.

2. The

2. The Word *Time* signifies not only one of the Signs of the Measure, but likewise the aliquot Parts it is composed of: Therefore we say, that there are Measures at *two*, at *three*, at *four Times*, &c. because the Hand by its different Motions marks as many Parts in each Measure.

But it must be observed, that among the different Times which compose the Measure, there are some more proper than the others, to place a *Consonance* or a good *Accord*; which for that Reason, are called *tempo*, or *tempi di buono*, i. e. a certain *Time* of the Measure which is good, and more proper to certain Things than another; for Instance, to terminate a *Cesura*, or Section, or a *Cadence*; to place a *long Syllable*, a *sincoped Dissonance*, a *Consonance*, &c. The good Time of any Measure is always the first, which is made in beating; and in the Measure at four Times, the third is likewise a good Time, the others are Times *di cativa*, i. e. a *Time* where one can place a *Dissonance*, or a *bad Accord*, &c. the *bad Time*, of what Measure soever, is always the second or the last. The *Times* affected to the long Syllables of the Text, are called *tempo*, or *tempi dilonga*; and those proper for the *breve Syllables*, are called *tempo* or *tempi di breve*.

3. We find sometimes after the *Recitative* of the *Italians*, these Words *a tempo*, *or a tempo giusto*, which mark that the Measure must be beat just, and the Times thereof rendered very equal; whenas in the *Recitative* a greater Regard is to be had to the Expression, than to the Justness or Equality of the *Times* of the Measure.

Note, That the *Italians* use likewise sometimes, the Term, *temporegiato*, which signifies the same Thing as *tempo*: Though it often signifies likewise, that those who accompany, and he who gives the Measure, must lengthen sometimes certain Times, either to give the *Actor* the Facility of expressing the Passion, or to give to him who sings, the Time of making the Agreements, wherewith he judges proper to adorn what he sings.

As *Time*, among the Antients was properly the Measure of the *breve* and *semibreve*, *Prolation*, or the Point thus called (which was marked either in a Circle or Semicircle, thus, ⊙ ☾) was the Measure of the *semibreve*, and of the *minime*.

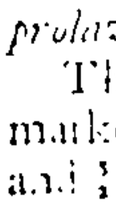
There were two Sorts of *Prolations*, viz. the *perfect*, and *imperfect*.

The *perfect Prolation*, was marked after the Key, by a Point within a Circle, thus ⊙, or within a Semi-circle, thus ☾, and then the *semi-breve* or Round was worth three *minimes* or Whites; wherefore that Circle was commonly accompanied with 3. or $\frac{2}{3}$, or $\frac{4}{3}$. which are the Signs of three Times for each Measure; and which is demonstrated in A, fig. 39.

The *imperfect Prolation* was marked like the *Time*, either by a Circle, thus O, or by a Semi-circle, thus C, both without a Point; and then the *semi-breve* or *Round*, was worth but two *minimes* or *Whites*, as is seen in B, fig. 39.

Those Signs are but seldom seen at present, others have been found since less troublesome; though some of them are found sometimes, of which a true Musician must have some Idea at least, in case of Need.

The modern *Italians* have still often in their Musick two Sorts of *Prolations*, very near semblable to that of the Example A, fig. 39. The first, which they call *prolazione maggiore perfetta*, is marked with a ⊙ and $\frac{3}{4}$;

The second, they call *prolazione minore perfetta*, is marked with a C and $\frac{3}{4}$ or $\frac{4}{4}$, and sometimes with a ☾ and $\frac{3}{4}$. but in both the round O, is worth three Times, even without a Point; and its Pause a Measure. The white  is worth a Time, and its Pause a Time; and the rest of the Figures in Proportion, as in our Plate fig. 40.

We also call Prolation a Sequel of several Notes or Sounds, either in descending or ascending, on the same Syllable, or Vowels. The Vowels A, E, and O, are very proper for it, but none is to be made on U.

From this I'll pass to the Measure, which is the Interval, or Space of Time, which the Person who beats Time, takes between the raising and falling of his Hand or Foot, in order to conduct the Movement, sometimes quicker, and sometimes slower, according to the Kind of Musick, or the Subject that is sung or played.

The *Measure*, is that which regulates the Time we are to dwell on each Note.

The ordinary or common *Measure*, is one Second, or sixtieth Part of a Minute, which is nearly the Space between the Beats of the Pulse or Heart; the Systole or Contraction of the Heart answering to the Elevation of the Hand, and its Diastole or Dilatation, to the letting it fall. The *Measure* usually takes up the Space that a Pendulum of two Feet and a half long, employs in making a Swing or Vibration.

The *Measure* is regulated according to the different Quality or Value of the Notes in the Piece; by which the Time that each Note is to take up is impressed. The *semi-breve*, for Instance, holds one Rise and one Fall, and this is called the *Measure*, or whole *Measure*; sometimes the *Measure-note*, or *Time-note*; the *minim*, one Rise or one Fall, and the Quaver half a Rise, or half a Fall, there being four Semiquavers in a *full Measure*.

There are *Measures* at two Times or *binary*, at three Times, or *triple*; at four, six, eight, nine, and twelve Times; and *Measures* for all Sorts of Times.

Binary, or *double Measure*, is that wherein the Rise and Fall of Hand are equal.

Ternary, or *tripple Measure*, is that which is beaten in three equal Times, either *simple* or *composed*; the *first* whereof is made by one Fall of the Hand; the *second*, by turning it a little aside, and the *third* in raising it.

The Antients had several Manners to mark or give Notice, that a Measure should be beat at three Times. 1. They had one which wanted no Signs after the Key, or in the Course of the Tune, which is found still in the Works of some Moderns. 2. They had another which had certain Lines after the Key for Signs, but which has been above a Century out of Use. 3. They had several more which I have explained in speaking of Time and Prolation; and which the Moderns have retained in Part, as we'll see by the Sequel.

But towards the Middle of the last Century, so many other Species of *Triples* were invented and put in Use, that to give the Explication thereof with some Order, I am obliged to dispose them under three different Classes, *viz.* of *simple*, *composed*, and *mixt Triples*.

First Class.

Of simple Triples.

I call *simple Triples* those which have but three *simple Times*, i. e. whose Times cannot be sub-divided into three other equal Notes. I find five different Sorts of them in Authors, to mark five Degrees of Slowness or Quickness. The first is that called the *grand Triple*, or *Triple of the Rounds*, or of *three for one*; thus called because the *breves* or *Squares*, and the *semibreves*, or *Rounds*, are predominant in it, and the Measure thereof must be beat *slowly* and *gravely*, so that each Time be consequently greater and longer than those of the other following *Triples*.

Our Antients, and some *Italians* still, have four different Signs to mark the *Tripola maggiore*; according to which they gave it four different Names, as in the Table, *fig.* 40. *Musick Plate.*

Under those four Signs, were wanted three *Semibreves* or *Rounds*, and consequently six *Minimes* or *Whites*, twelve *Semi-minimes* or *Blacks*, &c. to make a *Measure*. All their Difference, therefore, consisted only in the Value of the *Breve* or *Square*, which alone and without a Point was worth *three Times*, under the Signs of the first Column of the Table above-mentioned; and was worth but two Times under the Signs of the second Column; so that to perfect the *Measure*, one was obliged to put a *Point of Augmentation*.

Of those four Signs, the Moderns have retained but this $\frac{3}{4}$ without putting before, either the Circle O, or the Semi-circle C, &c. those two Figures of Arithmetick denoting clearly enough, that three Rounds, instead of one, are wanted for one *Measure*; and that a *Breve* being worth two *Rounds*, is consequently worth by itself two Times, and three when followed by a Point; and the other Figures in Proportion.

We

We should only observe, 1. That often when there are several *Breves* or *Squares* following one another, whether they be found together or not, they are all worth each three Times or a *Measure*, though they be not punctuated, till one *Round* or two *Whites* come, for then the *Breve* which precedes them is worth but two Times.

2. That when several *Breves* are inclosed between two *Rounds*, or between the Marks of Silence answering to them, the first and last are worth but two Times.

3. That the black Notes, whether they be *round* or *square*, or Lozenge-wise, must be entirely considered as if they were white.

4. That the *Pauses*, or *Marks of Silence*, are worth under that Sign but half their common Value: Therefore the whole *Batoon* is worth two *Measures*; the *semi-batoon* but one *Measure*, one or two *Pauses* but one or two Times of the *Measure*.

Therefore it is proper, and even necessary to mark with a Figure a-top, the Number of Measures those Pauses are worth, lest one should be mistaken in the Execution.

The second Sort of *simple Triple*, is that called by the Italians, *tripla minore*, or *triple minor*. Our Antients had likewise four different Signs for that Sort of *Triple*, according to which they gave them three different Names; as is seen in the Table, fig. 21.

Under all those Signs are wanted three *minimes*, or *Whites*, and consequently six *black*, or six *white Crotchets*, twelve *Crotchets*, or twelve *double Crotchets*, for a Measure. All their Difference therefore consisted only in the Value of the *semi-breve* or *Round*, which under the three Signs of the first Column of the Table abovementioned, was worth alone, and without the Help of a Point, the three Times of the *Measure*.

Of those four Signs the Moderns have retained but this $\frac{3}{2}$ C, whence in all Appearance it has borrowed its Name of *double Triples*, even without putting before, the Semi-circle C; those two Figures being sufficient to mark that three Whites, instead of two, are wanted for a Measure; and that a *semi-breve*, or *Round*, having by itself the Value of two Whites, is consequently worth two Times and three Times, if it be followed by a Point, and thus in Proportion of the other Figures.

It must be only observed here, 1. That the three first Observations we have lately made on the *Breve* are to be applied in Proportion to the *semi-breve* or *Round*.

2. That often under that Sign, are found especially among the *Italians*, *white Crotchets* instead of *simple Blacks*, and *white double Crotchets* instead of *simple Crotchets*.

3. That with respect to the *Marks of Silence*, the *Batoon* is worth, as usual, four Measures, the *Semi-batoon* two Measures, the *Pause* one Measure, but the *Semi-pause* is worth here but the Third of a Measure; a *Soupir* is worth but the sixth Part thereof; and the *half Soupir* but a twelfth Part, *&c.*

The third Kind of *simple Triple*, is that called by the Italians, *tripola picciola*, *small Triple*: It is marked thus, C $\frac{3}{4}$, or simply $\frac{3}{4}$, or more simply 3. Under one of those three Signs three Blacks make one Measure, whenas four of them are wanted for a *binary Measure*; therefore six *Crotchets*, or twelve *double Crotchets* make likewise a Measure; and the *white Simple* is worth two Times, the *white* punctuated three Times, or one Measure, *&c.*

With regard to the Marks of Silence, the *Batoon* is worth as usual four Measures, the *Semi-batoon* two Measures, the *Pause* is worth one Measure; but the *half Pause*, which should be worth two Times of the Measure, is seldom used, and in lieu thereof are placed two *Soupirs*, which are worth each one Third of a *Measure*, as a *half Soupir* is worth a sixth Part thereof, *&c.*

When that *Triple* is marked by $\frac{3}{4}$, it is proper for tender Expressions, and the Movement thereof must be moderate, neither *too quick*, nor *too slow*, &c. When marked by a single 3. the Movement thereof is most commonly a little merry; wherefore it is most commonly used for the *Chacones*, *Minuets*, and other merry and lively Dances.

The fourth Kind of *simple Triple*, is that called by the Italians *tripola cromettа*, or *Triple of Crotchets*; because, without doubt there is no other Sign but these two Figures thus C $\frac{3}{8}$ or thus $\frac{3}{8}$, which mark that three Crotchets make a Measure, whenas eight are wanted in the *binary Measure*; that therefore six *double Crotchets*, and twelve *triple Crotchets*, make likewise a Measure; and that a *single Black* is worth two Times, and three Times are a Measure when it is punctuated.

Under that Sign the *Batoon*, *Semi-batoon*, and the *Pause*, are worth as usual, or 4, or 2, or 1, but the *half Pause* is never used, no more than the *Soupir*, in lieu whereof are put two *Demi-soupirs*, which are worth each one Third of the Measure.

Lastly, the fifth Kind of *simple Triple*, is that which the *Italians* call *tripola semi cromettа*, or *Triple of double Crotchets*. Its Sign is composed of these two Numbers thus C $\frac{3}{16}$, or thus $\frac{3}{16}$, which mark that three double *Crotchets* make one Measure, whenas 16 of them are wanted in the binary Measure: Therefore that six *triple Crotchets*, and one punctuated *Crotchet* make also a Measure; that a single *Crotchet* is worth but two Times, *&c.* for Example, fig. 35.

Under that Sign the *Batoon*, *Demi-batoon*, and the *Pause*, are worth as usual, 4 or 2, or 1, Measure; but neither the *half Pause*, nor the *Soupir*, nor the *half Soupir*, are ever used in it; in lieu thereof are put two Quarters of a *Soupir*, &c.

This *Triple*, as is easily seen, is proper for very *quick* and *rapid Expressions*, since each Time of the Measure must last no longer than a double *Crotchet* lasts in the *ordinary Measure*.

Note, That those abovementioned are the five Kinds of *simple Triple*, which have been invented, only to mark the different Degrees of *Slowness* or *Quickness*, which must be given to each Time of the Measure, as is plainly seen, fig. 37. *Musick Table*.

SECOND CLASS.

Of the composed Triples.

I call *composed Triples*, those which have not only, and are but at three Times, like the Simples; but each Time whereof can likewise be sub-divided into three other equal Times or Notes, and are called in general, by the Italians, *nonupli*, and by the French *measure, at nine Times*; though they should be called more properly double, or double Triples, of which there are but three Sorts in Use.

The *first*, is that called by the Italians *nonupla di semi-menima*, and by the French *Triple of 9 for 4*, or *nine four*; because it has for Sign those two Numbers thus, C $\frac{9}{4}$, or thus $\frac{9}{4}$, which mark that 9 black Notes are wanted in each Measure, *viz.* three at each Time instead of two: Therefore that a White pointed is worth *a Time*; and that being simple it is worth but two Thirds of a Time; the *Batoon*, *Demi-batoon*, and the *Pause*, are worth as usual, 4, or 2, or 1 Measure; but the *half Pause* is worth but a Time, or a third Part of the Measure, and not a half Measure: The *Soupir* is worth but a ninth Part thereof, *&c.* This Triple is proper for tender Expressions, and is to be beat moderately, neither too slow or too quick; as in fig. 29.

The *second*, is that which the *Italians* call *nonupla di crome*, or *sesqui ottava*, and the *French* Triple of 9 for 8, or only *nine eight*; because that *Triple* has for Sign those two Numbers thus, C $\frac{9}{8}$, or thus $\frac{9}{8}$, which mark that there wants *nine Crotchets*, viz. three in each Time, to make up the Measure, instead of four. Therefore that a *simple Black* is worth but two Thirds of a Time, and a whole Time when it is pointed, *&c.* The *Batoon*, *Demi-batoon*, and the *Pause* are worth as in the preceding; but the Half pause is never used. The *Soupir* alone is worth a Third, or one of the Times of the Measure; the half Soupir is worth a ninth Part thereof, *&c.* that *Triple* is proper for merry Expressions, and ought to be beat *quickly* and *merrily*.

The *third*, is that called by the Italians *nonupla di semi-crome*, and by the French *Triple of 9 for 16*; because it has for Sign those two Numbers, thus C $\frac{9}{16}$ or thus $\frac{9}{16}$; which mark that there wants *nine double Crotchets* for a Measure, *viz.* three at each Time instead of eight; therefore that a pointed Crotchet is worth one Time, or one Third of the Measure; that being simple it is worth but two Thirds of a Time, *&c.* The *Batoon*, *Semi-batoon*, and

and the Pause, are worth as usual. But the half Pause, and the *Soupir* are never used. The *half Soupir* is worth a Time, or one Third of the Measure, *&c.* This Triple is proper for very quick and very rapid Expressions. As is seen, fig. 32.

Note, That I have observed already, that we find but these three Kinds of Triples in the Works of the Moderns: But as five other Kinds of simple Triples, have been invented to mark the different Degrees of Slowness or Quickness, which must be given to the Measure; I believe that it would be proper, since, besides, it is very easy to do it, to introduce two other Kinds of *compound Triples*, and add to the three Signs here above $\frac{9}{4}$ $\frac{9}{8}$ $\frac{9}{16}$ these two other Signs $\frac{9}{1}$ and $\frac{9}{2}$. The first whereof could be very well called *Triple* of 9 for 1; because it would have those two Numbers for Signs, thus $\frac{9}{1}$, which would shew, 1. That for a Measure there should be wanted 9 Semi-breves or Rounds, *viz.* three at each Time. 2. That for one Time, a Breve, or Square with a Point should be wanted; because without a Point it would be worth but two Thirds of a Time, *&c.* 3. That the Batoon would be worth but two Measures; the Semi-batoon one Measure; the Pause one Time of the Measure; and the half Pause one Third of a Time, or a ninth Part of the Measure, *&c.* That Kind of Triple would be very proper for sorrowful and languishing Expressions, and generally for all those which want a slow Measure, for Instance, fig. 33.

The Second would be called Triple of 9 for 2, because it would have those two Numbers for Signs, thus $\frac{9}{2}$; which would shew, 1. That for one Measure, 9 Minims or Whites should be wanted, *viz.* three for each Time. 2. That for one Time there should be wanted a Semi-breve or Round, with a Point, because without a Point it would be worth but two Thirds of a Time, *&c.* 3. That the Batoon would be worth but two Measures; the Semi-batoon one Measure; the Pause one Time; and the half-Pause one Third of a Time, or a ninth Part of the Measure; as fig. 34. This Triple would be very proper for the Movements which the *Italians* express by the Words *lento*, *adagio*, &c.

Third Class.

Of Triples mixt.

I call *Triples mixt*, those which participate of two Sorts of Measures, *i. e.* which, for the Manner of beating the Measure thereof, follow, *v. gr*, the binary Measure; and for the Value of their Notes or Figures, follow the ternary Measure. But there are two Sorts of binary Measures, *viz.* a simple one composed of two Times; and one composed which has four Times; which obliges me to divide this Class into two Articles.

Article I.

Of Triples at two Times.

These we call a *Measure at six Times*, though improperly, for they should rather be called binary Triples, *&c.* we find but three Kinds of them in Authors; but we have some Reason to add two more to them; therefore, I'll explain them all five in this Article.

The first is that which we could very well call Triple of 6 for 1, because it should have for Sign these two Numbers thus, $\frac{6}{1}$, which would shew, 1. That for a Measure there should be wanted six Rounds instead of one, *viz.* three in striking, and three in rising. 2. That one Breve or Square with a Point, should be wanted for one Time; because without a Point it should be worth but two Thirds of a Time, *&c.* 3. That the Batoon should be worth two Measures; the Semi-Batoon one Measure; the Pause one Time; and the half-Pause a sixth of the Measure, *&c.* which would be very proper for melancholick and very slow Expressions, *&c.*

The second Sort is that which could be called Triple of 6 for 2; because it would have for Sign those two Numbers, thus, $\frac{6}{2}$, which should shew, 1. That a Measure should have six Minims or Whites instead of two. 2. That a Time should want one Semi-breve or Round, with a Point; because without a Point it would be worth but two Thirds of a Time, *&c.* 3. That the Batoon would be worth two Measures; the Semi-batoon one Measure; the Pause one Time, and the Semi-pause one Third of a Time, or a sixth Part of the Measure, *&c.* which would be very proper to mark the Movements, which the *Italians* call *lento*, *tardo*, *grave*, *adagio*, &c. these two Kinds of Triple, are only proposed to the Publick; but the three following are in Use in the modern Authors.

The third Kind of binary Triple, is that which we call of 6 to 4, because it has for Sign those two Numbers thus, C $\frac{6}{4}$ or $\frac{6}{4}$; which shew, 1. That six black, and therefore twelve Crotchets, *viz.* three black are wanted for each Time, *&c.* instead of two. 2. That a White with a Point, is worth one Time or three Black; and without a Point is worth but two Thirds of a Time, *i. e.* two Blacks, *&c.* 3. That the Batoon is worth four Measures; the Semi-batoon two Measures; the Pause one Measure; the half Pause half a Measure (which is often marked by three Minim-Rests) the Minim-Rest is worth a Black, *i. e.* the sixth Part of a Measure, *&c.* This Triple is commonly used for tender affectuous Motions; for Instance, fig. 38.

The *fourth Sort of binary Triple*, is that we call of six for eight, because it has for Signs those two Numbers, thus C $\frac{6}{8}$ or $\frac{6}{8}$, which shew, 1. That six Crotchets (and therefore twelve double Crotchets) are wanted for one Measure, *viz.* three Crotchets at each Time, *&c.* instead of four. 2. That a Black with a Point is worth one Time or three Crotchets; and without a Point two Thirds of a Time. 3. That the Batoon, the Semi-batoon are worth as usual 4, 2, 1 Measure; that the half Pause is worth half a Measure, in lieu whereof are sooner put two half Minim-Rests. Lastly, that the half Minim-Rest is worth one Crotchet, or the Third of a Time, or the sixth Part of a Measure, *&c.* This Triple is proper for merry, lively, and animated Expressions; and consequently beat pretty quick. For Instance, fig. 39.

The fifth Sort of binary Triple, is that called of six for sixteen; because it has for Sign those two Numbers, thus, C $\frac{6}{16}$ or $\frac{6}{16}$, which shews that there is wanted but six double Crotchets, instead of sixteen for a Measure. 2. That a Crotchet with a Point is worth a Time, and the two Thirds of a Time only when without a Point. 3. That the Batoon, Semi-batoon, and the Pause are worth as usual, 4, 2, 1 Measure; that the half Pause is worth half a Measure; that the Minim-Rest is never used, and seldom the half Minim-Rest, in lieu whereof are placed two Quarters of Minim-Rest, *&c.* This Triple is for Movements and Expressions of the greatest Rapidity, which the *Italians* mark by the superlative Term *Prestissimo*. For Example, fig. 40.

Note, That I have already observed, that these five Species of Triples are to beat two Times, for which they are called binary Triples; though some Masters of *Musick* mark six Times with the Hand, especially when the Motion is very slow, as are the Signs $\frac{6}{1}$ and $\frac{6}{2}$ (wherefore they have been called *Measures of Triples at six Times*) or when the Motion is so merry, that it would be impossible to mark those six Times with the Hand, they at least mark four of them, *viz.* two long or double, *viz.* the first and third; and two shorter, which are the second and fourth; which is the common Practice of the *Italians*, and by their Example, of those of other Nations, who understand their Business, under the Signs 6, 4, and 6, 8, there is but the Sign 6, and 16. where they are contented to mark two Times with the Hand, the Motion whereof being so rapid, that it is scarce possible to mark distinctly in it, either six or four Times; therefore there should be but that last Sign which could be properly called binary Triple, *&c.*

To which it may be answered, that in fact, those different Manners of beating the Measure, are reduced to two principal Times; and that if they have been introduced into *Musick*, it is to facilitate the Execution thereof, as to Practice. Fig. 41. is a Table of the Sestuple, or binary Triples.

Art.

Article II.

Of Triples beaten at four Times.

The *Italians* call them by the general Name *Dodecuple*, and the *French* Measures at twelve Times; but they should be rather called Triples at four Times, *&c.* we commonly find but three Sorts of them in Authors, *viz.* the twelve four, the twelve eight, and the twelve sixteen; but I'll explain, as in the preceding Articles, five Species of them.

The first is that which could be called in *Italian Dodecupla di Semi-brevi*, and in *French*, Triple of 12, for 1, because it should have for Sign those two Numbers, thus $^{12}_{1}$, which would shew, 1. That for one Measure there should be wanted twelve Semi breves or Rounds instead of one; *viz.* three at each Time, and consequently six Whites at each Time, *&c.* 2. That a Breve with a Point should be worth one Time, and without a Point only the two Thirds of a Time. 3. That the Batoon should be worth but two Measures, the Semi-batoon one Measure; the Pause one Time; the Semi-pause one Third of a Time, *&c.* which would be very proper for very melancholick, and slow Expressions, *&c.* For Example, fig. 43.

The second Species of Triples at four times, is that which could be very well called in *Italian Dodecupla di minime*, and by us Triple of 12 for 2. Because it would have for Sign those Numbers, thus $^{12}_{2}$. Which would shew, 1. That 12 Minims or Whites should be wanted for one Measure, 3 at each Time; and therefore 24 Semi-minims or Blacks, *&c.* 2. That a White pointed should be worth one Time, and not pointed the two Thirds of a Time, *&c.* 3. That the Batoon should be worth but two Measures; the Semi-batoon but one Measure; the Pause one Time; the Semi-pause the Third of a Time; which would be proper for grave and slow Expressions, *&c.* For Instance, fig. 44.

The third Species of Triples at four Times, is that which the *Italians* call *Dodecupla di Semi-minime*, and we Triple of 12 for 4. Because it has for Sign those two Numbers, thus C $^{12}_{4}$ or $^{12}_{4}$; which shews, that 12 Blacks, instead of 4, are wanted for one Measure, *viz.* three at each Time, and therefore 24 Quavers instead of 8, *&c.* 2. That a White pointed is worth one Time; and *not pointed*, the two Thirds of a Time, *&c.* 3. That the Batoon, Semi-batoon, and the Pause, are worth as usual 4, 2, 1 Measure. That the half Pause is worth one Time; the Minim-Rest one Third of a Time, or a twelfth Part of a Measure, *&c.* which is proper for tender and affectuous Expressions, and sometimes for those which are lively and animated, *&c.* For Instance, fig. 45.

The fourth Species of Triples at four Times, is that which the *Italians* call *dupla di Chrome*, and the *French*, Triple of 12 for 8, because it has those two Numbers for Sign, thus C $^{12}_{8}$ or thus $^{12}_{8}$; which shews, 1. That 12 Crotchets or Quavers are wanted for a Measure, *viz.* three at each Time, therefore 24 double Quavers, *&c.* 2. That a Black pointed is worth a Time, and not pointed, two Thirds of a Time, *&c.* 3. That the Batoon, Semi-batoon, and the Pause, are worth as usual 4, 2, or 1 Measure. The half Pause a Time or half a Measure; and the Minim-Rest a Time. Lastly, that the half Minim Rest is worth the Third of a Time, *&c.* This Triple is very proper for lively and merry Expressions; which notwithstanding the *Italians* use it very often for tender and affectuous Expressions, adding to it the Words *adagio*, *affettuoso*, or some other, for of itself it denotes Mirth. For Instance, fig. 46.

Lastly, the fifth Species of Triple at four Times, is that called by the *Italians*, *Dudecupla di semi crome*, and by us, Triple of 12 for 16; because it has for Sign those two Numbers marked thus C $^{12}_{16}$, or thus $^{12}_{16}$; which shews, that 12 Quavers are wanted for a Measure, *viz.* three at each Time; the Pause is worth as usual 4, 2, and 1 Measure; the half Pause is worth two times, or a half Measure. The Minim-Rest is never used; the half Minim-Rest is worth one Time, and the Quarter of a Minim-Rest, the Third of a Time, *&c.* This Triple is proper for very quick, and very rapid Expressions; which the *Italians* mark by the superlative *Prestissimo*. For Instance, fig. 47.

Note, That from the Triples I'll pass to *Syncope*, called also *Syncopation*.

Syncope signifies the Division of a Note, used when two or more Notes of one Part answer to a single one of the other, as when the Semi-breve of the one answer to two or three Notes of the other.

But to have a right Understanding of the Word *Syncope*, it must be observed first, that every Bar in common Time has two Parts, one of which is when the Hand falls, the other when it rises.

Secondly, that any Note which contains two times, or a Rise and Fall of the Hand, is divisible into two Parts, for the first whereof the Hand goes down, for the last it rises.

Thirdly, that every Note (though of less Value than a Semi-breve) is divisible into two others, the first whereof must be during the first Part of the Measure, or with a Rise or Fall of the Hand, the other Part in the Second.

When Notes do not follow this natural Order, that is, when the first Part is not during the Rise, and the other during the Fall of the Hand; or when the first Part of the Note is not made in the first Part or Instant of the Rise or Fall of the Hand, it is said to be *syncopated*, from *synkopto*, *ferio*, *verbero*, I strike, I beat; thus to distinguish the Time of the Measure; consequently when one or more Notes are placed between two others, which are but half the Value of that in the Middle, the first whereof is made with a Fall, or in the Instant of a Rise or Fall; or when instead of that first Note, there is a Pause of its Length; or if instead of such first Note, there are two equal to it, these may be properly said to be *syncopated*, and are in *Musick* what Feet are in Poetry.

It must also be remarked, that Syncopes are written three Ways; first by a Figure only, which was the Practice of the Antients, till those perpendicular Lines, which we call Bars, were used; when the Note was divided into two others, each of which was its half, they marked it with a Semi-circle, thus ⌒, to shew that those make but one: This makes what the *Italians* call *Note legate*, and is used by Reason one of the Notes is in the latter Part of a Bar, and the other in the Beginning of the next following.

The third, which was highly disapproved by the Antients, and which at present is very much [illegible] when for the Application of some Word, or [illegible] briskier Motion to the Song, the Notes so par[illegible] the Bar, were free and untied. It often happens, that the first of those two Notes is divided into two others of less Value; and this may be done two Ways; the first is, by adding a Point to the first of the two Notes which form this Subdivision, and following it with another of equal Value with its Point; the second is, when both of them are of equal Length. All these Ways are common in the modern Practice, but should not be used without Necessity.

Syncope is often used in Melody, or in the Course of a Song, in mournful languishing Expressions; sometimes to express Sighs, and very often, on the contrary, in very quick Movements, to excite Joy, then causing certain Leaps or Springs among the Notes proper to that End. But its greatest Use is in Harmony, being, as it were, the Life of it, by giving Means of forming that agreeable Contrast between Concords and Discords, which makes the principal Beauty of the modern Musick; and is that Part of the Science, in which, says M. *Brossard*; we have any Reason to think we excel the Antients.

With Respect to Harmony, there are three Syncopes. The first is when all the Parts *syncope* at the same Time, but without Discords; thinking it enough to move uniformly, contrary to the natural Order of the Measure. This the *Latins* call *Syncope æquivagans*, and is not allowed to be any Thing excellent by Judges of Harmony; and therefore is very seldom met with. The second, little better than the first, is when only one of the Parts syncopes, and yet without Discord. The *Italians* call it *contrapunto legato*, because the syncoped Notes must be bound. The last is, when only one Part syncopes, and that to bring in some Discord, and is the *contrapunto syncopato* of the *Italians*.

Note,

Note, That ſome Obſervations are to be made on this Syncope, which is a principal. 1. That the Diſcords muſt not be on the ſyncoped Note; a Concord there is indiſpenſable, whether perfect, as octave and fifth; or imperfect, as third and ſixth, as well major as minor. The fourth indeed, which in the Opinion of ſome is a Concord, of others a Diſcord, but more generally allowed both by the antient and modern Theoriſts, to be a Concord, is often placed on the firſt Part of the Syncope, eſpecially to form a Cadence. We alſo find ſevenths, ninths, *&c.* on the firſt Part of the Syncope; but as theſe Diſſonances muſt continue on the ſecond Parts alſo, and the Baſs holds on the ſame Notes, this ought rather to be reckoned Suppoſition than *Syncope.*—2. According to the modern Practice, any Diſcord but the redundant and defective Eights and defective Seconds, may be admitted in the ſecond Part of the *Syncope.* The Antients, ſays M. *Broſſard*, only uſed the ninth, ſeventh, and ſecond, and ſometimes, but very rarely, the falſe Fifth, and Tritone; and never any other diſcordant Interval, whether ſuperfluous or defective.—3. The Diſcord muſt not reſt upon the Syncope more than one Time of the Meaſure; and if at any Time it be neceſſary upon any Occaſion to divide the ſecond Part of the *Syncope* into two, the ſecond Note muſt not be upon the ſame Degree with the *Syncope* Note, but on the Degree below it, or that which reſolves it into a Concord.—4. For it is not enough to make and prepare a Diſcord, but it muſt be reſolved, that is, it muſt be followed, either mediately, or immediately by a Concord; and firſt, this muſt be done in the Time of the Meaſure following the *Syncope*; ſecondly, the Part that *Syncopes* muſt never riſe, but on the contrary muſt fall on the Degree immediately below the ſyncoped Note; never lower, for that is the Sound that reſolves the Diſcord.—5. We ſay mediately, becauſe they often fall on the Third, after having paſſed a falſe Fifth, before reſolving the ſyncoped Diſcord; ſome Time before falling on the Third, a ſyncoped Fourth is paſſed, to which the falſe Fifth ſtands as a Preparation.—6. The third Rule above is in all Appearance evaded two Ways in modern Practice; the firſt is, dividing the third Part of the ſyncoped Note into two, three, or more of leſs Value, before falling on the Note which reſolves it; the ſecond is, by dividing the ſecond Part of the *Syncope* into two equal Parts, the firſt whereof reſts on the ſame Degree with the ſyncoped Note; the ſecond (which may be divided in any Number of leſs Value) riſes or falls to one of the Chords in the Accompanyment of the Diſcord, before it comes to the Note which reſolves it.

The following is a Table from *Documenti Armonici di Angelo Berrardi*, which ſhews at once what the Concords are, that reſolve each Diſtance the more naturally, whether the upper or lower Part of the *Syncope.*

When the treble or upper Part ſyncopes.	*When the Baſs or lower Part ſyncopes.*
The 2d is reſolved by Uniſon.	The 2d is reſolved by the 3d.
The 4th by the 3d.	The 4th by the 5th.
The 7th by the 5th or 6th.	The 7th by the 8th.
The 9th by the 8th.	The 9th by the 10th.
The 11th by the 10th.	The 11th by the 12th.

When two ſucceſſive Notes of equal Value, as to Time, are uſed, one of which being a Diſcord, ſupplies the other a Concord, that's called *Suppoſition.*

There are ſeveral Kinds of *Suppoſition.* The firſt, when the Parts proceed gradually from Concord to Diſcord, or *è contra* from Diſcord to Concord, the intervening Diſcord ſerving only as a Tranſition to the following Concord.

Another Kind is, when the Parts do not proceed gradually from Diſcord to Concord, and *vice verſâ*, but deſcend to it by the Diſtance of a Third.

A third Kind like the ſecond, is, when the riſing to the Diſcord is gradual, but the deſcending from it to the following Concord is by the Diſtance of a Fourth.

A fourth Kind very different from all the reſt, is, when the Diſcord falls on the accented Part of the Meaſure, and the riſing to it is by the Interval of a Fourth, in which Caſe it is abſolutely neceſſary to follow it immediately by a gradual Deſcent into a Concord, which has juſt been heard in the Harmony, to make the preceding Diſcord paſs without Notice, and only ſeem a Tranſition into the Concord.

M. *Broſſard* lays us down the following Rules of *Suppoſition:* In the firſt he ſays, the Notes of the Part that moves, while the other holds out, or continues on a Sound, muſt proceed by conjoint Degrees; if they proceed otherwiſe, that is, by Disjoints, they muſt be all Concords.

2. If two Notes are played to one of another Part, the firſt muſt be Concord, the ſecond only may be Diſcord, which nevertheleſs muſt be followed by a Concord in conjoint Degrees, either riſing or falling.

3. If four Notes are played to one of another Part, as four Crotchets to a Semibreve, only the ſecond and fourth are allowed to be Diſcords; and therefore the firſt and third, by a gradual Aſcent or Deſcent, are to be Concords. The firſt of every two being reckoned long or accented, muſt be Concords; the ſecond and fourth ſhort or unaccented, may be Diſcord.

Note, That *Accent* in Muſick, is a certain Modulation, or working of the Sounds to expreſs the Paſſions, either naturally by the Voice, or artificially by Inſtruments. Every Bar or Meaſure is divided into accented and unaccented Parts; the accented are the Principal, being thoſe chiefly intended to move and affect; 'tis on thoſe the Spirit of Muſick depends. The Beginning and the Middle, or the Beginning of the firſt Half of the Bar, and the Beginning of the latter Half thereof in common Time, and the Beginning, or firſt of three Notes in triple Time, are always the accented Parts of the Meaſure. Again, in common Time the firſt and third Crotchet of the Bar, are on the accented Part of the Meaſure. In triple Time, where Notes go always by three and three, that which is in the Middle of every three is unaccented, the firſt and laſt accented; but the Accent of the firſt is ſo much ſtronger, that in many Caſes the laſt is accounted as if it had no Accent. This accented and unaccented Part of a Meaſure anſwers to what the Italians call *tempo buono*, and *cativo.* The Harmony is always to be full, and void of Diſcords in the accented Parts of the Meaſure; by Diſcords, we mean Diſcords in conjoint Degrees, which are commonly called paſſing Notes; for Diſcords by proper Preparation and Reſolution, are abſolutely neceſſary, and muſt be uſed therein. In the unaccented Parts this is not ſo neceſſary, Diſcords by conjoint Degrees there paſſing without any great Offence to the Ear.

4. When three Notes are played to one, they must all be of equal Value, as in the Meaſure $\frac{3}{4}$ $\frac{4}{4}$, or $\frac{12}{8}$, *&c.* The ſecond muſt, and ſometimes, though very rarely, the third may be Diſcord, and the firſt always Concord. If the firſt of theſe three be as long as the two others, it muſt be Concord (very rarely Diſcord) the ſecond and third may be Diſcord, or either of them at Pleaſure. If the laſt be as long as the two firſt, the firſt of them muſt be Concord, the ſecond Diſcord, and the long Note may be either as Occaſion ſerves.

Laſtly, if theſe three Notes be of equal Value, but preceded by a Pauſe equal to one of them, the firſt of those left may be a Diſcord, becauſe the Pauſe is reckoned in the Place of the Concord; for Example, fig. 29.

I know, ſays that Author, theſe Rules are not ſo regularly obſerved as they ought; for ſometimes when four Crotchets are played to a Semibreve, the ſecond is made Diſcord, though not proceeding by conjoint Degrees, the third and fourth Concords; ſometimes the firſt and third are Concords, the ſecond and fourth Diſcords, or even the firſt, ſecond, and fourth Concords, and the third only a Diſcord. Very often, continues he, four Semiquavers, though in different Degrees of Time, are reckoned for one Crotchet; but 'tis the Quickness of the Motion, or the Neceſſity of favouring ſome Expreſſion, that in ſome Meaſure excuſes theſe Irregularities, and the leſs common they are, the better.

Note, That to diſpoſe to Practice all the Rules here-

fore described, into Airs, Songs, &c. either in one or more Parts, to be sung by a Voice, or played on Instruments, is the practical Part of Musick, or the Art of *Composition*.

Zarling defines *Composition*, the Art of joining and combining Concords and Discords together.

Under *Composition* are comprehended the Rules, 1. Of *Melody*, or the Art of making a single Part, that is, contriving and disposing the simple Sounds, so as that their Succession and Progression may be agreeable to the Ear.

2. Of *Harmony*, or the Art of disposing and concerting several single Parts together, so as that they make one agreeable Whole.

It may be here observed, that *Melody* being chiefly the Business of the Imagination, the Rules of its Composition serve only to prescribe certain Limits to it, beyond which the Imagination, in searching out the Variety and Beauty of Airs, ought not to go. But *Harmony* being the Work of the Judgment, its Rules are more certain and extensive, and more difficult in Practice. In the Variety and Elegancy of the *Melody*, the Invention labours a great deal more than the Judgment, so that Method has little Place; this must not be understood that the Judgment is discarded, for good Melody requires a true Observation of the *Harmony*; a Person indeed unskilled in Musick may make a Piece of Melody, which by mere Chance may be good, but a Person of good Judgment cannot often err. In *Harmony*, the Invention has not so much to do, for the *Composition* is conducted from a nice Observation of the Rules of *Harmony*, which must yet in some Sort be assisted by Observation.

Harmony therefore, is the agreeable Result or Union of several musical Sounds, heard at one and the same Time, or the Mixture of divers Sounds, which together have an Effect agreeable to the Ear.

Among the Antients however, as also sometimes among the Moderns, *Harmony* is used in the strict Sense of Consonance, and it is equivalent to Sympathy.

The Words *Concord* and *Harmony* do really signify the same Thing, though Custom has made a little Difference between them; Concord is the agreeable Effect of two Sounds in Consonance, and *Harmony* the Effect of any greater Number of agreeable Sounds in Consonance.

Again, *Harmony* always implies Consonance, but Concord is also applied to Sounds in Succession; though never where the Terms can stand agreeably in Consonance.

The Antients, says M. *Malcom*, seem to have been entirely unacquainted with *Harmony*, the Soul of modern Musick, in all their Explications of the *Melopœia*, they say not a Word of Concert, or the *Harmony* of Parts.

We have Instances indeed, continues that Author, of their joining several Voices or Instruments in Consonance; but then those Voices or Instruments are not so joined, as that each had a distinct and proper Melody, so made a Succession of various Concords, but were either Unisons or Octaves in every Note; and so all performed the same individual Melody, and constituted one Song.

When the Parts differ not in the Tension of the whole, but in the different Relations of the successive Notes, 'tis this that constitutes the modern Art of *Harmony*.

Harmony is well defined the Sum of Concords, arising from a Continuation of two or more Concords; *i. e.* three or more simple Sounds striking the Ear altogether, and different Compositions of Concords make different *Harmony*.

To understand the Nature, and to determine the Numbers and Preference of *Harmonies*, it is to be considered, that in every compound Sound, where there are not more than three simple ones, there are three Kinds of Relations, *viz.* primary Relation of every simple Sound to the fundamental or gravest, whereby they make different Degrees of Concord with it; the mutual Relations of the acute Sounds, each with the other, whereby they mix Concord or Discord into the Compound; and the secondary Relation of the whole, whereby all the Terms unite their Vibrations, or coincide more or less frequently.

Suppose, *e. g.* four Sounds, A, B, C and D, whereof A is the gravest, B the next, then C and D the acutest; here A is the fundamental, and the Relations of B, C, and D, are primary Relations: So if B be a Third greater above A, that primary Relation is 4 : 5; and if C be a Fifth to A, that primary Relation is 3 : 2; and if D be an Octave to A, that is 2 : 1: for the mutual Relations of the acute Terms, B, C, D, they are had by taking primary Relations to the Fundamental, and subtracting each lesser from each greater, thus B to C is 5 : 6, So a Third lesser; B to D, 5 : 8, a Sixth lesser, &c. And lastly, to find the secondary Relations of the whole, seek the least common Dividend to all the lesser Terms or Numbers of the primary Relations, *i. e.* the least Number that will be divided by each of them exactly, this is the Thing sought; and shews that all the simple Sounds coincide after so many Vibrations of the Fundamental, as the Number expresses.

So in the preceding Example the lesser Terms of the three primary Relations are 4, 2, 1, whose least common Dividend is 4, consequently at every fourth Vibration, of the Fundamental, the Whole will coincide. Now *Harmony*, we have observed, is a compound Sound, consisting of two, three, or more simple Sounds.

Its proper Ingredients are Concords; and all Discords, at least in the primary and mutual Relations, are absolutely forbidden. 'Tis true, Discords are used in Musick, but not of themselves simply, but to set off the Concord by their Contrast and Opposition.

Hence every Number of Concords being proposed to stand in primary Relations, with a common Fundamental; we discover whether or no they constitute perfect *Harmony*, by finding their mutual Relations.

Thus, suppose the following Concords, or primary Relations, *viz.* a greater Third, Fifth, and Octave given, their mutual Relations are all Concord, and therefore may stand in *Harmony*; for the greater Third and Fifth are to one another as 5 : 6, or lesser Third; the greater Third and Octave as 5 : 8, or lesser Sixth; and the Fifth and Octave, as 3 : 4, or a Fourth. But if fourth, fifth, and Octave be proposed, 'tis evident they cannot stand in *Harmony*; by Reason, betwixt the fourth and fifth there is a Discord, *viz.* the *Ratio* 8 : 9. Again, supposing any Numbers of Sounds which are Concord each to the next, from the lowest to the highest; to know, if they can stand in Harmony, we must find the primary and all the mutual Relations, which must be all Concord. To let any Number of Sounds be as 4 : 5, 6 : 8, they stand in *Harmony*, by Reason each to each is Concord; but the following ones cannot, *viz.* 4 : 6 : 9, by Reason 4, 9 is a Discord.

The necessary Conditions of all *Harmony* then are Concord in the primary and mutual Relations; on which Footing a Table is easily formed of all the possible Varieties: But, to determine the Preference of *Harmonies*, the secondary Relations are to be considered, the Perfection of *Harmonies* depends on all the three Relations; it is not the best primary Relation that makes the best *Harmony*; for then a fourth and a fifth, must be better than a fourth and a sixth; whereas the first two cannot stand together, because of the Discord of the mutual Relation; nor does the best secondary Relation carry it, for then would a fourth and a fifth, whose secondary Relation with one common Fundamental, is six, be better than a third and fifth, whose secondary Relation is ten, but there also the Preference is due to the better mutual Relations; indeed the mutual Relations depend on the primary, though not so as that the best primary shall always produce the best mutual Relations. However, the primary Relations are of the most Importance; and together with the Secondary, afford us the following Rules for determining the Preference of *Harmonies*.

To wit, comparing two *Harmonies* together that have an equal Number of Terms, that which has the best primary and secondary Relations, is the most perfect, but in Cases where the Advantage lies in the primary Relation of the one, and in the Secondary of the other, we have no certain Rule; the primary are certainly the most considerable; but how the Advantage in this ought to be proportioned to the Disadvantage of the other, or *vice versâ*, we know not. So that a well tuned Ear must be the last Resort in these Cases.

HARMONY is divided into *Simple* and *Compound*.

Simple HARMONY is that to which there is no Concord to the Fundamental above an Octave.

The Ingredients of *Simple Harmony*, are the seven original simple Concords, of which there can be but eighteen different Combinations that are *Harmony*; which are given in the following Table from Mr. *Malcolm*.

The TABLE *of Simple* Harmonies.

Secondary Relations.				*Secondary Relations.*			
5th	8ve	2	3d grt. 5th	4	3d grt. 5th	8ve
4th	8ve	3	3d less. 5th	10	3d less. 5th	8ve
6th greater	8ve	3	4th 6th grt.	3	4th 6th grt.	8ve
3d greater	8ve	4	3d grt. 6th less.	12	3d grt. 6th grt.	8ve
3d lesser	8ve	5	3d less. 6th less.	5	3d less. 6th less.	8ve
6th lesser	8ve	5	4th 6th less.	15	4th 6th less.	8ve

These are all the possible Combinations of the Concords that are *Harmony*; for the Octave is compounded of a fifth and a fourth, or a sixth and a third, which have the Variety of greater and lesser; out of these are the first six *Harmonies* composed: Then the fifth being composed of a greater and lesser Third, and the sixth of a Fourth and Third; from these proceed the next six of the Table: Then an Octave, joined to each of these six, makes the last six of the Table.

The Perfection of the first twelve is according to the Order of the Table; of the first six each has an Octave, and their Preference is according to the Perfection of that other lesser Concord joined unto the Octave. For the next six the Preference is given to the two Combinations with the fifth, whereof that which has the third greater is the last. For the last six they are not placed last, because the least perfect, but because they are the most complete, and are the Mixture of the other twelve with each other; in Point of Perfection they are plainly preferable to the preceding six, as having the same Ingredients with one Octave more.

Compound HARMONY is that which to the *Harmony* of an Octave adds that of another. The Varieties thereof are easily found out of the Combinations of the simple *Harmonies* of several Octaves.

HARMONY again may be divided into that of Concords, and that of Discords.—The first is that which we have hitherto considered, wherein nothing but Concords are admitted.———The second is that wherein Discords are used, and mixed with Concords.

The first is also called *simple Counterpoint*, and the second *figurative Counterpoint*.

Simple Counterpoint consists of the imperfect, as well as perfect Concords, and may be therefore denominated perfect or imperfect, according as the Concords are whereof it is composed: Thus the Harmony arising from a Conjunction of any Note with its fifth and Octave is perfect, but with its third and sixth imperfect; notwithstanding this the Composition is perfect, 'tis the particular Concords only that are called imperfect.

Now to dispose the Concords, or the natural Notes, and their Octaves in any Key in a simple *Counterpoint*, observe with Regard to the Distinction, into perfect, or imperfect *Harmony*, this general Rule, *viz.* to the Key to the fourth, and to the fifth, perfect Harmony must be joined; to the second, third, and seventh, an imperfect Harmony is indispensible; to the sixth, either a perfect or imperfect Harmony, but when you keep the Keys, an imperfect Harmony is given the sixth.

In the Composition of two Parts, observe, that though a Third appears only in the Treble, or the fourth and fifth, yet the perfect Harmony of the fifth is always supposed, and must be supplied in the Accompaniments of the Thorough Bass to those fundamental Notes.

More particularly, in Compositions of two Parts the Rules are; that the Key may have either its Octave, or fifth, or third; the fourth and fifth may have either their respective Thirds, Fifths, or Octave; the second, sixth, the third and seventh may have their respective Thirds or Sixths; and the last on many Occasions may have its false Fifth as a passing Note, which Rules hold the same in flat and sharp Keys.

For the Rule of *Counterpoint*, with Regard to the Succession of Concords, it must be observed, that, as much as can be, the Parts may proceed by a contrary Motion *i. e.* the Bass may descend where the Treble ascends, and *vice versâ*; the Parts moving either upwards or downwards the same Way; two Octaves or two Fifths never follow one another immediately; two Sixths never succeed each other immediately. Whenever the Octave or Fifth is to be made Use of, the Parts must proceed by a contrary Motion, except the Table moves to such an Octave or Fifth gradually. If in a sharp Key the Bass descend gradually from the fifth to the fourth, the last in that Case, must never have its proper Harmony applied to it, but the Notes that were Harmony in the preceding fifth, must be continued on the fourth; Thirds and Fifths may follow one another, as often as one has a Mind.

The *figurative Counterpoint* is of two Kinds; in one Discords are introduced occasionally as passing Notes, serving only as Transitions from Concord to Concord: in the others, the Discord bears a chief Part in the Harmony.

For the first, nothing but Concords are to be used in the accented Parts of the Measure, *i. e.* not by the gradual Progression, but by proper Preparation and Resolution Discords are absolutely necessary. In the unaccented Parts Discords may pass without any Offence to the Ear. This is called by most Authors *Supposition*; because the transient Discord always supposes a Concord following it; which is of infinite Service in Musick.

For the second, wherein Discords are used as a solid and substantial Part of the Harmony, the Discords that have Place are the fifth, when joined with the sixth, to which it stands in Relation of a Discord; the fourth when joined with the fifth; the ninth, which is the Effect of the second and seventh, and the second and fourth.

These Discords are introduced into Harmony with due Preparation, and are to be succeeded by Concords, which is called the Resolution of Discords.

The Discord is prepared by first substituting it in the Harmony in the Quality of a Concord; that is, the same Notes which become the Discord are first Concord, to the Bass Note immediately preceding that to which it is a Discord. The Discord is resolved by being immediately succeeded by a Concord, descending from it by the Distance only of a second greater or second less.

As the Discord make a substantial Part of the Harmony, so it must always possess an unaccented Part of the Measure, by gradual Descent, but when prepared and resolved 'tis necessary on the accented Part.—Now, to introduce Discords into Harmony, it must be considered what Concord may serve for their Preparation and Resolution; the fifth, then, may be prepared either by our Octave, Fifth, or Third; and resolved either by third or sixth. The fourth may be prepared in all Concords, and may be resolved into the sixth, third, or Octave. The ninth may be prepared in all Concords, except an Octave; and may be resolved into third, sixth, or Octave. The seventh may be prepared in all Concords, and resolved into third, sixth, or fifth. The second and fourth are used very differently from the rest, being prepared and resolved into the Bass; but what's *Concord*, what's *Discord*; and what's *Octave?*

CONCORD and Harmony are in Effect the same Thing, though Custom has applied them differently. As *Concord* expresses the agreeable Effect of two Sounds in Consonance, so Harmony expresses the Agreement of a greater Number of Sounds in Consonance. Add that Harmony always implies Consonance, but *Concord* is sometimes applied to Succession; whence it is, that Dr. *Holder*, and some other Writers use the Word Consonance for what we call *Concord*.

Unisonance, then, being the Relation of Equality between the Tune of two Sounds, all Unisons are *Concords* in the first Degree; but an Interval being a Difference of Tune, or a Relation of Inequality between two Sounds, becomes a *Concord* or Discord, according to the Circumstances of that particular Relation. Indeed some restrain *Concord* to Intervals, and make a Difference of Tune essential thereto; but this is precarious. Mr. *Malcolm* thinks, that as the Word implies Agreement, 'tis applicable to Unisons in the first Degree.

'Tis not easy to assign the Reason or Foundation of Concordance. The Differences of Tune, we have [illegible]

ready observed, take their Rise from the different Proportions of the Vibrations of the sonorous Bodies, *i. e.* the Velocity of those Vibrations in their Recourses; the more frequent those Vibrations are, the more acute the Tune, and *vice versâ*.

But the essential Difference between Concord and Discord lies deeper; there does not appear any natural Aptitude in the two Sounds of a Concord to determine it to give a pleasing Sensation, more than in the two Sounds of a Discord. The different Effects are merely arbitrary, and must be resolved into the divine good Pleasure.

We know by Experience, what Proportions and Relations of Tune afford Pleasure, and what not; and we know also, how to express the Differences of it, by the Proportions of Numbers. We know what it is that pleases us, though we don't know why. We know, *v. g.* that the Ratio of 1, 2, constitutes Concord; and 6, 7, a Discord; but on what original Grounds agreeable or disagreeable Ideas are connected with those Relations, and the proper Influence of the one on the other, is above our Reach.

But by Experience we know, that the following Ratio's of the Lengths of Chords are all Concord, *viz.* 2 : 1, 3 : 2, 4 : 3, 5 : 4, 6 : 5, 5 : 3, 8 : 5; that is, take any Chord for a Fundamental, which shall be represented by the Number 1, and the following Divisions thereof will be all Concord with the whole, *viz.*

1, 2, 3, 4, 5, 3, 5,
———————— so that the distinguishing Character
2, 3, 4, 5, 6, 5, 8,

between Concords and Discords, must be looked for in these Numbers, expressing the Intervals of Sounds; not abstractedly in themselves, but as expressing these Numbers of Vibrations.

Now Unisons are in the first Degree of Concord, or have the most perfect Likeness or Agreement of Tune, and therefore have something in them accessary to that Agreement, which is found less or more in every Concord; but as Concord implies a Difference of Tune, they may not be properly so called. 'Tis not true, that the nearer two Sounds come to an Equality of Tune, the more Agreement they have; therefore it is not in the Equality and Inequality of the Numbers that this Agreement lies.

Further, if we consider the Number of Vibrations made in any given Time, by two Chords of equal Tune, on the Principle laid down they are equal, and therefore the Vibrations of the two Chords coincide or commence together as frequently as possible; that is, they coincide at every Vibration; in the Frequency of which Coincidence, or united Mixture of the Motion of the two Chords, and of the Undulations of the Air, occasioned thereby, it is that the Differences of the Concords and Discords must be sought.

Now the nearer the Vibrations of two Strings approach to a Coincidence as frequent as possible, the nearer they should approach the Condition, and consequently the Agreement of Unisons, which agrees with Experience. For if we take the natural Series, 1, 2, 3, 4, 5, 6, and compare each Number to the next, as expressing the Number of Vibrations in the same Time of two Chords, whose Lengths are reciprocally as those Numbers, the Rule will be found exact, for 1 : 2, is better than 2 : 3, after 6 is insufferable; the Coincidence being so rare, though there are other Ratio's that are agreeable, besides those found in the continued Order, *viz.* 3, 5, 5, 8, which, with the preceding five, are all the concording Intervals, within or less than an Octave, or 1, 2, *i. e.* whose acutest Term is greater than the fundamental. On this Principal, 3, 5, will be preferable to 4, 5, because being equal in the Number of Vibrations of the acuter Term, there is an Advantage on the Side of the fundamental in the Ratio 3, 5, where the Coincidence is made at every third Vibration of the fundamental, and every fifth of the acute Term; so also the Ratio 5, 8, is less perfect than 5, 6; because the Vibrations of each Fundamental are equal, yet in the Ratio 5, 6, the Coincidence is at every sixth Vibration of the acute Term, and only at every eighth in the other Case.

Thus we have a Rule for judging of the Preference of Concords, from the Coincidence of their Vibrations; agreeable to which Rule, they are disposed in the Order of the following Table, in which the Names of the Concords in Practice, the Ratio of their Vibrations, the Length of their Chords, and the Number of the Concidences in the same Time are expressed.

The TABLE *of* Concords.

Ratio's of Vibrations.	*Grave*	*Acute*	*Coincidences.*
	Terms.		
Unison,	1	1	0
Octave, 8ve,	2	1	16
Fifth, 5th,	3	2	30
Fourth, 4th,	4	3	20
Sixth greater, 6th grt.	5	3	20
Third greater, 3d grt.	5	4	15
Third lesser, 3d lesser,	6	5	12
Sixth less, 6th lesser,	8	5	12
	Grave	*Acute*	
	Lengths.		

Though the Order be settled by Reason, yet it is confirmed by the Ear. On this Bottom, Concords must still be more perfect, as they have the greater Number of Coincidences with Regard to the Number of the Vibrations of both Chords; and where the Coincidences are equal, the Preference will fall on that Interval, whose acutest Term has fewest Vibrations in each Coincidence; which Rule however, is in some Cases contrary to Experience; and yet it is the only Rule discover'd.

F. *Mersene*, indeed, and after him *Kircher*, gives us another Standard for settling the comparative Perfection, with Regard to the Agreement of the Extreams in Tune: And 'tis this. —

'The Perception of Concordance, say they, is no'thing but the comparing of two or more different Mo'tions, which at the Time affect the auditory Nerve; 'now we cannot make a certain Judgment of Conso'nance till the Air be as often struck in the same 'Time by two Chords, as there are Units in each Num'ber expressing the Ratio of that Concord, *v. g.* we 'cannot perceive a fifth, till two Vibrations of the one 'Chord, and three of the other are accomplished toge'ther; which Chords are in Length as 3 to 2; the Rule 'then is, that those Concords are the most simple and 'agreeable, which are generated in the least Time, and 'those on the contrary, the most compound and harsh, 'which are generated in the longest Time.

'For Instance, let 1, 2, 3, be the Length of three 'Chords, 1, 2, is an Octave; 2, 3, is a fifth; and '1, 3, an octave and fifth compounded, or a twelfth; 'the Vibrations of Chords being reciprocally as their 'Lengths, the Chord 2 will vibrate once, while the 'Chords vibrates twice, and then exists an octave; but 'the twelfth does not yet exist, because the Chord 3 has 'not vibrated once, nor the Chord 1, thrice, which is 'necessary to form a twelfth.

'Again, for generating a fifth, the Chord 2 must vi'brate twice, and the Chord 3 twice, in which Time 'the Chord 1 will have vibrated six Times; and thus 'the octave will be thrice produced, while the twelfth 'is only twice produced, the Chord 2 uniting its Vi'brations sooner with the Chord 1, than with the Chord 3, 'and they being sooner Consonant, than the Chord 1 'or 2 with that 3.'

Whence, that Author observes, many of the Mysteries of the Harmony relating to the Performance of harmonious Intervals, and their Succession, is easily deduced.

But this Rule, by examining it by the other Instances, M. *Malcolm* has shewn defective, as it does not answer in all Positions of the Intervals, with Respect to each other; but a certain Order wherein they are to be taken, being required, and being no Rule with Respect to the Order that will make this Standard answer to Experience in every Case; so that at last we are left to determine the Degrees of *Concord* by Experience and the Ear.

Not but that the Degrees of *Concord* depend much on the more or less frequent uniting the Vibrations, and the Ear being more or less uniformly moved, as above; for that the Mixture, or Union of Motion is the true Principle, or at least the chief Ingredient in *Concord*, is evident; but because there seems to be something further in the Proportion of the two Motions, necessary to be known, in order to fix an universal Rule for

for determining all the Degrees of *Concord*, agreeable to Sense and Experience.

The Result of the whole Doctrine is summed up in this Definition; Concord is the Result of a frequent Union of Coincidence of the Vibrations of two sonorous Bodies, and by Consequence the ondulating Motions of the Air, which being caused by the Vibrations, are like and proportional to them, which Coincidence, the more frequent it is, with regard to the Number of Vibrations of both Bodies, performed at the same Time, *cæteris paribus*, the more perfect is that *Concord*, till the Rarity of the Coincidence, in respect to one or both the Motions, commence Discords.

Concords are divided into *simple*, or *original* and *compound*.

A *simple* or *original* CONCORD, is that whose Extremes are at a Distance less than the Sum of any two other *Concords*.

On the contrary, a compound *Concord* is equal to two or more simple Concords.

Other Masters of *Musick* state the Division thus, an Octave 1 : 2, and all the other inferior *Concords* above expressed, are simple or original *Concords*; and all greater than an Octave, are called *compound Concords*, as being composed of, and all equal to the Sum of one or more Octaves, and some simple *Concord* less than an Octave, and usually in Practice denominated from that simple *Concord*.

As to the Composition and Relations of the original *Concords*, by applying to them the Rules of the Addition, and Substraction of Intervals, they will be divided into simple and compound, according to the first and more general Notion, as in the following Table.

Simple Concords.		*Compound Concords.*		*Octave composed.*
5 : 6 a 3d less	5th	3d gr. and 3d less.		5th and 4th.
4 : 5 a 3d gr.	6th less.	4th and 3d less.	of	6 gr. 3d less or 3d
3 : 4 a 4th.	6th gr.	4th and 3d gr.		3d less 4th. (gr.

The Octave is not only the first *Concord* in point of Perfection, the Degrees of whose Extremities are greatest and nearest the Unison, inasmuch that when sounded together, 'tis impossible to perceive two different Sounds, but it is also the greatest Interval of the seven original *Concords*, and as such contain all the less, which derive their Sweetness from it as they arise more or less out of it directly; and which decrease gradually from the Octave to the lesser Sixth, which has but a small Degree of *Concord*.

What is very remarkable, is the Manner wherein these less *Concords* are found in the Octave, which shews their mutual Dependencies.

The Octave by mediate Division resolves itself into a Fourth and a Fifth; the Fifth again by immediate Division, resolves itself into the two Thirds; the two Thirds are therefore found by Division, though not by mediate Division, and the same is true of the two Sixths. Thus do all the original *Concords* arise out of the Division of the Octave, the Fifth and Fourth mediately and directly, the Thirds and Sixths immediately.

From the Perfection of the Octave arises this remarkable Property, that it may be doubled, and yet still preserve *Concord*, that is, the Sum of two or more Octaves, are *Concords*, though the more compound will be gradually less agreeable; but it is not so with any other *Concord* less than Octave, the double, *&c.* whereof are all Discords.

Again, whatever Sound is *Concord* to one Extreme of the Octave, is *Concord* to the other also; and if we add any other simple *Concord* to an Octave, it agrees to both its Extremes; to the nearest Extreme it is a simple *Concord*, to the furthest a compound one.

Another Thing observable in this System of *Concords* is, that the greatest Number of Vibrations of the Fundamental cannot exceed five; or that there is no *Concord* wherein the Fundamental makes more than five Vibrations to one Coincidence with the acute Term. It may be added, that this Progress of *Concords* may be carried on to greater Degrees of Composition, even *in infinitum*, but the more compound the less agreeable. So a single Octave is better than a double one, and that than a triple one; and so of the Fifths and other *Concords*, three or four Octaves is the greatest Length we go in ordinary Practice; the old Scales went but two, no Voice or Instrument will go agreeably above four.

As Concords are denominated harmonical Intervals, so may *Discords* be made unharmonicus ones.

Discords are distinguished into concinnous and unconcinnous Intervals: The concinnous, called by the Antients *Emmeli*, are such as are apt or fit for Musick, next to, and in Combination with Concords.

These are Relations, which in themselves are neither very agreeable nor disagreeable, and have only a good Effect in Musick by their Opposition, as they heighten, and illustrate the more natural and essential Principle of the Pleasure we seek for; as by their Mixture and Combination with them, they produce a Variety necessary to our being better pleased.

Notwithstanding this, they are still called *Discords*, as the Bitterness of some Things may help to set off the Sweetness of others, and still be bitter.

The inconcinnous *Discords*, by the Antients called *Ecmeli*, are such as never are chose in Musick, as having too great a Harshness in them, though even the greatest *Discord* is not without its Use.

The essential Principles of Harmony, harmonical Intervals or Concords are but few, in Number only eight, the indefinite Numbers of other Ratios are all *Discords*. Hence Mr. *Malcolm* shews the Necessity of taking some of the less untoward of these *Discords* into the System of Musick. In order to this, he considers the Effect of having none but harmonical Intervals therein.

1. With respect to a single Voice, if that should move always from one Degree to another, so as every Note or Sound to the next, were in the Ratio of some Concord, the Variety which is the Life of Musick, would soon be exhausted; for to move by no other than harmonical Intervals would not only want Variety, and so weary us with a tedious Repetition of the same Things, but the very Perfection of such Relation of Sounds would clog the Ear, in the same Manner as sweet and luscious Things do the Taste; which, for that Reason, are artfully seasoned with the Mixture of sour and bitter.

2. With respect to Musick in Parts, that is, where two or more Voices join in Consonance, the general Rule is, that the successive Sound of each be so ordered, that the several Voices shall be all Concords.

Now there ought to be a Variety in the Choice of those successive Concords, and also in the Method of their Succession; all which depend on the Movement of the single Parts: So that if they could only move in an agreeable Manner, by harmonical Distances, there are but few different Ways wherein they could move from Concord to Concord; and hereby we should lose much of the Ravishment of Sounds in Consonance. And to this Part then, the Thing demanded is a Variety of Ways, whereby each single Voice, or more in Consonance, may move agreeably in the successive Sounds, so as to pass from Concord to Concord, and meet in every Note in the same or a different Concord, from what they stood in at the last Note.

In what Cases, and for what Reason, *Discords* are allowed, the Rules of Composition must teach; but only joining these two Considerations, *&c.* we find how imperfect *Musick* would be, without any Intervals than Concords.

Besides the concinnous Discords used designedly in Musick, there are several other discord Relations, which happen unavoidably in a Kind of accidental and indirect Manner. Thus in the Succession of several Notes, there are to be considered not only the Relations of those which succeed others immediately, but also of those, betwixt which others intervene. Now the immediate Succession may be conducted so as to produce Melody; and yet among the distant Notes, there may be very gross Discords, that would not be tolerable in mediate Succession, and far less in Consonance. The taking away one Species, *e. gr.* that with the greater Third, and marking the Degree between each Term and the next; and though the Progression be melodious, as the Terms refer to one common fundamental, yet there are several *Discords* among the mutual Relations of the Terms, *e. gr.* from the fourth to the seventh greater, is 32 : 45; and from the second greater to the fourth greater, is 27 : 40; and from the second greater to the fourth, is 27 : 32; all *Discords*.

The Species of Counterpoints, wherein there is a Mo-

ture of Discords, is called figurative Counter-point (as already observed) of which there are two Kinds: That wherein the Discords are introduced occasionally, to serve only as Transitions from Concord to Concord; and that wherein the Discord bears a chief Part of the Harmony.

Upon the unaccounted Part of the Measure, Discords may transiently pass without any great Offence to the Ear; this is called Supposition, by Reason the transient Discord supposes a Concord immediately following it.

The Harmony of Discords, is that wherein the Discords are made Use of as the solid and substantial Part of the Harmony. For by a proper Interposition of a Discord, the succeeding Concords receive an additional Lustre. Thus the Discords are in *Musick*, what strong Shades are in Painting.

The Discords are the fifth when joined with the sixth, the fourth with the fifth; the ninth of its own Nature is a Discord, so is the seventh.

The Discords are introduced into Harmony with due Preparation, and must be succeeded by Concords; which is the Resolution of Discords. The Discord is prepared by substituting it first in the Harmony in Quality of a Concord, *i. e.* the same Note which becomes a Discord, is first a Concord to the bass Note, immediately preceding that to which it is a Discord.

The Discord is resolved by being immediately succeeded by a Concord, descending from it only by the Distance of a greater or lesser Second.

A Master of *Musick*, who wants to give unquestionable Proofs of his great Skill in that divine Science (which contributes to the Happiness of the Blessed in the celestial Mansions) must not only follow exactly, in his Composition, all the Rules heretofore described, but appropriate, likewise, every one of them to the Text, so that they may express as naturally as possible, the different Passions contain'd therein; for a Musician is an Ass, who though perfectly acquainted with the Rules of his Art, makes Use of them, for Example, to express in a melancholick Tune, Sentiments of Joy and Mirth, and *vice versâ*; since *Musick* has been invented with no other View, than to quicken the Passions, which the Terms of the Text keep half buried; and thereby render them capable of making a greater Impression on the Soul, by affecting the Senses in a most exquisite Manner; for I consider a Piece of *Musick*, without this indispensably necessary Character, though composed according to the best Rules of the Art, as a Piece of Imagery without Life. I have often been ravished at the Pieces of *Musick* of *L'alouette*, Master of *Musick* of *Our Lady* at *Paris*, especially at his Psalm, *Miserere mei Deus*, &c. for in that inimitable Piece, there is not a Note which is not expressive of the Word it is applied to. There are also several of the Anthems sung in the Cathedral Churches of *England*, in that excellent Taste; but for the *Musick* of *Hopkins* and *Sternhold*'s Psalms, it is to the full as bad as the Poetry.

Most Pieces of *Musick* are composed in Part (*i. e.* those that deserve that Name by Way of Excellence) the four principal thereof are the *Treble*, *Tenor*, *Counter-tenor*, and *Bass*.

Treble is the highest, or acutest Part of the four Parts in Symphony; or that which is heard clearest in a Concert. In this Sense we say, a *Treble* Violin, *Treble* Hautboy, *&c.*

In *Vocal Musick*, the *Treble* is usually committed to Boys and Girls, *i. e.* their Parts are *Trebles*.

The *Treble* is divided into first or highest *Treble*, and second or low *Treble*; half *Treble* is the same with the Counter-Tenor.

The Tenor is the first Mean or middle Part, or that which is the ordinary Pitch of the Voice, when neither raised to a Treble, or lowered to a Bass.

The *Tenor* is commonly marked in thorough Bass with the Letter T. This is a Part which almost all grown Persons can sing; but as some have a greater Compass of Voice than others, either upwards or downwards others are confined to a Kind of Medium, and others can go equally high or low; hence Musicians make a Variety of *Tenors*, as a low, a high, a mean, a natural *Tenor*; to which may be added, a Violin *Tenor*, &c. for Instruments.

The *Italians* usually distinguish two Kinds of *Tenor*; *Tenore primo*, 1°, or *po*, which is our upper *Tenor*; and *Tenore secundo*, 2°, 11°; confounding all the rest under the Word *Baritono*; called by the *French*, *Basse Taille*, or *Concordant*, i. e. that goes high and low; those that can sing thus may serve either as *Tenor* or Bass upon Occasion.

Tenore concertante, is the *Tenor* of the little Chorus, in which are all the Recitatives of the grand Chorus; if these are divided among many Voices or Instruments, to distinguish, they say *Tenore primo* or *secondo*, &c. as, — *Tenore primo*, *secondo*, &c. *concertante*; the *Italians* make use of this Phrase, when the Parts are different in the grand Chorus, which often happens in a Composition of several Parts.——*Tenore Repieno*, is the *Tenor* of the grand Chorus.——*Tenore primo*, *secondo Choro*.—— The *Tenor* of the first and second Chorus; thus the *Italians* say of a *Tenor*, when they make a Part of each Chorus in Compositions of three or more Parts.——We often use the Word *Tenor* for the Person who sings that Part in a Concert, and for an Instrument proper to play it.

Counter-Tenor, in the *French* called *haute contre*, is one of the mean or middle Parts, so called, as if it were opposite to the Tenor.

The Bass is that Part of a Concert which is most heard, which consists of the gravest and deepest Sounds, and which is played on the largest Pipes or Strings of a common Instrument, as of an Organ, Lute, or on Instruments larger than ordinary for that Purpose, as *Bass-Viols*, *Bassoons*, *Bass-Hautboys*, &c.

Musicians hold the *Bass* to be the principal Part of the Concert, and the Foundation of Composition; though some will have the Treble the chief Part, which others only make an Ornament.

A *Second*, or *Double Bass*, is called *Counter-Bass*, where there are several in the same Concert.

The *Thorough-Bass* is the Harmony made by the *Bass-Viols*, or *Theorbos*, continuing to play both while the Voices sing, and the other Instruments perform their Parts, and also filling up the Intervals, when any of the other Parts stop.

M. *Brossard* observes the *Thorough-Bass* to be Part of the modern Musick, first invented in the Year 1600, by an *Italian* called *Ludovicus Viadana*, it is played by Cyphers marked over the Notes on the Organ, Spinet, Harpsichord, Theorbo, Harp, *&c*, and frequently, and simply, and without Cyphers on the Bass-Viol, Bassoon, *&c.*

Besides these four principal Parts, there is, in a Concert, what we call *Chorus*, which is, when at certain Periods of a Song, the whole Company are to join the Singer, in repeating certain Couplets or Verses.

The Word *Choro*, or *Chorus*, is often met with, instead of *Tutti*, or *da Cappella*, which mean the grand *Chorus*, a *doi*, a *tre*, a *quatre Chori*, is for two, three, or four *Choruses*.—When after the Word *Chorus* we find *primo*, or 1°, we must understand that it is to be played in the first *Chorus*; if 2d, 11do, or *secondo*, in the second; and consequently, that the Composition is for eight Voices, or different Parts.

Those Parts are either appropriated to Voices alone, or to Instruments alone, or to both together, for there are Compositions in Parts for Voices alone called *Vocal Musick*; or for Instruments alone called *Symphony*; and both for Voices and *Instruments*, most commonly called *Concerts*. Though there is very seldom any *vocal Musick*, without an Accompaniment of Instruments, of a Bass-Violin, and a Bassoon, at least; often with the Organ, especially in Church-Musick.

The Vocal Musick is Musick set to Words, especially Verses, to be performed with the Voice, in Contradistinction to instrumental Musick, composed for, and to be executed by Instruments without singing.

Poetry then makes a necessary Part of *Vocal Musick*, and this appears to have been the chief, if not the only Practice of the Antients, from the Definitions they give us of Musick.

Their *Vocal Musick* appears to have had some Advantage over ours, in that the *Greek* and *Latin* Languages were better contrived to please the Ear than the modern ones. In Effect, *Vossius* taxes all the latter Languages as unfit for Musick, and says, "We shall never have very "good

'good vocal Musick, till our Poets make Verses on the 'Model of the Antients, *i. e.* till the antient metrical 'Feet, and Quantities be restored.'

But it is to be observed, that the *Rhythmus* of their vocal Musick, was only that of their Poetry, and had no other Forms or Mutations, than those the metrical Art afforded. Their Changes of *Rhythmus*, were no other than from one Kind of Metrum to another, as from *Iambick* to *Choraick*, &c.

In the modern *Musick*, the Constitution of the *Rhythmus* differs from that Part of the Verse so far, that in setting *Musick* to Words, the Thing chiefly regarded is to accommodate the long and short Notes to the Syllables in such a Manner, as that the Words be well separated, and the accented Syllables of each Word so conspicuous, that what is sung may be distinctly understood; and one of the greatest Perfections in a Musician who executes a Piece of vocal Musick, is to articulate so well all the Words of the Text, according to the Quantity of the Syllables, that he may be clearly understood; for let him be ever so well versed in his Art, and have ever so fine a Voice, his not being understood while he sings, diminishes much his Merit as a Musician; though this Imperfection is very common in the greatest Part of Musicians, who seldom care to let us know whether they sing *Hebrew*, *Greek*, *Latin*, *English*, &c. provided they be conscious to themselves that they sing something well, and according to the Rules of *Musick*.

In the *vocal Musick*, there are Pieces composed for one, two, three, or more *Voices*; but before I proceed further on this Article, we must inform ourselves what *Voice* is.

Note, That VOICE, in French *voix*, in Italian *voce*, is generally speaking, a Noise or Sound formed by the Modification of the Air, *i. e.* compelled, stricken, or pressed, *&c.* by the Organs of the Throat of Animals. Among the different Sounds which that Modification of the Air produces, there are some which admit of no Variation of Tone, as the hissing of Serpents; others that admit of a Difference of Tune, but are not articulated, as the Noises, Whistling of Birds; and lastly, there are others subject to the Variations of Tunes, and are at the same Time articulated, *i. e.* so distinct and different from one other, that it is very easy for the Ear to perceive their Changes, such as the Voices of Men and Women.

These *Voices* alone are the Object of *Musick*, and from these, 1. *Musick* executed fully by *Voices*, is called *vocal Musick*, as being performed by natural Organs.

From thence, 2. The Degrees of Sounds which form the Extent of the Octave, are called *Voice*, and are distinguished from one another, by the seven Monosyllables, *ut*, *re*, *mi*, *fa*, *sol*, *la*, *si*.

From thence, 3. *Voices* are generally divided into three Classes: Of the first are the high or shrill *Voices*, or those performed by Women, or Children; of the second are mediate *Voices*, or Voices of a middle Pitch of Tune, neither high nor low; of the last and deep, *Voices* which consist of low and grave Sounds, both which are performed by Men, different Persons having different Compasses; these three answer to the Parts of *Musick*, called *Treble*, *Tenor*, and *Bass*; and of these are made as many Parts as the Composer pleases.

As the Harmony of Concerts is no more than a well proportioned Mixture of these *Voices*, either *simple*, *doubled*, or *tripled*, &c. the different Parts whereof the Concert is composed, are very often called *Voices*; thus they say in *Italian*, a Piece or Composition is *a due*, *a tre* Voices, *&c.* or simply *a due*, *a tre*, &c. the Word Voice being understood, to shew that the Piece consists of so many different Parts.

There are some indeed that call the Parts destined for Instruments so many *Voices*, by reason Instruments were invented for no other Use than either artificially, to imitate it, supply its Place, or accompany it; but this is to apply the Term improperly. The *Germans* are very particular in their Distinction of vocal and instrumental Parts, they have a Word *stimme*, which is a general Term, and signifies *Part*, be it either for Voice or Instrument, but they always add the Adjective, vocal or instrumental, thereto, to make a proper Distinction.

It must be here observed, that these three *Voices* usually do not exceed four Octaves from their gravest to their acutest Sound, which form the four Octaves of the Organ, and is the ordinary Limit of other Instruments; so that all Compositions, of what Number of Parts soever, do not go beyond this Extent. It is often necessary, that the Parts (especially the vocal) have not this whole Compass, because when they raise to their highest, or fall to the lowest Sounds, they may be so forced, as that they are rendered false and disagreeable; so that to retrench the Compass, they take off some of the upper Sounds, and if the *Voice* raises to *A mi*, *la*, it is as high as it can well go, without a great Uneasiness to the Performer; and others are taken off from the lower Octave, for there are few *Voices* can go further than F *ut fa*, or E *si mi*, clear enough to be distinctly heard. As to the middle Parts, 'tis left to the Composer's Fancy to manage them as he thinks fit; but the general Rule is, that the Parts for either of these *Voices* be so disposed, as that the Notes may not rise or fall far above or below the Staff of five Lines, which are destined for each Cleff. But this only regards the vocal Parts, for in instrumental Musick they exceed even the four Octaves, and are obliged to those five Lines to add three or four others, as well above as below, and thereby the Compass of the Piece may rise to near five Octaves, and this is at present practised without any scruple.

Note, That *Aristoxenes* makes a Difference in the Motions of the *Voice*, and says it has two Species of Motion, continual, and divided into Intervals. The *continual*, is, when it keeps the same Degree of Tune, and appears to the Ear as neither rising nor falling (as in reading the Mono-tone,) *Vocis—duæ quædam sunt motûs species continua scilicet, & intervallis disjuncta*; forcing no determinate Differences of Gravity and Acuteness, but continuing the same from Beginning to End. The Species of Motion divided into Intervals, is quite the contrary, and has many Changes in Point of Tune, at one Time high or shrill, at another grave or deep, be it in what Proportion soever, passing from one Degree of Gravity or Acuteness to another, still changing as it proceeds. When the *Voice* moves in such a Manner as not to seem to satisfy the Ear, 'tis called continual, *Cum vox ita movetur, ut nullibi consistere auditui videatur, continuum dicimus huncce motum*, when on the other Hand it proceeds by Intervals, its Motion is said to be gradual, be the intermediate Degrees large or small, it still moves from one Degree to another, and fixes some particular Tune in the Mind; whereas the continual Sound, when once finished leaves no Impression. And this gradual Motion may again be distinguished into two Kinds, which *Aristoxenes* and others call *intensio* and *remissio*; *intensio vocis* is the rising it by Degrees, in whatever Ratio's, from a grave to a more acute Sound, as *remissio* is the contrary.

A Song or Composition, to be performed with two *Voices*, or in two Parts only, one sung, the other played on an Instrument, is called a *Duo*; and likewise when two *Voices* sing different Parts, accompanied with a Third which is a thorough Bass. Unisons and Octaves are rarely used in *Duo's* except at the Beginning and the End.

A Piece of Musick to be performed by three *Voices*, or more properly a Composition consisting of three Parts only, is called *Trio*, which is the finest Kind of Composition, and ought to be the most regular of all.

For it is to be observed, 1. That besides the general Rules of Counterpoints, which forbid that two Octaves or two Fifths follow one another, either to the Bass, or among the other Parts, in *Trios* the third must be heard in every Time of the Measure, either with the Bass, or between the other two superior Parts, *i. e.* that one of the Parts make a Third with the Bass, and the other a Fifth or Octave.

2. That sometimes the Sixth, accompanied with the Octave or Fourth, may be used instead of the Third, because then the upper Parts make a Third among themselves.

3. There-

3. Therefore that the Fifth and Octave are very seldom to be used, because there will then be no Third to the Bass, or between the Parts.

4. That all Discords may be used in *Trios*, the Ninth must be accompanied with the Third and Fifth, as also very well with the Seventh and redundant Fifth, provided an Octave follows.

5. That the Second must be accompanied by the fourth, and followed by the third. The fourth by the fifth or sixth, if it be syncoped, and followed by the third; if not, by the second, and followed by the fifth, just or false, as the Course of the Song or Harmony requires.

6. That the *Tritone* must be accompanied by the sixth or second, and followed by the sixth, but seldom by the Octave; the false Fifth must be accompanied by the Third, or by a Sixth, and followed by a Third.

7. That the seventh Major or Minor, if syncoped, must be accompanied by the third, fifth, or ninth; seldom or ever by the Octave.

8. That the superfluous Fifth must be accompanied by the third, *&c.*

9. That the seventh Major may be accompanied by the Second or Sixth, and sometimes by a Fourth, if the Bass holds on a Note.

Next to vocal Musick is that called *instrumental*, and which is made on Purpose to be played on Instruments; which are Machines invented and disposed by Art in such a Manner, as to imitate the human Voice, or supply its Place.

There are many Kinds of Instruments, which are ordinarily reduced into three Classes or Orders.

The first Class was called by the Greeks *enchorda* or *entata*; which are Instruments with Chords, and to be play'd on with the Fingers, as the *Lute*, *Harp*, *Theorbo*, *Guittar*, and others; or by a Bow, as *Violins*, *Bass Viols*, Trumpets Marine, *&c.* or by means of Jacks armed with Quills-Ends, as Spinets, Harpsichords, *&c.*

The second Kind, *emphysoomena*, *pneumatica*, or *empneousta*, made to sound by the Wind, and that either natural from the Mouth, as *Flutes*, *Trumpets*, *French-horns*, *Hautboys*, *Bassoons*, *Serpents*, *Sackbuts*, *Horns*, &c. or artificial by means of Bellows, as the *Bagpipe*, and that which by way of Excellence was called the *Organ*, by the *Italians* called *stromenai da fitto*.

The last the *Greeks* called *Knovusta*, the Latins *pulsatilia*, and we *Instruments of Percussion*, because made to sound by beating them either with the Hand, as *Drums*, *Tabours*, *Tymbals*, &c. or with a little Stick, or small Iron Rod, as *Psaltery* and *Symbal*; or by a Feather, as the *Cystrum*, and *Dulcimer*; or by striking them with Hammers, as *Bells*, &c.

From this general Description of Instruments, I'll enter into a more particular one, and examine apart every one of the *Instruments* contained in each Class; beginning by the first Class, and in that Class by the *Lute*.

The LUTE, from the Arabick *allaud*, is a musical Instrument of the String-kind, which had antiently but five Rows of Strings; though in Course of Time, four, five, or six more have been added. It consists of four principal Parts; the Table, the Body or Belly, which has nine or ten Sides; the Neck which has nine or ten Stops or Divisions marked with Strings; and the Head or Cross, wherein are Screws, for raising or lowering the Strings to the proper Tune. In the Middle of the Table is a Rose or Passage for the Sound: There is also a Bridge that the Strings are fastened to, and a Piece of Ivory between the Head and the Neck, to which the other Extremities of the Strings are fitted. In playing the Strings are struck with the right Hand, and with the Left the Stops are pressed.

We call *Temperament of the Lute*, the Alteration requisite to be made in the Intervals, both with regard to Concords and Discords, in order to render them more just on that Instrument.

The *Lutes* of *Bologna* are esteemed the best, on account of the Wood, which is said to have an uncommon Disposition for producing a sweet Sound. Formerly the *Lute* was more in Vogue than it is at present, and few Persons care to learn to play on it.

The THEORBO, from the French *Teorbe* or *Theorbe*, is a musical Instrument made in Form of a large Lute, except that it has two Necks or Juga, the second and longer whereof sustains the four last Rows of Chords, which are to give the deepest Sound.

The *Theorbo* is an Instrument, which for these last sixty or seventy Years, has succeeded to the Lute, in the playing of thorough Basses: It was invented in *France* by *Hotteman*, and thence introduced into *Italy*, &c.

The only Difference between the *Theorbo* and the Lute is, that the former has eight bass or thick Strings, twice as long as those of the Lute; which Excess of Length renders their Sound so exceeding soft, and keeps it up so long a Time, that it is no Wonder many prefer it to the Harpsichord itself: At least it has this Advantage, that it is easily removed from Place to Place, *&c.*

All its Strings are usually single, though there are some who double the Bass-strings, with a little Octave, or the small Strings with an Unison; in which Case bearing more Resemblance to the Lute than the common *Theorbo*, the *Italians* call it the *Arcileuto* or *Archlute*. The *Theorbo* is also much out of Use; the Bassoon supplying well its Place, and with much more Agreement; for my Part I had never any Taste for that Instrument, or could discover any great Beauty in it, tho' I have often heard the greatest Master in *France* play on it, which is done by the Fingers. This Instrument seems to me to have been contrived for Ladies, because they can play on it, to accompany their Voice while they sing, without much Fatigue, which is the Reason that some Ladies in *France* prefer it to the Bass-Viol, and learn to play upon it.

The GUITARRA, has five double Rows of Strings, of which those that are Bass are in the Middle, unless it be one for the Burthen, an Octave lower than the Fourth.

This Instrument was first used in *Spain*, and by *Italians* it has the particular Denomination of *Spagnuolo* given it. Formerly the *Spaniards* used to serenade their *Dulcineas* with it, but at present the *Guitarra* is almost as much out of Use there as in all the other Parts of *Europe*.

The HARP, is a musical Instrument, of a triangular Figure, and placed an End between the Legs, to be played on.

There is some Diversity in the Structure of *Harps*, that called the *Triple Harp* has seventy-eight Strings or Chords which make four Octaves; the first Row is for Semitones, and the third is Unison with the first. There are two Rows of Pins or Screws on the right Side, serving to keep the Strings tight in their Holes, which are fastened at the other End to three Rows of Pins on the upper Side.

This Instrument is struck with the Fingers and Thumbs of both Hands, its Musick is like that of the Spinet; all its Strings go from Semitone to Semitone; whence some called it the inverted Spinet. It is capable of a greater Degree of Perfection than the Lute.

King *David* is usually painted with a *Harp* in his Hands; but we have no Testimony in all Antiquity that the *Hebrew* Harp, which they called *Chinnor*, was any thing like ours. On a *Hebrew* Medal of *Simon Maccabæus* we see two Sorts of musical Instruments, they are both of them very different from our *Harp*, having only three or four Strings.

Papias and *Du Cange* after him, will have the *Harp* to have its Name from the *Arpi*, a People in *Italy*, who were the first that invented it, and from whom it was borrowed by other Nations.

All Authors agree that it was very different from the *Lyra*, *Cytharæ*, or *Barbiton*, used among the *Romans*.

Fortunatus, *lib.* 7. *carm.* 8. witnesses that it was an Instrument of the *Barbarians*.

Romanisque Lyra, plaudet tibi Barbarus harpâ,
Græcus Achilliaca, crotta Britannia canat.

Menage, &c. derives the Word from the Latin *harpa*, and that from the German *harp* or *harpff*. Others bring it from the Latin *carpo*, because touch'd or thrum'd with the Finger. Dr. *Hicks* derives it from *harpo* or *hearpa*, which signify the same Thing; the first in the Language of the *Cymbri*, the second in that of the *Anglo Saxons*.

The

The second Sort of Instruments of this first Class, are those made to sound with a Bow, as the *Violin*, *Viol*, *Trumpet Marine*, &c.

The VIOLIN, VIOLINO, *Fiddle*, is a musical Instrument, mounted with four Strings or Guts; and struck or played with a Bow. The *Violin* consists, like most other Instruments, of three Parts, the *Neck*, the *Table*, and the *Sound Board*.

At the Sides are two Apertures, and sometimes a Third towards the Top, shaped like a Heart.

Its Bridge, which is below the Apertures, bears up the Strings, which are fastened to the two Extremes of the Instrument; at one of them by a Screw, which stretches or loosens them at Pleasure.

The Style and Sound of the *Violin*, is the gayest and most sprightly of all other Instruments; and hence it is of all others, the fittest for Dancing; yet there are Ways of touching it, which render it grave, soft, languishing, and fit for Church or Chamber *Musick*.

It generally makes the *Treble*, or highest Parts in Concerts. Its Harmony is from fifth to fifth. Its Play is composed of Bass, Counter-Tenor, Tenor, and Treble; to which may be added, a fifth Part: Each Part has four Fifths, which rise to a greater Seventeenth.

In Compositions of *Musick*, Violin is expressed by V, V V denote two *Violins*.

The Word *Violin* alone, stands for *treble Violin*; when the *Italians* prefix *alto*, *tenore*, or *basso*, it then expresses the Counter-Tenor, Tenor, or Bass-Violin.

In Compositions where there are two, three, or more different *Violins*, they make use of *primo*, *secundo*, *terzo*, or of the Characters I. II. III. or 1. 2. 3, *&c.* to denote the Difference.

The *Violin* has only four Strings, each of a different Thickness, the smallest whereof makes the E *la mi* of the highest Octave of the Organ; the second a fifth below the first, makes the A *mi la*; the third a fifth below the second, is D *la re*; lastly, the fourth a fifth below the third, is G *re sol*.

The *largest* or *fourth String*, has four Notes belonging to it, *viz.* G *re sol*, or G, which is to be played open; A *la mi re*, or A must be stopped with the Fore-Finger of the left Hand, almost at the Distance of an Inch from the Nut; B *fa be mi*, or B, with the second Finger about half an Inch from the first, and C *sol fa ut*, with the third Finger close to the Second.

The *third* has also four Notes, D *la sol re* is struck open; E *la mi* must be stopped with the Fore-Finger about an Inch from the Nut; F *ut fa*, with the second Finger close to the first; and G *re sol ut* (on which Note the Cleff is commonly marked) with the third Finger about three Quarters of an Inch from the second.

The *second String* has four Notes, A *la mi re*, or A is the open String; B *fa be mi*, or B, is with the Fore-Finger, about an Inch from the Nut; C *sol fa ut*, is the second Finger close to the first; and D *la sol re*, or D, is the third Finger about three Quarters of an Inch from the second.

The *least* or *treble String*, has usually six Notes, E *la mi*, open; F *fa ut*, or F, the Fore-Finger very near the Nut; G *sol re ut*, or G, the second about three Quarters of an Inch from the first; A *la mi re*, or A, with the third Finger at the same Distance from the second; B *fa be mi*, with the little Finger half an Inch from the third; and lastly C *fa ut*, you must stretch the little Finger about a Quarter of an Inch further, than for B *fa be mi*. But here it must be observed, that all the Notes on the Treble String, except E *la* or E, are term'd *in alt* for Distinction's Sake.

Most Nations ordinarily use the Cleff G *re sol* on the second Line, to note the *Musick* for the *Violin*, only in *France* we use the same Cleff at the first Line at Bottom: The first Method is best, where the Song goes very low, and the second where it goes very high.

The VIOLONCELLO of the *Italians*, is properly our fifth *Violin*, which is a little Bass *Violin*, half the Size of the common Bass *Violin*, and the Strings bigger and longer, in Proportion; and consequently its Sound an Octave lower than that of our Bass *Violin*, which has a noble Effect in great Concerto's.

The VIOL, *Viola*, is a musical Instrument of the same Form with the *Violin*; and struck like that with a Bow.

There are *Viols* of divers Kinds. The first and principal among us, is the Bass *Viol*, called by the *Italians*, *Viola de gamba*, or the *Leg-Viol*, because held between the Legs. It is the largest of all, and is mounted with six Strings. Its Neck is divided in half Notes, by seven Frets fixed thereon. Its Sound is very deep, soft and agreeable. The Tablature or *Musick* for the Bass *Viol* is laid down on six Lines or Rules.

What the *Italians* call *Alto Viola*, is the Counter-Tenor of this, and their *Tenore Viola* the Tenor. They sometimes call it simply the *Viol*: Some Authors will have it the *Lyra*, others the *Cithara*, others the *Chelys*, and others the *Testudo* of the Antients.

2. The *Love-Viol*, *Viola d'amore*, which is a Kind of *Triple Viol*, or Violin; having six Brass or Steel Strings, like those of the Harpsichord. It yields a Kind of Silver Sound, which has something in it very agreeable.

3. A *large Viol*, with 44 Strings, called by the *Italians*, *Viola di bardone*; but little known among us.

4. *Viola Bastarda*, or *Bastard Viol*, of the *Italians*; not used among us. *Brossard* takes it to be a Kind of Bass *Viol*, mounted with six or seven Strings, and tuned as the common one.

5. What the *Italians* call *Viola de Braccio*, *Arm-Viol*, or simply *Braccio*, *Arm*; is an Instrument answering to our Counter-Tenor, Treble, and fifth Violin.

6. Their *Viola prima*, or *first Viol*, is really our Counter-Tenor Violin; at least they commonly use the Cleff of C *sol ut* on the first Line, to denote the Piece intended for this Instrument.

7. *Viola Secunda*, is much the same with our Tenor Violin; having the Cleff of C *sol ut*, on the second Line.

8. *Viola Terza* is nearly our fifth Violin; the Cleff C *sol ut*, on the third Line.

9. *Viola Quarta*, or *fourth Viol*, is not known in *France*, or *England*: Though we frequently find it mentioned in the *Italians* Compositions; the Cleff on the fourth Line.

Lastly, their *Violetta*, or little *Viol*, is in Reality our *triple Viol*; though Strangers frequently confound the Term, with what we have said of the *Viola prima*, *secunda*, *terza*, &c.

The TRUMPET *Marine*, is a musical Instrument, consisting of three Tables, which form its triangular Body. It has a very long Neck with one single String, very thick, mounted on a Bridge, which is firm on one Side, but tremulous on the other. It is struck by a Bow with one Hand, and with the other the String is pressed or stopped on the Neck by the Thumb.

It is the Trembling of the Bridge, when struck, that makes it imitate the Sound of a Trumpet; which it does to that Perfection, that it is scarce possible to distinguish the one from the other. And this is what has given it the Denomination of *Trumpet Marine*, tho' in Propriety it be a Kind of Monochord.

The *Trumpet Marine* has the same Defects with the *Trumpet*, viz. that it performs none but Trumpet Notes, and some of those either too flat, or too sharp. The Reason Mr. *Roberts* accounts for, only premising that common Observation of two unison Strings, that if one be struck the other will move; the Impulses made on the Air by one String, setting another in Motion, which lies in a Disposition to have its Vibrations synchronous to them: To which it may be added, that a String will move, not only at the striking of an Unison, but also at that of an eighth or twelfth, there being no Contrariety in the Motions to hinder each other.

Now in the *Trumpet Marine*, you do not stop close, as in other Instruments, but touch the String gently with your Thumb, whereby there is a mutual Concurrence of the upper and lower Part of the String to produce the Sound. — Hence it is concluded, that the *Trumpet Marine* yields no musical Sound, but when the Stop makes the upper Part of the String an aliquot Part of the Remainder, and consequently of the whole; otherwise the Vibrations of the Parts will stop one another, and make a Sound suitable to their Motion, altogether confused. Now these aliquot Parts, he shews, are the very Stops which produce the *Trumpet* Notes.

The *Trumpet Marine*, is very much disregarded at present, if not quite out of Use; and the Sound thereof

in my Opinion, quite as disagreeable as its Shape.

The third Kind of *Instruments* of the first Class, are those made to sound by Means of Jacks, armed with Quills Ends, as *Harpsichords*, *Spinnets*, &c.

The HARPSICHORD is a musical Instrument of the String Kind, played on after the Manner of the Organ. The *Italians* call it *Clave Cymbala*, the *French*, *Claueſſin*, and the *Latins*, *Grave Cymbalum*, q. d. a large deep *Cymbal*.

The *Harpsichord* is furnished with a Set, and sometimes two Sets of Keys. The touching or striking these Keys, move a Kind of little Jacks, which move a double Row of Chords, or Strings of Brass or Iron stretched on the Table of the Instrument over four Bridges.

As this Instrument is the most harmonious of all the String Kind, we shall enter into a more particular Detail thereof, as well with Regard to its Composition, as to the Uses it is contrived for.

The first Thing to be done to learn to play on this, as well as any other Instrument, is to learn the Gamut or Scale of *Musick*, by Rote; with the Names of the Notes, and their Places among the five Lines. In order to which, know that all the Lessons designed for this Instrument, are pricked on two Staves, each containing five Lines, the upper one of which Staves contains the Treble, and has the upper Cleff set at the Beginning of it: And the lower Line or Stave, has the Bass Cleff marked also at the Beginning.

To understand well all the Notes of the *Harpsichord*, and what Keys to touch in order to sound them, it must be observed, that the four Notes above the treble Stave, are called *in alt*; and those below the Bass Stave are called *double*; these Notes are helped by additional Lines, which are also called *Ledger-Lines*.

Note, That *Ledger-Line* is that which when the ascending and descending Notes run very high, or very low, is added to the Staff of five Lines; there are sometimes many of these Lines both above and below the Staff, to the Number of four or five.

Besides the two Cleffs abovementioned, there is also another, called the *Tenor-Cleff*, which is used when the Bass goes high, to avoid *Ledger-Lines*: This Cleff is generally placed on any of the four lower Lines, and sometimes on the fifth, and is always the Middle C *fa ut*, of the Instrument.

It must also be observed, that in the Gamut there are 29 white Keys (which is the Number contained in many Harpsichords, except those made here of late Years; to which they add, both above and below, sometimes to the Number of 37) there are also 20 black Keys, somewhat shorter than the white ones, which are placed between them, and serve for Flats and Sharps, ♭ ♭ and ♯ ♯.

If any Note therefore has a Sharp before it, the inward or short Key above it, must be touched; and if there be a Flat before it, the inward Key below it; and so on with all the inward Keys, which are Flats to the plain Keys above them, and Sharps to those below them. Between B and C, and between E and F, there are no inward Keys as there are between the others, by Reason they have an Interval but of a Semi-Tone between them.

As to the Notes and Characters in *Musick*, there are first the Notes called the *Semi-breve*, *Minim*, *Crotchet*, *Quaver*, *Semi-Quaver*, and *Demi-Semi-Quaver*. Next are the Characters which are of sharp, flat, and natural.

Next are the Rests or Pauses, being those used to denote Silence, and are of different Lengths; as the *Semi breve-Rest*, *Minim-Rest*, *Crotchet-Rest*, *Quaver-Rest*, *Semi-Quaver-Rest*, and *Demi-Semi-Quaver*.

There are yet other Characters used in *Musick*, such as direct, which are usually set at the End of a Stave, to direct to the Place of the next Stave; as W W W.

There are also two Sorts of Bars, *viz.* single and double; the first serves to divide the Time according to its Measure, whether common, or Triple; the double Bars are set to divide the Strains of Songs or Tunes; thus

A Repeat which is thus *:S:* is used to signify that such a Part of a Tune must be played over again; from the Note it is placed over. It is also marked thus :||:

Common Chords are to be played on any Note, wherein no Figure is put, except when you play in a sharp Key; the 3d and 7th above the Key, then naturally require a 6th; but if you play in a flat Key, then a 6th is required to the 2d and 7th above the Key, unless otherwise marked.

All Keys are either flat or sharp, not by what Flats or Sharps are set at the Beginning of the Tune, but by the Third above the Key. A ♭ set over any Note, shews that it is to have a flat Third; and a ♯ a sharp one, if there be no Figure with it.

The SPINET is a musical Instrument, ranked in the second or third Place among harmonious Instruments. It consists of a Chest or Belly, made of the most porous or resinous Wood, and a Table of Fir fastened on Rods, called the Sound-Board, which bears on the Sides; on the Table are raised two little Prominences or Bridges; whereon are placed so many Pins as there are Chords to the Instrument.

This Instrument is played by two Ranges of continued Keys; the foremost Range being the Order of the Diatonick Scale, and that behind, the Order of the artificial Notes or Semi-Tones.

The Keys are so many long flat Pieces of Wood, which touched and pressed down at the End, make the other raise Jacks, which strike the Strings and cause the Sounds, by Means of the End of a Crow's Quill, wherewith 'tis armed. The thirty first Strings are of Brass, the other more delicate ones of Steel or Iron-wire, which are stretched over the Bridges above-mentioned. Tho' many of these Instruments have either all their Strings of Brass, or all of Steel Wire, and have sometimes two or three Jacks to each String, instead of one; upon which the Makers add a little Stop, to take away one or two of the three at Pleasure, by which Means the Sound, when struck with one Jack only, seems, in some Measure, to eccho to that struck with the whole Number.

The Figure of the *Spinet* is a long Square, or Parallelogram; some call it the Harp couched; and the Harp an inverted *Spinet*.

The *Spinet* is generally tuned by the Ear, which Method of the practical Musicians is founded on a Supposition, that the Ear is a perfect Judge of the Octave and Fifth. The general Rule is to begin at a certain Note as C taken towards the Middle of the Instrument, and tuning all the Octaves up and down, and also the Fifths, reckoning seven Semi-Tones to each Fifth, by which Means the whole is tuned.

Sometimes to the common Fundamental play'd on the *Spinet*, is added another similar one in Unison, and a third Octave to the first, to make the Harmony the fuller. They are either played separately or together, by Means of a Stop; and are called double or triple *Spinets*. Sometimes a Play of Violins is added by Means of a Bow, or a few Wheels parallel to the Keys, which press the Strings, and make the Sound last as long as the Musician pleases; and heighten and soften them more or less, as they are more or less pressed.

There have been of late Years *Spinets* made, whose backward Range of Keys are divided, each Part of which has a different Sound; as there is one Key between F and G, which serves as F Sharp and G Flat; now this Key being divided, that Part of it next the Player sounds G Flat, and the other next the Body of the Instrument F Sharp, and so of the others. Again, as we often use C *b* quarre, for B sharp, in these *Spinets* there is a Key placed between B natural and C, which serves as B Sharp, but those Instruments having some Difficulties attending them, were laid aside.

This Instrument takes its Name from the little Quills wherewith the Strings are struck, which are supposed to resemble Thorns, which in *Latin* are called *Spinæ*.

The greatest Masters of the *Harpsichord* and *Spinet*, here in *England*, are in my Opinion, Mr. *Burgess*, who plays in the Orchestra of *Drury-Lane* Theatre; and the learned Mr. *Lampe*; and if I even say, that they have both a Hand, which can scarce be

 excelled,

excelled, I don't believe that I say too much. I have heard the best Masters in *France*, but I have heard none that pleased my Ear better, not even the famous *Aprin* himself.

In the *second Class* of Instruments, are those which are made to sound by the Wind, and that either natural from the Mouth, as *Flutes*, *Trumpets*, *Hautboys*, *Bassoons*, *Serpents*, *Sackbuts*, *Horns*, &c. or artificial by means of Bellows, as the *Bagpipe*, and that which by way of Excellence is called the *Organ*.

The FLUTE, is an Instrument of Musick, the simplest of all those of the Wind Kind. It is played on by blowing in it with the Mouth, and the Tones or Notes are changed by stopping and opening the Holes, disposed for that Purpose along its Side.

There are two Sorts of *Flutes*, viz. the *common Flute*, called also *Flute a bec*, and the *German Flute*, or *Flute traversiere*.

The *Latins* call *Flute*, *fistula* or *tibia*, a *Pipe*; from the former of which some derive the Word *Flute*; tho' *Berel* will have it derived from *flutta* a *Lamprey*, thus called a *fluitando in fluviis*, in regard, the *Flute* is long like a *Lamprey*, and has Holes along it like that Fish.

The antient *Fistulæ* or *Flutes*, were made of Reeds, afterwards of Wood, and at last of Metal, but how they were blown, whether as our *Flutes*, or as Hautboys, does not appear.

It is plain some had Holes, which at first were but few, but afterwards increased to a great Number; and some had none; some were single Pipes, and some a Combination of many, particularly *Pans Syringa*, which consisted of seven Reeds bound together Sideways; they had no Holes along them, each giving a distinct Sound, in all seven different Sounds, but at what Intervals is not known; perhaps they were the Notes of the diatonick Scale.

The GERMAN FLUTE, or *Flute Traversiere*, is an Instrument entirely different from the common *Flute*, it is not like that put into the Mouth to be played, but the End is stopp'd with a Tampion or Plug, and the lower Lip is applied to a Hole about two Inches and a Half, or three Inches distant from the End, and about half an Inch distant from the Hole. It is usually a Foot and a Half long, rather bigger at the upper End than at the lower, and perforated with Holes, besides that for the Mouth, the lowest of which is stopp'd, and opened by the little Finger's pressing on a Brass, or sometimes a Silver Key, like those on Hautboys, Bassoons, &c. Its Sound is exceeding sweet and agreeable, and it serves as a Treble in a Concert.

The Bass is double or quadruple its Length and Bigness, but that Instrument is partly disused, or converted into Bassoons.

The TRUMPET, from the Italian *Tromba*, or *Trombetta*, is a musical Instrument, the loudest of all portable ones of the Wind-kind, used chiefly in War among the Cavalry, to direct them in the Service. It is usually made of Brass, often of Silver, sometimes of Iron or Tin, and rarely even of Wood.

Moses, we read, made two of Silver, to be used by the Priests, *Numbers* x. and *Solomon* made two hundred like those of *Moses*, as we are informed by *Josephus*, *lib.* 8. which plainly shews the Antiquity of the Instrument.

The Antients had various Instruments of the Trumpet Kind, as *Tuba*, *Cornua*, and *Bittut*.

The modern *Trumpet* consists of a Mouth-piece, near an Inch across, though the Bottom thereof be only a third Part so much: The Pieces which convey the Wind are called the Branches; the Places where 'tis bent, the Potences; and the Canal between the second Bend and the Extremity, the Pavilion; the Places where the Branches take asunder, or are soldered together, the Knots, which are five in Number, and cover the Joints. When the Sound of this Instrument is well managed 'tis of great Compass; indeed its Extent is not strictly determinable, since it reaches as high as the Strength of the Breath can force it. A good Breath will carry it beyond four Octaves, which is the usual Limit of the Keys of the Spinet and Organ.

In War there are eight principal Manners of sounding the *Trumpet*; the first called the *Cavalquet*, used when an Army approaches a City, or passes through it in a March. The second the *Boute-selle*, used when the Army is to decamp or march. The third is when they sound to Horse, and then to the Standard. The fourth is the *Charge*. The fifth the *Watch*. The sixth is called the *double Cavalquet*. The seventh the *Chamade*. And the eighth the *Retreat*, besides various Flourishes, Voluntaries, &c. used in Rejoycings.

There are also People who blow the *Trumpet* so softly, and draw so delicate a Sound from it, that it is used not only in Church Musick, but even in Chamber Musick; and it is on this Account that in the *Italian* and *German* Musick we frequently find Parts entitled *Tromba prima*, or I^a, *first Trumpet*, *Tromba* II^a, *Seconda*, III^a, *Terza*, second third *Trumpet*, &c. as being intended to be play'd with *Trumpets*.

There are two notable Defects in the *Trumpet*, observed by Mr. *Roberts* in the *Philosophical Transactions*. The first is, that it will only perform certain Notes within its Compass, commonly called *Trumpet Notes*; the second, that four of the Notes it does perform, are not in exact Tune.

The HAUTBOY, or *Hoboy*, is a Sort of musical Instrument of the Wind Kind, with a Reed to blow or play withal.

The *Hautboy*, is shaped much like the Flute, only that it spreads or widens towards the Bottom. The Treble is two Feet long, the Tenor goes a Fifth lower when blown open: It has only eight Holes; the Bass is five Feet long, and has eleven Holes. It is play'd on much after the Manner of the Flute, only it is sounded thro' a Reed.

This Instrument is thus held: Place the Left-Hand uppermost next your Mouth, and the Right-Hand below; and the contrary with left-handed People; and there are eight Holes on this Instrument, two of which are under Brass Keys, nevertheless seven Fingers will be sufficient to supply them; as for Example,

Let the Fore-finger of the Left-Hand cover the first Hole, the second on the second Hole, and the third on the next Hole, which is a double one. In like Manner the fore-finger of the Right-Hand must stop the next Hole, which is also a double one, then place the second of the same Hand on the next Hole, then the third Finger on the lowest Hole in View, and the little Finger will command the two Brass Keys to open one Hole, or shut the other, which is always open; the double Holes serve for Semitones.

Thus all the Holes of the Pipe being stopped, blow somewhat strong, and it will sound distinctly the Note C *fa ut*, which is the lowest Note on the *Hautboy*.

The BASSOON, is a musical Instrument of the Wind Kind, serving as a Bass in Concerts of Wind Musick, as of Flutes, Hautboys, &c. to make it portable. It is divided into two Parts; its Diameter at Bottom was formerly nine Inches, at present 'tis but four at most, and its Holes are stopped with Keys, &c. like large Flutes. The best *Bassoon* I ever heard was one *Le Breton*, Bassoon of our Lady at *Paris*, who invented a Counter-tenor to the *Bassoon*. The next to him is a Bassoon in the Guards of his *Britannick* Majesty; and next to him one *De Ricourt* a *Frenchman*, who is Bassoon at the Theatre in *Drury-Lane*, who is also one of the best Hautboys in *Europe*, and plays extremely well on the *German* Flute.

The SERPENT, is a musical Instrument, serving as a Bass to the Cornet, or small Shawm, to sustain a Chorus of Singers in a large Edifice.

It has its Name *Serpent* from its Figure; as consisting of several Folds or Wreaths, which serve to reduce its Length, which would otherwise be six or seven Feet.

It is usually covered with Leather, and consists of three Parts, a Mouth-piece, a Neck, and a Tail, it has six Holes, by means whereof it takes in the Compass of two Octaves. This Instrument is commonly used in Cathedral Churches, especially for the *Fair Bourdon*, which is a simple Musick of Note against Note, on which Psalms and Canticks of the divine Office are often sung.

The SACKBUT, is a musical Instrument of the Wind Kind, being a Kind of a Trumpet, though different from the common Trumpet, both in Form and Sound.

The *Sackbut* is very fit for playing Bass, and is [illegible]

rived so as to be drawn out or shortned, according to the Gravity or Acuteness of the Tones. The *Italians* call it *Tranbone*, the Latins *Tuba ductilis*.

It takes asunder into four Pieces, or Branches, and has frequently a Wreath in the Middle; which is the same Tube, only twisted twice, or making two Circles in the Middle of the Instrument; by which Means it is brought down one Fourth lower than its natural Tone. It has also two Pieces or Branches on the Inside, which do not appear, except when drawn out by means of an Iron Bar, and which lengthens it to the Degree requisite to hit the Tone required.

The *Sackbut* is usually eight Feet long, without being drawn out, or without reckoning the Circles: When extended to its full Length, it is usually fifteen Feet, the Wreath is two Feet nine Inches in Circumference: It serves as Bass in all Concerts of Wind Musick.

There are *Sackbuts* of different Sizes, serving to execute different Parts, particularly a small one, called by the Italians, *Trambone picciolo*, and by the Germans, *Cleine alt-posaune*, proper for a Counter-tenor. The Part assigned to it is usually called *Trombone primo*, or I°. there is another larger, called *Trombone maggiore*, which may serve as a Tenor; its Part is usually called *Trombone secondo*, or II°. or 2°. There is a third still bigger, called *Trombone grosso*; it is called *Trombone terzo*, or III°. or 3°. Lastly, there is another which exceeds all the rest, and which is much heard in the Musick, especially in the Bass; its Part is called *Trombone quarto*, or IV°. or 4°. or simply *trombone*; it has usually the Key of F *ut fa*, on the fourth Line; though frequently also on the fifth Line from the Top, by reason of the Gravity or Depth of the Sounds.

The Horn, is a Sort of musical Instrument of the Wind Kind chiefly used in Hunting, to animate the Hunters and the Dogs, and to call the latter together. The *Horn* may have all the Extent of the Trumpet.

The Term was antiently *to wind a Horn*, all Horns being in those Times compassed; but since strait *Horns* are come into Fashion, they say *blow a Horn*, or *sound a Horn*.

There are various Lessons for the *Horn*, as the *Recheat*, double *Recheat*, royal *Recheat*, a running or farewel *Recheat*, &c.

The *Hebrews* made use of Horns formed of Ram's Horns, to proclaim the Jubilee, whence the Name of *Jubilee*.

The French Horn, called in *France*, *Corne de chasse*, is bent into a Circle, and goes two or three Times round, growing gradually bigger and wider towards the End, which in some *Horns* is nine or ten Inches over.

To play on it, the first Thing is to consider the Thickness or Thinness of the Lips, and provide a Mouth-piece accordingly; if they are thick, a pretty broad Mouth-piece is required, but if thin, the Piece must be something smaller. Some Musicians have brought the *French Horn* to that Perfection, and sound it so sweetly, that of late Years it has been introduced into the Orchestra, among the other Instruments.

The last Kind of Instruments of the second Class, which are those made to sound by means of Bellows, are the Bagpipe and the Organ.

The Bagpipe, is a musical Instrument of the Wind Kind, chiefly used in Country Places. It consists of two Parts; the first is a Leather Bag, which is blown like a Foot-ball by means of a Provent, or little Tube fixed to it, and stopped by a Valve. The other Part consists of three Pipes or Flutes, the first is called the great Pipe or Drone, the second the little one, which passes the Wind out only at Bottom, and the third as a Tongue, and is played by compressing the Bag when full, under the Arm, and opening and stopping the Holes, which are eight, with the Fingers. The little Pipe is ordinarily a Foot long, that played on, thirteen Inches, and the Provent six. This Instrument takes in the Compass of three Octaves.

The Organ, is the largest and most harmonious of all Wind-Instruments, chiefly used for playing a thorough Bass, with all its Accompaniments.

The *Organ* is an Assemblage of several Rows of Pipes; its Size is usually expressed by the Length of its largest Pipe: Thus we say an *Organ* of 32 Feet, of 16 Feet, of 8 Feet, and of 2 Feet.

Church-Organs consist of two Parts, *viz.* the main Body of the *Organ*, called the *great Organ*; and the *positive* or *little Organ*, which is a small Buffet, usually placed before the great *Organ*.

The *Organ* has at least one Set of Keys, when it has only one Body, and two or three when it has a *positive*. The large *Organs* have four, sometimes five Sets; besides, the Pedals or largest Pipes have their Keys, the Stops or Touches whereof are played by the Feet.

The Keys of an *Organ* are usually divided into four Octaves, *viz.* the second Sub-octave, first Sub-octave, middle Octave, and first Octave. Each Octave is divided into twelve Stops or Frets, whereof the seven black mark the natural Sounds, and the five white the artificial Sounds, *i. e.* the Flats and Sharps; so that the Keys usually contain 48 Stops or Touches. Some Organists add to this Number one or more Stops in the third Sub-octave, as well as in the second. The Pedals extend to two or three Octaves, at the Pleasure of the Organist, so that the Number of Stops is undeterminate.

Each Key or Stop pressed down opens a Valve or Plug, which corresponds Lengthwise to as many Holes as there are Rows of Pipes in the Sound-boards. The Holes of each Row are opened, and shut by a Register or Ruler pierced with 48 Holes: By drawing the Register, the Holes of one Row are opened, because the Holes of the Register correspond to those of the Sound-board: So that by opening a Valve, the Wind brought into the Sound-board by a large Pair of Bellows, finds a Passage into the Pipe, which corresponds to the open Holes of the Sound-board; but by pushing the Register, the 48 Holes of the Register not answering to any of those of the Sound-board, that Row of Pipes answering to the pushed Register, are shut. Whence it follows, that by drawing several Registers, several Rows of Pipes are opened; and the same Thing happens, if the same Register corresponds to several Rows. Hence the Rows of Pipes become either simple or compound; *simple*, when only one Row answers to one Register; *compound*, where several. The Organists say, a Row is compound, when several Pipes play upon the pressing one Stop.

The Pipes of the *Organ* are of two Kinds, the one with Mouths like our Flutes, and the other with Reeds: The first called Pipes of Mutation, consists,

1. Of a Foot, A A B B (*fig.* 15. *tab. miscell.*) which is a hollow Cone, and which receives the Wind that is to sound the Pipe.

2. To this Foot is fastened the Body of the Pipe, B B D, between the Foot and the Body of the Pipe is a Diaphragm or Partition E E F, which has a little, long, narrow Aperture to let out the Wind. Over this Aperture is the Mouth B B C C, whose upper Lip C C, being level, cuts the Wind as it comes out at the Aperture.

The Pipes are of Pewter, Lead mixed with a twelfth Part of Tin, and of Wood; those of Tin are always open at their Extremities; their Diameter is very small, their Sound is very clear and shrill. Those of Lead mixed are larger; the shortest open, the longest quite stopped, the mean ones partly stopped, and having besides a little Ear on each Sid of the Mouth, to be drawn closer, or set further asunder, in order to raise or lower the Sound. The wooden Pipes are made square, and their Extremities stopped with a Valve or Tampion of Leather. The Sound of the wooden and leaden Pipes are very soft; the large ones stopped are usually of Wood, the small ones of Lead, the longest Pipes give the gravest Sound, and the shortest the most acute; their Length and Width are made in the reciprocal Ratio's of their Sounds, and the Divisions regulated by their Rule, which they call the Diapason: But the Pipes that are shut have the Length of those that are open, and which yield the same Sound; usually the longest Pipe is sixteen Feet, tho' in extraordinary *Organs* 'tis thirty-two; the pedal Tubes are always open, though made of Wood and of Lead.

A Reed-pipe consists of a Foot, A A B B, (*tab. miscel. fig.* 16.) which carries the Wind into the Shalot, or Reed C D, which is a hollow Demi-Cylinder, fitted at its

Extremity D, into a Kind of Mould I I, by a wooden Tampion F G. The Shalot is covered with a Plate of Copper E E F F, fitted at its Extremity F F, into the Mould by the same wooden Tampion; its other Extremity E E is at Liberty; so that the Air entring the Shalot, makes it tremble or shake against the Reed; and the longer that Part of the Tongue which is at Liberty F L, is made, the deeper is the Sound. The Mould I I which serves to fix the Shalot or Reed, the Tongue, Tampion, *&c.* serves also to stop the Foot of the Pipe, and to oblige the Wind to go out wholly at the Reed. Lastly, in the Mould is soldered the Part H H K K, called the Tube, whose inward Opening is a Continuation of that of the Reed. The Form of this Tube is different in the different Ranks of Pipes.

The Degree of Acuteness and Gravity in the Sound of a Reed-Pipe, depends on the Length of the Tongue, and the Tube; and also on the Thickness of the Tongue, the Figure of the Tube, and the Quantity of Wind.

To diversify the Sounds of the Pipes, they add a Valve to the Port-vent, which lets the Wind go in Fits or Shakes.

Note, That the Invention of the Organ is very antient, though it is agreed it was little used till the eighth Century. It seems to have been borrowed from the *Greeks*. *Vitruvius* describes one in his tenth Book: The Emperor *Julian* has an Epigram in its Praise; St. *Jerom* mentions one with twelve Pair of Bellows, which might be heard a thousand Paces, or a Mile; and another at *Jerusalem*, which might be heard to the Mount of *Olives*.

Note, also, The best Factor, or Organ-Builder in *England*, and one of the best in *Europe*, is Mr. *Abraham Jordan*, and the best Organist is the most celebrated Dr. *Green*, Master of Musick of the King's Chapel.

There have been antiently, and are still in *Italy* in the Grotto's of the Vineyards *hydraulick Organs*, which is a musical Machine that plays by means of Water.

Ctesebes of *Alexandria*, who lived in the Reign of *Ptolemy Evergetes*, is said to have first invented *Organs* that plaid by compressing the Air with Water, as is still practised. *Archimedes* and *Vitruvius* have left us Descriptions of the *hydraulick Organs*.

In the Cabinet of Queen *Christina* is a beautiful and large Medallion of *Valentinian*, on the reverse whereof is seen one of these *hydraulick Organs*, with two Men, one on the Right, the other on the Left, seeming to pump the Water which plays it, and to listen to its Sound. It has only eight Pipes placed on a round Pedestal. The Inscription is *Placca Spetri*, if it be not wrong copied, which we suspect.

The *last Class* of Instruments, we call *Instruments of Percussion*, because made to sound either with the Hand, as *Drums*, *Tabors*, *Tymbals*, &c. or with little Sticks, or small Iron Rods, as *Psaltery* and *Cymbal*; or with a Feather, as the *Systrum* and *Dulcimer*; or by striking them with Hammers, as Bells, *&c.*

The DRUM, is a military musical Instrument, of the Pulsatile Kind, used principally among the Foot, to call the Soldiers together, to direct their March, Attack, Retreat, *&c.*

The Body of the *Drum* is of very thin Oak, bent into a Cylinder, and covered with Parchment, which is strained or braced more or less, according to the Height or Depth of the Tone required, by Strings, and struck with Sticks.

There are divers Beats of the *Drum*, as the *March*, *double March*, *Assemblée*, *Charge*, *Retreat*, *Chamade*, &c.

The TYMBAL, or *Tympanum*, which among the Antients consisted of a thin Piece of Leather or Skin, stretched on a Circle of Wood or Iron, and beat with the Hand.

This may be our Kettle-Drum, as it appears to be from the *Italians* using the Word *Tympano* for a Pair of *Tymbals* of an unequal Size tuned a Fourth, the least whereof gives the acute Sound, the largest the grave one; the first is C *sol ut*, the latter G *re sol*, a Fourth lower; they serve for a Bass in a Concert, or Airs designed for Trumpets; we from hence meet with Airs marked *tymbale*, which shew that they are destined for this Instrument.

The KETTLE-DRUMS, have their Body of Brass, and are used among the Horse to be play'd on, being hung or laid a-cross the Shoulders of the Horse before the Drummer, who with a Variety of odd Gestures, beats them with two little Iron Bars with Balls at the End; their Sound is softer, and more agreeable than that of the common Drum; and they are often used in Opera's, Oratorio's, Tragedies, and Concerts.

PSALTERION, *Psaltery*, is a musical Instrument much in Use among the antient *Hebrews*, who called it *Nebel*. We know little or nothing of the precise Form of the antient *Psaltery*.

That now in Use is a flat Instrument in Form of a *Trapazium*, or Triangle truncated a-top.

It is strung with thirteen Wire-Chords set to Unison Octave, and mounted on two Bridges on the two Sides. It is struck with a Plectrum, or little Iron Rod, or sometimes with a crooked Stick, whence 'tis ranked among the Instruments of Percussion. Its Chest or Body resembles that of a Spinet. It has for its Name *Apsalendo*, some also now call it *Nablum* or *Nablium*.

The DULCIMER, is a musical Instrument, with Wire Strings, in a triangular Form, strung with about fifty Strings, cast over a Bridge at each End, and the acuter gradually the shorter, the shortest about eighteen Inches, and the longest about thirty-six, struck with little Iron Rods: The Bass Strings are doubled, and its Sound is not disagreeable: To be plaid on, 'tis laid on a Table before the Performer, who with a little Iron Rod in each Hand, strikes the Strings. This Instrument is not much used except among Puppet-Shews.

I'll say nothing of *Bells* in this Place, since it would be only a Repetition of what I have said of them in my Treatise of Clock-making under the Letter C.

Most commonly the Instruments are disposed in a Place a-part, called the *Orchestra*, particularly in Tragedies, Comedies, Operas, Oratorios, Serenata's, *&c.*

The Musick of the Instruments is most commonly called *Symphony*, and particularly that where the Composer is not confined to a certain Number, or certain Species of Measure; such as are the *Preludes*, *Phantasias*, *Ricercatas*, *Toccatas*.

PRELUDE, in *Italian Preludio*, is a Flourish or an irregular Air, which a Musician plays *off-hand*, to try if his Instrument be in Tune, and so lead him into the Piece to be play'd. Overtures of Operas are a Sort of *Preludes*; very often the whole Band in the Orchestra run a few Divisions to give the Tune. This is also called *Phantasia*, *Ricercata*, &c.

The *Symphony*, or *instrumental Musick*, makes also one of the most essential Parts in a Concert, Opera, Oratorio, Cantata, *&c.*

A CONCERT, popularly called *Consort*, is a Number or Company of Musicians playing or singing the same Piece or Song at the same Time.

The Word *Concert* may be applied where the Musick is only Melody, that is, the Performers all in Unison; but it is more properly as well as more usually understood of Harmony, or where the Musick consists of divers Parts, as Treble, Tenor, and Bass, *&c.*

A *Concert* for any Instrument, as Organ, Harpsichord, Violin, *&c.* is a Piece of Musick wherein either of these Instruments has the greatest Part, or in which the Performance is partly alone, and partly accompanied by the other Parts.

Those Parts of a Piece of Musick that sing or play throughout the whole Piece, either alone or accompanied, are distinguished from those Parts that play now and then in particular Places, by the Word *concertante*, and the grand Chorus of a *Concert*, or those Places where all the several Parts perform or play together, is called *concerto grossi*: The *Treble* of the principal concerting Parts, is called *canto concertante*; this Part generally plays and sings throughout; but being the chosen Voices or Instruments, they sometimes rest during the Chorus, and the Treble of the grand Chorus, or that Part that plays or sings in the grand Chorus only, *canto ripieno*.

A CANTATA, is a Song, or Composition, intermixed with Recitatives, little Airs, and different Motions, and merrily intended for a single Voice, with a thorough Bass, tho' sometimes for two Violins, and other Instruments.

When

When the Words or Subjects are intended for the Church, it is called *Cantata morali ô spirituali*: But when on Love, *Cantata amorose*, &c.

If the Words are well adapted to the *Musick*, it has something in it very agreeable, and generally seems to please by its Varieties, consisting of grave Parts and Airs intermixed; first used in *Italy*, then in *France*, whence it passed into *England*. — The Cantata's of *Purcel* are excellent.

Note, That *Recitative*, in *Italian Recitativo*, is a Kind of Singing, that differs but little from the ordinary Pronunciation, such as that wherein the several Parts of the Liturgy are rehearsed in Churches, or Cathedrals, or that wherein the Actors commonly deliver themselves on the Theatre at the Opera, tho' the former is rather a Chant. The *Italians* value themselves on their Performances of this Kind, or Recitative Way. Mr. *Brossard* says, these Words are often found in *Italian* Cantata's, and are still more common in their Opera's, which, to speak plain, are no more than so many successive Cantata's, that have some Connection to a general Subject, which runs through the whole Opera; 'tis according to him, as has been said, a Manner of Singing, which borders upon declaiming, as if one declaimed in Singing, or sung in declaiming, and in Consequence wherein more Regard is had to the Expression of the Passion, than of exactly observing a regular Movement. Notwithstanding this Sort of Composition is noted in true Time, the Performer is at Liberty to alter the Parts of Measure, and make some long, others short, as his Subject requires. Hence the thorough Bass to the Recitative, is ordinarily placed below the other, to the End that he who is to accompany the Voice, may rather observe and follow the Singer, than the Person that beats the Time. The *French* call whatever the *Italians* call by the Name of *Solo* or *Soli*, be it one, two, three, four, or more Parts, by the general Title of *Recit*.

Opera, is a dramatick Composition, set to Musick, and sung on a Stage, accompanied with musical Instruments, and enriched with magnificent Dressings, Machines, and other Decorations.

The *English* derive the *Opera's* from the *French*, they from the *Italians*; and the *Venetians*, who hold it as one of the principal Glories of their Carnaval, first invented it.

Oratorio, is a Sort of spiritual Opera, full of Dialogues, Recitativo's, Duetto's, Trio's, Rittornello's, Chorus's, &c. the Subject whereof is usually taken from the Scripture, or is the Life and Actions of some Saint, &c. The *Musick* for the *Oratorio* should be in the finest Taste, and most chosen Strains. The Words whereof are often in *Latin*, sometimes in *French* and *Italian*, and also in *English*. The *Oratorio's* are greatly used at *Rome*, in Time of *Lent*.

A Piece of *Musick* or Composition, wholly to be executed by Instruments, is called Sonata, by the *Italians* *Suonata*, from *Suono*, Sound. This is with Regard to Instruments of several Kinds, what Cantata is with Regard to the Voice.

The *Sonata*, then, is properly a grand free harmonious Composition, diversified with great Variety of Motions and Expressions, extraordinary and bold Strokes, and Figures, &c. and all this to the Fancy of the Composer, who without confining himself to any general Rule of Counter-Point, or any fixed Number or Measure, gives a Loose to his Genius, and runs from one Mode, Measure, &c. to another as he thinks fit.

We have *Sonata's* from one to seven and eight Parts; but usually they are performed by a single Violin, or with two Violins, and a thorough Bass for the Harpsichord, and frequently a more figurated Bass for the Bass Violin.

There are many different Species of *Sonata's*, but the *Italians* reduce them to two Kinds, *Suonata di Chiesa*, that is, one proper for Church *Musick*, which commonly begins with a grave solemn Motion, suitable to the Dignity of the Place, and the Service; after which they strike into a more brisk, gay, rich Manner, and these are what they properly call *Sonata's*.

The other comprehends the *Suonata di Camera*, fit for Chamber *Musick*. These are properly a Series of little short Pieces, named from the Dances, which may be put to them, yet not designed for Dancing, though a Master of that Art may have a Mind to apply certain Positions and Steps thereto; which by his Judgment are made to agree with their Motions. They usually begin with a Prelude or little *Sonata*, serving as an Introduction to all the rest; afterwards come the *Allemand*, *Pavan*, *Courant*, and other serious Dances; after them *Jiggs*, *Gavots*, *Minuets*, *Chacones*, *Passecailles*, and more gay Airs, the whole composed in the same Tone or Mode.

Note, That as there are several *Italian* and technical Expressions in *Musick*, which have not been mentioned in the Course of this Treatise, and which every Musician should know, I'll give here an alphabetical Catalogue thereof, with the Explication of every one of them in particular; therefore,

A.

A *Majuscule* in thorough Basses, marks the *Alto*, or *Haut-contre*.

A *bene placito*, at Pleasure.

Accentor, one of three Singers in Parts, or the Person that sings the predominant Part in a *Trio*.

Accord, from the *French Corde*, a String or Chord, is thus called on Account of the agreeable Union of the Sounds of two Strings, struck at the same Time, whence also some of the Consonances in *Musick* come to be called *Tetrachords*, *Hexachords*, &c. which are Fourths and Sixths.

M. *Carree*, in the *Memoirs of the Royal Academy of Sciences*, lays down a new general Proposition of the Proportions which two Cylinders are to have in order to form the Accords or Consonances in *Musick*. He says, that the solid Cylinders, whose Sounds yield those Accords, are in a triplicate and inverted Ratio of that of the Numbers, which express the same Accords. Suppose, for Example, two Cylinders, the Diameter of whose Basses and Lengths, are as 3 : 2, 'tis evident, the Solidities will be in the Ratio of 27 : 8, which is the triplicate Ratio of 3 : 2, we say, that the Sounds of those two Cylinders will produce a Fifth, which is expressed by those Numbers, and that the biggest and longest will yield the grave Sound, and the smallest the acute one; and the like of all others.

Accressimento, signifies Augmentation, as *Punto d'Accressimento*, Point of Augmentation.

Acute, is understood of a Sound or Tone, which is shrill or high in Respect of some other. In this Sense the Word stands opposed to *Grave*. Sounds considered as acute and grave, *i. e.* in Relation of Gravity and Acuteness, constitute what we call Tune, the Foundation of all Harmony.

Adagio, is one of the Words used by the *Italians*, to denote a certain Degree or Distinction of Time. — The *Adagio* expresses a slow Time, slowest of any except grave. — The Triples $\frac{3}{1}$, $\frac{3}{2}$, are ordinarily *Adagio*.

A Due, or *Doi*, *Tree*, a *Quarto*, &c. signifies for *two*, for *three*, for *four*, &c.

Allegretto, a Diminutive of *Allegro*, which therefore means pretty quick, but not so quick as *Allegro*.

Allegro, is used to signify, that the *Musick* ought to be performed in a brisk, lively, gay, and pleasant Manner, yet without Hurry and Precipitation, and quicker than any except *Presto*. The usual six Distinctions succeed each other in the following Order, *Grave*, *Adagio*, *Largo*, *Vivace*, *Allegro*, and *Presto*.

Note, That the Movements of the same Name as *Adagio*, or *Allegro*, are swifter in Triples than in common Time; the Triples $\frac{3}{1}$ is *Adagio*, *Allegro*, or *Vivace*; the Triples $\frac{6}{8}$ $\frac{9}{8}$ $\frac{9}{4}$ $\frac{12}{8}$, are most commonly *Allegro*. If preceded by *Poco*, it weakens the Strength of its Signification, intimating that the *Musick* must not be performed quite so brisk and lively as *Allegro* would require if it stood alone. If *Allegro* be preceded by *Piu*, it adds to the Strength of its Signification, requiring the *Musick* to be performed more brisk and gay than *Allegro* alone intimated. *Allegro* signifies much the same as *Piu allegro*. *Allegro ma non presto*, brisk and lively, but not too hastily.

Alt, from the *Latin Alto*, is a Term applied to the high Notes in the Scale.

Extremity D, into a Kind of Mould I I, by a wooden Tampion F G. The Shalot is covered with a Plate of Copper E E F F, fitted at its Extremity F F, into the Mould by the same wooden Tampion; its other Extremity E E is at Liberty; so that the Air entring the Shalot, makes it tremble or shake against the Reed; and the longer that Part of the Tongue which is at Liberty F L, is made, the deeper is the Sound. The Mould I I which serves to fix the Shalot or Reed, the Tongue, Tampion, *&c.* serves also to stop the Foot of the Pipe, and to oblige the Wind to go out wholly at the Reed. Lastly, in the Mould is soldered the Part H H K K, called the Tube, whose inward Opening is a Continuation of that of the Reed. The Form of this Tube is different in the different Ranks of Pipes.

The Degree of Acuteness and Gravity in the Sound of a Reed-Pipe, depends on the Length of the Tongue, and the Tube; and also on the Thickness of the Tongue, the Figure of the Tube, and the Quantity of Wind.

To diversify the Sounds of the Pipes, they add a Valve to the Port-vent, which lets the Wind go in Fits or Shakes.

Note, That the Invention of the Organ is very antient, though it is agreed it was little used till the eighth Century. It seems to have been borrowed from the *Greeks*. *Vitruvius* describes one in his tenth Book: The Emperor *Julian* has an Epigram in its Praise; St. *Jerom* mentions one with twelve Pair of Bellows, which might be heard a thousand Paces, or a Mile; and another at *Jerusalem*, which might be heard to the Mount of *Olives*.

Note, also, The best Factor, or Organ-Builder in *England*, and one of the best in *Europe*, is Mr. *Abraham Jordan*, and the best Organist is the most celebrated Dr. *Green*, Master of Musick of the King's Chapel.

There have been antiently, and are still in *Italy* in the Grotto's of the Vineyards *hydraulick Organs*, which is a musical Machine that plays by means of Water.

Ctesebes of *Alexandria*, who lived in the Reign of *Ptolemy Evergetes*, is said to have first invented *Organs* that plaid by compressing the Air with Water, as is still practised. *Archimedes* and *Vitruvius* have left us Descriptions of the *hydraulick Organs*.

In the Cabinet of Queen *Christina* is a beautiful and large Medallion of *Valentinian*, on the reverse whereof is seen one of these *hydraulick Organs*, with two Men, one on the Right, the other on the Left, seeming to pump the Water which plays it, and to listen to its Sound. It has only eight Pipes placed on a round Pedestal. The Inscription is *Placca Spetri*, if it be not wrong copied, which we suspect.

The *last Class* of Instruments, we call *Instruments of Percussion*, because made to sound either with the Hand, as *Drums*, *Tabors*, *Tymbals*, &c. or with little Sticks, or small Iron Rods, as *Psaltery* and *Cymbal*; or with a Feather, as the *Systrum* and *Dulcimer*; or by striking them with Hammers, as Bells, *&c.*

The DRUM, is a military musical Instrument, of the Pulsatile Kind, used principally among the Foot, to call the Soldiers together, to direct their March, Attack, Retreat, *&c.*

The Body of the *Drum* is of very thin Oak, bent into a Cylinder, and covered with Parchment, which is strained or braced more or less, according to the Height or Depth of the Tone required, by Strings, and struck with Sticks.

There are divers Beats of the *Drum*, as the *March*, *double March*, *Assemblée*, *Charge*, *Retreat*, *Chamade*, &c.

The TYMBAL, or *Tympanum*, which among the Antients consisted of a thin Piece of Leather or Skin, stretched on a Circle of Wood or Iron, and beat with the Hand.

This may be our Kettle-Drum, as it appears to be from the *Italians* using the Word *Tympano* for a Pair of *Tymbals* of an unequal Size tuned a Fourth, the least whereof gives the acute Sound, the largest the grave one; the first is C *fol ut*, the latter G *re sol*, a Fourth lower; they serve for a Bass in a Concert, or Airs designed for Trumpets; we from hence meet with Airs marked *Tympani*, which shew that they are destined for this Instrument.

The KETTLE-DRUMS, have their Body of Brass, and are used among the Horse to be play'd on, being hung or laid a-cross the Shoulders of the Horse before the Drummer, who with a Variety of odd Gestures, beats them with two little Iron Bars with Balls at the End. their Sound is softer, and more agreeable than that of the common Drum; and they are often used in Opera's, Oratorio's, Tragedies, and Concerts.

PSALTERION, *Psaltery*, is a musical Instrument much in Use among the antient *Hebrews*, who called it *Nebel*. We know little or nothing of the precise Form of the antient *Psaltery*.

That now in Use is a flat Instrument in Form of a *Trapazium*, or Triangle truncated a-top.

It is strung with thirteen Wire-Chords set to Unison Octave, and mounted on two Bridges on the two Sides. It is struck with a Plectrum, or little Iron Rod, or sometimes with a crooked Stick, whence 'tis ranked among the Instruments of Percussion. Its Chest or Body resembles that of a Spinet. It has for its Name *Apsaleudo*, some also now call it *Nablum* or *Nablium*.

The DULCIMER, is a musical Instrument, with Wire Strings, in a triangular Form, strung with about fifty Strings, cast over a Bridge at each End, and the acuter gradually the shorter, the shortest about eighteen Inches, and the longest about thirty-six, struck with little Iron Rods: The Bass Strings are doubled, and its Sound is not disagreeable: To be plaid on, 'tis laid on a Table before the Performer, who with a little Iron Rod in each Hand, strikes the Strings. This Instrument is not much used except among Puppet-Shews.

I'll say nothing of *Bells* in this Place, since it would be only a Repetition of what I have said of them in my Treatise of Clock-making under the Letter C.

Most commonly the Instruments are disposed in a Place a-part, called the *Orchestra*, particularly in Tragedies, Comedies, Operas, Oratorios, Serenata's, *&c.*

The Musick of the Instruments is most commonly called *Symphony*, and particularly that where the Composer is not confined to a certain Number, or certain Species of Measure; such as are the *Preludes*, *Phantasias*, *Ricercatas*, *Toccatas*.

PRELUDE, in *Italian Preludio*, is a Flourish or an irregular Air, which a Musician plays off-hand, to try if his Instrument be in Tune, and so lead him into the Piece to be play'd. Overtures of Operas are a Sort of *Preludes*; very often the whole Band in the Orchestra run a few Divisions to give the Tune. This is also called *Phantasia*, *Ricercata*, &c.

The *Symphony*, or *instrumental Musick*, makes also one of the most essential Parts in a Concert, Opera, Oratorio, Cantata, *&c.*

A CONCERT, popularly called *Consort*, is a Number or Company of Musicians playing or singing the same Piece or Song at the same Time.

The Word *Concert* may be applied where the Musick is only Melody, that is, the Performers all in Unison; but it is more properly as well as more usually understood of Harmony, or where the Musick consists of divers Parts, as Treble, Tenor, and Bass, *&c.*

A *Concert* for any Instrument, as Organ, Harpsichord, Violin, *&c.* is a Piece of Musick wherein either of these Instruments has the greatest Part, or in which the Performance is partly alone, and partly accompanied by the other Parts.

Those Parts of a Piece of Musick that sing or play throughout the whole Piece, either alone or accompanied, are distinguished from those Parts that play now and then in particular Places, by the Word *concertante*, and the grand Chorus of a *Concert*, or those Places where all the several Parts perform or play together, is called *concerto grossi*: The *Treble* of the principal concerting Parts, is called *canto concertante*; this Part generally plays and sings throughout; but being the chosen Voices or Instruments, they sometimes rest during the Chorus, and the Treble of the grand Chorus, or that Part that plays or sings in the grand Chorus only, *canto ripieno*.

A CANTATA, is a Song, or Composition, intermixed with Recitatives, little Airs, and different Motions, and merrily intended for a single Voice, with a thorough Bass, tho' sometimes for two Violins, and other Instruments.

When

When the Words or Subjects are intended for the Church, it is called *Cantata morali ô spirituali*: But when on Love, *Cantata amorose*, &c.

If the Words are well adapted to the *Musick*, it has something in it very agreeable, and generally seems to please by its Varieties, consisting of grave Parts and Airs intermixed; first used in *Italy*, then in *France*, whence it passed into *England*. — The Cantata's of *Purcel* are excellent.

Note, That *Recitative*, in *Italian Recitativo*, is a Kind of Singing, that differs but little from the ordinary Pronunciation, such as that wherein the several Parts of the Liturgy are rehearsed in Churches, or Cathedrals, or that wherein the Actors commonly deliver themselves on the Theatre at the Opera, tho' the former is rather a Chant. The *Italians* value themselves on their Performances of this Kind, or Recitative Way. Mr. *Brossard* says, these Words are often found in *Italian* Cantata's, and are still more common in their Opera's, which, to speak plain, are no more than so many successive Cantata's, that have some Connection to a general Subject, which runs through the whole Opera; 'tis according to him, as has been said, a Manner of Singing, which borders upon declaiming, as if one declaimed in Singing, or sung in declaiming, and in Consequence wherein more Regard is had to the Expression of the Passion, than of exactly observing a regular Movement. Notwithstanding this Sort of Composition is noted in true Time, the Performer is at Liberty to alter the Parts of Measure, and make some long, others short, as his Subject requires. Hence the thorough Bass to the Recitative, is ordinarily placed below the other, to the End that he who is to accompany the Voice, may rather observe and follow the Singer, than the Person that beats the Time. The *French* call whatever the *Italians* call by the Name of *Solo* or *Soli*, be it one, two, three, four, or more Parts, by the general Title of *Recit*.

Opera, is a dramatick Composition, set to Musick, and sung on a Stage, accompanied with musical Instruments, and enriched with magnificent Dressings, Machines, and other Decorations.

The *English* derive the *Opera's* from the *French*, they from the *Italians*; and the *Venetians*, who hold it as one of the principal Glories of their Carnaval, first invented it.

Oratorio, is a Sort of spiritual Opera, full of Dialogues, Recitativo's, Duetto's, Trio's, Rittornello's, Chorus's, &c. the Subject whereof is usually taken from the Scripture, or is the Life and Actions of some Saint, &c. The *Musick* for the *Oratorio* should be in the finest Taste, and most chosen Strains. The Words whereof are often in *Latin*, sometimes in *French* and *Italian*, and also in *English*. The *Oratorio's* are greatly used at *Rome*, in Time of *Lent*.

A Piece of *Musick* or Composition, wholly to be executed by Instruments, is called Sonata, by the *Italians* *Suonata*, from *Suono*, Sound. This is with Regard to Instruments of several Kinds, what Cantata is with Regard to the Voice.

The *Sonata*, then, is properly a grand free harmonious Composition, diversified with great Variety of Motions and Expressions, extraordinary and bold Strokes, and Figures, &c. and all this to the Fancy of the Composer, who without confining himself to any general Rule of Counter-Point, or any fixed Number or Measure, gives a Loose to his Genius, and runs from one Mode, Measure, &c. to another as he thinks fit.

We have *Sonata's* from one to seven and eight Parts; but usually they are performed by a single Violin, or with two Violins, and a thorough Bass for the Harpsichord, and frequently a more figurated Bass for the Bass Violin.

There are many different Species of *Sonata's*, but the *Italians* reduce them to two Kinds, *Suonata di Chiesa*, that is, one proper for Church *Musick*, which commonly begins with a grave solemn Motion, suitable to the Dignity of the Place, and the Service; after which they strike into a more brisk, gay, rich Manner, and these are what they properly call *Sonata's*.

The other comprehends the *Suonata di Camera*, fit for Chamber *Musick*. These are properly a Series of little short Pieces, named from the Dances, which may be put to them, yet not designed for Dancing, though a Master of that Art may have a Mind to apply certain Positions and Steps thereto; which by his Judgment are made to agree with their Motions. They usually begin with a Prelude or little *Sonata*, serving as an Introduction to all the rest; afterwards come the *Allemand*, *Pavan*, *Courant*, and other serious Dances; after them *Jiggs*, *Gavots*, *Minuets*, *Chacones*, *Passecailles*, and more gay Airs, the whole composed in the same Tone or Mode.

Note, That as there are several *Italian* and technical Expressions in *Musick*, which have not been mentioned in the Course of this Treatise, and which every Musician should know, I'll give here an alphabetical Catalogue thereof, with the Explication of every one of them in particular; therefore,

A.

A *Majuscule* in thorough Basses, marks the *Alto*, or *Haut-contre*.

A *bene placito*, at Pleasure.

Accentor, one of three Singers in Parts, or the Person that sings the predominant Part in a *Trio*.

Accord, from the *French Corde*, a String or Chord, is thus called on Account of the agreeable Union of the Sounds of two Strings, struck at the same Time, whence also some of the Consonances in *Musick* come to be called *Tetrachords*, *Hexachords*, &c. which are Fourths and Sixths.

M. *Carree*, in the *Memoirs of the Royal Academy of Sciences*, lays down a new general Proposition of the Proportions which two Cylinders are to have in order to form the Accords or Consonances in *Musick*. He says, that the solid Cylinders, whose Sounds yield those Accords, are in a triplicate and inverted Ratio of that of the Numbers, which express the same Accords. Suppose, for Example, two Cylinders, the Diameter of whose Basses and Lengths, are as 3 : 2, 'tis evident, the Solidities will be in the Ratio of 27 : 8, which is the triplicate Ratio of 3 : 2, we say, that the Sounds of those two Cylinders will produce a Fifth, which is expressed by those Numbers, and that the biggest and longest will yield the grave Sound, and the smallest the acute one; and the like of all others.

Accressimento, signifies Augmentation, as *Punto d'Accressimento*, Point of Augmentation.

Acute, is understood of a Sound or Tone, which is shrill or high in Respect of some other. In this Sense the Word stands opposed to *Grave*. Sounds considered as acute and grave, *i. e.* in Relation of Gravity and Acuteness, constitute what we call Tune, the Foundation of all Harmony.

Adagio, is one of the Words used by the *Italians*, to denote a certain Degree or Distinction of Time. — The *Adagio* expresses a slow Time, slowest of any except grave. — The Triples $\frac{3}{1}$, $\frac{3}{2}$, are ordinarily *Adagio*.

A Due, or *Doi*, *Tree*, a *Quarto*, &c. signifies for *two*, for *three*, for *four*, &c.

Allegretto, a Diminutive of *Allegro*, which therefore means pretty quick, but not so quick as *Allegro*.

Allegro, is used to signify, that the *Musick* ought to be performed in a brisk, lively, gay, and pleasant Manner, yet without Hurry and Precipitation, and quicker than any except *Presto*. The usual six Distinctions succeed each other in the following Order, *Grave*, *Adagio*, *Largo*, *Vivace*, *Allegro*, and *Presto*.

Note, That the Movements of the same Name as *Adagio*, or *Allegro*, are swifter in Triples than in common Time; the Triples $\frac{3}{8}$ is *Adagio*, *Allegro*, or *Vivace*; the Triples $\frac{6}{8}$ $\frac{9}{8}$ $\frac{12}{8}$, are most commonly *Allegro*. If preceded by *Poco*, it weakens the Strength of its Signification, intimating that the *Musick* must not be performed quite so brisk and lively as *Allegro* would require if it stood alone. If *Allegro* be preceded by *Piu*, it adds to the Strength of its Signification, requiring the *Musick* to be performed more brisk and gay than *Allegro* alone intimated. *Allegro* signifies much the same as *Piu allegro*. *Allegro ma non presto*, brisk and lively, but not too hastily.

Alt, from the *Latin Alto*, is a Term applied to the high Notes in the Scale.

ANDANTE, from the Verb *Andare*, to go, signifies, especially in thorough Basses, that the Notes are to be played distinctly.

ANTHEM, is a Church Song, performed in Cathedral and other Service, by the Choristers, divided for that Purpose into two Chorus's, who sing alternately. The Word at first was used both for Psalms and Hymns, when thus performed. St. *Ignatius* is by *Socrates* represented as the Author of this Way of singing among the *Greeks*; and among the *Latins* St. *Ambrose*. *Theodoret* attributes it to *Diodorus* and *Flavian*. *Amalarius Fortunatus* has wrote expresly of the Order of *Anthems*. At present the Term is used in a somewhat narrower Sense, being applied to certain Passages taken out of the Psalms, *&c.* and accommodated to the particular Solemnity in Hand.

APOTOME, is the remaining Part of an entire Tone, after a greater Semi-Tone has been taken from it. The Proportion in Numbers of the *Apotome* is 2048, 2187.

APOGIATURA, is when in any Part of a Song there are two Notes that are some Distance from one another, as a Third or Fifth; and in playing such Passage, the Musician puts in small intermediate Notes, ascending or descending.

ARSIS and THESIS, are *Greek* Terms used in Composition; as when a Point is inverted or turned, 'tis said to move *per Arsin* and *Thesin*, i. e. when a Point rises in one Part, and falls in another, or falls in one Part, and rises in another, whence is produced an agreeable Variety, tho' properly speaking, 'tis also the Rise and Fall of the Hand beating the Time.

ATTO, an Act, as of a Play, Opera, *&c.* *Atto di Cadenza* is a certain Disposition of the Sounds or Notes, which not only make a Cadence in one Part, but directs and points out in others; as when the Bass rises a Fourth or falls a Fifth, this Motion is really a Cadence, and at the same Time is a Sign that the other Parts thereupon perform their proper Cadence.

B.

B. Signifies *Bass* or *Basso*. B. C. denotes *Bass continue*.

BAR, is a Stroke drawn perpendicularly a-cross the Lines of a Piece of *Musick*, including between each two, a certain Quantity or Measure of Time, which is various as the Time of the *Musick* is either triple or common. In common Time, between each two Bars, is included the Measure of four Crotchets; in triple, three. The principal Use of the Bars is to regulate the beating or measuring of Time in a Concert.

BQUADRO, or *Quadrato*, or *Durale*, in *French* called *Bquarre*, is what the *English* call B natural or sharp, in Distinction to B *mol*, or Flat ♭. As to the Flat, when placed before any Note, denotes that Note to be lower'd a Semi-Tone Minor, so does the *Quarre* raise it to its natural or diatonick Situation. Again, if the Flat be placed before a Note in the thorough Bass it intimates, that its Third is to be Minor, and if placed with any Cypher over a Note in the Bass, as Flat 6, or Flat 5, *&c.* It denotes that the Sixth or Fifth thereto are to be flat. But if the Quadro be placed over any Note, or with any Cypher is the thorough Bass, it has the contrary Effect; for thereby the Note or Interval thereto is raised to its natural Order. Both these Characters are used in other Parts, besides the thorough Bass, wherein they affect only the Note to which they are prefixed, *i. e.* they either raise or lower that Note alone.

C.

C denotes the highest Part in thorough Bass. Again, a simple C or Semi-circle, placed after the Cleff, intimates, that the *Musick* is in common Time, which is either quick or slow, as it is joined with *Allegro*, or *Adagio*. If the C or Semi-circle be crossed thus ↄ, or turned thus Ↄ, the first requires that the Air be played quick, and the last very quick.

CADENCE, from the *Latin Cadencia*, a Fall, may be defined in the modern *Musick*, a certain Conclusion of a Song, or of the Parts thereof in many Places of the Piece, which divide it, as it were, into so many Numbers or Periods. The *Cadence* is when the Parts fall or terminate on a Chord or Note, the Ear seeming naturally to expect it; and is much the same in a Song as a Period, that closes the Sense in a Paragraph of a Discourse. A *Cadence* is either perfect or imperfect; a perfect *Cadence* is that which consists of two Notes sung after each other, or by Degrees conjoined in each of the two Parts: It is called perfect, because it satisfies the Ear better than the other. The *Cadence* is said to be imperfect, when its last Measure is not in Octave or Unison, but a Sixth or a Third; as when the Bass instead of descending a Fifth, descends only a Third; or when descending, or, which is the same Thing, rising a Fourth, it makes an Octave with the Treble in the first Measure, and a third Major with the Second. It is called imperfect, because the Ear does not acquiesce in the Conclusion, but expects a Continuation of the Song. The *Cadence* is said to be broken, when the Bass, instead of falling a Fifth, which the Ear expects, raises a Second, either Major or Minor. Every *Cadence* is in two Measures; sometimes it is suspended, in which Case it is called a *Repose*, and only consists of one Measure, as when the two Parts stop at the Fifth, without finishing the *Cadence*. M. *Bourseau* distinguishes two Kinds of *Cadences*, with Regard to the Bass Viol, *i. e.* a *Cadence* with and without a Rest. The *Cadence* with a Rest, is when the Finger which should shake the *Cadence*, stops, a little before it shakes, on the Note immediately above that which requires the *Cadence*. The *Cadence* without a Rest, is when that Stop is omitted. There are also *simple* and *double Cadences*. The *double* ones again are various; the more *double* are those made after a long Stop, the less *double* those after a short one.

CANCHERIZANTE, or *Cancherizato*, is an *Italian* Word signifying a Piece of *Musick* that begins at the End, being a retrogade Motion from the End of a Song, Air, or Tune, to the Beginning.

CANONE, is a Rule or Method of determining the Intervals of Notes. It is also a short Composition of two or more Parts, in which one leads, and the other follows.

CANONE MUSO, or *Canone in Corpo*, is a perpetual Fugue written on a single Line, with some Marks to shew when the Part that imitate are to begin and end.

CANONE IN PARTITO, or *Risoluto*, is when all the Parts to a Canon or perpetual Fugue, are writ, or in Partition in several separate Lines, or in separate Parts, with the Pauses which each Part ought to observe at the Beginning.

CAPELLA, properly signifies *Chapel*; but the *Italians* take that Word for an Assembly of Musicians, capable to sing or play all the Parts of a Concert; therefore that Word of *Capella*, by the *Chapel*, shews, that all the Voices and Instruments of a Concert must sing and play together the same Parts, even in the Entries of the Fugues: It is what the *French* call *Grand Chœur*, Grand Chorus. What is sung *Da Capella* is ordinarily under the Sign ↃF, and marked *Alla-breve*; which signifies that the Measure must be beat at two Times very quick, unless it be marked otherwise. Whence the *Italians* call *Maestro di Capella*, what we call Master of *Musick*.

CHORO, *Chœur*, or *Chorus*. is often found alone, instead of *Tutti*, or *Da Capella*, *a doi*, *a tre*, *quatro*, *Chori*, &c. is *two*, *three*, or *four Chorus's*. When after the Word *Chorus*, we find *primo*, or I°. we must understand, that it is to be played in the first Chorus; if 2d. II°. or *Secundo*, in the 2d; and consequently, that the Composition is for eight Voices, or different Parts.

CHROMA, *Chrome*, is a *Greek* Term which signifies Colour or Ornament, which the *Italians* use to name a *Crotchet*. Eight of them are wanted for one Measure. They call the double Crotchet *Semi-Chroma*, 16 of which are wanted for one Measure. They make use, likewise, of *Dosdupla di Chroma*, 12 of which go for one Measure; of *Nonupla di Chrome*, 9 for one Measure; of *Sestupla di Chrome*, 6 of them for one Measure.

CITTRA, *Cypher*, is the Name given by the *Italians* to the Numbers and other Signs, placed over the Notes in the thorough Bass, to mark the Nature of the Accords to be made in the Accompaniment.

CIRCOLO, signifies a Circle; and is the Name given by the *Italians* to a Kind of double CↃ or O seen in antient *Musicks* after the Key.

CIRCOLO MEZZO, a Kind of Diminution of four Quavers,

Quavers, or Semiquavers, or Notes of equal Value, which represent a Semi-circle, proceeding by conjoint Degrees, fig. 47.

Coda, *Tail*, we often find at the End of a Canon or Fugue, two or three Measures to end with, after having repeated them several Times, and this the *Italians* call *Coda*, it serves only to end the Piece, which without it might be carried on to Infinity.

Comma, is the smallest of all the sensible Intervals of Tunes, and is about the tenth Part of a Tone. Mr. *Sauveur* says a *Comma* is the Difference between a Tone Major and Minor. It is seldom used, except in the Theory of *Musick*, to shew the Justness of the Concords; for in Practice the Division is drowned and lost; each lesser Tone ordinarily contains ten *Comma's*. *Lancelot* divides the Tone into nine *Comma's*, so that according to him a *Comma* is the ninth Part of a Tone— The Proportion of the greater *Comma* in Numbers, is 80:81, that of the smaller is 2025 to 2048.

D.

D. *Majuscule*, in the B, C, mark what the *Italians* call *Discanto*, and intimates that the Treble ought to play alone, as T does the Tenor, and B the Bass.

Deduttione, from the Latin *deductio*, is the Name which *Guido Aretin* gave to the Rise of the Voice in pronouncing the Syllables, *ut*, *re*, *mi*, *fa*, *sol*, *la*, *quia per has deducitur vox*; as on the contrary, when the Voice descends by these, *la*, *sol*, *fa*, *mi*, *re*, *ut*, he called it *reductio*, *quia per has reducitur vox*.

E.

E, on the Key of an Organ or Harpsichord, denotes the Note or Sound E *la mi*.

Episynaphe, says *Bacchius*, Senior, is when three Tetrachords or Fourths are sung one after another, without any Disjunction, as when we proceed from the *Hypaton Tetrachord* to *Meson*, and then *Synemmenon*, between which there is no diezentick Tone.

Epitrito, the same as *Sesqui-terza*, a certain mathematical Proportion, whereby they measure two unequal Numbers, in which the greater contains the less twice, and a third Part of the less remains, as 4 contains 3 once and an Unity over, which is one Third of three, or the less Number; and 8 contains 6 once, and 2 over, which is still one Third of six.

F.

F often stands for the Word *Forte*.

F, or *fa*, is the Bass Key placed at the Beginning of the Lines of a Piece of *Musick*, generally on the fourth Line upwards, also on the third and on any other at Pleasure. Indeed the Characters wherewith the F and C Keys are marked, bear no Resemblance to those Letters: Mr. *Malcolm* thinks it would be well if we used the Letters themselves, but Custom has carried it otherwise; the ordinary Character of the F Key is ☽: which *Kelper* takes a World of Pains to deduce, by Corruption from the F itself.

Fugue, is when the different Parts of a musical Composition follow each other, each repeating what the first had performed. If the *Fugue* be made through the Piece, 'tis called *Fuga in consequenza*, or *Canone*; but if only in Part of the Piece, and the Instrument repeats the same Intervals, either above or below, 'tis then called *Fuga in unisono*, and if made an Octave, Fifth or Fourth above or below the Guide or Subject, 'tis said to be *Fuga ad octavam*, *quintam*, or *quartam*. All the other Manners of Repetitions, *ad secundam*, *tertiam*, *sextam*, &c. higher or lower, are only esteemed Imitations, in which the Intervals of the Guide perhaps may not be exactly observed.

There are three Kinds of *Fugues*, the *simple*, *double*, and *counter Fugues*.

The *single*, or *simple Fugue*, is some Point consisting of four, five, or more Notes, began by one single Part, and seconded by a Second, Third, Fourth, Fifth, &c. (if the Composition consists of so many) repeating the same, or such like Notes, *i. e.* in the same Proportions, so that the several Parts follow, or come in one after another in the same Manner, the leading Part flying before those that follow.

Fugue double, or *fuga doppia*, is when two or more different Points move together in a *Fugue*, and are alternately mixed and interchanged by the several Parts.

The *counter Fugue*, is when the Guide descends, and the other instead of imitating it in descending, imitates it in ascending.

Fugue authentick, is when the Notes of the Subject ascend, and when they descend, it is a *Fugue plagal*.

Fugue grave, is a Fugue whose Notes are of a long Value, and the Movements slow.

G.

G, is used to signify the Key of the highest Part, called the Treble, or in alt.

Guida, the *Guide*, or leading Voice or Instrument in a Piece of Musick in Parts; in Fugues it is called *dux*, and the Parts that are to imitate and follow, are said to be its *Comés*, or as the *Italians* say, *in consequenza*.

H.

Habitudo and *differentia*, are Terms made use of by *Nicomachus*, to distinguish a Sort of Proportion. 'Habitudo, says he, is a Ratio measuring any Interval, and 'Difference is the Excess or Defect of the Sounds, with 'regard to one another. Some are of Opinion, adds 'he, that *habitudo* and *differentia* are the same Things; 'but they are in the wrong, for one has the same Difference to two, as two to one, but not the same *Habitudo*; for in two one is doubled, but one contains 'but half of two.'

Hemiolia, otherwise *Sesqui-alteral*, is a Sort of Proportion, wherein the larger Number contains the smaller one, and a Moiety remains, as 1 : 2; 6 : 4, &c. This Name is more especially given to a Species of Triples wherein all the Notes are black. The square one contains two Times, and the lozenge but one; and two black ones with a Tail (called Crotchets by the *English*) are required to make a Time equal, to what is expressed by the Lozenge. This is called *Hemiola maggiore*, because in this the Measure is beat low. And if the Note of the greatest Value be a black or Lozenge, it is equal to two Times, and the *English* Crotchet is hal thereof; when this happens the Measure is beat quick, and called *Hemiolia minore*. But be these Notes square or lozenge it is not necessary to place any Sign of triple Time before them, the Colour and Figure of them distinguish it enough; and when those Notes come to be white, 'tis not necessary to put a Mark to shew that the Measure changes, and that it is in common Time.

I.

Imitazzione, signifies *Imitation*, which is when a Part imitates the Tune of another Part, either during a whole Piece, and then it is a Species of the Canon, or only during some Measure, then it is a *simple Imitation*. Sometimes the Movement only, or the Figure of the Notes is imitated; and that, either by a contrary Movement, which is called an *inverted Imitation*, or *in retrograding*, which is *imitatione cancherizata*. *Imitation* differs from a *Fugue* in regard to the former, the Repetition must be a Second, Third, Sixth, Seventh, or Ninth, either above or below the first Guide or Voice, to which it can be added that it may be at any Interval, and differs properly from *Fugue*, in that in *Imitation*, the Intervals may not be precisely the same; whereas where the Repetition to an Unison, Fourth, Fifth, or Octave, and the Intervals exactly the same in the *Comes* and *Guida*, it would be a Fugue.

K.

Key, a certain fundamental Note or Tone, to which the whole Piece be it Concerto, Sonata, Cantata, &c. is accommodated; and which it usually begins, but always ends.

L.

Largo, a slow Movement, *i. e.* one Degree quicker than grave, and two than *adagio*.

M.

Monochord, is a musical Instrument wherewith to try the Variety and Proportion of musical Sounds. It is composed of a Rule divided and subdivided into divers Parts, whereon there is a String pretty well stretched upon two Bridges, at each Extream thereof: In the Middle between both, is a moveable Bridge, by whose Means in applying it to the different Divisions of the Line, you find that the Sounds are in the same Proportion to one another, as the Division of the Line cut by the Bridge were. The *Monochord* is called also the harmonical Canon, or the *canonical Rule*, because serving

to

to measure the Degrees of Gravity and Acuteness.

Moto, or more properly, according to *Zarlin*, *Movimento*, is a Term that has different Significations in *Musick*; sometimes it means only a Motion or Passage, from one Note to another, at whatsoever Distance, as a second, third, or any other Interval; and is the same whether the intermediate Degrees (if any there be) be sounded, or only the Extremes of them, as the first and last Sound of any given Interval.

Sometimes it regards the Quickness and Slowness of such Motion, as a brisk, slow, lively, or languid Motion, and in this Sense it is used with regard to Minuets, Gavots, Sarabands, *&c.* But the most common, and indeed the most important Acceptation of the Word, is with respect to Harmony, those above described only regarding Melody. With regard to Harmony, 'tis the comparing the Manner wherein an upper or treble Part moves from one Sound to another, with that wherein a lower or Bass Part moves, which is to be done three Ways.

The first is when the upper and lower Parts move both the same Way, either upwards or downwards, and is called *motoretto*.

The second is when in comparing the upper with the lower Part, the one ascends when the other descends, or *è contra*, and this is therefore *moto contrario*.

The last, is when one of the Parts hold out, or continues a Sound, while the other rises or falls on any Note whatsoever; this makes what the *Italians* call *moto obliquo*.

N.

Nonupla, is a quick Time, peculiar to Jiggs. This Species of Time is otherwise called the Measure of nine Times, which requires two Falls of the Hand and one Rise. There are two Sorts of *Nonupla's*.

The first is *nonupla di semi-minime*, or *dupla sesquiquarta*, thus marked $\frac{9}{4}$, where nine Crotchets are to be in the Bar, of which four make a Semi-breve in common Time, *i. e.* in the down Stroke six, and but three up; it is usually beat *adagio*.

The second, is *nonupla di crome*, or *sesqui ottava*, marked thus $\frac{9}{8}$, wherein nine Quavers make a Bar, instead of eight in common Time, *i. e.* six down and three up; 'tis beat *presto*.

The last, is *nonupla di semi-crome*, thus distinguished $\frac{9}{16}$, in which nine Semi-quavers are contained in a Bar, wherein sixteen are required in common Time, six down and three up; 'tis ordinarily beat *prestissimo*. Besides these there are two other Species of *Nonuplas*.

O.

O, Majuscule, or Circle, or double C, or Semi-circle, is a Note called by the *English* a Semi-breve, by the Italians *Circolo*, with which they mark what they call *tempo perfetto*, and the English *triple Time*.

Obligato, signifies for, on purpose for, or necessary, or *doi Violini obligato*, that must be played with a Bassoon, *&c.*

Sometimes it signifies constrained or restrained by certain Rules, subjected to certain Limits or Laws, in order to perform some particular Thing, to give some particular Expression of a Passion, Action, *&c.* in this Scale we say, *contrapunto obligato*, *fuga obligata*. In this Sense we also say, the Bass is *obligato*, when it is only a Ground of a certain Number of Bars, which are to be repeated over and over; such is the Bass to Chacones, and every Bass wherein one is obliged to keep a certain Movement, and to perform only certain Notes, *&c.*

Obliquo, *oblique*, when the Word is joined to *nota*, it signifies two Breves tied together, which make but one Body, whence 'tis named in Italian *nota dun corpo solo*; sometimes there is a Tail on the right or left Side, either ascending or descending. However it be the two Extremes mark the Sounds, the Middle serves only to tie them.

Octave, is an harmonical Interval, consisting of seven Degrees, or less Intervals.

The most simple Perception we can have of two Sounds is that of Unisons; in regard the Vibrations there begin and end together. The next to this is the *Octave*; where the more acute Sounds make precisely two Vibrations, while the grave or deeper one makes one; and wherein, by Consequence, the Vibrations of the two meet at every Vibration of the more grave: Hence Unison and *Octave* pass almost for the same Concord.

Overture, or Ouverture, *Opening*, or *Preluding*, a Term used for the Solemnities at the Beginning of an Act or Ceremony, as of an Opera, Tragedy, Comedy, Concert of *Musick*, &c.

The *Ouverture* of the Theatre in *France*, is a Piece of *Musick* which has usually a Fugue in the second Movement.

P.

P, in the *Italian* Musick, frequently signifies *piano*, which is what we call *soft*.

Presa, is, in general, a Mark, which shews a Musician whereby, or how he must begin, or play; but in particular, *Fugues*, and, particularly, *Canons*, are made of it. This Mark is placed over the Note, on which the second Voice, which is to imitate the first, must begin. If there be another, it is where the third Voice must begin, *&c.*

Presto, signifies quick; *i. e.* that the Measure must be accelerated, and the Time render'd very short; which denotes Gaiety, Passion, Rage, Rapidity, *&c.*

Presto, or *Prestissimo*, signifies very quick.

Proportione, *Proportion*, i. e. the Report found between two Terms, as between two *Numbers*, or two *Lines*, or two *Sounds*, after they have been compared together, as between the Sound *ut* downwards, and the Sound *sol* upwards. There are, in general, two Sorts of *Proportions*, the first called *Proportion of Equality*, and the second *Proportion of Inequality*.

The *Proportion of Equality*, is when the two Terms are equal, or one contains no more Parts than the other; as 1 to 1, 2 to 2, 8 to 8.

The *Proportion of Inequality*, is when one of the Terms is greater, *i. e.* contains more Parts than the other; as the *Proportion* of 4 to 2, is a *Proportion of Inequality*, since the first Term contains four Units, and the second contains but two. This second *Proportion* is the only one used in *Musick*; and can be made in five Manners, called by the Italians *generi*, or *general*.

The first is called *Moltiplice*, or *Multiple*; and is when the greater Term contains the smaller more than once; as the *Proportion* of 4 to 2, is a *multiple Proportion*, because 4 contain twice 2, and that justly, and without any Thing remaining. If the greater Term contains the smaller but twice, as 4. 2, or 6. 3, or 16. 8, *&c.* that's called *proportio dupla*, or *double Proportion*. If it contains it just three Times, as 3. 1. or 6. 2. or 9. 3, *&c.* that's called *proportio tripla*, or *triple Proportion*. If it contains it four Times, as 4. 1. or 8. 2. or 12. 3. it is *proportio quadrupla*, or *quadruple Proportion*, and thus *in infinitum*.

The second *Proportion of Inequality*, is *proporzione del genere*, *super-particolare*; which is when the greater Term contains the smaller once only, and besides precisely one of the Parts of that smaller, as 3. 2. for three contains two once, and an Unit besides, which is one of the Parts of two; but if that Part remaining is precisely half of the smaller Number, as 3. 2. that *Proportion* is that otherwise called *sesquialtera*: If that Part remaining is the third Part of the smaller Number, as 4. 3. that is called *sesqui terza*: If it be the fourth Part, as 5. 4. it is called *sesqui quarta*; and thus *in infinitum*, adding always to *sesqui* the ordinal Number of the smallest Term.

The third *Proportion of Inequality*, is, *Proportione del genere super parziente*; which is when the greater Term contains once the less, and besides two, or three, or four, *&c.* of the Parts which compose the lesser, *i. e.* properly, according to *Zarlino*, two, or three, or four Units, *&c.* which is marked in placing the Words *bi* for 2. *tri*, for 3. *quattri* for 4, *&c.* between *super* and *parziente*. After which the ordinal Number of the smaller Term is added: Therefore the Proportion between 5 and 3, is to be called *Super-bi-parziente terza*, because 5 contains once 3, and two Units besides, which are Parts of 3. Likewise the Proportion of 7 to 4, is called *Super-tri-parziente quarta*, because 7 contains once 4, and 3 of its Parts, or 3 Units. Likewise the Proportion of 9 to 5, must be called *Super quadri-parziente-quinta*, because the Number contains once [illegible] be[illegible]

besides 4 of the Parts of 5, or 4 Units, and thus of the others.

The 4th and 5th Proportion, of Inequality, are composed of the Multiple, and of one of the two above-mentioned; but we'll take no Notice of them here, because the three we have explained already, are sufficient for the Practice of *Musick*, and to explain which are the Forms and Roots of all the *Consonances* and *Dissonances* of the *Musick*, as is plainly seen in the following Table.

TABLE OF PROPORTIONS.

Consonances.

The Octave	draws its Origin and Form from the Proportion	*Double*	2. 1.
The Fifth		*Sesqui-Altera*	3. 2.
The Fourth		*Sesqui-Terza*	4. 3.
The 3d Major		*Sesqui-Quarta*	5. 4.
The 3d Minor		*Sesqui-Quinta*	6. 5.
The 6th Major		*Super-bi-parziante-Terza*	5. 3.
The 6th Minor		*Super-tri-parziante-Quinta*	8. 5.

Dissonances.

The 7th Major	draws its Origin and Form from the Proportion	*Super 7° parziente Octava*	15. 8.
The 7th Minor		*Super-meadri-parziente Quint.*	9. 5.
The false Fifth		*Super 14° parziente, 45ª*	64. 45.
The Tritone		*Super 13° parziente, 32ª*	45. 32.
The Tone Maj. or 2d Major		*Sesqui-Octava*	9. 8.
The Tone Min.		*Sesqui-Nona*	10. 9.
The Semi-Tone Maj. or 2d Min.		*Sesqui 15ª*	16. 15.
The Semi-Tone Minor		*Sesqui 24ª*	25. 24.
The Comma		*Sesqui 8ª*	80. 81.

But it must be observed, besides, that all we have said on this Subject, must be understood when the greater Number is compared with the smaller; and consequently that it is wrote the first thus 3. 1. or over it thus $\frac{3}{1}$; for if on the contrary the smaller was to be compared with the greater, then the smaller Number should be put before, or over the greater, thus 1. 3. or thus $\frac{1}{3}$. And to denominate their Proportions, nothing else is to be done, than to place *Sub.* before the Denominations heretofore explained; which will be sufficient to shew that the smaller Number is compared with the greater. For Instance, *proportio tripla* is marked thus, 3. 1. or $\frac{3}{1}$; and *proportio sub tripla* thus, 1. 3. or $\frac{1}{3}$, *&c.*

We must observe, besides, that the *Italians* call of the general Name *Proporzioni*, *Proportions*, all the Species of Triples, mentioned in this Treatise.

Q.

QUADRATO, or QUADRO, which signifies *quarre*, *Square*, is the Epithet given to *b*, when it is a diatonick, natural, or figurated Sign; and then its Effect is to restore the Chords, changed by the Diezis, or *b mol* to their natural Situation, and therefore to raise of a Semi-Tone, the Note which the *b mol* had lowered; and to lower of a Semi-Tone that which the Diezis had raised.

R.

RIPIENO, is the Name given by the *Italians* to what we call the Parts of the grand Chorus, and whereby they distinguish those of the little Chorus, and therefore multiply neither the Harmony nor the Number of Parts. They are properly but Extracts of Recitant Parts, where Pauses are placed instead of Recitative, writing only what is to be sung by all the Musicians, or *Da Capella*, which is ordinarily marked by the Words *tutti*, *omnes*, or *all*.

RIPRESA, is what we call in *Latin*, *Signum repetitionis*; because the *Ripresa* in *Musick* is properly a Sign or Mark, that something is to be repeated. There are two Sorts of *Represa*, viz. *Represa maggiore*, and *minore*, i. e. the great and small *Represa*.

The *great Represa* is marked thus [:|:] or thus, —— and signifies, that all that has been play'd or sung thus far, must be repeated, if it be the Beginning of a Piece; or all that has been play'd or sung from such a Mark, if it be at the End of a Piece; and what is thus sung twice, is called *Represa*. Those Signs are commonly found towards the third Part or thereabouts of Gavots, Minuets, Courants, *&c.* and at the End; because those Pieces must have two *Represa's*; which must each be played twice. Some will have it, that when the *Represa* has Points on both Sides, thus [‡] it suffices to mark the Repetition, as well of what has preceded it, as of what follows it. That when it has Points on the left Side thus [‡] it is for the Repetition of what precedes it; and when on the right Side thus [‡] it is the Repetition of what follows.

The *Represa minore*, is when only few Measures of the *Represa maggiore* are repeated. It is marked thus [ϑ] or thus [ϑ] over or under the Note, whereby one must begin the Repetition.

RIVOLTARE, signifies to *change*, as well in the Harmony as in the Parts. Therefore *Canto rivoltato*, is a *Treble changed*, which after it has served of *Treble*, serves of *Bass*. *Basso rivoltato*, is a *Bass*, which after it has served of *Bass*, serves of *Treble*, &c. It is in that Sense we often find these Expressions in Authors, *la sesta Rivoltata diviene settima*, &c. the sixth changed becomes a seventh, &c. This Change is called *al*, or *per Roversa*, for Instance, fig. 50.

S.

SOLFAING, the naming or pronouncing the several Notes of a Song, by the Syllables *ut*, *re*, *mi*, *fa*, *sol*, and in learning to sing.

Of the seven Notes in the *French* Scale, *ut*, *re*, *mi*, *fa*, *sol*, *la*, *si*, only four are used by the *English* in Singing, as *mi*, *fa*, *sol*, *la*, though the *Italians* use the six first. Their Office therein is, that by applying them to every Note of the Scale, it may not only be pronounced with more Ease, but chiefly that by them the Tones, and Semi-Tones of the natural Scale, may be better marked out and distinguished.

The *English* say, that this Design is obtained by the four Syllables, *mi*, *fa*, *sol*, *la*; that thus from *fa* to *sol*, is a Tone, also from *sol* to *la*, and *la* to *mi*, without distinguishing the great and less Tone, but from *la* to *fa*, also from *mi* to *fa*, only a Semi-Tone; that if then these be applied in this Order *fa sol*, *la fa*, *sol la*, *mi fa*, they express the natural Series from C, and if they be repeated a second or third Octave, we see by them how to express all the different Orders of Tones and Semi-Tones in the diatonick Scale; and still above *mi* will stand *fa*, *sol*, *la*, and below it the same inverted *la*, *sol*, *fa*, and one *mi* is always distant from another an Octave, which cannot be said of any of the rest, because after *mi* ascending, come always *fa*, *sol*, *la*, *fa*, which are repeated invertedly descending.

To conceive the Use of this, it is to be remember'd, that the first Thing in learning to sing, is to make one raise a Scale of Notes by Tones and Semi-Tones to an Octave, and descend again by the same, and then to rise and fall by greater Intervals, as at a Leap, as Thirds and Fourths, *&c.* and to do all this by beginning at Notes of different Pitch; then these Notes are represented by Lines and Spaces, to which these Syllables are applied, and the Learners taught to name each Line and Space thereby; which makes what we call *Solfaing*. The Use whereof is, that while they are learning to tune the Degrees and Intervals of Sounds, expressed by Notes on a Line or Space, or learning a Song, to which no Words are applied, they may do it the better by Means of articulate Sounds; but chiefly that by knowing the Degrees and Intervals, expressed by those Syllables, they may more readily know the Places of the Semi-Tones, and the true Distance of the Notes.

T.

T stands for *Tutti*, *all*, or *all* together. — It is also used to mark the Tenor, and the Figures 1°. 2°. to signify the first and second Tenor.

The Letter T, or *tr*, is often used likewise to signify a Shake to be made on any Sound, and is placed over the Note to be shook on.

to measure the Degrees of Gravity and Acuteness.

Moto, or more properly, according to *Zarlin*, *Movimento*, is a Term that has different Significations in *Musick*; sometimes it means only a Motion or Passage, from one Note to another, at whatsoever Distance, as a second, third, or any other Interval; and is the same whether the intermediate Degrees (if any there be) be sounded, or only the Extremes of them, as the first and last Sound of any given Interval.

Sometimes it regards the Quickness and Slowness of such Motion, as a brisk, slow, lively, or languid Motion, and in this Sense it is used with regard to Minuets, Gavots, Sarabands, *&c.* But the most common, and indeed the most important Acceptation of the Word, is with respect to Harmony, those above described only regarding Melody. With regard to Harmony, 'tis the comparing the Manner wherein an upper or treble Part moves from one Sound to another, with that wherein a lower or Bass Part moves, which is to be done three Ways.

The first is when the upper and lower Parts move both the same Way, either upwards or downwards, and is called *motoretto*.

The second is when in comparing the upper with the lower Part, the one ascends when the other descends, or *è contra*, and this is therefore *moto contrario*.

The last, is when one of the Parts hold out, or continues a Sound, while the other rises or falls on any Note whatsoever; this makes what the *Italians* call *moto obliquo*.

N.

Nonupla, is a quick Time, peculiar to Jiggs. This Species of Time is otherwise called the Measure of nine Times, which requires two Falls of the Hand and one Rise. There are two Sorts of *Nonupla's*.

The first is *nonupla di semi-minime*, or *dupla sesquiquarta*, thus marked $\frac{1}{4}$, where nine Crotchets are to be in the Bar, of which four make a Semi-breve in common Time, *i. e.* in the down Stroke six, and but three up; it is usually beat *adagio*.

The second, is *nonupla di crome*, or *sesqui ottava*, marked thus $\frac{9}{8}$, wherein nine Quavers make a Bar, instead of eight in common Time, *i. e.* six down and three up; 'tis beat *presto*.

The last, is *nonupla di semi-crome*, thus distinguished $\frac{9}{16}$, in which nine Semi-quavers are contained in a Bar, wherein sixteen are required in common Time, six down and three up; 'tis ordinarily beat *prestissimo*. Besides these there are two other Species of *Nonuplas*.

O.

O, Majuscule, or Circle, or double C, or Semi-circle, is a Note called by the *English* a Semi-breve, by the Italians *Circolo*, with which they mark what they call *tempo perfetto*, and the English *triple Time*.

Obligato, signifies for, on purpose for, or necessary, or *doi Violini obligato*, that must be played with a Bassoon, *&c.*

Sometimes it signifies constrained or restrained by certain Rules, subjected to certain Limits or Laws, in order to perform some particular Thing, to give some particular Expression of a Passion, Action, *&c.* in this Scale we say, *contrapunto obligato*, *fuga obligata*. In this Sense we also say, the Bass is *obligato*, when it is only a Ground of a certain Number of Bars, which are to be repeated over and over; such is the Bass to Chacones, and every Bass wherein one is obliged to keep a certain Movement, and to perform only certain Notes, *&c.*

Obliquo, *oblique*, when the Word is joined to *nota*, it signifies two Breves tied together, which make but one Body, whence 'tis named in Italian *nota dun corpo solo*; sometimes there is a Tail on the right or left Side, either ascending or descending. However it be the two Extremes mark the Sounds, the Middle serves only to tie them.

Octave, is an harmonical Interval, consisting of seven Degrees, or less Intervals.

The most simple Perception we can have of two Sounds is that of Unisons; in regard the Vibrations there begin and end together. The next to this is the *Octave*; where the more acute Sounds make precisely two Vibrations, while the grave or deeper one makes one; and wherein, by Consequence, the Vibrations of the two meet at every Vibration of the more grave: Hence Unison and *Octave* pass almost for the same Concord.

Overture, or Ouverture, *Opening*, or *Preluding*, a Term used for the Solemnities at the Beginning of an Act or Ceremony, as of an Opera, Tragedy, Comedy, Concert of *Musick*, &c.

The *Ouverture* of the Theatre in *France*, is a Piece of *Musick* which has usually a Fugue in the second Movement.

P.

P, in the *Italian* Musick, frequently signifies *piano*, which is what we call *soft*.

Presa, is, in general, a Mark, which shews a Musician whereby, or how he must begin, or play; but in particular, *Fugues*, and, particularly, *Canons*, are made of it. This Mark is placed over the Note, on which the second Voice, which is to imitate the first, must begin. If there be another, it is where the third Voice must begin, *&c.*

Presto, signifies quick; *i. e.* that the Measure must be accelerated, and the Time render'd very short; which denotes Gaiety, Passion, Rage, Rapidity, *&c.*

Presto, or *Prestissimo*, signifies very quick.

Proportione, *Proportion*, i. e. the Report found between two Terms, as between two *Numbers*, or two *Lines*, or two *Sounds*, after they have been compared together, as between the Sound *ut* downwards, and the Sound *sol* upwards. There are, in general, two Sorts of *Proportions*, the first called *Proportion of Equality*, and the second *Proportion of Inequality*.

The *Proportion of Equality*, is when the two Terms are equal, or one contains no more Parts than the other; as 1 to 1, 2 to 2, 8 to 8.

The *Proportion of Inequality*, is when one of the Terms is greater, *i. e.* contains more Parts than the other; as the *Proportion* of 4 to 2, is a *Proportion of Inequality*, since the first Term contains four Units, and the second contains but two. This second *Proportion* is the only one used in *Musick*; and can be made in five Manners, called by the Italians *generi*, or *general*.

The first is called *Moltiplice*, or *Multiple*; and is when the greater Term contains the smaller more than once; as the *Proportion* of 4 to 2, is a *multiple Proportion*, because 4 contain twice 2, and that justly, and without any Thing remaining. If the greater Term contains the smaller but twice, as 4. 2, or 6. 3, or 16. 8, *&c.* that's called *proportio dupla*, or *double Proportion*. If it contains it just three Times, as 3. 1. or 6. 2. or 9. 3, *&c.* that's called *proportio tripla*, or *triple Proportion*. If it contains it four Times, as 4. 1. or 8. 2. or 12. 3. it is *proportio quadrupla*, or *quadruple Proportion*, and thus *in infinitum*.

The second *Proportion of Inequality*, is *proporzione del genere*, *super-particolare*; which is when the greater Term contains the smaller once only, and besides precisely one of the Parts of that smaller, as 3. 2. for three contains two once, and an Unit besides, which is one of the Parts of two; but if that Part remaining is precisely half of the smaller Number, as 3. 2. that *Proportion* is that otherwise called *sesquialtera*: If that Part remaining is the third Part of the smaller Number, as 4. 3. that is called *sesqui terza*: If it be the fourth Part, as 5. 4. it is called *sesqui quarta*; and thus *in infinitum*, adding always to *sesqui* the ordinal Number of the smallest Term.

The third *Proportion of Inequality*, is, *Proportione del genere super parziente*; which is when the greater Term contains once the less, and besides two, or three, or four, *&c.* of the Parts which compose the lesser, *i. e.* properly, according to *Zarling*, two, or three, or four Units, *&c.* which is marked in placing the Words, *bi* for 2. *tri*, for 3. *quattri* for 4, *&c.* between *super* and *parziente*. After which the ordinal Number of the smaller Term is added: Therefore the Proportion between 5 and 3, is to be called *Super-bi-parziente terza*, because 5 contains once 3, and two Units besides, which are Parts of 3. Likewise the Proportion of 7 to 4, is called *Super-tri-parziente quarta*, because 7 contains once 4, and 3 of its Parts, or 3 Units. Likewise the Proportion of 9 to 5, must be called *Super quadri-parziente-quinta*, because the Number contains once [illegible] be[illegible]

besides 4 of the Parts of 5, or 4 Units, and thus of the others.

The 4th and 5th Proportion, of Inequality, are composed of the Multiple, and of one of the two above-mentioned; but we'll take no Notice of them here, because the three we have explained already, are sufficient for the Practice of *Musick*, and to explain which are the Forms and Roots of all the *Consonances* and *Dissonances* of the *Musick*, as is plainly seen in the following Table.

TABLE OF PROPORTIONS.

Consonances.

The Octave	draws its Origin and Form from the Proportion	*Double*	2. 1.
The Fifth		*Sesqui-Altera*	3. 2.
The Fourth		*Sesqui-Terza*	4. 3.
The 3d Major		*Sesqui-Quarta*	5. 4.
The 3d Minor		*Sesqui-Quinta*	6. 5.
The 6th Major		*Super-bi-parziante-Terza*	5. 3.
The 6th Minor		*Super-tri-parziante-Quinta*	8. 5.

Dissonances.

The 7th Major	draws its Origin and Form from the Proportion	*Super 7° parziente Octava*	15. 8.
The 7th Minor		*Super-meadri-parziente Quint.*	9. 5.
The false Fifth		*Super 14° parziente, 45ª*	64. 45.
The Tritone		*Super 13° parziente, 32ª*	45. 32.
The Tone Maj. or 2d Major		*Sesqui-Octava*	9. 8.
The Tone Min.		*Sesqui-Nona*	10. 9.
The Semi-Tone Maj. or 2d Min.		*Sesqui 15ª*	16. 15.
The Semi-Tone Minor		*Sesqui 24ª*	25. 24.
The Comma		*Sesqui 8ª*	80. 81.

But it must be observed, besides, that all we have said on this Subject, must be understood when the greater Number is compared with the smaller; and consequently that it is wrote the first thus 3. 1. or over it thus $\frac{3}{1}$; for if on the contrary the smaller was to be compared with the greater, then the smaller Number should be put before, or over the greater, thus 1. 3. or thus $\frac{1}{3}$. And to denominate their Proportions, nothing else is to be done, than to place *Sub.* before the Denominations heretofore explained; which will be sufficient to shew that the smaller Number is compared with the greater. For Instance, *proportio tripla* is marked thus, 3. 1. or $\frac{3}{1}$; and *proportio sub-tripla* thus, 1. 3. or $\frac{1}{3}$, *&c.*

We must observe, besides, that the *Italians* call of the general Name *Proporzioni*, *Proportions*, all the Species of Triples, mentioned in this Treatise.

Q.

QUADRATO, or QUADRO, which signifies *quarre*, *Square*, is the Epithet given to *b*, when it is a diatonick, natural, or figurated Sign; and then its Effect is to restore the Chords, changed by the Diezis, or *b mol* to their natural Situation, and therefore to raise of a Semi-Tone, the Note which the *b mol* had lowered; and to lower of a Semi-Tone that which the Diezis had raised.

R.

RIPIENO, is the Name given by the *Italians* to what we call the Parts of the grand Chorus, and whereby they distinguish those of the little Chorus, and therefore multiply neither the Harmony nor the Number of Parts. They are properly but Extracts of Recitant Parts, where Pauses are placed instead of Recitative, writing only what is to be sung by all the Musicians, or *Da Capella*, which is ordinarily marked by the Words *tutti*, *omnes*, or *all*.

RIPRESA, is what we call in *Latin*, *Signum repetitionis*; because the *Ripresa* in *Musick* is properly a Sign or Mark, that something is to be repeated. There are two Sorts of *Represa*, viz. *Represa maggiore*, and *minore*, i. e. the great and small *Represa*.

The *great Represa* is marked thus [:|:] or thus, —— and signifies, that all that has been [:|:] play'd or sung thus far, must be repeated, if it be the Beginning of a Piece; or all that has been play'd or sung from such a Mark, if it be at the End of a Piece; and what is thus sung twice, is called *Represa*. Those Signs are commonly found towards the third Part or thereabouts of Gavots, Minuets, Courants, *&c.* and at the End; because those Pieces must have two *Represa's*; which must each be played twice. Some will have it, that when the *Represa* has Points on both Sides, thus [:|:] it suffices to mark the Repetition, as well of what has preceded it, as of what follows it. That when it has Points on the left Side thus [:|] it is for the Repetition of what precedes it; and when on the right Side thus [|:] it is the Repetition of what follows.

The *Represa minore*, is when only few Measures of the *Represa maggiore* are repeated. It is marked thus [:|:] or thus [:|:] over or under the Note, whereby one must begin the Repetition.

RIVOLTARE, signifies to *change*, as well in the Harmony as in the Parts. Therefore *Canto rivoltato*, is a *Treble changed*, which after it has served of *Treble*, serves of *Bass*. *Basso rivoltato*, is a *Bass*, which after it has served of *Bass*, serves of *Treble*, &c. It is in that Sense we often find these Expressions in Authors, *la sesta Rivoltata diviene settima*, &c. the sixth changed becomes a seventh, &c. This Change is called *al*, or *per Roversa*, for Instance, fig. 50.

S.

SOLFAING, the naming or pronouncing the several Notes of a Song, by the Syllables *ut*, *re*, *mi*, *fa*, *sol*, and in learning to sing.

Of the seven Notes in the *French* Scale, *ut*, *re*, *mi*, *fa*, *sol*, *la*, *si*, only four are used by the *English* in Singing, as *mi*, *fa*, *sol*, *la*, though the *Italians* use the six first. Their Office therein is, that by applying them to every Note of the Scale, it may not only be pronounced with more Ease, but chiefly that by them the Tones, and Semi-Tones of the natural Scale, may be better marked out and distinguished.

The *English* say, that this Design is obtained by the four Syllables, *mi*, *fa*, *sol*, *la*; that thus from *fa* to *sol*, is a Tone, also from *sol* to *la*, and *la* to *mi*, without distinguishing the great and less Tone, but from *la* to *fa*, also from *mi* to *fa*, only a Semi-Tone; that if then these be applied in this Order *fa sol*, *la fa*, *sol la*, *mi fa*, they express the natural Series from C, and if they be repeated a second or third Octave, we see by them how to express all the different Orders of Tones and Semi-Tones in the diatonick Scale; and still above *mi* will stand *fa*, *sol*, *la*, and below it the same inverted *la*, *sol*, *fa*, and one *mi* is always distant from another an Octave, which cannot be said of any of the rest, because after *mi* ascending, come always *fa*, *sol*, *la*, *fa*, which are repeated invertedly descending.

To conceive the Use of this, it is to be remember'd, that the first Thing in learning to sing, is to make one raise a Scale of Notes by Tones and Semi-Tones to an Octave, and descend again by the same, and then to rise and fall by greater Intervals, as at a Leap, as Thirds and Fourths, *&c.* and to do all this by beginning at Notes of different Pitch; then these Notes are represented by Lines and Spaces, to which these Syllables are applied, and the Learners taught to name each Line and Space thereby; which makes what we call *Solfaing*. The Use whereof is, that while they are learning to tune the Degrees and Intervals of Sounds, expressed by Notes on a Line or Space, or learning a Song, to which no Words are applied, they may do it the better by Means of articulate Sounds; but chiefly that by knowing the Degrees and Intervals, expressed by those Syllables, they may more readily know the Places of the Semi-Tones, and the true Distance of the Notes.

T.

T stands for *Tutti*, *all*, or *all* together. — It is also used to mark the Tenor, and the Figures 1°. 2°. to signify the first and second Tenor.

The Letter T, or *tr*, is often used likewise to signify a Shake to be made on any Sound, and is placed over the Note to be shook on.

TABLATURA, signifies *Tablature*, which is in general, when to mark the Sounds, the Letters of the Alphabet, Cyphers, and other Signs are used, which is not common in the modern Musick; but this Term is more particularly adapted to the Manner of writing a Piece of *Musick* for the Theorbo, Lute, Guittar, Viol, or the like, which is done on parallel Lines (each of which represents a String of the Instruments) certain Letters of the Alphabet, whereof A marks that the String is to be struck open, *i. e.* without putting the Finger of the Left-Hand on the Neck. B shews that one of the Fingers is to be put on the first Stop, C on the second, D on the third, and so on through the Octave.

The *Tablature* of the *Lute*, is wrote in Letters of the Alphabet, and that of the Harpsichord in common Notes with Figures over their Heads, though the *Germans*, *Saxons*, *Swedes*, &c. who seldom or ever use our Notes, and who have rendered themselves famous for their accurate Practice and Knowledge of this Sort of Writing, use it, not only for the Lute, Bass-viol, *&c.* but also for the Organ and Harpsichord, placing plain Letters without Lines.

TEMPERAMENT, is what the *Italians* otherwise called *participatione*; wherefore they call the modern System, *Systema temperato*, or *participato*, because founded on Temperature, that is, on the Diminution of some Intervals, and the enlarging of others; which makes it participate of the *diatonick* and *chromatick* Systems.

The better to understand what is meant hereby, 'tis to be observed, 1. That among the Antients, there were three Sects, who had very different Opinions concerning the precise Compass or Extent of each Interval.

The first of these were the *Pythagoreans*, Disciples of *Pythagoras*, who would have it that Reason alone was the proper Judge of Sounds, and their Proportions, and consequently that the Forms of Intervals were all rational, *i. e.* they admitted none but such as they could demonstrate either arithmetically by Numbers, or geometrically by Lines; and that therefore, the fifth must always have the Proportion of 2 : 3, the fourth that of 3 : 4. the Tone minor, 9 : 10. the Tone major that of 8 : 9, exactly; and besides these they fix'd the Proportions of many other Intervals, which have afforded Disputes for as many Mathematicians.

But the Ear (the Judgment whereof is very nice) does not agree to what they so fixed. The rest in the Course of my Treatise.

TETRACHORD, in the antient *Musick*, a Concord consisting of three Degrees or Intervals, and four Terms or Sounds; called by the Antients also (more properly) *Diatessaron*, and by us a Fourth.

TRANSPOSITION, the writing any Song, Air, or Tune, in any Key different from that in which it was first composed.

Of these there are two Kinds; the first is with respect to the Cleff, and the second with regard to the Key.

Transposition with respect to the Cleff, consists in changing the Places or Seats of the Notes or Letters, among the Lines and Spaces; but so as that every Note be set at the same Letter.

This is done either by moving the same Cleff to another Line, or by using another Cleff; but with Signs that place the Tones and Semitones in the same Order as before, by reason the Piece is in the same Key.

The Practice is easy in the same Case; in the first you take the first Note at the same Distance above or below the Cleff-Note, in its new Position as before; and all the rest of the Notes in the same Relations or Distances from one another, so that the Notes are all set on Lines or Spaces of the same Name.

In the second, or setting the Musick in a different Key, 'tis to be observed, the Places of the three Cleff-Notes, are invariable in the Scale, and are to one another in these Relations, the mean a Fifth above the Bass, and the Treble a Fifth above the Mean.

Now to transpose to a new Cleff, for Example, from the Treble to the Mean, wherever the new Cleff is set, we suppose it the individual Note in the same Place of the Scale, as if the Place were that Part in the Composition, to which the new Cleff is generally appropriated, to which it may direct to the last Note we had before transposition. Now from the fixed Relations of the three Cleffs in the Scale, it will be easy to find the Seat of the first transposed Note, and then all the rest are to be set at the same mutual Distances they were at before.

Suppose, for Example, the first Note of a Song to be D, a Sixth above the Bass Cleff, wherever that Cleff is placed, the first Note must be a greater Second above, because a greater Second above the Mean, is a Sixth above the Bass-Cleff, the Relation between the two being a Fifth; so the first Note will be still the same individual D.

The Use of this *Transposition* is, that if a Song being set with a certain Cleff in a certain Position, the Notes go far above or below the Staff of five Lines, they may by the Change of the same Cleff in the particular System, or by taking a new Cleff, be brought within the Compass of the Lines, or at least more within either Extreme than before.

Transposition from one Key to another, is a changing of the Key, or setting all the Notes of a Song at different Letters, and performing it consequently in different Places upon the Instruments. The Design thereof is, that a Song, which being begun in one Place is too high, too low, or otherwise inconvenient for a certain Instrument, may be begun in another Place, and from that carried on through all its just Degrees. The Cleff and its Position here remain the same, and the Change is of the Notes themselves from one Letter to another, and its Line or Space to another.

In the former *Transposition*, the Notes were expressed by the same Letters, but both removed to different Lines and Spaces; in this the Letters are unmoved, and the Notes of the Song transferred to, or expressed by other Letters, and consequently set on different Lines or Spaces, which therefore require a different Signature of the Cleff.

Transposition then, is the changing the Notes of a Song to a different Species of Octave, to that in which it was first composed, or at least in which 'tis actually noted, in such Sort that the Semitones of the two Fourths, which compose each Octave, as *mi fa*, and as the *French* have *si ut*, may be found by means of ♭ ♭ Flats, or ♯ ♯ exactly in the same Range, or in the same Degree or Proportion to another, as before Transposition, for Instance, *fig.* 52. where the Semitones of the Fourth in the Diatonick are found by means of Sharps.

Or 'tis the using one or more chromatick Chords, instead of the natural and diatonick, to constitute a Mode, that is to say, to place the Final on any Degree at Pleasure, or to render the Fifth above it just; and by that Means make it the Dominant, or to make the third Major or Minor, *&c.*

It must be observed, it is not impossible to transpose a diatonick Song, or one wherein there are none but natural Chords, either higher or lower, without the Aid of these chromatick Signs, either one Flat, or one Sharp, and very often one may not be sufficient; therefore we must remark that if many Flats or Sharps be found in a Song, either immediately after a Cleff, or in different Parts of the Song, on the natural or essential Chords of the Mode, it may be concluded, that the Song is in a transposed Mode, and therefore may be reduced to a natural one.

Lastly, *Transposition* is to use these chromatick Characters in such a Manner, as that by their Help the Chords of the two Octaves, though they begin and continue in different Letters or Degrees of the *Gamut*, may form the same Intervals, and consequently have the same Names. For Instance, *fig.* 53. here are only Examples of *ut* and *re*, because the Finals of all transposed Modes must be one of those two; if *ut*, the third above it is Major; if *re*, Minor.

Note, That the *Transposition* is a Thing which gives a great deal of Trouble to young Practitioners in Singing. Sometimes by the Negligence either of Authors or Copists in forgetting to place the chromatick Signs, for a Flat or a Sharp being omitted after the Cleff, makes them mistake in transposing the Air, which they suppose noted in a certain Cleff, which the accidental Flats or Sharps in the Course of the Song shew not to be natural. This Transposition neither raises nor lowers the Tone, but changes the Notes

only, and reduces a transposed Song to a natural one.

TREMOLO, *Tremolante*, or *Tremante*, is often found either entire, or in abregee, *Trem.* To give Notice, especially to those who play on Instruments with a Bow, to make on the same Degree several Notes with a single Stroke of the Bow, to imitate as it were the Shake of the Organ. That's also often marked for Voices: We have Examples of both in Mr. *Lully*'s Opera of *Isis*.

We find sometimes also, that Word *Tremolo*, and its diminutive *Tremoleto*, to signify what the *French* call, though improperly, *Cadence*, and which should be called *Shake*.

TRIAS, a Term purely *Latin*, which signifies *three*, and in antient Musick a *Trio*, i. e. a Composition in three Parts, and to be performed by three Voices alone.

TRIAS HARMONICA, are *Greek* Terms latinized, which can be translated *Harmonick triard*; and is a Compound of three radical Sounds all heard together, neither of them being at the Octave of the two others; and of which one is a Fifth, and the other a Third above the other, which is the Fundamental.

The *Triad*, is properly a Consonance formed of a Third and a Fifth; which with the Bass or fundamental Sound make three different Terms; whence the Name *Triad*. That of harmonical is doubtless given it from the wonderful Property of the Fifth, which divides itself into two Thirds very naturally, both excellent and perfectly agreeable; so that this one Sound disposed between two others make two Thirds at once, one Major, the other Minor, and of Consequence a double Harmony.

Hence it is, that in *Trios*, particularly this Concord is preferred to that which divides the Octave into a Fifth and a Fourth, in regard that if there be Concord on one Side, there is a Discord on the other, whereas here the Harmony is compleat on both Sides. But here it must be observed, that the Fourth is by some accounted a Discord, but by most esteemed a Concord; and 'twas upon the Division, that a great many of the antient Nicetics depended.

Of the three Sounds which compose the harmonical *Triad*, the gravest is called the Fundamental or Basis; the acutest, that is, that which makes the Fifth, and terminates the Concord upwards, is called the excluded or highest Sound, *sonus exclusus*, and that which divides the Fifth so agreeably into two Thirds, the harmonical Mean, *medius harmonicus*.

This Division of the Fifth into two Thirds may be performed two Ways, viz. *First*, harmonically, when the greater Third is lowest, and the less a-top, in which Case the *Triad* is said to be perfect and natural.

Secondly, arithmetically, when the less Third is lowest, and the greater a-top; in which Case the *Triad* is called imperfect or flat; both are good, but the last is not so much used as the first.

TRILLO, often marked, in Abregee, by a T. or by Tr. or only by a small t, as well for Voices as for Instruments; is to intimate, that you must beat very quick alternately, or one after another, two Sounds in conjoint Degrees, as *fa mi*, or *mi re*, &c. so that you begin by the highest, and end by the lowest; and this is properly the *Cadence* or *Shake*, in the *French* Manner. But it is also very often a Mark, especially in the *Italian* Musick, that you must be at the same Note several Times on the same Degree, beginning a little slow, and ending with all the Quickness the Throat can form them: For Instance, fig. 50.

Therefore this is properly the true *Italian* Trillo, at least as it can be expressed by common Notes. The *Italians* use it more particularly after they have held out a Note, or made a *Roulade* or *Tirata* of two or more Measures to ease the Voice, which so long a Tension had weakened.

TRIO, is said of a Piece of *Musick* made to be performed by three Voices, or of all Composition in three different Parts. But in this Composition which is the most regular of all, and which ought to be the most regular of all; we must observe, 1. That besides the general Rules of the Counterpoint, which forbid making two Octaves or two Fifths to follow one another, either to the Bass or among the other Parts, in *Trios*, the Third must be heard in every Time of the Bar, either with the Bass, or with the other two superior Parts, *i. e.* that one of the two superior Parts make a Third with the Bass, and the other a Fifth, or an Octave.

2. That sometimes the Sixth, accompanied with the Octave or Fourth, may be used instead of the Third, because then the two superior Parts make a Third among themselves.

3. That therefore the Fifth and Octave are very seldom to be used, because there will then be no Third to the Bass, or between the Parts.

4. That all Discords may be used in *Trios*, that the 9th must be accompanied with the 3d and 5th, as also very well with the 7th and redundant 5th, provided an Octave follow. The 2d must be accompanied with the 4th, and follow'd by the 3d. The 4th must be accompanied with the 5th or 6th, if it be syncoped, and followed by the 3d; or if it be not syncoped with the 2d, and followed by the 5th, either just or false, according to the Sequel of the Song and Harmony.

The *Tritone* must be accompanied with the Sixth or Second, and followed by the Sixth, but seldom by the Octave.

The false *Fifth* must be accompanied by the 3d or 6th, and followed by the Third.

The *superfluous Fifth* must be accompanied by the Third, *&c.*

The *seventh Major* or *Minor*, and syncoped must be accompanied with the 3d, or 5th, or 9th, but never or seldom by the Octave.

The *seventh Major*, may be accompanied by the Second or Fifth, and sometimes by a Fourth, if the Bass holds on a Note.

V.

V, is often found alone thus V, for one Violin; or thus V V, for two Violins.

VARIATIO, *Variazione*, signifies in *Musick* all the different Manners of playing or singing an Air, either in subdividing the Notes into others of less Value, or by adding of Graces, *&c.* in such a Manner however as one may still discern the Ground through all the Enrichments, which some call *embroderies*. Thus, for Instance, the different *Coplets* of the *Folies d'Espagne*, of *Chacones*, *Passecailles*, &c. and sometimes of *Gavots*, are so many Variations.

USO, *Usage*, *Custom*, *Habitude*, or that frequent Repetition of the same Thing, in order to facilitate the Execution thereof; but in *Musick* that Word has a Signification something different, which is interesting enough to deserve the following ample Explication.

Therefore to understand well what *Uso* is in *Musick*, we must know that the *Melopæia* has three Parts, which the *Greeks* call *Lepsis*, *Mixis*, and *Chresis*; and the Latins *Sumtio*, *Mistio*, *usus*; and the Italians, *Presa*, *Mescolamento*, and *Uso*.

The *Presa*, say *Aristides*, *Euclide*, *Martianus Capella*, &c. and after them *Bontempi*, teaches a Composer in what System he must place his Song; if he shall place it in the System of the *grave Sounds*, or of the acute or mean; and consequently in what Mode or Tone, and by what Note he must begin and end it.

Miscolamento, procures to the Composer the Means of mixing or joining the Sounds one after another, so that the Voice or Sound be always within a certain Compass, that the three Genera or Kinds of Modulation, *viz.* the *Diatonick*, *Chromatick*, and *Enharmonick*, may be conveniently disposed, and that the Song never move out of the System, that is, the Limit or Mode wherein 'tis begun, unless with some particular Design. *Mistio est per quam aut sonos inter se, aut vocis locos coagmentamus; aut modulationis genera, aut modorum systemata*, Arist. 'Tis properly no more than after having begun the Song, to pursue it without forcing any particular Sound therein, *i. e.* raising it too high, or falling too low, or using any forbidding Intervals, and well placing the natural, essential, necessary, or accidental Chords of the Mode, to go out of it and enter it again conveniently; in a Word, according to modern Expression, 'tis the Art of modulating well.

Lastly, the *Uso* is that Part of the Melopæia, which teaches the Composer how the Sounds are to follow one another, and in what *Situations* each of them ought and can be to form an agreeable Melody, or a good *Modulation*;

TABLATURA, signifies *Tablature*, which is in general, when to mark the Sounds, the Letters of the Alphabet, Cyphers, and other Signs are used, which is not common in the modern Musick; but this Term is more particularly adapted to the Manner of writing a Piece of *Musick* for the Theorbo, Lute, Guittar, Viol, or the like, which is done on parallel Lines (each of which represents a String of the Instruments) certain Letters of the Alphabet, whereof A marks that the String is to be struck open, *i. e.* without putting the Finger of the Left-Hand on the Neck. B shews that one of the Fingers is to be put on the first Stop, C on the second, D on the third, and so on through the Octave.

The *Tablature* of the *Lute*, is wrote in Letters of the Alphabet, and that of the Harpsichord in common Notes with Figures over their Heads, though the *Germans*, *Saxons*, *Swedes*, &c. who seldom or ever use our Notes, and who have rendered themselves famous for their accurate Practice and Knowledge of this Sort of Writing, use it, not only for the Lute, Bass-viol, *&c.* but also for the Organ and Harpsichord, placing plain Letters without Lines.

TEMPERAMENT, is what the *Italians* otherwise called *participatione*; wherefore they call the modern System, *Systema temperato*, or *participato*, because founded on Temperature, that is, on the Diminution of some Intervals, and the enlarging of others; which makes it participate of the *diatonick* and *chromatick* Systems.

The better to understand what is meant hereby, 'tis to be observed, 1. That among the Antients, there were three Sects, who had very different Opinions concerning the precise Compass or Extent of each Interval.

The first of these were the *Pythagoreans*, Disciples of *Pythagoras*, who would have it that Reason alone was the proper Judge of Sounds, and their Proportions, and consequently that the Forms of Intervals were all rational, *i. e.* they admitted none but such as they could demonstrate either arithmetically by Numbers, or geometrically by Lines; and that therefore, the fifth must always have the Proportion of 2 : 3, the fourth that of 3 : 4. the Tone minor, 9 : 10. the Tone major that of 8 : 9, exactly; and besides these they fix'd the Proportions of many other Intervals, which have afforded Disputes for as many Mathematicians.

But the Ear (the Judgment whereof is very nice) does not agree to what they so fixed. The rest in the Course of my Treatise.

TETRACHORD, in the antient *Musick*, a Concord consisting of three Degrees or Intervals, and four Terms or Sounds; called by the Antients also (more properly) *Diatessaron*, and by us a Fourth.

TRANSPOSITION, the writing any Song, Air, or Tune, in any Key different from that in which it was first composed.

Of these there are two Kinds; the first is with respect to the Cleff, and the second with regard to the Key.

Transposition with respect to the Cleff, consists in changing the Places or Seats of the Notes or Letters, among the Lines and Spaces; but so as that every Note be set at the same Letter.

This is done either by moving the same Cleff to another Line, or by using another Cleff; but with Signs that place the Tones and Semitones in the same Order as before, by reason the Piece is in the same Key.

The Practice is easy in the same Case; in the first you take the first Note at the same Distance above or below the Cleff-Note, in its new Position as before; and all the rest of the Notes in the same Relations or Distances from one another, so that the Notes are all set on Lines or Spaces of the same Name.

In the second, or setting the Musick in a different Key, 'tis to be observed, the Places of the three Cleff-Notes, are invariable in the Scale, and are to one another in their Relations, the mean a Fifth above the Bass, and the Treble a Fifth above the Mean.

Now to transpose to a new Cleff, for Example, from the Treble to the Mean, wherever the new Cleff is set, we suppose it the individual Note in the same Place of the Scale, as if there were that Flat in the Composition, to which the new Cleff is generally appropriated, [illegible] to the [illegible] Note we had before transposed. Now from the mutual Relations of the three Cleffs in the Scale, it will be easy to find the Seat of the first transposed Note, and then all the rest are to be set at the same mutual Distances they were at before.

Suppose, for Example, the first Note of a Song to be D, a Sixth above the Bass Cleff, wherever that Cleff is placed, the first Note must be a greater Second above, because a greater Second above the Mean, is a Sixth above the Bass-Cleff, the Relation between the two being a Fifth; so the first Note will be still the same individual D.

The Use of this *Transposition* is, that if a Song being set with a certain Cleff in a certain Position, the Notes go far above or below the Staff of five Lines, they may by the Change of the same Cleff in the particular System, or by taking a new Cleff, be brought within the Compass of the Lines, or at least more within either Extreme than before.

Transposition from one Key to another, is a changing of the Key, or setting all the Notes of a Song at different Letters, and performing it consequently in different Places upon the Instruments. The Design thereof is, that a Song, which being begun in one Place is too high, too low, or otherwise inconvenient for a certain Instrument, may be begun in another Place, and from that carried on through all its just Degrees. The Cleff and its Position here remain the same, and the Change is of the Notes themselves from one Letter to another, and its Line or Space to another.

In the former *Transposition*, the Notes were expressed by the same Letters, but both removed to different Lines and Spaces; in this the Letters are unmoved, and the Notes of the Song transferred to, or expressed by other Letters, and consequently set on different Lines or Spaces, which therefore require a different Signature of the Cleff.

Transposition then, is the changing the Notes of a Song to a different Species of Octave, to that in which it was first composed, or at least in which 'tis actually noted, in such Sort that the Semitones of the two Fourths, which compose each Octave, as *mi fa*, and as the *French* have *si ut*, may be found by means of ♭ ♭ Flats, or ♯ ♯ exactly in the same Range, or in the same Degree or Proportion to another, as before Transposition, for Instance, *fig.* 52. where the Semitones of the Fourth in the Diatonick are found by means of Sharps.

Or 'tis the using one or more chromatick Chords, instead of the natural and diatonick, to constitute a Mode, that is to say, to place the Final on any Degree at Pleasure, or to render the Fifth above it just; and by that Means make it the Dominant, or to make the third Major or Minor, *&c.*

It must be observed, it is not impossible to transpose a diatonick Song, or one wherein there are none but natural Chords, either higher or lower, without the Aid of these chromatick Signs, either one Flat, or one Sharp, and very often one may not be sufficient; therefore we must remark that if many Flats or Sharps be found in a Song, either immediately after a Cleff, or in different Parts of the Song, on the natural or essential Chords of the Mode, it may be concluded, that the Song is in a transposed Mode, and therefore may be reduced to a natural one.

Lastly, *Transposition* is to use these chromatick Characters in such a Manner, as that by their Help the Chords of the two Octaves, though they begin and continue in different Letters or Degrees of the *Gamut*, may form the same Intervals, and consequently have the same Names. For Instance, *fig.* 53. here are only Examples of *ut* and *re*, because the Finals of all transposed Modes must be one of those two; if *ut*, the third above it is Major; if *re*, Minor.

Note, That the *Transposition* is a Thing which gives a great deal of Trouble to young Practitioners in Singing. Sometimes by the Negligence either of Authors or Copists in forgetting to place the chromatick Sign for a Flat or a Sharp being omitted after the Cleff, makes them mistake in transposing the Air, which they suppose noted in a certain Cleff, which the accidental Flats or Sharps in the Course of the Song shew not to be natural. This Transposition neither raises nor lowers the Tone, but changes the Notes [illegible]

only, and reduces a transposed Song to a natural one.

TREMOLO, *Tremolante*, or *Tremante*, is often found either entire, or in abregee, *Trem.* To give Notice, especially to those who play on Instruments with a Bow, to make on the same Degree several Notes with a single Stroke of the Bow, to imitate as it were the Shake of the Organ. That's also often marked for Voices: We have Examples of both in Mr. *Lully*'s Opera of *Isis*.

We find sometimes also, that Word *Tremolo*, and its diminutive *Tremoleto*, to signify what the *French* call, though improperly, *Cadence*, and which should be called *shake*.

TRIAS, a Term purely *Latin*, which signifies *three*, and in antient Musick a *Trio*, i. e. a Composition in three Parts, and to be performed by three Voices alone.

TRIAS HARMONICA, are *Greek* Terms latinized, which can be translated *Harmonick triard*; and is a Compound of three radical Sounds all heard together, neither of them being at the Octave of the two others; and of which one is a Fifth, and the other a Third above the other, which is the Fundamental.

The *Triad*, is properly a Consonance formed of a Third and a Fifth; which with the Bass or fundamental Sound make three different Terms; whence the Name *Triad*. That of harmonical is doubtless given it from the wonderful Property of the Fifth, which divides itself into two Thirds very naturally, both excellent and perfectly agreeable; so that this one Sound disposed between two others make two Thirds at once, one Major, the other Minor, and of Consequence a double Harmony.

Hence it is, that in *Trios*, particularly this Concord is preferred to that which divides the Octave into a Fifth and a Fourth, in regard that if there be Concord on one Side, there is a Discord on the other, whereas here the Harmony is compleat on both Sides. But here it must be observed, that the Fourth is by some accounted a Discord, but by most esteemed a Concord; and 'twas upon the Division, that a great many of the antient Niceties depended.

Of the three Sounds which compose the harmonical *Triad*, the gravest is called the Fundamental or Basis; the acutest, that is, that which makes the Fifth, and terminates the Concord upwards, is called the excluded or highest Sound, *sonus exclusus*, and that which divides the Fifth so agreeably into two Thirds, the harmonical Mean, *medius harmonicus*.

This Division of the Fifth into two Thirds may be performed two Ways, viz. *First*, harmonically, when the greater Third is lowest, and the less a-top, in which Case the *Triad* is said to be perfect and natural.

Secondly, arithmetically, when the less Third is lowest, and the greater a-top; in which Case the *Triad* is called imperfect or flat; both are good, but the last is not so much used as the first.

TRILLO, often marked, in Abregee, by a T. or by Tr. or only by a small t, as well for Voices as for Instruments; is to intimate, that you must beat very quick alternately, or one after another, two Sounds in conjoint Degrees, as *fa mi*, or *mi re*, &c. so that you begin by the highest, and end by the lowest; and this is properly the *Cadence* or *Shake*, in the *French* Manner. But it is also very often a Mark, especially in the *Italian* Musick, that you must be at the same Note several Times on the same Degree, beginning a little slow, and ending with all the Quickness the Throat can form them: For Instance, fig. 56.

Therefore this is properly the true *Italian* Trillo, at least as it can be expressed by common Notes. The *Italians* use it more particularly after they have held out a Note, or made a *Roulade* or *Tirata* of two or more Measures to ease the Voice, which so long a Tension had weakened.

TRIO, is said of a Piece of *Musick* made to be performed by three Voices, or of all Composition in three different Parts. But in this Composition which is the most regular of all; we must observe, 1. That besides the general Rules of the Counterpoint, which forbid making two Octaves or two Fifths to follow one another, either to the Bass or among the other Parts, in *Trios*, the Third must be heard in every Time of the Bar, either with the Bass, or with the other two superior Parts, *i. e.* that one of the two superior Parts make a Third with the Bass, and the other a Fifth, or an Octave.

2. That sometimes the Sixth, accompanied with the Octave or Fourth, may be used instead of the Third, because then the two superior Parts make a Third among themselves.

3. That therefore the Fifth and Octave are very seldom to be used, because there will then be no Third to the Bass, or between the Parts.

4. That all Discords may be used in *Trios*, that the 9th must be accompanied with the 3d and 5th, as also very well with the 7th and redundant 5th, provided an Octave follow. The 2d must be accompanied with the 4th, and follow'd by the 3d. The 4th must be accompanied with the 5th or 6th, if it be syncoped, and followed by the 3d; or if it be not syncoped with the 2d, and followed by the 5th, either just or false, according to the Sequel of the Song and Harmony.

The *Tritone* must be accompanied with the Sixth or Second, and followed by the Sixth, but seldom by the Octave.

The false *Fifth* must be accompanied by the 3d or 6th, and followed by the Third.

The *superfluous Fifth* must be accompanied by the Third, *&c.*

The *seventh Major* or *Minor*, and syncoped must be accompanied with the 3d, or 5th, or 9th, but never or seldom by the Octave.

The *seventh Major*, may be accompanied by the Second or Fifth, and sometimes by a Fourth, if the Bass holds on a Note.

V.

V, is often found alone thus V, for one Violin; or thus V V, for two Violins.

VARIATIO, *Variazione*, signifies in *Musick* all the different Manners of playing or singing an Air, either in subdividing the Notes into others of less Value, or by adding of Graces, *&c.* in such a Manner however as one may still discern the Ground through all the Enrichments, which some call *embroderies*. Thus, for Instance, the different *Coplets* of the *Folies d'Espagne*, of *Chacones*, *Passcailles*, &c. and sometimes of *Gavots*, are so many Variations.

USO, *Usage*, *Custom*, *Habitude*, or that frequent Repetition of the same Thing, in order to facilitate the Execution thereof; but in *Musick* that Word has a Signification something different, which is interesting enough to deserve the following ample Explication.

Therefore to understand well what *Uso* is in *Musick*, we must know that the *Melopæia* has three Parts, which the *Greeks* call *Lepsis*, *Mixis*, and *Chræsis*; and the Latins *Sumtio*, *Mistio*, *usus*; and the Italians, *Presa*, *Mescolamento*, and *Uso*.

The *Presa*, say *Aristides*, *Euclide*, *Martianus Capella*, &c. and after them *Bontempi*, teaches a Composer in what System he must place his Song; if he shall place it in the System of the *grave Sounds*, or of the acute or mean; and consequently in what Mode or Tone, and by what Note he must begin and end it.

Mescolamento, procures to the Composer the Means of mixing or joining the Sounds one after another, so that the Voice or Sound be always within a certain Compass, that the three Genera or Kinds of Modulation, *viz.* the *Diatonick*, *Chromatick*, and *Enharmonick*, may be conveniently disposed, and that the Song never move out of the System, that is, the Limit or Mode wherein 'tis begun, unless with some particular Design. *Mistio est per quam aut sonos inter se, aut vocis locos coagmentamus; aut modulationis genera, aut modorum systemata*, Arist. 'Tis properly no more than after having begun the Song, to pursue it without forcing any particular Sound therein, *i. e.* raising it too high, or falling too low, or using any forbidding Intervals, and well placing the natural, essential, necessary, or accidental Chords of the Mode, to go out of it and enter it again conveniently; in a Word, according to modern Expression, 'tis the Art of modulating well.

Lastly, the *Uso* is that Part of the Melopæia, which teaches the Composer how the Sounds are to follow one another, and in what *Situations* each of them ought and can be to form an agreeable Melody, or a good *Modulation*;

ation; which according to *Aristides* can be done in three Manners, to which *Euclid* has added a fourth, of which I'll speak afterwards.

The *first* is called by the *Greeks Agoge*, or *Agogi*, by the *Latins Ductus*, and *Conducimento* by the *Italians*, and is when the Sounds follow one another *di grado*, or in conjoint Degrees, *i. e.* from one to another without missing an intermediate Degree.

Of *Ductus* there are three Kinds, the first is *Ductus rectus*, or *Conducimento retto*, when the Notes or Sounds follow one another immediately rising, as fig. 59. which the *Italians* call also *di grado ascendente*.

The *second* is *Ductus revertens*, or *Conducimento ritornante*, and is when the Sounds follow one another immediately descending, as fig. 60. which is likewise called by the *Italians di grado descendente*.

The *third* is *Ductus circumcurrens*, or *Conducimento circoncurrente*, which is that after having ascended by natural or diatonick Chords, they descend by the same Degrees, except instead of *b* natural, *b mol* or flat is touched in this Descent; or when the Ascent is by *b* natural, and the Descent by *b mol*, as fig. 61. or on the contrary, when you ascend by *b mol*, to descend immediately by *b quarre*.

The second Kind of the *Uso*, is that called *Ploke*, or *Ploki*, by the *Greeks Nexus*; *Implicatio*, *Textura*, &c. by the *Latins*; and by the *Italians Nesso*; which is when passing from one Sound to another; either in ascending or descending; we do not take that which follows immediately, but one or two, or more; which is clearly demonstrated, fig. 62. this the *Italians* call *di salto*; and the *French* to proceed by disjoint Degrees.

Lastly, the third Sort of *Uso*, is that called by the *Greeks Petteia*, and by the *Latins* and *Italians Pettia*. Which to understand well, we must observe, 1. That Sounds in general, have the Faculty to express by themselves, and even excite in Men, what the *Latins* call *Mores*, and the *Italians Custom*, i. e. certain inward Motions, called by the Philosophers, Affections or Passions. The Sound of Drums and Trumpets is a sensible Proof thereof, and almost a continual one among Soldiers.

2. That among Sounds some are naturally more proper, to express or excite certain Passions than others which produce other Effects. Thus acute Sounds excite Mirth, Gaiety, Courage, *&c.* whereas grave Sounds, have something dull and melancholick. Likewise Songs which proceed by diatonick Chords, have something merry, *&c.* and those which proceed by *b mol* are tender, soft, affectuous, *&c.*

3. The different Combination of Sounds one with another, or those Passages made alternately from the acute to the grave, or from the grave to the acute; whether made by conjoint Degrees, as in the Conduciments, or by disjoint ones, as in the *Nesso*, have no less Force to express or excite the Passions. Thus, for Example, the *Nesso*, or *Saltum*, from the third Minor in ascending, can excite Tenderness, Pity, a soft and agreeable Melancholy, *&c.* whenas it excites Mirth, Joy, *&c.* in descending.

4. Lastly, it is certain, that a frequent Repetition of the same Sound; that that Repetition made very quick, or very slow; that an interrrupted Continuation of the same Sound, during a considerable Time, *&c.* produce sensibly very different Effects.

Therefore it is the *Pettia*, says *Aristides*, which procures us the Means, and gives us the surest Rules to make a just Discernment of those, or ordering or combining Sounds between themselves; to place them as they should be, and in a Manner that they may produce their Effect, *i. e.* to express the different Passions which one wants to excite, which consequently lets us know what Sounds we are to employ in our Songs, and which we are to exclude from them; if it be proper, and how often we are to repeat them; if we must begin (especially in the *Nesso*) by an acute Sound, to descend to a grave one; or, on the contrary, ascend from a grave Sound to an acute.

Euclid gives an Explication something different of all those different Parts of the *Melopoia*; for, after he has established that the *Melopoia*, *is the Art of reducing the Harmony into Practice*; he adds, that it is done in four Manners, the two first of which, *viz. Daxis* and *Xysis*, are the same above explain'd. But he pretends, 1. That the *Pettia*, which he considers as the 3d Manner, is nothing else but a Repetition of the same Song on the same Degree, which is very true, though he is too concise on that Subject.

2. That besides those three Manners, there is a fourth, called in the *Greek*, *Tone* or *Toni*, in *Latin Extensio*, and in *Italian Distentimento*; and is when one dwells a long while, and without Interruption on the same Song.

True it is, that among what we have of the Antients here, are a great many excellent Rules for properly ranging Sounds one after another, so as to make Melody; and so that by such Progression, all our different Passions may be moved, but we do not find a Word concerning the properly disposing Sounds one above another, *i. e.* so as to form an Agreement or Union between them, called Concord, or a Disagreement called Discord, and Contrast between those two, which when heard together, make what we call Harmony. Now what strong and noble Expressions do we not meet with in those Pieces, called Consorts, arising from the agreeable Mixture of Concords and Discords.

We find that the Antients had certain Signs to shew when a Sound was to be held longer or shorter; but the Adherents to the antient Practice, will find some Difficulty to prove that their Measure was so just and regular as ours, by which our Composers are furnished with that great Variety of strong and lively Expressions; and as they practised not Harmony or Time as we do, it necessarily follows, that their *Musick* was not near so perfect as that of the Moderns.

W.

WIND-INSTUMENTS. — The Wind-Instruments of the Antients, were the *Tibia*, *Fistuta*, *Syringa of Pan*, consisting of seven Reeds joined side-wise, also *Organ*, *Tuba* or *Trumpet*, *Cornua*, *Lituus*, &c.

X.

X signifies properly no more than *Decima* or ten, as *Opera*, X^a, *&c.*

Y.

Y. This Letter is of no Use in the *Italian* Tongue, because instead thereof the *Italians* use always the Vowel I.

Z.

Z. This Letter is pronounced in the *Italian* before all the Vowels, as if there was a *D*, thus we must pronounce *DZeffiro* a little hard, instead of *Zeffiro*.

ZAMPOGNA, which is also wrote *Sampogna*, which signifies in *Latin Fistula*, is in general all Instruments which have the Sound of a Flute, and in particular of Bag-Pipe, composed of several Flutes, and often of a common Flute, *&c.*

ZOPPO, in *Latin Claudus*, *lame*, *decrepid*, *hopping*; 'tis from hence that they call one of the *obligate Counter-Points*, *Contra punto à la Zoppa*, a *lame Counter-Point*; because one is obliged to place in each Bar, to the Subject given, one Note between two others, that is as long as them both, which, when it comes to be played or sung, by the frequent Syncopes, to proceed by a Leap, or in a jumping Manner; as is plainly seen, fig. 63.

ZUFFOLO, or ZUFOLO, or *Suffolo*, signifies properly, in *Latin Sibilus*, in *French Settlement*, and in *English Whistling*; hence a certain small Flute, which has the Sound so acute, that it imitates the Whistling of Birds, called in *French Flageollet*; usually made of Box or other hard Wood, sometimes of Ivory; it has six Holes, besides that at the Bottom, the Mouth-Piece, and that behind the Neck. — The *Fife*, is also a Kind of *Zuffolo*.

Note, That as *Opera's* have been of late Years, very much in Vogue in *England*, where the *Italian* Singers have found the Secret, not of the Transmutation of Metals, but of changing their Throats into a *Cornucopia*; and where despicable Eunuchs have been more generously rewarded (if we are not ashamed to call that Generosity, which should be more properly called a scandalous Prodigality) for disfiguring what Melody has the most agreeable, by unnatural Squeakings capable to tear the Ear of those who are not [illegible] with

with what deviates more from Nature, than a gallant Soldier, who has weather'd in the Service of his Country, and carries on his Body, in a hundred Cicatrices, the glorious Marks of his Courage; or any other, who has procured some signal Advantages to the Republick; and who, but too often, are left to starve in the Dust of a despicable Garret; I'll conclude this Treatise by a short Dissertation on Opera's and Singing, from M. *St. Evremont*.

That Author begins by confessing ingenuously, that he does not love Comedies in *Musick*, *i. e.* Opera's; though he confesses, likewise, at the same Time, that their Magnificence please him well enough, that their Machines have something surprizing; their Musick have, in some Places, something moving, and that the whole together, or *tout en semble*, is, in some Measure marvellous; but that those Charms become soon tedious; for where the Mind has so little to do, the Senses must necessarily grow tired. After the first Pleasure the Surprize gives us, the Eyes are employed, and grow weary afterwards of a continual Application to the Objects. At the Beginning of the Concerts, the Justness of the Accords is taken Notice of; nothing escapes of all the Diversities united together, to form the Sweetness of the Harmony: Some Time afterwards the Noise of the Instruments stuns us; the Musick is no more any Thing else but a confused Noise to the Ears. But who can conquer the tedious Prolixity of the Recitative in a Modulation, which has neither the Charm of the Song, nor the agreeable Strength of the Word? The Soul fatigued with a long Attention, where she discovers nothing which can agreeably entertain her Faculties, searches within herself some secret Motion, which can affect her; and the Mind which has lent itself in vain to outward Impressions, abandons itself insensibly to a Kind of indolent Thoughts, or becomes disagreeable to itself in its Inaction. At last one becomes so extremely tired, that he longs to be out; and the sole Pleasure left to the indolent Spectators, is the Hope of seeing soon the End of the Spectacle.

M. *de St. Evremont* says, that all the Opera's he had seen, appeared always to him despicable in the Disposition of the Subject, and in the Poetry. Therefore it is in vain, that the Ear is flatter'd, and Eyes charmed, if the Mind is not pleased. My Soul in Intelligence with my Mind, more than with my Senses, forms a secret Resistance to the Impressions she can receive, or at least refuses giving them an agreeable Consent, without which the most voluptuous Objects cannot give a great Pleasure. A Folly loaded with Musick, Dances, Machines, and Decorations, is a magnificent Folly, but is still always a Folly; it is an ugly Foundation under fine Outsides, where I penetrate with much Disgust.

There is another Thing in Opera's so much against Nature, that it is impossible it should not shock a sound Imagination, and that is, to have the whole Piece sung from the Beginning to the End; as if the Persons who are represented, had dressed themselves in a ridiculous Manner, to treat in Musick the most common and most important Affairs of their Life. Can we imagine, that a Master calls his Servant, and commands him something in Singing? That a Friend intrusts his Friend with his Secret in Singing; that the Privy-Counsellors or Ministers of a Prince form their Deliberations in Musick; and that Men are killed melodiously in a Battle? In acting thus it is to lose the Spirit of the Representation, which without doubt is preferable to that of the Harmony; since the Harmony should be nothing else but a simple Accompaniment, which has been added by the greatest Masters of the Theatre, as something agreeable, but not necessary, after they have regulated all that regards the Subject and the Discourse. Notwithstanding which the Idea of the Musician goes before that of the Heroes, in Opera's. It is *Lully*, *Handell*, &c. who present themselves to the Imagination. The Mind which cannot conceive Hero's that sing, minds the Composer of the Piece; and it cannot be denied that in the Representations of the Palace Royal at *Paris*, and in those of the *Hay-Market* in *London*, *Lully* and *Handell* are much more minded than the Heroes of the Piece.

Notwithstanding which, I do not pretend to exclude all Sorts of Songs from the Theatre; there are Things which must be sung, and others which can be sung without shocking Decency and Reason; as Vows, Prayers, Sacrifices, and all that regards the Service of the Gods, has been sung among all Nations, and in all Ages. Tender and sorrowful Passions, are expressed naturally by a Sort of Song; the Expressions of Love in its Beginnings; the Irresolution of a Mind agitated by different Movements, are a Matter proper for Stanzas, and Stanzas a proper Matter for Musick. Almost every Body knows that Chorus's had been introduced on the Theatre of the *Greeks*, and have been introduced since on ours, where they produce a very good Effect. We have some Opera's of *Lully*'s, in this last delicate Taste, particularly that of *Atis*, which I hear always with a great deal of Pleasure, when in *France*; and which will have always the Charms of the Novelty on the Theatre. There's scarce any Thing in that Opera which cannot be sung; or to speak better, all that's in it would have no Charms if it was not sung; since there is nothing in that Opera but Love Intrigues, Disappointments in Love, and the most natural Expressions of the different Motions which torture the Soul of a powerful, and most implacable Rival, who takes Pleasure in persecuting two tender, sincere, and innocent Lovers *Atis* and *Sangaride*. I used to be almost extasied when I heard the *Pelissiere*, inviting *Cybele* to come down from Heaven: And nothing displeases me in the Spectacle but the Representation of the bad Dreams of *Atis*. But the Opera of *Roland*, though the Musick be as excellent as that of *Atis*, has a quite different Effect on my Mind. For all that is of a Conversation or Conference; all that regards Intrigues and Affairs, all that belongs to Council and Action, is proper for Comedians, who recite; and ridiculous in the Mouth of Musicians that sing. The *Greeks* used to make beautiful Tragedies where they sung something; and the *Italians* and *French*, and sometimes the *English* make very bad ones, where they sing every Thing.

Therefore an Opera, according to M. *de St. Evremont*, is *a whimsical Work of Poetry and Musick, where the Poet and the Musician, equally distressed by one another, take much Trouble to make a bad Piece.* Not but very agreeable Words and beautiful Airs may be found in it; but one may be sure to be disgusted at last, by the Poetry, where the Genius of the Poet has been confined within too narrow Limits; and the Tediousness of the Song, where the Musician has exhausted himself in a too long Musick.

The *Italians* despise the *French* Opera's, and the *French* have no Taste for the *Italian*. The *Italians* who mind nothing else but the Representation, cannot suffer we should call Opera a Texture of Dances and Musick, which have not a very just Report, and a very natural Connexion with the Subjects. The *French* used to the Beauty of their Overtures, to the Agreement of their Airs, to the Charm of their Symphonies, suffer with Pain the Ignorance or bad Use of the Instruments in the Opera's of *Venice*, and refuse their Attention to their long Recitative, which becomes tedious by the little Variety found in it. — Thus far of the different Constitutions of the Opera.

As to the Manner of Singing, called in *France Execution*, M. *de St. Evremont* believes, that no Nation in the World can dispute it with the *French*. The *Spaniards* have a marvellous Disposition of Throat, but with their Trillings and Quaverings, they seem as if they had no other Intention in their Song, than to dispute the Facility of the Throat with the Nightingales. The *Italians* have the Expression false, or at least forced, by not knowing justly the Nature or Degree of the Passions: It is to burst out in laughing, rather than to sing, when they express some Sentiment of Joy; if they want to sigh, one hears Groans forming in their Throat with Violence, and not Sighs which escape secretly from the Passion of a Heart in Love; they make of a sorrowful Expression, the most violent Exclamations; Tears shed for an Absence, are Tears fit to accompany a Funeral; the melancholick becomes mournful in their Mouth; they rave instead of complaining in their Anguish; and sometimes they express the Anguish of their Passion as a fainting Fit.

The ſame Author adds, that he has ſeen Comedies in *England* where there was a great deal of *Muſick*, but that to ſpeak diſcreetly of them, he could never accuſtom himſelf to the Manner of ſinging of the *Engliſh*, that he came too late in their Country to take a Taſte ſo diſferent from all others. That there is no Nation which ſhews more Courage in Men, and more Beauty in Women, and more Wit in the one and the other Sex. But that it is impoſſible a Nation ſhould have all Perfections; and that where all good Qualities are common, it is not ſo great an Evil, that the good Taſte ſhould be ſcarce; and that it is certain it is ſeldom found in *England*; but that the *Engliſh* among whom it is found, have it as nice and delicate as any other Perſon in the World. For my Part I am of Opinion, that if M. *St. Evremont* had lived till our Days he had changed Sentiments; for I perceive that the *Engliſh* in general have as good a Taſte for *Muſick* as any other Nation, and ſing with a certain Agreement, which flatters as agreeably my Ear, though a *French* one, as the fineſt Airs of *Lully*, in the Mouth of the beſt *French* Singer; but for the *Italian* Singing, though I have aſſiſted at the Opera's of *Venice*, *Bologna*, *Rome*, &c. I confeſs ingeniouſly that I could never accuſtom myſelf to it.

M. *de St. Evremont* concludes, that *Solus gallus cantat*, i. e. that none but the *French* ſings: He confeſſes that there are few People who have the Comprehenſion ſlower than the *French*, either for the Senſe of the Words, or to underſtand what the Compoſer means, that there are few who underſtand leſs the Quantity, and find with more Difficulty the Pronunciation; but that after an aſſiduous Study has made them conquer all thoſe Difficulties, and they happen to be entire Maſters of what they ſing, nothing comes near their Charms. The ſame may be ſaid of them with regard to the Inſtruments, where nothing is either ſure or very juſt, but after a great Number of Repetitions; but nothing cleaner or more polite when the Repetitions are ended. The *Italians* profound in *Muſick* carry their Science to the Ears without any Softneſs; the *French* are not contented with freeing the Science of its firſt Harſhneſs, which ſmells of the Labour of the Compoſition, but find likewiſe, in the Secret of the Execution, a certain Charm for the Soul, and ſomething ſo moving that it penetrates the inmoſt Receſſes of the Heart.

Muſick has ever been in the higheſt Eſteem in all Ages, and among all People; nor could Authors expreſs the Opinion of it ſtrongly enough, but by inculcating, that it was uſed in Heaven, and was one of the principal Entertainments of the Gods, and the Souls of the Bleſſed.

The Effects aſcribed to it by the Antients are almoſt miraculous; by means hereof Diſeaſes are ſaid to have been cured, Unchaſtity corrected, Seditions quelled, Paſſions raiſed and calmed, and even Madneſs occaſioned. *Athenæus* aſſures us, that antiently all Laws, divine and civil, Exhortations to Virtue, the Knowledge of Divine and human Things, Lives and Actions of illuſtrious Men were written in Verſe, and publickly ſung by a Chorus to the Sound of Inſtruments, which was found the moſt effectual Means to impreſs Morality, and raiſe Senſe of Duty on the Mind.

Muſick made a great Part of the Diſcipline of the antient *Pythagoreans*, and was uſed by them to draw over the Mind to laudable Actions, and ſettle in it a paſſionate Love of Virtue: It was their Doctrine, that the Soul itſelf conſiſts of Harmony, and therefore by *Muſick* they pretend to revive the primitive Harmony, of its Faculties. By this primitive Harmony they mean that which, according to their Dogma, was in the Soul, in its pre-exiſtent State in Heaven.

Dr. *Wallis* has endeavoured to account for the ſurprizing Effects aſcribed to the antient *Muſick*, and charges them principally on the Novelty of the Art, and the Hyperboles of the antient Writers; nor does he doubt but the modern *Muſick*, *cæteris paribus*, would produce Effects at leaſt as conſiderable as the antient. The Truth is, we can match moſt of the antient Stories of this Kind in the modern Hiſtories. If *Timotheus* could excite *Alexander's* Fury with the *Phrygian* Mode, and lull him into Indolence with the *Lydian*; a more modern Muſician is ſaid to have driven *Erick* King of *Denmark* into ſuch a Rage as to kill his Houſhold Servants. Dr. *Nieuventiet* tells us of an *Italian*, who by varying his *Muſick* from briſk to ſolemn, and ſo *vice verſâ*, could move the Soul ſo as to cauſe Diſtraction and Madneſs. And Dr. *South* has founded his Poem, called *Muſica Incantans*, on an Inſtance he knew of the ſame Thing.

Muſick however, is not only found to exert its Force on the Affections, but on the Parts of the Body alſo; witneſs the *Gaſcon* Knight, mentioned by Mr. *Boyle*, who could not contain his Water at the playing of a Bag-pipe; the Woman mentioned by the ſame Author, who would burſt out in Tears at the playing of a certain Tune, with which other People were but little affected. To ſay nothing of the trite Story of the Tarantula; we have an Inſtance in the Hiſtory of the Academy of Sciences, of a Muſician being cured of a violent Fever by a little Concert occaſionally played in his Room.

Nor are our Minds and Bodies alone affected with Sounds, but even inanimate Bodies. *Kircher* tells us of a large Stone that would tremble at the Sound of one particular Organ-pipe; and *Morhoff* mentions one *Petter* a *Dutchman*, who could break Rummer-Glaſſes with the Tone of his Voice. *Merſenne* alſo tells us of a particular Part of a Pavement that would ſhake and tremble, as if the Earth would open, when the Organs played. Mr. *Boyle* adds, that Seats will tremble at the Sound of the Organs; that he has felt his Hat do ſo under his Hand at certain Notes, both of Organs and Diſcourſe; and that he was well informed, every well-built Vault would anſwer ſome determinate Note.

There is a great Diſpute among the Learned, whether the Antients or Moderns beſt underſtood, and practiſed *Muſick?* Some maintain that the antient Art of *Muſick*, by which ſuch wonderful Effects were performed is quite loſt; and others, that the true Science of Harmony is now arrived to much greater Perfection, than was known or practiſed among the Antients.

This Point ſeems no other Way determinable, but by comparing the Principles and Practice of one with thoſe of the other. As to the Theory and Principles of Harmonies, it is certain we underſtand it better than the Antients, becauſe we know all that they knew, and have improved conſiderably on their Foundations. The great Diſpute then lies on the Practice; with regard to which it may be obſerved, that among the Antients, *Muſick*, in the moſt limited Senſe of the Word, included *Harmony*, *Rithmus*, and *Verſe*; and conſiſted in Verſes ſung by one or more Voices alternately or in Choirs, ſometimes with the Sound of Inſtruments, and ſometimes by Voices only. Their muſical Faculties, we have already obſerved, were *Melopœia*, *Rhythmopœia*, and *Poeſis*. The firſt whereof may be conſidered under two Heads, viz. *Melody* and *Symphony*. As to the latter, it ſeems to contain nothing but what relates to the Conduct of a ſingle Voice, or making what we call *Melody*; the Antients do not appear to have ever thought of a Concert, or Harmony in Parts; which is the modern Invention, for which, as already mentioned, we are beholden to *Guido Aretin*.

We would not however be underſtood to mean that the Antients never joined more Voices or Inſtruments than one together in the ſame Symphony; but that they never joined ſeveral Voices ſo as that each had a diſtinct and proper Melody, which made among them a Succeſſion of various Concords, and were not in every Note Uniſons, or at the ſame Diſtance from each other as Octaves. This laſt indeed agrees to the general Definition of the Word *Symphony*, yet it is plain that in ſuch Caſes there is but one Song, and all the Voices perform the ſame individual Melody. But when the Parts differ, not by the Tenſion of the whole, but by the different Relations of the ſucceſſive Notes, this is the modern Art, which requires ſo peculiar a Genius, and on which Account the modern *Muſick* ſeems to have made the Advantage of the antient.

The moſt antient Writer of *Muſick* was *Lajus Hermionenſis*, but his Works as well as thoſe of many others both *Greek* and *Roman* are loſt. *Ariſtoxenus*, Diſciple of *Ariſtotle*, is the eldeſt Author extant on the Subject; after him came *Euclid*, Author of the Elements, &c.

stides Quintilianus wrote after *Cicero*'s Time. *Alypius* stands next, after him *Gaudentius* the Philosopher, and *Nichomachus* the *Pythagorean*, and *Bacchius*. Of which seven *Greek* Authors we have a fair Copy with a Translation and Notes by *Melibanius*.

Ptolemy, the celebrated Mathematician, wrote in *Greek* of the Principles of Harmonics about the Time of the Emperor *Antoninus Pius*. This Author keeps a Medium between the *Pythagoreans* and *Aristoxenians*; he was succeeded at a good Distance by *Manuel Bryennius*.

Of the *Latins* we have *Boethius*, who wrote in the Time of *Theodorick* the *Goth*, and one *Cassiodorus*, about the same Time; *Martianus* and St. *Augustin*, not far remote.

Of the Moderns, are *Zarlin*, *Salinas*, *Vincenzo Galileo*, *Doni*, *Kircher*, *Mersenne*, *Brossard*, *Parau*, *De Caux*, *Perrault*, *Wallis*, *Des Cartes*, *Holder*, *Malcolm*, &c.

Some of the most famous Masters of *Musick* we have at present in *England*, are the Drs. *Green*, *Pepusch*, *Gailliard*, Mess. *Handel*, *Lampe*, &c.

MYTHOLOGY.

MYTHOLOGY, ΜΥΘΟΛΟΓΙΑ, (from μυθος, *fabula*; and λογος, *sermo*, *Discourse*) is the History of the fabulous Gods, and Heroes of Antiquity; with the Explication of the Mysteries, or Allegories, couched therein.

The innate Idea Man has of a supreme Being, the beautiful Symmetry subsisting between the different Parts which compose this vast Universe, without the least Disorder or Confusion; the regular Revolution of the Seasons, so well calculated for the Preservation of every Individual; and which from the very first Instant of his Creation has much contributed towards strengthening that Idea, have engaged him to search that supreme Being (the infinite Notion whereof he soon found above his natural Apprehension, and which he could acquire but by reasonable Conjectures, and necessary Consequences) where he thought he was more likely to find him; whence he has often mistook for his Creator the Creatures themselves.

It is true, if we believe *Moses*, that the first Man had that Idea with which he had been created, strengthned, or rather supported, by the frequent Visits of his divine Creator, while he continued in his State of Innocency; and though the divine Knowledge of that supreme Being, such as he is, surpassed still his Apprehension, though irradiated by that divine Light, which suffered so total an Eclipse by his Prevarication and Ingratitude, that it could never since that fatal Epocha dissipate entirely the dark Cloud it was then covered with, he knew notwithstanding his divine Existence, where, and in what Manner he existed, without being puzzled to search him any where else but where he was. But as that perfect Knowledge of the supreme Being was inseparable from that State of Innocency, it vanished with it; and God irritated at *Adam*'s Ingratitude, punished it with a still greater Severity in his Descendants, than he had done in the Prevaricator himself, by abandoning them to the Extravagance of their Imagination, and suffering that they should search him where he was not. It may be reasonably supposed that *Adam*, notwithstanding the Weakness of his Understanding, and the Depravation of his Heart, continued still in the Worship of the true God, and maintained his own Children in it while he lived; but as his Posterity had not the same undeniable Proofs of the true God, himself had, that he was no more to give them the necessary Lessons on that important Subject; that most of those who had learned them from him, had either forgot, or neglected them; and the few who had retained them, had not Authority enough to keep the rest in their Duty to the Almighty. For Men following then but the Dictates of a vitiated Reason, and entirely buried in the Senses, could not, or rather would not be persuaded of that Invisibility, Immensity, Infinity, &c. which are some of the essential Attributes of the true God. They had heard by Tradition, that the same Creator who had formed *Adam* of nothing, used to descend in the Garden to converse with him, which they thought he could not do without being something Corporal; and therefore that the Sentiments of his Invisibility others endeavoured to inspire them with, were other Romances or Impostures, which revolted their Reason; which Reason could find among the Things visible, all the Perfection which they attributed to a Thing invisible, and could make on their Mind the same Impressions of Awfulness, Respect, and Reverence, persuading themselves that they were as much obliged to consult their Understanding and Senses, in Things which related to the Worship of a Divinity, as in all the other Actions of their Life, since both were given them for Rules of their Conduct.

Therefore, I imagine that the first false Divinity adored when they began to abandon the Worship of the true God, was the Sun, since that Planet has something capable to affect our Senses in the most sensible Manner, and keeps our Understandings in Suspence, as if it could claim a human Respect. Nature besides seeming to depend entirely for its Preservation, on its periodical Course and Influences, could very well entertain them in that erroneous Belief, that the World had been created by it.

Men, in all Appearance, continued in that Worship of the Sun, and perhaps of the other Planets, according as their ridiculous Fancy led them, till having darkened quite, by the Depravation of their Manners, the innate Idea they had of a true God, and made an entire Divorce with their Reason, they crowded Heaven and Earth with as many Divinities as they could imagine. The Earth itself was deified for furnishing Fruits necessary for their Subsistence of Men and Animals; then Fire and Water became Objects of divine Worship for their Usefulness to human Life.

When Things were thus got in the Train, Gods by Degrees became multiplied to Infinity, and scarce any Thing but what the Weakness or Caprice of some Devotee or other, elevated into that Rank, Things useless, or destructive not excepted.

To authorize their own Crimes, and justify their Vices and Debaucheries, Men constituted criminal, vitious, and licentious *Gods*, unjust, rapacious, and tyrannical *Gods*, covetous and thievish *Gods*, drunken *Gods*, impudent *Gods*, cruel and bloody *Gods*.

The Principal of the antient Gods, whom the *Romans* called *Dei majorum gentium*, and which *Cicero* calls *Celestial Gods*, Varro, select *Gods*, Ovid, *nobiles Deos*, others *consentes Deos*; were *Jupiter*, *Juno*, *Vesta*, *Minerva*, *Ceres*, *Diana*, *Venus*, *Mars*, *Mercury*, *Neptune*, *Vulcan*, *Apollo*.

Jupiter, was considered as God of Heaven, *Neptune*, as God of the Sea; *Mars*, as God of the War; *Apollo*, of Eloquence, Poetry, and Physick; *Mercury*, of Thieves; *Bacchus*, of Wine; *Cupid*, of Love. *Juno* was the Goddess of the Air; *Diana*, the Goddess of Woods and Chastity; *Proserpina*, the Goddess of Hell; *Venus*, of Beauty; *Thetis*, of the Sea, &c.

A second Sort of *Gods*, called *Semi-Gods*, *Semi-dii*, *Dii minorum gentium*, *Indigetes*, or *Gods* adopted, were Men canonized and deified. As the greater Gods had Possession of Heaven by their own Right, these secondary Deities had it by Right of Donation, being translated into Heaven for that they had lived as *Gods* upon Earth.

The Heathen *Gods* may all be reduced to the following Classes, 1. Created Spirits, Angels, or Daemons; whence good and evil Gods, *Genii*, *Lares*, *Lamures*, *Guardian Gods*, *infernal Gods*, &c.

Genius, was supposed by the Heathens a good or evil Spirit or Daemon, set over each Person to direct his Birth, accompany him in Life, and to be his Guard.

Among the *Romans*, *Festus* observes, the Name *Genius* was given to the *God* who had Power to do all

all Things, *Deum qui cum sôtineret rerum omnium gerendarum*; which *Vossius*, *de Idolol.* rather chuses to read *gignendarum*, who has the Power of producing all Things; by Reason *Censorinus* frequently uses *gerere* for *gignere*.

Accordingly St. *Augustin*, *De civitat. Dei*, relates from *Varro*, that the Genius was a God who had the Power of generating all Things; and presided over them when produced.

Festus adds, that *Aufustius* spake of the Genius as the Son of God, and the Father of Men who gave them Life; others, however, represented the Genius as the peculiar or tutelary God of each Place: And it is certain this last is the most usual Meaning of the Word.

The Antients had their Genii of Nations, of Cities, of Provinces, &c. Nothing is more common than this following Inscription on Medals, GENIUS POPULI ROMANI. *The Genius of the* Roman *People*; or GENIO POP. ROM. *To the Genius of the* Roman *People*.

In the Scale *Genius* and *Lar* were the same Thing; as in Effect *Censorinus* and *Apuleius* affirm they were.

The *Platonists* and Eastern Philosophers, supposed the Genii to inhabit the vast Region or Extent of Air between Earth and Heaven. They were a Sort of intermediate Powers, who did the Office of Mediators between the Gods and Men. They were the Interpreters and Agents of the Gods; communicated the Wills of the Deities to Men; and the Prayers and Vows of Men to the Gods: As it was unbecoming the Majesty of the Gods to enter into such trifling Concerns; this became the Lot of the *Genii*, whose Nature was a Mean between the two; who derived Immortality from the one, and Passions from the other, and who has a Body framed of an aerial Matter. Most of the Philosophers held, that the *Genii* of particular Men were born with them, and died; that *Plutarch* attributes the ceasing of the Oracles to the Death of the *Genii*.

The Heathens, who consider'd the *Genii* as the Guardian Spirits of particular Persons, believed that they rejoiced, and were afflicted at all the good and ill Fortune that befel their Wards. They never, or very rarely appeared to them; and then only in Favour of some Person of extraordinary Virtue or Dignity. They likewise held a great Difference between the Genii of different Men, and that some were much more powerful than others, on which Principle it was, that a Wizzard in *Appian*, bid *Antony* keep at a Distance from *Octavius*, by Reason *Antony's* Genius was inferior to, and stood in Awe of that of *Octavius*.

There were also evil *Genii*, who took a Pleasure in persecuting Men, and bringing them evil Tidings: Such was that in *Paterculus*, &c. which appeared to *Brutus* the Night before the Battle of *Philippi*. These were also called *Larvæ* and *Lemures*.

LARES, were a Kind of domestick *Genii*, or Divinities, worshipped in Houses, and esteemed the Guardians and Protectors of Families; supposed to reside more immediately in the Chimney Corner.

Plutarch distinguished good and evil *Lares*, as he had before done good and evil *Genii*.

There were also some publick, others private *Lares*.

Augustine tells us, the domestick *Lares*, were no more than the Souls of departed Persons, who had lived well, and discharged the Duties of their Station, whereas those who had done otherwise were Vagabonds, wandering about and frightening People, called *Larvæ* and *Lemures*.

The *Lares* were also called *Penates*, though improperly, as we'll see by and by, and were worshipp'd under the Figures of little Armourlets or Images of Wax, Silver, or Earthen Ware.

The [illegible] *Lares* were also called *Compitales*, from *Compitum*, a cross Way; and *Viales*, from *Via*, a Way, or public Road, as being placed at the Meeting of Roads, and in the Highways, and esteemed the Patrons and Protectors of Travellers.

The *Penates*, according to *Varro*, were of the Number of the Gods called *Dii Consentes*; who were [illegible] by the Souls of Men changed into Gods, and [illegible] two Kinds, viz. the *Viales* and *Penates*.

As the *Penates* were the same with the *Lares*, at least [illegible] of the *Lares* were denominated *Viales*; hence the [illegible] joined, and those High-way Deities called *Lares Viales*; which [illegible] in *Gruter*:

FORTUNAE
REDUCI LARI
VIALI ROMAE
AETERNAE
Q. AXIUS ABLAS
NUS-VE. PROC.
AUG.
Zoni.

Their private *Lares* took Care of particular Houses and Families: These they also called *Penates*, from *Penetralia*, or *Præsto*.

Quod præstant oculis omnia tuta fui. OVID. *Fast.*

They gave the Name *Urbani*, i. e. *Lares* of Cities, to those who had Cities under their Care, and *Heduli* to those who were to keep their Enemies off. There were also *Lares* of the Country, called *Rurales*, as appears by several antique Inscriptions.

The *Lares* were also genial Gods, and were supposed to take Care of Children from their Birth. Is for this Reason, that when *Macrobius* tells us the *Egyptians* had four Gods, who presided over the Birth of Children, viz. the *Genius*, *Fortune*, *Love*, and *Necessity*, called *Penates*; some interpret him as if he had said the *Egyptians* had *Lares*; but there was a World of Difference between the *Lares* of the *Romans*, and the *Penates* of the *Egyptians*.

The Antients differ extremely about the Origin of the *Lares*. *Varro* and *Macrobius* say, they were the Children of *Mania*; *Ovid* makes them the Issue of *Mercury* and the *Naiad Lara*, whom *Lactantius* and *Hyginus* call *Larunda*; *Apuleius* assures us, they were the Posterity of the *Lemures*; *Nigridius*, according to *Arnobius*, made them, sometimes, the Guardians and Protectors of Houses, and sometimes the same with the *Curetes* of *Samothracia*, which the *Greeks* call *Idæi Dactyli*. Nor was *Varro* more constant in his Opinion of these Gods; sometimes making them the Manes of Heroes, and sometimes Gods of the Air.

T. Tatius King of the *Sabines*, was the first who built a Temple to the *Lares*. The Chimney and Fire-Place in the House were particularly consecrated to them. Though *John Sheffield*, Duke of *Buckingham*, turned his out of Doors, and placed them at the Top of his House, some have imagined by a Principle of Compassion, because as they were starved within, they could, out of Doors feed, at least on the Air, like the Cameleon; therefore it is not surprizing, that that ingenious Gentleman himself said, that they were very glad to be there; *Sic siti lætantur Lares.*

Tertullian tells us, the Custom of worshipping the *Lares* arose from this, that they antiently inter'd their Dead in their Houses; whence the credulous People took Occasion to imagine, their Souls continued there also, and proceeded to pay them divine Honours. To this it may be added, that the Custom being, afterwards introduced of burying in the Highways, they might hence take Occasion to regard them as Gods of the Highways.

The Victim offered to the *Lares* in the publick Sacrifices was a Hog: In private they offer'd them Wine, Incense, a Crown of Wool, and a little of what was left at the Table. They also crown'd them with Flowers, particularly the Violet, Myrtle, and Rosemary. Their Symbol was a Dog, which was usually represented by their Side, on Account of its Fidelity, and the Service he does to Man in watching his House. They were also represented as cloathed in a Dog's Skin.

M. *Baudelot*, on a Dissertation on the *Lares*, without the *Pantheon*, to have had their Rise from the Superstition of those, who taking several Gods for the Protectors of their Houses, united them all in the same Statue, by adoring it with the several Symbols proper to each of those Deities.

In effect, the *Pantheon*, among the Antients, was a single Statue, composed of the Figures or Symbols of several different Deities combined.

F. *Joubert*, who calls them *Penates*, and who [illegible] served them on several Medals, says, [illegible]

most commonly adored with Symbols or Attributes belonging to several Gods.

An Instance hereof, we have in a Medal of *Antoninus Pius*; which at the same Time represents *Serapis*, by the Bushel it bears; the Sun by the Crown of Rays; *Jupiter Ammon* by the Ram's Horns; *Pluto* by the large Beard, and *Æsculapius* by the Serpent twisted in his Hand.

The Term PENATES, being applied to the domestick Gods, whom the Antients adored in their Houses, was the Occasion that the *Penates* were ordinarily confounded with the *Lares*.

Authors are not at all agreed about the Origin of the *Dii Penates*, who were properly the tutelary Gods of the *Trojans*, and were only adopted by the *Romans*, who gave them the Title of *Penates*.

De Meziriack, in his Notes on the Epistle of *Dido* to *Æneas*, relates at large what he has met withal in the antient Writers on this Subject: *Dionysius Halicarnassæus* tells us, that *Æneas* first lodged these Gods in the City *Lavinium*; and that his Son *Ascanius* afterwards, upon building the City *Alba*, translated them thither; but that they returned twice miraculously to *Lavinium*. The same Author adds, that in *Rome* is still seen a dark Temple, shaded by the adjacent Buildings, wherein are the Images of the *Trojan* Gods, with the Inscription *Denas* which signifies *Penatus*.

These Images represent two young Men sitting, each of which holds a Lance. I have seen, adds *Dionysius*, several other Statues of the same Gods, in antient Temples, who all appear like young Men dressed in a Habit of War.

Varro fetches these *Penates* from *Samothrace* to *Phrygia*, to be afterwards transported by *Æneas* into *Italy*. *Macrobius*, who relates this from *Varro*, adds that they were called *Penates*, from the *Latin* Words *per quos penitus spiramus*, which seems a meer Subtilty. But the real Etymology must be sought in the *Phrygian*, not in the *Latin* Tongue.

Cicero, in *Aulus Gellius*, derives the Name hence, *quod penes nos nati sunt*. Yet in his Book *de nat. deor.* he says it is formed from *Penus*, Provision; or perhaps, adds he, *quod penitus insident*; others say, *quia colunturur in penetralibus*.

Rosinus distinguishes among the *Penates*: He makes an Order of the *Penates* of the Heavens, such as *Pallas* in the ethereal Region, *Jupiter* in the middle Region, and *Juno* in the lowest; besides *Penates* of Cities, *Penates* of private Families, *&c.* on which Footing the *Dii Penates* were the Guardian or tutelary Gods of every Thing.

It is a popular Question among the Learned, who were the *Penates* of *Rome*? Some say *Vesta*, others *Neptune* and *Apollo*; *Vives* says *Castor* and *Pollux*, with whom agrees *Vossius*, who adds, that the Reason of their chusing *Castor* and *Pollux* in Quality of *Penates*, might be the important Service they did the *Romans* in the War against the *Latins*.

Nor are Authors more unanimous on the Subject of the *Penates*, which *Æneas* brought into *Italy*; some say they were *Neptune* and *Apollo* who built the Walls of *Troy*; others *Jupiter*, *Juno*, and *Minerva*; others *Cœlus* and *Terra*.

The *Penates* were also called sometimes *Denates*.

Dionysius Halicarnassæus, *lib.* 1. speaking of the *Dii Penates*, tells us, that the Historian *Timæus* has wrote, that the Statue, Figure, or Effigy of the *Denates* or *Penates*, was nothing but a crooked Iron, or Copper Rod, and a *Trojan* Vessel of Potters Ware: And that this was all *Æneas* brought from *Troy*. The same *Dionysius* adds, that the Reason why the *Penates* are often found written *Denates*, is, that the Antients before the Invention of the Letter *P*, used a *D* instead thereof: But *Dionysius* might be mistaken, for the Bottom of the *P* is frequently so very small on Medals, that there is no sensible Difference between a *P* and a *D*, which might be the Occasion of his Mistake; for that the antient Inhabitants of *Italy* had no *P*, is a gross one sufficiently refuted by many proper Names still remaining of the most early Ages, *e. gr. Capys*, *Capetus*, *Picus*, *Pallas*. Nor were the *Trojans* without the same, witness *Palinurus*, *Paris*, *Priamus*, *&c.* The *Penates* were called also tutelary Gods.

LEMURES, were Spirits or Hobgoblins; restless Ghosts of departed Persons who return to terrify and torment the Living.

These are the same with *Larvæ*, which the Antients imagined to wander round the World to frighten good People, and plague the bad. For which Reason at *Rome* they had *Lemuria*, or Feasts, instituted to appease the Manes of the Deceased.

Apuleius explains the antient Notion of the Manes thus: The Souls of Men released from the Bands of the Body, and free from performing their bodily Functions, become a Kind of Dæmons or Genii, formerly called *Lemures*. Of these *Lemures*, those that were kind to their Families, were called *Lares familiares*; but those who for their Crimes were condemned to wander continually, without meeting with any Place of Rest, and terrified good Men, and hurt the Bad, are vulgarly called *Larvæ*.

An antient Commentator on *Horace*, mentions, that the *Romans* wrote *Lemures* for *Remures*; which last Word was formed from *Remus*, who was killed by his Brother *Romulus*, and who returned to Earth to torment him.

But *Apuleius* observes, that in the antient *Latin* Tongue, *Lemures* signifies the Soul of a Man separated from the Body by Death.

Note, That the Antients used, also, to call the Gods abovementioned *Indigetes*. There are various Opinions about the Origin and Signification of this Word; some pretending it was given to all the Gods in general; and others only to the Semi-Gods or great Men deified: Others say it was given to such Gods as were originally of the Country, or rather such as were the Gods of the Country that bore this Name; and others again hold it was ascribed to such Gods as were Patrons and Protectors of particular Cities. Those of the first Opinion maintain, that the Gods were so called by *Antiphrasis*, because they wanted nothing; the Word coming from the Verb *Indigo*, I want. If this were true, the Word *Indigetes* would signify nearly the same Thing in *Latin*, with the *Hebrew* שד *Schaddai*, which the Scripture frequently gives to God; as signifying that he is sufficient from himself and needs nothing. Those of the second Opinion derive the Word from *Indigitare*, to call, invoke; it being these Gods who were ordinarily invoked, and who lent the readiest Ears to the Vows that were made them. To this Purpose they cite *Macrobius*, who uses the Word *Indigitare* in that Sense; telling us the Vestals make their Invocations thus, *Apollo Physician! Apollo Pæan! Vestales ita indigitant, Apollo Medice! Apollo Pæan!* They add, that their Books of Prayers and of Invocation were called *Indigitamenta*. Lastly, others hold *Indigetes*, to be derived from *Inde genitus*, or *in loco degens*, or from *inde*, and *ago*, for *dego*, I live, I inhabit; which last Opinion seems the most probable. In effect, it appears, 1. That these *Indigetes* were also called *local Gods*, *Dii locales*, or *topical Gods*, which is the same Thing. 2. The *Indigetes* were ordinarily Men deified, who indeed were, in Effect, local Gods, being esteemed the Protectors of those Places where they were deified, so that the second and third Opinion are very consistent. *Virgil* joins *Patrii* with *Indigetes* as being the same Thing, Geor. 1. *Dii patrii indigetes*. 4. The Gods, to whom the *Romans* gave the Name *Indigetes*, were *Faunus*, *Vesta*, *Æneas*, *Romulus*, all the Gods of *Italy*; and at Athens *Minerva*, says *Servius*; at Carthage *Dido*. — It is true we meet with *Jupiter indiges*, but that *Jupiter indiges* is *Æneas*, not the great *Jupiter*; as we may see in *Livy*, *lib.* 1. *c.* 3. in which last Sense, *Servius* assures us, *Indiges* comes from the Latin *in Diis ago*, I am among the Gods.

The Antients called their Demi-gods *Heroes*, who were illustrious Persons of mortal Nature; tho' by the Populace supposed to partake of Immortality; and, after their Death, placed by them in the Number of the *Gods*.

Heroes were, properly, Persons partly of divine, and partly of human Extraction, being got between a Deity and a Mortal: As *Achilles*, who was the Son of the Goddess

Goddess *Thetis* by *Peleus*; and *Hercules* who was the Son of *Jupiter* by *Alcmena*.

A *Hero* then, coincides with what we otherwise call a *Demi-God*; accordingly *Lucian* defines a *Hero* to be a Medium between God and Man, or rather a Composition of both.

Note, That the Word *Hero* was formed from the *Latin heros*, and that of the *Greek* Ἥρως, *Semi-Deus*, *Demi-God*. St. *Augustin*, *de civit. Dei. lib.* 10. observes, that it is highly probable, some one of *Juno*'s Sons was originally called by this Name, that Goddess being called in *Greek* ἥρη; or it may be, that great Men were distinguished by that Appellation, in Allusion to the Opinion of the Antients, that virtuous Persons after their Death inhabit the wide Expanse of the Air, which is *Juno*'s Province. *Isidore* inclines to think, that Heroes were thus called *Quasi aeroes*, *aerei*, Persons of superior Merit and worthy of Heaven. *Plato* derives the Word from the *Greek* Ἔρως, Love, as intimating the Hero's to have arisen from the Copulation of a God with a mortal Woman, or of a Goddess with a Man. Others derive the Name from the *Greek* εἴρειν, *dicere*, to speak; the Heroes being Persons who by their Eloquence led the People at their Pleasure: Others, lastly, derive it from the *Greek* Ἔρα, *terra*, Earth; the Heroes on their Principle, being the *Dii terrestres*, or Gods of the Earth.

The Heroes were translated into Heaven, by a Ceremony called *Apotheosis*, from a Proposition απο and Θεος, *Deus*, God.

After the *Apotheosis*, which they also called *Deification* and *Consecration*, Temples, Altars, and Images, were erected to the new Deity; Sacrifices, *&c.* were offered, and Colleges of Priests instituted; and even the Senate decreed that Oaths should be taken in their Names.

It was one of the Doctrines of *Pythagoras*, which he had borrowed from the *Chaldees*, that virtuous Persons after their Death were raised into the Order of the Gods.

And hence the Antients deified all the Inventors of Things useful to Mankind, and those who had done any important Service to the Commonwealth. *Tiberius* proposed to the *Roman* Senate the *Apotheosis* of *Jesus Christ*, as is related by *Eusebius*, *Tertullian*, and St. *Chrysostom*. *Juvenal* rallying the frequent *Apotheoses*, introduces poor *Atlas* complaining that he was ready to sink under the Burthen of so many new Gods as were every Day added to the Heavens.

Seneca ridicules the *Apotheosis* of *Claudius* with admirable Humour. *Herodian*, *lib.* 4. in speaking of the *Apotheosis* of *Severus*, gives us a very curious Description of the Ceremonies used in the *Apotheosis* of the *Roman* Emperors. After the Body of the deceased Emperor, says he, had been burnt with the usual Solemnities, they placed an Image of Wax, perfectly like him, but of a sickly Aspect, on a large Bed of Ivory, covered with a Cloth of Gold in the Vestibule of the Palace. The greatest Part of the Day the Senate sat ranged on the left Side of the Bed, dressed in Robes of Mourning; the Ladies of the first Rank sitting on the right Side in plain and white Robes, without any Ornaments. This lasted for seven Days successively, during which, the Physicians came from Time to Time to visit the Sick, always making their Report that he grew worse, till at length they published that he was dead.

This done, the young Senators and *Roman* Knights took the Bed of State upon their Shoulders, carrying it through the *Via Sacra*, to the old Forum, where the Magistrates used to divest themselves of their Offices; there they late it down between two Kinds of Amphitheatres, in the one whereof were the Youths, and in the other the Maidens of the first Families of *Rome*, singing Hymns set to solemn Airs in Praise of the Deceased. These Hymns ended, the Bed was carried out of the City into the *Campus Martius*, in the Middle of which was erected a Kind of square Pavilion, the Inside whereof was full of combustible Matters, and the Outside hung with Cloth of Gold, and adorned with Figures of Ivory, and various Paintings.

Over this Edifice were several others, like the first in Form and Decoration, always diminishing and growing slenderer towards the Top. On the second of these was placed the Bed of State, and a great Quantity of Aromates, and odoriferous Fruits and Herbs were thrown all around; after which the Knights made a Procession or Cavalcade in a solemn Manner around the Pile, several Chariots also run round it, those who conducted them being clad in Purple Robes, and bearing the Images of the greatest *Roman* Emperors and Generals.

This Ceremony ended, the new Emperor came to the Catafalca, or Pile, with a Torch in his Hand; and at the same time Fire was set to it, on all Sides, the Spices and other Combustibles, kindling all at once.

While this was doing, they let fly from the Top of the Building an Eagle, which mounting into the Air with a Firebrand, carried the Soul of the deceased Emperor along with it into Heaven, as the *Romans* believed; and thenceforward he was ranked among the Gods.—It is for this Reason, that the Medals, wherein *Apotheoses* are represented, have usually an Altar with Fire upon it; or however an Eagle taking its Flight into the Air, and sometimes two Eagles.

Note, That the *Apotheosis* is also called *Consecratio*.—On Medals, the *Consecration* is thus represented: On one Side is the Emperor's Head, crowned with Laurel, sometimes veiled, and the Inscription gives him the Title of *Divus*; on the Reverse is a Temple, a Bustum, an Altar, and an Eagle taking its Flight towards Heaven, either from off the Altar, or from a Cippus: At other Times the Emperor is seen in the Air, borne up by the Eagle; the Inscription always CONSECRATIO.—These are the usual Symbols; but on the Reverse of *Antoninus*, is the *Antonine* Column.—In the *Apotheosis* of Empresses, instead of an Eagle is a Peacock.—For the Honours rendered those Princes after Death, they were explained by the Words *Consecratio*, *Pater*, *Divus*, and *Deus*.—Sometimes around the Temple, or Altar, are put *Memoria sæc.*, or *Memoriæ eternæ*: For Princesses, *Æternitas*, and *Sideribus recepta*; on the Side of the Head *Dea*, or Θεα.

DÆMONS, are also of their first Class of *Gods*; the first Notion whereof was brought from *Chaldea*, whence it spread itself among the *Persians*, *Egyptians*, and *Greeks*. *Pythagoras* and *Thales* were the first who introduced *Demons* into *Greece*. *Plato* fell in with the Notion, and explained it more distinctly and fully than any of the former Philosophers had done. By *Dæmons* he understood Spirits inferior to Gods, and yet superior to Men; which inhabiting the middle Region of the Air, kept up the Communication between Gods and Men, carrying the Offerings and Prayers of Men to the Gods, and bringing the Wills of the Gods to Men. But he allowed of none but good and beneficent ones; though his Disciples afterwards finding themselves unable to account for the Origin of Evil, adopted another Sort of *Dæmons* who were Enemies to Men.

There is nothing more common in the heathen Theology, than these good and evil Genii. And the same superstitious Notion got footing among the *Israelites*, by their Commerce with the *Chaldeans*. But by *Dæmons* they did not mean the Devil, or evil Spirits, they never took the Word *Dæmon* in that Sense, nor was it used in such a Signification, but by the Evangelists and some modern *Jews*: The Word is *Greek* Δαιμων.

Gale endeavours to shew, that the Origin and Institution of *Dæmons*, was an Imitation of the Messiah. The *Phœnicians* called them *Baalim*, for they had one supreme Being, whom they called *Baal* and *Moloch*, and various inferior Deities called *Baalim*, whereof we find frequent Mention in the Old Testament: The first *Dæmon* of the *Egyptians* was *Mercury*, or *Theut*. The same Author finds some Resemblance between the several Offices ascribed to the *Dæmons*, and those of the *Magi*.

The *second Class* of *Gods*, were the heavenly Bodies, as the *Sun*, *Moon*, and other Planets; the *fixed Stars*, *Constellations*, &c.

The SUN, was the God of the *Phœnicians*. *Antoninus Heliogabalus*, who had been Priest of the Sun among them, having been elected to succeed *Opilius Macrinus* in the Empire, brought his God along with him to *Rome*.

Rome, and commanded he should be adored by the whole World, to the Exclusion of all others. He caused a Temple to be built for him, of which himself was the Priest, and wanted that the Fire, kept in that of *Vesta*, should be carried thither, together with the consecrated Bucklers.

The *third Class* was composed of the Elements, as *Air, Earth, Ocean, Ops, Vesta*, the *Rivers, Fountains*, &c.

The Antients called the Divinities, which they supposed to inhabit the Sea, *Nereides*, who were fifty in Number, all the Daughters of *Nereus*, by the Nymph *Doris*: And those who inhabited Rivers, Fountains, *&c.* *Naiades*. *Strabo* says, the *Naiades* were Priestesses of *Bacchus*.

The *fourth Class* contained *Meteors*: Thus the *Persians* adored the Wind; Thunder and Lightning were honoured under the Name of *Geryon*: And several Nations of *India* and *America*, have made themselves Gods of the same. *Castor, Pollux, Helena*, and *Iris*, have also been preferred from Meteors to be *Gods*; and the like has been practised with regard to Comets; witness that which appeared at the Murther of *Cæsar*. *Socrates* deified the Clouds, if we may give Credit to *Aristophanes*; and the Primitive Christians, *Tertullian* assures us, were reproached with the same Thing.

In the *fifth Class* they erected Minerals, or Fossils into Deities; such was the *Bætylus*; the *Finlanders* adored Stones; the *Scythians* Iron; and many Nations Silver and Gold.

The *sixth Class* consisted of Plants: Thus *Leeks* and *Onions* were Deities in *Egypt*. The *Sclavi, Lithuanians, Celtæ, Vandals*, and *Peruvians*, adored Trees and Forests: The antient *Gauls, Britons, Druids*, bore a particular Devotion to the Oak; and it was no other than Wheat, Corn, Seed, *&c.* that the Antients adored under the Names of *Ceres* and *Proserpina*.

The Deities who inhabited the Forests and Trees, were called *Dryades* and *Hamadryades*.

The Dryades, were imagined to hide themselves under the Bark of the Oak, called by the *Greeks* Δρυς.

The *Dryades* differed from the *Hamadryades*, in that these latter were attached to some particular Trees with which they were born, and with which they died; whereas the *Dryades* were the Goddesses of the Trees and Woods, and lived at large in the Middle thereof. For though Δρυς properly signifies an *Oak*; it was also used for Tree in general.

We likewise find Mention made in divers Authors, of a Kind of Prophetesses, or Witches among the *Gauls*, called *Dryades*, or rather *Druids*; the Authors of the *Historia Augusta*, particularly *Lampridius* and *Vopiscus* make mention hereof. A *Druid*, says *Lampridius*, *p.* 135. told *Alexander Severus* something which denoted he should be unhappy. *Vopiscus*, in the Life of *Aurelian*, relates, that having consulted the Gaulish *Druids*, whether or no the Empire should remain in his Family; they gave him for Answer, that no Name should be more glorious in the Empire, than that of the Descendants of *Claudius*. On which the Historian takes Occasion to observe, that *Constantius*, Father of *Constantine* the Great, was a *Claudius*.

Lastly, the same *Vopiscus*, in his Life of *Numerianus*, relates, that a *Druid* had foretold *Diocletian* he should be Emperor, when he should have killed *Aper*, which signifies a Boar, and was the Name of a *Præfectus Prætorio*, whom he killed with his own Hand.

Saumaise, in his Notes on *Lampridius*, is a little in Doubt who these Women were: But he gives into the most easy and plausible Opinion, that they were either the Wives, or the Children of the *Druids*; which *Druids* were the Priests, or Ministers of Religion, among the antient *Celtæ* or *Gauls, Britons* and *Germans*.

The *Druids* were the first, and most distinguished Order among the *Gauls* and *Britons*: They were chose out of the best Families; and the Honours of their Birth, joined with those of their Function, procured them the highest Veneration among the People. They were versed in Astrology, Geometry, Natural Philosophy, Politicks, and Geography; and had the Administration of all sacred Things; were the Interpreters of Religion, and the Judges of all Affairs indifferently: Whoever refused Obedience to them, was declared impious and accursed.

We know but little as to their peculiar Doctrines; only that they believed the Immortality of the Soul; and, as is generally supposed, the *Metempsychosis*: Tho' a late Author makes it appear highly probable they did not believe this last, at least in the Sense of the *Pythagoreans*.

They were divided into several Classes or Branches, *viz.* the *Vacerri, Bardi, Eubages, Semnothii* or *Semnothei*, and *Saronidæ*.—The *Vacerri* are held to have been the Priests; the *Bardi*, the Poets; the *Eubages*, the Augurs; and the *Saronidæ*, the civil Judges, and Instructors of Youth. As to the *Semnothei*, who are said to have been immediately devoted to the Service of Religion, it is probable they were the same with the *Vacerri*.

Strabo however, *lib.* 4. *p.* 197. and *Picard* after him, in his *Celtopædia*, do not comprehend all these different Orders under the Denomination of *Druids*, as Species under their Genus, or Parts under the Whole; but make them quite different Conditions, or Orders.

Strabo, in Effect, only distinguishes three Kinds, *Bardi, Vates*, and *Druids*. The *Bardi* were the Poets, the *Vates* (apparently the same with the *Vacerri*) were the Priests and Naturalists; and the *Druids*, besides the Study of Nature applied themselves likewise to Morality.

Diogenes Laertius assures us in his Prologue, that the Druids were the same among the antient *Britons*, with the Sophi or Philosophers among the *Greeks*, the Magi among the *Persians*, the *Gymnosophists* among the *Indians*, and the *Chaldæans* among the *Assyrians*.

The *Druids* had one chief or *Arch-Druid* in every Nation, who acted as High-Priest, or *Pontifex Maximus*. He had absolute Authority over all the rest, and commanded, decreed, and punished at Pleasure. At his Death he was succeeded by the most considerable among his Survivors; and if there were several Pretenders, the Matter was ended by an Election, or put to the Decision of Arms.

The *Druids*, we have observed, were in the highest Esteem: They presided at Sacrifices and other Ceremonies, and had the Direction of every Thing relating to Religion. The *Gaulish* and *British* Youth flocked to them in Crouds to be instructed by them. The Children of the Nobility, *Mela* tells us, retired withal into Caves, or the most desolate Parts of Forests; and kept them there, sometimes for twenty Years, under their Discipline.

Besides the Immortality and Metempsychosis, they were instructed in the Motion of the Heavens, and the Course of the Stars, the Magnitude of the Heavens, and the Earth, the Nature of Things, the Power and Wisdom of the Gods, *&c.* They preserved the Memory and Actions of great Men in their Verses, which they never allowed to be wrote down, but made their Pupils get them off by Heart: In their common Course of Learning, they are said to have taught them 24,000 such Verses.

They had the Mistletoe in singular Veneration. *Pliny* relates the Ceremony wherewith they gathered it every Year, *Lib.* xvi. *c.* 44. They placed a World of Confidence in Serpents Eggs gathered after a peculiar Manner, and under a certain Disposition of the Moon, described by *Pliny*; and imagined them effectual Means for the gaining of Law-Suits, and procuring the good Graces of Princes. And hence it is, the same Author concludes, that the Caduceus, or Rod, encompassed with two Serpents interwove, has been assumed as a Symbol of Peace.

Suetonius, in his Life of *Claudius*, assures us, they sacrificed Men; and *Mercury* is said to be the God they offered these inhuman Victims to. *Diod. Sicul. lib.* 6. observes, it was only upon extraordinary Occasions they made such Offerings; as to consult what Measures to take, to learn what should befall them, *&c.* by the Fall of the Victim, the taring of its Members, and the Manner of its Blood gushing out. *Augustus* condemned the Custom; *Tiberius*, and *Claudius*, punished and abolished it.

We learn from *Cæsar*, that they were the Judges and Arbiters of all Differences and Disputes, both publick and private; took Cognizance of Murders, Inheritances, Boundaries and Limits, and decreed Rewards and Punishments. Such as disobeyed their Decisions they excommunicated,

communicated, which was their principal Punishment; the Criminal being hereby excluded from publick Assemblies, and avoided by all the World; so that no Body durst speak to him for Fear of being polluted. *Strabo* observes, they had sometimes Interest and Authority to stop Armies upon the Point of engaging; and accommodate their Differences.

They held an Assembly every Year at a certain Season about the Middle of the Country; and there in a Place consecrated for the Purpose, kept their Assizes, and terminated the Differences of the People, who flocked from all Parts.

Cæsar, who had seen some of the *Druids* in *Britain*, was of Opinion, they had come thence into *Gaul:* Divers among the Moderns take this for a Mistake, and believe the very contrary. In Effect, it appears pretty probable, that the antient *Britons* were originally *Gauls*; that some of the *Celtæ*, or *Belgæ*, *Gaulish* Nations, were the first that entered the Island and peopled it; and that the *Druids* went along with them.

Honorius, in his History of Philosophy, *Lib.* II. *c.* 12. believes all the Learning and Philosophy of the *Druids* to have been derived from the *Assyrian* Magi, who are still called in Germany *Trutten*, or *Trutner*; and that as *Magus* has lost its antient Signification, which was honourable, and now signifies a Magician, or Sorcerer; *Druid*, which had the same Sense, has likewise degenerated, and now signifies no other than a Person who has Commerce with the Devil, or is addicted to Magick: And accordingly in *Friseland*, where there antiently were *Druids*, Witches are now called *Druids.*—*Gale*, *Dickenson*, and some others vainly contend, that the *Druids* borrowed all their Philosophy, as well as Religion, from the *Jews*.

From this long, though necessary Digression, which was occasioned by my mentioning the *Dryades*, I'll pass to the *Hamadryades*.

Poets frequently confound the *Hamadryades* with the *Naiades* and *Napææ*. *Festus* calls them *Querquetulanæ*, as being issued, or sprung from Oaks. An antient Poet, one *Pherenicus*, in *Athenæus*, *lib.* 3. calls the Vine, Fig-Tree, and other Fruit Trees, *Hamadryades*, from the Name of their Mother Oak.

There was also a Kind of Semi-God, called SATYRS, who with the Fawns and Sylvans presided over Groves and Forests, under the Direction of *Pan*.

The *Satyrs* were painted half Men, and half Goats, the upper Part was human, excepting for Horns on the Head; the lower Brutal, with the Tail and Legs of a Goat; the whole covered with Hairs.

The Poets usually confound the Satyrs, Sylvans, Sileni, Fawns, and Panes.

Nonnus in his *Dionysiaca*, makes the *Satyrs* the Offsprings of *Mercury*, and a *Dorick* Nymph, called *Tpthima*, and gives us the Names of several, viz. *Præminius*, *Thyasus*, *Hypsichorus*, *Oristas*, *Apæus*, *Phlegræus*, *Lycao*, &c. *Memnon* in his Book against the Tyrants of *Heraclea*, derives the *Satyrs* from *Bacchus*, and a Naiad, called *Niræa*.

Though the *Satyrs*, when advanced in Age were called *Sileni*, yet there was one principal *Silenus* older than any of the rest. *Diod. Siculus* says, he was the Master, or Tutor of *Bacchus*, whom he disciplined nobly, and followed him to the Wars. He quotes an antient Poet named *Thymætas*, who relates, that the *Sileni* assisted *Bacchus* in the War he waged against the *Titans*; adding that the first *Silenus* reigned in an Island made by the River *Triton* in *Lybia*. He is represented as having a long Tail hanging behind, which is likewise an Attribute of all his Posterity: The Poets always mount him on an Ass.

Nonnus makes *Silenus* a Son of *Tellus*, and gives him three Sons, *Astræus*, *Maron*, and *Lenæus*. *Servius* on *Virgil's Eclogues*, makes *Silenus* the Son of *Mercury*, others the Son of *Pan*, and a Nymph; others will have him born of the Drops of the Blood of *Cælus*, Father of *Saturn*.

Note, That *Bochart*, in his *Canaan*, will have *Silenus* to take his Name from שלח, or שיל, *Silo*, whence שלן, *Silan*, the Name of the *Messiah*. He adds, that all attributed to this imaginary Deity, is taken from what the Prophets have foretold of *Jesus Christ*. Thus whereas it is said, the *Messiah* shall be the Instructor of the People; *Silenus* is made Preceptor of *Bacchus*. Because it is said that our Saviour shall bind his Ass to the Vine, and his Colt to the young Vine; *Silenus* is made to ride on an Ass. Because our Saviour washed his Garments in Blood, as those who trod the Vine-Press; *Silenus* was made to preside over those who pressed the Vintage. Because it is added, his Eyes were red by reason of Wine; *Silenus* was made always fuddled. *Bochart* however, advances this with a deal of Distrust, as he has Reason, it having no Warrant: He adds, that the Devil invented the Fable of *Silenus* to turn the Mysteries of our Religion into Ridicule. But it must be a very ignorant Devil, to take *rubent illi oculi ex vino, & dentes ejus ex lacte albescunt*, in the Sense he has done, as if the Words signified any Thing more in the Propriety of the *Hebrew* Tongue, than his Eyes are redder than Wine; his Teeth whiter than Milk. We may add, that no Body, before *Bochart*, neither Christian, nor Idolater, ever saw any Thing of *Jesus Christ* in the Fable of *Silenus*.

The FAUNS, were also a Species of Demi-Gods, inhabiting the Forests.

The *Fauns* are reputed pure *Roman* Deities; unknown to the *Greeks*.—They were represented, like the *Satyrs*, half Men, half Goats, a very flat Nose, and the rest human.

The Roman *Faunus* was the same with the Greek *Pan*. Now, in the Poets, we find frequent Mention of *Fauns* and *Panes*, in the plural Number; in all Probability, therefore, the *Fauns* were the same with the *Panes*.

The Reason was, that there were several *Faunus's* and *Pans*; though all descended from a principal one. Thus *Ovid:*

Aut quas Semi-deæ, Dryades, Faunique bicores,
Numine contactas attonuere suo.

The *Romans* called them *Fauni*, *Ficarii*. The Denomination *Ficarii* was derived not from the Latin *Ficus*, *Ficûs*, a Fig, as some have imagined; but from *Ficus*, *Fici*, a Sort of fleshy Tumour, or Excrescence growing on the Eye-lids, and other Parts of the Body; with which the *Fawns* were represented.

Though the *Fawns* were held for Demi-Gods, yet were they supposed to die after a long Life. *Arnobius* shews, that their Father or chief *Fawn* himself only liv'd 120 Years.

The *seventh Class* of GODS, was taken from among the Waters: The *Syrians* and *Egyptians* adored Fishes; the *Oxyrhinchites*, *Latopolitani*, *Simnitæ*, and Inhabitants of *Eliphantis* had each a Fish for their God; and the *Tritons*, *Nereides*, *Syrens*, &c. what were they but Fishes? Several Nations have adored Serpents, particularly the *Egyptians*, *Prussians*, *Lithuanians*, *Samegitians*, &c.

The TRITON was a Sea Semi-God, held by the Antients to be an Officer, or Trumpeter of *Neptune*, attending on him, and carrying his Commands from Sea to Sea.

The Poets and Painters, represent him as a half Man, and half Fish, terminating in a Dolphin's Tail, and bearing in one Hand a Sea Shell, which served as a Trumpet.

Some of the Antients make him the Son of *Neptune*, and the Nymph *Salacia*; *Hesiod* of *Neptune* and *Amphitrite*; *Neumenius* in his Book *de piscationibus*, makes him the Son of *Oceanus* and *Thetys*; and *Licophron* the Son of *Nereus*.

But though *Hesiod*, and the *Mythologists*, only speak of one *Triton*, the Poets have imagined several; giving some of them for Trumpeters to all the Sea-Gods, particularly to *Neptune* and *Venus*; accordingly they were frequently introduced into the antient Theatres, and in the *Naumachia*.

In Effect, the *Tritons* not only officiated as Trumpeters in *Neptune's* Retinue, but were also supposed to draw his Chariot, *i. e.* the Sea-Shell wherein he rode over the Waters; as we find in *Virgil*, *Æneid* x. 209. *Ovid Metam.* i. 333. and on a Medal of *Claudius*.

The Fable of the *Tritons* no doubt, took its Rise from

Sea or Mer-men; for that there are such Things as Sea-men, seem a Thing scarce to be doubted.

The Poets ordinarily attribute to *Triton* the Office of calming the Waves, and of making Tempests cease. Thus in the first of the *Metamorphoses* we read, that *Neptune* desiring to recall the Waters of the Deluge, commanded *Triton* to sound his Trumpet, at the Noise whereof the Waters all retired.

The SIRENS, *Mermaids*, are represented by *Ovid* a Kind of Sea-Monster, with Women's Faces and Fishes Tails; and by others are decked with a Plumage of various Colours.

They are supposed to have been the three Daughters of the River *Archelous*, and called *Parthenope*, *Ligea*, and *Leucosia*. *Homer* only makes mention of two *Syrens*, but others reckon five. *Virgil* places them on Rocks, where Vessels are in Danger of splitting. *Pliny* makes them inhabit the Promontory of *Minerva* near the Island *Capræ*; Others fix them in *Sicily*, near Cape *Pelorus*. *Claudian* says, they inhabit harmonious Rocks, that they were charming Monsters; and that Sailors were wrecked on their Rocks without Regret, and even expired in Raptures; *Dulce malum Pelago Syren.*

This Description is doubtless founded on a literal Explication of the Fable, that the *Sirens* were Women who inhabited the Shores of *Sicily*, and who, by all the Allurements of Pleasure, stopped Passengers, and made them forget their Course. Some Interpreters of the ancient Fables will have the Number and the Names of three *Sirens* to have been taken from the triple Pleasure of the Senses, Wine, Love, and Musick, which are the three most powerful Means of seducing Men; and hence so many Exhortations to avoid the *Sirens* fatal Song.

Probably it was hence that the *Greeks* fetched their Etymology of *Siren*, viz. from σειρα, a Chain, as if there was no getting free of their Enticement.

Others, who do not look for so much Mystery in the Fable, maintain that the *Sirens* were nothing but certain Streights in the Sea, when the Waves whirling furiously around, seized and swallowed up Vessels that approached them too near.

Lastly, others hold the *Sirens* to have been certain Shores and Promontories, where the Winds by the various Reverberations and Echo's, cause a Kind of Harmony that surprizes, and stops Passengers. This probably might be the Origin of the *Siren's* Song, and the Occasion of giving the Name of *Sirens* to those Rocks.

Sculptors and Painters usually follow *Ovid*'s Description of the *Sirens*; but on some Medals we find them represented with the upper Parts of Women, and the lower of Birds.

In the *eighth Class*, *Flies* and *Ants* had their Priests and Votaries; these among the *Thessalians*, and those in *Arcania*, where Bullocks were offered to them.

In the *ninth Class* among Birds, the Stork, Raven, Sparhawk, Ibis, Eagle, Griffon, and Lapwing, have had divine Honours; the last in *Mexico*, the rest in *Egypt* and at *Thebes*.

In the *tenth Class*, four-footed Beasts have had their Altars, as the Bull, Dog, Cat, Wolf, Baboon, Lion, and Crocodile, in *Egypt*, and elsewhere; the Hog in the Island of *Crete*, Rats and Mice in the *Troas*, and at *Tenedos*; Weazels at *Thebes*, and the Porcupine throughout all *Zoroaster*'s School.

In the *eleventh Class*, Men were placed among the Number of Deities, and from *Belus*, or *Baal*, to the *Roman* Emperors before *Constantine*, the Instances of this Kind are innumerable. Frequently they did not wait so long as their Death for the Apotheosis. *Nebuchadnezzar* procured his Statue to be worshipped while living: And *Virgil* shews, that *Augustus* had Altars and Sacrifices offered to him, *Eclog. 1. v. 6, 7*, as we learn from other Hands, that he had Priests called *Augustales*; and Temples at *Lyons*, *Narbona*, and several other Places; and he must be allowed the first of the *Romans*, in whose Behalf Idolatry was carried to such a Pitch. The *Æthiopians* deemed all their Kings *Gods*; the *Vesteda* of the *Germans*, the *Janus* of the *Hungarians*; and the *Thaut*, *Woden*, and *Assa* of the northern Nations, were indisputably Men.

In the *twelfth Class*, not Men only, but every Thing that relates to Men, has been also deified; as Labour, Rest, Sleep, Youth, Age, Death, Virtues, Vices, Occasion, Time, Place, Numbers, among the *Pythagoreans*, the generative Power, under the Name of *Priapus*; Infancy alone had a Cloud of Deities, as *Vegetanus*, *Levane*, *Rumina*, *Edusa*, *Potina*, *Cuba*, *Cumina*, *Carna*, *Ossilago*, *Statulinus*, *Fabulinus*, &c.

They also adored the *Gods*, Health, Fever, Fear, Love, Pain, Indignation, Shame, Impudence, Opinion, Renown, Prudence, Science, Art, Fidelity, Felicity, Calumny, Liberty, Money, War, Peace, Victory, Triumph, *&c.*

Lastly, Nature, the Universe, or το παν, was reputed a great God.

Hesiod has a Poem under the Title of Θεογονια, *i. e.* the Generation of the Gods, wherein he explains their Genealogy and Descent, sets forth who was the first and Principal; who next descended from him, and what Issue each had; the whole making a Sort of System of heathen Theology.

Besides this popular Theology, each Philosopher had his separate System, as may be seen from the *Timæus* of *Plato*, and *Cicero de nat. Deor.*

Justin Martyr, *Tertullian* in his *Apologeticks*, and in his Book *Contra gentes*; *Arnobius*, *Minucius Felix*, *Lactantius*, *Eusebius*, *præpar. & Demonst. Evan.* St. *Augustin*, *de civit. Dei.* and *Theodoret*, *advers. gentes.* shew the Vanity of the heathen Gods.

It is very difficult to discover the real Sentiments of the Heathens, with respect to their Gods; they are exceedingly intricate and confused, and even frequently contradictory. They admitted so many superior and inferior Gods who shared the Empire, that all was full of Gods. *Varro* reckons up no less than thirty Thousand, adored within a small Extent of Ground, and yet their Number was every Day growing. The Way to Heaven was so easy for the great Men of those Days, that *Juvenal*, as we have already observed, brings in *Atlas* complaining he was ready to sink under the Load of such a Number of new Gods as were daily placed in the Heavens; yet Father *Morgues* seems to have proved, that all the Philosophers of Antiquity have acknowledged that there is but one God.

The heathen Divinities had a particular Sort of Priests, or Ministers of their Sacrifices, called *Flamens*, and at *Rome* there were as many Kinds of *Flamens*, as there were Gods who had Sacrifices offered them.

Numa at first only instituted three, one for *Jupiter*, called *Flamen Dialis*; another for *Mars*, called *Flamen Martialis*; and a third for *Romulus*, or *Quirinus*, called *Flamen Quirinalis*.

In After-times twelve more were added, which made the Number of *Flamens* fifteen.

The three first were taken from among the *Patricians*, and were held of a Rank and Distinction superior to the rest. They were called *greater Flamens*, *Flamines majores*; in Contradistinction to the other twelve, who were chose from among the *Plebeians*, and were called *lesser Flamens*, *Flamines minores*. The *Flamen Dialis*, or of *Jupiter*, was the first instituted, and held in the greatest Repute. He bore a peculiar Ornament on his Head called *Albugalerus*, which was made of the Skin of a white Victim, sacrificed to *Jupiter*.

The Cap wore by the rest was called *Flamma* or *Apex*; it was made of a Sheep's Skin, with the Wool on; to it was fastened a little Branch of an Olive-tree. That of the Flamen of *Jupiter* ended in a Point called *Titulus*, it was tied under the Chin with Strings. In the Summer time it was a woollen Thread tied round the Head, it being prohibited them to appear quite bare-headed. And hence, according to *Festus*, came their Denomination of *Flamen*, viz. from *filamen* of *Filum*, Thread.

Though the *Flamens* bore one common Appellation, yet did they not constitute any Company or College. Each God had his several Sacrifices, Feasts, and Ceremonies a-part; nor had one *Flamen* any Relation to another, only they were all subordinate to the *Pontifex Maximus*. *Aulus Gellius* assures us, that they were created by the People in the *Comitia Curiata*; but the *Pontifex Maximus* consecrated them; their Priesthood, called *flaminatus*, was perpetual, though on some Occasions they might be deposed.

The Names of the several *Flamens* are as follows; the

the three great *Flamens*, as already obſerved, were the *Flamen Dialis*, *Flamen Martialis*, and *Flamen Quirinalis*. The twelve leſſer were, the *Flamen Carmentalis*, or Prieſt of the Goddeſs *Carmenta*; *Flamen Falacer*, or Prieſt of God *Falacer*; a Name, whoſe Origin, *Varro* obſerves, is not known: *Flamen Floralis*, or of the Goddeſs *Flora*; *Flamen Farinalis*, whoſe Etymology is not known; *Flamen Levinalis*, *Flamen Lucularis*, *Flamen Palatualis*, whom ſome Moderns will have the Prieſt of the Goddeſs that preſided over the *Palatium*; though *Varro* owns himſelf at a Loſs for his Original: *Flamen Pomonalis*, or of *Pomona*, Goddeſs of Fruits; *Flamen Virbialis*, or of the God *Virbius*, whom ſome take for the ſame with *Hippolytus*; *Flamen Vulcanalis*, or of *Vulcan*, and *Flamen Volturnalis*, or of the God *Volturnus*.

They had alſo their *Flaminæ* or *Flaminicæ*, who were Wives of the *Flamens*, or the Prieſteſſes of the Deities. In an antient Marble, quoted by *Gruter*, *p.* cccclix. *n.* 9. the Word *Flamina* is uſed for Prieſteſs; and in the ſame Author, *p.* cccviii. *n.* 3. the Prieſteſs of the Goddeſs *Feronia*, FLAM. FERON. that is, *Flamina*, or *Flaminica Feroniæ*.

The *Flamina* bore the ſame Ornament on her Head with the *Flamen*; ſhe had alſo the ſame Surname with her Huſband, *Flamina Dialis*, *Martialis*, &c.

NATURAL HISTORY.

NATURAL HISTORY, is a Deſcription of the natural Products of the Earth, Water, or Air, *v. gr.* Beaſts, Birds, Fiſhes, Metals, Minerals, and Foſſils, together with ſuch extraordinary Phænomena, as at any Time appear in the material World, as Meteors, Monſters, *&c.*

Note, That as I have treated already of all thoſe Things each under its particular Head, *viz.* of Animals, in a particular Treatiſe under the Letter A; of Plants in a Treatiſe of Botany, under the Letter B; of Metals, in a particular Treatiſe under the Letter M; of Minerals, Foſſils, *&c.* in a particular Treatiſe likewiſe, under the ſame Letter M; it remains only to treat in this Place of few Things, which have been omitted in thoſe ſeveral Treatiſes, *viz.* of *Monſters*, ſcarce, and extraordinary Animals, Plants, *&c.*

MONSTER, *Monſtrum*, is a Birth, or Production of a living Thing, degenerating from the proper and uſual Diſpoſition of Parts, in the Species it belongs to.

Ariſtotle defines a Monſter to be a Defect of Nature, when acting towards ſome End it cannot attain to, by reaſon ſome of its Principles are corrupted.

Monſters do not propagate their Kind, for which Reaſon ſome rank Mules among the Number of *Monſters*, as alſo *Hermaphrodites*.

A *Mule*, is a mongrel Kind of quadruped uſually generated between an Aſs and a Mare, ſometimes alſo between a Horſe and a ſhe Aſs.

Though Mules do not propagate their Kind, yet the Antients mention a Sort of Mules that were prolifick, in *Phrygia*, *Syria*, *Cappadocia*, and *Africa*. Witneſs *Ariſtotle*, *hiſt. anim. l.* 6. *c.* 36. *Varro de re Ruſticâ*, *lib.* 2. *c.* 1. *Columella*, *l.* 7. *c.* 36. *Theophraſtus*, and after him *Pliny*, *lib.* 8. *c.* 44. *Steno* examining the Teſticles of a Mule, found *Ova* therein, with a Sort of Placenta about them, which perſuaded him that Mules might engender without any Miracle. But the Obſervation is fanciful, and the Concluſion unworthy ſo able a Naturaliſt.

The *Roman* Ladies had Equipages drawn by Mules, as appears by the Medals of *Julia* and *Agrippa*. And at this Day in *Spain*, the Coaches of the Nobility, and even Princes, are uſually drawn by no other than Mules.

A HERMAPHRODITE, is a Perſon who has both Sexes, or the genital Parts, both of Male and Female.

Note, That the Word is formed of the *Greek* Ερμαφροδιτος, a Compound of Ερμης, *Mercury*, and Αφροδιτη, *Venus*, a Mixture of *Mercury* and *Venus*, i. e. of Male and Female. For it is to be obſerved *Hermaphroditus* was originally a proper Name, applied by the heathen Mythologiſts to a fabulous Deity, whom ſome repreſent as a Son of *Hermes*, *Mercury*, and *Aphrodite*, *Venus*, and who being deſperately in Love with the Nymph *Salmaſis*, obtained of the Gods to have his Body and hers united into one. Others ſay, that the God *Hermaphroditus* was conceived as a Compoſition of *Mercury* and *Venus*, to exhibit the Union between Eloquence, or rather Commerce, whereof *Mercury* was God; with Pleaſure whereof *Venus* was the proper Deity. Laſtly, others think this Junction intended to ſhew that *Venus*, Pleaſure, was of both Sexes, as in Effect the Poet *Calvus* calls *Venus* a God.

Pollentemque Deum Venerem.

And alſo *Virgil*, *Æneid. l.* 11.

Diſcedo ac ducente Deo flammam inter & hoſtes,
Expedior.——

M. *Spon* obſerves, *Heſychius* calls *Venus Aphroditos*; and *Theophraſtus* affirms, that *Aphroditos*, or *Venus*, is *Hermaphroditus*; and that in the Iſland of *Cyprus* ſhe has a Statue, which repreſents her with a Beard like a Man. The *Greeks* alſo call *Hermaphrodites* ανδρογυνοι, and *rogyni*, q. d. Men-Women.

Naturaliſts diſtinguiſh four Kinds of *Hermaphrodites*, whereof the laſt are the perfect *Hermaphrodites*, or thoſe who have the Pudenda of both Kinds; but theſe are rarely, if ever, found. It is affirmed, however, that there were two ſuch *Hermaphrodites* married to each other.

Others diſpute all that has been ſaid on that Subject, maintaining that the ill Conformation of the Parts of Generation, the Teſticles being detained or concealed in Men, and the Clitoris longer than ordinary in Women, have been the ſole Occaſion of the Notion. To which may be added, ſteatomatous Tumours of the Labia Pudendi, which have ſometimes paſſed for Teſticles.

Dr. *Quincy* thinks, that the frequent Uſe of laſcivious Frictions and Titillations may contribute greatly to the Extenſion of the Clitoris, and make it paſs with the Ignorant for a Penis. This he adds was the Caſe in the celebrated Inſtance of the two Nuns at *Rome*, who, after they had lived Women for many Years, became Men. But on what Grounds he aſſerts this we do not know.

'The extraordinary Size of the Clitoris, ſays Dr. *Drake*, 'and its Propendance ſometimes, out of the Body in 'Infants, makes the Women miſtake ſuch Children for 'that Sort of Monſters called *Hermaphrodites*. Of this 'Kind I had one brought me, the Clitoris whereof 'hung out of the Body ſo far, at about three Years old, 'that it reſembled very much a Penis, but it wanted a 'Perforation: And inſtead of that, juſt behind it the 'Urine iſſued at a Hole, which was nothing elſe but 'the Corner of the Rima, the Clitoris filling all the reſt 'of the Orifice; ſo that the Parents miſtook it for a 'Boy, and as ſuch chriſtned it.—But the Neighbours 'called it an *Hermaphrodite*.'

But we have an authentick Account, in the Hiſtory of *the Royal Academy of Sciences*, of a real *Hermaphrodite* which may put the Point out of Queſtion. The Perſon had all the external Characters of a Woman in the Face, Neck, Breaſt, Hips, and Pudendum, and accordingly had been baptized in that Quality, and named *Margaret*, but had withal the real Characters of a Man, and a very able one. The *Pudendum Muliebre* appeared very well, but was not above two Fingers Breadth deep; out of the Middle of the Rima, or Aperture thereof, hung a pretty bulky Penis, which in an Erection came out eight Inches. The Penis was well formed, except that it had no Prepuce, nor was accompanied with any apparent Teſticles. The Urine and Seed came out at it as in Men; and what was very extraordinary, the Menſes flowed through the ſame, and this very regular once a Month.

Tereck
Plant Tsiebeer
Bidmusk Flowers and Leaves
Plant Terebintes
Wild Spanish Wheat
Flower
Goel Nàzranie
Unknown Plant
Mace
Blim-bing Tree
Citron of China
Cocoas Tree
Nam-Noun Tree
Bird Babbe
The Bird Paes-Teleh
Putrify'd Cockle
One of the Echini Putrify'd
The Fish Sjir-ma-jie
Bufonites or Toad Stone
Putrify'd Oyster
N. Parr Sculp

The Person was brought sick at the Hospital of St. *James* at *Thoulouse*, and the Account was given by M. *Veay*, Surgeon of the same Hospital, who adds, that having shewn the whole to several Physicians, and the Vicars General, they ordered the Party to take the Name and Habit of a Man, but not that of a Woman.

Note, That the Interpreters and Commentators on the Civil Laws, hold that an *Hermaphrodite* who has chose the Male Sex, as that which prevails most in him, may no longer do the Office of a Woman. And our *French* Lawyers produce an Arret of the Parliament of *Paris*, whereby a young *Hermaphrodite* was condemned to be burnt on that very Account. At *Athens* and *Rome*, they looked on *Hermaphrodites* as ominous Monsters, and precipitated them into the Sea, as we are informed by *Alexander ab Alexandro*.

S. *de Rennefort* relates, that at *Surat* there are Abundance of *Hermaphrodites*, who with Womens Cloaths wear Mens Turbans, to distinguish them, and let all the World know they have two Sexes.

In 1376 *Albert*, Bishop of *Bremen*, and Brother of the Duke of *Brunswick*, was accused by *John de Cestervel*, Dean of his Chapter, with being an *Hermaphrodite*, but he cleared himself.

Note, That *J. Frederick Mayor*, a Lutheran Divine, has an express Dissertation, to prove that an *Hermaphrodite* cannot be a Priest; it was printed at *Grypswald* in 1705. And *Willenlarg*, another Lutheran of *Dantzick*, has wrote to prove them excluded from all civil Employments like Women.

Hermaphrodite, is also applied metaphorically to divers other Things besides the human Species.

The latest Botanists and Florists, make a Division of Parts which they call *Hermaphrodites*, as may be seen in my Treatise of Botany under the Letter B, as having both the Male and Female Parts of Generation, *viz.* the Stamina and Pistil in the same Flower.

Divers of the insect and reptil Kind are also *Hermaphrodites*, particularly Worms, Snails, *&c.* as may be seen in my Treatise of Animals.

In the Memoirs of the *French* Academy, we have an Account of a very extraordinary Kind of *Hermaphrodites*, which not only have both Sexes, but do the Office of both at the same Time. Such are the Earth-worms, the round-tail Worms found in the Intestines of Men and Horses, Land-Snails, and those of fresh Waters, and all the Sorts of Leaches. And as all these are Reptiles and without Bones, M. *Paupert* concludes it probable, that all other Insects, which have those two Characters, are also *Hermaphrodites*.

The Method of coupling practised in this Class of *Hermaphrodites*, may be illustrated in the Instance of Earth-worms. These little Serpents creep two by two, into Holes proper to receive them, where they dispose their Bodies in such Manner, as that the Head of the one is turned to the Tail of the other. Being thus stretched Length-wise, a little conical Button, or Papilla, is thrust forth by each, and received into an Aperture of the other.

These Animals being Male at one End of the Body, and Female at the other, and the Body flexible withal; M. *Homberg* does not think it impossible but that an Earth-worm may couple with itself; and be both the Father and Mother of its Young; an Observation which to some appears highly extravagant.

The most monstrous Productions in the vegetable World are called *Mules*, which are Monsters produced by putting the Farina Fœcundans of one Species of Plant into the Pistil, or Utricle of another.

The Carnation and Sweet-william being somewhat alike in their Parts, particularly their Flowers; the Farina of the one will impregnate the other; and the Seed so enlivened will produce a Plant differing from either. An Instance of this was seen in Mr. *Fairchild*'s Garden at *Hoxton*, where there was a Plant neither Sweet-william nor Carnation, but resembling both equally; which was raised from the Seed of a Carnation which had been impregnated by the Farina of the Sweet-william. Their Couplings being not unlike those of the Mare with the Ass, which produce the Mule; the same Name is given them, and they are like the others uncapable of multiplying their Species.

This gives us a Hint for altering the Property and Taste of any Fruit, by impregnating one Tree with the Farina of another of the same Class, *e. gr.* a Codlin with a Pearmain, which will occasion the Codling so impregnated to last a longer Time than usual, and be of a sharper Taste; or if the Winter-Fruits be fecundated with the Dust of the Summer-Seeds, they will decay before their usual Time. And from this accidental Coupling of the Farina of one with another, it may possibly be that in an Orchard where there is Variety of Apples, even the Fruit gathered from the same Tree differ in their Flavour, and in the Season of Maturity. It is from the same accidental Coupling, that proceeds the numberless Variety of Fruits and Flowers raised every Day from Seeds.

Florists give also the Denomination *Monsters*, or monstrous Flowers, to those Flowers which are not only double, but double-podded, as when instead of one Flower there are two or three, raising one above another from one single Stalk.

Note, That Father *Malebranche* accounts for the Production of Monsters in the animal World, thus.— The Creator has established such a Communication between the several Parts of his Creation, that we are not only naturally led to imitate one another, *i. e.* have a Disposition to do the same Thing, and assume the same Manners with those with whom we converse, but also have certain natural Dispositions, which incline us to Compassion as well as Imitation. These Things most Men feel, and are sensible of; and therefore need not be proved: The animal Spirits then are not only naturally carried into the respective Parts of the Body to perform the same Actions, and the same Motions which we see others do, but also to receive in some Manner their Wounds, and take Part in their Sufferings.

That Experience tells us, that when we look attentively on any Person severely beaten, or that has a large Wound, Ulcer, or the like; the Spirits immediately flow into those Parts of the Body, which answer to those we see suffer in the other, unless their Course be stopped from some other Principle. This Flux of Spirits is very sensible in Persons of a delicate Constitution, who frequently shudder, and find a kind of Trembling in the Body on these Occasions; and this Sympathy in Bodies produces Compassion in the Mind.

Now it must be observed that the View of the Wound, *&c.* wounds the Person who views it the more strongly and sensibly, as the Person is more weak and delicate; the Spirits making a stronger Impression in the Fibres of a delicate Body than in those of a robust one. Thus strong, vigorous Men, *&c.* see an Execution without much Concern, while Women, *&c.* are struck with Pity and Horror. As to Children still in their Mother's Womb, the Fibres of their Flesh being incomparably finer than those of Women, the Course of the animal Spirits must necessarily produce much greater Alterations.

These Things being laid down, Monsters are easily accounted for. Suppose, *v. gr.* a Child born a Fool, and with all his Legs and Arms broke in the same Manner as those of Criminals in some Countries are; which Case we chuse to instance in, because such a Monster was born at *Paris*, and lived in one of the Hospitals there twenty Years: The Cause of this Accident, according to the Principles laid down, was, that the Mother seeing a Criminal executed, every Blow given to the poor Man struck forcibly the Imagination of the Woman, and by a kind of Counter-stroke, the tender and delicate Brain of the Child. Now, though the Fibres of the Woman's Brain were strongly shaken by the violent Flux of the animal Spirits on this Occasion, yet they had Strength and Consistence enough to prevent an entire Disorder; whereas the Fibres of the Child's Brain being unable to bear the Shock of those Spirits, were quite ruined, and the Ravage was great enough to deprive him of Reason all his Life-time. Again, the View of the Execu-

Execution frighting the Woman, the violent Course of the animal Spirits was directed forcibly from the Brain to all those Parts of the Body, corresponding to the suffering Parts of the Criminal; and the same Thing must happen in the Child. But in Regard the Bones of the Mother were strong enough to resist the Impulse of those Spirits, they were not damaged, and yet the rapid Course of these Spirits, could easily over-power, and break the tender and delicate Fibres of the Bones of the Child; the Bones being the last Parts of the Body that are formed, and having a very slender Consistence while the Child is yet in the Womb.

To which it may be here added, that had the Mother determin'd the Course of these Spirits towards some other Parts of her Body, by tickling or scratching herself vehemently, the Child would not, in all Probability, have had his Bones broken; but the Part answering that, to which the Motion of the Spirits was determined, would have been the Sufferer.

Hence appears the Reason, why Women in the Time of Gestation, seeing Persons, *&c.* marked in such a Manner in the Face, impress the same Mark on the same Parts of the Child: And why upon rubbing some hidden Part of the Body, when startled at the Sight of any Thing, or agitated with any extraordinary Passion, the Mark or Impression is fixed on that hidden Part, rather than on the Face of the Child. From the Principle here laid down, may most, if not all the Phænomena of Monsters be easily accounted for.

Among the monstrous Productions of the Sea, the *Mermaid* is that which surprises and puzzles us most.

However Naturalists may doubt of the Reality of *Mermen* or *Mermaids*, we have Testimony enough to establish it. In the Year 1187, as *Larry* informs us, such a Monster was fished up on the Coasts of *Suffolk*, and kept by the Governor for six Months. It bore so near a Conformity with Man, that nothing seemed wanting to it besides Speech. One Day it took the Opportunity of making its Escape, and plunging into the Sea, was never more heard of. *Hist. d'Angleterre, P. I. p.* 403.

In the Year 1430, after a huge Tempest, which broke down the Dykes in *Holland*, and made Way for the Sea into the Meadows, some Girls of the Town of *Edam* in *West-Freezeland*, going in a Boat to milk their Cows, perceived a *Mermaid* embarrassed in the Mud, with a very little Water. They took it into their Boat, and brought it with them to *Edam*, dressed it in Women's Apparel, and taught it to spin. It fed like one of them, but could never be brought to offer at Speech. Sometime afterwards it was brought to *Haerlem*, where it lived for some Years, though still shewing an Inclination to the Water. *Purival* relates, that they had given it some Notion of a Deity, and that it made its Reverences very devoutly whenever it passed by a Crucifix.

In the Year 1560, near the Island of *Manar*, on the Western Coast of the Island of *Ceylon*, some Fishermen brought up at one Draught of a Net, seven *Mermen* and *Maids*; of which several Jesuits, and among the rest F. *Hen. Henriquez*, and *Dimas Bosquez*, Physician to the Vice-Roy of *Goa*, were Witnesses. The Physician who examined them with a great deal of Care, and made Dissections thereof, asserts, that all the Parts, both internal and external, were found perfectly conformable to those of Men.

We have another Account well attested of a *Merman*, near the great Rock, called *Diamond*, on the Coast of *Martinico*. The Persons who saw it, gave in a precise Description of it before a Notary. They say that they saw it wipe his Hand over his Face, and even heard it blow its Nose.

Another Creature of the same Species was caught in the *Baltick*, in the Year 1531, and sent as a Present to *Sigismond* King of *Poland*, with whom it lived three Days, and was seen by all the Court. Another very young one was taken near *Rocca de Sintra*, as related by *Damian Goes*.

The King of *Portugal*, and the Grand Master of the Order of St. *James*, are said to have had a Suit at Law to determine which Party these Monsters belonged to.

Note, That as Naturalists doubt much of the Existence of *Mermaids* and *Mermen*, they have took no Pains to account for them; therefore we are at a Loss to know how they live, and are propagated in the Sea; for if it be true what the *Portuguese* Physician says, that in the Dissection he made of those Sea-Monsters, he found all their Parts both internal and external, perfectly conformable to those of Men, he should have informed us likewise, how those Creatures can breathe in the Sea, if they have the Organs of Respiration like ours; since it is impossible they should dwell long under Water, without being suffocated; which is one of the strongest Reasons Naturalists have for denying the Existence of those Monsters.

Note also, That from the Description of Monsters, I'll pass to what appears the most capable to flatter our Curiosity, in the Animal, Vegetable, and Mineral Worlds. Beginning by the Animal World; and in that by the *Unicorn*.

The UNICORN, is an Animal famous among the *Greek* Authors under the Name of μονοκερως; and among the *Latins* under that of *Unicornu*, both these Names he takes from its distinguishing Characteristick, the having one Horn only; which is represented as five Palms long, growing in the Middle of the Forehead.

This Animal claims a Place here, not only as it makes a curious Article in *Natural History*, but also as it furnishes something to Medicine, Commerce, and Heraldry.

The popular Account is, that it is about the Size of a Horse, its Hair short, and of a dark-brown Colour; very timorous, and therefore keeping mostly in the Woods; and that its true Place is the Province of *Agoas*, in the Kingdom of *Damotes* in *Ethiopia*.

The first Author who wrote of the *Unicorn*, was one *Cresius*, whom *Aristotle* mentions as a very suspicious Author; *Ælian* only speaks of him in very doubtful Terms. The other Writers on the Subject are *Philostratus* and *Solinus*; *Æneas Sylvius*, who is Pope *Pius* II. *Marcus Paulus*, *Alcosius*, *Gesner*, *Garcia ab horto*, *And. Marinus*, &c. of these some say it resembles a Horse, others an Ass, others a Goat by its Beard; others an Elephant, others a Rhinoceros, others a Grey-hound, *&c.*

Munster and *Thevet* will have it an amphibious Animal, and its Horn to be moveable at Pleasure. Others make all its Strength to consist in its Horn; and add that when pursued by the Hunters, it precipitates itself from the Top of the highest Rocks, and pitches upon its Horn; which sustains the whole Effort of its Fall, so that it receives no Damage thereby. In Effect, the several Authors do all give several Accounts of the Figure and Colour, both of the Animal, and of its Horn, and all its Parts. And hence the more knowing among the Moderns, do unanimously hold it a fabulous Animal.

The Legend adds, that it is wonderful fond of chast Persons, and therefore, in order to take it, a Virgin is placed in its Way; whom, when the *Unicorn* spies, he lies down by her, and lays his Head on her Lap, and so falls asleep; upon which the Virgin making a Signal, the Hunters come in and take the Beast; which could never be caught any other Way, because it would either cast itself headlong from a Rock, or die.

What ordinarily passes among us for *Unicorn's Horn*, and is shewn for such in the Collections of Curiosities, and used for such by several Physicians, we are assured by *Pereyra*, in his Account of *Greenland*, is the Tooth of a large Fish of the Whale-Kind, called by the Islanders *Narval*; and in other Places *Walrus* and *Robart*, frequent enough in the Icy Sea. This Tooth or Horn, turned, channelled, and terminating in a Point, as it is, springs out of the Middle of the Fore-part of the upper Jaw, and serves it as a Weapon of Defence, wherewith it dares to attack the largest Whale. It can strike it with such Violence, as even to pierce the Side of a strong built Ship.

Note, That the Horn of the *Narwal* caught in 1736, in a Creek of the *Elbe*, in the Dutchy of *Bremen*, and, as Dr. *Hampe* assures us, from the Fore-part of the Head, just above the Mouth, and was six Foot long, white like Ivory, and curiously twisted. Yet *Worsin*, and

and the Generality of Authors, take it for a Tooth. Many hold its chief Use is to break the Ice. Dr. *Steigarthal* rather imagines it to serve to seek its Food; and mentions a Whale caught in *Greenland*, in the Belly of which a *Narwal* had stuck its Tooth close to the Mouth, and had sucked the Blood and Humours.

There is a fine Horn of this Kind preserved in the Repository of St. *Denis* at *Paris*, given by *Andr. Thevet*, and pretended to have been a Present to him from the King of *Monomotapa*, who carried him to hunt the *Unicorn*; which is frequent in that Country. This Horn some have suspected to be an Elephant's Tooth, carved in that Manner. At *Strasbourg* there is another between seven and eight Feet long. In the Repository at *Venice*, there is a good Number; all different from each other.

The Antients held the *Unicorn's Horn* to be a Counter-Poison; and that the Animal used to dip it in the Water, to purify and sweeten it ere it would drink. It is added, that for the same Reason other Beasts wait to see it drink before them. Thence, as also from the Rarity of the Thing, People have taken Occasion to attribute divers medicinal Virtues thereto.

But *Amb. Paré* has proved it a mere Piece of Charletanery, and all the Virtues attributed to it to be false; and yet the Price it has bore, is almost incredible: *Andrea Racci*, a Physician of *Florence*, affirms the Pound of 16 Ounces to have been sold in the Apothecaries Shops, for 1536 Crowns, when the same Weight of Gold was only worth 148 Crowns.

Among the feather'd Society, the PHENIX was a Bird famous among the Antients; but generally look'd upon by the Moderns as fabulous.

The Naturalists speak of it as single, or the only one of its Kind: They describe it as of the Size of an Eagle; its Head finely crested with a beautiful Plumage. Its Neck cover'd with Feathers of a Gold Colour, and the rest of its Body Purple, only the Tail white, intermixed with Carnation; and its Eyes sparkling like Stars. They hold that it lives five or six hundred Years in the Wilderness: That when thus advanced in Age, it builds itself a Funeral Pile of Wood and aromatick Gums; then it lights it with the Wafting of its Wings, and thus burns itself; and from its Ashes arises a Worm, which in Time grows up to be a *Phenix*.

Hence the *Phœnicians* gave the Name *Phenix* to the Palm-Tree, by Reason when burnt down to the very Root, it rises again fairer than ever.

In the Sea we find the TORPEDO, which is a Fish famed both among the antient and modern Naturalists, for a remarkable Numbness wherewith it strikes the Arm of such as touch it.

Various are the Accounts given us of this singular Fish; some Authors raising the Effects it produces to a Kind of Miracle; and others treating them a little better than Chimera's; some solving the Appearance this Way, and some that. But M. *Reaumur*, of the *French* Academy of Sciences, has at length cleared the Point, and set the Matter in a satisfactory Light.

The *Torpedo* is a flat Fish, much of the Figure of the Thorn-back, sufficiently described in most Treatises of Fishes, and commonly enough found about the Coasts of *Provence*, *Gascony*, &c. where the People eat it without any Danger.

Upon touching the *Torpedo* with the Finger, it frequently, though not always happens, that the Person feels an unusual painful Numbness, which suddenly seizes the Arm up to the Elbow, and sometimes to the very Shoulder and Head.

The Pain is of a very particular Species, and not to be described by any Words; yet Mess. *Lorenzini*, *Borelli*, *Redi*, and *Reaumur*, who all felt it severely, observe it to bear some Resemblance to that painful Sensation felt in the Arm, upon striking the Elbow violently against a hard Body; though M. *Reaumur* assures us, this gives but a very faint Idea of it.

Its chief Force is at the Instant it begins; it lasts but a few Moments, and then vanishes entirely. If a Man do not actually touch the *Torpedo*, how near soever he holds his Hand, he feels nothing: If he touches it with a Stick, he feels a faint Effect: If he touches it through the Interposition of any pretty thin Body, the Numbness is felt very considerably: If the Hand be pressed very strong against it, the Numbness is the less, but still strong enough to oblige a Man speedily to let go.

There are different Ways of accounting for this Effect: The first is that of the Antients, who contented themselves with ascribing a torporifick Virtue or Faculty to this Animal.

The second will have the Effect produced by the *Torpedo*, to depend on an infinite Number of Corpuscles, issuing continually out of the Fish, but more copiously under some Circumstances than others: This is the Opinion most generally received; being adopted by *Redi*, *Perrault*, and *Lorenzini*.

They explain themselves thus: As the Fire unites a Quantity of Corpuscles proper to heat us, so the *Torpedo* unites a Quantity of Corpuscles for to numb the Part they insinuate themselves into; whether it be by their entering in too great Abundance, or by the falling into Tracts or Passages, very disproportionate to their Figures.

The third Account is that of *Borelli*, who looks on this Emission of Corpuscles, as imaginary: He says, that upon touching the Fish, it puts itself into a violent Tremor or Agitation, and that this occasions a painful Numbness in the Hand that touches it. But M. *Reaumur* assures us, that notwithstanding all the Attention he could view this Fish withal, when ready to strike the Numbness, he could perceive nothing of this Trembling or Agitation.

The last and most just Hypothesis, is that of M. *Reaumur*. The *Torpedo*, like other flat Fish, he observes, is not absolutely flat, but its Back, or rather all the upper Part of its Body, a little Convex: When it did not, or would not produce any Numbness, in such as touched it, its Back he found always preserved its natural Convexity; but whenever it would dispose itself to receive a Touch or Thrust, it gradually diminished the Convexity of the back Parts of the Body; sometimes only rendering them flat, and sometimes even Concave.

The very next Moment, the Numbness always began to seize the Arm; the Fingers that touched, were obliged to give back, and all the flat and concave Part of the Body was again seen Convex; and whereas it only became flat insensibly, it returned to its Convexity so swiftly, that one could not perceive any Passage from the one to the other State.

The Motion of a Ball out of a Musket, is not perhaps much quicker, than that of the Fish reassuming its former Situation; at least the one is not more perceivable than the other.

It is from this sudden Stroke, that the Numbness of the Arm arises; and accordingly, the Person when he begins to feel it, imagines that his Fingers have been violently struck. It is the mere Velocity of the Stroke that produces the Numbness.

The Wonder is, how so soft a Substance, as that of the Fish, should give so rude a Blow: Indeed a single Stroke of a soft Body could never have done it; but in this Case there is an Infinity of such Strokes given in an Instant. To explain the admirable Mechanism hereof, we must give a View of the Parts whereon it depends.

This Mechanism then consists in two very singular Muscles, described by several Authors, who have given the Anatomy of the *Torpedo*; *Redi*, and after him *Lorenzini*, call them the *Musculi Falcati*; their Form is that of Crescents, and they together take up almost half the Back of the Fish, the one on the right Side, and the other on the Left. Their Origin is a little above the Mouth, and they are separated from each other by the Brunchia, into the last of which they have their Insertion.

What is singular in them is their Fibres, if with the Authors abovementioned, we may give that Name to a Sort of smaller Muscles as big as Goose-quills, of an Assemblage whereof the two great Muscles are formed. These lesser Muscles are hollow Cylinders, their Length nearly equal to the Thickness of the Fish, and ranged aside of each other; all perpendicular to the upper and lower Surfaces of the Fish, accounting their Surfaces as two nearly parallel Planes. The exterior Surface of each of these Cylinders consists of whitish Fibres, whose Direction is the same with

with that of the Cylinder; but these Fibres only form a Kind of Tube, whose Particles are not above the Thickness of a Leaf of Paper. The Cavity of the Tube is full of a soft Matter, of the Colour and Consistence of Pap, divided into twenty-five or thirty different little Masses, by so many Partitions, parallel to the Base of the Cylinder, which Partitions are formed of transverse Fibres; so that the whole Cylinder is in some measure composed of twenty-five or thirty smaller Cylinders placed over each other, and each full of a medullary Substance.

We need only now remember, that when the *Torpedo* is ready to strike its Numbness, it slowly flattens the outer Surface of its upper Part, and the whole Mechanism whereon its Force depends will be apparent. By that gradual Contraction it binds as it were all its Springs, renders all its Cylinders shorter, and at the same Time augments their Bases, or which amounts to the same, stretches all the little Inclosures which divide the soft Matter. In all Probability too, the large Fibres, or little Muscles, in that Moment, lose their cylindrical Form to fill the Vacuities between them.

The Contraction being made to a certain Degree, all the Springs unbend, the longitudinal Fibres are lengthned, the tranverse ones, or those which form the Inclosures are shortened; each Inclosure drawn by the longitudinal Fibres which are lengthened, drives the soft Matter it contains upwards, in which it is apparently assisted by the undulatory Motion, which is in the transverse Fibres when contracting.

If then a Finger touch the *Torpedo*, it presently receives a Stroke, or rather several successive Strokes, from each of the Cylinders whereon it is applied. As the soft Matter is distributed into divers Inclosures, it is more than probable, all the Strokes are not given precisely at the same Moment; nay, were there no Inclosures to separate the Matter, its Impression would give Strokes, in some measure, successive, for all Parts of soft Bodies do not strike at once; the Impression of the last does not take, till after the first have done acting. But these several Inclosures serve to augment the Number of the Springs, and of Consequence the Velocity and Force of the Action.

These quick reiterated Strokes given by a softish Matter, shake the Nerves, suspend or change the Course of the animal Spirits, or some fluid Equivalent; or, if you had rather these Strokes produce an undulatory Motion in the Fibres of the Nerves, which clashes or disagrees with that they should have, in order to move the Arm. And hence the Inability we are under of using the same, and the painful Sensation which accompanies it.

Hence it is that the *Torpedo* does not convey its Numbness to any Degree, except when touched on this great Muscle; so that the Fish is very safely taken by the Tail, which is the Part by which the Fishermen catch it.

The Authors who have accounted for the Effect of the *Torpedo* from Torporifick Effluvia, have been obliged to have Recourse to the same two Muscles; but then they only make them Reservoirs of the Corpuscles, whereby the Numbness is effected.

Lorenzini, who has observed the Contraction as well as *Reaumur*, pretends, that all its Use is to express all those Corpuscles from out of the hollow Fibres of these Muscles wherein they are imprisoned; but this Emanation of Corpuscles admitted by most Authors, is disproved by M. *Reaumur*, from the following Considerations.

1. In that no Numbness is conveyed, if the Hand be at the smallest Distance from the *Torpedo*; now, to use their own Comparison, if the *Torpedo* numbs as the Fire warms, the Hands would be affected at a Distance from one as well as the other.

2. In that the Numbness is not felt till the Contraction of the Muscles is over, whereas were the Cause in torporifick Particles, it would be conveyed by Degrees, as the Hand warms by Degrees. Lastly, in that the *Torpedo* conveys its Numbness to the Hand, through a hard solid Body, but does not do it through the Air.

Were the only Use the *Torpedo* makes of its Faculty, the saving itself from the Fishermen, as some have supposed, it would signify but little; for it is very rare that it escapes their Hands.

Pliny, *Aristotle*, and most Naturalists therefore agree, that it likewise serves it for the catching of other Fishes; all we know for certain is, that it lives on other Fishes, and that it is generally found on Banks of Sand, &c. probably to serve it as a Foundation or Support for the exerting its Faculty.

M. *Reaumur* had no Fishes alive to examine what the *Torpedo* would do to them; but an Animal next a-kin to a Fish he tried it on, *viz.* a Drake, which being shut up awhile in Water with the Fish, was taken out dead, doubtless from its too frequent Contacts on the *Torpedo*.

In the History of *Abyssinia* we are assured, that if the *Torpedo* kill living Fishes, it seems to bring dead ones to Life again; dead Fishes being seen to stir if put in the same Vessel with it; but this is much less credible than what is told us in the same History, that the *Abyssinians* use *Torpedo's* for the Cure of Fevers, by tying down the Patient to a Table, and applying the Fish successively upon all his Members, which puts him to a cruel Torment, but effectually rids him of his Disease.

Bellonius assures us, that our own *Torpedo's* applied to the Soals of the Feet, have prov'd successful against Fevers.

M. *du Hamel*, in his History of the Academy of Sciences, *An.* 1677, mentions a Kind of *Torpedo's*, which he compares to Conger Eels: M. *Richer*, from whom he has the Account, affirms, on his Knowledge, that they numb the Arm strongly, when touched with a Staff, and that their Effect even go to the giving Vertigo's.

Note, That from the animal, I'll pass into the vegetable World, and there take a particular Notice of the *Ginseng*.

The GIN-SENG, or GIN-SEM, or GINZENG, is a very extraordinary and wonderful Plant, hitherto only found in *Tartary*.

The *Gin-seng* is one of the principal Curiosities of the *Chinese* and *Tartars*; their most eminent Physicians have wrote many a Volume of its Virtues.

It is known among them by divers other Names, as the *only spirituous*, the *pure Spirit of the Earth*, the *Plant that gives Immortality*, &c. It makes in Effect, the whole Materia Medica for the People of Condition, being too precious for the Populace.

All the Writers of the *Chinese* Affairs make mention of the *Gin-seng*, as *Martinius* in his *Atlas*; F. *Kircher*, in his *China illustrata*; F. *Tachard* in his *Voyages*; and F. *le Counte* in his *Memoirs*.

And yet we knew very little of this Plant, before F. *Jartoux* a Jesuit, and Missionary in *China*, who being employed by Order of the Emperor in making a Map of *Tartary*, in the Year 1709, had an Opportunity of seeing it growing in a Village, about four Leagues from the Kingdom of *Corea*, inhabited by *Tartars*, called *Calca-Tatze*.

That Father took the Opportunity to make a Draught of the Plant, and hath given an accurate Description thereof, with its Virtues, and the Manner of preparing it, which, being a great Curiosity, we shall here gratify the Reader withal.

The *Gin-seng*, has a white Root somewhat knotty, about thrice the Thickness of the Stem, and which goes tapering to the End: At a few Inches from the Head it frequently parts into two Branches, which gives it some Resemblance of a Man, whose Thighs the Branches represent; and it is hence it takes the Denomination *Gin-seng*.

From the Root rises a perfectly smooth and tolerable round Stem; its Colour is a pretty deep Red, except towards the Foot, where, by the Neighbourhood of the Earth, it is turned somewhat whiter. At the Top of the Stem is a Sort of Joint or Knot, formed by the shooting of four Branches, which spread as from a Centre: The Underside of each Branch is green mixed with white, and the upper Part much like the Stalk, of a deep Red; the two Colours gradually decrease, and at length unite on the Sides.

Each Branch has five Leaves; and it is observable, that the Branches divide equally from each other, both in respect of themselves, and of the Horizon; and with the Leaves make a circular Figure nearly parallel to the Surface of the Ground.

The

The Fibres of the Leaves are very distinguishable, and on the upper Side are beset with small whitish Hairs; the Membranes or Pellicles between the Fibres rise a little in the Middle, above the Level of the Fibres.

The Colour of the Leaf is a dark Green above, and a shining whitish Green underneath, and all the Leaves are finely jagged or indented.

On the Edges, from the Center of the Branches, arises a second Stalk, very strait, smooth, and whitish, from Bottom to Top, bearing a Bunch of round Fruit, of a beautiful red Colour. This Bunch, in the Plant viewed by our Missionary, was composed of twenty-four Berries.

The red Skin that covers the Berries is very thin and smooth, and contains within it a white Pulp: As these Berries were double (for they are sometimes single) each had two rough Stones, of the Size and Figure of our Lentils. The Pedicles whereon the Berries were supported, all arose from the same Center, and spreading exactly like the Radii of a Sphere, made the Bunch of Berries of a circular Form. The Fruit is not good to eat, and the Stone includes a Kernel; it has also a small Beard at the Top, diametrically opposite to the Pedicle.

The Plant dies away every Year, the Number of its Years may be known by the Number of Stalks it has shot forth, of which there always remains some Mark.

As to the Flower, F. *Jartoux* owns he had never seen it, and therefore could not describe it: Some have assured him that it is white, and very small; others, that there is no Flower at all, and that no body had ever seen it. He rather inclines to think it so small, as to have escaped Notice; and, what confirms him in the Opinion, is, that those who seek the *Gin-seng*, having nothing in View but its Root, overlook and despise the rest as useless.

As they have sowed the Seed in vain, without any Plant ever arising therefrom, it is probable this might give Occasion to the Fable which is current among the *Tartars*. They say, that a Bird eats it as soon as in the Earth; and not being able to digest it, it putrifies in its Stomach, and afterwards springs up in the Place where it was cast by the Bird with its Dung. The Missionary rather believes, that the Stone remains a long Time in the Ground before it takes Root, which Opinion appears the more probable, as there were some Roots no longer or bigger than one's little Finger, which yet have shot forth, at least ten Stalks.

Though the Plant here described had four Branches, yet there are some which have but two, others three, and others five, six, or seven; but each Branch has always five Leaves.

The Height of the Plant is proportionable to its Bigness; and the Number of Branches that the Root has, the larger and more uniform it is; and the fewer small Strings or Fibres it has, the better it is accounted.

It is hard to say why the *Chinese* should call it *Gin-seng*, a Word which signifies Figure, or Representation: Neither that Father, nor any he inquired of, could ever find that it bore more Resemblance to the Figure of a Man, than is ordinarily seen among other Roots. The *Tartars*, with more Reason, call it *Orhota*, that is, the first of Plants.

Those who gather the *Gin-seng*, preserve only the Root, and all they can get of it in ten or fifteen Days Time, they bury together in some Place under Ground. Then they take Care to wash it well, and scour it with a Brush; then dip it in scalding Water, and prepare it in the Fumes of yellow Millet, which gives it Part of its Colour.

The Millet is put in a Vessel with a little Water, and boiled over a gentle Fire; the Roots are laid over the Vessel upon small transverse Pieces of Wood, being first covered with a Linnen Cloth, or some other Vessel, placed over them.

They may also be dried in the Sun, or by the Fire; but then, though they retain their Virtue well enough, they have not that yellow Colour, which the *Chinese* so much admire. When the Roots are dried, they must be kept close in some very dry Place, otherwise they are in Danger of Corruption, or being eaten by Worms.

As to the Place where this Root grows, it is between the 39th and 47th Degree of North Latitude; and between the 10th and 20th Degree of East Longitude, reckoning from the Meridian of *Pekin*. Here is found a long Tract of Mountains, which the thick Forests that cover and encompass them, render almost impassable. It is upon the Declivities of these Mountains, and in these thick Forests, upon the Banks of Torrents, or about the Roots of Trees, and amidst a thousand other different Sorts of Plants, that the *Gin-seng* is found. It is not to be met with in Plains, Vallies, Marshes, the Bottom of Rivulets, or in Places too much exposed and open.

If the Forest takes Fire and be consumed, this Plant does not appear till two or three Years after; it also lies hid from the Sun as much as possible, which shews that Heat is an Enemy to it.

The Places where the *Gin-seng* grows, are on every Side separated from the Province of *Quan-tong*, by a Barrier of wooden Stakes, which encompasses this whole Province, and about which Guards continually patrole, to hinder the *Chinese* from going out and looking after this Root.

Yet how vigilant soever they are, Greediness after Gain incites the *Chinese* to lurk about privately in these Desarts, sometimes to the Number of two or three Thousand, at the Hazard of losing their Liberty, and all the Fruits of their Labour, if they were taken, either as they go out, or come into the Province.

The Emperor having a Mind that the *Tartars* should reap all the Advantage that is to be made of this Plant, rather than the *Chinese*, gave Orders in 1709, to ten thousand *Tartars* to go and gather all that they could of the *Gin-seng*, upon Condition that each Person should give him two Ounces of the best, and that the rest should be paid for, weight for weight in pure Silver.

It was computed, that by this Means the Emperor would get this Year about twenty Thousand *Chinese* Pounds of it, which would not cost him above one fourth Part of its Value.

We met by Chance, says F. *Jartoux*, with some of these *Tartars*, in the Midst of those frightful Desarts; and their *Mandarins*, who were not far out of our Way, came one after another, and offer'd us Oxen for our Subsistance, according to the Commands they had received from the Emperor.

This Army of *Herbarists* observed the following Order: After they had divided a certain Tract of Land among their several Companies, each to the Number of a hundred Persons, spread itself out in a right Line, to a certain fixed Place; every ten of them keeping at a Distance from the rest.

Then they searched carefully for the Plant, going on leisurely in the same Order; and in this Manner, in a certain Number of Days, they run over the whole Space of Ground appointed them.

When the Time is expired, the *Mandarins*, who are encamped with their Tents in such Places as are proper for the Subsistance of their Horses, send to view each Troop, to give them fresh Orders, and to inform themselves if their Number is compleat.

If any one of them is wanting, as it often happens, either by wandring out of the Way, or being attacked by wild Beasts, they look for him a Day or two, and then return again to their Labour as before.

The *Gin-seng*, we have observ'd, is an Ingredient in most of the Medicines which the *Chinese* Physicians prescribe to the better Sort of Patients: They affirm, that it is a sovereign Remedy for all Weaknesses occasioned by excessive Fatigues, either of Body or Mind: That it attenuates and carries off pituitous Humours; cures Weakness of the Lungs, and the Pleurisy; stops Vomiting; strengthens the Stomach; and helps the Appetite; dispersses Fumes or Vapours; fortifies the Breast; is a Remedy for short and weak Breathing; strengthens the vital Spirits; and is good against Dizziness of the Head, and Dimness of Sight; and that it prolongs Life to extreme old Age. No Body can imagine, that the *Chinese* and *Tartars* would set so high a Value upon this Root, if it did not constantly produce a good Effect: Those that are in Health, often make use of it to render themselves more vigorous and strong; and I am persuaded, adds the Father just mentioned, it would prove

an

an excellent Medicine in the Hands of any *European* who understands Pharmacy, if he had but a sufficient Quantity of it to make such Trials as are necessary to examine the Nature of it chymically, and to apply it in a proper Quantity, according to the Nature of the Disease for which it may be beneficial.

It is certain, that it subtilizes, increases the Motion of, and warms the Blood; that it helps Digestion, and invigorates in a very sensible Manner.

After I had design'd the Root (he goes on) I observed the State of my Pulse, and then took half of the Root, raw as it was, and unprepar'd; in an Hour after, I found my Pulse much fuller and quicker: I had an Appetite, and perceived myself much more vigorous, and could bear Labour better and easier than before. Four Days after finding myself so fatigued and weary, that I could scarce sit on Horseback, a *Mandarin* who was in Company with us, perceiving it, gave me one of these Roots: I took half of it immediately; and an Hour after I was not in the least sensible of any Weariness.

I have often made Use of it since, and always with the same Success. I have observed also, that the green Leaves, and especially the fibrous Part of them, chew'd, would produce nearly the same Effect. The *Tartars* often bring us the Leaves of *Gin-seng* instead of Tea; and I always find myself so well afterwards, that I should readily prefer them before the best Tea. Their Decoction is of a grateful Colour; and after taking it twice or thrice, its Taste and Smell becomes very agreeable.

As for the Root, it is necessary to boil it a little more than Tea; as is practised by the *Chinese*, when they give it to sick Persons. On which Occasion they seldom use more than the fifth Part of an Ounce of the dried Root.

To prepare the Root for Exhibition, cut it into thin Slices, and put it into an earthen Pot well glazed, with about half a Pint of Water; the Pot to be well cover'd, and set to boil over a gentle Fire; and when the Water is consumed to the Quantity of a Cup-full, a little Sugar to be mixed with it, and to be drank: Immediately after this, as much more Water to be put on the Remainder, and to be boiled as before, to extract all the Juice, and what remains of the spirituous Part of the Root. These two Doses to be taken, the one in the Morning, and the other in the Evening.

A Tree grows, likewise, in *China*, *Lao*, and *Cochinchina*, called the *Aloes-Tree*, which is much about the Size and Figure of our Olive-Trees. The Trunk consists of three Sorts of Wood, very different in Colour and Properties. Immediately under the Bark, it is black, compact and heavy, called by the *Portuguese*, *Pao d'Aquilo*, q. d. Eagle-Wood. The next under this is of a Tan-Colour, light and veiny, resembling rotten Wood; and called *Calambo*.

The Heart or innermost Part is called *Tamback*; and more valued by the *Indians* than Gold itself. It affords a very strong, but agreeable Smell; and is used as a Perfume; and is withal held a sovereign Remedy against the Palsy, Deliquium, Weakness, *&c.*

It is the *Calambo* alone which is known among us. It is brought in small Bits of a very fragrant Scent; especially when cast on the Fire, where it melts like Wax. The best is of a blackish purple Colour, and so light as to swim on Water: It is hot and drying; and esteemed a great Strengthener of the Nerves.

Note, That the *Aloes-Wood* is infinitely valued; and divers strange Fables have been invented as to the Origin of the Tree which yields it; some feign that it grew in Paradise, and was only conveyed to us by Means of the Rivers overflowing their Banks, and sweeping off the Trees in their Ways. Others suppose it to grow on inaccessible Mountains; where it is guarded by certain wild Beasts, *&c.* The *Siamese* Ambassadors to the Court of *France*, in 1686, who brought a Present of this Wood from their Emperor, first gave the *Europeans* any consistent Account of it.

In the *West-Indies*, particularly in the Provinces of *Guanimala*, and *Nicaragua*, and the *Caribbee* Islands, grows a Tree, resembling our Cherry-Tree, which produces a Kind of Nut about the Size of an Almond, called CACAO, or COCOA.

The native *Mexicans* called the *Cacao-Tree*, *Cucubaa*, *Guahuets*; it is so very delicate, and the Soil it grows in so hot, that to guard it from the Sun, they always plant it in the Shade of another Tree, called *Mother of Cacao*.

The Fruit is enclosed in a Kind of Pod, of the Size and Figure of a Cucumber; except that it begins, and ends in a Point. Within the Pod, which is half a Finger thick, is formed a Tissue of white Fibres, very succulent, a little acid, and proper to appease Thirst. In the Middle of these Fibres are contained 10, sometimes 12, and sometimes more, as far as 40 Grains or Seeds, of a Violet Colour, and dry as Acorns. Each Grain, which is covered with a little Bark or Rind, when stripped thereof, separates into five or six unequal Pieces, in the Middle whereof is a Kernel or Pippin, having a tender Bud, very difficult to preserve.

Of this Seed, with the Addition of *Vanilla*, and some other Ingredients, the *Spaniards*, and after their Example, the rest of *Europe*, prepare a Kind of Conserve or Cake; which diluted in hot Water, makes that delicious wholesome Drink, called Chocolate.

This precious Fruit, the *Spaniards* make so considerable a Trade of, that there are some who make 5000 *l.* Sterling, *per Annum*, from a single Garden of *Cacao's*. There are two Kinds of *Cacao's*, the most common, which is likewise the best, is of a dark Colour, bordering on red, and round; the other called *Patlax*, is white, larger, thicker, and flatter. Its Quality is desiccative. Some Druggists, however, sell four Kinds, *viz.* the great and little *Caracca*, and the great and little *Cacao* of the Islands. Which may be probably reduced to the two Kinds above-mentioned. It being only the greatest and smallest that multiplies the Names and Kinds.

The *Cacao* Nuts are esteemed by the *Mexicans* as Anodyne; and used, eaten raw, to assuage Pains of the Bowels. They also procure a Kind of Butter or Oil from them, as sweet as that of Almonds, and drawn in the same Manner, excellent for Burns.

In some Parts of *America*, the *Cacao* Grains are used by the *Indians* as Money; twelve or fourteen are esteemed equivalent to a *Spanish* Real, or Six-pence three Farthings Sterling.

From this I'll pass to *Fossils*, &c. and examine first the GLOSSOPETRA, which is a Kind of Stone, in Form of a Serpent's Tongue, commonly found in the Island of *Malta*, and divers other Parts.

Naturalists are divided as to the Nature and Origin of these Stones. — *Steno*, *De corpore solido intra solidum contento*. *Ol. Womfius*, *Dissert. de Glossopetra*; and *Reyschius*, *De Glossopetris Lunebergensibus*, treat of them at large.

The vulgar Opinion is, that they are the Tongues of Serpents petrified; and hence their Name, which is a Compound of γλωσσα, Tongue, and πετρα, Stone. Hence also their pretended extraordinary Virtue in curing the Bites of Serpents.

The People relate, that since the Viper which bit St. *Paul* without doing him any Harm, all the Serpents of the Island of *Malta* have had the same Virtue; and that the *Glossopetra* are the Tongues of those formerly dead. But this is a palpable Fable, which the sole Figure of the *Glossopetra* refutes; they having nothing of the Figure of a Serpent; besides that they are too big.

The common Opinion of Naturalists is, that they are the Teeth of Fishes, left at Land by the Waters of the Deluge; and since petrified. Some specify the very Kind of Fish; and take it to be that which *Theophrastus*, and the *Greek* Authors call καρχαριας; and the Moderns the *Shark*, or *Sea-Dog*.

Camerarius cannot persuade himself, that the *Glossopetra* found in *England*, *Malta*, and a-round *Montpelier*, were ever the Teeth of a Sea-Dog or any other Fish. The chief Difficulty he suggests, is the small Quantity of volatile Salt, and Oil they afford by Distillation. To which Dr. *Woodward* answers, in Defence of the common ridiculous System, that having laid so long buried under Ground, 'tis no Wonder they should have lost the best Part

Part of their volatile Principles. Those who espouse this common System, and pretend to defend it, say, that it is certain then human Bones and Skulls long interred, do not afford near the Quantity of those Principles, as they would have done immediately after the Person's Death.

Another Scruple proposed by *Camerarius* is, that the *Glossopetra*, when exposed to the naked Fire, turns to a Coal, and not to a Calx; contrary to what is asserted by *Fabius Columna*. Dr. *Woodward* answers, that it is likely enough the *Glossopetra*, in burning, may assume the Form of Coal, before it arrives at that of a Calx.

SHELLS are also one of the chief Objects of *Natural History*; though Naturalists have been generally mistaken, as to the Manner of the Formation of *Shells*.

The Animal and its *Shell* (which is a hard Crust, serving to cover and inclose it) have been always supposed to arise from the same Egg. But M. *Reaumur* has shewn the Supposition to be false. He has found by certain Experiments, that the *Shells* of Garden Snails are formed of a Matter which perspires from their Bodies, and hardens and condenses in the Air.

It is certain, that all Animals perspire, and are encompassed with a Kind of Cloud or Atmosphere; which exhales from them; and in all Probability, assumes pretty nearly their external Figure. Snails have nothing peculiar in this Respect, unless that the Atmosphere of their Perspiration, condenses and hardens about them, and forms a visible Cover, whereof the Body is the Mould or Model; whereas that of other Animals is evaporated and lost in the Air. This Difference arises from the different Substance perspired; that coming from Snails is viscous and stony. This is no Supposition; but a Matter of Fact, which M. *Reaumur* has well proved by Experiments.

On this Principle, though the Shell serves the Animal as an universal Bone, yet it does not grow like a Bone, nor like any of the other Parts, by Vegetation; that is, by a Juice circulating within itself; but by an external Addition of Parts laid one over another; as is commonly supposed of Stones.

But to consider the Thing more particularly; it is to be remember'd, that the Snail's Head is always at the Aperture of the Shell, and its Tail in the Tip or Point of the Shell; and that its Body is naturally turned into a *spiral* Form, the different Spires or Circumvolutions whereof are in different Planes. This supposed; take the Snail just hatched; as the Matter it perspires petrifies around it, there must be first formed a little Cover, proportion'd to the Bigness of its Body; and as its Body is yet too little to make a Circumvolution of a Spiral, at least a whole one; this Cover will only be the Centre, or at most the beginning of a little Circle of a Spiral. But the Animal grows; if then it ceased to perspire, it is evident, all that is added to its Body, would remain naked; but as it continues to perspire, it makes itself a Cover in Proportion as it needs it. Thus is an entire Circumvolution of a Spiral formed; and thus is a Second and Third; and still every new Spire is bigger than the last; in regard the Animal grows in Thickness, at the same Time as it grows in Length. When the Animal ceases to grow, yet it does not cease to perspire, accordingly the Shell continues to grow thicker, though not longer.

SHELLS, *Conchæ*, or *Cochleæ*, make a considerable Article in the Cabinet of the Curious: The finest and rarest are these that follow, *viz.* the *Papal Crown*, *Tiaraa Pontificia*, which takes its Name from its Form, and which is all streaked with red on a white Ground. The *Feather*, *Pluma*, whose Whiteness, with its Carnation Stains, have an admirable Effect. The *Hebraica*, which on a Ground as white as Snow, has Spots as black as Jet, much resembling *Hebrew* Characters. The *Chinese Snail*, *Limax Sinicus*, which has a green and black Embroidery, on a dark brown Ground. The *Cloth of Gold*, *Textile Aureum*, remarkable for an admirable Tissue of yellow, brown, and black. The *Cloth of Silver*, *Textile Argenteum*, which does not come behind that of Gold in Beauty. The *Leopard*, *Pardus*, which is all speckled. The Tyger, *Tigris*, *seu Concha Cirenicea*, whose Spots exceed those of the Leopard. The *Hart's Horn*, *Cornu Cervinum*, which has black Stains on a white Ground. The *Purse*, *Crumena*, thus called from its Figure; it is embroidered with three or four Colours. The *Sun-Dial*, *Solarium Manuarium*. The *Caterpillar*, *Cruca*, both denominated from their Forms. Add the *Nerites*, *Nautilus*, *Lepas*, *Lepasia*, *Apporcys*, *Tuba*, *Galea*, &c.

In *Aldovrand*, *Gesner*, and *Fabius Columna*, we have all that the Antients have said on the Subject of *Shells*. In 1692, Dr. *Lister* published a *Natural History* of *Shells* in Folio, full of Cuts, representing the various Kinds of Shells. Under the first Class he ranges the terrestrial or Land *Shells*; in the second, the fresh Water *Shells*, both those called *Turbinata*, and those *Bivalvia* and *Multivalvia*: And in the fourth he divides into several Classes, the Sea *Shells*, called *Turbinata*. The *turbinated* are those which are spiral, or wreathed, conically, from a larger Basis to a Kind of *Apex*. *Bivalve*, is a Term used for such Shell-Fish, as have two Shells, *e. gr.* Cockles, Muscles, Oysters, &c. which are said to be of the *bivalvular* Kind. A *Bivalve Shell* being a large Blood-red Spondile in *Buco*'s Cabinet, is said by Dr. *Lister* to have been purchased by the Duke of *Orleans* for 900 Livres, which is upwards of 50*l.* Sterling. The same Prince offer'd a *Parisian* 11000 Livres for 32 *Shells*, and was refused.

Shells, are frequently found under Ground, in Places far remote from the Sea, in Mines, and even on the Tops of Mountains: But how they should come there; is a Thing the Naturalists are greatly divided about. The most easy and common Opinion is, that those Parts have been formerly Sea, or at least have been overflown thereby; and many even go as high as the grand Deluge.

But others take these to be the natural Places of their Birth or Formation, some of them being found little other than rude Clay; others of the same Texture with the Rock whereto they grow, and others of as absolute a shelly Substance as any in the Sea. In effect, these may be only so many different Gradations of Nature, which can as well produce *Shells* in Mines, as in the Sea; there being no want of saline or earthy Particles for the Purpose; nor is there any great Difference between some Sorts of Spars and Sea *Shells*.

Dr. *Lister* judges, that the *Shells* found in some Quarries were never any Part of an Animal; and gives this Reason for it, that Quarries of different Stones, yield quite different Species of *Shells*; different not only from one another, but from any Thing in Nature besides, which either Sea or Land does yield.

The Sea *Shells*, which are always found near the Shores, and never far off in the Deep, are called *litoral Shells*.

Those which are found in the Bottom of the Sea, remote from the Shore, are called *Pelagiæ*.

The SPAR has also its Place in *Natural History*, and is a shining, stony, mix'd Substance, compounded of Crystal, incorporated with Lac Lunæ, or other mineral, earthy, stony, or metallick Matter; frequently found in Caves and Grotto's, and in the Clefts of Rocks, Lead-Mines, &c.

Mr. *Beaumont*, in the *Philosophical Transactions*, endeavours to account for the Origin and Growth of *Spar*; which he makes to be a Kind of Rock Plant.

Spar, he observes, may be formed three Ways; either from Streams alone; or from Steams coagulating Dew, as it falls on the Ground, or Waters issuing from the Joints of Rocks: Or it may grow from Earth and Clay. To say nothing of the Account we have from *Switzerland*, viz. that Snow, by long laying, and continual Frosts, becomes harden'd into *Spar*.

We have Instances of the first Kind in many Grotto's, where *Spars* produced from Steams, hang like Icicles; Lead Ore being often found to grow in the same Manner. And as this *Spar* grows downwards; so in many Places, from the Sides of it, issue little Plants of *Spar*, shooting upwards, contrary to the Tendency of the others. An Instance of the second we have in a certain Place in *Italy*, where Crystals (which are a Sort of *Spars*) are produced in clear Evenings, from a Coagulation of Dew falling on nitrous Stones; but hereof we have Instances enough nearer home.

For the third Kind of Generation of *Spar*, never before taken Notice of by Naturalists, Mr. *Beaumont* gives us

us the following Instances of it in *Mendip* Hills, and other Mines, wherein are subterraneous Vaults or Grotto's. In the Bottom of some of these, is a Steam incumbent thereon. From this Earth shoot up Spires of various Heights, *&c.* from the first Buddings out of it, till it becomes as high as a Man's Finger; the biggest ordinarily an Inch in Diameter. These Spires have all irregular Ridges and Furrows; and some sooner, some later, begin on the Top to be congealed into *Spar*, and so gathering a Crust downwards by Degrees, are all at last, turned into one absolute white *Spar* or Stone.

The STALACTITES, or STALAGNITES, or STANONITES, is a starry, sparry Sort of Icicles, which hang down from the Tops or Arches of Grotto's, and subterranean Caverns; and from the Roofs of Buildings, and Capitals of Pillars of such Places as are built over hot Springs, *&c.*

Of this Kind are the *Sal Alumen*, and *Vitriolum Stalacticum*; the *Minera ferri Stalactica*, the *Vitriolum Capillare*, &c.

The *Stalactites*, which incrustate or line the Tops and Sides of Caves, *&c.* are manifestly formed of Exsudations or Extillations of petrifying Juices out of the neighbouring rocky Grounds. Those in the Cave on the Top of *Bredon* Hill, Mr. *Derham* fancies, might be formed by the Rains soaking through, and carrying with it Impregnations from the Stone; the Hill, there, being all rocky.

There is, also, in Natural History, a Kind of figured fossil Stones, resembling Plants, called TROCHITÆ, or TROCHITES, vulgarly *St. Cuthbert's Heads.*

They are usually of an opake, dark Colour, break like Flint, glossy and shining, and are easily dissolved in Vinegar.—Their Figure is generally cylindrical, sometimes a little tapering; the Circumference smooth, and both the flat Sides covered with a fine Radii, drawn from a certain Hole in the Middle to the Circumference.—Two or three, or more of these *Trochitæ* joined together, constitute what the Naturalists call an *Entrochos.*

The *Trochitæ*, or simple Joints, are so set together, that the Rays of one enters into Furrows in the other, as in the Sutures of the Skull.—They are found in great Plenty in the Bodies of the Rocks at *Broughton* and *Stock*, two Villages at *Craven*, at all Depths under Ground; and in *Mendip* Hills, *&c.* sometimes only sprinkled here and there, and sometimes in large Strata, or Beds of all Magnitudes, from the Size of the smallest Pin, to two Inches about.

They are generally found ramous and branchy, larger Branches arising from the Stem, or Cylinder, and smaller from there: The Branches being deeply inserted into the Stem, the tearing them off leaves great Holes therein.

Dr. *Lister* has discovered a Sort of little Fragments among them, which he takes to have been the Apices of the Plants; and another Sort, which he supposes to have been the Roots. In Effect, the *Trochitæ* are generally allowed to be the Bodies of Rock Plants, such as Coral is.

Mr. *Beaumont*, in the *Philosophical Transactions*, assures us, that he has found that all the Clefts in some Mines are made up of these Stone Plants, some whereof have been converted into Lime-stone Rocks, while in their tender Growth; while others becoming Spar, compose Bodies of that Substance: And considering that all the Cliffs, for a very large Circumference in some Places, consist wholly of these Plants, we may say there have been, and in all Probability still are, whole Fields or Forests under Ground, as there are of Coral in the Red Sea.

In the Courses between the Cliffs, are found of these Plants at all Stages and Degrees of Maturity, growing up in the gritty Clay, and rooted in the rake-mold Stones, many of them of the Form and Dimensions of a Tobacco-Pipe, some yet crude or raw Clay, others of the Consistence of Lime stone, others still harder, with the evident Beginnings of Circles and Sutures, and others full grown, and become perfect Spar, which is their Point of Maturity.

The Pith continues still white and soft, as the whole Plant no doubt was at first; and is continually refreshed by the mineral Steams and Moisture which have free Access to it, through fine hollow Slits, or Feet in the figured Roots, or through the Moss of Clay usually laying under the plain Roots.

Nor can it be denied, but these Stone-plants have true Life and Growth. In the Curiosity of their Make, they may vie with most of the vegetable Kingdom, and are shaped and formed like them, having Stem, Branches, Roots, an inward Pith, as likewise Joints and Runnings in their Grit, and sometimes Cells to supply the Place of Veins and Fibres; why then may not they be allowed as proper Vegetations, as other Plants?

Indeed it is highly probable, these Rock-plants are *Lapides Suigmeris*, and not Parts of Animals or Plants putrified, as many Authors have imagined. If the figured Roots whereon they sometimes grow, give any Suspicion they might have belonged to an Animal, particularly a Species of the *Stella Arborescens*, the Trunk, clearly evince the contrary, and can never be look'd on as Parts of an Animal; nor are they reducible to any known Species of Vegetable. Mr. *Beaumont* tells us, that he had by him above 20 different Species of *Trochites*, all of them wonderfully regular, and not to be paralleled by any Vegetable he knows of in Nature: And it is inconceivable how so many Species diffused thro' many Parts of the Earth, should come to be lost.

In the Clay where Trochites are found, the Stone called *Cornu Ammonis* is frequent.

The CORNU AMMONIS, is an extraordinary Kind of Stone, which in Vinegar, Juice of Lemons, *&c.* has a Motion like that of an Animal.

It is rough, knotty, of an Ash-colour, and crooked in Manner of a Ram's Horn, such as those wherewith the Antients represented *Jupiter Ammon*: Whence its Name.

It is disputed among Naturalists, whether it be a Fossil or a Nautilus, or a Rock-plant? *Camerarius* maintains the first, urging that it is frequently dug out of the Tops of Mountains; and that it is seldom found near the Sea-shore.

Dr. *Woodward* asserts it a Shell, and of the Number of the *Nautilies* formed in the Sea, and carried thence by the Waters of the Deluge into the Countries where it is dug. He argues, that if it be rarely found on the Sea-Coasts, it is because Shells and other Bodies fastened to the Bottom of the Sea, as most Kinds of the *Cornua Ammonis* must be, are only torn thence and driven ashore by Tempests: But the most violent Tempests never move the Bottom of the Sea, as the Divers have put past Doubt; so that it is no Wonder if none of the *Cornua* be thrown up: But in the overturning of the Earth by the Deluge, then, with a thousand more Productions of the Sea, might be thrown from the Bottom of the Waters, to the Places where they are now found.

The *Cornu Ammonis* are of different Thicknesses and Lengths; some of them weigh about three Pounds: They are found in several Places in *Germany*. From some Experiments that have been made therewith, they are found to contain a little Quantity of Gold, which sinks to the Bottom upon pounding them small, and stirring them in a running Water, till all the earthy Parts are carried off.

'The Stone *Cornu Ammonis*, says Mr. *Beaumont* in the '*Philosophical Transactions*, is frequent in the Clay 'wherein the *Trochites* and *Entrochi* are found; the 'largest I have is seven Inches in Length, and four in 'Circumference at the big End, and two and a half at 'the smaller, the Tip being broke off. Tracing its 'Origin, I find some of the first Buddings out of it about 'the Bigness of a young Cock's Spur, and very much 'like it: I have some in raw Clay, and one growing on 'a great cawky Stone. They generally become at last 'a whitish Spar, and some Milk-white, as some of the '*Trochites* are.

'There are of all intermediate Proportions between 'these two; tho' very few of any Bigness are to be found 'entire, but all broken, and imperfect Pieces. The 'Texture of the Stone is thus: Some have a mossy 'Spar in their Insides, which takes up three Parts of the 'Stone, then from the sharp Top there grows thin flat 'Cells, or small Pipes of Spar set Edgewise one close to 'the other, which shoots towards the broad End, and 'appear outwardly like small Ridges or Seams. There 'are likewise Rings running round it, tending in their 'Growth towards the broad End, as in a Ram's Horn

'Mo-

'Most of the lesser Stones have very little mossy Spar 'within them, and some none, with Cells coming down 'inwardly from the Top of the Stone, resembling 'those in the Flowers of Coral that terminate its 'Branches. And doubtless if taken from their Bed in a 'seasonable Time would yield the like milky Juice.'

One of the most curious Things inserted of late Years, in the *Natural History*, is the Ductility of *Spider Webs*, as explained by M. *Reaumur*. The ingenious Author observes, that the Matter whereof, *Spiders*, and Silk-Worms form their Threads, is brittle when in the Mass, like dry Gums. As it is drawn out of their Bodies, it assumes a Consistence much as Glass-Threads become hard, as they recede from the Lamp; though from a different Cause. The Ductility of this Matter, and the Apparatus thereto, being much more extraordinary in Spiders than in Silk-Worms, we shall only here consider the former.

Near the Anus of the Spider are six Papilla's, or Teats. The Extremities of the several Papilla's are furnished with Holes, that do the Business of Wire-drawers, in forming the Threads. Of these Holes, M. *Reaumur* observes, there are enough in the Compass of the smallest Pin-head, to yield a prodigious Quantity of distinct Threads. The Holes are perceived by their Effects: Take a large Garden-Spider ready to lay its Eggs, and applying the Finger on a Part of its Papillæ, as you withdraw that Finger, it will take with it an amazing Quantity of different Threads.

M. *Reaumur* has often told 70 or 80 with a Microscope, but has perceived that there were infinitely more than he could tell. In Effect, if he should say, that each Tip of a Papilla furnished a Thousand, he is persuaded he should say vastly too little. The Part is divided into an Infinity of little Prominences, like the Eyes of a Butterfly, &c. Each Prominence, no doubt, makes its several Thread; or rather, between the several Protuberances, are Holes that give Vent to Threads; the Use of the Protuberances, in all Probability, being to keep the Threads at their first Exit, before yet hardened by the Air, asunder. In some Spiders those Protuberances are not so sensible; but in Lieu thereof there are Tufts of Hairs, which may serve the said Office, *viz.* to keep the Threads apart. Be this as it will, there may be Threads come out at a thousand different Places in every Papilla; consequently the Spider having six Papillæ, has Holes for above 6000 Threads. It is not enough that these Apertures are immensely small, but the Threads are already formed, before they arrive at the Papilla; each of them having its little Sheath, or Duct, in which it is brought to the Papilla from a good Distance.

M. *Reaumur* traces them up to their Source, and shews the Mechanism by which they are made. Near the Origin of the Belly he finds two little soft Bodies, which are the first Source of the Silk. Their Form and Transparency resemble those of Glass Beads, by which Name we shall hereafter denote them. The Tip of each Bead goes winding, and makes an Infinity of Turns and Returns towards the Papilla. From the Base or Root of the Bead, proceeds another Branch much thicker; which winding variously, forms several Knots, and takes its Course like the other, towards the hind-part of the Spider. In these Beads and their Branches is contained a Matter proper to form the Silk, only that it is too soft. The Body of the Head is a Kind of Reservoir; and the two Branches, two Canals proceeding from it. A little further backwards there are two other lesser Beads, which only send forth one Branch apiece, and that from the Tip. Beside these, there are three other larger Vessels on each Side of the Spider, which M. *Reaumur* takes for the last Reservoir, where the Liquor is collected: The biggest is near the Head of the Insect, and the least near the Anus. They all terminate in a Point; and from the three Points of these three Reservoirs it is that the Threads, at least the greatest Part of the Threads drawn out of the three Papillæ, proceed: Each Reservoir supplies one Papilla. Lastly, at the Root of the Papilla are discerned several fleshy Tubes; probably as many as there are Papillæ. Upon lifting up the Membrane, or Pellicle, that seems to cover these Tubes, they appear full of Threads, all distinct from each other, and which of Consequence, under a common Cover, have each their particular one; being kept like Knives in Sheaths. The immense Quantity of Threads contained here, M. *Reaumur* concludes, upon tracing their Course, does not at all come from the Points of the Reservoirs, but some from all the Turns and Angles; nay, probably, from every Part thereof. But by what Conveyances the Liquor comes into the Beads, and out of the Beads into the Reservoirs, remains yet to be discovered.

We have already observed, that the Tip of each Papilla may give Passage to above a thousand Threads, yet the Diameter of that Papilla does not exceed a small Pin's Head; but we were there only considering the largest Spiders.

If we examine the young rising Spiders, produced by those, we shall find that they no sooner quit their Eggs, than they begin to spin; indeed their Threads can scarce be perceived, but their Webs formed thereof may: They are frequently as thick and close as those of House-Spiders; and no Wonder, there being often 4 or 500 little Spiders concurring to the same Work. How minute must their Holes be? The Imagination can scarce conceive that of their Papilla! The whole Spider is perhaps less than the Papilla of the Parent which produced it.

This is easily seen; each great Spider lays 4 or 500 Eggs; these Eggs are all wrapped in a Bag, and as soon as the young ones have broke the Eggs, they begin to spin. How fine must their Threads be?

Yet is not this the utmost Nature does; there are some Kinds of Spiders so small at their Birth, that they are not visible without a Microscope. There are usually found an Infinity of them in a Cluster, and they only appear like a Number of red Points. And yet there are Webs found under them though well nigh imperceptible. What must be the Tenuity of one of these Threads? The smallest Hair must be to one of these, what the most massive Bar is to the finest Gold Wire.

The Matter whereof the Threads are formed, we have observed, is a viscid Juice. The Beads are the first Receptacles where it is gathered, and the Place where it has the least Consistence. It is much harder when got into the six great Reservoirs, whither it is carried by Canals from the former: This Consistence it acquires in good Measure, in its Passage, Part of the Humidity being dissipated, or secreted by Parts destined for that Purpose.

Lastly, the Liquor is dried still further, and becomes Thread, in its Progress through the respective Canals to the Papillæ. When these first appear out at the Holes, they are still glutinous; so that such as spring out of neighbouring Holes stick together: The Air compleats the drying.

By boiling the Spider more or less, the Liquor is brought to a greater or less Consistence, fit to draw out into Threads; for it is too fluid for that Purpose while yet inclosed in its Reservoirs.

The Matter contained in these Reservoirs, when well dried, appears a transparent Gum, or Glue, which breaks, when much bent; like Glass it only becomes flexible by being divided into the finest Threads. And probably it was on this Account Nature made the Number of Holes so immense. The Matter of Silk formed in the Bodies of Spiders, being much brittler than that formed in Silk-Worms, needed to be wound smaller: Otherwise we do not conceive, why she should form a great Number of Threads, which were afterwards to be re-united; a single Canal might have done.

APPENDIX.

Note, That as almost all natural Productions proceed from Seeds; and Seed are either fecundated, as those of Plants, or serve to fecundate other Bodies, as the human Seed; I'll conclude this Treatise by a Dissertation on *Seeds*, and on the Bodies fecundated thereby viz. *Eggs*.

SEED, *Semen*, taken in the general Signification of the Word, is a Matter prepared by Nature, for the Reproduction and Conservation of the Species, both in Men, Animals, and Plants.

Some Naturalists add, that even Stones, Minerals, and

and Metals themselves, have each their proper Seed in their Mines, and are produced and perpetuated thereby.

Seed, in the Animal Œconomy, is a white liquid Matter, or Humour, the thickest of any in the Body, separated from the Blood in the Testicles, and reserved in proper Vessels to be the Means of Generation. By chymical Analysis it is found to consist almost entirely of Oil, and volatile Salts, blended together by the Mediation of a little Phlegm. Its Activity Dr. *Drake* takes to be derived from the Salts wherewith it abounds, far more than any other animal Liquor.

The Parts concerned in the Preparation of the *Seed*, are the spermatick Arteries, which bring the Blood to be secreted into the Testicles; the Testicles and Parastatæ, where the Secretion itself is chiefly effected; the *Vasa Deferentia*, which convey the secreted Matter out of the Testicles; and the *Vesiculæ Seminales*, which receive and preserve it to be emitted in Coition.

The Blood received in small Quantities, into the spermatick Arteries, and there, by the particular Structure of the Parts, much diminished of its Velocity, is yet farther retarded about the *Corpus Pyramidale*, or *Varicosum*, and its redder and thicker Parts, carried off by Canals opening into the Veins. Thus render'd paler, and slower, it is received into the winding Recesses of the Testicles, where almost stagnating, it assumes an Ash-Colour, and is further prepar'd, thicken'd, *&c.* in the *Ductus Highmorianus*; whence slowly driven into the *Epididymidæ*, or *Parastatæ*, it is further prepared and elaborated in the Folds, and Complications thereof; and at length creeps slowly into the *Vasa Deferentia*, or *Ejaculatoria*. These consist, at first, of a thick, fongous Matter, and are very narrow, but growing sensibly wider, and then again narrower, in the winding Meanders hereof, the Humour is collected, its Motion abated, further elaborated, and concocted, and at last driven into the *Vesiculæ Seminales*, in the various Cells and Meatus whereof it is received, laid up, fixed, thicken'd, whiten'd, and rais'd to its last Perfection; in which State it is call'd *Seed*.

It is observable, that no Humour in the Body is generated so slowly, meets with so many Means to retard it, or to elaborate and concoct it when at rest, as the *Seed*. Some imagine, that in its whole retarded Progress, besides what is apparent, there is something still added to it from the nervous Vesicles; and something taken away by the various Symphaticks, and discharged thereby into the venous Vesicles of the *Corpus Pyramidale*, and the little Veins of the *Vesiculæ Seminales*, and thence into the Humours of the whole Body: *Boerhaave* takes both the one and the other to be very probable.

The *Seed*, or Humour thus formed in the Testicles, *Parastatæ*, *Vasa Deferentia*, and *Vesiculæ Seminales*, being, when new, diluted with a little warm Water, and viewed with a good Microscope, seems to consist of innumerable, little, oblong, living, Eels-like *Animalcula*, floating in the other Part of this Humour. This is said to be always observed in the *Seed* of all Men, Quadrupeds, Birds, Fishes, amphibious Animals, and Insects.

Upon comparing this with the Bulk, Figure, Place, Change, *&c.* of the *Carina* of the Chick described by *Malpighi*, and with the known Law of Nature, observed in the Generation of Frogs, it appears highly probable, that the *Animalcula* of the Male *Seed*, contain the Rudiments or Stamina of the future human Body; and the more so, since, whenever the Testicles, or this Humour is wanting, there is always Sterility of the Side of the Male.

M. *Leeuwenhoeck*, the first Discoverer of these *Animalcula*, and many after him, make no Scruple to call them true Fœtus's, little Men; and some have even pretended to discover somewhat of the human Figure therein. But *Verheyen*, and others after him, deny the Existence of any such Animalcula; maintaining that it is only the Intestine Motion of the Parts of the *Seed* kept on Foot by the Warmth thereof, that exhibits the Appearance, which fanciful Persons have improved into talking Animalcula; and urging, in Confirmation hereof, that no sooner is the Warmth gone, than all Appearance of Animal ceases. But this notwithstanding, the Doctrine of Animalcula *in semine*, seems now pretty generally received.

Some admit of four several Kinds of *Seed*: The *Seed* of the Testicles, that of the *Vesiculæ Seminales*, that of the *Prostates*, and that of the Glands of the *Penis*. The two first, which we have described as one and the same Humour, only in different Stages, those Authors take to be different, as not being able to find any strict Communication between the *Deferentia* and the *Vesiculæ*; but that Communication is fully shewn by Dr. *Drake*, so that nothing needs farther to shew the Seeds the same. The Liquor of the *Prostates*, and that of the Glands of the *Penis*, are generally allow'd not to be any true *Seed*, no more than that emitted by Women: Nor is there any good Reason why any of them should be called so, as their Appearance is very different, and as other sufficient Uses are assigned for them, *viz.* to line and labricate the Parts, that the *Seed*, Urine, *&c.* may pass more freely and without adhering.

The seminal Liquor, however, such as is emitted for Use, is a Mixture of several Fluids, poured at the same Time into the seminal Canal of the *Urethra*, either from the Glands that have secreted them, or the Reservoirs that have kept them. M. *du Verney* observes, that in different Species, the Number and Structure of these Organs is different. In Men the principal are the *Vesiculæ Seminales*, and the *Prostates*, besides what was discover'd by M. *Cowper*, viz. a Number of glandulous Bodies on each Side the *Urethra*, whose excretory Ducts open into the *Urethra*, towards the Root of the Yard. M. *du Verney* has found that the same are likewise in most other Animals, and placed in the same Manner.

It is controverted, whether or no the Liquor filtrated thereby, be necessary to Generation? M. *du Verney* thinks it is, and his chief Reason is, that in Animals that have been castrated, these Glands, as well as all the other Sources of Generation, are found dried up, and decayed. M. *Littre* objects to this, that the *Vesiculæ Seminales*, and *Prostates*, having little Cells where their filtrated Liquor is deposited, it is easily conceived, that their Humours may wait sometimes for an Occasion of being emitted; but that these new *Prostates* or Glands of M. *Cowper* having no such Reservoirs, that Liquor must ooze out into the Cavity of the *Urethra*, in Proportion as it is separated, and be destined for some continual, not a momentary Use. He adds, that as the excretory Ducts of these Glands traverse the spongeous Body of the *Urethra*, for two Inches ere they penetrate into its Cavity, and that at the sole Moments when the Liquor should be discharged, to assist in Generation, that spongeous Body is extremely dilated, and its Sides in a State of Compression, the Liquor must be then less disposed to a Discharge than ever.

Seed, in Botany, is the last Product of a Plant, whereby the Species is propagated. The *Seed* is frequently the Fruit of the Plant, as is the Case of most Herbs. Sometimes it is only a Part inclosed in the Fruit, and that in Form either of Grain, Kernel, or Berry.

The *Seed* is the natural Offspring of the Flower, and that for whose Production all the Parts of the Flower are intended; so that when this is once well formed, the several Parts of the Flower dwindle and disappear.

It is supposed to be produced by the Farina of the Apices, let fall on the Head of the Pistil, and thence forwarded to an Uterus at the Bottom thereof, divided into several Cells; where, coming to receive the nutritious Juice of the Plant, it is first softened, then swelled, increased both in Matter and Bulk, and at length comes to its State of Maturity.

That the whole Plant is contained in the Seed, is an Opinion as old as *Empedocles*, and is still the prevailing Doctrine among the Generality of Naturalists. Experience, the Microscope, and the modern Philosophy, give it great Countenance. In Effect, by the Use of good Microscopes, we discover in the *Seed* several of the Parts of the future Tree, only in Miniature; particularly a little Root called the *Radicle*, and the Stem called the *Plumule*.

In *Malpighi*'s Life, we have a Debate between him and Signior *Triumphetti*, Provost of the Physick Garden at *Rome*, whether the whole Plant be actually contained in the *Seed*? The Affirmative is maintained by *Malpighi*, with cogent Arguments; among which the one, that in a Kidney Bean fresh sown, the Eye, aided with a Microscope, easily discovers [illegible]

and even the Knots, or Implantations of the Leaves on the Stem. The Stem itself is very conspicuous, and plainly consists of woody Fibres, and Series's of little Utricles. And whereas Signior *Triumphetti* had objected, that by Poverty, Transplantation, *&c.* they degenerate into others; particularly Wheat into Tares, and Tares again into Wheat. In Answer to this, which is one of the strongest Objections against that Opinion, *Malpighi* replies, that he is not fully satisfied as to the Truth of the Objection; for that both himself and his Friends, making the Experiment, no Metamorphosis of the Wheat succeeded. But granting the Metamorphosis, it is the Soil, Air, or Culture, is in the Fault. For, from a morbid and monstrous Condition of Nature, there is no inferring her genuine and permanent State.

To the same Effect, M. *Leewenhoeck*, after a nice Observation of an Orange-Kernel he had made to germinate in his Pocket, *&c.* concludes, "thus we see "how small a Particle, no bigger than a coarse Sand, is "increased, *&c.*" a plain Demonstration that the Plant, and all that belong to it, was actually in the *Seed*, viz. the Body, Root, *&c.* Mr. *Derham* adds, that of all the *Seeds* he has viewed, except the Maple, the Plant appears the plainest to the naked Eye in the *Nux Vomica*.

The Fecundity of Plants in the Production of *Seed*, is very surprizing. M. *Dodart*, in the Memoirs of the *French* Academy of Sciences, computes, that an Elm, living 100 Years, ordinarily produces of itself 33000000 Grains; and adds, that had his Crown or Head been cut off, it would have put forth as many Branches, within half an Inch of the Place where it was cut, as it had before; and that at whatever Height it were cut off, the Effect would have been still the same. — Hence he concludes, that the whole Trunk, from the Ground to the Rise of the Branches, is full of the Principles or little Embrio's of Branches, which, it is true, cannot all appear at once, but which being conceived, as separated by circular Reins, half an Inch high, compose so many Sets of Branches, each whereof is ready to appear, and will really appear, if the Head be chopped off just over it.

Now these invisible Branches exist as really as those which appear. For whence else should they come? The Trunk cannot produce them, as being itself no more than a Packet of Fibres, destitute of all Action: Nor can the Sap, which like the Blood, is fit to nourish the Parts, but not to form any new ones. The Branches thereof existed before the Tree was lopped; and if they had appear'd, would have bore an equal Number of *Seeds*, as those which did. These *Seeds*, therefore, they must already contain in little.

On which Footing, the Tree may be said actually to contain in itself 158400000000 *Seeds*, wherewith to multiply itself as many Times. But what shall we say, if each *Seed*, or Grain of a Tree, contains in itself another Tree, containing the same Number of *Seeds?* And if we can never get either at a *Seed*, which does not contain a Tree, nor at a Tree which does not contain *Seed?* By this Means we shall have an increasing geometrical Progression, the first Term whereof is 1, the second, 158400000000; the third, the Square 158400000000; the fourth, in Cube, *&c.* to Infinity.

Several Species of Plants have been always supposed to be destitute of *Seed*, in Regard no Observation, no Microscope, no Anatomy had discover'd any Thing like them: Such are the Capillaries, the several Kinds of Fuci, Sea Plants, Mosses, *&c.* But the happy Industry of the present Age has discover'd the *Seeds* of some of them; and has left us out of all doubt, that the rest are not without the same.

The *Seeds* of Fern, and the Capillary-Plants, were first discover'd by *Cæsius*; and since more fully and critically by Mr. *William Cole*. The *Seeds* of some Sea-Plants were discover'd by the Count *de Marsigli*, and those of others by M. *Reaumur*; the first mention'd in the History of the *French* Academy for the Year 1712, and the latter for the Year 1711. The *Seeds* of some Sorts of Fuci have been discover'd by Mr. *Samuel Doody*: Those of Coralloid Shrubs, by Dr. *Tancred Robinson*, as also those of several Fungi, particularly Truffles, and Crepitus Lupi, or Puff-Balls; and those of some other by Dr. *Lister*.

The MUSHROOM, which is a Plant of a Form and Structure very different from that of all other Plants, has neither *Seeds*, nor Flowers, that have ever yet been discover'd.

The Origin and Production of *Mushrooms*, has extremely puzzled the Naturalists. How a Plant should be produced without a *Seed* is a Mystery; and yet the best Microscopes are not able to discover any Appearance of a *Seed*; and the Manner of cultivating this Plant, seems to make it still more probable that it has not any.

M. *Tournefort* gives a very curious Account of their Culture, in the Memoirs of the Royal Academy, with the Substance of which we shall here present the Reader. All the Secret of bringing up *Mushrooms* speedily, and in Abundance, consists in ranging Balls of Horse-Dung, about the Bigness of the Fist, in Lines, at the Distance of about three Feet from each other, and at the Depth of one Foot under Ground, and covering these over with Mould, and that again with Horse-Dung.

If this be done in *April*, in the Beginning of *August* the Pieces of Dung will begin to whiten, and grow mouldy, being cover'd all over with little Hairs, or fine white Threads, branched and woven about the Straws whereof the Dung is composed. The Dung now looses its former excrementitious Smell, and spreads an admirable Odour of *Mushrooms*.

According to all Appearance, these white Threads are no other than the open'd *Seeds* or Buds of *Mushrooms*, which *Seeds* were before inclosed in the Dung, but in so small a Compass, that they could not be perceived till after they had shot themselves into little Hairs. By Degrees the Extremity of these Hairs grows round, into a Kind of Button, which swelling by little and little, at length opens itself into a *Mushroom*, whereof the lower Part is a Kind of Pedicle bearded in the Place where it enters the Ground, and at the other End loaded with a roundish Capital or Head, in the Manner of a Shalot, which expands itself without producing either *Seeds* or Flowers that are sensible; the Bottom is spread with Laminæ, which proceeding from the Center to the Circumference, may be called the Leaves of the *Mushrooms*.

At the Foot of each *Mushroom*, are found an infinite Number of little ones, not bigger than the Head of a Pin, when the others are at their Growth. The Buds of the *Mushrooms*, or the white Hairs of the Dung, preserve themselves a long Time without rotting, if kept dry; and if laid again on the Ground will produce new *Mushrooms*.

Mushrooms, then, are nothing else but the Produce of what we call the *Mouldiness of Horse-Dung*: But what Analogy is there between these two Things? Or how should so artful and delicate a Structure as this of a Plant, result from the mere fortuitous Concourse of a few Juices differently agitated?

It seems past doubt, then, that *Mushrooms*, like all other Plants, have their Origin in *Seeds*: Now we know that the *Seeds* of Plants cannot vegetate every where; there are first requir'd certain Juices proper to penetrate their Coats, to excite a Fermentation, and to join themselves to the little Parts thereof, and increase them. Hence arises that infinite Diversity of Places, wherein different Species of this Plant are produced. There are some which will only grow on some other particular Plants, whose Trunk, Bark, or Roots, alone have their Juices proper for them.

What M. *Tournefort* mentions from Mess. *L'Emery* and *Mery*, is still more surprising; there is a Species of *Mushrooms*, which grow on the Fillets and Bandages applied to the Fractures, *&c.* of the Patients in the *Hotel-Dieu*. After which, it will not be at all surprising, that Horse-Dung, prepared in the Manner M. *Tournefort* mentions, should be a Soil or Matrix capable of making *Mushrooms* grow.

Hence it seems to follow, that the *Seeds* of *Mushrooms* should be spread in an infinite Number of Places where they do not vegetate, and in a Word throughout the whole Earth; and the same may be said of a great Number of other Plants.

It must be own'd, the Imagination is shocked at such a prodigious Multitude of different *Seeds* thrown every where at Random, and in many Places to no Purpose; but

but a little Reasoning will put the Matter of Fact past Doubt.

Dioscorides tells us, he was assured, that Pieces of the Bark of Poplar Tree being laid in the Ground over Horse-Dung, there would grow out of them very good *Mushrooms*. *Ruel* says, that by boring the Trunk of a white Poplar-Tree near the Root, and washing it with Leaven steeped in Water, *Mushrooms* spring out of it, as it were, instantly. He adds, that the Hillocks produce several Kinds of *Mushrooms*, if the Stubble be burnt on them in the rainy Season.

M. *Tournefort* tells us, on his own Knowledge, that where the Stubble is burnt, as in *Provence*, *Languedoc*, and the Islands of the *Archipelago*, there arise great Quantities of black Poppies in the first autumnal Rains, which disappear the Year following; so that they are never found but on burnt Lands. And it is known, here in *England*, that after the Burning of *London*, the Ground as far as the Fire reached, shot up with vast Quantities of *Erysimum Latifolium majus Glabrum*. One of the chief Reasons, if not the only one, why Mountains produce Plants different from Plains or Valleys, and Places become fenny, from the same Places when they were dry; is the Difference in the nutritious Juices found in those Places. Without this, how shall we account for the Origin of Misletoe or Hypaystus, which are never known to grow in the Earth, at least without adhering to some other Plant; but the one grows on Trees, and the other to the Root of the Cystus? Why do the Ivy, and Vine of *Canada*, Pellitory, Polipody, the Species of Capillaries, grow only on the Trunks of Trees, on Walls, and in the Clefts of Rocks, unless it be that the Juices of those Places are the best adapted to them.

These, and other incontestable Facts, prove plainly, both the vast Multitude of *Seeds* dispersed every where, and the Necessity of certain Circumstances, to make them vegetate.

If to this Speculation on the invisible *Seeds* of Plants, we join that of the invisible Eggs of Insects, which must be allowed equal thereto, the Earth will be found full of an inconceivable Infinity of Animals and Vegetables, perfectly formed and designed, as it were, in Miniature, and only waiting for certain favourable Circumstances. To enable them to make their Appearance in large, how rich then must the Hand be that has sown with so much Profusion?

We have been the more particular on this Head, on Account of the Oddness of the Phænomena; and because what is here said of *Mushrooms*, will give Light into the Generation of all other Vegetables, *&c.* whose *Seeds* are yet undiscover'd.

Dr. *Lister*, indeed, thinks he has found out the *Seeds* of *Mushrooms*. He instances, particularly in the *Fungus Porosus Crassus*, I. B. the Texture of whose Gills, is like a Paper pricked full of Pin-Holes. These Gills, he makes no doubt, are the very Flowers and Seeds of this Plant; when it is ripe, the Gills are easily separable from the rest of the Head, each Seed being distinct from other, and having its Impression in the Head of the *Mushroom*, just as the Seed of an Artichoke has in the Bottom of it: The big End of the Seed is full and round, and they are disposed in a spiral Order, like those of the Artichoke: And the same he thinks will hold of all other *Mushrooms*, however differently figured. If it happens that these, when sown, prove sterile, and do not produce their Kind, it is no Wonder; there being whole Genus's of Plants that come up, and flower, and seed; yet their Seed was never known to produce Plants of their Kind, being no more than a barren volatile Dust, as that of all the *Orchides*, or Bee-Flowers are said to be.

There are various Kinds of *Mushrooms*; and the Vulgar call by this Name all that come under the general Name of Fungus's; by the *Greeks* called μυκητες.

Mr. *Bradley* mentions a hundred Kinds of *Mushrooms*, which he has seen in *England*; besides those very numerous small ones, which constitute the Mouldiness of Liquors, Fruits, *&c.* which last are such quick Growers, that they arrive at Perfection in less than twelve Hours.

The *Fungoides* only differs from a *Mushroom* in its external Form; the *Coralloides* are of the same Species, though of a different Name, as being branched like Coral, and Truffles come under the same Kind.

Mathiolus mentions *Mushrooms*, which weighed thirty Pounds each, and were as yellow as Gold. *Fer. Imperatus* tells us, he saw some which weighed above a hundred Pounds; and to add no more, the *Journal des Scavans* furnishes us with an Account of some growing on the Frontiers of *Hungary*, which made a full Cart-Load.

Mushrooms are all used with some Suspicion, tho' some are more harmless, as well as more delicious than others. Those used in *England* are *Mushrooms of the Wood*, called *Morilles*; and of the Meadows called *Champignons*; which are gather'd in Autumn, and esteemed for their Whiteness above, their Carnation underneath, and the Sweetness of their Smell.

TRUFFLES, *Tubera terræ*, is a Kind of subterraneous vegetable Production, not unlike *Mushrooms*.

The antient Physicians and Naturalists, rank *Truffles* in the Number of Roots, Bulls, or Cloves; and define them to be a Species of Vegetables, without Stalks, Leaves, Fibres, *&c.* *Bradley* calls them *under Ground edible Mushrooms*, or *Spanish Trubbes*.

They are produced most in dry chapped Grounds, and that, as *Pliny* says, chiefly after Rains and Thunder, in *Autumn*. Their Duration he limits to a Year. Their Colour is uncertain; some being white, others black, *&c.*

In *Italy*, *France*, &c. they eat them as a great Dainty, either fryed in Slices with Oil, Salt, or Pepper, or boiled over again in their own Broth. The Hogs are exceedingly fond of them, and are frequently the Means of discovering the Places where they are; whence the common People call them *Swine-Bread*. The modern Botanists rank *Truffles* in the Number of Plants, though they want most of the usual Parts thereof. All we know of their Growth is, that they are first no bigger than a Pea, reddish without, and within whitish, and that as they ripen, the white Parts grow more dusky and black; only there are still left a Number of white Streaks, which all terminate at Places where the outer Coat is cracked, or open: And which, in all Probability, are the Vessels that convey the Nourishment into the *Truffles*.

In these Vessels is found a whitish Matter, which, when viewed with a Microscope, appears to be a transparent Parenchyma, consisting of Vesiculæ; in the Middle whereof are perceived little round black Grains, separate from each other, supposed to be the Seed of the *Truffles*.

When the *Truffles* rot in the Ground through Excess of Ripeness, these Grains are the only Thing that remain of them; and these are supposed to produce new *Truffles*, which grow one after another.

What confirms the Opinion of their coming from Seed is, that there have been *Truffles* lately discover'd in *England*, and this only in *Northamptonshire*, and even only in one Place thereof, *viz.* near *Rushton*, a Place stocked with Plants formerly brought from *Languedoc*, and it is only since then, that any *Truffles* have been there observed; whence it is concluded, that the Seed of these *Truffles* was brought from *France* among the Roots of the other Plants.

These English *Truffles* were first discover'd by Dr. *Hatton*. — Dr. *Tancred Robinson* assures us, they are the true *French Truffles*, the *Italians Tartuffi*, or *Tartaffole*, and the *Spanish Turmas de Siera*, being not noted by Mr. *Ray*, as ever known on *English* Ground. Indeed he adds, that he has seen them thrice as large at *Florence*, *Rome*, &c.

Those observed in *England*, are all included in a studded Bark or Coat, and the inner Substance is of the Consistence of the fleshy Part of a young Chestnut, of a Pale Colour, a rank or hircine Smell, and unsavoury.

By a chymical Analysis, *Truffles* are found to abound in a volatile alkali Salt mixed with Oil, upon which their Smell, *&c.* depends. They never rise out of the Ground, but are found usually half a Foot beneath the Surface thereof.

Dr. *Hatton* has observed several little Fibres issuing out of some *Truffles*, and insinuating themselves within the Soil, which, in all Probability, do the Office of Roots. The *Truffles* grow tolerably globular, as receiving their Nourishment all around them; they being to be consider'd like Sea-Plants encompassed with the

Juice.

Food, which they suck in through the Pores of their Bark or Rind.

They are tendereſt and beſt in the Spring, tho' eaſieſt found in Autumn; the Wet ſwelling them, and the Thunder and Lightning diſpoſing them to ſend forth their Scent, ſo alluring to the Swine. Hence ſome of the Antients call them *Ceraunia*, q. d. *Thunder-Stones*.

The Depth at which the *Truffles* lie, Dr. *Robinſon* obſerves, is no Objection to their being of the vegetable Tribe; that being a Thing common to ſeveral other Plants which ſhoot up Stalks, particularly the *Lathyrus tuberoſus*, commonly called *Chalnæbalanus*, and *Terræ Glans*, in *Engliſh*, *Peaſe*, *Earth-Nuts*, the Roots of our *Bulbocaſtaneum*, &c.

The Antients are exceedingly divided as to the Uſe of *Truffles*; ſome affirming them to be wholeſome Food; and others pernicious; *Avicenna* particularly, who will have them to cauſe Apoplexies. For my own Part, ſays M. *L'Emery*, I am of Opinion, they have both good and evil Effects; they reſtore and ſtrengthen the Stomach, promote the Semen, *&c.* But when uſed too freely, they attenuate and divide the Juices immoderately, and by ſome volatile and exalted Principles, occaſion great Fermentations, *&c.* though the Pepper and Salt they are ordinarily eaten withal, do doubtleſs contribute greatly to thoſe Effects. Their rich Taſte is owing to their not putting forth any Stalk; in Effect, their Principles being united, and, as it were, concenter'd in a little Scab, muſt yield a richer and more delicious Savour, than if the Juices were diſperſed by Vegetation, through the ſeveral Parts of a common Plant.— Some roaſt the *Truffles* under the Aſhes, others pulverize and mix them in Sauces.

Note, That as we have already obſerved, that *Seed* ſerves for the Propagation of the different Kinds or Species, both in Animals and Vegetables; and that Propagation in Animals, is accompliſhed by the *Seed* fecundating the *Eggs* in the *Ovary*, we muſt inform ourſelves next what thoſe *Eggs* are; therefore,

Egg, is a Part formed in the Female of certain Animals; which, under a Shell or Cortex, includes an Embrio or Fœtus, of the ſame Species; the Parts whereof are afterwards diſplayed and dilated, either by Incubation, or by the Acceſſion of a nutritious Juice.

The Species of Animals that produce *Eggs*, are particularly denominated *oviparous*; and the Part wherein the *Egg* is formed the *Ovary*.

Of the various Kinds of *Eggs*, thoſe of Hens, or Pullets, being the moſt uſual, and which have been the moſt obſerved, we ſhall ſay ſomewhat of the Structure thereof, and the Generation of the Chick therein.

The exterior Part, then, of a Hen's Egg, is the Shell; a white, thin, friable Cortex, including all the other Parts, and defending them from Injuries. Immediately under the Shell lies the *Membrana Communis*, which lines the whole Cavity of the Shell, adhering pretty cloſely to it, except at the bigger End, where a little Cavity is left between them, which with Age grows bigger. Under this Membrane are contained two *Albumina*, or Whites, each wrapped up in its own Membrane. In the Middle of the inner White is the *Itelles*, or Yolk, incloſed likewiſe in its ſeparate Involucrum or Cover. The outer Albumen is oblong or oval, accommodated to the Figure of the Shell: The inner is ſpherical, and of a more groſs and viſcid Subſtance; and the Yolk is of the ſame Figure.

At each End is a Chalaza, which are, as it were, the Poles of this Microcoſm: Theſe are white, denſe Bodies, conſiſting each of three little Globules like Hail joined together: In theſe not only the ſeveral Membranes are connected, or knit together, by which Means the ſeveral Liquors are kept in their proper Place and Poſition to each other; but they ſerve alſo to keep one and the ſame Part of the Yolk uppermoſt, let the *Egg* be turned which Way it will.

Note, That the *Chalaza*, is a white, knotty Kind of String, at each End of an *Egg*, formed of a Plexus of the Fibres of the Membranes, whereby the Yolk and White are connected together. Its Uſe, according to *Harvey*, is to be, as it were, the Poles of this Microcoſm, and the Connection of all the Membranes twiſted and knit together; whereby the Liquors are not only conſerved, each in its Place, but alſo in its due Poſition to the reſt. Mr. *Derham* adds, that they alſo ſerve to keep one and the ſame Part of the Yolk uppermoſt, let the *Egg* be turned which Way it will; which is done by the following Mechaniſm. The *Chalaza* are ſpecifically heavier than the Whites wherein they ſwim; and being braced to the Membrane of the Yolk, a little out of the Axis, cauſe one Side of the Yolk to be heavier than the other. The Yolk being thus by the *Chalaza* made buoyant, and kept ſwimming in the Midſt of two Whites, is by its own heavy Side kept with the ſame Side always uppermoſt: Which uppermoſt Side he imagines to be that whereon the *Cicatricula* lies; which *Cicatricula* is a little whitiſh Speck or Veſicle, in the Coat of the Yolk of an *Egg*; wherein the firſt Changes appear towards the Formation of the Chick. The *Cicatricula* is what is otherwiſe called the Eye of the *Egg*.

All theſe Parts of a Pullet's *Egg*, are found in all other *Eggs*, to which the Definition of an *Egg* properly and ſtrictly agrees: Such *Egg* being that of a Part whereof the Animal is formed, the reſt ſerving for its Food. Accordingly the firſt Seed, or Stamen of the Chick, is in the *Cicatricula*.

The *Albumen*, or *White*, is the nutritious Juice, whereby it is diſtended and nouriſhed till it becomes big, and the Yolk ſerves it for Food after it is well grown, and partly alſo after it is hatched. For a good Part of the Yolk remains after Excluſion; being received into the Chicken's Belly, as a Store-houſe, and conveyed thence by the *Appendicula*, or *Ductus Inteſtinalis*, as by a Funnel into the Guts, ſerving inſtead of Milk.

An *Egg*, improperly ſo called, is that of the whole whereof the Animal is formed: Such are the *Eggs* of Flies, Butterflies, *&c.* which *Ariſtotle* calls *Vermiculi*.

The two have this further Difference, that whereof the former, after they are excluded from the Female, need no external Nutriment, nor any Thing but Warmth and Incubation, to bring the Fœtus to Perfection: The latter, after they are fallen out of the *Ovary* into the *Uterus*, require the nutritious Juices of the *Uterus* to diſtend and enlarge them: Whence they remain much longer in the *Uterus* than the other.

The principal Differences among *Eggs*, properly ſo called, is, that ſome are perfect, *i. e.* have all the Parts above deſcribed, while in the *Ovary* or *Uretus*; and others imperfect, as not having all theſe Parts till after they are excreted or laid; ſuch are the *Eggs* of Fiſhes, which after they are brought forth, aſſume an Albumen to themſelves from the Water.

Another Difference is, that theſe are fecundated, and others not: The firſt are thoſe which contain a Sperm, injected by Coition of the Male, to diſpoſe them for Conception, The reſt not impregnated with this Sperm, never breed young by any Incubation, but always putrify.

An *Egg* fecundified, contains the Rudiments of the Chick before ever the Hen has ſet upon it. By the Microſcope we ſee in the Middle of the *Cicatricula*, the plain *Carina* of the Chick, ſwimming in the Liquamen of Humour; it conſiſts of fine white Zones or Threads, which the Warmth of Incubation enlarges, by rarifying and liquifying the Matter firſt of the Albumen, and then of the Vitellus, and preſſing them into the Veſſels of the *Cicatricula*, for a further Preparation, Digeſtion, Aſſimilation, and Accretion; till the Chick, too big for its Covercle, breaks the Shell, and is delivered.

It was antiently thought, that none but Birds and Fiſhes, with ſome other Animals, were produced *ab ovo*, *Eggs*; but the Generality of the Moderns incline to think, that all Animals, even Man himſelf, is generated the ſame Way. *Harvey*, *De Graaf*, *Kerckringius*, and ſeveral other great Anatomiſts, have ſo ſtrenuously aſſerted this Opinion, that it now generally obtains.

In the Teſtes of Women, are found little Veſicles, about the Size of green Peas, which are accounted as *Eggs*; for which Reaſon, theſe Parts, which the Antients called *Teſticles*, the Moderns call *Ovaries*. These

Eggs

Eggs fecundified by the moſt volatile and ſpirituous Parts of the Seed of the Male, are detached from the *Ovary*, and fall down the fallopian Tubes into the *Uterus*, where they grow and increaſe.

This Syſtem is countenanced and confirmed by Abundance of Obſervations and Experiments. M. *de St. Maurice*, upon opening a Woman at *Paris*, in 1682, found a Fætus perfectly formed in the Teſticle.

Mr. *Oliver*, a Phyſician at *Breſt*, in the Province of *Britanny*, atteſts, that in the Year 1684, a Woman, pregnant ſeven Months, was brought to Bed of a whole Plate full of *Eggs*, faſtened together like a Bunch of Grapes, and of various Sizes, from that of a Lentil, to that of a Pigeon's Egg. *Wormius* aſſures us, that he had himſelf ſeen a Woman who had lain an *Egg*. And *Bartholin* confirms him, *Cent.* 1. *hiſt. Anatom.* 4. *p.* 2. The ſame Author tells us, he knew a Woman at *Copenhagen*, who, after twelve Weeks Conception, was delivered of an *Egg* wrapped up in a thin Shell. *Lanzonus*, *Dec.* II. *An.* ix. *obſerv.* 38. *p.* 73. of the *Curioſi Naturæ*, relates the ſame Thing of another Woman ſeven Weeks gone: The *Egg* ſhe brought forth was of a Size between that of a Hen and a Pigeon, and was covered with Membranes inſtead of a Shell. The outer Membrane, or Chorion, was thick and bloody; and the inner, or Amnios, thin and tranſparent, including a whitiſh Humour, wherein the Embrio ſwam faſtened by umbilical Veſſels, like Threads of Silk.

Bonetus, in a Letter to *Zuingerus*, publiſhed in the Ephemerides of the *Curioſi Naturæ*, *Dec.* II. *an.* 2. *obſer.* 186. *p.* 417. relates, that a young Maid had caſt forth a great Number of little *Eggs*. *Con. Virdungius* obſerves, that in diſſecting a Woman who had a Rupture, he found Eggs of divers Sizes in the Cornua of the Womb. Laſtly, we meet with divers Inſtances of the ſame Thing in *Rhodios*, *Cent.* III. *obſerv.* 57. and in ſeveral Places of the Memoirs of the *Curioſi Naturæ*, inſomuch that *Berger* in his Treatiſe *De Naturâ Humanâ*, *l.* II. *c.* I. *p.* 461. makes no Scruple to give it as his Opinion, that the only Difference between Animals, called *oviparous*, and thoſe denominated *viviparous*, conſiſts in this, that the former caſt their *Eggs* out of the Body, and lay them in Neſts; and that their *Eggs* contain all the Nouriſhment requiſite for the Fruit, or Fætus; whereas in the latter the *Eggs* are only laid from the Ovary into the Uterus; that they have but little Juice, and that the Mother furniſhes the reſt.

There is not ſo much as a Plant, whoſe Generation, according to the Sentiment of *Empedocles*, and ſince him of *Malpighi*, *Rallius*, *Fabric. de Aquapendente*, *Grew*, and others, is not effected by the Way of *Eggs*.

On the other hand we have many Inſtances of *viviparous* Animals producing their Young abſolutely alive, and without *Eggs*. Such Inſtances we have of a Crow, a Hen, Serpents, Fiſhes, Eels, *&c.*

But this is not all, Naturaliſts afford Inſtances of Males, and even Men, caſting out *Eggs* by the Fundament. But M. *Stolterfoht* is of Opinion, that at leaſt in ſome of thoſe Caſes, what was taken for *Eggs* might be no more than certain Aliments ill digeſted, and coagulated; an Inſtance of which himſelf had ſeen. As to thoſe of Women, *Wormius* and *Froman*, *lib.* III. *de faſcinatione*, take it for the Effect of the Devil; but *Bartholin* and *Stolterfoht*, treat the Notion as it deſerves, with Deriſion.

Gouſſet, *de cauſis linguæ hebraicæ*, explodes the modern Syſtem of Generation *ab ovo*, as contrary to Scripture; and others imagine they have ſeen the Animal alive, and formed in the Seed of the Male.

Malpighi has made very curious Obſervations with the Microſcope, of all the Changes that happen in the *Egg*, every half Hour of Incubation. *Voſſius*, and divers other Authors, are very ſollicitous about ſettling the Queſtion, which was formed firſt, the *Egg* or the *Pullet*?

In *Egypt* they hatch their *Eggs* by the Heat of a Furnace; or Oven, and frequently have ſeven or eight thouſand Chickens come forth at a Time. They have Houſes it ſeems built for that Purpoſe, having a long Entrance, on each Side whereof are twelve or fourteen Ovens, whoſe Bottoms and Sides are formed of Sun-dried Bricks, lined with Mats for the *Eggs* to lie on, and the Tops covered with Sticks, except two Spaces which are Brick, and ſerve as Hearths to build the Fire upon wherewith the *Eggs* are to be heated. Over this is another Story of Ovens; having Holes, which are either ſtopped with Tow, or left open at Pleaſure, to govern the Heat of the Ovens below.

They begin to heat the Ovens in the Middle of *January*, ſpending every Morning about a hundred Pounds Weight of Camels or Bufallos Dung, and the like Quantity at Night, till the Middle of *February*; by which Time the Ovens are too hot for the Hand to be held upon the Walls. After this they put in the *Eggs* to hatch, which they continue ſucceſſively till the End of *May*.

The *Eggs* are firſt put upon the Matts in the lower Ovens, upon the Ground, 7 or 8000 *Eggs* in Number, and laid only double one upon another; in the Ovens over theſe the Fire is made in the little Channels, from whence the Heat is conveyed into the lower; the *Eggs* directly under theſe Hearths lie three-fold.

At Night, when they new-make their Fires in the Hearths, they remove the Eggs that lie directly undermoſt, laying three one upon another, in the Place of thoſe which lay on the Sides only double, and theſe being now removed, they lie treble under the Hearth, becauſe the Heat is greater there than on the Sides.

Theſe *Eggs* continue in the lower Ovens fourteen Days and Nights; after which they remove them into the upper. And in theſe there being now no more Fire uſed, they turn the *Eggs* four Times every twenty-four Hours.

The 21ſt or 22d Day the Chickens are hatched, which the firſt Day eat not; the ſecond they are fetched away by Women, who give them Corn, *&c.* The Maſter of the Ovens hath a third Part of the *Eggs* for his Coſt and Pains, out of which he is to make good to the Owners, who have two Thirds in Chickens for their *Eggs*, if any happen to be ſpoiled or miſcarry.

The Fire in the upper Ovens, when the *Eggs* are placed in the lower, is thus proportioned. The firſt Day the greateſt Fire, the ſecond leſs than the firſt, the fourth more than the third, the fifth leſs, the ſixth more than the fifth, the ſeventh leſs, the eighth more, the ninth without Fire, the tenth a little Fire in the Morning, the eleventh they ſhut all the Holes with Flax, *&c.* making no more Fire; for if they ſhould the *Eggs* would break. They take Care that the *Eggs* be no hotter than the Eye of a Man, when they are laid upon it can endure. When the Chickens are hatched, they put them into the lower Ovens.

At *Tonquin* they are ſaid to keep *Eggs* entire for the Space of three Years, by covering them up in a Paſte made of Aſhes and Brine. The Tortoiſe is ſaid to lay no leſs than 1500 *Eggs*, which ſhe covers in the Sand, and leaves the Sun to hatch them; and the *Eggs* of the Oſtrich are hatched after the ſame Manner.

In the *Acta Erudit. Lipſ. Ann.* 1683, *p.* 221. Mention is made of a Hen's Egg, in all reſpect like the common ones, in the Middle whereof was found another, of the Size of a Pigeon's *Egg*.

Eggs with double Shells, are no unuſual Phænomenon. *Harvey* is very large on the Rational of theſe Appearances, in his Treatiſe *de generat. Animal.*

Even Inſects are produced from *Eggs*, as plainly demonſtrated in my Treatiſe of Animals, under the Letter A, ſpeaking of the *Generation of Inſects*.

The Fleas and Lice, thoſe domeſtick and troubleſome Vermin, are alſo generated from *Eggs*.

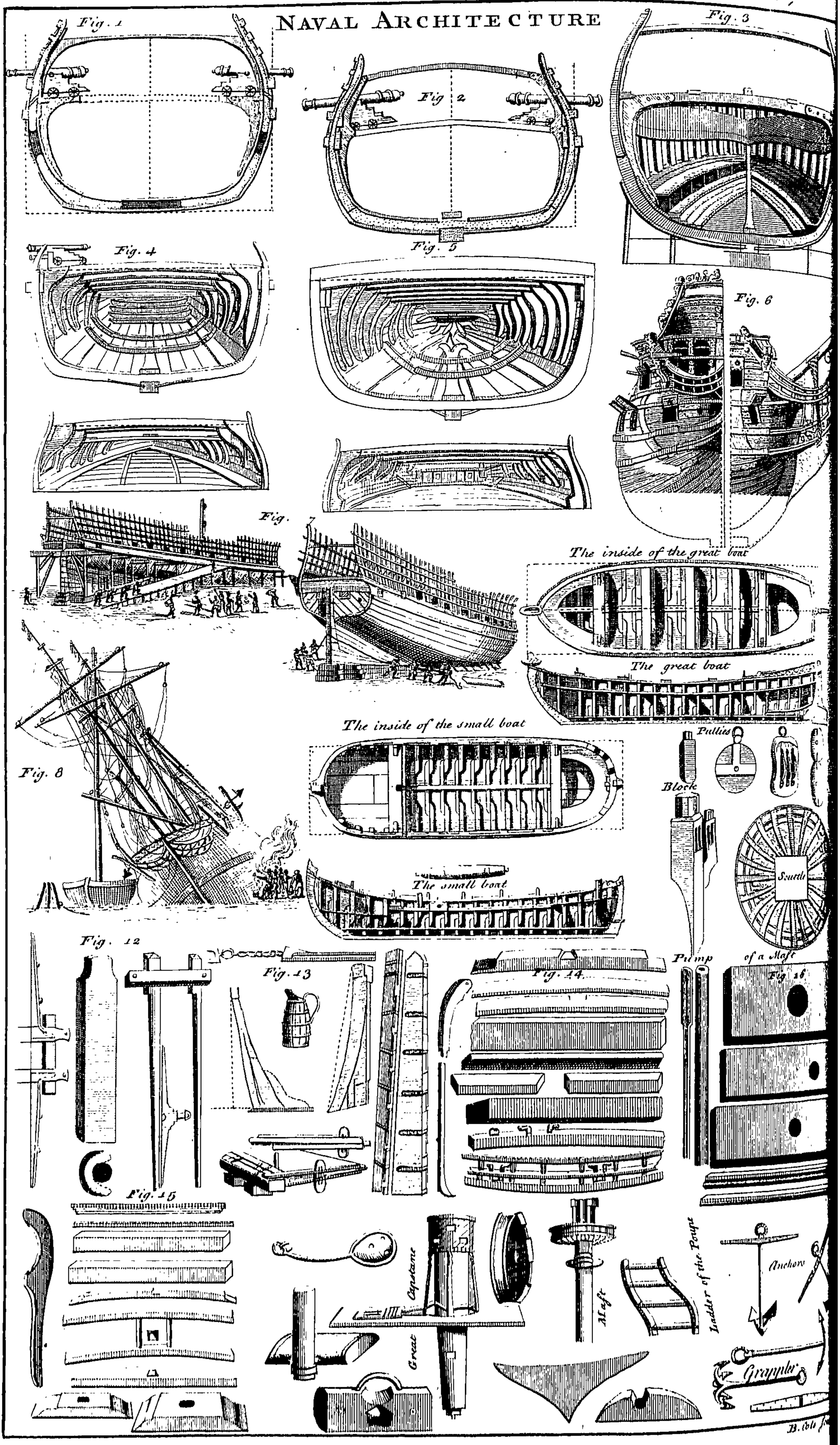
For *Fleas* bring forth Eggs, or Nits, which they depoſit on Animals that afford them a proper Food: Theſe *Eggs* being very round and ſmooth, uſually ſlip ſtrait down, unleſs detained by the Piles, or other Inequalities of the Cloaths, Hairs, *&c.*

Of theſe Eggs are hatched white Worms, of a ſhining Pearl-colour, which feed on the ſcurfy Subſtance of the Cuticle, the downy Matter gather'd in the Piles of Cloaths, or other the like Excrement.

In a Fortnight they come to a tolerable Size, and are very lively and active, and if at any Time diſturbed, ſuddenly roll themſelves into a Kind of Ball.

Soon after they come to creep, after the Manner of Silk-worms that have no Legs, with a very ſwift Motion.

NAVAL ARCHITECTURE



tion. When arrived at their Size, they hide themselves as much as possible, and spin a silken Thread out of their Mouth, wherewith they form themselves a small round Bag or Case, white within, as Paper; but without always dirty, and fouled with Dust.

Here, after a Fortnight's Sleep, the Animalcule bursts out, transformed into a perfect *Flea*, leaving its Exuvia in the Bag. While it remains in the Bag it is Milk-white, till the second Day before its Eruption, when it becomes coloured, grows hard, and gets Strength; so that upon its first Delivery it springs nimbly away.

We have so often made mention of *Animalcule*, in the Course of this Treatise, that it is very proper I should say something of it in a more particular Manner.

ANIMALCULE, *Animalculum*, is a Diminutive of Animal, and expresses such a minute Creature, as is scarce, or not at all discernable by the naked Eye.

Such are those numerous Insects which crowd the Waters in the Summer-Months, changing it sometimes of a deep or pale red Colour, sometimes a yellow, *&c.* they seem to be of the Shrimp Kind, called by *Swammerdam*, *Pulex aquaticus arborescens*. The Cause of their Concourse at this Time, Mr. *Derham* observes, is to perform their Coit. He adds, that they afford a comfortable Food to many Water-Animals. The green Scum on the Top of stagnant Waters is nothing else but prodigious Numbers of another smaller Order of *Animalcules*; which in all Probability serve for Food to the *Pulices aquatici*.

The Microscope discovers Legions of *Animalcules* in most Liquors, as Water, Wine, Brandy, Vinegar, Beer, Spittle, Urine, Dew, *&c.* In the *Philosophical Transactions*, we have Observations of the *Animalcules* in Rain-Water, in several chalybeat Waters, Infusions of Pepper, Ivyberries, Oats, Barley, Wheat, *&c.*

The human Seed has been observed by divers Authors to contain huge Numbers of *Animalcules*, which gave Occasion to the System of Generation *ab animalculo*.

Note, That *Leaves* may also claim a Place in this Treatise; therefore,

LEAF, is a Part of a Plant, ordinarily very thin and flat, growing in the Spring, and falling off in Autumn.

As to the Structure of *Leaves*, Dr. *Green* observes, that their Fibres never stand on the Stalk on an even Line, but always in an angular or circular Posture, and their vascular Fibres or Threads are 3, 5, or 7. The Reason of which Position is for their more erect Growth, and the greater Strength of the *Leaf*.

Another Thing observable in the Fibres of *Leaves*, is their orderly Position, so as in some to take in an eighth Part of a Circle, as in Mallows; in some a tenth, but in most a twelfth.

The same Author observes six several Parts, intended by Nature for the Preservation of Gems, viz. *Leaves*, Surfoils, Interfoils, Stalks of *Leaves*, Hoods, and Mantlings that cover them.

The Skin or Coat of the *Leaves*, is no more than that of the Branches extended, as Gold, by beating, is reduced into *Leaves*. In the Gem the Leaves are folded, sometimes in two, and sometimes in several Plaits, somewhat after the Manner of a Fan. If the Leaves be too thick to plait commodiously in two, and to be ranged against each other; or if they be in too small a Number, and their Fibres too delicate, instead of being plaited they are rolled up, and form either a single Role, as the *Leaves* of the mountain Cowslip, which are thick; or two Rolls, which begin at each Extremity of the *Leaf*, and meet in the Middle. There are also some Plants whose *Leaves* form three Rolls, as Fern; several *Leaves* are covered with Hair of several Figures; those of Lavender and Olive-tree, have Hairs resembling Stars.

Botanists consider the *Leaves* of Plants, with regard to their Structure, Surface, Figure, Consistence, Edges, Situation and Size.—With regard to their Structure, *Leaves* are either *single*, as those of the Apple-tree, Pear-tree, *&c.* or *double*, as those of Angelica, Parsley, *&c.* —With regard to their Surface, *Leaves* are either *flat*, as the Nummularia, Asarum, Origany, Androsænum, Brionia Canadensis, *&c.* or *hollow*, as those of the Onion and Asphodel; or in *Bunches*, as several Kinds of Kali, and House-Leeks.—With regard to their Consistence, *Leaves* are either thin and fine, as those of St. Johnwort, and Dog's Grass; or thick and gross, as those of Portulaca; or fleshy, as those of several Kinds of House-leeks; or woolly, as those of the Wool-blade.—With regard to the Verge or Edges, *Leaves* are either cut slightly, as some Species of Gum, and Cannabis lutea; or deep, as Trefoil, *&c.*—With regard to their Situation, *Leaves* are either alternate, that is, ranged alternately, as the Philyca; or opposite to each other, as the Phileria, and some Species of the Rubia.—With regard to their Size, *Leaves* are either very big, as those of the Colonsia, and Sphondylium; moderate, as those of the Bistorte, the Fig-tree; small, as those of the Apple-tree, Pear-tree, Peach-tree, or very small, as those of Milleperruis, or St. Johnwort.

There are likewise, annual, crenated, dissimilar, procumbent, segment, seminal, and vernal *Leaves*.

Annual Leaves, are such *Leaves* as come up afresh in the Spring, and perish in the Winter.

Crenated Leaves, are such *Leaves* as are jagged or notched.

Dissimilar Leaves, denote the two first *Leaves* of any Plant, at its first shooting out of the Ground.

They are thus called, because they usually are of a different Form from the common *Leaves* of the grown Plant.

These Dr. *Green* observes to be nothing but the very Lobes of the Seed expanded, and thus advanced. Their Use is for the Protection of the Plumule; which being young and tender, is thus guarded on each Side, and has also some Rain and Dew, gradually conveyed down to it by this Means.

Procumbent Leaves, are such Leaves as lie flat, and trailing on the Ground.

Segment Leaves, is a Denomination given to those *Leaves* that are cut and divided into many Shreds, or Slices, as Fennel, *&c.*

Vernal Leaves, are those *Leaves* which come up in the Spring.

Besides *general natural Histories*, as those of *Pliny*, &c. there are particular ones, and that of two Kinds. The first those which consider one Kind of Things, such as the History of Shells, by Dr. *Lister*; of Fishes, by *Willoughby*; that of Birds, by the same; that of Plants, by *Ray*; those of Insects, by *Swammerdam* and *Mouffet*; that of Animals by *Gesner*; that of Fossils, by *Agricola*, *Mercatus*, &c.

The second, those which consider the several Kinds of natural Things found in particular Countries, or Provinces; as the *natural History* of *Dauphiné*, by *Chorier*; the *natural History* of the *Antilles*, by F. *du Tertre*, and M. *Louvillers de Poincy*; those of *Oxfordshire* and *Staffordshire*, by Dr. *Plott*; that of *Lancashire*, by *Leigh*; of *Northamptonshire*, by *Morton*; and that of the same County, extracted from Mr. *Bridges*; that of the *Western Islands*, by *Martin*, &c.

NAVAL ARCHITECTURE.

NAVAL ARCHITECTURE, or *Ship-Building*, is that which teaches the Construction of Ships, Galleys, and other floating Vessels for the Water; with Ports, Moles, Docks, *&c.* on the Shore.

A *Ship*, is defined by the Sieur *Aubin*, a Timber-Building, consisting of various Parts, or Pieces, nailed and pinned together with Iron and Wood, in such Form as to be fit to float, and to be conducted by Wind and Sails from Sea to Sea.

Ships, are usually divided into three Classes; *Ships of War*,

War, *Merchant-Ships*, and an intermediate Kind, half War, half Merchant; being such, as though built for Merchandize, yet take Commissions for War.

Ships of War, are again divided into several Orders, called *Rates*; which are ordinarily six, *viz. First*, *Second*, *Third*, *Fourth*, *Fifth*, and *Sixth Rate*; the *Rate* being usually accounted by the Length and Breadth of the Gun-Deck; the Number of Tons, and the Number of Men and Guns the Vessel carries.

A *First* RATE *English* Man of War, has its Gun-Deck from 159 to 174 Feet in length; and from 40 to 50 Foot broad, containing from 1313 to 1882 Tons; has from 706 to 800 Men; and carries from 96 to 110 Guns. — A *French* Man of War of that Rate, has from 1000 to 1200 Men.

Second RATE Ships have their great Deck from 153 to 165 Foot long; and from 41 to 46 broad; they contain from 1086 to 1482 Tons; and carry from 524 to 640 Men; and from 84 to 90 Guns. — A *French* Ship of the same Rate, carries from 900 to 1000 Men.

Third RATES, have their Gun-Deck from 142 to 158 Foot in length; from 37 to 42 Foot broad; they contain from 871 to 1262 Tons; carry from 389 to 476 Men; and from 64 to 80 Guns.

Fourth RATES are in length, in the Gun-Deck, from 118 to 146 Foot; and from 29 to 38 broad; they contain from 448 to 915 Tons; carry from 226 to 346 Men; and from 48 to 60 Guns.

Fifth RATES, have their Gun-Deck from 100 to 120 Foot long; and from 24 to 31 broad; they contain from 259 to 542 Tons; carry from 145 to 190 Men; and from 26 to 44 Guns.

Sixth RATES, have their Gun-Deck from 87 to 95 Foot long; and from 22 to 25 Foot broad; they contain from 152 to 256 Tons; carry from 50 to 110 Men; and from 16 to 24 Guns.

Note, That the new-built Ships are much larger, as well as better than the old ones of the same *Rate*; whence the double Numbers all along; the larger of which express the Proportions of the new-built Ships, as the less those of the old ones.

Merchant-Ships are esteemed by their Burthen, that is, by the Number of Tons they bear; each Ton reckon'd at 2000 Pounds Weight. The Estimate is made by gauging the Hold; which is the proper Place of Loading.

Note, That as a Man of War of the first Rate, is the most magnificent and most sightly Piece of *Naval Architecture*, we'll begin this Treatise by a Description of all the Parts it is composed of, and afterwards inform our Pupil Ship-builder how to set all those Parts together, in order to form of them a compleat Building; teaching him, likewise, every Thing else that belongs to this excellent and very useful Art.

The different Parts of a *Man of War* (and in Fact almost all other Ships with three Masts) are as follows.

The *Keel*, the *Stern-Post*, the *Rudder*, the *Buttock of the Ship*, the *Gallery*, the *Freeze*, the *Ensign-Staff*, and its *Block*, the *Dunette*, or highest Part of the Stem of the Ship, the *Half-Deck*, or *Corps de Guard*, which is commonly that Part under the *Hind Castle*, the *Fore Castle* or *Prow*, the *Belt Hooks*, the *Cut Water*, the *Cannon*, the *Port Holes*, the *Laver*, and *Upper Check*, the *Trail Board*, the *Figure*, the *Grating*, the *Brackets*, the *Main Stem*, the *False Stem*, the *Hawse Hole*, out of which runs the Cable, the *Cable*, the *Buoy*, and its *Orin*; the *Mizzen Mast*, the *Main Mast*, the *Fore Mast*, the *Bowsprit*, the *Mizzen Top*, the *Main Top Mast*.

Note, That as all the three *Masts* have each their particular Rigging, I must give here the Description of every one of them in particular, before I proceed further; beginning by the Definition of a *Mast*.

A MAST is a large Pole, or long Piece of round Wood, raised in Vessels, for the Yards and Sails to be fastened to, in order to their receiving the Wind necessary for Navigation.

In large Vessels, as already observed, the Number of *Masts* is three; or four if we reckon the *Bowsprit*, viz. the *Main-Mast*, the *Fore-Mast*, the *Mizen-Mast*, and the *Bowsprit*. To which some add a fifth, *viz.* a *Counter-Mizen*, which is very seldom used.

The *Fore-Mast* is between the *Main-Mast* and the Head.

The *Mizen-Mast* is between the *Main-Mast* and the Stern.

The *Bowsprit* lies upon the Beak, in the Prow or Head of the Ship.

The *Counter-Mizen*, in large Vessels and Galleons is in the Stern.

We also use the Word *Mast* to signify those Divisions, or additional Pieces in the Masts placed over one another.

The *Main-Mast* and *Fore-Mast*, have each of them two, *viz.* the *Main-Mast* has the *Main-Top-Mast*, called in *French*, *Le Mast de hune*; and the *Main-Top-Gallant-Mast*, in *French*, the *Peroquet de hune*. The *Fore Mast*, has the *Fore-Top-Mast*, called in *French*, *La petit hune*, and the *Fore-Top Gallant-Mast*, in *French*, *Le Peroquet de Mizene*.

The *Mizen-Mast*, called in *French*, *Le Mast d'Artimon* has but one, *viz.* the *Mizen-Top-Mast*, in *French*, *Peroquet de Fougue*.

The *Rigging* of the *Main-Mast*, are the *Runners* and *Tackles*; the *Tackle*, the *Shrowds* and *Laniards*, the *Stay* and *Sail*, the *Stay-Sail Halliards*, the *Yard* and *Sail*, the *Jeers*, the *Sheets*, the *Tacks*, the *Buntlines*, the *Bowlines*, the *Braces*, the *Leach Lines*, the *Puttock Shrowds*, the *Crowfoot*, the *Lifts*, the *Top*, the *Top Armour*, the *Top Rope*, the *Cap*, the *Main-Yard Tackles*.

The *Rigging* of the *Main-Top-Mast*, are the *Tackles*, *Shrowds*, *Back-Stays*, *Halliards*, *Stay* and *Sail*, *Stay Sail Halliards*, *Yard* and *Sail*, *Braces*, *Bowlines*, *Sheets*, *Clewlines*, *Lifts*, *Runner*, *Buntlines*, *Cross-trees*, *Cap*, *Stump*, *Stay*, *Truck*, *Pendant*.

The *Rigging* of the *Fore-Mast*, are the *Runner* and *Tackles*, the *Tackle*, *Shrowds* and *Laniards*, *Stay*, *Yard* and *Sail*, *Sheets*, *Tacks*, *Braces*, *Bowline*, *Buntlines*, *Leachlines*, *Yard Tackle*, *Jeers*, *Puttock Shrowds*, *Crowfoot*, *Lop*, *Top Armour*, *Top Rope*, *Lifts*, *Cap*.

The *Rigging* of the *Fore-Top-Mast*, are the *Tackles*, the *Shrowds*, the *Back-Stays*, *Halliards*, *Stay* and *Sail Halliards*, *Yard* and *Sail*, *Runner*, *Lifts*, *Braces*, *Bowlines*, *Sheets*, *Clewlines*, *Buntlines*, *Cross-trees*, *Cap*, *Stump*, *Stay*, *Truck*, *Spindle*, *Vane*.

The *Rigging* of the *Mizen-Mast*, are the *Yard* and *Sail*, the *Sheet*, *Shrowds* and *Laniards*, *Bowlines*, *Brayles*, *Jeer*, *Peak Halliards*, *Cross Jack Yard*, *Lifts*, *Braces*, *Puttock Shrowds*, *Mizzen-Top*, *Top Armour*, *Cap*, *Crowfoot*, *Stay* and *Sail Halliards*.

The *Rigging* of the *Top-Mast*, are the *Yard* and *Sail*, *Braces*, *Lifts*, *Shrowds*, *Halliards*, *Back-Stays*, *Bowlines*, *Sheets*, *Clewlines*, *Stay*, *Cross-trees*, *Cap*, *Stump*, *Stay*, *Truck*, *Spindle*, *Vane*, *Slings of the Cross Jack Yards*.

The *Rigging* of the *Bowsprit*, are the *Horse*, *Yard* and *Sail*, *Lifts*, *Sheets*, *Clewlines*, *Braces*, *Bobstay*, *Top*, *Top Armour*.

The *Sprit-Sail*, *Top-Sail*, and the *Rigging* of the *Top-Mast*, are the *Shrowds*, *Halliards*, *Crane Line*, *Yard* and *Sail*, *Braces*, *Lifts*, *Sheets*, *Cross-trees*, *Cap*, *Jack-Staff*, *Truck*, *Jack*, *Best Bower Buoy*, and the *Cable*.

Note, That all these Terms, and their different Use, will be explain'd in a more ample Manner, in the Course of this Treatise, and in the Places where I'll treat of the Construction of the different Parts of a *Ship*, and of their Proportion with regard to the different Sorts of Vessels. — But to proceed on the *Design*, or Plot for building a Man of War; therefore,

A *Man of War*, which has its Gun-Deck 128 Feet long, must have 13 Feet in Depth, 32 Feet in Breadth, and 110 Feet of Keel bearing on the Ground.

The main Stem ought to be 24 Feet high, and the *Stern-post* 24 Feet likewise.

The *Main-Mast*, must be 82 Feet long; the *Fore-Mast*, 72 Feet; the *Mizen-Mast*, 61; the *Bolsprit*, 4[illegible].

The *Main-Top-Mast*, 52 Feet six Inches; the *Main-Top-Gallant*, 24 Feet; the *Fore-Top-Gallant*, 20; the *Mizen Top-Mast*, 26, 6 Inches; the *Bowsprit-Top-Mast*, 17 Feet.

The *Main-Yard* ought to be 70 Feet long; that of the

the *Fore-Maſt*, 60; that of the *Mizen-Maſt*, 64; that of the *Main-Top-Maſt*, 40; that of the *Fore-Top-Maſt*, 34 Feet, 5 Inches; the *Bowſprit-Yard*, 15 Feet.

The Head muſt be 20 Feet long; the *Puttocks* of the great *Shrowds*, 25 Feet; thoſe of the *Shrowds* of the *Fore-Maſt*, 21; and thoſe of the *Mizen-Maſt*, 12 Feet.

The *Scuttle* of the Main-Maſt muſt be 13 Feet broad Croſs-wiſe; that of the Fore-Maſt, 11 Feet, 6 Inches; and that of the Mizen-Maſt, 7 Feet. The Gallery muſt be 8 Feet long.

Note, That the Proportion of the three principal Pieces marked above, can be a Rule for all the other principal Members of a Ship; and that by increaſing or diminiſhing the Proportions of thoſe three Pieces, one can likewiſe increaſe, or diminiſh the others in Proportion; ſo that it may ſerve of Model for the whole Conſtruction of Ships of all Bigneſs. But however, to enter into a ſtill more particular, and clearer Detail of all the preceding Articles, I'll ſhew in this Place how, by means of the Length propoſed of a Ship, one can find the juſt Meaſure of its principal Parts.

When once the Length of a Ship has been found or propoſed, one muſt take for its Breadth a Quarter of its Length, ſo that a Ship 120 Feet long, from the Main-Stem to the Stern-Poſt, will give 30 Feet in Breadth, *i. e.* one Third of its Length. This notwithſtanding is not a general Rule; for very often ſomething more, or ſomething leſs than a Quarter of the Length, is given for the Breadth. And the modern Method is to give more than a Quarter of the Length for the Breadth of a Ship, becauſe it is pretended that they ſail better. For Merchant-Ships, ſomething leſs than their Length is given for their Breadth, that they may more eaſily play on their Anchor, and not want ſo large a Complement of Men.

When the Breadth of a Ship is regulated, one muſt ſearch the Depth to be given to it. Every ſix Feet of Length muſt give it one Foot of Depth, which notwithſtanding we ſee ſome Ships where that Method has not been obſerved; becauſe ſome of them have 4 Feet more in Breadth than that Proportion; others have two Feet leſs, but that's very rare.

This Article once regulated, one proceeds to the *Keel*, which muſt be a Quarter thicker than the Main-Stem inſide; and its greater Breadth taken likewiſe, at the greateſt Width of the Ship, becauſe at both Ends the *Keel* muſt be equal to the Main-Stem, and to the Stern-Poſt; its greater Breadth muſt be once and a half more than that of the Main-Stem. The Side-Planks muſt be in Thickneſs, one Quarter of the Thickneſs of the Main-Stem.

For the Thickneſs of the *Main-Stem* Inſide, we give it one Inch for every 10 Feet of the Length of the Ship; ſo that 120 Feet in Length, give a Foot and an Inch Thickneſs to the *Main-Stem* Inſide, and full 7 Inches Outſide; becauſe one commonly takes three Fifths of its Thickneſs Inſide, for its Thickneſs Outſide. To have the Height thereof; the Depth, the riſing up, and the Height of the Fore-caſtle, muſt be joined together. For Inſtance, 10 Feet in Depth, two of riſing up, and to find that Height of the riſing up, every 10 Feet of the Length of the Ship muſt give full two Inches and a half for the riſing up of the Fore-part, and ſix Inches and a half for the riſing up the hind-part, and ſix Feet in Height between Decks, taken at the Side, the whole making up together 18 Feet, which Height muſt be that of the Main-Stem; though the *Flutes* muſt have leſs, and the *Frigates* more. When the Height of the Main-Stem is found, one muſt obſerve, if there will be a Fore-caſtle, and if there is to be none, the Main-Stem muſt be lower, of about three Feet and a half at leaſt. The Roundneſs of the Main-Stem depends on the Inclination and good Taſte of the *Ship-builder* or *Conſtructor*.

The Depth, the riſing up, and all that's above it, muſt alſo be taken and joined together, for the Height of the *Stern-Poſt*. Its Thickneſs Inſide and Outſide is equal to that of the Main-Stem.

The Main-Stem, muſt have in its Middle three times as much Width as it has Thickneſs, and have likewiſe upwards and downwards, more Width than Thickneſs: Its Thickneſs like that of the *Stern-Poſt* muſt be a little leſs than that of the *Keel*. The Side-Planks muſt be fixed into the *Main-Stem*, at a Quarter of its Thickneſs Inſide.

The Length of two Thirds of that of the Ship is given to the *Tillard*, and as many Inches of Thickneſs, Breadth, and Roundneſs, as it has Feet in Length. The *Tranſoms* of the Stern have commonly as much Length above the *Tillard* as the *Stern-Poſt* is long.

For the Conſtruction of the *Buttock* of the Ship, the *Stays* muſt be in Length half that of the *Stern-Poſt*, taken Inſide, and muſt have the five ſixth Parts of the Thickneſs; notwithſtanding which, in Ships of Burthen they are placed lower than they are in Frigates; they muſt have in Breadth double that of the Tillard, and their Bending muſt be very near round-wiſe. The Bars of *Counter-buttock* muſt have in Thickneſs one Fifth, at leaſt, of that of the *Stern-Poſt*, and the Spur muſt have but an Inch leſs than the *Stern-Poſt*. They give to the Tranſoms of the Stem, two Thirds of the Thickneſs of the *Stern-Poſt*; and downwards their Binding muſt agree with that of the Stays. There muſt be as much Diſtance between every one of the Ends upwards, as the three Fifths of the Bar of the Buttock make up in Length. The *Side-Planks* are proportioned according to the Reverſe given to the Tranſoms.

To find the Breadth of the *Taffarel*, one takes two Thirds of the whole Breadth of the Ship, under the *Scoper-Holes*; ſo that 25 Feet in Breadth, give 16 Feet, 7 Inches and half for the Breadth of the *Taffarell*. Each Foot of the Breadth of the *Taffarell* gives likewiſe half an Inch of Roundneſs at the Bottom of the *Great Drought*. The reſt on each Side of the Ship, as far as the *Scoper-Holes*, muſt be riſen by the Equality of the Drought.

When one gives to a Ship more Width than that above preſcribed, he muſt give to the laſt Side-Plank of the Bottom a little more Roundneſs than to the others, that its *Gabarit* may agree better with that of the *Flowers*, and be more agreeable.

The Roundneſs of the Flowers muſt be a Third of the Arch, every ten Feet of the Length of the Ship, make the *Flowers* an Inch narrower, in aſcending, on the whole Roundneſs of the Structure, ſo that the inverted *Tranſoms* jutt out 16 Inches in the *Side-Planks*.

The *Ribs* of the *Great Gabarit* on the Sides, which reſt on the *Keel*, muſt have three Quarters of the Thickneſs of the *Keel*, and the Bar of the *Gabarit*, half of its Thickneſs, as well as the *Tranſoms* on the Bars, muſt have two Sevenths of the Thickneſs of the *Stem* Inſide. They are a little lighter, or thinner fore and aft of the Ship, and ſtronger at the Bottom and Top.

The Pieces of Timber which make the Foundation of the Ground-Floor, muſt be a little thicker than the Side-Planks; but thoſe of the Bottom, and of the Flowers, muſt be a little thinner.

Every 10 Feet of the Length of the Ship, muſt give an Inch and an eighth Part of an Inch for the Length and Thickneſs, of the Ledges of the firſt, and lower Deck; and an Inch for their *Tonture*. Commonly as much Thickneſs is given to the lower Beams, as the *Stem* has Inſide; but only a Third of that Thickneſs, to the ſmall Beams of the *Dunette*, or higheſt Part of the Stem of the Ship. Very often the *falſe Sledges* are placed 3 Feet and a half under the other *Sledges*, when theſe are placed at 13 Feet and a half deep.

The *Tillard* is regulated for its Thickneſs and Length, by the Bars of the *Stem* Inſide; and the Bars of the *Counter-Buttock*, are one Third leſs thick than the *Tillard*. The Stays muſt have half of the Thickneſs of the *Stem*; and the Side-Planks one Quarter of that of the *Stem*. The *Ribs* muſt have three Quarters of the Thickneſs of the *Stem*; the *Knees* half thereof at the Flowers, the ſecond *Tranſoms*, two Fifths; the *Tranſoms* of *Migrenier*, the *Porques* a Fourth; and the *Carline* two Thirds. The *Ribs* muſt be in Thickneſs two Inches leſs than the *Stem*, half at the Baloire, and two Thirds at the *Lats* of the *Gabarit*. The Tranſoms of the Stem muſt be placed as high above the *Tillard*, as the Stem is long. Sometimes the Side-Planks are made a little thicker than a Quarter of the *Stem*; and the *Tillard* is made as long as the Taffarel is broad; and the Side-Planks have a

Quarter

Quarter of the Thickness of the Stem.

The lower *Præcinte* must have half the Thickness of the Stem, and the whole Thickness thereof for its Length. The *Præcintes* above it have a little less. But when Ships are 170, or 180 Feet in Length, *i. e.* from the Main-Stem to the Stern, the upper *Præcintes* must be 2 Inches less thick than the lower.

The *Buttocks* of the first *Deck* must have two Thirds of the Thickness of the Main-Stem; and those of the upper Deck one Fourth only.

The *Buttocks* of the uppermost Part of the Stern, must have a Third of the Thickness of the Stern; and the *Scoper-Holes*, one Fourth thereof Inside. In large Ships we see sometimes flying Decks of *Gratings*, placed before the *Dunette*, and which may be taken off at Pleasure.

The *Pillars* of the *Bits*, and the *Bolster*, must be one Third thicker than the Stem; but the Head of the *Bolster* must be half thicker.

The great *Chain-Walles* must have in Length one eighth Part of that of the Ship, and of Thickness one Third of that of the Main-Stem. The *Chain-Walles* of the *Fore-Mast* must be a little shorter, thinner, and narrower than those of the *Main-Mast*. The *Chain-Wales* of the *Mizen-Mast* must have but one Third of the Length of those of the Main-Mast; but they are to be as thick as those of the Fore-Mast.

The *Hiloires* of the *Hatches*, must be in Thickness one Third of that of the Main-Stem; the Frame which is Inside must have a fifth Part of the Thickness of the said same Main-Stem, the *Malsolles* a Fourth, and the *Bolster* a Third; but the whole must be less in the other smaller Hatches.

For every 10 Feet of the Length of the Ship, one must give two Inches and a half of Thickness to the *Capston* a-top, the *Spindles* must have in Length half the Height of the Head of the *Capston*; and the Holes a sixth Part of Thickness thereof in Diameter.

The Height between Decks is divided into three Parts, one Part whereof is above the Port-Holes, and the other underneath.

In dividing the Ship into five Parts and a half, the Mizen-Mast is placed at the End of the first Part, coming forward; the Main-Mast at the End of the third Part, and the Fore-Mast at the fifth Part. The Main-Mast is made shelving in the Hole, one Foot and eight Inches for every ten Feet of the whole Length of the Ship; to the Fore-Mast two Inches only, or it is even placed quite upright; and to the Mizen-Mast an Inch, likewise for every ten Feet of Height.

Four Inches Breadth are given to the *Rudder*, for every 12 Feet of the Length of the Ship; as for its Height it must be proportioned to that of the Stern-Post.

The Pegs are an Inch thick, for every hundred Feet the Ship has in Length, and a little less is given to the Iron Pegs. The Nails are once longer than the Boards are thick.

Note, That this is what I have judged necessary, to propose for the Construction of Ships, with regard to the Bigness and Measure which has been established, in which I have endeavoured to follow the Thoughts and Rules of the best Masters. As to what relates to the *Futtocks*, &c. of the Parts and Members of a Ship, such as the *Dunettes Transoms*, it is not possible to prescribe sure Rules, because those Pieces change according to the Use one designs to make of the Ships; but however, the Diminutions must be made slowly, and with Caution.

Note, also, That when the Shell or Body of the Ship, the Measure, and Proportions above described are perfected, one passes to the making thereof, for which I have marked the Places in the Description I have given of the *Carlines*; therefore it remains only to regulate here the Thickness, Height, and Length of the Masts.

The Length of the *Main-Mast* is found by taking twice the Depth and Breadth of the Ship joined together. Therefore when the Ship has 12 Feet in Depth, and 29 in Breadth, which make together 41 Feet, the double make 82 Feet, which must be the Height of the *Main-Mast*. Its Thickness is regulated by the Depth of the Ship, every six Feet of Depth giving it a Foot of Diameter. At the *Cap* it must have three Quarters of the Thickness it has in the *Etambrie*.

The five Sixths of the Thickness of a Mast, must make the Thickness of a *Top-Mast* in the *Chouquet*.

The Length of the *Fore-Mast* be seven Eighths of that of the *Main-Mast*, and that of its *Top-Mast* proportioned to it.

The Length of the *Mizen-Mast* must be six Sevenths of that of the *Fore-Mast*; and that of its *Top-Mast* in Proportion.

The Length of the *Main-Yard*, must be twice the Breadth, and once the Depth of the Ship joined together.

The *Yard* of the Fore-Mast, must be a Seventh less than the *Main-Yard*.

The *Yard* of the Mizen-Mast, must be one Foot or two longer than its Mast.

The Thickness of the *Yards*, must be a little less than a Quarter of the Mast for which they are designed.

The Mast of the *Boltsprit*, must be a little shorter than the Mizen-Mast.

The Yard of the *Boltsprit*, must be one Quarter shorter than the *Boltsprit*.

The *Yard* of the Main-Top-Mast, must be full half shorter than the Main-Yard.

The Yard of the Fore-Top-Mast, must be scarce half shorter than the Mizen-Yard.

The *Yard* of the Top-Gallant of the Boltsprit, must be one Third of the Length of the Boltsprit.

But the *Top-Gallant* of the Boltsprit, must have one Foot or two more in Length, than one Third of the Length of the Boltsprit.

The Length of the *Mizen-Top-Gallant*, must be one Third of that of the Main-Top-Gallant, or a little more.

The *Fore-Top-Gallant*, must be one Ninth shorter than the Main-Top-Gallant. The *Caps* of the Masts are octagones, and a little thicker than the Masts, because of the *Cordage* which run through.

The *Scuttles* of the Masts are variously regulated, according to the Taste and Experience of the Masters. But in general, for every ten Feet of the Length of the Ship, one gives nine Inches Breadth to the Main-Scuttle, and the others are proportioned to it.

Note, That when the *Ship* is fitted with all its Masts, and their Appurtenances; then it must be rigged with all its Cordages, to which the following Table will be of Use. In it are seen the Bigness and Diameter of all the principal Tacklings in Proportion to the Masts they are to be appropriated; and first, that of the Cables.

Weight of Cables *of a hundred Fathoms.*

	Inches				Inches		
A Cable of	4	weighs	325	A Cable of	11	weighs	2150
	4½	—	400		11½	—	2325
	5	—	490		12	—	2580
	5½	—	458		12½	—	2750
	6	—	680		13	—	3000
	6½	—	800		13½	—	3250
	7	—	330		14	—	3500
	7½	—	1060		14½	—	3800
	8	—	1200		15	—	3900
	8	—	1340		16	—	5332
	9	—	1490		17	—	5900
	9½	—	1640		18	—	6600
	10	—	1800		19	—	7000
	10½	—	1970		20	—	8000
					21	—	9000

Note, That here follows a List of the Length and Breadth of some Ships, and of the Length and Thickness of the Masts, and of their Tacklings.

Ships of 142 *Feet in Length, and* 37 *broad,*

The Length of the Main-Mast -	88	Diam.	22
of the Fore-Mast	78		19
of the Boltsprit - -	52		20
of the Mizen-Mast -	69		14
of the Main-Top-Mast	50		15½
of the Fore-Top-Mast	46		12
of the Mizen-Yard -	74		10
			13

The Length of Mizzen-Top Gallant,	28	Diam.	6
of the Main-Top Gallant,	25		6
of the Fore-Top Gallant,	21		5
of the Top Gallant of the Bowsprit,	18		6
Yards.			
The Main-Yard, Feet long,	28		15
—— of the Fore-Mast,	24		13
—— of the Bowsprit,	17		8¼
—— of the Main-Top-Mast,	15		8¼
—— of the Fore-Top-Mast,	13		8
—— of the Top-Gallant of the Bowsprit,	10		4¾
—— of the Main-Top Gallant,	9		4¼
—— of the Fore-Top Gallant,	7½		3¾
Riggings or *Cordages of the Main-Mast.*		*Inches*	*Fath.*
Stay,	15		18
Shrowds,	7½		18
Lanniards,	7½		10
Halyard,	8		29
Tacks,	7½		22
Sheets,	4½		39
Lifts,	9		29
Runners and Tackles,	9		37
Leach-Lines,	26	*Threads*	50
Bowlines,	16		14
Braces,	8		35
Buntlines,	8		28
Foremast.		*Inches*	
Stay,	12		13
Shrowds,	7		
Lanniards,	7		9
Tacks,	7		20
Sheets,	4		37
Runner and Tackles,	9		37
Lifts,	8		27
Halyard,	7½	*Threads*	27
Leach-Lines,	24		40
Bowlines,	14		20
Braces,	7		25
Buntlines,	7		27
Mizen-Mast.			
Stay,	26		12
Shrowds,	4½		12
Brayles of the Top Gallant,	11		36
Sheet,	10		25
Runner of Armour,	21	*Threads*	9
Lifts,	21		12
Bowsprit.		*Inches*	
Halyard,	4½		7
Clew-Line of the Top-Gallant,	6		14
Sheets,	7		18
Braces,	5		19
Halyards,	6		22
Buntlines,	5		11
Main-Top-Mast.			
Shrowds,	4½		
Tackles,	4½	*Inches*	
Halyard,	5½		9
Stay,	26		22
Sheets,	6		32
Clew-Line	9		57
Bowlines,	10		23
Buntlines,	7		40
Fore-Top-Mast.		*Inches*	
Shrowds,	4		
Tackles,	4		
Halyard,	5		7
Stay,	16		14
Lifts,	5		28
Sheets,	33		24
Clew-Line	7		38
Buntlines,	6		37
Braces,	21	*Threads*	27
Bowlines,	21		30

Note, That here follows another Manner of Rigging a Ship of 123 Feet in Length, and 28 in Breadth.

Rigging of the Top-Gallant of the Bowsprit.

	Fath.
The Halyard must have in Length,	3
The Lifts,	8
The Braces,	18
The Clew-Line,	16
The Buntlines,	18
The Sheet,	18

The Tackles of the Sprit-Sail.

	Fath.
The Buntlines,	18
The Braces,	18
The Lifts of the Middle of the Yard,	3
The Sheet,	16
The Halyard,	6
The Safeguard of the Bowsprit,	6
The Crane-Line,	18

Tackles of the Fore-Top Gallant.

	Fath.
The Stay,	18
The Braces,	30
The Lifts,	10
The Buntlines,	22
The Bowlines,	24
The Clew-Line,	28
The Halyard,	3
The Sheets,	24

The Tackles of the Fore-Top Mast.

	Fath.
The Stay,	15
The Runner and Tackles,	8
The Lifts,	28
The Halyard,	7
The Braces,	30
The Bowlines,	30
The Buntlines,	32
The Clew-Line,	30

Tackles of the Fore-Mast.

	Fath.
The Stay,	12
The Runner and Tackles,	12
The Lifts,	28
The Braces,	20
The Buntlines,	24
The Tacks,	14
The Bowlines,	15
The Sheets,	36
The Halyard	14
The Clew-Line,	35
The Lanniard,	5

Tackles of the Main-Top Gallant.

	Fath.
The Stay,	20
The Lifts,	10
The Halyard,	4
The Clew-Line,	30
The Braces,	32
The Buntlines,	25
The Bowlines,	30

Tackles of the Main-Top Mast.

	Fath.
The Stay,	21
The Lifts,	29
The Braces,	30
The Buntlines,	33
The Bowlines,	34
The Halyard,	8
The Clew-Line,	34
The Stay Runner,	18

The Tackling of the Main-Mast.

	Fath.
The Stay,	16
The Stay Runner,	16
The Lifts,	29
The Braces,	30
The Sheets,	30
The Tacks,	16
The great Bowline,	24
The Halyard,	24
The Clew-Line,	38
The Buntline,	26
The Lanniard,	6

The Tackling of the Mizzen-Top Gallant.

	Fath.
The Running Stay,	10
The Halyard,	4
The Lifts,	10
The Sheets,	12
The Buntlines,	15
The Bowlines,	16
The Braces,	11

The Tackling of the Mizzen Mast.

	Fath.
The Stay,	10
The Halyard,	8
The Clew-Line,	28
The Sheet,	16
The Buntlines,	20
The Bowlines,	18
The Lifts,	5

Note again, That here follows another Manner of cutting the Tackling, and of regulating their Proportions.

To this Effect, one must take a Line and make an oilet Hole at one End thereof, and turn it round the *Top* of the Mast, then bring the Line downwards, as far as the *Chain Wall*, to the *Ram's-block*, which is the first in order in coming towards the Stern; and take the Measure at its Iron Hoop, or at its Middle, according to the Length the Shrowds must have when they are stretched out, which is tried in this Manner: One cuts with a Hatchet a small End of the Shrowd, if it be of several Cords, and stretches it with Violence; then he carries the Line to it, takes Measure for all the Shrowds, from the first to the last; and each Time ties a Knot to the Line. When he has thus taken the Measure, he goes on Deck, where he thrusts a Splicing-Iron, from which drawing and measuring the Line, chalking every Knot: This done, he takes the Cordage, puts an End of it to the Splicing-Iron, and then cuts it at each Mark. Afterwards each Shrowd is placed separate from each other, round the Splicing-Iron. And in the same Order they are

are to be placed round the Cap of the Maſt. Then the oilet Hole of the Line is meaſured on the Marks, and in cutting each Shrowd a Mark is made to it for the oilet Hole; and by that Means one has the Meaſures for all the oilet Holes. This done, each Shrowd is thruſt under the oilet Hole, as far as the Place where they can touch one another. To *capelate* of the Lanniard muſt be placed firſt, then the Shrowds, and a-top the Pulley of the Lifts, then the Stay.

Another Manner of cutting the Shrowds.

The Height of the Maſt muſt be taken with a Line from the Bars of the *Scuttle*, as far as to the Etambraie, and join to it one Twelfth of the Space which is between the Middle of the Etambraie, and the Girt; theſe two Meaſures being put together, will make the Length of the Shrowds. Adding to it afterwards the Thickneſs of the Ton of the Maſt, and thruſting a Bodkin on the Deck, to meaſure in a ſtrait Line the Length of the Rope taken on the three Meaſures joined together; cutting afterwards on that Meaſure, one over another, of an equal Length at Bottom.

Note, That the *Main-Stay*, and the *Stays* of the Fore and Mizen-Maſts, are cut as follows.

To cut the great Stay, we muſt take a Line and make an End thereof run a-top, round the Bar of the Main-Scuttle; then take underneath the Meaſure of the Diameter of the Main-Maſt, and let the other End come down as far as the great Etambraie, which is the juſt Meaſure for the Length, and for the oilet-Hole.

The *Stay* of the Fore-Maſt is cut, by taking with a Line the Length of the *Scuttle-Bar*, and the whole Diameter of the Maſt, bringing the Line afterwards as far as the Boltſprit, or the Collar of the Main-Maſt.

To *cut the Shrouds of the Top-Maſt*. The Length of the *Shrowds* of the Main-Top-Maſt, is found by taking the Meaſure of the Scuttle-Bar, from the Mortiſe of the ſaid Maſt, and joining to it the Diameter of the Ton; following for the reſt the Directions given for the *Main-Shrowds*, whereby one will have the Meaſure for the oillet-Hole, and to Belage. The ſame muſt be obſerved with regard to the two *Top-Gallants*, and thoſe of Mizen and Boltſprit.

To *cut the Stay of the Main-Top-Maſt*. One muſt take Meaſure from the Main Bar of the *Scuttle*, to the Scuttle of the Fore-Maſt. For the *Stay* of the Fore-Top-Maſt, the Meaſure muſt be taken from the Bar of the Scuttle of that Maſt to the Deck, and join to it 3, 4, or 5 Fathoms, according to the Bigneſs of the Ship; and thus will be found the Length of the Stay, and what's neceſſary to faſten it.

To *cut the Tackles*. One takes the Meaſure of the Bar of the Scuttle down to the Bottom, round the Ram's Block of the *Lanniards*, i. e. of that which is more towards the Stern; and they are cut in the ſame Manner of the Shrowds.

To *cut the Clew Lines*, their Length is taken from the Scuttle Bar down to the Deck; and that Length is doubled as many Times, as there are Spindle-Wheels, upon which the Clew Line runs.

To *cut the Halyards*; when they paſs through Pulleys of Return, their Meaſure muſt be taken twice from the Cap of the Maſt to the Deck, which gives juſtly their Length. But when they muſt paſs through the *Chouquet*, they ought to have four Fathoms more. The *Halyards* of the Top-Maſts are made of the Length of the Maſt.

To *cut the Runners* and *their Tackles*, they muſt have in Length as many Fathoms as the Ship is broad; and their Tackles, for the Veſſels which have 30 Feet of Midſhip, muſt be of 10 Fathoms. Thoſe for Veſſels of 25 Feet of Midſhip, muſt have 9 Fathoms; and thoſe for Veſſels which have 20 Feet of Midſhip, 8 Fathoms.

To *cut the Tackle of the Sprit-Sail*. The Braces muſt have twice and a half the Length of the Yard; and a Fathom of Lifting.

The *Crane Line* muſt have twice and a half the Length of the Yard.

The *Buntlines* $2\frac{1}{2}$ the Length of the Yard, and a Fathom of Lifting.

The *Clew-Line* $1\frac{1}{2}$ the Length of the Yard.
The *Sheets* 3 times the Length of the Yard.
The *Lifts* twice the Length of the Yard.
The *Halyard* $\frac{4}{5}$ of the Length of the Yard.

The Tackling of the Top-Gallant of the Boſſprit.

The *Stay* $\frac{4}{5}$ of the Length of the Top-Gallant.
The *Clewline* $\frac{4}{5}$ of the Length of the Top-Gallant.
The *Buntlines* $4\frac{2}{5}$ of the Length of the Yard.
The *Lifts* 5 times the Length of the Yard.

The Tackling of the Fore-Top Maſt.

The *Clewline* 5 times the Length of the Fore-Top Maſt, and 2 Fathoms of Lifting.

The *Buntlines* 6 times the Length of the Yard, and 2 Fathoms of Lifting.

The *Bowline* 5 times the Length of the Yard.

The *Halyard* the Length of the Yard.

The *Lifts* 5 times the Length of the Yard, 2 Fathoms leſs.

The *Braces* $4\frac{1}{2}$ the Length of the Yard.

The Tackling of the Fore-Maſt.

The *Clewline* 4 times the Length of the Fore-Maſt, 4 Fathoms of Lifting.

The *Halyards* 3 times the Length of the ſame Maſt.

The *Runner* 4 times the Length of the Maſt, 2 Fathoms leſs.

The *Buntlines* $2\frac{1}{2}$ the Length of the Yard, and 3 Fathoms of Lifting.

The *Braces* twice the Length of the Yard, and 3 Fathoms of Lifting.

The *Bowlines* twice the Length of the Yard, 1 or 2 Fathoms leſs.

The *Tacks* twice the Length of the Yard, 1 or 2 Fathoms leſs.

The *Sheets* 3 times the Length of the Yard, 2 Fathoms leſs.

The Tackling of the Main-Top Maſt.

The *Clewline* 5 times the Length of the Main-Top Maſt, two Fathoms leſs for a ſingle Pully.

The *Lifts* 4 times the Length of the ſame Maſt, 4 Fathoms leſs.

The *Tackles* 4 times the Length of the ſame Maſt, 4 Fathoms leſs.

The *Halyards* once the Length of the ſame Maſt.

The *Braces* 4 times the Length of the Yard of the Main-Top Maſt, and 2 Fathoms lifting.

The *Bowlines* 3 times the Length of the Yard.

The *Buntlines* 5 times the Length of the Main-Top Maſt, and 5 Fathoms lifting.

For the Main-Maſt.

The *Clewline* 5 times the Length of the Maſt, 2 Fathoms leſs.

The *Halyard* 3 times the Length of the Maſt, 2 Fathoms leſs.

The *Runners* 3 times the Length of the Maſt, and 7 Fathoms more.

The *Lifts* twice the Length of the Maſt, and 2 Fathoms of Lifting.

The *Tacks* twice the Length of the Yard, and 1 Fathom of Lifting.

The *Bowlines* twice the Length of the Yard, and 1 Fathom of Lifting.

The *Braces* twice the Length of the Yard, and 1 Fathom of Lifting.

The *Sheets* 3 times the Length of the Yard.

The *Sheets* of the Main-Top Maſt, twice the Length of the Yard.

For the Mizen-Maſt and Mizen-Top Gallant.

The *Sheets* twice the Length of the Yard.

The *Clewline* $3\frac{1}{2}$ the Length of the Yard.

The *Sheets* of the Top-Gallant, $2\frac{1}{2}$ the Length of the Yard of

The *Clewlines* and *Buntlines* $4\frac{1}{2}$ the Length of the Mizen-Top Gallant.

The *Lifts* $3\frac{1}{2}$ the Length of the Top-Gallant Yard.

The *Bowlines* $4\frac{1}{2}$ the Length of the Top Gallant Yard.

The *Braces* $6\frac{1}{2}$ the Length of the Yard of the Top Mizen Gallant.

Note, That to cut the Cords which edge the Sails at Bottom, called *Rabans* in *French*, one muſt take three Times the Diameter of the Yard inſide the Pully, of the Sheets of the Top-Maſt, and then cut each Cord on the Bottom of the Sail, at the Length of thoſe three Diameters, adding that of an Inch Breadth to it.

Note alſo, That to fix the Bowſprit, the Collar of the Stay muſt be paſſed into it, at one Third of its Length, taken from its upper End, and place the Clump of the Boltſprit half a Foot lower; and the Block of the Stay of the Top-Gallant at half the Length from the Clump to the upper End; and the *Ox-Eye* one Foot above the Collar of the Stay; and the Pulley of the Crane-Line five Foot lower than the Collar.

To divide a *Yard*, it muſt be firſt divided into two Parts, and the Pulley of the Halliard, or Clew-Line placed in the Middle; dividing it afterwards into three, fixing the Buntlines to it, and between two (at all the Yards) the Pulleys of the Buntlines.

The *Yard* of the Sprit-Sail ought to be divided in two, and the Halyard placed in the Middle. Then each half is again divided in two other Parts, placing in the Middle of each Part the Pulleys of the Cranelines: The Pulleys of the Buntlines are between theſe laſt and the Middle of the *Yard*.

The *Mizen-Yard*, is divided into as many Parts, as one deſires to fix Pulleys to it.

To *rig the Boltſprit*, one begins by the Stay of the Top-Maſt, then the *Trelingare*, which is faſtened on the *Stay* of the *Main-Top-Maſt*, the *Shrowd*, and the Strops of the *Lifts*.

To *rig the Main-Top-Gallant*, and *Fore-Top-Gallant*, the *Shrouds* are placed firſt, then the Strops of the *Lifts*, and the *Stay*.

To *rig the Top-Maſts*, the *Back Stays* are placed firſt; then the *Shrowds*, the Pulleys of the Lifts, the Stays; but the *Mogues* are fixed to the Main-Top-Maſt.

To *rig the Fore-Maſt*, one begins by the *Save Rabans*, then the Strap of the Stay of the Top-Maſt, the Clew-Lines, the Straps of the Lifts, and laſtly the Stay. The ſame is obſerved with regard to the Main-Maſt.

To *rig the Mizen-Top-Gallant*, the *Stay* is placed firſt, which is terminated by the *Marticles* of the main *Shrowds*, then the *Shrowds*, and laſtly the *Lifts*.

Note, again, That the Number of all the *Pulleys* wanted for a Ship, is 54 for the *Boltſprit*; 96 for the *Fore-Maſt*; 116 for the *Main-Maſt*; 44 for the *Mizen-Maſt*: Beſides which are wanted 166 Rams-Blocks.

Note, beſides, that having thus far rigged our Ship, we'll paſs to the finding out the Thickneſs and Weight of the biggeſt Ropes: Therefore,

The *Thickneſs* of the *Sheet-Anchor*, muſt be of as many Inches as there are Feet, in half the Breadth of the Ship. In Merchantmen, the *Common Anchor* is a little leſs in Thickneſs than the *Sheet-Anchor*.

To find how many Threads are wanted for the Thickneſs of a Cordage, one muſt know firſt how many Inches it has in Circumference, and number the Threads, and the Cube of the *Cordage* will contain the Number of its Threads. For Inſtance,

A *Cordage* of 5 Inches of Circumference contains 48 Threads; we will know the Number of the Threads of a *Cordage*, which is four Inches thick in Circumference.

Inches.	*Threads.*	*Inches.*		
3	48	4	4 (3	85 *Threads.*
3	16	4	768	
			99	
9	768	16		

Therefore a Cordage of 4 Inches contains 85 Threads.

Note, That the *Threads* muſt be of an equal Bigneſs, and the Cordage equally tight; for a very tight Rope takes more *Threads*.

To *find the Weight of Cables of* 120 *Fathoms*, it has been found that every Thread of ſuch a Cable weighs about 4 *lb.* Therefore the *Threads* muſt be multiplied by 4, whereby the Weight of ſuch a *Cable* is found; which is very clearly demonſtrated in the following Table.

TABLE *of the Thickneſs of the Threads, and of the Weight of Cables.*

Thickneſs. Inches.	*Threads.*	*Weight. Pounds.*	*Thickneſs. Inches.*	*Threads.*	*Weight. Pounds.*
3	48	192	13	821	3284
4	77	308	14	952	3808
5	121	484	15	1093	4372
6	174	696	16	1244	4976
7	238	952	17	1404	5616
8	311	1244	18	1574	6296
9	393	1572	19	1754	7016
10	485	1940	20	1943	7772
11	598	2392	21	2144	8576
12	699	2796	22	2352	9408

In the firſt Column of this Table is ſeen the Thickneſs of the *Cables*; in the ſecond Column the Number of Threads; and in the third, the Weight of the *Cables*.

Note, That the next Table is to find the Meaſure of the *Anchors*, and of the *Cables* by the Bigneſs of the Ships, to which they muſt ſerve.

Bigneſs of the Ships by Feet.	*Length of the Anchor by Feet.*	*Weight of the Anchor by Pounds.*	*Thickneſs of the Cables by Inches.*
8	$3\frac{1}{5}$	33	4
9	$3\frac{2}{5}$	47	$4\frac{1}{2}$
10	4	64	5
11	$4\frac{2}{5}$	84	$5\frac{1}{2}$
12	$4\frac{4}{5}$	110	6
13	$5\frac{1}{5}$	140	$6\frac{1}{2}$
14	6	175	7
15	$6\frac{2}{5}$	216	$7\frac{1}{2}$
16	$6\frac{4}{5}$	262	8
17	$7\frac{1}{5}$	314	$8\frac{1}{2}$
18	$7\frac{3}{5}$	373	9
19	8	439	$9\frac{1}{2}$
20	$8\frac{2}{5}$	512	10
21	$8\frac{4}{5}$	592	$10\frac{1}{2}$
22	$9\frac{1}{5}$	681	11
23	$9\frac{3}{5}$	779	$11\frac{1}{2}$
24	10	884	12
25	$10\frac{2}{5}$	1000	$12\frac{1}{2}$
26	$10\frac{4}{5}$	1124	13
27	$11\frac{1}{5}$	1259	$13\frac{1}{2}$
28	$11\frac{3}{5}$	1405	14
29	12	1562	$14\frac{1}{2}$
30	12	1662	15
31	$12\frac{2}{5}$	728	$15\frac{1}{2}$
32	$12\frac{4}{5}$	996	16
33	$13\frac{1}{5}$	297	$16\frac{1}{2}$
34	$13\frac{3}{5}$	2300	17
35	14	2515	$17\frac{1}{2}$
36	$14\frac{2}{5}$	2742	18
37	$14\frac{4}{5}$	2986	$18\frac{1}{2}$
38	$15\frac{1}{5}$	3242	19
39	$15\frac{3}{5}$	3512	$19\frac{1}{2}$
40	$15\frac{1}{5}$	3796	20
41	$15\frac{3}{5}$	4096	$20\frac{1}{2}$
42	16	4426	21
43	$16\frac{2}{5}$	4742	$21\frac{1}{2}$
44	$17\frac{1}{5}$	5088	22
45	18	5451	$22\frac{1}{2}$

Note, That having thus far fitted our Ship with its Cordage, Tackles, *&c.* we'll proceed to rig it with its different Sails, which are one of its principal Implements, ſince without them it would prove almoſt entirely uſeleſs.

A SAIL, is an Aſſemblage of ſeveral Breadths of Canvaſs, or ſtrong hempen Cloth, ſewed together by the Lifts, and edged round with a Cord, faſtened to the Yards and Cords of a Veſſel to make it drive before the Wind which bears thereupon.

The Meaſure of *Sails* is very unequal: Their Breadths muſt be equal to the Lengths of the Veſſels for which they are deſigned; the one muſt be more ſlack, and the other more tight: Which Diſpoſitions depend on the Taſte and Judgment of the Maſters. But to give, at leaſt in general, ſome Rules for their Meaſure, I ſay, that the Length of the Yards to which they are to be faſtened

faſtened muſt be taken, joining that Length, which muſt make the Breadth of the upper Part of the *Sail*, with the Breadth of the lower Part; and half of both Breadths joined together, being multiplied with the Height, one finds thereby what the *Sail* muſt contain; provided the Length of the Yards be meaſured by the Breadth of the Canvas the Sail is to be made of.

There are two Kinds of *Sails*, the one ſquare, generally uſed in high-bottom'd Veſſels. This has various Names, according to the various Maſts it is faſtened to; as the *Main-Sail*, *Fore-Sail*, *Mizzen-Sail*, the *Sprit-Sail*, &c.

The others are triangular, called *Smack-Sails*, and by ſome *Latin-Sail*, becauſe chiefly uſed in *Italy*, and in flat-bottom'd Veſſels; though they are alſo uſed on the Mizzen-Maſts and Stays of other Veſſels. They need but few Ropes, and little Wind; but are dangerous, and not to be uſed in foul Weather.

There are ordinarily 10 *Sails* in large Veſſels, *viz.* 1. The *Main-Sail*, or loweſt of the Main-Maſt. 2. The *Fore-Sail*, or loweſt of the Fore-Maſt. 3. The *Main-Top-Sail*, which is the ſecond *Sail* of the Main-Maſt, reckoning at the Bottom. 4. The *Fore-Top-Sail*. 5. The *Sprit-Sail*, or *Sail* of the Bowſprit. 6. The *Top-Gallant* of the Bowſprit. 7. The *Mizzen-Sail*. 8. The *Mizzen-Top-Sail*. 9. The *Main-Top-Gallant*. 10 The *Fore-Top-Gallant*. The *Stay-Sails*, the *Bonnets*, and the *Caſe-Sails*, laced to the other *Sails* to ſail faſter.

The *Main-Sail* has in Breadth 23 Gatherings of *Dutch* Canvas, and 14 Yards in Height; and the *Net-marſhed Bonnet* is 3½ Yards long, and 23 Gatherings broad. The *Fore-Sail* has 20 Gatherings in Breadth, and 11½ Yards in Height. The *Bonnet* 3 Yards. The *Main-Top-Sail* has 22 Gatherings downwards, and 14 Gatherings a-top, 15½ Yards in Breadth, and 18 Yards in Height. The *Fore-Top-Sail* has downwards 19 Gatherings, and 12 a-top, and 14½ Yards in Height. The *Sprit-Sail* has 14 Gatherings in Breadth, and 8½ Yards in Height. The *Mizzen-Sail* has 16 Gatherings downwards, and 19 Yards of Height backwards: The *Bonnet* 1½ Gathering, and 26 Yards at the Head. The *Net-maſhed Bonnet* has 2½ Yards in Height, and 16 Gatherings in Breadth a-top, and 17½ Gatherings downwards. The *Sail of the Main-Stay* is 15 Yards long, and 13 Gatherings broad. The *Sail* of the Mizzen-Stay, has in Height 13½ Yards, and 12 Gatherings in Breadth. And the *Sail* of the Stay of the Mizzen-Top Gallant, is likewiſe of the ſame Proportion with that above-mentioned. The *Sail* of the Stay of the Main-Top Maſt has 10½ Yards in Height, and 6 Gatherings at the Head. The *Sail* of the Top-Gallant of the Bowſprit, has 14½ Yards at Bottom, 9½ at the Head, and 10 Yards in Height. The *Sail* of the Mizzen-Top, has at Bottom 13½ Gatherings, 8 at the Head, and 9 Yards in Height. The *Sail* of the Main-Top Gallant has its upper Part equal to its lower. The *Sail* of the Fore-Top Gallant, has downwards 12, upwards 8, and in Height 7½ Yards of *Dutch* Canvas; which makes in all 1626 Yards, 368 Yards of the ſecond Cloth of *Noail*, and 146 Yards of *Flemiſh* Cloth.

For the *Meaſures* and *Proportions* of the *Anchors* and *Cables*, we muſt take with a Compaſs twice the Thickneſs of the Yard of the *Anchor* to find its Breadth; then we'll double the Inches which the Thickneſs gives, and give to the Length as many Feet, as there are Inches in that Thickneſs doubled, and an Inch beſides above every Foot. For Inſtance, the Meaſure of the Thickneſs being 6 Inches by the Compaſs, that makes 12 Foot for the Yard, and by adding 13 Inches to it, the whole together make 13 Foot 1 Inch. Under 1000 Pounds, one muſt, *i. e.* for the Length of the Yard, add 2 Inches for each Foot, inſtead of 1, which has been marked above; and under 5000 Pounds take three Times the Thickneſs to give the Length. Thus when there are two Inches and a half of Thickneſs, the Length muſt be 7½ Foot, half whereof, which is 3¾, 1 being taken for 100 Pounds, the Weight of the *Anchor* will be 3.

For the Thickneſs of the Cables in Proportion to the Weight of the Anchors. We muſt obſerve in the two following Tables, each whereof conſiſts of 12 Articles, that each Article of the firſt muſt anſwer to the ſame Article in the ſecond. For Inſtance, in taking in the firſt Article of the firſt Table, a Cable of 20 Inches, you'll find in the ſecond Table, at the firſt Article, the ſecond Line, a common *Anchor* of 56 hundred and one fourth Weight; which is the Proportion of the *Anchor* for a *Cable* of 20 Inches, of the firſt Article of the firſt Table; and thus of all the reſt.

First TABLE.

1.	*Inch.*	2.	*Inch.*	3.	*Inch.*
Cables of	21	Cables of	20	Cables of	17
of	20	of	19	of	16
of	14½	of	13	of	12
of	10	of	9	of	8
of	9	of	8	6.	
4.		5.		Cables of	13
Cables of	12	Cables of	15	of	12
of	16	of	14	7.	
of	11	of	9	Cables of	10
8.		9.		of	9
Cables of	16	Cables of	14	11.	
of	15	of	13	Cables of	8
of	10	of	12½	of	7½
10.		of	12	of	6
Cables of	12	of	8		
of	12	12.			
		Cables of	8		
		of	7		
		of	6		

1.	*lb.*			7.	*lb.*		
Sheet Anchor	60	0	3	Sheet Anchor	22	0	2
Common Anch.	56	0	1	Common Anch.	11	0	0
Stream Anch.	55	0	0	8.			
Kedge Anch.	25	0	0	Sheet Anchor	27	0	0
Grapler	7	0	2	Common Anch.	23	3	5
2.				Stream Anch.	23	0	0
Sheet Anchor	43	0	0	9.			
Common Anch.	40	0	5	Sheet Anchor	18	0	0
Stream Anch.	39	0	3	Common Anch.	17	0	0
Grapler	7	2	0	Stream Anch.	16	0	2
3.				Kedger	4	2	0
Sheet Anchor	35	3	3	Grapler	2	2	0
Common Anch.	34	0	2	10.			
Stream Anch.	31	2	7	Sheet Anchor	11	0	0
Kedger	11	3	5	Common Anch.	10	0	0
4.				11.			
Sheet Anchor	32	0	0	Sheet Anchor	7	0	0
Common Anch.	30	2	2	Common Anch.	6	0	0
Stream Anch.	27	0	0	Stream Anch.	5	2	0
5.				12.			
Sheet Anchor	29	0	0	Sheet Anchor	5	0	2
Common Anch.	25	0	0	Common Anch.	4	0	0
Stream Anch.	23	3	2	Stream Anch.	3	2	3
Kedger	9	0	0				
Grapler	2	2	7				
6.							
Sheet Anchor	28	0	0				
Common Anch.	27	0	0				

The *Sheet-Anchor* is uſed in a Storm; the *Stream-Anchor* daily; and the *Kedger* to tow a Ship.

Note, That though the *Engliſh* follow in the Conſtruction of their Ships or Men of War, the Method of other Nations; or rather the other maritime Nations follow at preſent that of the *Engliſh*; I'll give, notwithſtanding, in the following Table, the Proportion which they obſerve in the Parts named in the following Table.

	Length. *Feet.*	*Diam.*
The *Yard* of the Bowſprit Top Maſt	18	5½
of the Fore Top Gallant	18	5½
of the Main Top Gallant	23	8
of the Mizzen Top Maſt	24	8
The *Maſt* of the Main Top Gallant	28½	10
The *Mizzen Top Maſt* ———	34	10
The *Yard* of the Fore Top Maſt	39	12
of the Main Top Maſt	46	14
of the Mizzen Top Maſt	42	9
The *Mizzen Yard* and *Sail*	73	11
The *Fore Top Maſt* ———	47	17
The *Main Maſt* ———	55	18
The *Mizzen Maſt* ———	66	22

	Length Feet.	Diam.
The *Mizzen Yard*	79	25½
The *Bowsprit*	85	28
The *Main Yard*	93	30
The *Mizzen Mast*	95	31½
The *Main Mast*	107	36

The *English* commonly give of Length to their Main-Mast, three times the four Fifths of the Length of their Ship. All the rest is made likewise in Proportion as the Ship has more or less Length or Breadth; for it is the greater or lesser Breadth of the Vessel, which contributes towards its having a greater or less Volume of Masts and Sails, and to make it take more or less Wind.

The *English* Ships have large and magnificent Galleries, the *Dutch* have but small ones.

Note, That here follows a more exact Description of all the Parts of a Man of War of 155 Foot in Length.

This Length is taken from the Main Stem to the Stern Post. The Ship has 36 Feet of Midship, and 12 Feet of Bottom or Depth at the first Deck, 17 at the second Deck, and 24 at the third Deck, and 3 Feet 6 Inches of Viboard.

The *Keel* is of three Pieces, and the Sides thereof are 10 Feet long, and 4 Inches thick at their Ends: Each of them being joined by 25 Peggs, to each whereof is given an Inch of Diameter, for every hundred Feet the Ship has in Length.

The *Main Stem* measured outside on its Roundness, is 37 Feet 2 Inches long, and at the Square, in the Angle inside, 27 Feet 9 Inches. It has 7 Feet of Curve Line; of Thickness outside, 15 Inches; inside 1 Foot 3 Inches; of Breadth downwards, 3 Feet 9 Inches; by the Middle, 28 Inches; a top 3 Feet 5 Inches.

The *Stern Post* has 22 Feet 3 Inches at the Square; of Thickness inside, 1 Foot 6 Inches; outside a top, 1 Foot 1 Inch, and at Bottom 10 Inches. Its Back is of 7 Feet; it has of Binding inside, 1 Foot 2 Inches.

The *Tillard Transom* is 25 Feet 6 Inches long backwards, and 2 broad; 1 Foot 7 Inches thick in its Middle, and at its Ends 1 Foot 5 Inches.

The *Shores*, or *Supporters*, measured from their lower End outside, from the *Tillard Transom* to their upper End, have 14 Feet 9 Inches; 1 Foot 1 Inch of Thickness, 2 Feet 3 Inches in Breadth in their Middle, and 2 Feet at their End; and 3 Feet in Roundness backward.

The *Counter Transoms* have in Thickness, on the *Stern Post*, 1 Foot 1 Inch, and from the Top downwards 1 Foot 2 Inches; the Uppermost is placed at 2 Feet 2 Inches, under the Tillard Transom; the Port Holes are at 2 Feet Distance from the Stern Post, and are 2 Feet 4 Inches broad; the Futtocks of the Tillar are 8 Inches thick, and the Pieces of Timber put to lengthen the Poop ascend to 27 Feet 6 Inches above the *Tillar's Transom*, and are at 3 Feet 3 Inches Distance from each other a top.

Of the two great *Gabarits*, the first coming from the Prow towards the Poop, is placed at 36 Feet Distance from the *Ecart* of the Main Stem; and the Flowers have 3 Feet 2 Inches at the Square: At half a Foot from the Platform there are 30 Feet in Breadth; and at the Height of 17 Feet, there are likewise 36 Feet in Breadth. The other grand *Gabarit*, is 10 Feet distant from this, towards the Stern; and between both there are six Floor Timbers, each whereof has 9 Inches in Breadth, and are placed at 7 Feet Distance from each other.

The fore Part of the first *Gabarit* forward, is 8 Inches distant from the last *Ecart* of the *Main Stem*; and has 28 Foot in Length.

The last *Gabarit* backwards, is placed at 18 Feet 6 Inches from the Heel of the *Keel*; and is 386 Inches in Length.

The *Ribs* are on the *Keel* 1 Foot thick; in the Floors 10½ Inches; on the Line of the strongest Part, 8 Inches; on the *Transoms* of the *Viboard*, 5 Inches; those of the fore and back Parts are a little thinner.

Each Side of the Ship has been formed on 15 *Transoms* of *Gabarit*, viz. 11 under the Line of the biggest Part, and 4 under it, and one besides for each *Herpe*.

The *Carline* is 1 Foot thick, and 2 Feet 5 Inches long; but is a little thinner and narrower forwards than backwards.

The *Beams* of the first Deck are 1 Foot 3 Inches thick; and 1 Foot broad, a little more or a little less, according as the Wood requires it: They are placed at the great Hatch, at 7 Feet Distance from each other; at 9 Feet above the Bread-Room; and most of the others are 4 Feet 6 Inches distant from one another.

Those of the *second Deck*, are a little stronger, and placed directly above those of the lower Deck, at the Height of 5 Feet in the Middle of the Ship, and of 4 Feet 6 Inches forwards. Those over the Bread Room are placed once nearer each other than those of the lower Deck.

The *Beams* of the upper Deck are 1 Foot 1 Inch broad, some of them a little more, the others less, 10 Inches thick, and 28 Feet long, most of them being 4 Feet 6 Inches distant from one another. The Floor-Timbers of the Fore-Castle, are 8 Inches thick, and 10 long.

The *Floor-Timbers* of the Half-Deck, and of the Captains's Room, are 9 Inches thick, and 1 Foot broad. To measure from over the Deck, and near the Main-Mast: They are placed at the Height of 7 Feet; and at the Height of 7 Feet 6 Inches backwards.

Forwards, where the Bread Room begins, there is a *Cross* to hinder the Fashions from sinking Inside; the Pieces of the Cross are 10 Inches thick length-wise, and 1 Foot 2 Inches cross wise.

The great *Capston*, at that Part which passes on the second Deck, there are 7 Spindles, and only 6 under Deck: Its Thickness at the Head is of 2 Feet 5 Inches at the *Carline* of 1 Foot 7 Inches, on the Dish of 1 Foot 5 Inches; at the Head it is 5 Feet 5 Inches high.

The Head of the little *Capston*, is 1 Foot 6 Inches thick, and 4 Foot 4 Inches high; it has 5 Spindles round it, and turns on a Dish fixed on the Floor-Timbers.

The Heads of the *Pillars* of the *Bits* are 5 Feet 4 Inches high, and 1 Foot 9 Inches thick length-wise of the Ship, and 1 Foot 8 Inches cross-wise. The Bolster is 9 Feet 3 Inches long, and 1 Foot 8 Inches thick square-wise: The Heads are 2 Feet high above the Bolster, which at each End extends two Feet beyond the Pillars, and are lined backwards, with a wash-Board, to preserve the Cable.

The Diameter of the *Hawse-Holes*, is 1 Foot 4 Inches; they are bored at 2 Feet Distance from the *Main Stem*, and at 8 Inches from one another.

The Length of the Captain's Room, taken from the Pieces of Timber which lengthen the Poop inside, is 21 Feet, as well as the Quarter-Deck; and the Length of the Fore Castle is 33 Feet.

The *Cook Room*, which is Starboard, is 9 Feet 6 Inches long, and 4 Feet 2 Inches broad. The hind Part of the Chimney is 4 Feet 5 Inches distant from the Partition of the back Part of the Kitchin; the Iron Bar behind is 21 Feet distant from the Mason Work, and that forward 7 Inches, and 1 Foot above the Pavement: The Funnel for Smoak is 24 Inches broad, lengthwise of the Vessel, and 31 Inches cross-wise.

The *Pit* for the Cables, which is on the second Deck, is of 26 Feet 6 Inches, measuring from the Stem inside.

The *Gun Room* is 27 Feet long, to measure from the *Tillar Transom*.

The *Powder-Room* is 6 Feet high, taking it near the *Carline*.

The *Arch-Pump* has 3 Feet 3 Inches of Diameter, on each Side there is a Bread Room, and a third directly behind. All these Works are made of very dry Boards, and double over one another. Two of the Bread Rooms are lined with Tin.

The *Port-Holes* of the second Deck are bored at 23 Inches under the Binding of the Scupper-Holes, and are from 27 to 28 Inches broad, length-wise of the Ship; those backwards are at 8 Feet 4 Inches Distance from the Shores inside. Most of the others are at about 8 Feet Distance from one another; except those between which is the Kitchin, which are about 4 Feet 6 Inches distant from one another.

There are 3 *Port-Holes* on each Side the Fore-Castle, and

and 2 in the Quarter-Deck; which have in Breadth, length-wise of the Ship, 2 Feet 12 Inches.

The *Main Mast* on the second Deck, is on that Side towards the fore Part of the Ship, a Foot more backward than half the Length of the Ship, measuring from the *Stem* to the *Stern Post*. The *Fore Mast* is placed by the Center of its Diameter, at 12 Feet 7 Inches from the *Stem*, taken Inside. The Middle of the *Carline* of the *Mizzen Mast*, taken on the upper Deck, is at the Distance of 20 Feet 6 Inches from the *Allonges* of the *Poop*, inside.

The *Pumps* are at 34 Feet from the *Stern-Post*, in the lower Part of the *Fashions* aft. They are risen, likewise, 34 Inches above the third Deck. The *Gallows* are risen 21 Inches above the Pumps, and have 14 Inches of jutting out forward.

There is under the *Port Holes*, between Decks, but one Girt, and another Piece which extends inside from the Lining. This Girt is 14 Inches broad, and 8 thick. The Base of the Port-Holes is 42 Inches broad by the Middle of the Ship, but fore and aft is a little narrower; and is 4 Inches thick. The Base under the Transom of the *Viboard*, is 20 Inches broad, and 3 thick. The *Viboard-Transom* is 10 Inches broad, and 6 thick.

The first Side-Plank, above the *Viboard-Transom*, and which joins it backwards, is 14 Inches broad, and 2 thick.

The *Rudder* is 52 Inches broad, downwards, and 26 at the *Jaumiere*; upwards it is 19 Inches thick outside, and 16 inside. The *Helm*, from the Top downwards, 12 Inches, and 11 cross-wise.

The *Bolster* of the Helm is placed 21 Feet distant from the *Bulk-Head*, measuring from over the Tillard Transom: It has 9 Inches square-wise, and in its Length 18 Feet, which is between the Peggs, and supports the Helm in its Motion, it is arched of 4 Inches.

The *Whip-Staff* is 12 Feet 3 Inches long, exclusive of the Ring.

The *Main Bittacle* is 6 Feet 6 Inches long, 5 Feet broad, and 16 Inches in the Intervals, it being divided into five. The little *Bittacle* is 3 Feet 6 Inches long, 3 Feet 4 Inches in Height, and 13 Inches in the Spaces; it is likewise divided into three Partitions or Windows.

The *Architrave*, which is over the Tillar Transom, is 18 Inches broad in its Middle, 16 Inches at each End, and 5 Inches thick. It juts out 5 Feet 6 Inches behind the *Allonges* of the Poop, and is, by its Middle, 10 Inches above the Side Planks of the upper Deck, which terminate to it: It is supported by 14 upright Beams reverse-wise, which are 8 Inches broad, and 6 thick. The two of the Middle, between which the Helm passes when it plays, are 32 Inches distant from one another. There is a good Plank of Oak on the Bulk Head, and is lined with Planks two Inches thick.

The *Freeze* which is over the *Architrave* is 3 Inches and a half thick, and juts out 4 Inches a top, being nailed at Bottom to the Architrave; it passes likewise, by 11 Inches on the Sides beyond the Side Planks; on which Sides the Foot of the Gallery is joined.

The *Simatium*, which is over the Windows of the Gallery, is inside, at 7 Feet of the hind Part of the Boards which lengthen the Poop; and to measure from the Top of the Freeze, which is over the Architrave, slanting, as far as the Top of the *Simatium*; this is found placed 6 Feet 4 Inches above the other, having for its Middle 15 Inches in Breadth, and 18 at its Ends, and as much arching as the Architrave underneath: Its Thickness, which is 4 Inches and a half, re-enters inwards, of an Inch and a half round the Posts of the Gallery. The other Freeze, which is 2 Inches thick, is a-top, and in its Middle 36 Inches above the lower Freeze, and the Transom a top juts backward 12 Inches beyond the Planks.

The *Leat* or *Support* of the Gallery is 10 Feet long; it has inside 7 Buttocks, 6 Inches broad, and 5 thick; and as many under the Covert. It juts out 36 Inches beyond the Pieces of Timber which lengthen the Poop, towards the Body of the Ship. The *Pediment* of the Gallery is placed 39 Inches forward, on the back Side of the *Allonges*; the Plank which is placed upright, and adorn'd with Relievo's on the Side of the Gallery, is 18 Inches broad backwards, and 13 forwards. The *Posts* with their Figures and Ornaments are 12 Feet broad, and as much Thickness as the Relievo's will allow it.

Note, That here follows some very useful Maxims for the Construction of Vessels that they may sail well.

The *Main Stem* is a principal Piece on which most of the other most principal Members of a Ship are proportion'd; a Method which Experience has discover'd far the best of all; and in fact it is the most commonly followed, tho' some other Members may be equally taken for Foundation, in which the Ship-builder can very well succeed, if he adds to it the Proportions. The *Stem* must be made round outside, to break the Strength of the Sea. The modern Method is to put towards the Bottom of the *Stem*, inside, beginning at its *Escart*, and then going upwards, strong Pieces, *Guerlands* and others, which are joined together with the *Stem* and other Members in the Cheeks, which strengthen much the Cutwater, and all the Head.

There are no Rules to be prescribed for the Fashion, and Proportions of the Cutwater; that depends almost entirely on the Experience, Taste, and Genius of the Undertakers. Notwithstanding which it is certain, that the *Volute* under the Lion, ought never to exceed the Height of the *Yard-Bearers* at the Fore-Castle, when there is one. Formerly the Cutwaters were very long; at present they are made short, light, and much arched; rising up almost in a strait Line, which does not seem very commodious, especially in large Vessels, because one cannot find the Space requir'd for the Uses to which that Part seems to be design'd.

It is true, that when a Ship is built only to sail on some short Expeditions, either in War, or otherwise, and not to carry large and heavy Ladings, it is proper to make the Cutwater pretty short, and the Bowsprit likewise, because the longer the Cutwater, the more the Trace it makes gives Strength to the Waves, to shake and make the Vessel roll, especially in hard Weather, which retards its Sailing.

The Cutwater is sometimes exposed to Accidents, which not only render it useless, but even hurtful, if it be long and loaded with Wood; and then one is obliged to cut it at Sea: Besides which it often makes the Ship fall on its Nose. A Man of War should have a Cutwater at least of a middle Bigness, because of the Advantages Sailors reap from it, as well to wash their Persons and Cloaths, and for their natural Necessities, as for the Working of the Bowsprit. It serves as a Prison for those who are put in Irons; besides which the Cutwater is a great Ornament to a Ship.

When the *Keel* lowers more than the rest of the Ship, it makes a deeper Trace, which hinders the Ship from lying by. Some make it a little rising in its Middle, because there lies the heavier Part of the Lading, which makes that Middle to go down by Degrees, which then becomes even with the rest of the Keel, and renders it strait: On the contrary, it happens very often, that when the Keel is made strait, it bends afterwards outside, whence proceeds several Inconveniencies.

The End of the Heel of the Keel which juts out, is a Support for the Rudder.

The *Rudder* is not made to go down lower than the Keel, for fear it should touch. It must not be too large, lest it should render the Working of the Ship too difficult, and more easy to be carried off by the Tempest; neither is it to be made too narrow, because the Ship would not feel it enough; nor ascend too high, because of the Buttock's Bar, which by pressing too hard upon it would obstruct its Motion; but on the other Side, it must not be kept too low, because if the Helm was to descend lower than the Bulk Head of the Gun Room, it would embarrass that Room, and render it almost impracticable; so that much Regard ought to be had to proportion well its Height.

Note, That to speak in few Words of the Effect of the *Rudder*, and explain how a Ship which is so heavy a Mass, changes Place by the Motion of a small *Rudder*, we must consider, that to put a Ship on a Point of the Compass, the *Rudder* must be made to turn towards that Point. Therefore when it is made to

turn

turn towards the Side where the Cap is to be carried, the Sea which rolls and ſtrikes againſt the Rudder, while the Helm plays and makes it turn, makes neceſſarily the Ship turn, till both the Ship and the Rudder be on the ſame Line; and becauſe the Rudder making a little Circle backwards, is the Cauſe that the Ship makes a great one forwards, it wants but a little Motion to make the whole Ship change Place. Whence it follows, that the longer the Ship is, the ſmaller muſt be the Motion which the Rudder gives it. It is for this Reaſon, that the Steers Man is always in Action, ſeldom ſtops, and has always his Hand at the Whip-Staff, becauſe the Currents and Winds are always moving and changing. It would be eaſier to ſteer a Ship if it ſhould ſail in Seas where there is no Current, and was only moved by the Wind. The Currents are never favourable to the Rudder, but when in a ſtrait Line with them, or at leaſt thereabout; the Agitation on the Currents which take ſide-wiſe, being of no Uſe. What hinders a Ship from feeling its Rudder, is, when the Currents which take it ſide-wiſe, are ſtronger than the Motion which the Make of the Ship gives to the Water; and when the Rudder is too narrow, and not preſſed by a ſufficient Quantity of Water to make it move. The ſame Thing happens in a Calm, and when there are no Currents; and in general when the Rudder is not well proportioned to the Bigneſs and Conſtruction of the Ship, or when it does not ſink enough backward, as it is neceſſary for the Rudder to receive the Impreſſion of a ſufficient Quantity of Water. The ſame happens when the Stern of the Ship is too large, and hinders the Sea from ſtriking as it ſhould againſt the Rudder. It is certain, that the greater is the Angle which the Motion of the Rudder makes with the Keel, the ſlower is the Sailing of the Ship; for it is a Sign either of a Calm, or of a contrary Wind, and that the Sea which is very ſmall, ſtrikes but little againſt the Rudder; on the contrary, the quicker a Ship ſails, the better it obeys its Rudder.

It is very proper that a Man of War ſhould be broad upwards, to move the Cannon with greater Facility, and to contain a greater Number of Men for its Defence. The Ships of Burden muſt have a deep and big Hold, to contain a greater Quantity of Merchandize, and narrow a-top, that it may want but few Men to work it.

A Ship built both for War and Trade, muſt be of a middle Capacity and Bigneſs, *viz.* 134 Feet long from the Stem to the Stern-Poſt.

The beſt, ſtronger, and broader Pieces of Timber, are employ'd for the Conſtruction of large Ships. Long and narrow Veſſels ſail better than large and ſhort ones of the ſame Burden, becauſe they float more, having a greater Extent of their Body, flat on the Water. The Conſtruction of a Ship, the fore Part whereof is large a-top, and acute at Bottom, is thought the fineſt, and thoſe Ships are ſuppoſed to ſail better; becauſe the Breadth a-top, giving it a greater Support on the Water, gives alſo to the lower Part which is ſharp, a greater Facility to cut the Sea: Though when they are acute, they cannot ſo eaſily tack about, and come to the Wind.

The Veſſels which are too ſtrong of Wood a-top, and ſlight at Bottom, do not ſail well; in that Caſe it is proper to keep the Cannons in the Hold till they be wanted. Thoſe which ſall backward do not ſail well neither; whether the Fault proceeds from the Conſtruction, or from a bad Stowage; the ſame muſt be ſaid of thoſe which lean too much forwards. When this Fault proceeds from their Conſtruction, the Fore-Maſt is to be made to lean backwards, to eaſe the fore Part of the Ship.

It is certain, that, in general, Ships of a middle Bigneſs and Capacity, are better at Sea than very large ones; becauſe the Weight of theſe retards their Courſe, and that they often chance to touch on *Shallows* and *Shelves*, whence they are not got off eaſily. On the other Side, ſmall Veſſels are but of little Uſe for their Burthen.

Ships are made broader before than behind; if they were broader behind they would leſs feel their *Rudder*. The greater Breadth of Ships muſt be found at one Third of their Length, taken from the Fore to the hind Part; for if their greater Breadth was more forwards, a Ship could not cut the Sea with the ſame Facility; and if more backwards, it would drive away the Motion of the Sea too far; which being weakened thereby, with regard to the Rudder, would hinder it from being felt.

The Captain's Room is ſituated backwards, becauſe the Motion of the Ship is leſs felt there, and becauſe alſo he can from that Place ſee all over the Ship.

The upper Deck leans ſometimes by one Foot, on the Gun-Room, that the Cannon may be levelled with more Facility. In Merchant-Ships the Deck is ſometimes half a Foot lower near the Main-Maſt.

In Men of War, the *Side-Planks* between Decks muſt be level with the Water; wherefore there wants but little Height between Decks; which notwithſtanding, as well in Men of War, as in others where there are two Decks at leaſt, the Space between both muſt be of a Man's Height.

If the great Width a-top of Men of War is advantageous for fighting, becauſe of the Quantity of Men it contains, thoſe which are narrower have in their Turn the Advantage of being not eaſily boarded, becauſe their large and round Belly drives away the Enemy, and renders the throwing the Grapler more difficult; but eſpecially becauſe the Enemy cannot ſo eaſily jump into ſuch a Ship.

Ships are not to be riſen too much, too much Height renders them light, and they take too much Wind. On the other Side, when they are too low the Waves cover them with Water continually. Care muſt be taken likewiſe, that the Boards ſhould not be too much arched, becauſe then they break and ſplit eaſily. The Boards are ill bent, when in heating them they are too much preſſed at Bottom.

Ships which are too long are weak of Conſtruction in all their Members; they commonly work and ſplit, eſpecially when they touch. Thoſe which are too ſhort don't ſail well, and roll extremely. Thoſe which have too much Maſt are eaſily overturned.

The *Keelſon* is made larger than the *Keel*, becauſe of the Hole made in it for the Foot of the Main-Maſt: It is joined and well faſtened to the *Keel* with Iron Pegs, and contribute much towards ſtrengthening the Ship.

Ships are calked and done over with Pitch and Tar, as well to preſerve them and make them laſt, as to hinder the Water from running through the Cracks and Seams; this Operation is made by means of Tow, which, after it has been boiled and dried, either in the Sun or in an Oven, is ſpun very looſe as big as the Arm, and thruſt afterwards by the Calker into the Seams of the Ship. Some uſe for the ſame Purpoſe Moſs, or the Hairs of Beaſts; but Moſs is beſt for the Cracks, and Tow for the Seams: When the Seams and Cracks are lined with it, they muſt be done over with Tallow, Pitch, and Tar.

The *Graving* a Ship is to be done over with, from underneath to the Line of Water, is a Compoſition made of Roſin, Tallow, Brimſtone, Train-Oil, and pounded Glaſs, to preſerve them from Worms. When a Ship is to make a long Voyage it is ſheathed, and the Boards thereof are garniſhed with an almoſt infinite Number of ſmall Nails.

The Ribs and Members placed to the *Gabarits*, between which the main Hatch is ſituated, muſt be very ſtrong of Wood, becauſe the Aperture weakens that Part, where there are neither *Beams* nor *Futtocks* to traverſe the Ship.

The *Viboard* is higher on the fore Part, than in the Middle of the Ship, to ſhelter it againſt the Rage of the Sea. The Bars of the Scuttle of the Top-Gallants ſerve to keep the Looſes of the Flag, therefore there is but one Hole. At the *Cutwater*, under the *Bulk-Head*, there is a *Cat-Head* to ſupport it, when the Anchor is worked.

At each *Shrowd* is an Iron Chain very even, and all of a Piece, which traverſes it; to which a Rope is tied, which runs on four ſpindle Wheels, by means whereof the Shrowds are made tighter, to keep the Maſts firm on each Side. There is another *Cadena* or Chain, which is moveable and ſerves to paſs a Crane into it, to lift up on board heavy Burthens, and put the *Shallop* to Sea.

The

The *Puttock-Shrowds* are made tighter by Means of *Ram's Blocks*.

When all the Cracks and Seams have been well calked, all the dead Work is done over with Pitch and Tar (this Term of dead Work being taken in its wide Sense for all that is out of the Water) for the Pitch does not stick to what is in the Water.

Note, That after this Explication of the different Pieces, or Members a Ship is composed of, of their different Uses, we'll put a Ship on the Stocks, and shew what Order is observed in the Disposition of those different Pieces, and how they are joined together, giving, at the same Time, a clear Explication of the different Terms they are expressed by: Therefore,

1. Model, or *Gabarit*.

When a Ship-builder makes the *Draught* or *Model* of the Construction of a Ship, he gives the Name of first *Model* or *chief Rib*, to that *Rib* which is to be placed under the main Beam, and which answers to it; and even to the whole *Model* raised perpendicularly over it.

The second, third, and fourth *Model*, fore or aft, are the other *Models* raised on the other Beams, fore or aft. Those *Models* are made with Pieces of thin Boards, to represent the Length, Breadth, and Caliber of the Members, and Parts of a Ship, when to be built and put on the Stocks.

Explication of the first Model.

Figure I.

1. *Ribs* of the first Deck, which must have two Thirds of the main Stem.

2. *Futtocks* of the upper Deck; they must have the same Thickness with the Ribs of the first Deck.

3. The *Scupper Holes Bindings*, of the lower Deck, are Pieces of Wood which running round the Ship inside, serve to join it, and must be 19 Inches broad, and 5 or 6 Inches thick; those of the upper Deck 17 Inches broad, and $3\frac{1}{2}$ to 4 Inches thick. Which is the Decision of Master Ship-builders who have regulated the Proportions of a Ship of 137 Feet in length.

4. *Scupper-Holes*, they are Apertures made shelving, in the Length of a Piece of Wood, placed on the Side of the Ship, for the running out of Rain and Sea-Water. The *Scupper-Holes* of the upper Deck, *i. e.* the Pieces of Wood where the Holes are made, must be 4 Inches broad, and 4 thick; and the Holes have 2 Inches Diameter, if the Aperture be round, but it is most commonly made square-wise, and of several Pieces. The *Scupper-Holes* of the lower Deck must be 6 Inches broad, and $5\frac{1}{2}$ Inches thick; and the Holes have 3 Inches Diameter.

5. The *Burdens of the Deck*, which must be 17 Inches broad, and $4\frac{1}{2}$ thick: We'll have Occasion afterwards to regulate better their Proportions.

6. The *Side-Planks*, which serve to cover the first Gun-Deck, are $2\frac{1}{2}$ Inches thick.

7. The *Bolster* of the Carriage.

8. The *Floor-Timber* of the lower Deck, which is a Girder placed with several others, throughout the Breadth of a Ship, and rests on two Ribs, by its two Ends. Most Carpenters give them $1\frac{1}{2}$ Inch for every 10 Feet of the Length of the Ship, taken from the Stem to the Stern-Post; every 10 Feet in Length given them, likewise an Inch of Roundness arch-wise.

9. The *Wheel* of the Carriage.

10. The *Allonge* of the *Migrinier*, which is the first, or that joined with the *Rib* and *Knee* of the Bottom.

11. The *Knee of the Bottom*, which is joined with the first *Allonges* and *Ribs*, they must have in their Angle half the Thickness of the Stem.

2. Model, or *Gabarit*.

Figure II.

1. The *Keel*.

2. The *Platform*, which begins at Number 2, and ends at 2.

3. The *Floor-Timber*, which crosses over the Keel, and over all the Bottom.

4. The *Lengthening* or *Allonge*, which forms the Breadth and Depth of the Ship.

5. The *Serre-Bauquierre*, in which the Beams are joined, in the Shape of a Swallow's Tail. The *Serre-Bauquierres* run all round the Ship. They have sometimes half the Thickness of the Stem, taken inside; others give them two Fifths of that same Thickness.

6. The *Vaigre* above the *Scupper-Holes binding*.

7. The *Rib* of the first Deck.

8. The *lowermost Deck* between the Flowers and the lower Precinct.

9. The *Flowers*: For the Beauty of a *Model*, the *Flowers* must ascend and rise with a Roundness agreeable to the Sight, and well-proportion'd. The Flowers are formed by the Junction of the Floor-Timbers with the Knees of the Bottom.

10. The *Side Planks* between the Girts.

11. The *Girts* with their jutting out.

12. The *Transom* of the *Viboard*, which makes the last and higher *Girt* of the Ship, and which is most like the other *Girts*.

13. *Beams* of the upper Deck.

14. A *Strop* commonly placed on the Binding, as the *Allonges* are under it, to strengthen the Ship which carry much Cannon.

15. The *Vaigres* of *Empature* of the Knees and Floor-Timbers.

16. The *Vaigres* of the Bottom, and placed under the first Girts.

17. The *Carline*, which is the biggest Piece of Wood employed in the Hold of a Ship; several of them are put End to End, and placed on all the Ribs, and as they serve to tie them with the Keel, they are often called *Keelson*, or *false Keel*.

18. The *Carriage* of a Ship Gun.

19. *Planks* which serve to cover certain Notches made in the Floor-Timbers, of which the Bottom of the Ship is composed; and those Notches serve for the Evacuation of the Water, which is in the Ship from the Prow to the Pumps.

20. The *Jarlot* of the Keel, where the *Gabord* enters; it is a Kind of Notch made in the Keel, in the Stem, and in the Stern-Post of the Ship, to introduce into it a small Part of the Side-Planks, which cover the Members of the Ship.

21. The *Line*, which hanging to the Level of the biggest Part of the Ship, is found a Foot distant from the lowermost Deck, at the Place where it ends, and where the Flowers begin in descending, and that's the Breadth of the biggest Part of the Ship.

Figure III.

Which represents in another Manner the same Pieces of the two preceding Models, *and shew better the Roundness thereof.*

1. The *Futtocks* under the *false Beams*, placed at every 6 Feet Distance, under the first Deck, to strengthen the Bottom of the Ship. These *false Beams* are Pieces of Wood, semblable to those over which often a false Deck is made; and where it has its greater Height, a Retrenchment is contrived, where the Soldiers retire to repose themselves and sleep.

2. The *Bindings* of the *Scupper-Holes*.

3. The *Weight* or *Burden* of the Deck.

4. The *Carline*.

5. The *Futtocks* of the upper Deck.

6. The *reverse Lengthenings*.

7. The *Binding* of the *Bauquiere*.

8. A *Scaffold* on which the Workmen place themselves.

9. The *main Stem* inside.

Figure IV.

Which shews distinctly and successively the Parts or Members of a Ship, which give it the Length and Depth it must have forwards.

1. The *Carline*.

2. The *Keel*.

3. The *Gabords*, or first Boards downwards, which form the outward Sides of a Ship. The Row of Boards which are placed above the *Gabord* are called *Ribord*.

4. The *Vaigres* and *Lengthenings*.

5. The *lowermost Deck*.

6. The *Floor Timbers*.

7. The

7. The *Knees* of the Bottom.
8. The *Ribs* which support the Deck.
9. The *Beams* of the first Deck.
10. The *Girts* with their jutting out.
11. The *Bindings* of the *Bauquiers*.

FIGURE V.

Represents,

1. The *Floor* or *Cieling*.
2. The *Weight* of the Deck, which is thick and narrow Boards notched, to put over the Beams in the Length of the Ships, on each Side, from fore to aft, at very near one Third of the Length of the Ship.
3. The *Flat Ribs*.
4. The *Lengthenings*.
5. The *Futtocks*.
6. The *Port Holes*, placed bandwise on both Sides of the Ship.
7. The *Beams* of the second Deck.

FIGURE VI.

Shews distinctly and successively the Parts or Members of a Ship, which give it the Breadth and Depth it must have backwards.

1. The *Carline*.
2. A *Rib* placed backward and round inside.
3. *Flat Ribs*.
4. A *Rib* half backward, it has less Cavity than those quite backwards.

Note, That we see in this *Figure*, that the *flat Ribs* are in the Middle; that those placed backward follow them; and those quite backwards are placed at the Extremities of the Ship.

FIGURE VII.

Represents,

1. The *Port-Holes*, bandwise, on both Sides of the Ship.
2. Two *Port-Holes* at the Stern.
3. *Bands*, Pieces of Timber-work. There are several Sorts of them, and are placed in different Parts of the Ship, as well to join the Members thereof, as to strengthen and keep up the whole Structure.
4. The *Futtocks*, which support the Deck.
5. The Bindings of the *Scupper-Holes* of the lower Deck, we have already observed, that they must be 19 Inches broad, and 5 or 6 thick at the first Deck.

Note, That here follows a Rule for the Thickness of the *Side Planks*, mention'd in the above-described *Figures*.

The Side Planks of the Bottom of a Ship, from Feet.	*Thickness. Feet in Length, from the Stem to the Stern-Post, must be*
40 to 60	2 *Inches thick.*
60 to 80	2½
80 to 100	3
100 to 120	3½
120 to 140	4
140 to 160	4½
160 to 170	4½

Note also, That before we proceed further, I'll explain here the two Figures of the fore Part of a Man of War, represented in my Plate; those two Figures being cut in a Manner, that the outside Parts which do not appear in one, are represented very distinctly in the other, and are marked with the same Cyphers or Letters, *viz.*

S. The *Neck-Piece* of the Cutwater, which must have 27 Feet in Length, and 5 in Breadth, to be proportion'd to a Man of War, which has 145 Feet in Length from the Stem to the Stern-Post, 36 Feet broad, and 15 deep.

R. R. The *Futtocks* of the Neck-Piece. The Needles of the Cutwater comprized between the Neck-Piece and the Yard-Bearers, and which jut out much into the Sea, are here more rounded than they were formerly.

T. The *Holes* or *Fastenings* of the Tacks of the Fore-Mast.

V. V. The *Stem*.

W. The *Keel*.

X. The Hole thro' which passes the Tack of the Bowsprit.

P. The *Hawse Holes*.

Q. Q. The *Girts*.

O. O. The *Side Planks*, which are put two and two between the Girts.

N. The *Threshold* of the Port-Hole, or lower *Threshold*.

M. The *Valves* of the Port-Holes of the large Battery. Large Men of War have commonly three Batteries.

L. The second *Battery* is placed above the lower, or at the middle Deck; and the third on the upper Deck. Each Port-Hole must have its *Drague* and its Crane; which are big Ropes, serving to approach, and draw back the Cannon, and likewise to stop the Recoyl, so that a Piece of Cannon may not recoyl, when it is fir'd, further than half Deck.

F. K. *Embrasures* to level the Cannon.

I. The *Cadenes* of the Shrowds, which are Iron-Chains, at the End whereof is placed a *Ram's Block* (g) to make the Shrowds tight. They serve to so many other Things, that for the Rigging of a single Ship, we take most commonly 13 Dozens of them.

E. E. The *Yard-Bearers* 1, 2, 3. which are above the Cutwater, the uppermost is 8 Inches broad backwards, and 4½ thick; 5 Inches broad forwards, and 3½ thick. The second 6 Inches broad, and 4½ thick backwards; 4½ broad, and 3½ thick forward. The lowermost 6½ broad, and 4 Inches thick backward; and 5 Inches broad forwards.

4. The Door of the Fore-Castle.

1. 2. The Ornaments of the uppermost Part of the Poop.

3. 5. Shew the Sheathing of the Boards, which make an End of covering the hind Part of the Ship, as far as the *Platboard*.

Note, That here follows a more particular Description of several Pieces or Members of a Ship, which have already been mentioned; beginning at the Stern.

The *great Block* of the *Drisse*.——It is a large square Piece of Timber, placed upright on the *Carline*, whence it rises over the Deck. At the upper End of that Piece of Wood, there are three or four Spinning Wheels of Pulleys on the same Axle-Tree, on which the great Clew-Lines pass; the main Block of Clew-Lines serve to the Main-Yard.

The *main Capston*, 2. fig. 17. is a wooden Machine placed on the first Gun-Deck, and which rises 4 or 5 Feet above the second; it is called *double Capston*, because it serves to raise the Anchor, and for other Uses, which I'll mention, when I'll explain its Figure.

The *little* or *simple Capston*, placed on the second Deck.

1. The *Dogue* of *Amure*. There is one on each Side of the Ship. It is a Hole with a *Taquet* inside, and a Frame outside. One of those Holes is Larboard of the Ship, and the other Starboard, on the flat Body at the Head of the Main Mast, to tie the *Couets* of the Main-Sail. The Distance between the Etambraie of the Main-Mast, and either of the *Dogues* of *Amure*, is equal to the Length of the main Beam.

3. *Chains* of the *Shrowds*.

4. *Mast*; it is a great Tree, or a long Piece of Wood placed in a Ship, to which the Yards, Sails, and Tackles necessary for the Sailing of the Ship, are fastened.

5. *Chouquet*.

6. It is a triangular Piece of Wood placed on the End of the Stays, and which join them with the Stern.

7. *Taquet* of the Key of the Stays. It is a Piece of Timber, placed under the Key of the Stays, between the Counter-Fort, and the Counter-Stern-Post.

8. The *Ladder of the Poop*; which is made of Cord, and hangs at the Stern of the Ship, for the Commodity of the People of the Shallop, and to make Use of it in a Tempest.

FIGURE XI.

Shews,

1. A simple Pulley; which is a *Moufle* where there is only a single Pulley.

2. A *Crane Pulley*, which is a double Muffle, where there are ſometimes two Pulleys over one another, and ſometimes even four.

3. *Pulleys of Caliornes*, which are Pulleys with two or three Wheels on the ſame Axle-tree.

4. *Common Pulleys*; which is a round Body made of Wood or Metal, in Form of a Plate, with a hollow all round it, for a Rope to run round. The Pulley is ſet in what's called a *Scarf* or *Muffle*; and by that Word *Pulley* is underſtood the whole together, *viz.* the *Scarf*, the *Pulley*, the *Wheel*, and the *Axle-tree*.

5. *Cut*, or *dented Pulley*, is a Pulley which has its Scarf ſloping on one Side, to run the Bow-line into it, when it is neceſſary to hale it.

6. *Hawſe-Block*, it is a large ſquare Piece of Timber, placed upright on the Carline, whence it riſes over Deck. At the upper End of that Piece of Timber, there are three or four Wheels of Pulleys on the ſame Axle-tree, over which the great Driſſes run.

7. The *Block* of the *Driſſe* of the Mizen-Maſt, the Pulleys whereof muſt be eight Inches broad, with proportionable Cordages.

8. The *Scuttle*: It is a Kind of little Platform, ſupported by wooden Bars, and which runs, in jutting out, round the Cap of the Maſt: Though moſt commonly the largeſt Ships have but four *Scuttles*, viz. the Main-Scuttle, the Fore-Maſt-Scuttle, that of the *Boltſprit*, and that of the Mizen, and there are but Bars at the other Maſts, thoſe Bars are notwithſtanding called *Scuttles*. The *Scuttles* ſerve for working the Ship, wherefore the Sailors go up to them. They ſerve likewiſe to faſten the Stays, Shrowds, and ſeveral other Cordages. A Sailor is kept there in Centry, that he may ſee at a greater Diſtance.

The *ſixteenth Figure* repreſents,—1. The *Etambraie* of the Main-Maſt. The *Etambraies* are round Holes made in the Decks of a Ship, to paſs the Maſts through them, or they are two large Pieces of Wood which embrace a round Hole made in the Deck, through which the Maſt runs, the better to ſtrengthen the Deck in that Place, and keep the Maſt more ſteady.

2. The *Etambrie* of the Fore-Maſt.

3. The *Etambrie* of the *Capſton*.

4. The *Pump*.

5. The iron, or wooden *Rod* of the Pump.—It holds the Apparatus.

6. The *Girt of Viboard*, is a Girt a little ſmaller than the others, which runs all along the Ship upwards.

7. The *Girts*, are long Pieces of Wood, put in divers Places a-top of the Ribs of a Ship, as well for Ornament as Neceſſity. The Chiefs of them are over the *Acaſtillages* at Breaſt-high. There are likewiſe ſome of them on the Pediment of both Caſtles.

The *twelfth Figure* ſhews,—1, 2. The Figures of the *Bits*.

1. The firſt ſhews the *Bits*, ſuch as they are ſeen backwards; *b b*, the *Pillars* or the *Bits*; *c c*, the Head of the Pillars; *d d*, the Holes which ſerve for the large Iron Pegs when the Cable is on the *Bits*, to ſtop it, and hinder it from ſpinning; *e e*, the Boltſprit; *g g*, the Deck; *h h*, the Head of the Bolſter which is of Deal.

This firſt Figure of the *Bits* has its Proportions, that it ſhould not riſe above the firſt Deck. But if it was to be carried as far as the ſecond, the Pillars ſhould be kept longer downwards.

The ſecond Figure ſhews the Bits on the fore Part of the Ship, the better to diſcover the Futtocks which do not appear at the Stern; *b b* the upper Branches of the Futtocks which extend over the Deck, as far as the Head of the Bolſter; *c c*, the lower Branches of the Futtocks, which cannot be made too long, and can be extended as far as the Guerlandes, which are thoſe large Pieces of Carpenter-Work bent, and placed ſquare-wiſe on the Stem, above, and under the Hawſe-Holes, to form the joining of the fore Part of the Ship, and keep up the Side-Planks; *d d d d*, Pegs with Rings which run through the Ribs and Beams, and are faſtened with Pins.

3. The *Pillars of the Bits*.

4. *Hawſe-Holes*. Commonly there are two *Hawſe-Holes*, one on each Side of the Stem; and ſometimes four, two on each Side the fore Part of the Ship, Starboard and Larboard of the Stem. In Men of War which have two Gun-Decks the *Hawſe-Holes* are pierced under the firſt or lower Deck.

5. The *Great Level*.

The *fifteenth Figure* ſhews,—1. The *Architrave, Epiſtyle*, which is a Piece of Timber placed on Columns inſtead of Arcade, and is the firſt and principal, which ſupport the others.

2. *Bars* of the Capſton, are certain ſquare Pieces of Wood, ſerving to turn the Capſton round.

3. The *Carline*. I have ſaid already, that it is the longeſt and biggeſt Piece of Wood, employ'd in the Hold of a Ship.

4. The *Girts*, already mentioned, are placed parallel ones to the others. The Sailors find a Conveniency in them when they want to get into the Ship to clean it.

5. *Counter-Girts*, are thoſe placed over the Tyllar-Tranſom.

6. The *great Carline*, or *Zarline* of the Main-Maſt.

7. The *Carline* of the Foot of the Fore-Maſt.

8. The *Carline* of the Mizen-Maſt.

9. The *Carline* of the Capſton.

10. The *Straps*, which are Pieces placed over the Binding, as the *Allonges* are under it, to ſtrengthen large Ships which carry much Cannon. The larger Ships which have two Rows of Port-Holes want double Straps backwards, and ſtill more under the Fore-Caſtle, becauſe of the Anchors, which are drawn up there, and ſhake much that Part.

The *fourteenth Figure* repreſents,—1. The Tyllar-Tranſom, already ſo often mentioned.

2, 3. *Porques* of the Bottom, ſituated about the Middle of the Carline, and are leſs bent, and flatter than the other *Porques*, becauſe the Bottom of the Ship is flatter about the Middle of the *Carline*.

4. *Bindings* of the *Scupper-Holes*.

5. *Flat Boards*, placed over the Ends of the reverſe Lengthening cloſe to the *Girts*.

6. *Threſholds* of a Port-Hole, or lower Threſhold, is a Board which being put over the lower Part of the Port-Hole, covers the Thickneſs of the Sides, and prevents the Water from rotting the Members of the Ship.

7. Some call likewiſe, *Threſholds*, the croſs Piece of Timber, which reſts on the two upright Beams, and into which enters the Iron Work.

8. The *Vaigres* of *Empature* of the Floor-Timbers and *Knees*, are thoſe which follow the *Vaigres* of the Bottom, and are riſen above it, to form the Roundneſs on both Sides.

9. The *Fargues* are Boards riſen on that Part of the *Flatboard* called the *Bule*, to ſerve inſtead of Guard-Corps, the better to defend the Deck, and to ſteal from the Sight of the Enemy what paſſes on Deck. The *Belle*, or *Embelle*, is that Part of the upper Deck which runs between the Shrowds of the Fore-Maſt and the main Shrowds, and which having its Side leſs riſen than that of the other Parts of the Ship fore and aft, leave that Part of the Deck almoſt quite open at its Flanks. It is then to cover that Place that the *Fargues* are uſed. They are took off when the Fight is over, as well as the Guard-Corps, which are Mattes, or Textures made of Ropes, and placed on the upper Sides of Men of War, to ſhelter Soldiers againſt the Muſketry of the Enemies.

11. The Gallow of the Lever which ſerves to draw the Water out of the Pump.

Note, That we have ſeen in the preceding Figures, the Application of the Models made to ſhew the Length, Breadth, and Caliber of the Members and Parts of a Ship, when it is to be built, to be put on the Stocks, and in a Condition to be launched, which is done in the following Manner.

To place well a Keel on the Stocks (fig. 7.) the *Stocks* muſt be placed at 6 Feet diſtant from one another, taking Care that the Middle of the *Keel* ſhould reſt directly on the Middle of the *Stocks*. The bigger *Tins* deſigned to keep the *Keel* almoſt in an Equilibrium when the Ship is launched, muſt be placed at 5 Feet of the Length of *Keel*, taking it backwards, and from the Heel of the *Keel*. The *Tins* more backward need no Wedges, becauſe as ſoon as the Ship leans a little forward, it reſts leſs on thoſe Stocks, and they fall of themſelves;

ſelves; but Wedges muſt be put at all the other Stocks, from the biggeſt forwards. Some Carpenters make the Fore-maſt Stock, which is under the Stem, of a Wood very eaſy to ſplit, and to launch the Ship, they dig up a little of the Earth round the Stock, and under it, ſo that it ſinks a little, and then breaks it in Pieces.

When the *Keel* is well placed on its Stock, a Line is drawn through its Middle, from fore to aft, to ſee if it be not arched. Moſt Carpenters make it arch by 6 or 8 Inches underneath, according to its Length, pretending that it ſtraitens again when it is in the Water, becauſe Ships being much narrower at their Extremity than in their Body, and conſequently leſs ſupported there by the Water, the Extremities ſeldom fail ſinking a little at firſt, and afterwards, when the Ship grows old, they continue to ſink a little by Degrees, and the *Keel* bends Inſide, which produces a very diſagreeable Effect, and ſometimes a dangerous one. In placing the *Keel* on the Stock, Care is taken to keep it higher backwards, and as high as is neceſſary to launch eaſily the Ship to the Water, and before the *Tins* are put under the *Keel*, it would be very proper to make a Bed of good Boards 10 or 12 Inches broad, or more, to place the *Tins* upon it, rather than on the the Ground. All this may be eaſily underſtood, in examining *Figure* 7. of my Plate, where the Letter A ſhews the Ship on the *Stocks*, with the following Circumſtances.

1. A Scaffold made ſlanting for the Workmen to go in, and come out of the Ship.

2. An Aperture left for the Paſſage into the Ship, of the biggeſt Pieces of Timber, which muſt ſerve for its Conſtruction.

3. Pieces of Timber diſpoſed at a Level, and ſupported by other perpendicular ones, in a Dock, *Dutch* Faſhion, or the Ground even with the Water, to facilitate the launching of the Ship, in the Manner repreſented under the Letter B.

4. *Tins* placed on the Ground, or on Boards to ſupport the *Keel*.

5. The Stocks, or Bed where the Tins and Ship reſt.

6. *Wedges* greaſed, and drove under the *Keel*.

7. *Coites*, or long Pieces of Timber placed parallel under the Ship, to carry it when taken off the Stocks, in order to launch it to the Water. The *French* make uſe of two indented Pieces of Wood, which they call *Colombiers*, and which go to the Water along with the Ship; and when the Ship begins to float, the *Colombiers*, which are tied to it with Ropes, floating likewiſe, are withdrawn. But among the *Dutch* the *Coites* remain in their Place, and the Ship ſliding over them, goes alone to the Water. The *Dutch* have this Particular beſides, that they put each Side on the Coites, the Wedges which ſerve to make the Ship ſlide on the Coites, and launch it.

8. The *Caliome*, and Rope to ſtop the Ship and draw it forwards and backwards, as Neceſſity requires it. Laſtly, it is ſeen in the Figure B, how far the Conſtruction of a Ship is advanced when it is launched. It is perfected afterwards by erecting a Scaffold, which reaches from the Stern of the Ship to the Shore, where there are Quays made for that Uſe.

Note, That the Pit, Pond, or Creek, where Ships are built or repaired, is called *Dock*. This is of two Sorts; a dry *Dock* where the Water is kept out by great Flood-Gates till the Ship is built, or repaired, but afterwards can be eaſily let into it again to float and launch her; a *wet Dock*, is any Place in the Ouze, out of the Tide's Way, where a Ship may be haled in, and ſo dock herſelf, or ſink herſelf a Place to lie in.

Note, alſo, That there is another Operation to be made on a Ship, which has not been mentioned yet, and which is that of careening it.

To *careen* a Ship, is to lay it on one Side, to calk, ſtop up Leaks, refit or trim the other Side.

A Ship is ſaid to be brought to a *Careen*, when the greateſt Part of her Lading, *&c.* being taken out, and a Pontoon, or another Veſſel lower than herſelf, laid by her Side, ſhe is halled down to it as ſoon as the Occaſion requires, *v. gr.* a fourth or fifth Strake; and there kept by the Weight of Ballaſt, Ordnance, *&c.* as well as by Ropes, leſt it ſhould ſtrain her Maſts too much.

This is done with Deſign to trim her Sides or Bottoms, to calk her Seams, or to mend any Fault ſhe has under the Water.

This Operation of *Careening* is ſeen, *fig.* 8. *Nav. Arch.* in thoſe Figures A ſhews a Ship which is careened on the Starboard Side; and B, a Ship careened on the Larboard Side.

C, Heating made with ſmall Wood, while the Careen is given to the Ship. The Heat muſt not be ſpared.

D, The Tar wherewith the Wood of the Ship, and the Cordages are imbibed, that they may reſiſt the Water, Wind, and Heat of the Sun.

E, That Tripod or Candleſtick, which are three Stakes driven very far into the Ground, in the Middle whereof is a Fourth, placed like a Candle in a Candleſtick. It is called Stool and Tripod, becauſe of its Likeneſs to the Seats with three Feet, uſed in *Holland* by moſt Workmen. To this are faſtened the Ropes which ſerve to ſupport the Ships when they are put on their Sides to be careened; to which are faſtened likewiſe the *Atrapes*, which are large Ropes to hinder a Ship from lying too much on its Side, while ſhe is in Careen.

Note, That our Man of War thus entirely finiſhed, muſt next be fitted with two Boats, one called the *Shalop*, or *Long-Boat*, and the other the *Canow*.

The *Shalop*, or *Long-Boat*, ſerves to carry People on board the Ship, or on Shore, or from one Board to another. It ſerves likewiſe to carry the Towing-Anchor, when it muſt be caſt. To carry on board the Munitions and Proviſions, the Ballaſt, and other heavy Burthens, to ſave the Crew and Cargo in caſe of a Shipwreck, or any other Misfortune at Sea, and to a great Number of other particular Uſes. In my Plate of *Naval Architecture*, *fig.* 9. is ſeen a *Shalop* turned upſide-down, to ſhew from the Top the Situation and Order of its inward Parts, *viz.*

A. The *Ribs*.

B, The *Knees* of the Bottom.

C, The *Carlines*.

D, The *Serrebanquieres*.

E, The Benches where the Rowers ſit.

F, The *Deck*, and the Bench of the fore Part of the *Shalop*.

G, The Benches joined round the hind Part Inſide, for the Conveniency of thoſe who are in it.

H, The *Floor*, or Bottom of the *Shalop*.

I, The *Taquets* with their *Æchomes*, to preſerve the Boards againſt the rubbing of the Oar. In their ſtead is placed, in ſmaller Boats, two *Tolets*, which are ſmall wooden Pegs to place the Oar between.

K, The *Freeze* and *Girt* of the Viboard.

M M, The *Crowning* of the *Shalop*.

N N, Small *Futtocks* to keep the Benches of fore and aft ſteady.

O O, A Rool of Defence, to defend the Stem from ſtriking againſt large Veſſels.

P, The Pegs to hang the *Soals* or *Derives*.

Q, *Hole* in the *Carline*, with a Notch in the Bench to place the Maſt.

The *Canow*, is a Kind of ſmall Shalop, deſigned for the ſame Uſes as the Long Boat. The tenth Figure of my Plate ſhews a *Canow* turned upſide-down like the *Shalop*, wherein are repreſented all the inſide Parts thereof, and diſtinguiſhed by Figures. The Figures which are not viſible in the Canow turned upſide-down, are eaſily ſeen in the perpendicular Section of the ſame *Canow*; viz.

1. The fore Part of the *Canow*.
2. The hind Part.
3. The Ribs.
4. The Knees of the Bottom.
5. The Carline.
6. The Serrebanquiere.
7. The Board.
8. The Taquets with their Echomes.
9. Pieces of Wood placed behind the *Careen* to place the Oar to row the Canow, either to the Ship or to Shore.

10. The

10. The Deck and Bench of the fore Part of the Canow.

11. The *Cajute*, and Benches of the Stern.

12. *Taquets* to faften the Soals, when the Wind ferves.

13. The Hole to place the Maft.

14. The Futtocks to ftrengthen the Benches fore and aft.

15. The Virevaut.

16. The Hatch.

17. 18. The Length of the Canow, which is moft commonly as much as the Breadth of the Ship to which it is to ferve.

Note, That in *England* and *Holland* they have a Kind of fmall Veffel, called *Yacht*; in *England* for Pleafure and War; and in *Holland* for the Service of the Eaft-India Company, for that of the Commiffioners of the Admiralty, and for the frequent Deputations from the States General, and from the Cities of the Seven United Provinces. There are fome of thofe *Yachts* which are 66 Feet long, 19 broad, and 6 deep, under the Scupper-Holes.

Note alfo, That on the *Mediterranean*, the *French*, *Italians*, *Spaniards*, &c. have *Galleys*.

A GALLEY is a low built Veffel, going both with Oars and Sails.

Note, That the *Galley* is called by the *Greek* Authors under the Eaftern Empire, Γαλαια and Γαλεια; and by the *Latin* Authors of the fame Time *Galea*; whence the modern Denomination. Some fay it was called *Galea*, on Account of the Figure of a Cap, or Helmet, which it bore on its Head, or Prow, as *Ovid* atteftS, *De triftib.* The *French* call it *Galere*, by Reafon they fay, that the Top of the Mafts are ufually cut in Manner of a Hat, which the *Italians* call *Galero*. Others derive both *Galea* and *Galere* from a Fifh, by the *Greeks* called Γαλεοῖης, or ξιφιας; and by the Englifh *Sword-Fifh*, whofe Shape this Veffel refembles. Laftly, others derive *Galley*, *Galea*, *Galere*, *Galeaffe*, &c. From the *Syriack* and *Chaldee*, *Gaul*, and *Gallin*, a Man expofed on the Water, or in a Veffel of Wood.

Galleys are diftinguifhed into *Light* and *Baftard Galleys*.

Light Galleys are built in the antient Manner, having the Poop narrow and fharp.

Baftard Galleys are the common *Galleys*, which have the Poop broad. They commonly carry only two Mafts, *viz.* the *Meftre* and the *Trinquet*, which they take off as Occafion requires.

We call *Capitane Galley*, the principal *Galley*, not only of the maritime Powers and fovereign States, which have no Title of Kingdoms, but likewife of fome Kingdoms annexed to a greater: And *Patronne Galley*, the fecond *Galley* of *France*, of *Tufcany*, and of *Malta*, and the third of the maritime Powers, who befides a *Real* have a *Capitane*, fuch as the eccleftiaftical State, *Spain*, and *Venice*.

But we call *Real Galley*, the principal *Galley* of an independant Kingdom, and likewife the firft of the Pope's *Galleys*; becaufe all the crowned Heads of the Catholick States, give the Precedency to his Holinefs.

In the Conftruction of *Galleys*, they commonly give 190 Palms or Hand-breadth of Length from one *Capion* to the other; which is faid in Ships from the Stem to the Stern Poft. They make the principal Rib (which is the Rib of the Middle of the *Galley*, and likewife the biggeft, called by the Italians *Stamenale*) 25 Palms broad. They call Cutwater *Sperone*, to which are given 22½ Palms in Length.

Here follows a Defcription of the principal Parts of a *Galley*, viz.

The *Rudder*, called by the Italians *Temone*, is fufpended to the Stem with two Hooks, like in other Veffels.

The *Main Maft* is 90 Palms long; big at the Bottom 2 Palms, and a-top 1¼. The *Italians* call it *Albero Maeftro*.

The *Fore Maft*, called by the Levantines *Trinquet*, and the Italians *Albero de Trinchette*, is 54 Palms long, big at the Bottom 1¼, a-top [illegible] Palm.

The *Main Yard* is 112 Palms long, [illegible] big at the lower End, and [illegible] at the upper End. The *Yard* of the Fore Maft is lefs long, according to the Proportion which is between both Mafts, or from 90 to 54.

The *Main Sail* is by the *Italians* called *Antenna*.

The *Gabier*, is the Sailor who ftands Centry on the Scuttle, called *Gabie* on the *Mediterranean*. There are the *great Flag*, the *Bannicre*, the *Flag of the Trinquet*, the *Weather Cocks* of the Fore Maft, the *Banner* of the Fore Maft, the *Standard*, which diftinguifhes the Nation, &c.

The *Place* of the Steerer.

The *Place* of the Captain in the *Dunette*.

The *Courfer*, or *Corfia*, which is the Paffage from the Prow to the Poop, thro' the Rows of Galley-Slaves.

The *Place* of the two *Comites*, or Officers of the Galley-Slaves.

The *Place* of the Trumpeters.

The *Cutwater* of the *Galley*, in *Italian* called *Sperone*.

The *Place* of the *Courfer*, which is a large Piece of Cannon in Battery, lodg'd on the fore Part of the *Galley*; it is commonly a 33 or 34 Pounder.

Lighter Cannons, which are commonly two Baftard-Pieces, and two others 5 or 6 Pounders. But the Galleys of the King of *France* carry only at prefent in their Stead, two 25 or 26 Pounders.

The Holes through which the Ropes run, which ferve to lift up on Board the Cannon, and other heavy Burdens.

The *Anchor* or *Grapler* of the *Galley*.

The outfide and infide Parts of the *Galleys*, and what they contain, are,

1. The *Prow*.
2. The *Poop*.
3. The *Place* of the Captain.
4. The *Bandins*, which are Places for the Knights-Volunteers.

The *Oars* of a *Galley* muft be made of Beech, 48 Palms long, and have each 5 Men to row. The Palm is a Meafure of 9 Inches.

Galleys keep ufually towards the Coafts, tho' fometimes they crofs the Sea.

The King of *France* keeps up 40 *Galleys* for the Ufe of the *Mediterranean*; the Arfenal whereof, which is a very magnificent one, being at *Marfeilles*: The General of the *Galleys* bears a double Anchor, placed in Pale behind the Efcutcheon of his Arms, as a Mark of his Authority. The prefent General of the *Galleys*, is the Chevalier *d'Orleans*, Grand Prior of *France*, of the Order of *Malta*, a natural Son of his Royal Highnefs the late Regent of *France*, *Philip* Duke of *Orleans*, by Madamoifelle *de Celi*.

Note, That *Galleys*, in *Latin*, are called *Biremes*, *Triremes*, and *Quadriremes*, not on Account of their having two, three, or four Ranges of Oars before one another, as many learned Men have imagined, and particularly *Scaliger* and *Snellius*, tho' this laft has wrote excellently on the Subject of *Navigation*; for this were impracticable: Nor yet on Account of their having but two, three, or four Oars; for then they would want Strength: But by Reafon there were two, three, or four Rowers faftened to each Oar; as is very well fhewn by F. *de Chales* a Jefuit, in his Art of Sailing. The Error was occafioned by fome antient Galleys, reprefented on Medals, or Baffo-Relievo's, wherein are feveral Ranges of Rowers placed over each other: But all the Mathematicians, Pilots, and Ship-builders, look on this as mere Vifion; in as much as *Pliny* makes mention of Galleys of 15, 20, 30, 40, or 50 Rows of Rowers, fo that if they were ranged over each other, tho' we were only to allow four Feet for each Deck, there would be a Diftance of 160 Feet between the loweft Rowers and the higheft. And yet we are affured, that the higheft Veffel ever built, was only 72 Feet high. *Scaliger* affirms, that the firft *Triremis*, or Galley of three Stories, was built at *Corinth*; and is of Opinion, that what *Pliny* calls long Ships, were what we call *Galleaffes*; the Model whereof was that of *Argonautus*. *Vegetius* mentions a Galley of five Decks; and *Memnon* another without any and only one Man to each Oar.

Note alfo, That the *French* have their *Galleys* rowed by Criminals, condemned to it for fome capital Crimes.

real or accounted such, they have committed. Those unfortunate Wretches are adjudged to serve the King as Slaves, on board the Galleys, either for ever, or for a limited Time. A Man condemned to the Galleys for Perpetuity, is dead in a civil Sense. He cannot dispose of any of his Effects; cannot inherit; and if he be married his Marriage is null: Nor can his Widow have any of her Dower out of his Goods. The Ecclesiastical Courts cannot sentence to the Galleys: It is out of their Jurisdiction and Resort. By an Ordinance of *Charles* IX. in 1564. the Judges are enjoined not to condemn a Criminal for less than 10 Years. And *Henry* III. by another in 1579. enjoins the Captains not to detain their Galley Slaves after their Time is expired; but this Law is not observed; for after an unfortunate Slave has served the Time he was condemned for, he must serve besides, before he can recover his Liberty, so many Years for the King, so many for the Queen, so many for the Dauphin, and thus almost *in infinitum*; so that a Man condemned for ten Years to the Galleys, has as little Hopes of ever recovering his Liberty, as one who is condemned for a hundred and one Years.

Note again, That the Invention of Ships is very antient, since God himself gave the first Model thereof to *Noah*, for the Building of his Ark, to save the human Race from the Waters of the Deluge. The first celebrated Ships of Antiquity, besides this Ark, are that of *Ptolemy Philopater*, which was 280 Cubits long, 38 broad, and 48 high; it carried 400 Rowers, 400 Sailors, and 3000 Soldiers. That which the same Prince made to sail on the *Nile*, we are told, was half a Stadium long. Yet these were nothing in Comparison with *Hiero*'s Ship, built under the Direction of *Archimedes*; on the Structure whereof *Moschion*, as we are told by *Snellius*, wrote a whole Volume. There was Wood enough employ'd in it to make fifty Galleys; it had all the Variety of Apartments of a Palace; Banqueting-Rooms, Galleries, Gardens, Fish-Ponds, Stables, Mills, Baths, a Temple of *Venus*, &c. It was encompassed with an Iron Rampart, eight Towers, with Walls, and Bulwarks, furnished with Machines of War; particularly one, which threw a Stone of 300 Pounds, or a Dart 12 Cubits long, the Space of half a Mile; with many other Particulars related by *Athenæus*. Among modern Ships, the most celebrated, are the *Royal Loüis*, built at *Toulon* in *France*, and at present at *Brest*, she carries 120 Guns, but is so heavy, and sails so slow, that she has never made any other Voyage but from *Toulon* to *Brest*, where it has remain'd since, and is only kept for Parade, and for a magnificent Piece of *Naval Architecture*; all the Cannon are Brass, the Apartments inside, are sumptuous, and outside it is gilt level with the Water. And another built at *Woolwich* in *England*, in 1701; the Dimensions whereof, whence those of other Rates may be deduced, are as follows: The Length 210 Feet (that of the *Royal Loüis* is 250) Number of Guns 110; Number of Men 1250 (that of the *Royal Loüis* 2000) Number of Tuns 2500; Draught of Water 22 Feet; the Main-Sail, in Length 54 Yards, Depth 19; the Main-Mast, in Length 39 Feet, in Diameter 38 Inches; Weight of the Anchor 82 *C.* 1 *q.* 14 *lb.* Cable in Length 200 Yards; Diameter of the Cable 22 Inches. The Expence of Building a common first Rate Ship, with Guns, Tackling, and Rigging, is computed at 60,000 *l.* Sterling.

Note besides, That having finished our Ship, and fitted her with all its Rigging, Tackling, *&c.* I shall next sail in her to some Parts of the World; but as this cannot be done without the Assistance of the Art of *Navigation*; we'll learn that Art in my next Treatise.

NAVIGATION.

NAVIGATION, is the Art or Act of Sailing, or of conducting a Vessel from one Place to another the safest, shortest, and most commodious Way.

This Art, in the full Latitude of the Word, comprehends three Parts. 1. The Art of constructing or building Ships, taught in the preceding Treatise. 2. The loading of Ships. And, 3. The conducting or guiding of Ships thro' the Sea, which is in a peculiar Sense called *Navigation*.

In this restrained Sense of the Word, *Navigation* is either *common* or *proper*.

Common NAVIGATION, usually called Coasting, is when the Ports are on the same, and very neighbouring Coasts; and where the Vessel is seldom out of Sight of Land, or out of Reach of Sounding.

In this, little else is required, but an Acquaintance with the Land, the Compass and sounding Line.

Proper NAVIGATION, is where the Voyage is long, and out in the Main Ocean.

In this, besides the Requisites in the former, are likewise required the Use of *Mercator*'s *Chart*, *Azimuth*, and *Amplitude Compasses*, *Log-line*, and other Instruments for celestial Observations, as *Quadrants*, *Fore-Staffs*, &c.

Navigation turns principally on four Things, two whereof being known, the rest are easily found from them, by the Tables, Scales, and Charts.

These four Things are, the *Difference of Latitude*, *Difference of Longitude*, the *Reckoning*, or *Distance run*, and the *Course*, or *Rhumb sailed on*.

The *Latitudes* are easily found, and with sufficient Accuracy.

The *Course* and *Distance* are had by the Log-Line, or dead Reckoning, and the Compass.

Nor is there any Thing wanting to the Perfection of *Navigation*, but to determine the Longitude. The Mathematicians of many Ages have applied themselves with the utmost Assiduity to supply this grand *Desideratum*, but hitherto in vain; notwithstanding the magnificent Rewards of several Princes and States to the Discoverer.

Note, That these previously observed; we'll take Care next to embark on board our Ship, but before we set sail, we must provide ourselves with the various Instruments necessary for both a common and proper *Navigation*, as *common Compasses*, *Sounding-Lines*, *Azimuth*, and *Amplitude Compasses*, *Log-Lines*, *Quadrants*, *Fore-Staffs*, *Back-Staffs*, &c. and learn the Use of each of them in particular, beginning by the *common Compass*.

The *common* SEA-COMPASS is an Instrument used by Pilots, to direct the Course of their Ships. It consists of a Box which includes a magnetical Needle, that always turns to the North; excepting for a little Declination, which is various in various Places, and even at Times in the same Place.

In the Middle of the Box is fixed a perpendicular Pivot, which bears a Card or Pasteboard, on whose upper Surface are described several concentrick Circles; the outmost of which is divided 360 Degrees; the other into 32 Points, answering to the 32 Winds.

In the Center of this Card is fitted a Brass Cone, or Cap, a little Concave, which plays at Liberty on the Pivot; and along on the Thickness of the Card is fitted the Needle, which is cover'd over with a Glass, that its Motions may be observed: The whole is inclosed in another Box; where it is sustained by Brass Hoops, to keep the Needle horizontal. *See Table Magnet.*

The Needle, which is as it were the Soul of the Compass, is made of a thin Plate of Steel in Form of a Lozenge: The Middle being cut out, so as to leave nothing but the Extremities and an Axis in the Middle, to which the Cap is fitted. To animate or touch it, it must be rubbed on a good Load-stone: That End intended for the North Point on the North Pole of the Stone; and that for the South Point on the South Pole. In rubbing it,

in rubbing it, Care muſt be taken to begin firſt in the Middle of the Lozenge, drawing it gently to the acute Angle of the Lozenge intended for the North, never ſuffering it to ſtay at the End when arrived there, nor drawing it back again from the End to the Middle, but rubbing it a ſecond, or even a third Time, in the ſame Manner as the firſt, only beginning a little further and further from the North Point: Some ſay, the Stone and Needle muſt be ſo diſpoſed, as that the Needle of the Rub be in the Direction of the Meridian.

The firſt Thing Pupil Pilots learn on this *Compaſs*, are the 32 Winds; to which the 32 Points of the Compaſs anſwer. The Names of thoſe Winds and Points, and the Diſtances of the Points, *&c.* from the *North* are as follow:

		From the North.	
1.	NORTH,	0°	0′
2.	North by Eaſt	11	15
3.	North-North-Eaſt	22	30
4.	North-Eaſt by North	33	45
5.	*North-Eaſt*	45	
6.	North-Eaſt by Eaſt	56	15
7.	Eaſt-North-Eaſt	67	30
8.	Eaſt by North	78	45
		From the Eaſt.	
9.	EAST,	0°	0′
10.	Eaſt by South	11	15
11.	Eaſt-South-Eaſt	22	30
12.	South-Eaſt by Eaſt	33	45
13.	*South-Eaſt*	45	
14.	South-Eaſt by South	56	15
15.	South-South-Eaſt	67	30
16.	South by Eaſt	78	45
		From the South.	
17.	SOUTH,	0°	0′
18.	South by Weſt	11	15
19.	South-South-Weſt	22	30
20.	South-Weſt by South	33	45
21.	*South-Weſt*	45	
22.	South-Weſt by Weſt	56	15
23.	Weſt-South-Weſt	67	30
24.	Weſt by South	78	45
		From the Weſt.	
25.	WEST,	0°	0′
26.	Weſt by North	11	15
27.	Weſt-North-Weſt	22	30
28.	North-Weſt by Weſt	33	45
29.	*North-Weſt*	45	
30.	North-Weſt by North	56	15
31.	North-North-Weſt	67	30
32.	North by Weſt	78	45

Note, That *North* and *South*, *Eaſt* and *Weſt*, are called *Cardinal Winds*, as blowing from the four Cardinal Points of the World; and all the others *Collateral*; which are divided by the Moderns into *primary* and *ſecundary*; and theſe laſt ſubdivided into thoſe of the *firſt* and *ſecond Order*. — We muſt obſerve, in the preceding Table, that the *Engliſh* Names of the *primary collateral Winds*, are compounded of the Names of the Cardinal ones, *North* and *South* being ſtill prefixed. That the Names of the *ſecundary collateral Winds* of the firſt Order, are compounded of the Cardinals, and the adjacent primary one.—That thoſe of the ſecond Order, are compounded of the Names of the Cardinal, or the next adjacent primary; and the next Cardinal with the Addition of the Word *by*.

Next, they learn the *Uſe of the Compaſs*, which is *obvious*. For the Courſe a Ship is to ſail in being known by the Chart; and the *Compaſs* ſo placed, as that the two parallel Sides of the ſquare Bore be diſpoſed according to the Length of the Ship, *i. e.* parallel to a Line drawn from the Head to the Stern, the Rudder is to be directed accordingly; *v. gr.* if the Courſe be found on the Chart, between the South-Weſt and South-South-Weſt, *i. e.* South-Weſt ¼ to the South; turn the Stern, ſo that a Line from the South-Weſt, ¼ South, exactly anſwers the Mark on the Middle of the Side of the Bore. This is all that is required.

Note, That the Invention of the *Compaſs*, in *French* called *Bouſſole*, is uſually aſcribed to *Flavio de Melſi*, or *Flavio Gicio*, a *Neapolitan*, about the Year 1302. And hence it is that the Territory of *Principato*, which makes a Part of the Kingdom of *Naples*, where he was born, bears a *Compaſs* for its Arms.—Others ſay, that *Marcus Paulus*, a *Venetian*, making a Journey in *China*, brought back the Invention with him in 1260: What confirms this Conjecture is, that at firſt they uſed the *Compaſs*, in the ſame Manner as the *Chineſe* ſtill do; *i. e.* they let it float on a little Piece of Cork, inſtead of ſuſpending it on a Pivot: It is added, that their Emperor *Chiningus*, a celebrated Aſtrologer, had the Knowledge of it 1120 Years before Chriſt: The *Chineſe* only divide their *Compaſs* into 24 Points.—*Fauchet* relates ſome Verſes of *Guyot de Provence*, who lived in *France* about the Year 1200, which ſeem to make mention of the *Compaſs* under the Name of *Marinette*, or *Mariner's Stone*; which ſhews it to have been uſed in *France* near 100 Years before either the *Melphite* or *Venetian*. The *French* even lay Claim to the Invention from the *Flower de Lis*, wherewith all Nations ſtill diſtinguiſh the North Point of the Card.

Thus pretty well acquainted with the *Compaſs* or *Bouſſole*, we'll endeavour next to render ourſelves equally familiar with the *Charts*.

A CHART, or SEA-CHART, is a hydrophical Map; or a Projection of ſome Part of the Sea in Plans, for the Uſe of *Navigation*.

There are three Kinds of *Sea-Charts*, viz. *Plain Charts*, reduced or *Mercator's Charts*, and *Globular Charts*.

Plain Charts, are thoſe wherein the Meridians and Parallels are exhibited by right Lines parallel to each other.

Theſe, *Ptolemy* in his Geography rejects, for the following Faults, though the Inventor judged them of good Uſe; and Experience has confirmed his Judgment, eſpecially in ſhort Voyages. Their Defects are, 1. That ſince in Reality all the Meridians meet in the Poles, it is abſurd to repreſent them, eſpecially in *large Charts*, by parallel Right-Lines. 2. That *plain Charts* exhibit the Degrees of the ſeveral Parallels, equal to thoſe of the Equator, and of Conſequence the Diſtances of Places lying Eaſt and Weſt, much larger than they ſhould be. And 3. In a *plain Chart*, while the ſame *Rhumb* is kept, the Veſſel appears to ſail in a great Circle; which yet is falſe.

But notwithſtanding theſe Defects in the *plain Chart*, yet the Eaſineſs of its Application has ſo reconciled it to the Mariners, that it is uſed almoſt alone; in Excluſion of the more accurate ones.

Theſe *plain Charts* are made, 1. By drawing a Right-Line, and dividing it into as many equal Parts as there are Degrees of Latitude in the Portion of the Sea to be repreſented. 2. Another Line is added to it, at right Angles, which muſt be divided into as many Parts, and thoſe equal to one another, and to the former, as there are Degrees of Longitude in the Portion of the Sea to be repreſented. 3. The Parallelogram muſt be compleated, and its Area reſolved into little Squares; then Right-Lines parallel to the two firſt will be Meridians, and the others parallel. 4. The Coaſt, Iſlands, Sands, Rocks, *&c.* muſt be inſerted in this *Chart*, from a Table of Longitudes and Latitudes, in the ſame Manner as it is done in Maps.

Hence, 1. The Latitude and Longitude of a Ship being given, her Place is eaſily exhibited in the *Chart*. 2. The Places to and from which the Ship ſails, being given in a Map, the Right-Line drawn from one to the other, makes, with the Meridian, an Angle equal to the Inclination of the Rhumb; and ſince the Parts intercepted between equidiſtant Parallels are equal, and the Inclination of the Right Line (drawn from one Place to the other) to all the Meridians or Right-Lines parallel to the firſt Right-Line, is the ſame; the Right-Line drawn from one Place to the other truly repreſents the Rhumb. After the ſame Manner may be ſhewn, that this *Chart* exhibits the *Latus mecodinamicum*, or Miles of Longitude truly.

Therefore it follows, that *Plain Charts* may be uſed to very good Purpoſe in directing a Ship, provided Care be taken there eſcape no Error in the Diſtance of the Places to and from which the Ship ſails.

But if notwithstanding, through Inadvertency, or otherwise, some Errors in the Distances had crept in *Plain Charts*, those Errors can be corrected, by making a Scale in the following Manner:—1. Upon the first Right Line, five Degrees must be transferred from the Map, and divided afterwards into 300 equal Parts, or geographical Miles.—2. On this a small Circle is described to be divided into 90 equal Parts: If then it be desired to know how many Miles make five Degrees in the parallel Fifty; the interval Fifty must be taken in the Compasses, and transferred on to the Diameter formed by the first Right-Line; then the Number of Miles required will here be shewn.

It follows, that if a Ship sails on an Eastern or Western Rhumb out of the Equator; the Miles answering to the Degrees of Longitude, will be found as in the preceding Article.—If it sail on any collateral Rhumb, still the Sailing is supposed to be an Eastern, or Western Rhumb, in an intermediate Parallel, between the Parallel of the Place whence the Ship proceeds, and the Parallel of the Place at which she arrives.

It is true this Reduction, by an arithmetically mean Parallel, is not accurate; yet it is frequently used in Practice, as being accommodated to the Apprehensions of the Generality of Mariners. In Effect it does not err any Thing considerable, if the whole Course be divided into Parts, whereof each does not exceed one Degree; whence it appears advisable, not to take the Diameter of the Semi-circle formed by the first Right-Line, above one Degree, and to divide it, at most, into geographical Miles.

To sail by means of this *Plain Chart*, 1. If both Places be more easterly than the first Meridian, the less Longitude must be substracted from the greater, and the Remainder will be the Difference of Meridians. If one of the Places be more easterly, and the other more westerly than the first Meridian, the Longitude of the most easterly must be added to the Complement of the Longitude of the most westerly to a whole Circle; the Sum is the Difference of Meridians.

2. The Difference of the Meridians is to be divided into so many Parts as there are Degrees in the Difference of Latitude; or, if the Difference of Latitude be greater than that of the Meridian, into so many fewer.

3. The Minutes of Longitude answering to one Part, must be reduced into Miles of the several Parallels in the former Case, or into Miles of the Parallel, which is an arithmetical Mean proportionable between the two in the latter Case.

4. The Aggregates of these Parts collected into one Sum, exhibit the Departure, or Miles of Longitude.

For Example, suppose the Longitude of one Place 35°, and that of the other 47°; the Difference of Meridians is 12. Suppose the Latitude of the first 4° and that of the latter 8°, the Difference will be 4°; consequently we have *sailed* from the fourth to the eighth Parallel: Therefore dividing 12 by 4, and reducing the Quotient 3° into Miles in the several Parallels 4, 5, 6, and 7; the several Quotients will be 43° 71′, 43° 68′, 43° 65′, 43° 59′: The Sum of which is 174, the Departure or Miles of Longitude required.

But we had observed, at first, that in *common Navigation*, of which we treat at present, nothing is wanted but the *Compass*, and a *Sounding Line*.

A Sounding Line, is a Line and Plummet, used in *Navigation*, to try the Depth of the Water, and the Quality of the Bottom.

There are two Kinds of *Lines* occasionally used in *Sounding* the Sea; the *sounding Line*, and the *deep Sea Line*.

The *sounding Line*, is the thickest and shortest, as not exceeding 20 Fathoms in Length; and marked at two, three, and four Fathoms, with a Piece of black Leather between the Strands; and at five with a Piece of white Leather.

The sounding Line may be used when the Ship is under Sail, which the *deep Sea-Line* cannot. The Plummet is usually in Form of a Nine-pin, and weighs 18 Pounds; the End is frequently greased, to try whether the Ground be sandy or rocky; and to discover in what Degree of Latitude the Ship is, when a Pilot thinks himself near a Coast, and could not take any Observation for several Days before; for several Coasts are discovered, either by the Quality, or Colour of the Bottom near them.—Near Banks, Shores, *&c.* they are to be sounding continually.

Dr. *Hook* has invented a Manner of *sounding* the Depth of the deepest Sea without any Line, only by a wooden Globe, lighter than Water, to which, at a little Distance, is a Piece of Lead or Stone fixed, by means of a springing Wire in the first, fitted into a Staple in the second. The whole being let gently down with the Stone or Lead foremost, as soon as that arrives at the Bottom, it will stop; but the Ball by the Impetus it has acquired in descending, will be carried a little lower after the Weight is stopped; by which Means the springing Wire will be enabled to fly back and distinguish itself, and re-ascend. By observing then the Time of the Ball's Stay under Water by a Watch or Pendulum, and the Help of some Tables, the Depth of the Sea is found.

In some Experiments made in the *Thames* with a maple Globe, $5\frac{13}{15}$ Inches in Diameter, and weighing 4 Pound and a Half, lin'd with Pitch, and a conical Weight 11 Inches long, the sharp End downwards; at the Depth of 19 Feet, there passed six Seconds, and at the Depth of 10 Feet $3\frac{1}{2}$ Seconds between the Immersion and Emersion of the Ball. From these Numbers given, the Depth at any other Stays, may be computed by the Rule of Three.

The Instruments we must embark for *a proper Navigation*, or what the *French* call, *un voiage du long cours*, are, as already observed, *Mercator's Chart*, *Azimuth*, and *Amplitude Compasses*, Log-Lines, and other Instruments for celestial Observations, as *Quadrants*, *Fore-Staffs*, *Back-Staffs*, &c.

Mercator's Chart, is that wherein the Meridians and Parallels, are represented by parallel Right-Lines; but the Degrees of the Meridians are unequal, still encreasing as they approach the Pole, in the same Proportion as those of the Parallels decrease; by means whereof the same Proportion is observed between them as on the Globe.

This *Mercator's Chart* is made, 1. By drawing a Right-Line, and dividing it into equal Parts, representing Degrees of Longitude, either in the Equator, or in the Parallel wherein the *Chart* is to terminate.

From the several Points of Divisions, Perpendiculars are erected to represent Meridians; so as Right-Lines may cut them all under the same Angle, and therefore represent *Rhumbs*.—Thus far as in the *plain Chart*.

That the Degrees of the Meridians may have their just Proportion to those of the Parallels, the former are to be increased; in regard the latter continue the same, by reason of the Parallelism of the Meridians.

In Practice, suppose it required to draw a *Mercator's Chart*, from the 40° of North Latitude, to the 50°; and from the 6° of Longitude to the 18° 1. a Right-Line must be drawn, representing the fortieth Parallel of the Equator; which must be divided into 12 equal Parts, for the 12 Degrees of Longitude the *Chart* is to contain. Then a Line of equal Parts is taken, on a Scale whereof 100 Parts are equal to each of these Degrees of Longitude, and at each Extreme of the Line two Perpendiculars are raised, to represent two parallel Meridians to be divided by the continual Addition of Secants, which are proved to increase in the same Proportion, as the Degrees of Longitude should decrease.

Thus, for the Distance from 40 Degrees of Latitude, one must take $131\frac{1}{2}$ equal Parts from the Scale, which is the Secant of 49 Deg. 30 Min. and will give the Distance from 49 Degrees of Latitude to 50 Degrees. By this Means the Degrees of Latitude will be augmented, in the same Proportion, as the Degrees of Longitude on the Globe decrease.

The Meridians being divided, the *Card* or *Compass* must be added; chusing some convenient Place near the Middle thereof; and drawing from this a Line parallel to the divided Meridians, which will be the North Rhumb; and from this the other thirty-one Points of the Compass are to be set off.

Lastly, the Towns, Ports, Islands, Coasts, *&c.* are to be laid down from a Table of Longitudes and Latitudes, and the *Chart* is compleat.

In *Mercator's Chart*, the Scale changes as the Latitude

is changed: If then, *v. gr.* a Ship ſails between the fortieth and fiftieth Parallels of Latitude, the Degrees of the Meridians between thoſe two Parallels, are to be the Scale for meaſuring the Ship's Way; whence it follows, that tho' the Degrees of Longitude be equal in Extent on the *Chart*, yet they muſt contain unequal Numbers of Miles or Leagues; and that they will decreaſe as they approach nearer the Pole, becauſe meaſured by a Magnitude continually increaſing.

This *Chart* is demonſtratively true, tho' to Appearance falſe: It is found by Experience very accurate, and withal eaſy of Explication. In effect, it has all the Qualifications required to render it of Service in Navigation; yet do the Generality of Mariners decline the Uſe of it, and rather chuſe to keep the old erroneous *plain Chart*.

Note, That this *Chart* has its Name from that of the Author who firſt propoſed it for Uſe, and made the firſt *Chart* of this Projection, *N. Mercator:* But the Thought was not originally his own, as having been hinted by *Ptolemy*, near 2000 Years ago; and the *Engliſh* ſay, that the Perfection thereof is owing to their Countryman Mr. *Wright*, who firſt demonſtrated it, and ſhew'd a ready Way of conſtructing it, by enlarging the Meridian Line by the continual Addition of Secants.

To ſail by Means of *Mercator*'s *Chart*, the following Obſervations are to be made.

I. *The Longitude and Latitude of two Places given, to find the Departure or Miles of Longitude, in* Mercator's *Sailing* (which we have already found in *plain Sailing*) the Reduction whereof is much more commodiouſly performed in *Mercator*'s *Charts*; wherein the Arch intercepted between the two Meridians, is applied to an Arch of the Meridian intercepted between the two Parallels; and the Diſtance in their Meaſures, gives the Departure, or Miles of Longitude required.

II. *The Longitude and Latitude of two Places, to and from which a Ship is to ſail, being given; to find the Rhumb to be ſailed on, and the Diſtance to be run in* Mercator's *Sailing*. — 1. The Center of the Mariner's Compaſs is applied on the Place ſailed from, on *Mercator*'s *Chart*, and ſo as that the North and South Line thereof be parallel to ſome of the Meridians. 2. The Rhumb of the Compaſs is marked, wherein the Place ſailed to is placed; for this is the Rhumb to be ſailed on. 3. The ſame Rhumb is likewiſe found by drawing a right Line from the Place ſailed from to that ſailed to; and with a Protractor, finding the Angles the Rhumb makes with any Meridian it cuts.

Note, That the Rhumb and Diſtance may alſo be found after the ſame Manner on a plain *Chart*.

The ſame may likewiſe be found by *Loxadromick* Tables; thus, 1. Chuſe a Rhumb at Pleaſure, and under the ſame, in the Tables, find the Longitudes correſponding to the given Latitudes. The Difference whereof, if it coincides with the Difference of the given Longitudes, the Rhumb is well choſen; otherwiſe another muſt be pitched on, either more or leſs oblique, till the tabular Difference agrees with the given Difference. 2. The Rhumb thus found, the Diſtances anſwering to the given Latitudes, muſt be taken from the Tables, and the leſſer ſubſtracted from the greater, the Remainder is the Diſtance ſought.

Note, That the ſame Operation in *plain Sailing* is made in this Manner. 1. One muſt find the Departure, by the firſt Caſe propoſed, when I have mentioned *Sailing*, by Means of plain Charts. 2. From the Departure and Difference of Latitude, the loxadromick Angle, or Rhumb Line is to be found; which is done by this Proportion: As the Difference of Latitude is to the Departure, ſo is the whole Sine to the Tangent of the Angle of the Rhumb Line. The Diſtance then to be run on this Rhumb, is to the Departure, as the whole Sine to the Sine of the Angle of the Rhumb.

III. *The Rhumb and Diſtance ſailed being given; to find the Longitude and Latitude of the Place arrived at, in* Mercator's *Sailing*. —— 1. The Mariner's Compaſs is placed on the *Chart*, with the Center over the Place ſailed from; and the Meridian, and North or South Line, parallel to the Meridian thereof. 2. From the Place ſailed from, a right Line is drawn for the Ship's Courſe: Then the Diſtance is taken by Parts, in Parts of the Meridian, and is ſet off upon the right Line, then will C be the Place the Ship is arrived at; the Longitude and Latitude whereof are given by the *Chart*.

To find it by the loxodromick Tables. —— 1. Under the given Rhumb, ſeek the Diſtance anſwering to the Latitude of the Place ſailed from; and either add it to, or ſubſtract it from the given Diſtance, as the Latitude of the Place ſailed to is greater, or leſs than that ſailed from. 2. Under the ſame Rhumb, aſcend or deſcend further, till you meet with the Diſtance corrected. 3. The Latitude anſwering thereto in the firſt Column, is the Latitude of the Place ſailed to. 4. From the ſecond Column of the Table, take the Longitudes correſponding to the Latitudes of the Places ſailed to, and from. Their Difference is the Difference of Longitude of the Places ſailed to and from.

Note, That in *plain Sailing*, i. e. by *common Charts*, the Operation is conducted thus. 1. From the *Data*, the Difference of Latitude of the two Places is found; this Difference added to the Latitude of the Place ſailed from, or ſubſtracted from the ſame, the Sum, or the Remainder, leaves the Latitude of the Place ſailed to. 2. From the ſame, the Departure muſt be found; and thence the Latitude of the Place ſailed to.

IV. *The Latitudes of the Places ſailed to and from, together with the Rhumb ſailed in, being given; to find the Diſtance and Difference of Latitudes, in* Mercator's *Sailing*. —— 1. The Compaſs is placed on the *Chart* as in the preceding Caſe; and from the Place ſailed from, the Rhumb Line ſailed in is drawn, till it cuts the Parallel of the given Latitude. 2. The Point of Interſection will be the Place arrived in. 3. Hence its Longitude is eaſily found, and the Diſtances.

By the Tables. Take both the Longitude and the Diſtances, anſwering to the Latitudes of the given Places, out of the Tables; then ſubſtract both the Longitudes and the Diſtances from each other. The firſt Remainder is the Difference of Longitude, the *latter* the Diſtance of the Places.

Note, That the ſame Operation in *plain Sailing*, is made by finding the Diſtance from the Difference of Latitude and the Rhumb given; and from the ſame Data the Departure. This converted into Degrees of a great Circle, exhibits the Difference of Longitudes ſought.

V. *The Latitudes of the Places ſailed from and to, with the Diſtance given; to find the Rhumb, and the Difference of Longitude, in* Mercator's *Sailing*; the Parallel the Ship arrives at, is drawn on the Map; and the Diſtance run reduced into Parts proportional to the Degrees of the Map.

By the Tables; ſubſtract the given Latitudes from each other; and in the Tables ſeek the Rhumb, under which the Diſtance run anſwers to the given Difference of Latitude. Subſtract the Longitude under the Rhumb, anſwering the Latitude of the Place ſailed to, and that under the ſame Rhumb againſt the Latitude of the Place ſailed to, from each other; the Remainder is the Difference of Longitude ſought.

Note, That the Operation in *plain Sailing*, runs thus. — A Rhumb is to be found from the Difference of Latitude, and the Diſtance; and from the ſame Data, the Departure muſt be found, likewiſe; which may be alſo determined from the Rhumb now found, and the Difference of Latitude; or from the Rhumb and the Diſtance run. Laſtly, from the Departure the Difference of Longitude is to be found.

VI. *The Difference of Longitudes of the Places ſailed to and from, with the Latitude of one of the Places, and the Diſtance run being given; to find the Rhumb and the Latitude of the other, in* Mercator's *Sailing*; a right Line is drawn thro' the Place given in the Map, parallel to the Meridian, making another Line equal to the Difference of Longitude; then another Parallel is drawn wh[illegible]

will be the Meridian the Ship is arrived at. Afterwards with the Interval of the Diſtance run, an Arch is deſcribed interſecting the Meridian, whereby the Place ſought is found.

By the Tables. We may take a Rhumb at Pleaſure, and under the ſame, in the Tables, find the Longitude, and the Diſtance anſwering to the given Latitude. Adding the given Diſtance to the Diſtance found in the Tables, if the Veſſel ſailed from the Equator; or ſubſtracting it therefrom, if it ſailed towards the ſame. With the ſame Sum, or the Difference, we muſt enter the Tables; ſubſtracting or adding the Longitude found againſt it, to that juſt found. If the Remainder be found the given Difference of Longitudes, the Rhumb is well taken. Otherwiſe it muſt be changed for a more, or leſs oblique one; till the ſame Operation being repeated, the Remainder be found the Difference of Longitudes; then the Latitude in the firſt Column, correſponding to the Diſtance, will be the Latitude of the other Place.

Note, That the Operation in *plain Sailing*, is made by converting the Difference of Longitudes into Miles of Longitude for the Departure; ſeeking the Rhumb from the given Departure and Diſtance run; and from the ſame, and the Rhumb, ſeeking the Difference of Latitude; which, and the Latitude of one Place being had, the Latitude of the other readily follows.

VII. *The Difference of Longitude, and the Latitude of one of the Places given, together with the Rhumb, to find the Differences run, and the Latitude of the other Place, by* Mercator's *Sailing*: The Compaſs muſt be placed on the *Chart* as before; and by the given Rhumb the Rhumb-Line is drawn, and a Meridian thro' the given Place, and another with the Interval of the Difference of Longitude, for that the Veſſel is arrived at. Where this interſects the Rhumb-Line, is the Place where the Veſſel is arrived at. Wherefore if thro' that Place be drawn a Line parallel to the Rhumb-Line, the Diſtance between both Lines will be the Latitude of the Place. The Diſtance run is eaſily reduced into Miles by the Scale.

By the Tables. Under the given Rhumb, ſeek the Diſtance run, and the Difference of Longitude anſwering to the given Latitude. If the Veſſel has ſailed towards the Pole, the Difference of Longitude is to be added to the given Difference of Longitude; if towards the Equator, it is to be ſubſtracted from the ſame. In the former Caſe deſcend in the Table, and in the latter, aſcend; till in the firſt, the Aggregate, in the latter, the Difference be ſeen in the Column of Longitude. The Latitude anſwering hereto in the firſt Column, is that ſought. And from the Diſtance anſwering to the Latitude in the firſt Caſe, the tabular Diſtance is to be ſubſtracted. What remains is the Diſtance run.

Note, That in *plain Sailing*, the Difference of Longitude muſt be reduced into Miles of Longitude or Departure, as under the firſt Caſe. From the Departure and the Rhumb, the Diſtance run is found; and from theſe, or from the Rhumb, and the Diſtance run, the Difference of Latitude. This done, as the Latitude of the one is already had, that of the other is ſo too.

Note alſo, That from the Solution of theſe Caſes in *Sailing*, it is evident, ſome are more eaſily performed by the *Charts*, than the Tables; and that the *Mercator's Charts* are preferable to the plain ones; ſince in the latter, the Diſtance is not reduced by the Map, but by a particular Care for that Purpoſe.

Note again, That in the preceding Operations we have often mentioned *Rhumbs*, and *Rhumb-Lines*: What are thoſe *Rhumbs*? and what thoſe *Rhumb-Lines*?

RHUMB, according to *Aubin*, is a Line on the terreſtrial Globe, Sea-Compaſs, or Sea-Chart, repreſenting one of the 32 Winds, which ſerve to conduct a Veſſel. So that the *Rhumb* a Veſſel purſues, is conceived as its Rout or Courſe.

Rhumbs are divided, and ſubdivided like Points. Thus the whole *Rhumb* anſwers to the Cardinal Point. The half *Rhumb* to a collateral Point, or makes an Angle of 45 Degrees with the former. The Quarter *Rhumb* makes an Angle of 22° 30′ therewith. And the half Quarter *Rhumb* makes an Angle of 11° 15′.

A RHUMB-LINE, *Loxodromia*, is the Line which a Ship keeping in the ſame collateral Point or *Rhumb*, deſcribes throughout its whole Courſe.

The great Property of this *Rhumb-Line*, or *Loxodromick*, and that from which ſome Authors define it, is, that it cuts all the Meridians under the ſame Angle. This Angle is called the *Angle of the Rhumb*, or the *loxodromick Angle*.

The Angle, which the *Rhumb-Line* makes with any Parallel to the Equator, is called the Complement of the *Rhumb*.

An Idea of the Origin and Properties of the *Rhumb-Line*, the great Foundation of *Navigation*, may be conceived thus: A Veſſel beginning its Courſe, the Wind wherewith it is driven makes a certain Angle with the Meridian of the Place; and as it is ſuppoſed the Veſſel runs exactly in the Direction of the Wind, it makes the ſame Angle with the Meridian which the Wind makes.

Suppoſing then the Wind to continue the ſame; as each Point or Inſtant of the Progreſs may be eſteemed the Beginnings. The Veſſel always makes the ſame Angle with the Meridian of the Place where it is each Moment, or in each Point of its Courſe, which the Wind makes.

Now a Wind, *e. gr.* that is North-Eaſt, and which of Conſequence makes an Angle of 45°, with the Meridian, is equally North-Eaſt wherever it blows; and makes the ſame Angle of 45°, with all the Meridians it meets. A Veſſel therefore driven by the ſame Wind, always makes the ſame Angle with all the Meridians it meets withal on the Surface of the Earth.

If the Veſſel ſails North and South, it makes an Angle infinitely acute with the Meridian, *i. e.* it is parallel to it, or rather ſails in it. If it runs Eaſt and Weſt, it cuts all the Meridians at right Angles.

In the firſt Caſe it deſcribes a great Circle; in the ſecond, either a great Circle, *viz.* the Equator, or a Parallel to it. If its Courſe be between the two, it does not then deſcribe a Circle; ſince a Circle drawn in ſuch a Manner, would cut all the Meridians at unequal Angles, which the Veſſel cannot do.

It deſcribes therefore another Curve, the eſſential Property whereof is, that it cuts all the Meridians under the ſame Angle. This Curve is what we call the *loxodromick Curve*, *Rhumb-Line*, or *Loxodromy*.

It is a Kind of Spiral, which like the logarithmick Spiral, makes an Infinity of Circumvolutions, without ever arriving at a certain Point, towards which it ſtill tends, and towards which it approaches every Step.

This Aſympotick Point of the *Rhumb-Line*, is the Pole, to which were it poſſible for it to arrive, it would find all the Meridians conjoined, and be loſt in them.

The Courſe of a Veſſel, then, except in the two firſt Caſes, is always a Rhumb-Line; which Line is the Hypotheneuſe of a Rectangle-Triangle, whoſe two other Sides are the Ship's Way, or Diſtance run in Longitude and Latitude. Now the Latitude is uſually had by Obſervation (as we'll ſee in the Sequel) and the Angle of the *Rhumb*, with one or other of the two Sides, by the Compaſs.

All therefore that is required by Calculation in Sailing, is the Value of the Length of the *Rhumb-Line*, or the Diſtance run.

But as ſuch Curve Line would prove very perplexing, in the Calculation; it was neceſſary to have the Ship's Way in a right Line, which right Line, however, muſt have the eſſential Property of the Curve Line, *viz.* to cut all the Meridians at right Angles.

The Uſe of the *Rhumb-Line* in *Navigation*, is as follows. 1. If ſeveral Meridians be not very far a-part, the *Rhumb-Line* is divided by the equi-diſtant Parallels, into equal Parts.

Hence, 1. The Parts of ſeveral *Rhumb-Lines*, are as the ſeveral Latitudes of the Places the Ship ſails from and to. 2. Since the Arches form'd thereby are equal in Magnitude, and therefore unequal in Numbers of Degrees, the Sum of the Arches, called the *Latus mecodinamicum*,

micum, or Miles of Longitude, is not equal to the Difference of Longitude of the two Places above-mentioned.

2. The Length of the *Rhumb-Line*, is to the Change or Difference of Latitude, in the same Ratio as the whole Sine to the Co-Sine of the Angle of the *Rhumb*.

Hence, 1. The *Rhumb* sailed on being given, together with the Difference or Change of Latitude, turned into Miles; the Length of the *Rhumb-Line*, or the Distance from one Place to another upon the same *Rhumb*, is had by the Rule of Three. 2. The *Rhumb-Line* being given, together with the Quantity of the Ship's Way, on the same *Rhumb*; the Difference of Latitude is had by the Rule of Three, in Miles to be converted into Degrees of a great Circle. 3. The Difference of Latitude being given in Miles; as also the Length of the *Rhumb-Line*; the Angle of the *Rhumb*, and consequently the *Rhumb* sailed on, is had by the Rule of Three. 4. Since the Co-Sine is to the whole Sine, as the whole Sine to the Secant; the Difference of Latitude is to the Length of the *Rhumb-Line*, as the whole Sine to the Secant of the *Rhumb*.

3. The Length of the *Rhumb-Line*, or of the Ship's Way in the same *Rhumb*, is to the *Latus mecodinamicum*, or *mecodinamick Side*, as the whole Sine to the Sine of the *loxodromick Angle*.

Hence, 1. The *Rhumb*, or Angle of the *Rhumb*, being given, as also the Ship's Way in the same *Rhumb-Line*; the *mecodinamick* Side is had by the Rule of Three, in Miles, *i. e.* in the same Measure wherein the Length of the *Rhumb* is given. 2. In like Manner, the *mecodinamick* Side being given, as also the *Rhumb-Line* or Ship's Way; the *Rhumb* sailed in, is found by the Rule of Three.

4. The Change of Latitude, is to the *mecodinamick* Side, as the whole Sine to the Tangent of the *loxodromick Angle*.

Hence the *Rhumb*, or *loxodromick Angle*, and the Change of Latitude being given; the *mecodinamick* Side is found by the Rule of Three.

5. The *mecodinamick* Side is a mean Proportional, between the Aggregate of the *Rhumb*, and the Change of Latitude, and their Difference.

Hence the Change of Latitude, and the *Rhumb-Line*, being given in Miles; the *mecodinamick* Side is found in the same Measure.

6. The *mecodinamick* Side being given, to find the Longitude.

Multiply the Change or Difference of Latitude by six, which reduces it into Parts, of ten Minutes each; divide by the Product the *mecodinamick* Side; the Quotient gives the Miles of Longitude, answering to the Difference of Latitude in ten Minutes; reduce these Miles of Longitude in each Parallel into Differences of Longitude, from a *loxodromick* Table: The Sum of these is the Longitude required.

7. If a Ship sails on a North or South *Rhumb*, it describes either the Equinoctial, or a Parallel thereto.

8. To find the *Rhumb* between two Places, by *Calculation*, or *geometrically*, we have two Canons or Proportions: The first, as the Radius is to the half Sum of the Co-Sines of both Latitudes; or (rather for geometrical Schemes) as the Diameter is to the Sum of the Co-Sines of both Latitudes, so is the Difference of Longitude, to the Departure from the Meridian.

For an Example of the former Proportion. — Let the *Rhumb* be required between Cape *Finister*, Lat. 43° Long. 7°, 20′, and St. *Nicholas* Isle, Lat. 38°, Long. 352°. The middle Latitude is 40°, 30′, the Complement 49°, 30′, and the Difference of Longitude 15°, 20′; out of these lesser equal Parts, prick down 15°, and describe an Arch with 60° of the Chords, and make it equal to 49°; then draw an Arch continued to the further Distance, making the nearest Distance the Leg of a right angled Triangle, and the other Leg the Difference of Latitude 5°, which must be pricked from the equal Parts. Thus the Extent measured on the said Parts, shews the Distance to be 13°, 24′; which allowing 20 Leagues to a Degree, is almost 268 Leagues. Then the *Rhumb* Triangle must be crossed with the Radius; which Extent measured on the greater Chord is almost 22°, the Complement whereof is 68°; and so much is the *Rhumb* from the Meridian between the two Places, amounting to 6 Points, and upwards of 80 Minutes.

For an Instance of the last Proportion. — Let it be required to find the *Rhumb* and Distance between the *Lizard* and *Bermudas*, the Latitude of the *Lizard* being 56°, and that of *Bermudas* 32°, 20′; or 32°, 4′, Centesms, and their Difference of Longitude, 55°, two Lines must be drawn at right Angles, and with 60° of the lesser Chords, a Quadrant must be described, and Radius pricked, the second Line drawn will be the Diameter; then counting both Latitudes, the nearest Distance is the Co-Sine of *Bermudas* Latitude; and the nearest Distance to this is the Co-Sine of the *Lizard*'s Latitude. Then drawing again another Line, and pricking down 55 Degrees out of the greatest equal Parts, and a Parallel to the Line last drawn, the Distance from the first of the 55 Degrees to the right End of the Parallel is the Departure from the Meridian in the Course between both Places. Making that, therefore, one Leg of a right angled Triangle, prick down 17°, 59 Centesms, the Difference of Latitude between those Places, and at the same equal Parts draw a Line. This represents the Course and Distance between the *Lizard* and *Bermudas*; and the Extent measured on the same equal Parts, shews the Distance to be 44°, 31 Centesms, which allowing 20 Leagues to a Degree, is 886 Leagues.

Note, That to avoid the Errors proceeding from the Inaccuracy of the *Charts*, particularly towards the Poles, because of the great Inequality of the Extent of each Degree of Longitude in those Parts of the World, they have contrived Tables of Reduction of a Degree of each Parallel, from the Equator to the Pole, and Scales proportional to that Reduction, whereby all the Accidents which could happen are prevented. For Instance,

A Ship sails from the Coast of *Norway*, by the 28° of Longitude, and 6° of Latitude, for the Isles of *Orkney*, situated on the North of *Scotland*, which are under the same Latitude, but at the 16° of Longitude: The Pilot consulting his *Chart*, and finding 12° of Difference betwixt those two Places, will judge that there are 240 Leagues Distance, if he don't know how to make Use of the Tables, and Scale of the Reduction of Parallels; therefore having put the Cape to the West, if the Wind proves favourable, he'll esteem the Course of his Ship, at 50 Leagues daily; and expect to reach the Coast the fifth Day of his Departure: Notwithstanding which, because those 12° of Longitude of the 60 Parallel, are worth but 120 Leagues, he'll reach the Coast once sooner than he expected, *i. e.* in two Days and a half; so that believing himself to have Sea-Room, and far from Land, he finds himself either stranded in the Night, or goes to wreck his Ship on some Rocks.

Note also, That the Scales used on the *reduced Charts*, are commonly made on the Sides of the *Charts*, or along the first Meridian, by dividing each Distance comprized between the Parallels into ten Degrees or equal Parts, but that Practice is not exact, because those Degrees should be proportionally unequal, like the Distances of those Parallels, which the nearer the Poles the larger they are. That drawn a-cross the whole *Chart* is more just, provided it makes an Angle of 29 Degrees with the Meridians; and it would be still more perfect, if each Distance was divided proportionally into Degrees.

Note again, That here follows a *Table of Reduction*, of the Minutes of each Parallel, into Leagues and geometrical Paces.

TABLE

TABLE OF REDUCTION.

Of the Minutes of each Parallel into Leagues and geometrical Paces.

Parallels.	10 Minutes. Leagues of 3000 Paces	10 Minutes. geometrical Paces	20 Minutes. Leagues of 3000 Paces	20 Minutes. geometrical Paces	30 Minutes. Leagues of 3000 Paces	30 Minutes. geometrical Paces
0	3	1000	6	2000	10	10000
1	3	0999	6	1997	9	9995
2	3	0994	6	1987	9	2981
3	3	0986	6	1973	9	2959
4	3	0976	6	1951	9	2927
5	3	0962	6	1923	9	2885
6	3	0945	6	1890	9	2835
7	3	0926	6	1852	9	2776
8	3	0903	6	1805	9	2708
9	3	0877	6	1753	9	2630
10	3	0849	6	1698	9	2547
11	3	0816	6	1633	9	2449
12	3	0781	6	1563	9	2344
13	3	0744	6	1487	9	2230
14	3	0703	6	1406	9	2108
15	3	0659	6	1318	9	1977
16	3	0613	6	1225	9	1838
17	3	0563	6	1126	9	1688
18	3	0512	6	1023	9	1535
19	3	0455	6	0910	9	1365
20	3	0397	6	0793	9	1190
21	3	0336	6	0672	9	1007
22	3	0272	6	0554	9	0815
23	3	0205	6	0410	9	0615
24	3	0136	6	0272	9	0408
25	3	0063	6	0126	9	0189
26	2	2988	5	2976	8	2964
27	2	2910	5	2820	8	2730
28	2	2829	5	2659	8	2488
29	2	2746	5	2492	8	2238
30	2	2660	5	2320	8	1980
31	2	2571	5	2142	8	1715
32	2	2481	5	1961	8	1442
33	2	2387	5	1774	8	1160
34	2	2290	5	1581	8	0871
35	2	2190	5	1383	8	0574
36	2	2090	5	1180	8	0270
37	2	1987	5	0993	7	2960
38	2	1880	5	0760	7	2640
39	2	1772	5	0543	7	2315
40	2	1660	5	0320	1	7980
41	2	1547	5	0094	7	1641
42	2	1431	4	2863	7	1294
43	2	1314	4	2627	7	0940
44	2	1194	4	2239	7	0583
45	2	1071	4	2142	7	0213
46	2	0947	4	1893	6	2840
47	2	0820	4	1640	6	2460
48	2	0691	4	1283	6	2074
49	2	0560	4	1121	6	1682
50	2	0428	4	0855	6	1283
51	2	0293	4	0586	6	0879
52	2	0157	4	0313	6	0470
53	2	0018	4	0036	6	0054
54	1	2878	3	2755	5	2633
55	1	2736	3	2471	5	2207
56	1	2592	3	2184	5	1775
57	1	2446	3	1893	5	1339
58	1	2299	3	1301	5	0451
59	1	2150	3	1301	5	0451
60	1	2000	3	1000	5	0000
61	1	1849	3	0698	4	2547
62	1	1695	3	0389	4	2084
63	1	1540	3	0080	4	1619
64	1	1384	2	2767	4	1151
65	1	1226	2	2452	4	0679
66	1	1067	2	2135	4	0202
67	1	0907	2	1813	3	2721
68	1	0746	2	1492	3	2238
69	1	0584	2	1167	3	1751
70	1	0420	2	0840	3	1260
71	1	0257	2	0513	3	0770
72	1	0090	2	0181	3	0271
73	0	2924	1	2848	2	2772
74	0	2757	1	2513	2	2270
75	0	2588	1	2176	2	1765
76	0	2419	1	1838	2	1258
77	0	2249	1	1499	2	0748
78	0	2079	1	1158	2	0237
79	0	1908	1	0816	1	2723
80	0	1737	1	0473	1	2210

TABLE OF REDUCTION.

Of the Minutes of each Parallel into Leagues and geometrical Paces.

0	13	1000	16	2000	20	0000
1	13	0994	16	1992	19	2991
2	13	0975	16	1968	19	2962
3	13	0757	16	1947	19	2918
4	13	0903	16	1878	19	2854
5	13	0851	16	1813	19	2770
6	13	0781	16	1726	19	2671
7	13	0702	16	1628	19	2553
8	13	0611	16	1513	19	2416
9	13	0507	16	1383	19	2260
10	13	0397	16	1246	19	0295
11	13	0265	16	1082	19	1898
12	13	0125	16	0907	19	1888
13	12	2974	16	0717	19	1461
14	12	2811	16	0514	19	1217
15	12	2637	16	0296	19	0955
16	12	2451	16	0063	19	0676
17	12	2251	15	2814	19	0377
18	12	2047	15	2559	19	0071
19	12	1820	15	2275	18	2730
20	12	1587	15	1983	18	2380
21	12	1343	15	1678	18	2014
22	12	1087	15	1359	18	6631
23	12	0821	15	1026	18	1231
24	12	0544	15	0680	18	0816
25	12	0252	15	0315	18	0378
26	11	2952	14	2940	17	2928
27	11	2640	14	2550	17	2460
28	11	2317	14	2177	17	1976
29	11	1984	14	1730	17	1476
30	11	1641	14	1301	17	0961
31	11	1285	14	0857	17	0429
32	11	0922	14	0403	16	2883
33	11	0547	13	2933	16	2320
34	11	0161	13	2452	16	1742
35	10	2765	13	1957	16	1148
36	10	2360	13	1450	16	0540
37	10	1946	13	0933	15	2919
38	10	1520	13	0400	15	2280
39	10	1086	12	2858	15	1629
40	10	0640	12	2300	15	0959
41	10	0188	12	1735	15	0282
42	9	2726	12	1157	14	2589
43	9	2254	12	0567	14	1881
44	9	1778	11	2973	14	1167
45	9	1285	11	2356	14	0427

10 Mi-

	10 Minutes.		20 Minutes.		30 Minutes.	
Parallels.	*Leagues of 3000 Paces*	*geometrical Paces*	*Leagues of 3000 Paces*	*geometrical Paces*	*Leagues of 3000 Paces*	*geometrical Paces*
46	9	0787	11	1733	13	2680
47	9	0280	11	1100	13	1920
48	8	2765	11	0457	13	1148
49	8	2242	10	2803	13	0363
50	8	1711	10	2139	12	2567
51	8	1173	10	1466	12	1759
52	8	0626	10	0783	12	0939
53	8	0073	10	0091	12	0109
54	7	2511	9	2389	11	2267
55	7	1943	9	1678	11	1414
56	7	1367	9	0959	11	0551
57	7	0785	9	0232	10	2678
58	7	0197	8	2497	10	1796
59	6	2601	8	1752	10	0902
60	6	2000	8	1000	10	0000
61	6	1397	8	0246	9	2095
62	6	0779	7	2473	9	1168
63	6	0159	7	1699	9	0239
64	5	2535	7	0918	8	2302
65	5	1905	7	0131	8	1357
66	5	1269	6	2337	8	0404
67	5	0628	6	1535	7	2442
68	4	2983	6	0729	7	1475
69	4	2335	5	2918	7	0502
70	4	1681	5	2101	6	2521
71	4	1027	5	1283	6	1540
72	4	0362	5	0452	6	0543
73	3	2696	4	2620	5	2544
74	3	2027	4	1783	5	1540
75	3	1353	4	0941	5	0529
76	3	0677	4	0096	4	2515
77	2	2998	3	2247	4	1497
78	2	2316	3	1396	3	2447
79	2	1631	3	0539	3	2447
80	2	0947	2	2683	3	1420

The next Instrument, in Order, of those we have embarked for our Voyage, is the *Azimuth Compass*, which differs from the *Common Compass* in this, that there is fastened on the round Box wherein the Card is, a broad Circle, one half whereof is divided into 90 Degrees; and those subdivided diagonally into Minutes. The Index has a Sight moving on a Hinge. From the upper Part of the Sight, to the Middle of the Index, is fastened a fine hypothenusal Lutestring, to give a Shadow on a Line in the Middle of the Index. The Circle is crossed at right Angles with two Threads, from the Extremities whereof are drawn four Lines on the Inside of the round Box: There are also four Lines drawn at right Angles to each other on the Card. The round Box fitted with its Card, graduated Circle, and Index, is hung in Brass Hoops, and those Hoops fastened to a square Box.

The Use of the *Azimuth Compass*, is for finding the Scale, magnetical Azimuth, or Amplitude; and thence the Variation of the Compass.

If the Observation be for an Amplitude at Sun-rising, or an *Azimuth* before Noon; apply the Center of the Index on the West Point of the Card, within the Box; so that the four Lines on the Edge of the Card, and those on the Inside of the Box may meet. If the Observation be for the Sun's Amplitude setting, or an *Azimuth* in the Afternoon, turn the Center of the Index right against the East Point of the Card, and make the Lines within the Box concur with those on the Card: The Instrument thus fitted for Observation, turn the Index towards the Sun, till the Shadow of the Thread falls directly on the Slit of the Sight, and on the Line that is along the Middle of the Index; then will the inner Edge of the Index cut the Degree and Minute of the Sun's magnetical *Azimuth* from the North or South.

But note, that if, when the Compass is thus placed, the *Azimuth* is less than 45 Degrees from the South, and the Index turned towards the Sun, it will pass off the Divisions of the Limb: The Instrument, therefore, in this Case, must be turned just a Quarter of the Compass, *i. e.* the Center of the Index must be placed on the North or South Point of the Card, according as the Sun is from you; and then the Edge will cut the Degree of the magnetick *Azimuth*, or Sun's *Azimuth* from the North as before.

The Sun's magnetical Amplitude thus found, the Variation of the Needle is thus determined.

Being out at Sea the 15th of *May*, 1744, in 45° North Latitude, the Tables give you the Sun's Latitude 19° North, and its East Amplitude 27° 25′ North: By the *Azimuth Compass*, we find the Sun's magnetical Amplitude, at its Rising and Setting; and finds he rises, *v. gr.* between the 62d and 63d Degree, reckoning from the North towards the East Point of the Compass, *i. e.* between the 27th and 28th Deg. reckoning from the East.

The magnetical Amplitude, therefore, being here equal to the true one, the Needle has no Variation: But if the Sun at its Rising should have appeared between 52d and 53d Degree, from the North towards the East; his magnetical Amplitude would then have been between 37 and 38 Degrees, *i. e.* about 10 Degrees greater than the true Amplitude: Therefore the Needle would vary about 10 Degrees North Easterly.

If the magnetical East Amplitude found by the Instrument, should be less than the true Amplitude, their Difference would shew the Variation of the Needle Easterly.

If the true East Amplitude be Southward, as also the magnetical Amplitude, and this last be the greater; the Variation of the Needle will be North-West; and *vice versâ*.

What has been said of North-East Amplitudes, holds also of South-West Amplitudes. And what of South-East Amplitudes, holds of North-West Amplitudes.

Lastly, if Amplitudes be found of different Denominations, *v. gr.* if the true Amplitude be 6 Degrees North, and the magnetical Amplitude 5 Degrees South; the Variation, which in this Case is North-West, will be equal to the Sum of the magnetical and true Amplitudes: Understand the same for West Amplitudes.

The Variation may likewise be found from the *Azimuth*: But in that Case, the Sun's Declination, Latitude of the Place, and its Altitude must be given, that its true *Azimuth* may be found.

Note, That *Azimuth* of the Sun, or a Star (as observed in my Treatise of *Astronomy*) is an Arch of the Horizon, comprehended between the Meridian of the Place, and any given Vertical. The *Azimuth* is the Complement of the Eastern and Western Amplitude to a Quadrant. *Magnetical Azimuth*, is an Arch of the Horizon contained between the Sun's *Azimuth* Circle, and the magnetical Meridian; or it is the apparent Distance of the Sun, from the North or South Point of the Compass.

Note also, That *Amplitude* is an Arch of the Horizon, intercepted between the true East or West Point thereof, and the Center of the Sun, or a Star, at its Rising or Setting. Amplitude is of two Kinds, *Eastern* or *Rising Amplitude*, *Amplitudo occidaria*, is the Distance between the Point wherein the Star sets, and the true Point of the West in the Equinoctial. The *Eastern* and *Western Amplitudes*, are also called *Northern* and *Southern*, as they fall in the Northern or Southern Quarters of the Horizon. *Magnetical Amplitude* is an Arch of the Horizon, contained between the Sun at its Rising, and the East or West Point of the Compass, or it is the Difference of the Rising or Setting of the Sun, from the East or West Point of the Compass.

The *Equinoctial Compass*, which we have, likewise, among our Instruments, serves to know at what Point is the Moon. That Compass being risen on the Superficy of the Equinoctial Line, divides it justly into equal Parts, as the common Compass does the Horizon. We see the Line which runs through the Figure of that Compass, represents the Axis of the World. The Round before the Compass must be marked on both Sides, as well

well upwards and downwards. Inside with a common Compass, and on the Outside with twice twelve Hours; and on both Sides, which mark the East and West, it must be suspended on the Tops of two Pegs, as an Axle-tree, so that it may turn upwards, and that the lower Part of the Arrow, which is on the Quadrant, may be placed on all the Altitudes of the Pole.

The *nocturnal Compass*, is a very common Instrument, used to find at all Hours of the Night, how much the *northern Star* is higher or lower than the Pole. It is also called a *Quadrant for the Stars*, because it shews the Hours in the Night by means of the Stars. Mariners make use most commonly for that Purpose, of the Stars of *Ursa Major*, in this Hemisphere, because they are more remarkable than the others which are nearer the northern Pole; but in the other Hemisphere, or beyond the Line, they chuse the *Crusade*, which is a Constellation composed of four Stars, which are easily distinguished.

As the SECTOR, or *Compass of Proportion*, is also of very great Use in Navigation, we must not fail without it; therefore,

The *Sector*, is a mathematical Instrument, of great Use in finding the Proportion between Quantities of the same Kind, as between Lines and Lines, Surfaces and Surfaces, *&c.*

The great Advantage of the *Sector* above the common Scales, *&c.* is, that it is made so as to fit all Radius's and Scales. By the Lines of Chords, Sines, *&c.* on the *Sector*, we have Lines of Chords, Sines, *&c.* to any Radius betwixt the Length and Breadth of the *Sector* when opened.

The *Sector* is founded on the fourth Proposition of the sixth Book of *Euclid*, where it is demonstrated, that similar Triangles have their homologous Sides proportional.

This Instrument consists of two equal Rules, or Legs of Brass, or other Matter, riveted together; but so as to move easy on the Rivet. In the Faces of the Instrument are placed several Lines; the Principal are the Line of equal Parts, Line of Chords, Line of Sines, Line of Tangents, Line of Secants, and Line of Polygons.

The *Line of equal Parts*, called also *Lines of Lines*, marked 6, is a Line divided into 100 equal Parts; and where the Length of the Line will allow it, each is subdivided into Halves, and Quarters. It is founded on each Leg, on the same Side; and the Divisions numbered 1, 2, 3, 4, *&c.* to 10, which is near the Extremity of each Line. In Practice 1 is taken for 10, or 100, or 1000, or 10,000, *&c.* as Occasion requires; in which Cases 2 represents 20, or 200, or 2000, *&c.* and so of the rest.

The *Line of Chords*, marked C on each Leg, is divided after the usual Manner, and numbered 10, 20, 30, *&c.* to 60.

The *Line of Lines*, denoted on each Leg by the Letter S, is a Line of natural Sines, Numbered 10, 20, 30, *&c.* to 90.

The *Line of Tangents*, denoted on each Leg by the Letter T, is a Line of natural *Tangents*, numbered 10, 20, 30, *&c.* to 45; besides which is another little Line of *Tangents* on each Leg, commencing at 45°, and extending to 75°, denoted by the Letter T.

The *Line of Secants*, denoted on each Leg by the Letter S, is a Line of natural Secants, numbered 10, 20, 30, *&c.* to 75, and commencing, not from the Center of the Instrument, but at two Inches Distance therefrom.

The *Line of Polygons*, denoted by the Letter P, on each Leg is numbered 4, 5, 6, *&c.* to 12, which falls 12 Inches short of the Center of the Instrument.

Beside these Lines, which are essential to the *Sector*, there are others placed near the outward Edges on both Faces, and parallel, which are in all Respects the same as in *Gunter's* Scale, and used after the same Manner. Such are the Lines of artificial Sines, marked S; the Line of artificial Tangents, a Line of 12 Inches, marked M, and *Gunter's* Line of Numbers marked N. There are sometimes other Lines placed to fill up the vacant Spaces, as the Lines of Hours, Latitudes, and Inclinations of Meridians, which are used the same as on the common Scales.

Our STAFFS, will be the *Jacob-Staff*, or *Fore-Staff*, and *Back-Staff*.

JACOB-STAFF, the same with *Cross-Staff*, is a mathematical Instrument for taking Heights and Distances.

The *Jacob*, *Cross*, or *Fore-Staff*, takes its Denomination hence, that the Observer in using it, turns his Face towards the Object; in Contradiction to Back-Staff, where he turns his Back to the Object. The *Fore* or *Cross-Staff*, represented in our Table of the Magnet, consists of a straight, square, graduated Staff, and four Crosses or Vanes, which slide thereon. The first, or shortest of these Vanes, is called the *Ten-Cross*, or *Vane*, and belongs to that Side of the Instrument, whereon the Divisions begin at 3 Degrees, and end at 10. The next longer Vane is called the *Thirty-Cross*, belonging to that Side of the Staff, wherein the Divisions begin at 10 Degrees, and end at 30, called the *thirty Scale*. The next Vane is called the *Sixty-Cross*, and belongs to the Side where the Divisions begin at 20 Degrees, and end at 60. The last, and longest, called the *Ninety-Cross*, belongs to the Side whereon the Divisions begin at 30 Degrees, and end at 90.

The great Use of this Instrument is to take the Height of the Sun and Stars, or the Distance of two Stars; and the ten, thirty, sixty, or ninety Crosses, are to be used according as the Altitude is greater or lesser, that is, if the Altitude be less than 10 Degrees, the tenth Cross is to be used; if above ten, but lesser than thirty, the thirtieth Cross to be used, *&c.*

Note, That for *Altitudes* greater than 60 Degrees, this Instrument is not so convenient as a Quadrant, or Semicircle.

To observe an Altitude by the *Fore-Staff*, apply the flat End of the Staff to your Eye, and look at the upper End of the Cross of the Center of the Sun or Star, and at the lower End for the Horizon. If you see the Sky instead of the Horizon, slide the Cross a little nearer the Eye; and if you see the Sea instead of the Horizon, slide the Cross further from the Eye: And thus continue moving, till you see exactly the Sun or Star's Center, by the Top of the Cross, and the Horizon by the Bottom thereof.

Then the Degrees and Minutes cut by the inner Edge of the Cross upon the Side of the *Staff*, peculiar to the Cross you use, is the Altitude of the Sun or Star.

If it be the meridian Altitude you want, continue your Observation as long as you find the Altitude increase, still moving the Cross nearer to the Eye.

By substracting the meridian Altitude thus found, from 90 Degrees you will have the Zenith Distance.

To work accurately, an Allowance must be made for the Height of the Eye, above the Surface of the Sea, *viz.* for 1 *English* Foot, 1 Minute, for 5 Feet 2¼, for 10 Feet 3¼, for 20 Feet 5, for 40 Feet 7, *&c.*

These Minutes substracted from the Altitude observed, and added to the Zenith Distance observed, give the true Altitude, and Zenith Distance.

To observe the Distance of two Stars, or the Moon's Distance from a Star, by the *Fore-Staff*. Apply the Instrument to the Eye, and looking to both Ends of the Cross move it nearer, or farther from the Eye, till you see the two Stars; the one on one End, and the other on the other End of the Cross. Then the Degrees and Minutes cut by the Cross on the Side proper to the Vane in use give the Star's Distance.

The *Back-Staff*, is an Instrument, by the *French* called the *English Quadrant*, invented by Captain *Davis*, of good Use in taking the Sun's Altitude at Sea. It consists of three Vanes, and of two Arches, *viz.* the *Horizon Vane*, the *Shade Vane*, and the *Sight Vane*.

To use this *Staff*, the *Shadow Vane* is set upon the Arch, to an even Degree of some Altitude, less by 10, or 15 Degrees than you judge the Complement of the Sun's Altitude will be; and the *Sight Vane* on the thirtieth Arch: The Observer's Back being then turned to the Sun (whence the Name of *Back-Staff*, or *Back-Quadrant*) he lifts up the Instrument, and looks through the *Sight Vane*, raising or falling the Quadrant, till the Shadow of the upper Edge of the Shade-Vane, fall on the upper Edge of the Slit in the Horizon-Vane; and then

then if you can ſee the Horizon through the ſaid Slit, the Obſervation is well made; but if the Sea appears inſtead of the Horizon, move the Sight-Vane: If the Sky appears move it upwards, and ſo try if it comes right; then obſerve how many Degrees and Minutes are cut by that Edge of the Sight-Vane, which anſwers to the Sight-Hole, and to them add the Degrees cut by the upper Edge of the Shade-Vane; the Sun is the Sun's Diſtance from the Zenith, or the Complement of his Altitude. To find the Sun's Meridian, or greateſt Altitude on any Day, continue the Obſervation as long as the Altitude is found to increaſe, which you will perceive by the Appearance of the Sea inſtead of the Horizon, removing the Sight-Vane lower; but when you perceive the Sky appear inſtead of the Horizon, the Altitude is diminiſhed; therefore deſiſt from further Obſervation at that Time, and add the Degrees upon the ſixtieth Arch to the Degrees and Minutes upon the thirtieth Arch, and the Sum is the Zenith Diſtance, or Co-altitude of the Sun's upper Limb.

And becauſe it is the Zenith's Diſtance, or Co-altitude of the upper Limb of the Sun, not the Center that is given by the Quadrant, in obſerving by the upper End of the Shade-Vane, add 16 Minutes, the Sun's Semi-diameter, to that which is produced by your Obſervation, and the Sum is the true Zenith Diſtance of the Sun's Center. If you obſerve by the lower Part of the Shadow of the Shade-Vane, then the lower Limb of the Sun gives the Shadow; and therefore you muſt ſubſtract 16 Minutes from what the Inſtrument gives; but conſidering the Height of the Obſerver above the Surface of the Sea, which is commonly between 16 and 20 Feet, you may take 5 or 6 Minutes from the 16 Minutes, and make the Allowance but of 10 or 12 Minutes to be added inſtead of 16 Minutes.

M. *Flamſteed* contrived a Glaſs Lens, or double Convex, to be placed in the Middle of the Shade-Vane, which makes a ſmall bright Spot on the Slit of the Horizon-Vane, inſtead of the Shade; which is a great Improvement, if the Glaſs be truly made; for by this Means the Inſtrument may be uſed in hazy Weather, and a much more accurate Obſervation made in clear Weather, than could be by the Shadow.

From this I'll paſs to examine our *Log-Line*, which is a little Cord or Line faſtened to one End of the *Log*, and wound round a Reel, fixed for that Purpoſe in the Gallery of the Ship.

Note, That a *Log* is a ſmall Piece of Timber of a triangular Figure on board a Ship; into one End whereof a convenient Quantity of Lead is caſt, to make it ſwim upright in the Water; the other End being faſtened to a Line.

This Line from the Diſtance of about ten Fathom off the Log, has certain Knots or Diviſions, which ought to be at leaſt 50 Feet from each other; though it is the common Practice at Sea not to have them above 42 Feet aſunder.

The Uſe of the *Log* and *Line*, is to keep Account, and make an Eſtimate of the Ship's Way, or Diſtance run, which is done by obſerving the Length of the Line unwound in half a Minute's Time, told by a half-minute Glaſs; for ſo many Knots as run out in that Time, ſo many Miles the Ship ſails in an Hour.

Thus, if there be four Knots veered out in half a Minute, the Ship is computed to run four Miles an Hour.

To heave the Log, as they call it, they throw it into the Water, letting it run till it comes without the Eddy of the Ship's Waſte, then one holding a half-minute Glaſs, turns it up juſt as the firſt Knot turns off the Reel (though ſome turn the Glaſs as ſoon as the Log touches the Water) as ſoon as the Glaſs is out the Reel is ſtopped, and the Knots run off are told, and their Parts eſtimated.

The Log ought to be heaved every Hour, or every two Hours, though in *French* Veſſels we heave but every three Hours.

The Log is a very precarious Way of computing, and muſt always be corrected by Experience and good Senſe, there being a great deal of Uncertainty, both in the heaving of it, in the Courſe of the Currents, and in the Strength of the Wind, which ſeldom keeps the ſame Tenor for two Hours together; which is the Interval between the Times of uſing the *Log* in ſhort Voyages, though in long ones they have it every Hour. Yet ſome are of Opinion, that this is a much more exact Way of computing than any other in Uſe; much preferable certainly to that of the *Spaniards* and *Portugueze*, who gueſs at the Ship's Way by the running of the Froth or Water by the Ship's Side; or to that of the *Dutch*, who us'd to heave a Chip overboard, and to number the Paces they walk on the Deck, while the Chip ſwims between any two Marks or Bulk-head on the Side.

There is alſo the *Log-board*, which is a Table divided into four or five Columns, whereon are marked the Reckoning of every Day; from whence they are entered into the *Log-Book*, or Traverſe-Book, ruled and columned juſt as the Log-board is: Whence it may be tranſcribed into the Journals, and how much the Ship gains in her Courſe be eſtimated daily.

In the firſt Column of the Log-board is entered the Hour of the Day, from One to One: In the ſecond, the Rhumb, or the Direction of the Veſſel, with regard to the Points of the Compaſs: In the third, the Number of Knots run off the Reel each Time of heaving the Log: In the fourth, the Wind that blows; and in the fifth, Obſervations made of the Weather, Variation of the Compaſs, *&c.*

We'll alſo take Care to provide ourſelves with *Hour-Glaſſes*, which are a Kind of Chronometer, or Chlepſidra, ſerving to meaſure the Flux of Time, by the deſcent or running of Sand, out of one Glaſs into another.

The beſt Hour-Glaſſes are thoſe, which inſtead of Sand, have Egg-ſhells well dried in the Oven, then beaten fine and ſifted.

Having thus fitted ourſelves with all the Inſtruments neceſſary for our Navigation, we'll take Care next to load the Ship we are to ſail in, which can be done diferent Ways: For it is certain, that a Ship loaded very *apropos*, will ſail much better than if the Loading was ill ordered; and there are Ships which being more loaded towards the Prow than towards the Poop, ſail much better; and others on the contrary, which ought to be more loaded towards the Poop than towards the Prow. Some want to be much loaded, others only a middle Loading; which muſt be left entirely to the Experience of a good Pilot.

Archimedes, and after him *Simon Stevin*, ſay, that the Burthen of a Ship is equal to the Weight of the Maſs of Water, whoſe Place it occupies. The Weight of the Maſs of Water can be diſcovered by finding how many cubick Feet contains that Part of the Ship which enters the Water, *i. e.* from the Bottom of the Carene to the lower Deck, becauſe one can know the Weight of a cubick Foot of Water; but the Difficulty is to know how much the Ship with all its Tacklings weighs.

The Practice diſcovers the Burthen of a Ship, by its Cavity Inſide, and it is determined by multiplying the Length of the Keel taken within board, from the Midſhip Beam from Plank to Plank, and the Product by the Depth of the Hold, taken from the Plank below the Keelſon, to the under Part of the upper Deck Plank, and dividing the laſt Product by 94, and the Contents is the Quotient of the Tonage required.

For Example, a Ship which has 76 Feet in Keel, 27 of Breadth, and 10 of Depth, will be capable to carry 300 Tons, which is 600,000 Pounds weight.

It is believed, that a Ship with all her Men, Cannons, Cordages, Sails, Maſts, can weigh as much as ſhe can carry, *i. e.* that a Ship of 300 Tons weighs herſelf above 600,000 Pounds.

The firſt Thing put in the Hold of a Ship is the BALLAST, which is any heavy Matter uſed to ſink a Veſſel to its proper Depth in Water, or to give it a juſt Weight and Counterpoiſe, and enable it to bear Sail without overturning.

The ordinary *Ballaſt* is Sand, or Stones ſtowed in the Bottom or Hold, next the falſe Keel of a Veſſel; ſometimes Lead, Corn, or other heavy Goods ſerve for *Ballaſt*. The *Ballaſt* is ſometimes one Half, ſometimes a third, and ſometimes a fourth Part of the Burthen of the Veſſel. Flat Veſſels require the moſt *Ballaſt*.

Ships are ſaid to be in Ballaſt, when they have no other Loading.

Maſters of Veſſels are obliged to declare the Quantity of Ballaſt they bear, and to unload it at certain Places. They are prohibited unloading their Ballaſt in Havens, Roads, *&c.* the Neglect of which has ruin'd many excellent Ports.

Men of War have no other Burthen than their Ballaſt, Munitions and Proviſions; and as ours is ſuppoſed ſuch a one, now we have took all thoſe Things on Board, we'll unfurl our Fore-Top Sail, fire a Cannon to call our ſtrolling Sailors on Board, in order to ſail for our intended Voyage.

Now all our Men are on Board, and the Tide and Wind ſerve, we'll work to heave up our Anchors; at preſent our Anchors are hoiſted up; we'll prepare our ſounding Line, becauſe we ſuppoſe to ſail from the *Thames*, the Entrance whereof is full of Banks of Sand. Now we'll furl up the Sprit-Sail, which we had unfurled to help us to heave up the Anchors, hoiſt up the Fore-Top Sail, and unfurl the Fore-Sail; *Starboard* to the Steerer; *Starboard* again; *thus*, *thus*, come no nearer. Now up to the Main Scuttle, to unfurl the Main-Top Sail.

As we ſuppoſe to have by this Time clear'd the Land, and to have enough Sea-Room; that we ſail with a good Quarter-Wind, we'll begin our *Journal*, which is a Regiſter kept by the Pilot, wherein Notice is taken of every Thing that happens to the Ship from Day to Day, and from Hour to Hour, with Regard to the Wind, the Rhumbs, the Rake, Soundings, *&c.* in order to enable him to adjuſt the Reckoning, and determine the Place where the Ship is: Thus,

JOURNAL *of* 12 *Hours.*

Rhumb.	*Value of the Rhumb.*	*Wind.*	*Quality of the Wind.*	*Leagues of* 3000 *Paces.*
W.N.W.	W.N.W.	E.S.E. back	middling	2
W.N.W.	W.N.W.	E.S.E. back	good or freſh.	3
W.N.W.	W.N.W.	E.S.E. back	middling	2
W.N¼W.	W.N.W.	S.E. ſidewiſe	good	4
W.N¼W.	W.N.W.	S.E. ſidewiſe	middling	1½
N.W.	W.N.W.	S.E. ſidewiſe	little Wind	2
N.W.	W.N.W.	S.E. ſidewiſe	middling	1½
N.N.W.	N.W.	E.S.E. Quarter.	good	8

From the Firſt Day of March *at Noon.*

Hour Glaſſes of half Hours.	*Latit. valued.* D.	M.	*Lat. obſerv'd.* D.	M.	*Longitude.* D.	M.	*Declenſion of the Needle.* D.	M.
2			41.		5.		2. *Eaſt*	30.
2								
2								
4								
2								
4								
2								
6 12 *at Night.*	41.	50.	41.	30.	3.	15.	1.	10.

Journal, 1744.

Note, That in this Journal we ſuppoſe to have conveyed ſome Merchant-Ships to *Liſbon*, whence we proceed on our Voyage to *Jamaica*.

IN THE NAME OF GOD, *Amen.*

The 27th of *February*, at Noon, the Wind being North-North-Eaſt, we ſailed from the Gulph of *Liſbon*, to proceed, with God's Aſſiſtance, on our Voyage to *Jamaica*, in his Majeſty's Ship the *N.* 400 Tons Burthen, carrying 36 Guns; the Captain *M. P.* the Lieutenant *M. R.* and the firſt Pilot *N.* God grant us a good Voyage.

We anchored by about 12 Fathoms of Water, and after we had waited till the 18th, we heaved up our Anchor at Six in the Morning, with a middling eaſterly Wind; and after we had doubled the Cape of *Rocca*, we put the Cape to the North-Weſt till Six in the Evening; but that Rhumb was worth but Weſt-North-Weſt to us, becauſe of the Currents, and we reckoned to have made 25 Leagues.

About Six in the Evening, the Wind being turned to the South, we kept ſtill the Cape to the North-Weſt, therefore that ſame Wind having laſted till Twelve at Noon the next Day, we reckon'd to have ſailed 55 Leagues by that Rhumb. For having made our Obſervation, we found ourſelves at 40 Degrees of Latitude, and by Eſtimate at 5 of Longitude.

Rhumb.	*Value of the Rhumb.*	*Wind.*	*Leagues.*	*Latitude.*	*Longitude.*
N.W.	W.N.W.	E. *Mid.*	25	38 Deg. 30 Min.	9 Deg. 15 Min.
N.W.	N.W.	S. *Good.*	55	41 Deg. 0 Min.	5 Deg. 0 Min.

From Twelve at Noon, of the 1ſt Day of *March*, we ſailed on the North-Weſt, ¼ Weſt, with a very unſettled Wind, ſometimes good, ſometimes middling, which blew Part from the Eaſt-South-Eaſt, and Part from the South-Eaſt. We reckoned to have ſailed 24 Leagues in 12 Hours, and to be under the 41°, 50′, of Latitude. And by that Obſervation, judged that we were under the 3° 15′ of Longitude, and that ſame Current had made us lie by Weſt-North-Weſt.

The ſecond Day of the ſame Month, we were overtaken by a violent Tempeſt, mixed with Thunder and Lightning, and Night happening all on a ſudden, a prodigious *Puchot* (which is a Kind of Whirlwind) ſeized our Ship by the Bowſprit with ſo much Violence, that it laid her on her Side; we then thought ourſelves loſt; but that Whirlwind finding no Hold on that Side of the Ship, was ſoon over, and our Ship raiſed herſelf by Degrees. We were forced to throw ſome Pieces of Cannon, and ſome Merchandizes over-board; becauſe the Tempeſt continued till the next Day, and was followed by very foul Weather, which continued till the 5th in the Morning; and that Day having made an Obſervation, at Noon, we found ourſelves under the 39° 12′; and having told our Hour-Glaſſes, for 12 at Noon of the firſt Day of *March*, there were but 193, *i. e.* one more than four times 48, wanted for the four Days, at that Time there could be one Quarter of the Sand run through. We reckoned then, that we could be diſtant from the Meridian of the Place, where we were the firſt of *March*, at Noon, but of about 9 Degrees Weſtward; becauſe the Sun running thro' 7½ in a half Hour, the Degree and a half above was reckoned for the Quarter of the Sand run at the Time of the Obſervation; and that, therefore, we could be under the 356 Degrees of Longitude.

By that Reaſoning we corrected our Eſtimate, and judge, in pointing our Chart, that we had made 115 Leagues, and that we were diſtant from the *Tercera* Iſlands, of about 40 Leagues.

Rhumb.	*Value of the Rhumb.*	*Wind.*
N.W.¼W.	W.N.W.	E.S.E. *middling*
W.N.W.	W.S.W.	N.N.E. *tempeſt.*

Leagues.

Leagues.	*Latitude.*	*Longitude.*
24	41° 30′	3° 15′
115	39° 12′	356° 0′

6. We were scarce recovered from our Fright, caused by the Tempest, that the 6th of *March* about Eight in the Morning, we discovered four *Spanish* Men of War, which chased us; but as we were not capable to cope with them, we set out all our Sails, and putting the Cap to the North, we bore away for the Isle of *St. Michael*, where we cast Anchor about Five in the Evening under Shelter of the Castle, which we saluted with two Pieces of Cannon; and though it be not a very safe Place, the Enemy did not dare to attack us there.

Rhumb.	*Val of the Rhumb.*	*Wind*
S. S. W.	S. S. W.	N. good.

Leagues.	*Latitude.*	*Longitude.*
22	38° 15′	355° 20′

7. The Weather was fair enough during the five Days we were forced to remain in the Road of that Island, to refit our Ship by the Governor's Leave, who gave us fresh Provisions. We took our Observation, and found that our Compass declined no longer.

12. The twelfth, at Ten in the Morning we hove up our Anchor by a good Wind of South-East, and sailed towards the Island *Tercera*, which we saluted with two Pieces of Cannon. The next Day early in the Morning we continued our Voyage towards *Jamaica*.

That's the Plan and Order which can be followed in a grand Journal: Some reduce it into a Table of ten or twelve Columns, like that of 24 Hours, but make the Squares four Times bigger, to have more Room for their particular Observations; others fill their Journals with every Thing that passes in the Ship, even the less worthy of Notice, as Words, Disputes, *&c.* which is a very scandalous Conduct.

From these two Models of a Journal, I'll pass to some necessary Observation on the Winds.

There are certain Winds which are called regular, because they blow in certain particular Countries, and in certain Seasons. For Example, under the torrid Zone there blows almost always an easterly Wind. Therefore when the *Spaniards* sail to *America*, they most commonly go to cast Anchor at the *Canary Islands*, and descend still lower towards the torrid Zone, to take the easterly Wind. They do the same when they sail to *Peru*, towards the *Philippine Islands*; they touch at *Aquapulco* on the Coasts of *New Spain*, to take the good Winds; whence they go to reconnoitre the Isles of *Latrones*, which are in the Archipelago of *St. Lazare*, Eastward of the *Philippines*, where they arrive by the same Wind.

When they want to come back, they must ascend higher than the Isles of *Japan*, about the 40th Degree of Latitude, whence they sail towards the Coasts of *New Mexico*, because finding there most commonly a North-West Wind, they descend towards *California*, whence they return to *Aquapulco*.

When they want to return from *America* into *Spain*, they return from *Porto Bello*, which is on the Isthmus of *Panama*, and go to reconnoitre Cape *St. Antony*, which is the most westward Point of the Island *Cuba*, in the Gulph of *Mexico*; and after they have touched at the *Havanna*, which is the most considerable Place of that Island, they pass between the Shallows of *Brimini* and the Point of *Florida*, and through the Streights of *Bahama*, whence ranging the Coast of *Florida*, and after they have discovered Cape *St. Roman* in *Virginia*, they sail still more northward, to take the Height of the *Azores* towards the 40th Degree of Latitude, where finding commonly a favourable Wind, they return into *Spain* without much Difficulty. The *French* follow the same Method, at their Return from the Gulph of *Mexico* into *Europe*.

In the *Indian Sea*, between the *Molucca's* and the *Peninsula*, this Side *Ganges*, the easterly Winds blow commonly from *June* to *October*, and the rest of the Year, the westerly Winds are most frequent there.

There are certain regular Winds, which the *Indians* call *Monsons*, as those which blow between *Java* and *China*, and are between the South-East and North-East, from the Beginning of *September* to the latter End of *March*; the rest of the Year they are East or South-East. Towards the Streight of *Malacca* a North Wind blows from *November* till *April*, and a South, or South-East Wind, from *May* till *August*.

Towards *New France*, the North Wind commonly begins to blow towards the End of *November*, and lasts till the End of *March*; then the South-West during the Spring and Summer, and sometimes the North-West, but it lasts little.

On the *Mediterranean* an easterly Wind blows commonly from East to South; and from the South a westerly one very often succeeds to it.

But though those Winds are called regular, because Experience shews them often such, we ought not, notwithstanding, to depend entirely on them, since nothing is more inconstant than that Meteor.

As to Winds which may serve to keep the same Course, the Antients have never took any Notice of them, because they imagined that it was impossible to sail on the Sea, without going before the Wind, or at least should be but very little contrary. And we see in History, that *Andrew Doria*, Lieutenant General of the *French* Galleys under the Reign of *Francis* I. was thought a Sorcerer among the Sailors of the Black Sea, when they saw him sail towards their Ship and come to meet them, with an almost contrary Wind.

It is a surprizing Thing, that of 32 Winds or Rhumbs, into which the whole Plan of the Horizon is divided, 20 or 21 of them can serve us to sail towards the same Place; and what is still more surprizing, and almost incredible, is that, that the Wind which is entirely contrary to a Ship, does not hinder it from sailing forwards; it is true that the Course is a little lengthned, because one is obliged to bolt to and again. A westerly Wind makes a Ship advance northward or southward, as well as an easterly one, when it blows between two Sheets; and we see daily, in the Streights, Ships which keep contrary Courses with the same Wind.

Therefore I say, that a Pilot can make use of 21 Winds for the same Course; for Instance, if he wants to sail southwards all the Winds will serve, from the South-East by East to the South-West by West, so that there are not two Rhumbs and half of contrary Winds; since, for Instance, if the Wind be South-East by East, it will be reckoned for its Point, and consequently there will be no more but eleven Points from Board to Board, which is called to bolt to and again on eleven Points.

It seems, that a Wind full backwards be the best and most favourable, to sail much forwards in a few Hours, notwithstanding which Mariners like best a Side or Quarter Wind, *i.e.* that wanting to sail southward, the North-East and North-West Winds are more proper and favourable than a North Wind, tho' the Ship has it full backwards.

The Reason of this is, that of a full backwards Wind, none but the Sails of the Main-Mast can serve, for those of the Mizen-Mast are furled up; those of the Fore-Mast are then but of very little Use, and the Spritsail receives the Wind which escapes under the others. But of a side or quarter Wind all the Sails serve, without obstructing one another, and consequently the Ship sails much more forwards than by any other Wind.

Being convinced by Experience, that one bolts to and again on eleven Points, it will not be difficult to imagine how a Ship can sail forwards towards the Place proposed with a contrary Wind.

Suppose a Pilot to be at Sea, and sailing northwards, should see the Wind to change and blow hard South, then if there be no Tempest, he must not command to bring down the Sails; but putting, for Instance, the Cap to the North-East by East, he shall sail forwards on that Side for a certain Time; then turning the Cap to the North-West, he'll sail forwards like wise, till the Wind changes; thus bolting to and again, he'll continue his Course in lengthening it.

It must be observed, that one can make use thus of a contrary Wind, but in fair Weather; for in a Tempest all the Sails must be struck, and when the Rudder alone is not sufficient to keep up the Ship in her Course, she lies by, *i.e.* that having the Cap to the North-West, and the Wind being North, the Drift will throw her to

the West-South-West, and make her sail about half a League every Hour, provided there be neither Currents nor Tides; for then she might sail much from her Course.

As to the Forerunners of Wind, Rain, and Tempest at Sea, F. *Fournier* in his Hydrography relates, that in his Voyage to *Canada*, the Sailors of the Ship where he was, seeing a white Circle round the Sun, told him, that they should soon have something to do; as in effect it happened soon afterwards; for the Wind began to blow very fresh, and they had such hard Weather all the Night following, that they were forced to furl all their Sails.

He says besides, that when a red Cloud is seen on the Horizon at Sun-rising or setting, one must expect Wind from that Side.

When red Clouds are seen to precede the Sun's Rising, or when its Rays appear of that Colour when it rises, it is a common Sign that it will blow hard.

When the Sun sets, if it be seen environed with a blueish or black Circle, it is a Sign of a Tempest.

If the Sun rising appears pale, it will bring Rain; and if it be of the same Colour at its setting, there will be Wind.

When the Sun appears red at its setting, one must expect that it will blow hard for several Days.

When the Sun covers itself with Clouds at its rising, and shoots its Rays underneath, he'll send Rain; if the Rays come out at the Middle, there will be a Tempest with Rain.

When the Clouds come from all Parts and gather round the Sun, it is a Sign of Tempest.

If the Sun sets covered with a Cloud, it will rain the next Day; and if at its setting it is seen drawing some Clouds after him, it is a Sign of Tempest.

Sailors make still a better Use of the Moon to prognosticate fair or foul Weather. For Instance, they always fear the fifth Day of the Moon, and say, that it is more subject to Tempests than any other.

When it appears in the New Moon, a Spot in its upper Horn, then that is a Sign of Rain.

If the Moon does not appear before the fourth Day, and it blows a southerly Wind, there will be foul Weather during all that Moon.

When the Moon is environed with a whitish Circle, it is a Sign of Rain; and when there are several of those Circles which are broken, and the Body of the Moon appears reddish, there will be a Tempest.

When the Sea appears blackish, it is a Sign of hard Weather; and when there is Scum here and there over the Sea, or some small Bottle rise on the Water, and the Sea swells all on a sudden, one must prepare for a long and hard Tempest.

When Porpoises or other Fishes frisk on the Water, it is a Sign of an approaching Tempest.

When Swallows fly very low, one must expect Wind and Rain.

Note, That from these Observations on Winds and Tempests, I'll pass to those on Currents, the Knowledge whereof is very essential to *Navigation*.

CURRENTS, with respect to *Navigation*, may be defined certain progressive Motions of the Water of the Sea in several Places, either quite down to the Bottom, or to a certain determinate Depth, by which a Ship may happen to be carried forward more swiftly, or retarded in her Course, according to the Direction of setting of the Current in, with, or against the Course or Way of the Ship.

The Business of *Currents* making a considerable Article in *Navigation*, the Way they set, together with their Strength, is to be carefully observed: This some do by the Ripplings of the Water, and by the driving of the Froth along the Shore, when in sight of it; but the more usual, as well as the more accurate Way, is thus:

They first fix their Boat, by throwing out a triangular Piece of Wood, with a Piece of Lead fastened to it, and to the Stern of the Boat with a Cord, and letting it sink sixty Fathoms, or more; or sometimes by a Kettle tied by the bowl, and sunk as the other.

By either of these Means the Boat is brought to ride as at Anchor; which done, the Log is cast over, the Glass turned, and as the Log-line veers out, the Drift of the Log set with the Compass.

This shews whether there be any *Current* or none; and if any, which Way it sets, and at what Rate it drives; observing however, to add something to the Drift for the Boat's Drift; for though she appears to stand still, yet in Reality she is found to move. This Addition Experience has thus determined, if the Line she rides by be sixty Fathoms, a third Part of the Drift to be added, if eighty Fathoms a Fourth, if an hundred a Fifth.

If a Ship sails along the Direction of a *Current*, it is evident the Velocity of the *Current* must be added to that of the Vessel: If her Course be directly against the *Current*, it must be substracted. If she sails athwart the *Current*, her Motion will be compounded with that of the *Current*, i. e. she will proceed in the Diagonal of the two Lines of Direction, and will describe or pass thro' that Diagonal in the same Time wherein she would have described either of the Sides by the separate Forces.

It cannot be determined that all the *Currents* found at Sea proceed from the same Cause, since they have almost all different Motions. And when we do not perceive any sensible Cause in the apparent Disposition of the Part of the Earth, to account why a *Current* runs rather on one Side than on another, that searched for in the Bowels of the Earth, and in the Moon, though true perhaps, is not plausible enough to satisfy certain Minds.

Pilots say, that there is a general *Current* which runs from the Poles as far as to the Torrid Zone, without entering into Particulars with respect to others which run several Ways. Some Philosophers pretend to have found the Cause thereof, and say, that the Sun being always on the Torrid Zone, where there is thrice as much Sea as there is Earth, exalts from it a great Quantity of Vapours, which being pushed far from their Course by the Heat of its Rays, are condensed by the Cold they meet with in the Frigid Zones, where they re-assume their former Figure. Those Vapours being thus exalted in the Torrid Zone, the Waters under the other Zones must run on that Side to replace them, to which they are forced besides, by those which fall, as already observed, in the Frigid Zones.

The most Learned agree, that there is besides a general *Current*, from East to West, in the Torrid Zone, after they have considered how fast a Ship sails in those Seas, which most Mariners have attributed to the Wind. But it has been observed several Times, that to go from *Peru* to the *Molucca's* with a favourable Wind, the Voyage is accomplished in three Months; and that five or six Months are spent in coming back, steering the same Course, and with the same favourable Wind.

It is with some Appearance of Reason, that the Cause of that *Current* is attributed to the diurnal Motion of the Sun that Way, particularly if we observe that when the Sun is towards the Tropick of *Cancer*, that *Current* extends as far as beyond the 36° of northern Latitude.

It would be a very useful Thing if all Pilots would take Notice in their Journals of all the *Currents* they meet with at Sea, and observe exactly all the Circumstances thereof, whereby many Dangers would be avoided, and much Time and Expences saved. But however, till they be pleased to do that signal Service to their Fellow-Travellers, I'll give here a Detail of the most remarkable *Currents* which I have extracted from the most celebrated Authors.

In the Sea of *Petzora*, northward of *Muscovy*, are found *Currents* which run from East by North, from the Isle *Kolgoy*, through the Streights of *Weygats*, as far as the Mouth of the River *Oby*, in the Gulph which is between *Tartary* and *New Zembla*. There are in that Gulph monstrous Pieces of Ice, which must be carefully avoided, as being very dangerous to meet with.

Another is found from the North Cape, which comes from the North-West, and runs all along the Coasts of the *Muscovite Laponia*, as far as towards the Mouth of the Gulph of St. *Nicholas*, or *White Sea*.

There are very violent *Currents* along the Coasts of *Arabia* in the Ocean, and about the latter End of *September* great Tides and easterly Winds, which force the Ships as far as into the *Red Sea*, so that one must wait another Season to come out of that Gulph.

In a Voyage to the *East-Indies*, one must keep at least at an hundred Leagues Distance from the *Maldives*, because of the violent *Currents* which are there, and which force Ships against a great Number of little Shelves, whence they get off but very seldom.

North-West of *Gilolo* are very extraordinary *Currents*, particularly in the Streight of *Caldera*, where they roll sometimes northward and sometimes southward with so much Violence, that they have broke a Cable of 27 Inches, of a Ship which was at Anchor.

On the Coasts of *Guinea* the *Currents* carries always to the East-North-East, in the Gulph of *Benin*, so that if one will sail from the Gold-Coast to Cape *Gonsalvo*, between the Kingdoms of *Congo* and *Biafara*, in setting Sail from the Cape of the *Three Points*, one cannot take too much southward, because the *Currents* crossing the Course of the Ship, make it advance towards the South-East, so far as to reconnoitre the Isle of St. *Thomas*, which is under the Line.

Northwards of *Madagascar* is found a *Current*, which bears Northwards towards the Cape of *Gardafuy* on the Coasts of *Ajam*; and from the Bay of St. *Augustine*, which is in the southern Part of that Island, there is another *Current*, which runs from the North-East to the South-West, as far as the Cape of *Good Hope*; wherefore the *Europeans* have, sometimes, so much Difficulty to get round that Cape when they go to the *Indies*.

The Tides carry the Ships into the Gulph of St. *Lawrence* in *Canada*, during the Months of *June* and *July*; and, on the contrary, forced them out in the Months of *August* and *September*.

The *Mediterranean* is not free from *Currents*; one, in particular, is found in it, which entering through the Straights of *Gibraltar*, runs all along the Coasts of *Barbary*, descends towards the *Ostro Lebecio*, as far as into the *Great Syrte*; whence, re-ascending as far as Cape *Rasaoun*, re-assumes its Course along the Coasts of *Barca* and *Egypt*; whence it re-ascends to *Tramontana*, coasting *Syria*, as far as into the Bottom of the Gulph *Lajuzro*, whence it returns Westwards, running between *Caramania* and the Isle of *Cyprus* as far as *Rhodes*.

The most probable Reason of this long *Current* is, that the Easterly Wind blowing on the Middle of the Sea, forces the Water towards the Straight, where finding a too narrow Passage, they return and flow along the Coast, where the Wind does not blow so hard.

The Entrance of the Straight of the *Dardanelles*, is extremely difficult, when wanted to sail from the *Archipelago* into the Sea of *Marmora*. And the Passage from this into the *Black Sea*, through the Straight of *Constantinople*, is not much easier, because of the large Rivers which disembogue into this last Sea; for not only the *Danube* and *Borysthenes* send their Waters thither, but the *Don* likewise, which falls into the *Zabache*, rolls its Waters into it through the Straight of *Caffa*. Therefore the *Black Sea* is forced to empty as much of those Waters as it receives into the Sea of *Marmora*, and this into the *Archipelago*. It was this *Current* that obliged *Aristotle* to say, that the Sea had a Course from North to South.

There are, besides, *under* CURRENTS; and Dr. *Halley* makes it highly probable, that in the *Downs*, in the Straights of *Gibraltar*, &c. there is an *under Current*, whereby as much Water is carried out as is brought in by the upper Current.

This he argues from the *Offing* between the North and South *Foreland*, where it runs Tide and half Tide, *i. e.* it is either Ebb, or Flood, in that Part of the *Downs*, three Hours, ere it is so off at Sea: A certain Sign that though the Tide of Flood runs aloft, yet the Tide of Ebb runs under foot, *i. e.* close by the Ground; and so at the Tide of Ebb it will flow under-foot.

This he confirms by an Experiment in the *Baltick Sound*, communicated to him by an able Seaman present at the making it; being there, then, with one of his *Britannick* Majesty's Frigates, they went with their Pinnace into the Mid-stream, and were carried violently by the *Current*. Soon after that, they sunk a Basket with a large Cannon-Bullet to a certain Depth of Water, which gave Check to the Boat's Motion; and sinking it still lower and lower, the Boat was driven a-head to the Windward, against the *upper Current*; the *Current* aloft not being above four or five Fathoms deep: He added, that the lower the Basket was let down, the stronger the *under Current* was found.

From this Principle it is easy to account for that vast Draught of Water continually pouring in with the *Current* out of the *Atlantick* into the *Mediterranean*, through the Straights of *Gibraltar*; a Passage about twenty Miles broad, yet without any sensible Rising of the Water along the Coasts of *Barbary*, &c. or any overflowing of the Lands, which there lie very low.

One of the most necessary Things in Navigation, especially *proper Navigation*, or what the *French* call *Voiages de long Cours*, is to know how to chuse the Season proper to set Sail; to avoid the contrary Winds, and dangerous Currents, found at certain Times in some Places of the Sea.

The *French*, and *English*, who will go to the *East-Indies*, must set sail in the Beginning of *March*, to avoid the Calms of the Line, which reign about the Equinoxes, and the dangerous Currents, which carry the Ships towards the Coasts of *Guinea*: After a Sight of the Cape *Verd* Islands, one must not take Land this Side of the Cape of *Good Hope*, that one may pass the Line towards the Middle of *July* at latest.

To return from the *Indies* into *France*, or *England*, one must set sail in the Month of *December*, to double the Cape of *Good Hope* at the Beginning of *May*; coming afterwards to reconnoitre the Isle of *St. Helen*; and from thence those of the Cape *Verd*.

The Ships for *Ormus* set sail in the Month of *January*, to double the Cape the Beginning of *May*.

Those for *New France* and *Newfoundland*, set sail about the Middle of *March*, and set sail from thence about the latter End of *July*, to be in *France* at the Beginning of *October*.

The *Dutch*, who trade commonly on the Coasts of *Africa*, for their Voyage to the Isles of the *Sound*, to the *Molucca's* and to *Japan*, set sail from the *Texel* in the Months of *June* and *July* to be there in the Month of *April*.

If they set sail in that Season, it is because they want to arrive at the Isles before Winter, which begins about the latter End of *April*, and which is very disagreeable, not for the Cold and Ice, for there is none in those Climates; but for the violent and continual Rains, often accompanied with Thunder and Tempests.

That rainy Season, which lasts from the latter End of *April* to the latter End of *September*, is no less hot throughout all the *East-Indies*, than the rest of the Year.

But one of the most essential Points in a *proper Navigator*, is to know how to *take exactly the Altitude*, which to perform we must remember, 1. That the Latitude of a Place is always equal to the Elevation of the Pole on its Horizon; that what we call Elevation of the Pole is the Arch of the Meridian comprized between that Pole and the Horizon; and what we call Elevation of the Equator is likewise the Arch of the Meridian comprized between that Circle and the Horizon.—2. That the Elevation of the Pole and that of the Equator make up together the Value of a Right-Angle: For there being always a Demi-circle of the Meridians on the Horizon; and the Arch which is between the Pole and the Equator, containing a Quarter of a Circle, the Elevation of the Pole and that of the Equator must contain the other.

The Utility arising from this Observation, is that if we know either of these Elevations, we can presently know that which we cannot observe.

Sometimes the Nights are so thick of Clouds and Fogs that we can see no Stars to have the Altitude of the Pole; and sometimes we are a whole Month at Sea without finding a single Moment to observe the Altitude of the Sun. During that whole Time the Compass alone serves for the Conduct of the Ship: And the most experienced Pilot cannot say positively where he is, and the Safety of the Ship depends entirely on his Conjectures founded on his Experience, and on the Estimate he makes of the Course of the Ship according to the Wind he has had.

If we want to observe the Altitude of the Pole, we must observe, first, on what Side the Needle of the Compass

Compaſs ſhews the North, and diſcovers there the polar Star, which is never diſtant from the Pole above 2° 41′. Then holding our Quadrant horizontally, *i. e.* the immovable Branch (on which there are Pinules) parallel to the Horizon, we raiſe or lower the *Alidade*, ſo that we diſcover the Star through the two Holes of the Pinules, and the Arch comprized between the immovable Branch, and the *Alidade*, will be very near the *Altitude* of the Pole, according as the Star will be above, or under, or on the Side.

If we will obſerve the Sun, Moon, or ſome other Planet, and take the Altitude thereof to diſcover thereby the Elevation of the Pole, and conſequently the Latitude of the Place where we are, we muſt have Tables of the Declination of thoſe Planets, *i. e.* Tables which mark for every Day of the Year, how far they are diſtant from the Plan of the Equator, towards the one or other Pole, and that Diſtance which is the Arch of a Meridian compriſed between the Equator, and the Star we want to obſerve, is what is called its Declination.

Suppoſe then we have thoſe Tables, if we will take the Height of the Sun, for Inſtance, the 21*ſt* of *April*, and we find it, exactly at Twelve at Noon, riſen of 60 Degrees above the Horizon, we muſt ſearch in the Tables the 21*ſt* of *April*, and we'll ſee that that Day the Sun declines 11 Deg. 30 Min. towards the North, *i. e.* that he is at that Diſtance from the Equator; and therefore that Place of the Obſervation will have 41 Deg. 30 Min. of Elevation of the Pole, and as much of Latitude.

If in obſerving the Sun the 22*d* of *October*, it was found as much riſen on the Horizon, we ſhould obſerve, then, that the Declination of that Planet being towards the Antarctick Pole, the Place of the Obſervation would be, likewiſe, in the ſouthern Hemiſphere at 41 Deg. 30 Min. of Elevation of the Pole, and of Latitude.

If in taking the Height of the Sun the 22*d* of *October*, it was found riſen 30 Degrees of the Horizon, it will be obſerved, as I have ſaid already, that the Sun declines that Day, on the Side of the Antarctick Pole, 11 Deg. 30 Min. *i. e.* that he is lower than the Plan of the Equator, of that Quantity; therefore that Declination muſt be added to the Elevation of the Sun; the two Quantities joined together, which make 41 Deg. 30 Min. will give the Elevation of the Equator, the Complement whereof in the Quadrant 48 Deg. 30 Min. is the Elevation of the Poles, and the *Latitude* of the Place where we are.

If we were to find the Sun riſen of the ſame Quantity the 21*ſt* of *April*; having obſerved that he declines northward, after having joined together, as in the preceding Article, the Elevation of the Sun, and its Declination, we'll find that the Place of the Obſervation is in the ſouthern Hemiſphere, *i. e.* beyond the Line at 48 Degrees 30 Minutes of Latitude.

M. *Parent*, a *Frenchman*, ſuggeſts a new Method of taking *Altitudes* at Sea, by a common Watch. 'Tis obvious, that in an oblique Sphere the Difference between the Riſing and Setting of two Stars, on the ſame Meridian, is greater, as they are further diſtant from one another.

Now the Aſtronomical Tables furniſhing us with Tables of the right Aſcenſions, and Declinations of all the fixed Stars; it is eaſy, after obſerving the Difference of Time between the Riſing of two Stars, to diſtinguiſh that Part of the Difference which accrues from their different Poſition, from that which ariſes from the Obliquity of the Sphere.—But ſuch Difference is the preciſe Height of the Pole of the Place of Obſervation.

Indeed the Ship not being immovable, but changing Places between the two Obſervations, ſeems to lay the Method under ſome Difficulty; but M. *Parent* anſwers, that a ſmall Alteration either of the Ship's Longitude or Latitude, will make no ſenſible Error; and that if ſhe have gone a large Diſtance between the two Obſervations, it is eaſy reckoning how much it is, and allowing for it.

In taking of *Altitudes* from the viſible Horizon, where great Exactneſs is required, an Allowance is to be made for Refraction, and the Height of the Obſerver's Eye above the Surface of the Sea.

As for the LONGITUDE, it is the Philoſopher's Stone of *Navigation*, which has been, and is ſtill ſearched with much Eagerneſs, but could not be found yet: For my Part I queſtion much which of the two is more likely to be found, either that which is the Idol of the Alchymiſts, and to which they ſacrifice all they have the moſt dear in this World; and I am afraid that the Wind will deceive by his Inconſtancy the Expectation of thoſe who ſearch the firſt, as the Smoak carries off the Hope of the others by its Levity. Thoſe who, like me, will reflect on the Inconſtancy of the Wind, the Irregularity of the Currents, the Diverſity of the Ships, and the different Form and Poſition of the Sails, the Declination of the Magnet; and laſtly, on all the various Effects which can reſult from ſo many irregular Things, will find that it is morally impoſſible to make an exact Eſtimate of the Courſe of a Ship at Sea.

The precious Secret of knowing the Longitude is the true Powder of Projection, which would ſet that *grand Work* in its Apogæum; but to work at it, with Hopes of Succeſs, one ſhould have a Point fix'd in the concave Superficy of the Heavens, beſides the Poles; as, antiently, *Archimedes* aſked for one to ballance the whole Globe of the Earth with the Help of a Lever. For the Motion of the Stars which can help to that Diſcovery, is not preciſely enough known to us, to draw from them infallible Conſequences.

That Secret is of ſuch an Importance, that the *Engliſh*, *French*, and *Dutch*, intereſted in the Commerce of the *Indies*, have promiſed great Rewards to the Perſon who ſhould be ſo happy to diſcover that marvellous Problem, which has been the Subject of the Meditation of a vaſt Number of learned Men, ever ſince two or three Centuries.

It is eaſy to know the Utility thereof; for if we could obſerve under what Degree of Longitude a Ship is arrived, as we know the Latitude where ſhe is at the Time of the Obſervation, we could preciſely mark the Point, and conſequently the Courſe it could have made from a certain Place.

What moſt of thoſe who ſearch the *Longitude* aim at, is a Method of determining the Difference of Time between any two Points of the Earth; for every 15 Degrees of the Equator anſwering to an Hour, *i. e.* one Degree to four Minutes of Time, and one Minute of a Degree to 15 Seconds of Time; the Difference of Time being known and turned into Degrees, will give the *Longitude*, and *vice verſâ*.

This ſome have pretended to effect by Clocks, Watches, and other Automata, but always in vain; no Time-Keeper, except a Pendulum (which cannot be applied at Sea) being ſufficiently ſure and exact for the Purpoſe.

Others, with more Probability, and to better Purpoſe, ſeek for Means to ſearch the Longitude in the Heavens: For, if the exact Times of any celeſtial Appearance be known for two Places, the Difference of thoſe Times gives that of the Longitude of thoſe Places.—Now in the Ephemerides, we have the Motions of the Planets, and the Time of all the celeſtial Phænomena, as the Beginning and Ending of Eclipſes, Conjunction of the Moon with other Planets, its Entrance into the Ecliptick, *&c.* accurately calculated for ſome one Place. Therefore if the Hour and Minute be known, wherein any of the ſame Phænomena's are obſerved in an unknown Place, the Difference between the Hour and Minute of that Place, and that other to which the Tables are calculated, and conſequently the Difference of their Meridians, and their *Longitude* from each other are known alſo.

Now the Difficulty here does not conſiſt in the exact finding of the Time, which is eaſily had from the Sun's Altitude, or Azimuth; but the Defect lies in the Paucity of Appearances capable of being thus obſerved: For all ſlow Motions (*v. gr.* that of *Saturn*) are at once excluded; as ſhewing but little Difference in a conſiderable Space of Time; and it being here required, that the Phænomenon be ſenſibly varied in two Minutes of Time, an Error of two Minutes in Time producing another of 30 Miles in the *Longitude*. Now there are no Phænomena's in the Heavens that have theſe Requiſites, excepting the ſeveral Stages of an Eclipſe of the

the Moon; her Longitude or Place in the Zodiack; her Diſtance from the fixed Stars; her Appulſe to them; her Ingreſs into the Ecliptick, or the Points of her Orbit, where that cuts the Ecliptick; and the Conjunction, Diſtance, and Eclipſes of *Jupiter*'s Satellites. Of each of which in their Order.

1. The Method by the Eclipſes of the Moon, is very eaſy, and ſufficiently accurate, were there but Eclipſes every Night. At the Moment wherein we ſee the Beginning or Middle of a lunar Eclipſe by a Teleſcope, we have nothing to do but take the Altitude or Azimuth of ſome fixed Star, from which the Hour and Minute are eaſily found; or without the Altitude if the Star be in the Meridian. This Hour and Minute therefore thus found, and compared with that expreſſed in the Tables, give the Longitude.

2. The Moon's Place in the Zodiack, is a Phænomenon more frequent than that of her Eclipſes; but then the Obſervation thereof is difficult. The *Calculus* intricate and perplexed, by Reaſon of two Parallels; ſo that it is ſcarce practicable to any tolerable Degree of Accuracy. Indeed by waiting till the Moon comes into the Meridian of the Place, and then taking the Altitude of ſome remarkable Star (the Altitude being ſuppoſed to be firſt known) from this Altitude and the Latitude, we ſhall be able to find the Time pretty accurately; though it will be better to do it by ſome Star in the Meridian. Now the Time being found, it will be eaſy to find what Point of the Ecliptick is then in the Meridian or Mid-Heaven. Thus we ſhall have the Moon's Place in the Zodiack, correſponding to the Time of our Place. Then in the *Ephemeris*, we find what Hour it is in the Meridian of the *Ephemeris*, when the Moon is in that Part of the Zodiack: Thus we ſhall have the Hour and Minute of the two Places for the ſame Time; the Difference of which will give the Difference of a Longitude.

3. In Regard there are many Times when the Moon cannot be obſerved in the Meridian, there is therefore another ſtill more frequent Phænomenon, from which the Longitude is ſought, *viz.* the Moon's Appulſe and Receſs from the fixed Stars: For from thence the Moon's true Place may be inveſtigated for the given Time of Obſervation. But this Method, by Reaſon of the Parallaxes, and the Solution of oblique ſpherical Triangles, and the various Caſes, is ſo very difficult and perplexed, that Mariners will ſcarce be able to make Uſe of it; nor does it ſeem neceſſary to give the Praxis thereof. Thoſe, however, who are diſpoſed to uſe it will find very great Help in it from a ſtarry Zodiack, publiſhed under the Direction of Dr. *Halley*, containing all the Stars to which the Moon's Appulſe can be obſerved.

4. To find the Longitude by the Moon's Ingreſs into the Ecliptick, obſerve the Moment of that Ingreſs: Then, in the *Ephemeris*, ſee what Hour it is in the Meridian of the *Ephemeris*, when that Ingreſs happens. The Difference between theſe Times, gives the Difference of Longitude.

5. The Phænomena of *Jupiter*'s Satellites are generally preferred to thoſe of the Moon, for finding the Longitude; by Reaſon the former are leſs liable to Parallaxes, and do further afford a very commodious Obſervation, in every Situation of that Planet above the Horizon. Their Motion is very ſwift, and muſt be calculated for every Hour; and for that Reaſon are not found in the common *Ephemerides*, but are had elſewhere.

Now to find the Longitude by Means of theſe Satellites; with a good Teleſcope, obſerve the Conjunction of two of them, or of one of them with *Jupiter*, or any other the like Appearance; and at the ſame Time, find the Hour and Minute from the Meridian Altitude of ſome Star; then conſulting Tables of the Satellites, obſerve the Hour and Minute wherein ſuch Appearance happens in the Meridian of the Place, to which the Tables are calculated. The Difference of Time as before will give the Longitude.

All Methods which depend on the Phænomena of the Heavens, having this one Defect, that they cannot be obſerved at all Times; and being, beſides, difficult of Application at Sea, by Reaſon of the Motion of the Ship; there are ſome who leaving the Moon, and the Satellites have Recourſe to Clocks, and others *Automata*; which could they be made perfectly juſt and regular, ſo as to move with the Sun, without either gaining or loſing, and without being affected with the Change of Air, and of Climates, the Longitude would be had with all the Eaſe and Accuracy imaginable; nothing more being required but to ſet the Machine by the Sun, at the Time of Departure: And when the Longitude of any Place is deſired, to find the Hour and Minute from the Heavens (which is done at Night by the Stars, and in the Day by the Sun) for the Difference between the Time, thus obſerved, and that of the Machine, gives the Longitude. But no ſuch Machine has been yet diſcovered: Wherefore Recourſe has been ſtill further had to other Methods.

Mr. *Whiſton*, and Mr. *Ditton*, have propoſed a Method of determining the Longitude, by the Flaſh and Report of great Guns. Sounds, it is known, move pretty equal in all their Stages, whatever the ſonorous Body be that occaſions them, or whatever the Medium that conveys them. If then a Mortar or great Gun be exploded at a Place, whoſe Longitude is known, the Difference between the Time wherein the Flaſh (which moves, as it were inſtantaneouſly) is ſeen, and the Sound, which moves at the Rate of four Seconds in a Mile, is heard, will give the Diſtance of thoſe Places from each other; whence if their Latitude be known, the Difference of Longitude will be likewiſe known.

Again, if the Hour and Minute of the Exploſion be known (at the Place where it is made) by obſerving the Hour and Minute from the Sun or Stars, at the Place whoſe Longitude is required; the Difference between thoſe Times, will give the Difference of Longitude.

Again, if the ſaid Mortar be loaden with an Iron Shell full of combuſtible Matter, and poſited perpendicularly, it will carry the ſame a Mile high, will be ſeen near a hundred Miles; if therefore neither the Sound ſhould be heard, nor the Flaſh ſeen, the Diſtance of any remote Place from the Place of the Mortar, may be determined from the Altitude of the Shell above the Horizon of the Place unknown: And the Diſtance and Latitude known, the Longitude is eaſily known.

According to this Scheme, it was propoſed to have ſuch Mortars fixed at certain Diſtances, and at known Stations, on all the frequented Coaſts, Iſlands, Capes, *&c.* and to be exploded at certain Hours, for the Obſervation of Mariners.

This Method, though good in the Theory, yet is found uſeleſs in the Practice, as being extremely troubleſome, and yet precarious. It ſuppoſes that Sounds may be heard 40, 50, or 60 Miles; of which it is true we have Inſtances, but they are very rare; and ordinarily the Report of a Cannon is not heard above half ſo far, and ſometimes much leſs. It ſuppoſes again Sound to move always with equal Velocity, whereas, in fact, its Velocity is increaſed or diminiſhed, as it moves with, or againſt the Wind. It ſuppoſes again the Strength of Powder uniform; and that the ſame Quantity carries the ſame Range; the contrary whereof is known to every Gunner. We ſay nothing of thick cloudy Nights, when no Lights can be ſeen; nor of ſtormy Nights, when no Sound can be heard; even at inconſiderable Diſtances.

We have another Method of finding the *Longitude*, propoſed by the ſame Mr. *Whiſton*, viz. by the *inclinatory*, or *dipping Needle*, but all to no Purpoſe.

Therefore we cannot have the Diſtance of a Ship, or Place, Eaſt or Weſt from another, counted in Degrees of the Equator, but by Eſtimation.

That Eſtimation is the Judgment of the Courſe we think to have run at Sea, in following a certain Rhumb, with ſuch or ſuch Wind, *&c.* which till now, has been a Thing entirely of Practice; and which the moſt learned Pilot cannot give but by Conjectures, and even that after a long Experience, and very exact Obſervations, *i. e.* that having ſailed a long Time in the ſame Ship, he muſt have made Memoirs of the Rhumbs he has followed, of the Winds which have blowed, and of the Time expired, while he has run his Courſe from one Place to another, of which he may know the Diſtances. For Inſtance, having ſet Sail from the Bay of *Breſt* for *Bourdeaux*, Things happen to him in the following Manner, and he muſt mark them thus:

Having ſet Sail from the Bay of *Breſt*, at 8 in the Morning,

Morning, and at the Altitude of 47° 50′ of Latitude, under 15° of Longitude, in a Ship of ſuch Burthen, it blew a North Wind, and having followed the South by South-Weſt, I have run 45 Miles, or 15 Leagues in 3 Hours. Being arrived at the Altitude of the Rocks of *Penmark*, the ſame Wind continuing, I have put the Cape to the South-Eaſt, and in 4 Hours I have run but 5 Leagues. At Night, the Wind having turned to the Weſt, I kept always the ſame Rhumb, to have a quarter Wind, and leaving *Belle-Iſle* on the left, I diſcover'd afar off, the next Day at Noon, the Iſle of *Oleron*, ſo that I run 40 Leagues in 16 Hours; and thus of the reſt.

I ſuppoſe here, that he had had all his Sails out; but if he had ſome of them furled he ſhould mention it, by ſpecifying which Sails, in following ſuch Rhumb, with ſuch Wind, I have run ſuch Space, in ſuch Time, with ſuch Loading.

That's the moſt common Method, and the moſt commonly followed by Pilots; whereby we may eaſily know, that it is but after a great Number of different Voyages, and ſeveral very accurate Remarks, that we can account for the Space we have run, in a certain Time; and then that Account is not certain.

After what I have ſaid, we muſt confeſs, that we muſt have regard to ſeveral particular Things, to make a good Eſtimation. The firſt is the Quantity of the Sails, their Form, and different Poſition. The ſecond is the Rhumb we will follow, to which we muſt add the Declination of the Needle. The third is the Variety and Quality of the Winds. The fourth is the Quantity of the Space the Ship runs, and how to meaſure it. The fifth is the Time the Ship employs in running a certain Space. The ſixth is the Burthen of the Ship, and the Manner of loading it.

An experienced Pilot, which has exactly obſerved all theſe particular Things; the Irregularity whereof could render his Eſtimation erroneous, will certainly make it with a greater Accuracy, than another who has had no Regard to thoſe Things: Therefore he muſt follow the following Method.

Suppoſe a Ship be departed from a Place under the 30° of Latitude, and the 345 of Longitude, to go to another Place 100 Leagues diſtant from it; if ſhe ſails always under the ſame Meridian from South to North, without changing Rhumb, it is evident, that when the Pilot will be arrived at a Place, which after he has taken his Obſervation, he'll find to be at 33° of Latitude, he'll be ſure, that he has ſailed 60 Leagues; and if by Means of his Horloge, he finds that he has run that Courſe in the Space of 24 Hours, he may promiſe himſelf to be at the End of his Journey in 16 Hours, if he has always the ſame Wind, and if he meets with no Obſtacles.

But if departing from the ſame Place, he wants to go to one under the 37° 30′ of Latitude, and the 354 of Longitude, towards the North-Eaſt. When he ſhall have ſailed for ſome time by the ſame Rhumb, if he finds the Pole riſen of 35 Degrees, he is ſure already, that he is on the Parallel 35; and to know in what Point, he ſhall examine the Calculation of the Courſe of the Ship by the ſame Rhumb, in the Diſtance of a Degree of Latitude, *viz.* 84800 Paces, or about 28 Leagues and a $\frac{1}{4}$; therefore in the Extent of 5°, he muſt run 424000 Paces, or 140 Leagues and $\frac{1}{3}$. In taking with a Compaſs that Diſtance, he ſhall place one of the Points thereof on the Point of the Departure, and with the other tracing a ſmall Arch of a Circle, the Point where he'll cut the Parallel 35, will be the Place where the Ship was arrived at the Time of the Obſervation.

This Eſtimation may be verified by Means of the Horeloge, in the following Manner, if we have obſerved the Latitude, by Means of the meridional Altitude of the Sun; for if in that Moment we have took Notice what Hour the Pendulum or Hour-Glaſs marked, and it was 11, 36 Minutes, we may ſay that the Ship has advanced Eaſtward of 6° of Longitude: Becauſe the Sun is in its Meridian 24 Minutes ſooner than he is in that of the Place whence the Ship departed. For we muſt remember that I have obſerved in my Treatiſe of *Aſtronomy*, that the Sun runs 15° of his Circle in one Hour. Therefore, if bearing the Space of 141$\frac{1}{3}$ Leagues from the Point of the Departure of the Ship to that of its Arrival, the Point of the Arrival is found under the 35° of Longitude, it is in ſome Meaſure the Confirmation of our Eſtimation.

If we are apprehenſive that the Tide, or ſome Current has made our Ship run a Drift, ſo that we have not followed the Rhumb marked by the Compaſs, we'll make the Eſtimation of the Rout which we believe to have run. Suppoſe we have reckoned to have run 180 Leagues, if we find the Altitude of the Pole of 35°, we'll bear the Diſtance of 180 Leagues of the Scale of the Point of Departure, to cut the Parallel 35, in the Point of our Arrival.

We'll know thereby, that we are on the 354° of Longitude, which is the Meridian of the Point, where we want to go, and conſequently that we muſt turn the Cape to the North, to arrive at that Place, and that we are yet 50 Leagues diſtant from it. We'll know, beſides, that believing we have followed the Rhumb North-Eaſt, we have ſailed North Eaſt by Eaſt, which ſhall be expreſſed in our Journal in theſe Terms. We have put the Cape to the North-Eaſt, which was worth to us North-Eaſt by Eaſt, becauſe of the Currents or Tides.

This Eſtimation may be verified as the firſt, or by examining the Calculation of the Rout made each Rhumb, in the Diſtance of a Degree of Latitude. If we find that by the fifth Rhumb we ſhould make 180 Leagues in the Extent of 5°, the Eſtimation will be very well made.

But if you doubt equally of the Rout and Rhumb, and you are not ſure of having made 180 Leagues, becauſe you have obſerved the Wind a little weak; if you are afraid, beſides, of having too much run a Drift, becauſe of ſome Current, or that the Compaſs north-weſts a little, you'll correct the Rout and Rhumb. We'll place our Point at another Diſtance, ſo that we'll reckon to have ſailed between the 4th and 5th Rhumb, and to have only run 160 Leagues.

If departing from one Point, we think that we follow the Parallel 37$\frac{1}{2}$, and that after having ſailed 3 Days, we reckon to have run 160 Leagues, and be arrived at ſuch a Point; but having taken our Obſervation, we'll find ourſelves 3°, 30′, higher than our Eſtimation, we muſt trace an Arch of a Circle of the Interval of the Point we are departed from, and that we thought ourſelves arrived at, which is 160 Leagues; and the Point where that Arch ſhall cut the 40 parallel, will be that of the Obſervation. Thus we'll know, that inſtead of ſailing Eaſtward, we have followed the Rhumb Eaſt-North-Eaſt; which we muſt mark on our Journal.

This Eſtimation can be verified, like the others, by the Longitude; or by the Calculation of the Courſe of each Rhumb.

A Pilot, ſometimes, after he has ſailed a long while on the ſame Parallel Eaſtward or Weſtward, imagines, that he has run a great Length: Which notwithſtanding, inſtead of arriving at the Place of his Deſtination, he returns back, as it happens very often in the Torrid Zone, becauſe of the Currents which run Weſtward. All that can undeceive him, is the Time expired ever ſince his Departure; which he muſt obſerve exactly, when he'll take the Meridian Altitude of the Sun.

For Inſtance, if he has been exact in turning his Hour-Glaſs, which is of half an Hour, and obſerving, that at the Hour the Sun is in the Meridian of the Place where he is, the Hour-Glaſs has been turned 197 Times, ever ſince he placed it at 12 at Noon, at the Place whence he departed, he muſt preſume that it is half an Hour after 12 at that Place, and that two Days are elapſed, becauſe 197 half Hours make twice 24 Hours, and a half Hour more; and of Conſequence he muſt reckon that he has ſailed back Weſtward of 7° 30′, which he can reduce into Leagues, knowing under what Parallel, by Means of the Table of Reduction.

If the Hour-Glaſs has been turned but 195, in the Inſtant of the Obſervation, it is a Mark that one has ſailed forwards of 4° 30′, which muſt be reduced likewiſe.

In long Voyages, a Pilot is ſometimes ſeveral Days without ſeeing either the Sun or the Stars; ſo that as he cannot take the Altitude, nor diſcover if his Compaſs declines, he cannot make his Eſtimation, but by the Extent of the Courſe he imagines he has run.

Suppoſe we ſet ſail from ſuch a Point, before the Wind,

Wind, which we reckon East by South-East; after we have run 120 Leagues, we believe to be arrived at such a Point, whence turning the Cape to the North-North-West, after we have sailed some Days, we reckon to have run 100 Leagues with a good Wind; and being arrived to such a Point of that Place, sailing to the North-West by North, we reckon to have run 60 Leagues; and be arrived under 49° of Latitude, and the 351 of Longitude. During that long Course, composed of different Rhumbs, I suppose that the Pilot could take neither the Altitude of the Sun, nor that of the Stars, to verify his Estimation, before he was arrived under the 49° of Latitude.

But if by that Observation he finds that he is under the 50° 45′. It is a Mark that there is some Error in his Estimation of the Course, or of the Rhumb; or perhaps in both. If he be, in some Measure, sure of the Course, and he doubts of the Rhumb, either because of the Currents, or that the Compass north-wests, he'll keep the Length of the Course, and change the Rhumbs in the following Manner.

Instead of fixing the Point of his first Estimation, where he had fixed it after he had run 120 Leagues, he'll fix it in another Place distant, likewise, from the Point of his Departure, but ¼ of a Rhumb more northward, *i.e.* that he shall have followed the West-North-West, instead of the West by North-West. He'll do the same of the 100 Leagues Distance, which he'll carry on the Rhumb, North by North-West, instead of the North-North-West, which he believes to have followed. Lastly, he'll carry the Distance of 60 Leagues on the Parallel 50-45, and he'll know, that instead of having followed the North-West, he has sailed by the North-North-West; and that reckoning to be under the 351° of Longitude, he'll be under the 354° 30′.

If he be more sure of the Rhumbs than of the Quantity of the Course, as it may happen; after he has observed that the Needle of the Compass does not decline, or when the Course has been directed according to the Declination; but that he has observed, or imagines, that some Current has drove away his Ship, or that the Wind has been stronger than usual, in that Case he must keep the same Rhumbs, but correct the Estimation of the Course in the following Manner.

If he judges that in setting Sail by the Rhumb West by North-West, the Wind has been strong enough, or that a Current has carried him off, so that it has been capable to make him run one fifth faster than he thought; he'll change the Point of his first Observation, 30 Leagues more forwards; then drawing a Line to the North-North-West, he is sure he has followed, he'll carry to it the Distance of 125 Leagues, instead of that of 100 Leagues, provided he judges that the Winds or Currents have made him sail swifter by one fifth, than he had reckoned the first Time: Otherwise he'll mark the Point of that second Observation higher or lower, according as he judges the Wind has blowed. The third Distance will be marked, likewise, on the North-West Rhumb, and he'll judge thereby, if he was not mistaken in the others. For it can neither be increased nor diminished, without correcting the others: Because he is forced by the Rhumb whereof he believes himself sure; and by the Altitude he finds himself in. That Distance is found about 75 Leagues, which includes still a fifth more than the 60 Leagues Distance.

It must be observed, that what I have said of a fifth Part of the Course which I have added, more than the first Estimation, is but a Supposition, and that the Winds or Tides can make a Ship, sometimes double, or a Third, or a Fourth, more or less: What an intelligent Pilot must observe with Care.

Lastly, let a Pilot be ever so experienced, and let him have made what Remarks he pleases, he cannot say precisely the Place where he is arrived, unless he discovers Land, or some other remarkable Things, as Isles, Rocks, certain Fishes, and certain Sorts of Birds, which are particular, and in great Number in some Parts of the Sea, the Soil brought from the Bottom of the Water with the sounding Line; and several other particular Things, which Pilots observe, and mention in the Relations of Voyages.

For Instance, in sailing on the *Ethiopick* Ocean, flying Fishes are seen, which rise by Shoals in the Neighbourhood of the Island St. *Thomas*; I have seen the same Thing under the Tropicks. Towards the Cape of *Good Hope* are found Sea-Wolves in great Number, and white Birds as big as Swans, which the *Portuguese* call *Mangas de Velugo*, Velvet-Sleeves, because they have the Tip of the Wings black. And another Sort almost like the *Halcyons*, except that they are spotted with black. In sailing towards *New France*, are found certain Birds, called *Martelets*; which is a Mark that one is not far from the great Bank. In sailing from *Bander-Abassi*, or the Gulph of *Ormus*, towards *Cambaya*, a Pilot knows that he is not very far from the Coasts, when he sees Cranes, and a great Quantity of white and round Fishes, called *Testons*. Above the Isles of Cape *Verd* between the 20 and 34° of Latitude, is found a pretty spacious Space in the Sea, all cover'd over with a Herb, almost like the *Portuguese* Parsley, and which, for that Reason, the *Portuguese* call *Sea of Sargasse*. It is probable, that *Columbus* met with those Herbs in his first Voyage towards *America*, which frighten'd him so much, that he was in Suspense if he should continue his Voyage or not.

With Respect to the Pointing of Charts. — What is called *Pointing of a Chart*, is to mark on that Chart the Place where one reckons the Ship is arrived at; which must be done every Time a Pilot quits his Watch, which commonly lasts three Hours; marking on his Journal the Latitude and Longitude of that Point, according to the Estimation made.

One may follow the following Practice. Suppose a Pilot be departed from a Point under the Parallel 60, and the 20° of Longitude; and judges to have sailed 60 Leagues by the South-West, he'll search in his Chart the nearest Rose of Winds, and draw a Line parallel to the Rhumb South-West: Then having took on his Scale, under the Parallel 60, the Distance of 60 Leagues; he'll place one of the Points of the Compass on the left Extream of the Line, and the other Point shall fall on the right Extream, which is under the 57° 50′ of Latitude, and the 357° 35′ of Longitude, where he'll reckon that the Ship is arrived. From the right Extream of the Line, if he believes that he has run 68 Leagues, he'll trace, likewise another Line parallel to that Rhumb, on which having carried the Distance of the 60 Leagues, taken on the Scale, above the Parallel 55; he'll mark a Point under the 55° of Latitude, and the 354 of Longitude.

They make use, likewise, of a Rose of Horn, or of other transparent Matter, on which the 32 Rhumbs of Winds are exactly traced. The Pilot applies the Rose on the Chart, so that the Center be on the Place, whence the Ship departed, and the Lines of the North and South both agree together, or be parallel between themselves. Then having took with a Compass on the Scale, the Distance of the Course he'll reckon to have made, he'll carry it on the Rhumb, he thinks he has followed, placing one Point of the Compass on the Place whence he departed, therefore the Place which the other Point marks on that Rhumb, is the Place where he thinks himself arrived.

Suppose, for Example, that a Ship be departed from a Point under the 10° of Longitude, and the 60 Parallels that he has followed the Rhumb South-West, and the Pilot believes that he has run 56 Leagues; he'll place the Center of the Rose of the Horn, on the Point under the 10° of Longitude, so that the Line of the South be along the Meridian 10, he'll draw, if he will, another Line with some Points on the Rhumb South-West, to take the Distance of 56 Leagues on the Scale, under the Parallel 60, and carry it on the Line of 10° of Longitude, to the Place where he'll reckon the Ship is arrived.

He knows by that Operation, that he is under the 58° of Latitude, and the 6 of Longitude; which he'll observe in his Journal in these Terms: Such a Day, after we had sailed so long by the South-West, we found ourselves under the 58° of Latitude, and 6° distant from the *Canaries*, if the Chart be of *France*, or of 13° of the *Azores*, if it be of *Holland*; and thus of others.

Those who have not well reflected on what I have said of the Construction of Scales of reduced Charts, will not conceive at first, perhaps, why I say that the Distance of the Leagues must be taken on the Scale, sometimes under the Parallel 60, and sometimes above the 55; but it is

easy to judge that it is because of the Inequality given to the Degrees of Latitude; and since the Distance between the two Extreams of the Line drawn parallel to the Rhumb South-West, is comprized between the Parallels 58 and 60; one must measure by the Degrees or Leagues of the Scale, which are comprized between those Parallels. And because the Obliquity of the Rhumb makes, very often, that Distance much greater than those Degrees of the Scale, which contain but 20 Leagues each, one must take the Extent of the Degrees between which it is comprized, and carry it as many Times as it can be contained on the Line parallel to the Rhumb South-West; if it be of 3 Degrees, or 60 Leagues, it must be carried to it once and a half, to mark the Point on the right.

We must do the same of the Distance of 60 Leagues, comprized between the Parallels 55 and 58, or take the Extent of 3 Degrees of Latitude, which make 60 Leagues, which we'll carry on that Distance of 68 Leagues: To which we'll add, besides, the Value of 8 Leagues, which we'll take on the Degree of Latitude, or of the Scale which answers to the Line comprized between the Parallels 55 and 58; which is the mean Proportional wherewith the whole Distance of 60 Leagues could be measured.

Note, That as it is easily understood by what I have said on the Estimation of the Course of the Ship, that we fail only by Supposition, with Respect to the Longitude, which has not been found yet, and in all Appearance never will, we cannot fail with too much Caution, when we judge ourselves pretty near the Land, for fear of going to break our Nose upon it, which is but too often the Fate of *English* Commanders; who, by an Excess of Presumption, of which their Owners are daily the unhappy Victims, come full Sail, wreck themselves on their own Coasts, even, often, when the Sea and Winds are the most favourable to them. There should be a very severe Punishment for such rash Masters of Ships, who thus sacrifice the Fortune of several Families to their Temerity, whereby they would be obliged to fail with the same Caution the *French* do, for as soon as they think themselves near Land, they lower their Sails, especially in the Night, or in a very cloudy Horizon; they seldom have, then, more Sails out than their Fore and Fore-Top Sail, and this last on the Ton; unless they are obliged to tack about. Neither are they allowed to enter certain Roads or Ports, without a Coasting Pilot; and the Commander of a Ship who acts otherwise, and in the Attempt loses his Ship, is severely punish'd, if not hang'd. For the Accomplishments of a Master of a Ship, do not consist only in knowing perfectly well the Distances of Places, the Rhumbs of Winds he must follow to arrive at the Place of his Destination, how to make his Observations, correct his Reckoning, point his Chart, *&c.* but he must be, likewise, very well acquainted with what the *French* call *Manouvre*, or working of the Ship; be very attentive to the Wind, in order to make of it all the Advantage he can, to go forward on his Voyage, order the Steerer to move his Whip-Staff, or wheel accordingly; and dispose his Sails according as the Wind serves. If he sails before the Wind, or has, what the *French* call *Ventarriere*, the Main-Sail, Main-Top-Sail, Main-Top-Gallant, Fore-Sail, Fore-Top-Sail, the Sprit-Sail, the Main-Case-Sails, can serve, and even the Mizzen-Top-Sail; but a Point must be cargued in the Main-Sail, the Main-Top-Sail brought down on the Ton, and a Point likewise cargued in the Fore-Sail, if the Sprit-Sail be unfurled, otherwise those two Sails would be of very little Use. If such a Wind blows very hard, the Main-Top-Sail, Fore and Fore-Top-Sails, are sufficient. Of a good Side-Wind, all Sails can serve, except the Mizzen-Sail which is seldom used, unless it be to *mettre a la cape*, in a hard contrary Wind. We likewise put *a la cape* with the Main-Sail, to hinder the Ship from going too much to the Drift, and keeping it more steady. To sail near the Wind, the Main-Sail, Fore-Sail, and even the Mizzen-Sail may serve; but the Bowline of the Main-Sail must be halled very tight, especially if the Wind be very near. In a Storm we are often obliged to be without Sails at all.

To distinguish the different Nations at Sea, there have been invented *Colours*, *Antients*, *Standards*, &c. of different Colours and Shapes, *viz.*

The *Royal French* FLAG, is white, strewed all over with Gold *Flowers de lis*; and charged with an Escutcheon of the Arms of *France*, environ'd with the Collars of the King's Orders. The *French* Flag is white.

The Royal Standard of the *Real Galley* of *France*, is split, and of three Bends, one red, the other white, and the third red. On that of the Middle, which is white, is an oval Escutcheon, Azure charged with three *Flowers de lis*, Gold.

The *Flag* of the *French Galleys*, is red, strewed over with *Flowers de lis*, Gold, and charged with the Arms of *France*.

The *Flag* of *Provence*, a Province in *France*, is white, with a blue Cross.

That of *Marseilles* in *Provence*, with a *Franc-quarter* of Azure, charged with a Cross Argent.

The *Flag* of *French* Merchant Ships, is of seven Bends mixed, which are, to begin at the uppermost, one white, and the other blue.

The new *Flag* of *French* Merchant Ships, is blue, with a Cross Argent, charged *en Cœur*, with the Escutcheon of *France*.

The *Flag* of *Normandy*, a Province of *France*, is *Mipartite* of blue and white.

That of *Calais*, a City of *Picardy*, is blue, with a Cross Argent.

That of *Dunkirk*, a City of *French Flanders*, is of six Bends mixed, which are, to begin at the uppermost, one white, and the other blue. — The other *Flag* of *Dunkirk* is white, with a *Franc-quartier*, charged with a Cross Gules.

Note, That when the *French* Fleets are divided into three Squadrons, and nine Divisions, the first Squadron is that of the Admiral, the other two having each their Vice-Admiral, and each Admiral his Flag; so that the first Squadron is *White*, the second *Blue*, and the third *White* and *Blue*.

The FLAG of the Admiral of *England*, is red charged with an Anchor Argent placed pale-wise, twisted round with a Cable of the same. When the *English* Fleets are divided into three Squadrons, and nine Divisions, each Squadron has its Admiral, and each Admiral his Flag, which gives the Name to the Squadron. So that the Squadron of the first Admiral above blazoned, is called the red Squadron, the others the white Squadron, and the blue Squadron.

The *Flag* of the *white Squadron* is white, a *Cross Gules* at the Head; and that of the *blue Squadron* is blue, at the Head *Argent* with a *Cross Gules*.

The *particular Flag* of *England*, is blue, at the Head *Argent* with a *Cross Gules*, and the other Corner is charged with a *Saltier*, or *St. Andrew's Cross*.

Another *Flag* of the Division of a Squadron, is of thirteen Bends, which are alternately to begin at the uppermost, one red, and the other white, at the Head *Argent* charged with a *Cross Gules*.

The *red Flag* of *England*, is red, at the Head, *Argent* charged with a *red Cross*.

The *Flag* of the People of *England*, is red, bearing in the Middle an Escutcheon Gules, border'd with Silver, and charged with three Leopards Or, which are the Arms of the Kingdom, and on that Side the Flag-Staff, a *Pale Argent* charged with a *Cross Gules*.

The *Flag of England*, called of the *Union*, is *Gules* charged with these Words in *English*; FOR THE PROTESTANT RELIGION.

The *new Flag* of the *Union* is blue, at the Head, *Azure* charged at the Head with a *Saltier Argent*, and a *Cross Gules* border'd *Argent*.

The *particular Flag* of *England*, is white with a *Cross Gules* at the Head *Argent*, charged with a *Cross Gules*.

The *new Flag* of the Admiral of *England* is red, charged with an Anchor *Argent*, placed facing, twisted round with a Cable of the same.

The *Flag* of the Bowsprit of *England*, called *Jack*,

is

is blue, charged with a *Saltier Argent*, and a *Cross Gules* border'd *Argent*.

The *Flag* of the *East-India Company* of *England*, is of ten Bends, five red, and five white, at the Head, *Argent* charged with a *red Cross*.

The *Flag* of *New-England* in *America*, is blue, at the Head *Argent*, quarter'd with a *red Cross*, having at the first Quarter a celestial Sphere.

The *Flag* of *St. George* is white, charged with a red Cross.

The *Flag* of the *Isle of Man*, is red, charged with three Men's Legs; at the Head *Argent* charged with a red Cross.

The *Flag* of *Scotland* is blue, at the Head *Argent*, with a *Cross Gules*.

The *red Flag* of *Scotland* is red, at the Head *Argent*, charged with a *Saltier*, or St. *Andrew*'s *Cross Argent*.

The *Flag* of the *East-India Company* of *Scotland* is red, charged with a Sun Or, which rises, and comes out from behind three Stripes, one whereof is blue, the other white, and the third blue.

The *Flag of Division* between *Scotch* Ships, is of eleven Bends, six blue, and five white, at the Head Silver, charged with a red Cross.

The *Flag of Ireland* is white, charged with a St. *Andrew*'s *Cross Gules*.

The *particular Flag* of *Ireland* is green, charged with a Harp *Or*, at the Head *Argent*, with a *Cross Gules*.

The ROYAL FLAG *of Spain* is of three Bends, one red, the other white, and the third yellow. The Middlemost, which is white, is charged with a Black Eagle, crowned and environed with the Order of the Golden Fleece.

The *Flag* of the *Spanish Galleons* is of three Bends, one red, the other white, and the third yellow. The Middlemost which is white, is charged with a black Eagle, crowned and environed with the Order of the *Golden Fleece*.

The *particular Flag* of *Spain* is of three Bends, one red, the other yellow, and the third blue.

The *Flag* of *Castile* and *Leon*, Provinces of *Spain*, is white, charged with an Escutcheon quarter'd at the first, and fourth of *Castille*; at the second, and third of *Leon*. Which is also the *Flag* of the *Spanish* Galleys of the first Rank.

The *Flag* of *Barcelona*, a City of *Spain*, in *Catalonia*, is blue, charged with a Monk, cloathed black, holding *Beads* or *Pater-Nosters* in his right Hand.

The *Flag* of *Galicia*, a Province of *Spain*, is white, charged with a Chalice, or a cover'd Cup *Or*, on both Sides three red Crosses.

The ROYAL FLAG *of Portugal* is white, charged with the Arms of the Kingdom of *Portugal*, the whole *Flag* being traversed with a Cross Sable, the Head charged with a *Cross Argent*.

The *military Flag* of *Portugal* is white, charged with an Escutcheon *Gules*, border'd *Argent*, traversed with a Cross of the same, and crowned with a Royal Crown.

The *Flag* of *Portuguese* Merchant-Ships, is of seven Bends mixed, which are, beginning at the Uppermost, one green, and the other white.

The *white Flag* of *Portugal* is white, charged with a celestial Sphere *Or*, surmounted with a Sphere of the World *Azure*, with a Horizon *Or*, and a *Cross Purple* over it. This *Flag*, and the two following, are the *Flags* of the *Portuguese India-Men*.

Another *white Flag* of *Portugal*, is charged with a celestial Sphere purple, with two Crosses *Gules* on the Sides, and one of the same a-top, placed on a Sphere of the World *Azure*, with an Horizon *Or*, and in the Middle of the celestial Sphere, is another Sphere of the World *Azure*, on a Pillar *Or*.

Another *Flag* of *Portugal* is white, charged towards the Staff, with the Arms of the Kingdom, and a celestial Sphere purple in the Middle, surmounted with a Sphere of the World *Azure*, with an Horizon *Or*, and a Cross *Gules* a-top, supported by a Pillar, Gold, with two Holes *Or*, on the Sides; and towards the other End there is, on the Side of the Sphere, a Monk dressed in black, holding in his right Hand a Cross *Gules*, and Beads in his left.

The *Flag* of *Oporto*, in *Portugal*, is of eleven Bends mixed, the six first thereof, to begin at the Uppermost are green, and the five others white.

The *particular Flag* of *Portugal*, is of three Bends, one red, the other white, and the third yellow.

The FLAG of *Rome* is white, charged with two Keys *Or*, placed Saltier-wise, and crowned with a *Tiara*, Gold.

Another *Flag* of *Rome* is red, charged with an Angel, *Argent*.

Another *Flag* of *Rome*, charged with the Arms of *Rome*, which are oval-wise, border'd *Or*, the Escutcheon tierced in *Pale*, of *Gules*, *Azure*, and *Gules*; the *Azure* border'd *Or*, and charged with four Letters *Or*, likewise, *viz.* S. P. Q. R. *i. e. Senatus Populus que Romanus*, *The Senate and Roman People*.

The FLAG of the *Pope* is white, charged with the Images of St. *Peter* and St. *Paul*, that of St. *Peter*, holding in his right Hand two Keys placed Saltier-wise, and a Book under his left; and that of St. *Paul* holding a Book in his right Hand, and in his left a Sword.

The FLAG of the *Emperor* of *Germany*, was formerly yellow, with an Imperial Eagle displayed, *Sable*, holding in its right Talon a naked Sword, and a Scepter in its left.

The *white Flag* of *Burgundy* is white, charged with a Cross *Gules*, placed Saltier-wise.

The *blue Flag* of *Burgundy* is charged with the same Cross as the white.

The FLAG of *Flanders* is of three Bends, one red a-top, the other white in the Middle, and the third yellow, that of the Middle is charged with a Cross of *Burgundy*.

The *Flag* of the Bowsprit of *Flanders* is yellow, charged with a Lyon *Sable*, inclosed within an Orle of Sable, placed Escutcheon-wise, contained within eight *Flowers de lis* Sable, three a-top, and five round it, surmounted with a Crown *Sable*, with three *Flowers de lis*, likewise, Sable.

The *Flag* of *Ostend* in *Flanders*, is mi-parti, red a-top, and yellow at Bottom.

The FLAG of *Brabant* is chequered red and white.

The FLAG of the *States-General* of the *United Provinces* is red charged with a Lyon *Or*, holding in its right Paw a Sabre *Argent*, and in its left a Bundle of seven Arrows *Or*, the Points and Pens thereof are *Azure*, which are the Arms of the State.

The *Flag* of the Bowsprit of the *States-General* is orange and blue, cut with a Cross *Argent*, with an Escutcheon of the Arms of the State.

The *Flag* of *Amsterdam* is of three Bends, the Uppermost of which is red, the Middlemost white, and the lowest black. On the middlemost Bend are the Arms of *Amsterdam*, viz. *Gules*, with a Pale *Sable*, charged with three *Saltiers Argent*. An Imperial Crown, and for Supporters two Lyons *Sable*.

The *Flag* of the *East-India Company* is of three Bends like that of the States, but the white or middlemost Bend is charged with these three Letters Cypher-wise, A O C, which signify in *Dutch*, ALGEMEENE OOST-JUDISCHE COMPANIE; and in *English*, *The general Company of the East-Indies*. This *Flag* is hoisted in all the Ships which are in the Service of the *East-India* Company, except those which are of the Chamber of *Amsterdam*, which have their *Flag* charged with these four Letters Cypher-wise, O. C. V. A. *i. e.* in *Dutch*, OOST-INDICHE COMPANIE VAN AMSTERDAM, and in *English*, *The East-India Company of Amsterdam*.

The *Flag* of the *West-India Company* is of three Bends, like that of the State, with this single Difference, that the white or middlemost Bend is charged with these Letters placed Cypher-wise, G. W. C. *i. e. The West-India Company, granted by the States the* 10*th of June* 1621.

The *Flag* of *Hoorn*, a City of *North-Holland*, is of three Bends, two Reeds, and a white one in the Middle, on which is a Horn *Gules*.

The *Flag* of *Zeland* is of three Bends, one Orange Colour, the other white, and the third blue, the white charged with the Arms of *Zeland*.

The *Flag* of *Enchuse* is of thirteen Bends, which are alternately beginning at the Uppermost, one red and the other yellow.

The *Flag* of the Isle of the *Texel*, is *green* and *red*.

The *Flag* of *Middlebourg*, Capital of *Zeland*, [illegible]

three Bends, one *red*, the ſecond *white*, and the third *yellow*.

The *Jack* of *Middlebourg*, is *red*, charged with a Tower creneled *Or*.

The *Flag* of *Fleſſingues* in *Zeland*, is *red*, charged with an Urn *argent*, crowned with the ſame.

The *Flag* of *Weſt-Frizeland*, is *azure*, ſtrewed over with Billets leaning *Or*, with two Leopards of the ſame.

The *Flag* of *Rotterdam*, is of twelve Bends, which are to begin at the uppermoſt, *green* and *white*.

The *Flag* of *Harlinguen*, is *yellow*, bordered with *blue* a-top and at Bottom, and charged in the Middle with an Eſcutcheon *argent*, bordered *blue*.

The *Flag* of *Hambourg* in *Germany*, is *blue*, charged with a large Tower *argent*.

Another *Flag* of *Hambourg*, is *red*, charged with three Towers *argent*, one and two placed near one another.

Another *Flag* of *Hambourg*, is *red*, charged on the upper Corner with a Tower *ſable*.

The *Flag* of *Embden* in *Weſtphalia*, is of three Bends, one *yellow*, which is the upper, and the other *red*, and the third *blue*. The upper and lower are pointed in Form of a Flame, and the middle one is round like a Tongue.

Another *Flag* of *Embden*, is of three Bends, *red*, *yellow* and *red*. The two red Bends are pointed in Form of a Flame, and that of the Middle is waved Inſide, and ſhortened at its End.

The *Flag* of *Nerden*, in the County of *Embden*, is *blue*, charged with three Stars *argent*.

The *Flag* of *Bremen* in *Lower Saxony*, is of nine Bends, five *red* and four *white*, charged near the Staff with a pale chequered *argent*, and *gules*.

The *Flag* of *Lubeck*, an imperial City, is *mi parti* of two Bends, the upper is *white*, and the lower *red*.

The *Flag* of *Lubeck*, is of two Bends, charged with an Eagle with two Heads, diſplay'd *ſable*, holding in its right Talons a blue Sword, and in the left a Sceptre *Or*, crowned with a royal Crown, covered *en cœur*, with an Eſcutcheon cut *argent*, and *gules*.

The *Flag* of *Lunebourg*, is *red*, charged with a flying Horſe *Or*.

The *Flag* of *Wiſmar* in the Dutchy of *Mecklenbourg*, is of ſix Bends mixed, which are alternately to begin at the uppermoſt, one *red* and the other *white*.

The *Flag* of *Roſtock*, in the Dutchy of *Mecklenbourg*, is *yellow*, charged with a Griffin *gules*.

Another *Flag* of *Roſtock*, is of three Bends, the uppermoſt is *blue*, that of the middle *white*, and the loweſt *red*.

The *Flag* of *Stralſund* in *Pomerania*, is *red*, charged with a Sun *Or*.

The *Flag* of *Stetin* in *Pomerania*, is *mi-parti*, the Top is *white*, charged with a Billet *gules*, and the Bottom *red* charged with a Billet *argent*.

The *Flag* of *Brandebourg*, is *white*, charged with a black Eagle, which bears on its left Side an Eſcutcheon *azure* bordered *argent*, with a Sceptre *Or*.

Another *Flag* of *Brandebourg*, which is like the former, except that the Arms are ſeparated from the Sceptre on the left Side of the Eagle.

The *Flag* of *Brandebourg*, is *white*, charged with an Eagle *gules*, holding in its right Talons a Sword *azure*, with the Hilt *ſable*, and in its Left a Sceptre *Or*, crowned and covered with an electoral Cap furred with Ermines, furmounted on both Sides with a Croſs, and Pearls Silver.

Another *Flag* of *Brandebourg*, is *white*, charged with a Pelican *gules*, with two Heads diſplay'd *Or*, crowned with a Marquis's Coronet, holding a Sword in its right Talons, and in its Left a Sceptre.

Another *Flag* of *Brandebourg*, which is of ſeven Bends, four *white* and three *black*, charged with an Eſcutcheon *argent*, and an Eagle *gules*.

The *Flag* of *Dantzick*, a City of *Poland*, in the Royal *Pruſſia*, is *red*, charged near the Staff with two Croſſes *argent*, one over the other, the uppermoſt crowned with the ſame.

The *Flag* of the *Weſt-India Company* of *Hambourg*, is *white*, charged with an Eagle with two Heads diſplay'd *ſable*, holding a Sword in its right Talons, and in its Left a Sceptre *Or*, crowned with a royal Crown.

The *Flag* of *Koningſberg*, the Capital of the *Ducal Pruſſia*, is of ſeven Bends mixed, *viz.* four *white* and three *blue*, charged with an Eagle diſplay'd *gules*, holding a Sword in each Claw.

Another *Flag* of *Koningſberg*, which is of ſix Bends mixed *black* and *white*.

The *Flag* of *Memel*, a City of *Ducal Pruſſia*, is of three Bends, one *yellow* between two *red*.

The *Flag* of the *King of Poland*, is *red* charged with an Arm coming out of a Cloud *azure*, holding a Sword *argent*, with the Hilt *ſable*, covered as far as the Elbow with Cloth of Silver, with a Ruffle *Or*.

The *Flag* of *Poland*, is *red* charged with an Eagle argent.

The *Flag* of *Courland*, is *mi-parti*, the upper Bend i *white*, and the lower *red*.

The *Royal Flag of Sweden*, is cleft, and *blue*, with a Gold Croſs, the Point whereof, which comes into the Slit, comes out of it in Form of a Tongue.

The *Swediſh Flag*, is the ſame with the *Royal Flag*, except that there is no Sloping in it.

The *Swediſh Flag* of *Riga* in *Livonia*, belonging at preſent to *Muſcovy*, is *blue*, with a Croſs *Or*, charged *en cœur*, with the Arms of *Riga*, which is *gules* with two Keys *argent* placed in Saltir, between which there is a-top a Croſs *Or*.

The *Flag* of *Riga* in *Livonia*, is *white*, charged with a Gate with two Towers *gules*, between which there is a Lion *Or*, and above the Gate are the ſame Arms, as in the former Flag.

The *Flag* of *Revel* in *Livonia*, is of ſix Bends mixed with *blue* and *white*; the firſt a-top is *blue*.

The *Flag* of the *King of Denmark*, is *red* cut with a Croſs *argent*, having *en cœur*, a *white* Eſcutcheon charged with a Cypher *ſable* of the King's Name, and crowned with a royal Crown.

The *Royal Flag of Denmark*, is cleft and *red*, with a Croſs *argent*, the Point whereof, which comes from the Slit, comes out of it ſloping between the two other red Points.

The *Daniſh Flag*, is ſplit and traverſed with a Croſs *argent*.

The *Flag* of *Merchant-Ships* is ſquare.

The *Flag* of *Bergen* and *Norway*, is *red*, traverſed with a Croſs *argent*, charged *en cœur*, with an Eſcutcheon *argent*, with a Lion *gules*, holding in its right Paw a Sword *azure*, with a Hilt *ſable*, and environed with two Branches of a Tree, with their Leaves Crown-wiſe.

The *Flag* of *Holſtein Sleſwick*, is *red*, charged with the Arms of *Sleſwick*, which are *Or* charged with two Lions leopardized *azure*, and environed with the Nettle-Leaf of *Holſtein*, which is *argent* with two Nails of the ſame, and crowned.

The *Flag* of *Helgeland*, an Iſland near *Holſtein*, is of eight Bends mixed, which are to begin at the uppermoſt *blue*, *red*, *white*, and then *blue* and *white*.

The *Flag* of the *King of Sardinia*, as Duke of *Savoy*, is *red* with a Silver Croſs, which divides it into four Quarters, in each of which is one of theſe four Letters, F. E. R. T. *i. e. Fortitudo ejus Rhodum tenuit*, in *Engliſh*, *His Valour has ſaved Rhodes*.

The *Flag* of the *Duke of Modena*, is *blue*, charged with an Eagle diſplay'd *argent*, beaked and membered *Or*.

The *Flag* of *Jeruſalem*, in the Holy Land, is *white*, charged with a Croſs potenced *Or*, cantoned with four *Croiſettes* of the ſame.

The *Flag* of the *Prince of Monaco*, is *white*, charged with an Eſcutcheon fuſeled *argent* and *gules*.

The *Flag* of *Genoa*, is *white*, traverſed with a Croſs *gules*.

The *Flag* of the *Iſland of Corſica*, is *white*, charged with a *Moor's* Head, environed with a white Bender.

The *Flag* of the *Great Duke of Tuſcany*, is *white*, charged with the Arms of the Grand Duke, crowned with a Ducal Coronet, a Croſs hanging at a blue Ribbon for the Order of St. *Stephen*.

The *Flag* of *Legborn* in *Tuſcany*, is *white*, charged with a Croſs *gules*, the Ends whereof are terminated in Half-Moons, and at each of them there is an Owl.

The *Flag* of the *Galleys of Legborn*, is *red*, bordered on three Sides with *yellow*, and bearing in the Middle a round Eſcutcheon *argent*, charged with a Croſs of St.

St. *Stephen*, which is *gules*, and shaped like that of *Malta*.

The *Flag* of *Ragusa* in *Dalmatia*, on the Coasts of the Gulph of *Venice*, is *white*, charged with an Escutcheon, with the Word *Libertas*.

Another *Flag* of *Ragusa*, which is *white*, charged with a Monk dressed in Black, having at his Sides these two Letters S. *B. i. e.* St. *Benedict*.

The *Flag* of *Venice*, or of St. *Mark*, is *red*, charged with a winged Lion *Or*, placed on a small Bend *azure*, holding in its right Paw a Cross *Or*, and in its Left a Book, where these Words are written, *Pax tibi* MARCE, *Evangelista meus*.

Another *Flag* of *Venice*, which is like the first, except that the Lion holds in its right Paw a Sword *azure*, with the Hilt and Groop *sable*.

The *particular Flag* of *Venice*, is *red*, charged with the same Lion holding in its two Paws the Book of St. *Mark*.

The *Flag* of *Ancona*, a City of *Italy*, is *mi-parti*, the Top *red* and the Bottom *yellow*.

The *Flag* of *Mantua*, is *blue*, bordered with *red* on the three Sides, on that a-top are written these Words, AL BISOGNO RASSEMBRO, *i. e. I join again in case of Need*; and on the Side at Bottom, L'HUOMO GIRA IL FATO, *i. e. Man will make the Fate change*. The Middle of the Flag is charged with a Woman's Head, the hind Part whereof is covered with a black Mask.

The *Flag* of *Malta*, is *white*, charged with a Cross of *Malta*, *gules*.

Another *Flag* of *Malta*, which is *red*, with a *white* Cross.

The *Flag* of the Isle of *Sardinia*, is *white* with a Cross *azure*, which divides it into four Quarters, in each of them is a *Moor*'s Head, incircled with a white Bend.

The *Flag* of the Island of *Majorca*, is *white* bearing the Arms of that Island, which are quartered at the first and fourth *gules*, charged with three Skins *Or*; at the second and third *argent*, charged at Bottom with a Beam *gules*, surmounted with another small Beam placed Cross-wise. Behind the Escutcheon there are two Standards passed Saltir-wise, which are *blue*, and both charged with a Tower *Or*. Under the Escutcheon there are two Canons of Sinople, half whereof, which is hid behind the Escutcheon, is also passed Saltir-wise, and at the lower End of the Flag are two Poinards *azure*, garnished *Or*.

The *Flag* of *Sicily*, is of six Bends, those at Top and at Bottom are *white*, each charged with an Eagle *sable*, beaked and membered *gules*, the four Bends of the Middle are alternately, one *red* and the other *white*.

The *Flag* of *Messina*, a City of the Kingdom of *Sicily*, is *white*, charged with an Eagle with two Heads display'd *sable*.

The *Flag* of the Capitan Galley of *Sicily*, is *white*, charged with an Eagle display'd *sable*.

The *Flag* of the *Two Sicilies*, is *blue*, charged with an Eagle display'd *argent*.

The *Flag* of *Naples*, is *white*, charged with a Griffin of Sinople.

The *Flag* of the *Empress of Russia*, is *yellow*, charged with an Eagle *sable*, which are the Arms of the *Russian* Empire. This Eagle is with two Heads, bearing three Crowns, one Imperial, and the other two Royal, charged *en cœur*, with an Escutcheon *argent*, with a St. *George sable* with his Dragon: At its two Heads and Feet it carries four Sea-Charts; the Chart at the right Head represents the *White Sea*, that at the Left the *Caspian Sea*, that held with the right Talon represents the *Palus Maeotides*, and that with the Left the *Sinus Bothnicus*.

The first *Flag* of *Russia*, is *white*, charged with a St. *Andrew*'s Cross *azure*, to shew that the *Russian* Empire has received the Baptism by the Ministry of that Apostle.

The second *Flag* of *Russia*, is *blue* with a frank Quarter *argent*, charged with a St. *Andrew*'s Cross *azure*.

The third *Flag* of *Russia*, is *red* with a frank Quarter *argent*, charged with a St. *Andrew*'s Cross *azure*.

The *Gaillard Russian*, is *red*, charged with a St. *Andrew*'s Cross *azure*, lined with *white*.

The *Flags* of the *Russian Galleys*, they are like the preceding, except that they are not square but cleft at the Point.

The *Flag* of *Russian Merchant-Ships*, is of three Bends, one *white*, the other *azure*, and the third *red*.

The *Flag* of the *Russian Admiral*, is *white*, charged with four Anchors *azure*, placed in form of St. *Andrew*'s Cross, to signify the four Seas already mentioned.

The *Flag* of the Emperor of *Tartary*, and of *China*, is *yellow*, charged with a Dragon *sable*, with a Tail like a Basilisk of the same, with five Claws on each Paw, and the Head turned Outside. The Emperor of *China* who keeps several whole Fleets to secure the Navigation, makes them carry that Flag, which is so much respected, that all Ships withdraw at its Aspect.

Another *Flag* of the *Tartars*, which is *yellow*, charged with an Owl *sable*.

The *Flag* of the Emperor of *China*, is *white*, charged in the Middle with a round Volute, half *red* and half *yellow*; round the Circles of that Volute are eight Characters, in one Half whereof are six Points, and in the other Half four Points in each, with a Dash a-top.

The *Flag* of the *Jonks* of *Nanquin* in *China*, is of four Bends, one *grey*, the other *blue*, the third *red*, and the fourth *white*.

The *Flag* of the Emperor of *Japan*, is *red*, charged with a Half-Moon *Or*, and with two blue Swords, waved and garnished *Or*, placed Saltir-wise.

The *Flag* of *Batavia* in the *East-Indies*, is *red*, charged with a Sword *argent*, its Point upwards crowned with Laurel; the whole Sword is likewise environed with Crowns of Laurel of Sinople, and surmounted with a small Garland of the same.

Another *Flag* of *Batavia*, which is of six Bends like the double Flag of *Holland*, charged with a Sword with a golden Hilt, environed with a Crown of Laurel of Sinople, adorned with Flowers at the four Extremities.

The *Flag* of the King of *Bantam*, is *red* bordered *Or*, charged with two Half-Moons, and two Swords *azure* garnished *Or*, placed Saltir-wise.

The *Flag* of *Bantam* in the *East-Indies*, is *yellow* charged with two Swords *argent*, with the Hilt *Or*, placed Saltir-wise.

The *Flag* of the *Great Mogul*, is *red*, charged with a Woman who dances naked, and these Words on the upper Border, NOCH NIET HALF GEWONNEN, *i. e. There is not yet one Half vanquished.*

Another *Flag* of the *Grand Mogul*, which is *green* charged with a Half-Moon *Or*.

The *Flag* of the *Grand Seignor*, is cleft, and *green*, bearing in the Middle an oval Escutcheon of Sinople, charged with three Half Moons *Or*, placed near one another, and the Horns upwards.

Another *Flag* of the *Grand Seignor*, which is of thirteen Bends mixed, which are alternately to begin at the uppermost, one *green* and the other *red*.

The *Flag* of a *Turkish Bashaw*, is cleft, and *red*, traversed with a Cross *Or*, covered in the Middle with a round Escutcheon of the same, charged with three Half-Moons placed near one another, and the Horns thereof are Outside.

The *Flag* of the *Sophi* of *Persia*, is *yellow*, charged with three Half-Moons *argent*, the Horns whereof are Outside.

Another *Flag* of the *Sophi* of *Persia*, which is *white*, and charged with three Lions *sable*.

The *blue Flag* of the *Turks*, is charged with three Half-Moons *argent*, the Horns Outside.

The *particular Flag* of the *Persians*, which include the neighbouring Provinces of the *Mogul*, is of five Bends, the first and fifth are *blue*, charged each with two Flowers *Or*, and two Half-Moons of the same; the second and fourth are yellow, each charged with two Crosses *gules*, and the Bend of the Middle is *green*, and extends in Form of a Tongue; it is charged with a Sword *azure*, with the Hilt *Or*, and at the End of the Tongue with two Half-Moons *Or*, between which is a Flower *Or*.

The *red Flag* of the *Turks*, is charged with three Half-Moons *argent*, the Horns turned Outside.

The *red Flag* of the *Turkish Galleys*, terminates into a Point.

The *Flag* of *Alexandretta*, or *Scanderoon*, is of cleft

Bends, which are, to begin at the Uppermoſt, *red*, *white*, *green*, *red*, *green*, *red*, *white*, *green*, and terminates into a Round.

The *Flag* of *Candia* is of three Bends, *red*, *white*, and *red*, and terminates into a Point.

The *Flag* of *Conſtantinople* is green, charged with three Half-Moons *Or*, the Horns outſide.

The *Flag* of the *Greeks* is all black.

The *Flag* of *Smyrna*, a City of *Turkey*, is of five Bends, which are alternately one *green*, and the other *white*.

The *Flag* of *Tripoly*, in *Barbary*, is green, charged with three Half Moons *Or*, the Horns turned towards one another.

Another *Flag* of *Tripoli*, which is of ſeven Bends, *red*, *green*, *white*, *red*, *white*, *green*, *red*.

The *Flag* of *Algiers*, in a Fight, is blue, charged with an Arm coming out of a Cloud *Sable*, holding a Scimetar *Argent*, with the Hilt *Or*, the Arm is environ'd with a Bend *Sable* above the Elbow, and the End of the Arm with a Ruffle embroider'd *Or*, in Form of Flames.

The *Flag* of *Eſclavonia*, is *mi-parti*, the Top yellow, and the Bottom red.

The *Flag* of *Tunis*, in *Barbary*, is of five Bends, *blue*, *red*, *green*, *red*, *blue*: It is terminated into a Point, and the Bend of the Middle is ſloping.

Another *Flag* of *Tunis*, which is green, and terminates into a Point.

The *Flag* of *Salle* in *Barbary*, is of three Bends, which terminate into a Point, *yellow*, *white*, and *red*, and the *white* which is in the Middle, is charged with three Half-Moon, the Horns outſide.

Another *Flag* of *Salle*, which is red, charged with a Half-Moon *Or*, both Horns outſide.

Another *Flag* of *Salle*, is green, charged with a Sword with two Blades mounted on a Hilt *Or*.

The *Flag* of *Tetuan* in *Barbary*, is of three Bends, one *red*, the other *green*, and the third *red*, and the *green* Bend, which is in the Middle, terminates ſloping.

The *Flag* of the *Corſairs* is *red*, charged in the Middle with an Arm holding a Scimetar *Azure*, with the Hilt *Or*, and above the Elbow a Bend *Or*, border'd *Azure*; on the Side of the Staff, an Hour-Glaſs winged *Azure*; and on the other Side, towards the Top of the *Flag*, with a Death's Head, and two Bones; the whole *Or*, crowned with Laurel.

The *Flag* of the King of *Morocco* is red, border'd with red and white Points, charged in the Middle with Sciſſars open, the Points outwards.

The *Flag* of the Moors of *Africa*, is of two Bends, that a-top is green and narrow, and that at Bottom red and large.

Note, That theſe *Flags* ſerve, not only to diſtinguiſh the different Nations at Sea, but likewiſe the Rank of the Officers who command a Fleet, or a Squadron; for Signals, *&c.* For,

The ADMIRAL, or Commander in Chief, carries his *Flag* on the Main-Top, or Top of the Main-Maſt; which the *French* call *Porter pavillon quarré au grand Maſt*.

The VICE-ADMIRAL, carries his on the Fore-Top; and the REAR-ADMIRAL his on the Mizzen-Top, or Top of the Mizzen-Maſt.

The Commanders of Squadrons bear their *Flag* on the Mizzen-Maſt, when in the Body of a Fleet: And on the Main-Maſt when they command a Party. It ſhould be cleft two Thirds of its Height, and terminate in a Point.

The *Flags* bore on the Mizzen, are particularly called *Gallants*.

Note, That theſe *Flags* thus carried on the Top of the Maſts, are very different in Shape from thoſe hoiſted at the Poop of the Ship; for they are moſt commonly more magnificent, and not ſo wide. The *Flag* hoiſted at the Main-Maſt of the *French* Admiral, or other Commander of a Fleet, is blue, bearing a Sun *Or*, in its Glory, with this Motto, *Nec pluribus Impar*. By an Ordinance of *Louis* XIV. a *Flag* Officer is order'd to periſh, rather than lower, or ſtrike his *Flag* before any Officer of another Nation, of equal Rank; though of a ſuperior Strength. All Ships, in general, muſt lower their *Flags* before the Admiral, Vice Admiral, and Rear Admiral; and thoſe *Flag* Officers muſt obſerve the ſame among themſelves, *i. e.* that the Vice Admiral muſt ſtrike before the Admiral, and the Rear Admiral before the Vice Admiral and Admiral, the Admiral alone being obliged to ſtrike before no Body, not even before the King himſelf, if he was in another Ship.

The *Flag* is alſo frequently uſed in *Signals*, at Sea, which are Signs made by the Admiral or Commander in Chief of a Squadron of Ships, either in the Day, or by Night, whether for Sailing, for Fighting, or for the better Security of the Merchant Ships under their Convoy.

Theſe *Signals* are very numerous and important; being all appointed and determined by Order of the Lord High Admiral, or Lords of the Admiralty; and communicated in the Inſtructions ſent to the Commander of every Ship or Squadron, before their putting out to Sea. Therefore there are *Signals by Day*, *Signals by Night*, *Signals when a Fleet ſails in a Fog*, *Signals for calling Officers on Board the Admiral*, *Signals for managing a Sea-Fight*, &c.

Signals by Day. — When a Commander in Chief would have them prepared for Sailing; he firſt looſes his Fore-Top-Sail, and then the whole Fleet are to do the ſame. When he would have them unmoor, he looſes his Main-Top-Sail, and fires a Gun, which in the Royal Navy is to be anſwer'd by every Flag-Ship. When he would have them weigh, he looſes his Fore-Top-Sail, and fires a Gun, and ſometimes hawls home his Sheets: The Gun is to be anſwer'd by every Flag-Ship, and every Ship to get to ſail as ſoon as it can. If with the Leeward-Side, the Sternmoſt Ship is to weigh firſt. When he would have the Weathermoſt and Headmoſt Ships to tack firſt, he hoiſts the Union-Flag at the Fore-Top-Maſt-Head, and fires a Gun, which each Flag-Ship anſwers; but if he would have the Sternmoſt and Leewardmoſt Ships to tack firſt, he hoiſts the Union-Flag at the Mizzen-Top-Maſt-Head, and fires a Gun; and when he would have the whole Fleet to tack, he hoiſts an Union, both on the Fore and Mizzen-Top-Maſt-Heads, and fires a Gun. When in bad Weather, he would have them veer, and bring to the other Tack, he hoiſts a Pennant on the Enſign-Staff, and fires a Gun: And then the Leewardmoſt and Sternmoſt Ships are to veer firſt, and bring on the other Tack, and lie by, or go on with an eaſy Sail, till he comes a-head; every Flag is to anſwer with the ſame *Signal*. — If they are lying by, or ſailing by a Wind, and the Admiral would have them bear up and ſail before the Wind, he hoiſts his Enſign, and fires a Gun, which the Flags are to anſwer: And then the Leewardmoſt Ships are to bear up firſt, and to give Room for the Weathermoſt to veer, and ſail before the Wind with an eaſy Sail, till the Admiral comes a-head. But if it ſhould happen, when the Admiral has Occaſion to veer and ſail before the Wind, that Jacks and Enſigns be abroad, he will hawl down the Jack before he fires the Gun to veer, and keep it down till the Fleet is before the Wind. When they are ſailing before the Wind, and he would have them bring to, with the Starboard tacks abroad, he hoiſts a red Flag at the Flag Staff, on the Mizzen-Top-Maſt-Head, and fires a Gun. But if they are to bring to, with the Larboard Tack, he hoiſts a blue Flag at the ſame Place, and fires a Gun, and every Ship to anſwer the Gun. — When any Ship diſcovers the Land, he is to hoiſt his Jack and Enſign, and keep it abroad, till the Admiral, or Commander in Chief, anſwers him, by hoiſting his; on Sight of which he is to hawl down his Enſign. — If any diſcovers Danger he is to tack and bear up from it, and to hang his Jack abroad from the Main-Top-Maſt-Croſs-Trees, and fire two Guns: But if he ſhould ſtrike or ſtick faſt, then, beſides the ſame *Signal* with his Jack, he is to keep firing, till he ſees all the Ships obſerve him, and endeavours to avoid the Danger. — When any ſees a Ship or Ships more than the Fleet, he is to put abroad his Enſign, and there keep it, till the Admiral's is out, and then to lower it, as often as he ſees Ships, and ſtand in with them, that ſo the Admiral may know where they are, and how many; but if he be at ſuch a Diſtance, that the Enſign cannot well be

be discover'd, he is then to lay his Head towards the Ship or Ships so descryed, and to brail up his low Sails, and continue hoisting and lowering his Top-Sails, and making a Waft with his Top-Gallant-Sails, till he is perceived by the Admiral. When the Admiral would have the Vice Admiral, or he that commands in the second Post of the Fleet, to send out Ships to chase, he hoists his Flag, striped white and red on the Flag-Staff, at the Fore-Top-Mast-Head, and fires a Gun. — When the Admiral would have any Ship to chase to Windward, he makes a *Signal* for speaking with the Captain, and he hoists a red Flag on the Mizzen-Shrowds, and fires a Gun. But if to chase to Leeward, a blue Flag. And the same *Signal* is made by the Flag, in whose Division that Ship is. When he would have them give over the Chace, he hoists a white Flag on his Flag-Staff, at the Fore-Top-Mast-Head, and fires a Gun; which *Signal* is to be made also by that Flag-Ship, which is nearest the Ship that gives Chace, till the chasing Ship sees the *Signal*. — In Case of springing a Leak, or any other Disaster, that disables their Ship from keeping Company, they are to hawl up their Courses, and fire two Guns. — When any Ship would speak with the Admiral, he must spread an *English* Ensign, from the Head of his Main, or Fore-Top-Mast, downwards on the Shrowds, lowering his Main, or Fore-Top-Sail, and firing Guns, till the Admiral observe him; and if any Ship perceives this, and judges the Admiral does not, that Ship must make the same Signal, and make the best of his Way to acquaint the Admiral therewith, who will answer by firing one Gun. — When the Admiral would have the Fleet to prepare to Anchor, he hoists an Ensign, striped red, blue, and white, on the Ensign-Staff, and fires a Gun, and every Flag-Ship makes the same *Signal*. If he would have the Fleet moor, he hoists his Mizzen-Top-Sail, with the Clew-Lines hawled up, and fires a Gun. If he would have the Fleet cut or slip, he looses both his Top-Sails, and fires two Guns; and then the Leeward-Ships are to cut or slip first, to give Room to the Weathermost to come to sail. So if he would have any particular Ship to cut or slip, and to chase to Windward, he makes the *Signal* for speaking with that Ship, hoists a red Flag in the Mizzen-Shrowds, and fires a Gun: But if the Ship is to chase to Leeward, he hoists a blue Flag as before. If he would have the Fleet exercise their small Arms, he hoists a red Flag on the Ensign-Staff, and fires a Gun; but if the great Guns, then he puts up a Pennant over the red Flag.

The *Signals by Night*, to be observed at Anchor, weighing Anchor, and Sailing, are as follow.—When the Admiral would have the Fleet to unmoor, and ride short, he hangs out three Lights, one over another, in the Main-Top-Mast Shrowds, over the constant Light in the Main-Top, and fires two Guns, which are to be answer'd by Flag-Ships: And each private Ship hangs out a Light in the Mizzen-Shrowds.

Note, That all Guns fired for *Signals* in the Night, must be fired on the same Side, that they make no Alteration in the Sound.

When he would have them weigh, he hangs a Light in the Main-Top-Mast Shrowds, and fires a Gun, which must be answer'd by all the Flags, and every private Ship must hang out a Light in his Mizzen-Shrowds. —When he would have them tack, he hoists two Flags on the Ensign Staff, one over another, over the constant Light in his Poop, and fires a Gun, which is to be answer'd by all the Flags; and every private Ship is to hang out a Light extraordinary, which is not to be taken in till the Admiral takes in his. — After the *Signal* is made, the Leewardmost and Sternmost Ships, must tack as fast as they can, and the Sternmost Flag-Ship, after he is about on the other Tack, is to lead the Fleet, and him they are to follow, to avoid running thro' one another in the Dark. — When he is upon a Wind, and would have the Fleet veer, and bring to, on the other Tack, he hoists up one Light at the Mizzen-Peak, and fires three Guns, which is to be answer'd by all the Flag-Ships, and every private Ship must answer, with one Light at the Mizzen-Peak. The Sternmost and Leewardmost Ships are to bear up so soon as the *Signal* is made. —When he would have them, in blowing Weather, to lie a try, short, or a Hull, or with the Head-Sails braced to the Mast, he will form Lights of equal Height, and fire five Guns, which are to be answer'd by the Flag-Ships, and then every private Ship must shew four Lights: And after this, if he would have them to make sail, he then fires ten Guns, which are to be answer'd by all the Flags; and then the Headmost and Weathermost Ships are to make sail first. — When the Fleet is sailing large, or before the Wind, and the Admiral would have them bring to, and lie by with their Starboard Tacks abroad, he puts out four Lights in the Fore-Shrowds, and fires six Guns; but if the Larboard tacks abroad, he fires eight Guns, which are to be answered by the Flag-Ships; and every private Ship must shew four Lights. The Windmost Ship must bring to first.—Whenever the Admiral alters his Course, he fires one Gun (without altering his Lights) which is to be answered by all the Flag-Ships. If any Ship has Occasion to lie short, or by, after the Fleet has made Sail, he is to fire one Gun, and shew three Lights in his Mizzen Shrowds.—When any one first discovers Land, or Danger, he is to shew as many Lights as he can, to fire one Gun, and to tack, or bear away from it: And if any one happens to spring a Leak, or any be disabled from keeping Company with the Fleet, he hangs out two Lights of equal Height, and fires Guns till he is relieved by some Ship of the Fleet. — If any one discovers a Fleet, he is to fire Guns, make false Fires, put one Light out on the Main-Top, three on the Poop, to steer after them, and to continue firing of Guns, till the Admiral calls him off, by steering another Course, and firing two or three Guns, for then he must follow the Admiral.— When the Admiral anchors, he fires two Guns, a small Space of Time one from the other, which are to be answer'd by the Flag-Ships; and every private Ship must shew one Light. — If he would have them lower their Yards and Top-Masts, he hoists one Light upon his Ensign-Staff, and fires one Gun; which is to be answer'd by the Flag-Ships; and every private Ship must shew one Light. And when he would have them hoist their Yards and Top-Masts, he puts out two Lights, one under the other, in the Mizzen-Top-Mast Shrowds, and fires one Gun, which is to be answered by all the Flag-Ships; and every private Ship must shew one Light in the Mizzen-Shrowds. — If any strange Ship be discover'd coming into the Fleet, the next Ship is to endeavour to speak with her, and bring her to an Anchor, and not suffer her to pass through the Fleet.— And if any one discovers a Fleet, and it blows so hard that he cannot come to give the Admiral timely Notice, he is to hang out a great Number of Lights, and to continue firing Gun after Gun, till the Admiral answers him with one. — When the Admiral would have the Fleet to cut or slip, he hangs out four Lights, one at each Main-Yard-Arm, and at each Fore-Yard-Arm, and fires two Guns, which are to be answer'd by the Flag Ships, and every private Ship is to shew one Light.

As for the *Signals used when a Fleet sails in a Fog.*— If the Admiral would have them weigh, he fires ten Guns, which every Flag-Ship is to answer. — To make them tack, he fires four Guns, which are to be answered by the Flag-Ships, and then the Leewardmost and Sternmost Ships must tack first, and after they are about, to go with the same Sail they tacked with, and not to lie by, expecting the Admiral to come a-head: And this is to avoid the Danger of running through one another in thick Weather.

When the Admiral brings to, and lies with his Head-Sails to the Mast; if with the Starboard tack abroad, he fires six Guns; but if the Larboard tacks he fires eight Guns, which the Flag-Ships must answer. And after this, if he makes sail, he fires ten Guns, which the Flag-ships must answer; and then the Head-most and Weather-most Ships are to make sail first.—If it grows thick and foggy Weather, the Admiral will continue sailing with the same Sail set that he had before it grew foggy, and will fire a Gun every Hour, which the Flag-ships must answer, and the private Ships by firing of Muskets, beating of Drums, and ringing of Bells. But if he be forced to make either more or less sail than he had when the Fog began, he will fire a Gun every half Hour, that the Fleet may discern whether they

they come up with the Admiral, or fall a-ſtern of him; and the Flag and private Ships are to anſwer as before. If any one diſcovers Danger, which he can avoid by tacking and ſtanding from it, he is to make the Signal for tacking in a Fog; but if he ſhould chance to ſtrike, and ſtick faſt, he is to fire Gun after Gun, till he thinks the reſt have avoided the Danger.—When the Admiral would have the Fleet to Anchor he fires two Guns, which the Flags are to anſwer; and after he has been half an Hour at an Anchor, he will fire two Guns more, to be anſwered by the Flags as before, that all the Fleet may know it.

With reſpect to SIGNALS, *for calling Officers on board the Admiral.*—When the Admiral puts abroad an Union Flag in the Mizen-Shrowds, and fires a Gun, all the Captains are to come on board him: And if, with the ſame *Signal*, there be alſo a Waft made with the Enſign, then the Lieutenant of each Ship is to come on board.—If an Enſign be put aboard in the ſame Place, all the Maſters of the Ships of War are to come on board the Admiral.—If a Standard on the Flag Staff be hoiſted at the Mizen-Top-Maſt-Head, and a Gun fired, then all the Flag-Officers are to come on board the Admiral. If the *Engliſh* Flags only, then a Standard in the Mizen-Shrowds, and fire a Gun: If the Flags and Land General Officers, then the Admiral puts on board a Standard at the Mizen-Top-Maſt-Head, and a Pennant at Mizen-Peek, and fires a Gun.—If a red Flag be hoiſted in the Mizen-Shrowds and a Gun fired, then the Captains of his own Squadron are to come on board the Admiral; and if with the ſame *Signal* there be alſo a Waft with the Enſign, the Lieutenant of each Ship muſt come on board.—If he hoiſts a white Flag as before, then the Vice-Admiral, or he that commands in the ſecond Poſt, and all the Captains of his Squadron, muſt come on board; and if a Waft, as before, the Lieutenants.—When a Standard is hoiſted on the Enſign-Staff, and a Gun fired, the Vice and Rear Admirals muſt come on board the Admiral's Ship.—When the Admiral would ſpeak with the Captains of his own Diviſion, he will hoiſt a Pennant on the Mizen-Peek, and fire a Gun; and if with the Lieutenants a Waft is made with the Enſign, and the ſame *Signal:* For whenever he would ſpeak with the Lieutenants of any particular Ship, he makes a *Signal* for the Captain, and a Waft alſo with the Enſign.—When the Admiral would have all the Tenders in the Fleet come under his Stern and ſpeak with them, he hoiſts a yellow and white Flag at the Mizen-Peek, and fires a Gun: But if he would ſpeak with any particular Ship's Tenders, he make a Signal to ſpeak with the Captain ſhe tends upon, and a Waft with the Jack.—If all the Pinnaces and Barges are to come on board manned and armed, the *Signal* is a Pennant on the Flag-Staff, hoiſted on the Fore Top-Maſt-Head, and a Gun fired; and if he would have them chaſe any Ship, Veſſel, or Boat in View, he hoiſts the Pennant, and fires two Guns.—The *Signal* for the Long-boats to come on board him, manned and armed, is the Pennant hoiſted on the Flag-Staff, at the Mizen-Top-Maſt-Head, and a Gun fired; and if he would have them chaſe any Ship, Veſſel, or Boat in View, without coming on board him, he hoiſts a Pennant as aforeſaid, and fires two Guns.—When the Admiral would have all the Boats in the Fleet come on board him, manned and armed, he hoiſts a Pennant on the Flag-Staff, both on the Fore-Top-Maſt and Mizen-Top-Maſt-Head, and fires one Gun; but if he would have them chace, he hoiſts his Pennants as before, and fires two Guns.—When the Admiral would ſpeak with the Victualler, or his Agent, he puts an *Engliſh* Enſign in the Mizen-Top-Maſt-Shrowds; and when with him that has the Charge of the Gunner's Stores, he will ſpread an Enſign at his Main-Top-Sail-Yard-Arm.

As to SIGNALS, *for managing a Sea-Fight.*—When the Admiral would have a Fleet form a Line of Battle, one Ship a-head of another, he hoiſts an Union-Flag at the Mizen-Peek, and fires a Gun; and every Flag-ſhip does the like. But when they are to form a Line of Battle one a breaſt of another, he hoiſts a Pennant with a Union Flag, *&c.*—When he would have the Admiral of the White, or he that commands in the ſecond Poſt, to tack, and endeavour to gain the Wind of the Enemy, he ſpreads a white Flag under the Flag at the Main-Top-Maſt-Head, and fires a Gun; and when he would have the Vice-Admiral of the Blue do ſo, he does the ſame with a blue Flag. If he would have the Vice-Admiral of the Red do ſo, he ſpreads a red Flag from the Cap on the Fore-Top-Maſt-Head downwards on the back Stay; if the Vice-Admiral of the Blue, he ſpreads a blue Flag, *&c.* and fires a Gun.—If he be to Leeward of the Fleet or any Part of it, and he would have them bear down into his Wake or Grain, he hoiſts a blue Flag at the Mizen-Peek, and fires a Gun. If he would be to Leeward of the Enemy and his Fleet, or any Part of it be to Leeward of him; in order to bring theſe Ships into the Line, he bears down with a blue Flag at the Mizen-Peek under the Union-Flag (which is the *Signal* for Battle) and fires a Gun; and then thoſe Ships that are to Leeward of him muſt endeavour to get into his Wake or Grain, according to their Station in the Line of Battle.—When the Fleet is ſailing before the Wind, and he would have him who commands in the ſecond Poſt, and the Ship of the Starboard Quarter to clap by the Wind, and come to the Starboard-Tack, he hoiſts a red Flag at the Mizen-Top-Maſt-Head; but a blue one if he would have Ships of the Larboard Quarter to come to the Larboard Tack, with a Gun.—If the Van are to attack firſt, he ſpreads the Union-Flag at the Flag-Staff, on the Fore Top-Maſt-Head, and fires a Gun, if the red Flag be not abroad; but if it be, then he lowers the Fore-Top-Sails a little, and the Union-Flag is ſpread from the Cap of the Fore-Top-Maſt downwards; and every Flag-ſhip does the ſame.—If the Rear be to attack firſt, he hoiſts the Union Flag on the Flag-Staff at the Mizen-Top-Maſt-Head, and fires a Gun, which all the Flag-ſhips are to anſwer.—If all the Flag-ſhips are to come into his Wake or Grain, he hoiſts a red Flag at his Mizen-Peek, and fires a Gun; and all the Flag-ſhips muſt do the ſame.—If he would have him that commands in the ſecond Poſt of his Squadron to make more ſail (tho' he himſelf ſhorten ſail) he hoiſts a white Flag on the Enſign-Staff. But if he that commands in the third Poſt be to do ſo, he hoiſts a blue Flag, and fires a Gun; and all the Flag-ſhips muſt make the ſame *Signal.*—Whenever he hoiſts a red Flag on the Flag-Staff on the Fore-Top-Maſt-Head, and fires a Gun, every Ship in the Fleet muſt uſe their utmoſt Endeavours to engage the Enemy, in the Order preſcribed them.—When he hoiſts a white Flag at his Mizen-Peek, and fires a Gun, then all the Frigates of his Squadron that are not of the Line of Battle, are to come under the Stern.—If the Fleet be ſailing by a Wind in the Line of Battle, and the Admiral would have them brace their Head-Sails to the Maſt, he hoiſts up a yellow Flag on the Flag-Staff of the Fore-Top-Maſt-Head, and fires a Gun, which the Flag-ſhips muſt anſwer, and then the Ships in the Van muſt fall firſt, and ſtand on. If when this Signal is made, the red Flag at the Fore Top-Maſt-Head be abroad, he ſpreads the yellow Flag under the red.—If the Fleet being near one another, the Admiral would have all the Ships to tack together, the ſooner to be in a Poſture to engage the Enemy; he hoiſts an Union-Flag on the Flag-Staff, at the Fore and Mizen Top-Maſt-Heads, and fires a Gun; and all the Flag-ſhips are to do the ſame.—The Fleet being in a Line of Battle, if he would have the Ship that leads the Van, hoiſt, lower, ſet, or hawl up any of his Sails, he ſpreads a yellow Flag under that at his Main-Top-Maſt-Head, and fires a Gun, which Signal the Flag-ſhips are to anſwer; and then the Admiral will hoiſt, lower, ſet, or hawl up the Sail, which he would have the Ships do that lead the Van; which is to be anſwered by the Flag-ſhips of the Fleet.—When the Enemy runs, and he would have the whole Fleet follow them, he makes all the Sail he can after them himſelf, takes down the *Signal* for the Line of Battle, and fires two Guns out of his Fore-chace, which the Flag ſhips anſwer; and then every Ship is to endeavour to come up with, and board the Enemy.—When he would have the Chace given over, he hoiſts a white Flag at the Fore-Top-Maſt-Head, and fires a Gun.—If he would have the red Squadron draw into a Line of Battle, one a-breaſt of another, he puts abroad a Flag, ſtriped white and red,

on the Flag-Staff, at the Main-Top Maſt-Head, with a Pennant under it, and fires a Gun: If the white or ſecond Squadron is to do ſo, the Flag is ſtriped red, white, and blue: If the blue or third Squadron is to do ſo, the Flag is a *Genoeſe* Enſign and Pennant: But if they are to draw into a Line of Battle, one a-head of another, the ſame Signals are made without a Pennant. If they are to draw into a Line of Battle one a-ſtern of another with a large Wind, and he would have the Leaders go with the Starboard Tacks aboard by the Wind, he hoiſts a red and white Flag at the Mizen-Peek, and fires a Gun: But if he ſhould go with the Larboard Tacks aboard by the Wind, he hoiſts a *Genoeſe* Flag at the ſame Place; which Signals, like others, muſt be anſwered by the Flag-ſhips.—Theſe are *Engliſh* Signals.

The *French* Signals are but very little different from them.—When the Commander in Chief would have them prepare for ſailing, by Day, he unfurls his Mizen-Sail, and hoiſts ſometimes a red Flag on the Enſign-Staff, and fires a Gun; then all the Captains muſt likewiſe unfurl their Mizen-Sail to ſail with him.—If the Admiral will ſail by Night, he puts two Lights at the Stern, and fires a Gun. The other Captains put likewiſe a Light at the Stern, but takes it off as ſoon as the Admiral puts on a Third in his Ship.—When the Admiral will come to Anchor at Night, he puts two Lights at the Stern, and one in the Shrowds of the Fore-Maſt, and fires a Gun; then all the other Ships put likewiſe a Light at the Stern, and one in the Shrowds of the Fore-Maſt, and takes it in when the Admiral takes in his.—If the Admiral will change his Courſe, he puts two Lights a little diſtant from one another at the Stern, or one at the Stern, and the other in the Main-Scuttle, and fires a Gun.—If in the Night it happens ſome Accident to a Ship of the Fleet all the Lights are put in the Shrowds, and a Gun is fired, then all the other Ships run to its Succour.—If a Ship diſcovers Land in the Night, or ſome Place of the Sea where there is but little Water, he puts a Light in the Shrowds of the Fore-Maſt, and all the other Ships tack about.—If a Ship diſcovers the Enemy in Day-time, he puts a red Flag at the Stern, and fires a Gun. If he diſcovers them in the Night he puts a Light at the Stern, and another in the Main Scuttle, and fires a Gun; then all the other Ships of the Fleet do the ſame, and chace the Enemy.—If the Admiral diſcovering the Enemy, judge proper he ſhould be chaſed, he hoiſts a Standard at the Main-Top-Maſt, and fires a Gun; then the Ships that ſail beſt ſail towards the Enemy to fight; if the Admiral will have the Chaſe given over, he brings down his Standard and fires a Gun.—There are ſeveral other *Signals* which are better learned by Experience than by Reading.—As for Pennants and Streamers being at the Heads of Maſts, or at the Yard-Arm Ends, they are chiefly uſed for Shew, though ſometimes for Diſtinction of Squadrons.—The *Flag* or *Enſign*, is alſo uſed ſometimes in Salutation; though *Salutation* at Sea conſiſts likewiſe in a Diſcharge of Cannon, which is greater or leſſer according to the Degree or Reſpect they would ſhew, and in lowering the Top-Sails, *&c.*—A *French* Admiral muſt never lower the royal Flag, but when he paſſes on the Coaſts of a King or State, whoſe Friendſhip the King wants to cultivate.—All Ships in general muſt lower their Flag, before the Admiral, Vice-Admiral, and Rear-Admiral. The laſt owes that Duty to the ſecond, and this to the firſt.—When one or ſeveral Ships paſs before a Citadel, they muſt ſalute it by a Diſcharge of ſome Cannons, and muſt do the ſame when they enter, and come out of a Port.—Ships always ſalute with an odd Number of Guns, Galleys with an even one.—A Veſſel under the Wind of another is always obliged to ſalute firſt.—After the Cannon, they ſometimes alſo ſalute or hale with the Voice, that is, a joint Shout of all the Ship's Company three Times; aboard the *French* Ships with three *Vive le Roy*, and aboard the *Engliſh* with three Huzza's; which *Salutation* always occaſionally obtains where they carry no Guns, or do not care to diſcharge any.

Saluting with the Flag, is performed two Ways, either by holding it cloſe to the Staff ſo as it cannot flutter, or by ſtriking it ſo as it cannot be ſeen at all, which is the moſt reſpectful Salutation.

Saluting with the Sails, is performed by lowering the Top-Sails half way of the Maſts.—Only thoſe Veſſels which carry no Guns ſalute with the Sails.

When there are ſeveral Ships of War together, the Commander alone ſalutes.

The moſt powerful Navy in the whole World, for the great Number of Ships and the Goodneſs of the Wood, is that of *England*; for I cannot imagine it ſo in all other Reſpects; for though *England* has a vaſt Number of excellent Sailors; the great Commerce they carry on to all Parts of the World, in which they are obliged to employ a vaſt Number of Ships, which cannot fail without Sailors, who are always better pleaſed to ſerve the Merchants than the King, becauſe that Service ſuits beſt their own Intereſt, muſt deprive the Royal Navy of the beſt Part of its Strength, which muſt be ſupplied by a great Number of unexperienced and raw Men, pick'd up in the Streets, and moſt of them forced on board againſt their Will. It may be ſaid perhaps, that thoſe Men make up a Number, and that every one of them can fire a Muſket as well as the beſt Sailor, which is not my Sentiment; for moſt of them being uſed to an idle, or lazy Life, which is almoſt always attended with Cowardice, cannot behave as gallantly as thoſe who have been uſed to it almoſt all their Life-time; and even ſuppoſe that they could fire a Muſket as well as another, which I cannot believe, ſince they have never been uſed to it; can it be reaſonably expected, that they'll behave with as much Courage and Experience, either in boarding the Enemy, or avoiding being boarded by them? That they'll force their Way with Courage into their Ships, or hinder them from forcing into theirs? Whenas a *French* Ship of War has always a full Complement of Sailors, and a certain Number of regular Forces on board, more or leſs according to the Bigneſs of the Ship, who make a continual Fire from their ſmall Arms, and know how to do it *apropos*, as having been long exerciſed to it. There is on board beſides theſe regular Forces, a Detachment of *Guardes de Marine*, who are young Noblemen educated at the King's Expence, in the chief Sea-Ports of the Kingdom, as *Breſt*, *Rochefort*, *Dunkirk*, *Toulon*, *&c.* but particularly *Breſt* and *Toulon*; and taught in particular the Art of *Navigation*, to render them capable, in Time, to command the King's Ships; and who are there not only to learn the practical Part of that excellent Art, but likewiſe to ſignalize their Valour under the Eyes of their Officers, who are to make their Report of it to the King, that they may be preferr'd accordingly. Therefore, I aſk thoſe who are not infatuated with a ridiculous Notion of I don't know what, if a Ship of any other Nation can fight three ſuch Ships ſo well mann'd, of equal Force with him; or if ſuch a Thing has ever happened? It is true, that the *French* have not ſo great a Number of Ships as ſome other Nations have; but they command more Men, in a very ſhort Time, than any other Nation; neither do I pretend that they are invincible; for Hiſtory informs me, that they were once ſoundly beaten by two Fleets confederated, at the *Hogue*; but the ſame Hiſtory informs me likewiſe, that thoſe two Fleets were alſo ſoundly beaten by the *French* Fleet alone, off *Beachy Head*, on the Coaſt of *Suſſex*, at *Bantry* Bay, and obliged to retire off *Malaga*; beſides ſeveral other ſmaller Engagements, which are convincing Proofs that the *French* are capable to engage any Fleet, Ship to Ship; and that it is a ridiculous Gaſconade to ſpeak otherwiſe; for if I was ſo unjuſt to make a general Rule of what has happened ſometimes, I could ſay likewiſe with as much Appearance of Reaſon, that a ſingle *French* Man of War can fight, even four Men of War of equal Force with him, of another Nation, ſince I have been an Eye-witneſs to it, and thoſe who have read the Memoirs of *Du Gué Troüin*, and have heard of *Du Quaſne*, *Jan Bart*, *St. Paul Chateaurenau*, *de Coetlogon*, my Uncle, *&c.* Expeditions, know that I ſpeak true.

As for *the great Advantages ariſing from Navigation*, every body muſt know that it is the ſhorteſt and eaſieſt Way to enrich a Country in a very ſhort Time. For without entring into a Detail of the Commerce of *Venice*, *Genoa*, *&c.* which without *Navigation* had been unthinkable

bitable Defarts, for the Sterility of the Soil; without mentioning the immenfe Riches, which the *Spaniards* import daily from *America* by means of their Fleets; we are only to look on the River *Thames*, covered with a Foreft of Ships, continually failing to, or returning from all Parts of the World, loaded with the beft and richeft Commodities of both Hemifpheres, which renders the *Englifh* Nation one of the moft flourifhing of the whole Earth; then turning our Eyes towards our Neighbours the *Dutch*, we'll find there a powerful People, rifen from nothing, by means of the *Navigation*; for their Oppulence cannot be attributed to the Fertility of their Country, which cannot even produce Food enough for the Subfiftance of the Inhabitants, who are obliged to fetch them from other Places. It is therefore nothing elfe but their Commerce which gluts them with Riches, and renders them formidable to the moft powerful Princes of *Europe*. It is the Dexterity and great Experience they have at Sea, which renders them fo powerful in the *Eaft Indies*, and intire Mafters of the Commerce of Spices.

The Conveniency of tranfporting a great Quantity of Merchandizes, with a greater Facility, lefs Expence, and in a fhort Time, is not the lefs confiderable Profit, arifing from *Navigation*, and without taking Notice, of the Impoffibility, fometimes, of tranfporting thofe great Loads by Land, I'll fhew that they cofts fifty Times more by Land than by Sea; and take much more Time.

1. For the Expence; we know that a Ship of four hundred Tons carries 800,000 *lb*. Burthen; and that her whole Complement of Men coft moft commonly every Month about 160 *l*. Expence, and Freights; and if thofe fame Merchandizes were carried by Land, a Cart drawn by four Horfes could not carry more than 1000 *lb*. weight; and therefore there fhould be wanted 800 Carts, 3000 Horfes, and at leaft 8000 Carmen, befides the Leaders, which would coft very near 300 *lb. per Diem*, fifty Times more.

With Refpect to the Time.—We know by a daily Experience, that a Ship well equipped runs often forty Leagues, every Day one with another, *i. e.* in twenty-four Hours, provided the Wind be not contrary. It is true that it makes fometimes but 20 Leagues a Day; but in Requital, it fometimes runs 60 Leagues, and even more in 24 Hours, when it has the Wind very favourable. And we obferved that a Cart drawn by four Horfes, and loaded with 1000 Weight, can fcarce make regularly 30 Miles a Day in very good Roads; and the Horfes could never bear the Fatigue if they were forced to travel 150 Leagues in 15 Days; while a Ship will fail 600 Leagues, in that Time, without being the leaft damaged thereby, provided there happens no Tempeft.

The Satisfaction of feeing a hundred different Countries, and an infinite Number of very curious Things and Rarities, is not one of the leaft Advantages we are indebted for to the Art of *Navigation*.

If it be objected that one runs feveral very great Dangers on the Sea; I'll anfwer that they are as great, and no lefs frequent on Land, where we fee daily fo many new Misfortunes happen. If it be urged further, that one may lofe all he has at once; I'll anfwer that he may likewife make his Fortune at once.

Note, that what is called the *Art of Englifh Navigation*, is a Statute whereby the Parliament of *England* have fettled divers Matters relating to the *Navigation* and Commerce of the Kingdom. 'Till this Act all Nations were at Liberty to import into *England* all Kinds of Merchandizes, either of their own Growth, or laden elfewhere, and that on their own Veffels. *Cromwell* firft perceiving the Prejudice this Liberty did to the *Englifh* Commerce, which was now almoft wholly in the Hands of Foreigners, chiefly the *Dutch*, whom he hated, animated the *Englifh* by feveral Acts of Parliament to refume the Trade into their own Hands; and particularly paffed an Act, prohibiting the *Dutch* from importing any Merchandizes, except thofe of their own Growth or Manufacture, which were very few. Upon the Reftoration, the firft Parliament *Charles* II. called, diftinguifhing in *Cromwell* the Politician from the Parricide, condemned the Memory of the one, and followed the Plan of the other with Regard to *Navigation* and Commerce, by paffing that celebrated Bill or Act, for the encouraging and increafing of Shipping, and of *Navigation*, which ftill fubfifts in its full Latitude, and its antient Vigour. Its Date is from the firft of *December* 1660, 12 *Carol*. II. *c*. 18. Its chief Articles follow, 1. That no Goods or Commodities fhall be imported or exported to or from any of the *Englifh* Colonies in *Afia*, *Africa*, or *America*, but on Veffels built within the Dominions of *England*, or really belonging to *Englifhmen*, and whofe Mafters, and at leaft three Fourths of the Crew are *Englifh* (*viz*. the King's Subjects of *England*, *Ireland*, and the Plantations; as was explained in a fubfequent Act, 13 and 14 *Car*. II. *c*. 2.) on Pain of Forfeiture of the Goods and Veffels.

2. That no Perfon out of the Subjection of *England*, or not naturalized, fhall exercife any Commerce in thofe Colonies for himfelf or others.

3. That no Merchandizes of the Growth of *Afia*, or *America*, fhall be imported into any of the Dominions of *England* on any other than *Englifh* Veffels.

4. That no Goods of Foreign Growth, or Manufacture, that fhall be brought into *England*, *Wales*, *Ireland*, Iflands of *Jerfey* or *Guernfey*, or Town of *Berwick on Tweed*, in *Englifh* built Shipping, or other Shipping belonging to the aforefaid Places, and navigated by *Englifh* Mariners as aforefaid, fhall be fhipped or brought from any other Place or Country, but only from thofe of the Growth or Manufacture thereof.

5. That all Kind of dried and falted Sea Fifh, Train Oil, Blubber, and Whale-fins, not caught by *Englifh* Veffels, imported into *England*, fhall pay double Duties.

6. That the Commerce from Port to Port in *England* and *Ireland* fhall be carried on only by *Englifh* Veffels, and *Englifh* Merchants; the Crew to be always three Fourths *Englifh*.

7. That none but *Englifh* Veffels fhall reap the Benefit of the Diminutions made, or Abatements to be henceforth made in the Cuftoms.

8. All Veffels are prohibited importing into *England* and *Ireland* any of the Commodities of *Mufcovy*, or even any Mafts, or other Timber, Foreign Salt, Pitch, Rofin, Hemp, Raifins, Prunes, Oil of Olive, any Kind of Corn, or Grain, Sugars, Afhes, and Soap, Wine, Brandy, or Vinegar, except Veffels, whereof *Englifh* are Owners or Part Owners, and where the Mafter and the Fourth of the Mariners are *Englifh*. And that no Currants, or other Commodities, the Growth or Manufacture of the *Turkifh* Empire, fhall be imported but in Veffels *Englifh* built, and navigated as aforefaid; except only fuch Veffels as are of the Building of the Country or Place whereof fuch Commodities are the Growth or Manufacture, or of fuch Part where fuch Goods are ufually fhipped for Tranfportation, and unlefs the Mafter and three Fourths of the Crew be Natives of the Country where they are laden.

9. All Timber, Mafts, Boards, Salt, Pitch, Tar, Rofin, Hemp, Flax, Raifins, Figs, Prunes, Olive Oils, Corn, or Grain of any Kind, Sugar, Pot-Afhes, Brandies, and Wines, and all Goods of the Growth and Manufacture of *Mufcovy*, all Currants, and *Turkifh* Goods, imported into *England*, &c. in other than fuch Shipping, and fo navigated, fhall be deemed Aliens Goods, and pay accordingly.

10. That to prevent Frauds in buying and difguifing foreign Veffels, the Proprietors fhall take an Oath, that they really belong to them, and that no Alien has any Part in them.

11. That *Englifh* Veffels, and navigated by *Englifh*, may import into the Dominions of *England*, any Merchandizes of the *Levant*, though not taken up in the Places where they grow, or are manufactured; provided it be in fome Part of the *Mediterranean*, beyond the Straights of *Gibraltar*. And the fame is underftood of Commodities brought from the *Eaft Indies*; provided they be taken up in fome Port beyond the Cape of *Good Hope*; and thofe from the *Canaries*, and other Colonies of *Spain*; and the *Azores*, and other Colonies of *Portugal*, which are allowed to be fhipped,

ped, the one in *Spanish* Ports, the other in *Portuguese*.

12. These Penalties, Prohibitions, and Confiscations, not to extend to any Goods taken by Way of Reprisal from the Enemies of *England*, nor to Fish caught by the *Scots*, or their Corn, and Salt, which may be imported into *England* by the *Scotch* built Ships.

13. Five Shillings *per* Ton Duty is imposed on every *French* Vessel, arriving in any Part of *England*; so long (and even three Months longer) as 50 Sols *per* Ton, lies on the *English* Vessels in *France*.

Lastly, that Sugar, Tobacco, and other Commodities of the Growth of the *English* Colonies, shall not be imported into any other Part of *Europe*, but the Dominions of *England*. And that Vessels going out of the Ports of the same Crown for the *English* Colonies, shall give 1000 *l.* Security, if under 100 Tons, and 2000 *l.* if above, ere they depart, that they will import their Cargo into some Port in the said Dominions; and the like, ere they quit those Colonies, that they will land their whole Cargo in *England*.

The Poets refer the Invention of the Art of *Navigation* to *Neptune*, some to *Bacchus*, others to *Hercules*, others to *Jason*, others to *Janus*, who is said to have made the first Ship.

Historians ascribe it to the *Æginetes*, the *Phœnicians*, *Tyrians*, and the antient Inhabitants of *Britain*. Some will have it, the first Hint was taken from the Flight of the Kite; others, as *Apian*, *De piscibus*, *Lib.* 1. from the Fish *Nautilus*: Others ascribe it to Accident.

Scripture refer the Origin of so useful an Invention to God himself, who gave the first Specimen thereof in the Ark built by *Noah* under his Direction. For the Raillery the good Man underwent on Account of his Enterprize shews evidently enough, the World was then ignorant of any Thing like *Navigation*, and that they even thought it impossible.

However, History represents the *Phœnicians*, especially those of their Capital *Tyre*, as the first Navigators; being urged to seek a foreign Commerce by the Narrowness and Poverty of a Slip of Ground, they possessed along the Coasts; as well as by the Conveniency of two or three good Ports; and by their natural Genius to Traffick.

Accordingly *Lebanon*, and the other neighbouring Mountains, furnishing them with excellent Wood for Ship-building, in a short Time they were Masters of a numerous Fleet, which constantly hazarding new *Navigations*, and settling new Trades, they soon arrived at an incredible Pitch of Opulency and Populousness; in as much as to be in a Condition to send out Colonies; the principal of which was that of *Carthage*, which keeping up their *Phœnician* Spirit of Commerce, in Time not only equalled *Tyre* itself, but vastly surpassed it; sending its Merchant Fleets through *Hercules*'s Pillars, now the Straights of *Gibraltar*, along the western Coasts of *Africa* and *Europe*; and even, if we believe some Authors, to *America* itself; the Discovery whereof so many Ages afterwards, has been so glorious to the *Spaniards*.

Tyre, whose immense Riches and Power, are represented in such lofty Terms, both in sacred and profane Authors, being destroyed by *Alexander the Great*; its *Navigation*, and Commerce, were transferred by the Conqueror to *Alexandria*, a new City, admirably situated for those Purposes, proposed for the Capital of the Empire of *Asia*, which *Alexander* then meditated. — And thus arose the *Navigation* of the *Egyptians*, which was afterwards so cultivated by the *Ptolemys*, that *Tyre* and *Carthage* (which last, after having a long Time disputed the Empire with the *Romans*, was at length subdued) were quite forgot.

Egypt being reduced into a *Roman* Province, after the Battle of *Actium*, its Trade and *Navigation* fell into the Hands of *Augustus*; in whose Time *Alexandria* was only inferior to *Rome*: And the Magazines of the Capital of the World were wholly supplied with Merchandizes from the Capital of *Egypt*.

At length *Alexandria* itself underwent the Fate of *Tyre* and *Carthage*; being surprized by the *Saracens*, who, in Spite of the Emperor *Heraclius*, overspread the northern Coasts of *Africa*, &c. whence the Merchants being driven, *Alexandria* has ever since been in a languishing State, though still it has a considerable Part of the Commerce of the *Christian* Merchants, trading to the *Levant*.

The Fall of *Rome*, and its Empire, drew along with it, not only that of Learning, and the polite Arts, but that of *Navigation*: The *Barbarians*, into whose Hands it fell, contenting themselves with the Spoils of the Industry of their Predecessors.

But no sooner were the more brave among those Nations well settled in their new Provinces, some in *Gaul*, as the *Franks*; others in *Spain*, as the *Goths*; and others in *Italy*, as the *Lombards*; but they began to learn the Advantage of *Navigation* and Commerce, and the Method of managing them, from the People they subdued; and this with so much Success, that in a little Time some of them became able to give new Lessons, and set on Foot new Institutions for its Advantage.

Thus it is to the *Lombards* we usually ascribe the Invention, and Use of Banks, Book-Keeping, Exchanges, Rechanges, *&c.*

It does not appear which of the *European* People, after the Settlement of their new Masters, first took themselves to *Navigation* and Commerce. Some think it began with the *French*; tho' the *English* believe, that the *Italians* have the most just Title; and attribute the Glory thereof particularly to those of *Venice* and *Genoa*; it is very true, that it is to their advantageous Situation for *Navigation*, they in great Measure owe their Glory.

In the Bottom of the *Adriatick* were a great Number of marshy Islands, only separated by narrow Channels, but those well skreen'd, and almost inaccessible, the Residence of some Fishermen, who here supported themselves by a little Trade of Fish and Salt, which they found in some of those Islands. Thither then, the *Veneti*, a People inhabiting that Part of *Italy*, along the Coasts of the Gulph, retired, when *Alarick* King of the *Goths*, and afterwards *Attila* King of the *Huns*, ravaged *Italy*.

These new Islanders, little imagining that this was to be their fixed Residence, did not think of composing any Body Politick, but each of the seventy-two Islands of this little *Archipelago*, continued a long Time under its several Masters, and each made a distinct Commonwealth. — When their Commerce was become considerable enough to give Jealousy to their Neighbours, they began to think of uniting into a Body: And it was this Union first begun in the sixth Century, but not compleated till the eighth, that laid the sure Foundation of the future Grandeur of the State of *Venice*.

From the Time of this Union, their Fleets of Merchant-Men were sent to all the Parts of the *Mediterranean*; and at last to those of *Egypt*, particularly *Cairo*, a new City built by the *Saracen* Princes on the Eastern Banks of the *Nile*, where they traded for their Spices, and other Products of the *Indies*.

Thus they flourished, increased their Commerce, their *Navigation*, and their Conquests on the *Terra Firma*, till the famous League of *Cambray*, in 1518, when a Number of jealous Princes conspired to their Ruin; which was the more easily effected by the Diminution of their *East-India* Commerce, of which the *Portuguese* had got one Part, and the *French* another.

Genoa, which had applied itself to *Navigation* at the same Time with *Venice*, and that with equal Success, was a long Time its dangerous Rival, disputed with it the Empire of the Sea, and shared with it the Trade of *Egypt*, and other Parts both of the East and West.

Jealousy soon began to break out, and the two Republicks coming to Blows, it was three Centuries almost continual War, ere the Superiority was ascertained; when towards the End of the fourteenth Century, the fatal Battle of *Chioza* ended the noble Strife: The *Genoese*, who till then had usually the Advantage, having now lost all, and the *Venetians* almost become desperate, at one happy Blow, beyond all Expectation, secured to themselves the Empire of the Sea, and Superiority in Commerce.

About the same Time that *Navigation* was retrieved in the southern Parts of *Europe*, a new Society of Merchants was formed in the North, which not only carried Commerce to the greatest Perfection it was capable of till the Discovery of the *East* and *West-Indies*, but also formed a new Scheme of Laws for the Regulation thereof, which still remain under the Name of *Use and Customs of the Sea*. This Society is the famous League of the *Hans*

Hanse Towns, commonly supposed to have begun about the Year 1164. Others say in 1260, immediately after the Incursions and Piracies of the *Danes*, *Normans*, &c. others in 1206, and others in 920; but be its Origin when it will, it was confirmed and re-established in 1270.

Note, That the Word *Hanse* is obsolete *High Dutch*, or *Teutonick*, and signifies *Alliance*, *Confederacy*, *Association*, &c. some derive it from the two *German* Words *Am-See*, i. e. on the Sea, by Reason the first *Hanse Towns* were all situated on the Sea-Coasts: Whence the Society is said to have been first called *Am-Zee-Steden*, i. e. Cities on the Sea; and afterwards by Abbreviation, *Hansee*, or *Hanse*.

At first it only consisted, as already observed, of Towns situated on the Coast of the *Baltick Sea*, or not far from it. But its Strength and Reputation increasing, scarce any Trading-City in *Europe*, but desired to be admitted into it.

France furnished to the Confederacy, *Roüen*, *St. Malo*, *Bourdeaux*, *Bayonne*, and *Marseilles*. — *Spain*, *Barcelona*, *Seville*, and *Cadiz*. — *England*, *London*. — *Portugal*, *Lisbon*. — The *Low Countries*, *Antwerp*, *Dort*, *Amsterdam*, *Bruges*, *Rotterdam*, *Ostend* and *Dunkirk*. — And *Italy* and *Sicily*, *Messina*, *Legborn*, and *Naples*.

The *Hanse* was divided into four Classes or Members, which are those of *Lubeck*, *Cologn*, *Brunswick*, and *Prussia*, or *Dantzick*. Those four Cities were the Heads of the four Members; and *Lubeck* that of the whole *Hanse*.

Besides this, the *Hanse* had four principal Factories, or Staples; at *London*, *Bruges*, *Novogrod*, and *Berg*; that of *Bruges* was afterwards removed to *Antwerp*. But the first and principal was that of *Lubeck*, which still remains the Head of the Association.

This Society made the third Kind of maritime *Uses*, or *Regulations* at *Lubeck*, about the Year 1597; which *Uses* or *Customs of the Sea*, are certain maritime *Rules* or *Usages*, which make the Base or Ground-work of the maritime Juris-prudence, by which the Policy of *Navigation*, and Commerce of the Sea, are regulated.

These *Uses* and *Customs* consist in two Kinds of Regulations, besides that above-mentioned, which makes the third.

The first, called *Laws* or *Judgments of Oleron*, were made by Order of Queen *Eleanor*, Dutchess of *Guienne*, at her Return from the Holy War; and that chiefly from Memoirs which she had gathered, in the *Levant*, where Commerce was at that Time in a very flourishing Condition. She called them *Rolls of Oleron*, by Reason she then resided in an Island of that Name in the Bay of *Aquitain*. — They were much augmented about the Year 1266, by her Son *Richard*, King of *England*, on his Return from the *Holy Land*.

The second Regulations were made by the Merchants of *Wisbuy*, a City in the Island of *Gothland*, in the *Baltick*, antiently much famed for Commerce, most of the Nations of *Europe* having their Quarters, Magazines, and Shops therein.

These were compiled in the *Teutonick* Language, and are still the Rules in the northern Countries. Their Date does not appear; but it is probable they were made since the Year 1288, that the City of *Wisbuy* was destroyed the first Time, and afterwards restored by *Magnus* King of *Sweden*.

I'll conclude this Treatise by observing, that the Relation between Commerce and *Navigation*, or if we may be allowed to say it, their Union is so intimate, that the Fall of the one inevitably draws the other after it; and that they will always either flourish or dwindle together; of which all the most powerful Nations are so well convinced, that they endeavour to rival each other in that excellent Art, and are jealous when any of them makes greater Improvemenrs in it than the rest. The late King of *France*, *Louis* XIV. who during his long Reign, encouraged all Arts and Sciences, and promoted with a Liberality worthy of so great a Prince, all the curious Researches and new Discoveries which could be made in either, seem'd to take a particular Care of this, for he not only encouraged building of a vast Number of Ships, to carry the *French* Commerce to the furthest Extremities under both Hemispheres, but to make it flourish, he sent, and received Embassies from the Eastern Princes, concluded Treaties with them, sent learned Men into their Dominions to make new Discoveries, and render the *Navigation* on those Coasts more easy and safe, which judicious Maxims are followed by his Successor, the present King *Louis* XV.

NEEDLE-MAKING.

BEFORE I proceed to instruct our Pupil *Needle-Maker*, how to make *Needles*, I must inform him what a *Needle* is, and how many Sorts of *Needles*.

A *Needle* is a very familiar little Instrument, or Utensil, made of Steel, pointed at one End, and pierced at the other; used in Sewing, Tapestry-Work, &c.

There are several Sorts of *Needles*, viz. *Common Needles*, *Chirurgeons Needles*, *Magnetical Needles*.

The *Common Needles* are quite strait. — The *Chirurgeons Needles* are crooked, and their Points triangular. They are of different Sizes, and bear different Names according to the Purposes they are used for.

The largest are *Needles of Emputation*; the next *Needles for Wounds*; the finest *Needles for Sutures*. — They have others very short and flat for Tendons; others, still shorter, and the Eye placed in the Middle, for the tying together of Vessels.

The best *Needles* are made of *German* and *Hungary* Steel.

The first Thing to be done, in the Manufacture of *Needles*, is to pass the Steel through a Coal-Fire, and under a Hammer to bring it out of its square Figure, into a cylindrical one. This done, it is drawn through a large Hole of a Wire-Drawing Iron; returned into he Fire, and drawn through a second Hole of the Iron, smaller than the first: And thus successively from Hole to Hole, till it have acquired the Degree of Fineness, required for that Species of *Needles*; observing every Time it is to be drawn, that it be greas'd over with Lard, to render it the more manageable.

The Steel thus reduced into a fine Wire, is cut in Pieces of the Length of the *Needles* intended. These Pieces are flatted at one End on the Anvil, in order to form the Head and Eye.

They are then put in the Fire to soften them further, and thence taken out, and pierced at each Extream of the flat Part, on the Anvil, by Force of a Puncheon of well temper'd Steel, and laid on a leaden Block, to bring out with another Puncheon, the little Piece of Steel remaining in the Eye.

The Corners are then filed off the Square of the Heads, and a little Cavity filed on each Side the Flat of the Head. This done the Point is formed with a File; and the whole filed over.

They are then laid to heat red-hot, on a long, flat, narrow Iron, crooked at one End in a Charcoal-Fire; and when taken out thence, are thrown into a Bason of cold Water to harden. — On this Operation a good deal depends; too much Heat burns them; and too little leaves them soft; the Medium is only to be learn'd by Experience.

When harden'd, they are laid in an Iron-Shovel, on a Fire more or less brisk, in Proportion to the Thickness of the *Needles*; taking Care to move them from Time to Time. This serves to temper them, and take off their Brittleness; Care, here too, must be taken of the Degree of Heat.

They are then straiten'd one after another with the Hammer; the Coldness of the Water used in hardening them, having twisted the greatest Part of them.

The next Process is the Polishing. — To do this, they take 12 or 15000 *Needles*, and range them in little Heaps against

against each other on a Piece of new Buckram, sprinkled with Emery Dust. The *Needles* thus disposed, Emery Dust is thrown over them, which is again sprinkled with Oil of Olives. At last the whole is made up into a Roll, well bound at both Ends.

This Roll is then laid on a polishing Table, and over it a thick Plank loaden with Stones, which two Men work backwards and forwards, a Day and a half, or two Days successively. By which Means, the Roll thus continually agitated by the Weight and Motion of the Plank over it, the *Needles* within Side being rubbed against each other with Oil and Emery, are insensibly polished.

In *Germany*, instead of Hands they polish with Water Mills, after polishing, they are taken out, and the Filth washed off them with hot Water and Soap: Then wiped in hot Bran, a little moistened, placed with the *Needles* in a round Box, suspended in the Air by a Cord, which is kept stirring, till the Bran and the *Needles* be dry.

The *Needles* thus wiped in two or three different Brans, are taken out, and put in wooden Vessels, to have the good separated from those whose Points or Eyes have been broken, either in polishing or wiping; the Points are, then, all turn'd the same Way, and smoothed with an Emery Stone, turn'd with a Wheel.

This Operation finishes them; and there remains nothing but to make them into Packets of two hundred and fifty each.

Needles make a very considerable Article in Commerce, and the Consumption thereof is almost incredible. The Sizes are from N° 1. the largest; to N° 25. the smallest.

Magnetical Needle, is a *Needle* touched with a Load-stone, and sustained on a Pivot or Center, on which playing at Liberty, it directs itself to certain Points, or under the Horizon.

Magnetical Needles are of two Kinds, *viz. Horizontal* and *Inclinatory*.

Horizontal Needles are those equally ballanced on each Side the Pivot which sustains them; and which playing horizontally, with their two Extreams, point out the North and South Points of the Horizon.

To make an *Horizontal Needle*, a Piece of pure Steel is provided, of a Length not exceeding six Inches, left its Weight impede its Volubility; very thin to take its Verticity the better; not pierced with any Holes, or the like, for Ornament Sake, which prevent the equable Diffusion of the magnetick Virtue.

A Perforation is then made in the Middle of its Length, and a Brass Cap or Head solder'd on, whose inner Cavity is conical, so as to play freely on a Style or Pivot, headed with a fine Steel Point.

The North Point of the *Needle*, in our Hemisphere, is made a little lighter than the Southern, the Touch always destroying the Ballance, if well adjusted before; and rendering the North End heavier than the South, and thus occasioning the *Needle* to dip.

Now to give the *Needle* its Verticity, or directive Faculty, it is to be rubbed leisurely on each Pole of a Magnet, from the South Pole towards the North; first beginning with the northern End; and going back at each repeated Rub, towards the South.—A Rub in a contrary Direction, takes away the Power communicated by the former.

If after Touching, the *Needle* be out of its Equilibrium, something must be filed off from the heavy Side, till it ballance evenly.

A *Needle*, on Occasion, may be prepar'd, without touching it on a Load-stone: For a fine Steel *Needle*, gently laid on the Water, or delicately suspended in the Air, will direct itself to the North and South.

Thus also a *Needle* heated in the Fire, and cooled again in the Direction of the Meridian, or even only in an erect Situation, acquires the same Faculty.

NOBILITY.

NOBILITY, is a Quality which should suppose in the Person dignified therewith, some extraordinary Merit or Virtue; since it raises him above the rest of Mankind.

I say that *Nobility* should suppose in the Person honoured with that distinguishing Quality, an extraordinary Merit or Virtue; because, tho' *Nobility* in its first Institution, was consider'd as a Reward due to Merit and Virtue, it has been in Process of Time, so scandalously prodigalized, and the Intention of the first Institutors thereof so perfidiously and unjustly frustrated; that in some corrupted Ages, and under effeminate and avaricious Princes, where human Reason was as much depraved, as Manners were corrupted, none but unworthy Wretches seemed to have a just Claim to it; and Virtue, Piety, Courage, Probity, Disinterestedness, and Wisdom, to be a Bar to *Nobility*.

It is true, that *Nobility* was not thought by the Creator, as a Quality inseparable from a human Creature, and so absolutely necessary to us, that we could not be considered as the most perfect Workmanship that come out of his divine Hands without it. In the World's Infancy, all Men were equal; and there was no other Distinction among them, than that of Age; for *Adam* was no more a Nobleman, than his first Descendants; but in Process of Time, the human Race having multiplied prodigiously, and that Equality which had subsisted among them, while they were but few in Number, becoming dangerous; it was thought proper, to prevent the great Disorders it was likely to be attended with, if it continued longer, to establish a certain Subordination, founded on the Difference of Conditions; but as Men could never have been persuaded to obey, and suffer themselves to be govern'd by other Men like them, unless they could see something in those Men, which claim'd their Respect, and they could not find it themselves, none were rais'd to a Superior Rank, till after they had signalized, in a particular Manner, and on several great Occasions, some rare Quality, peculiar to themselves, and which had gain'd the publick Applause. In those former Ages, not yet so much corrupted as those which have followed, it was not the Rank which claimed the Respect and Submission of the Inferiors, but it was the Respect and Submission of the Inferiors, gain'd by Merit, and the continual Practice of Virtue, which bestowed the Rank or Quality; and Noblemen, then, had no other Patents, than an universal Approbation of their personal Merit.

This just and judicious Method of creating Noblemen, continued long in the same State. A Person who had behaved gallantly in the Field, and had often exposed his Life in Defence of his Country; one who had contributed much to the Welfare of the Commonwealth; he who had made some new Discoveries in some Arts or Sciences of a publick Use, or had made them flourish, by an assiduous Study and continual Labour, wanted no other Title of *Nobility*, and no other Patron to promote his Advancement.

It is not to be supposed, that in former Ages, a Title thus obtain'd was hereditary in Families, for as it was given to nothing else but Merit, and Merit was personal, I am apt enough to believe, that at the Person's Death, the Merit ceasing, the Title was also extinct; and if his Posterity wanted it, they were obliged to have Recourse to the same Means he had used to observe it; therefore an unworthy Son had not the least Claim to the Honours acquired by a worthy Father.

In Process of Time, Men's Minds altered in this, as in all other Things; and were of Opinion, that to perpetuate the Memory of a great Man, and to render the Posterity sensible of the Gratitude of the Age he had lived in, they could do no less, than render his Honour and Titles hereditary, as well as his Estate; imagining, perhaps, that it was almost impossible, that so found, and so no-

ble a Stock, should shoot forth spurious Branches. But if they thought so, they were grosly mistaken, for if such Disorder did not happen in their Time, we have seen, since, that the purest and most illustrious Blood, has been much, if not entirely corrupted, in the several different spurious Veins it has run through; that Noblemen, who had Heroes for their Ancestors, were themselves the greatest Poltroons; that the Sons of Fathers, who had spent their whole Life in the Service of the Commonwealth, and died with the glorious Name of true Patriots, have either neglected that Service, to live in Luxury and Indolence; or set its Welfare to Auction, and sold it to the best Bidder. That Parents, distinguished for their Wisdom and profound Knowledge, have left Children who gloried in their Stupidity and Ignorance.

But the worst is, that Princes who have attributed to themselves the Power of making whom they please noble, have but too often less Regard to Merit, than to any other Consideration, and rank among the Nobility, those who would be a Disgrace to the lowest Rank of Mankind; and who seem'd to be placed above the rest, with no other View than to render their Unworthiness more conspicuous, and shew the Want of Discernment, or perhaps something worse, in those who have placed them.

What shall I say of those who render Marks of Distinction a venal Commodity, make an infamous Commerce, of what is due to Merit only, and sell for ready Money, what should be given *Gratis*. Hence that just Scorn which the Commons shew for the Nobility, anciently so much respected by them; hence that sordid Avarice, and scandalous Parcimony seen in the Palaces of those of a new Stamp, which reflect on the illustrious Body, whereof they have been made unworthy Members; hence that insupportable Pride, which renders their Gates inaccessible to Generosity, Liberality, Humanity, and Compassion.

That scandalous Practice of selling Nobility to rich Scoundrels, prevailed much in *France* towards the latter End of the late King *Louis* XIV. twenty thousand Livres, to purchase the Employment of King's Secretary, made a Man noble and all his Posterity, though to do Justice to the Memory of that great Prince, that Mistake in him may be well attributed to the Exigency of his Affairs, his Finances having been much exhausted, by the frequent and long Wars he had been obliged to maintain against all *Europe* leagued against him.

There are five Degrees of *Nobility* (without reckoning a King or other sovereign Prince, who is the first Nobleman of his Kingdom or State) *viz.* that of a *Duke*, *Marquiss*, *Earl*, or *Count*, *Viscount*, and *Baron*.

Duke, Dux, is a Title of Honour or Nobility, the next below Princes.

The *Dukedom*, or Dignity of *Duke*, is a *Roman* Dignity, denominated *a Ducendo*, Leading, or Commanding. Accordingly the first *Dukes*, *Duces*, were the *Ductores exercituum*, Commanders of Armies. Under the late Emperors the Governors of Armies were entitled *Duces*.—In after Times the same Denomination was also given to the Governors of Provinces in Time of Peace.

The first Governor under the Name of *Duke*, was a Duke of the *Marchia Rhætica*, of the *Grisons*, whereof mention is made in *Cassiodorus*. The *Goths* and *Vandals* upon their over-running the Western Empire, abolished the *Roman* Dignities wherever they settled. But the *Franks*, to please the *Gaulish* People, who had long been used to that Form of Government, made it a Point of Politicks not to change any Thing therein; and accordingly divided all *Gaul* into Dutchies and Counties; and gave the Name sometimes of *Dukes* and sometimes of *Comes*, *Comites*, to the Governors thereof.

In *England*, during the *Saxons* Time, *Camden* observes, the Officers and Commanders of Armies, were called *Dukes*, *Duces*, after the antient *Roman* Manner, without any Addition. After the Conqueror came in, the Title lay dormant, till the Time of *Edward* III. who created his Son *Edward*, first called the *Black Prince*, Duke of *Cornwal*. After whom there were more made, in such Manner, as that their Titles descended to their Posterity. They were created with much Solemnity; *per cincturam gladii, cappæque, & circuli aurei in capite impositionem.*

Though the *French* retained the Names and Form of the Ducal Government, yet under our second Race of Kings, there were scarce any such Thing as *Dukes*; but all the great Lords were called *Counts*, *Peers*, and *Barons*; excepting however the Dukes of *Burgundy* and *Aquitain*; and a Duke of *France*, which was a Dignity *Hugh Capet* himself held, corresponding to the modern Dignity of *Maire du Palais*, or the King's Lieutenant.

By the Weakness of the Kings, the Dukes or Governors made themselves Sovereigns of the Provinces trusted to their Administration. This Change happened chiefly about the Time of *Hugh Capet*; when the great Lords began to dismember the *French* Monarchy; so that that Prince found more Competitors among them than Subjects. It was even with a deal of Difficulty they could be brought to own him their Superior, to hold of him by Faith and Homage.

By Degrees, what with Force, and what by Marriages, these Provinces both *Dutchies* and *Counties*, which have been rent from the Crown, were re-united. But the Title *Duke* was no longer given to the Governors of Provinces.

From that Time, the Kings of *France*, confined the Title of Dutchy to the real Estate of the Person, reserving to themselves the Power of erecting that Estate into a *Dutchy*, by their Letters Patents, which they have done, often either to flatter the Ambition of some of their Favourites, or as a Reward for signal Services done, some of them being *Dutchies pairies*, and others only *simple Dutchies*; according as the Letters of their Erection bear it; which the better to understand, here follows a Detail of all the *French* Dutchies, either *pairies* or *simple*, according to the Date of their Erection; and by what King it was erected such.

Note, That none but Male Children can succeed in *France*, to most of the Dutchies, for if they fall, what we call *en quenoüille*, i. e. to a Female Heir, then the Estate returns to the Title it had before it was made a Dutchy; and to revive that Title of Dutchy, new Letters Patent are requir'd; though there be in *France* a few *Dutchies* Female, *i. e.* to which Females can succeed; and which are those of *Nevers*, in its first Erection and Verification, of *Beaumont Le Vicomte*, of *Mercœur*, of *Rethelois*, of *Joyeuse*, *Epernon*, *Elbeuf*, *Richelieu*, *Aiguillon*, and that of *Biron*, which is extinct.

Philip the Fair, erected *Britanny* into a *Dutchy* and *pairie*, in 1297; at present re-united to the Crown.

Charles IV. called the *Fair*, erected *La Marche*, which in 1316, had been a County erected by *Philip the Long*, into a Dutchy, in the Month of *December*, in 1327, together with *Moudun*, *St. Peter le Moutier*, and *Montferrand*; re-united to the Crown.

Philip of *Valois* erected *Bourbon* into a simple Dutchy, in 1329. It belongs to the House of *Condé*.

And *Orleans* into a *Dutchy pairie*, in 1344, given for Apennage to *Monsieur*, the late King's only Brother, together with those of *Valois* and *Chartres*, and the County of *Montargis*.

King *John* erected *Anjou*, an antient County, into a *Dutchy pairie*, in the Month of *October* 1350; at present re-united to the Crown.

Bar-le-Duc into a simple Dutchy, in 1357, re-united to the Crown by a Donation, verified in Parliament in *February* 1662.

Berry, an antient County, into a simple Dutchy, in 1360; re-united to the Crown.

Touraine, into a simple Dutchy, in 1360; re-united to the Crown.

Auvergne, into a simple Dutchy, in 1360; having been re-united to the Crown, it was given by a Contract to the House of *Boüillon*, under the Title of County, in Exchange for the Principalities of *Sedan* and *Raucourt*, and the Dutchy of *Boüillon*; that Contract verified in Parliament, *Feb.* 20, 1652.

Charles VI. erected *Valois* into a *Dutchy pairie*, in 1402; which make Part of the Apennage of the House of *Orleans*.

Nemours, into a *Dutchy pairie*, *June* 19, 1404. *Francis* I. had mortgaged it, in 1528, to the Duke of *Nemours*, of the House of *Savoy*, for the Sum of 100,000 *l.*

It

It belongs, at present, to the House of *Orleans*.

Alençon, an antient County, into a *Dutchy pairie*, *Jan.* 1, 1413; verified in Parliament *May* 13, of the same Year; re-united to the Crown.

Louis XII. erected *Longueville* into a simple Dutchy, in the Month of *May* 1505. This Estate was given by *Charles* VII. to the great Count of *Dunois*.

Francis I. erected *Vendôme* into a *Dutchy pairie*, in the Month of *February*, in 1514. *Henry the Great* gave it to his natural Son 1598.

Chatel-Eraud, an antient County, into a *Dutchy pairie*, in 1514; re-united to the Crown.

Angoulême, into a *Dutchy pairie*, in 1515.

Dunois, into a *Dutchy pairie*, in 1525; by *Madame* the Regent, Mother of King *Francis* I. but it has not been verified in Parliament.

Guise, into a *Dutchy pairie*, in the Month of *January* 1527; verified in Parliament the 12th of *August*, 1528.

Chartres, into a simple Dutchy, in the Month of *June*, 1528, together with *Montargis* and *Gisors*, verified in the Month of *July*, of the same Year.

Estoute-Ville, into a simple Dutchy, in 1534; verified at the Parliament of *Roüen*, in the Month of *August* of the same Year.

Etampes, first a *County pairie*, into a *Dutchy pairie*, in the Month of *January* 1536; verified the 18th of the same Month; re-united to the Crown.

Montpensier, in the *Lower Auvergne*, into a *Dutchy pairie*, in the Month of *February*; verified in the Parliament of *Paris*, the 6th of *March* of the same Year.

Beaumont le Sonnois, in the Province of *Maine*, or *Beaumont le Vicomte*, into a simple Dutchy, in the Month of *September* 1543; verified the 16th of *October* following; it is re-united to the Crown.

Henry II. erected *Aumale* into a *Dutchy pairie*, in the Month of *July* 1547; verified in the Parliament of *Paris*, the 5th of *January* 1548; re-united to the Crown.

Albret, in 1556, once re-united to the Crown, and afterwards given by Contract to the House of *Boüillon*.

Charles IX. erected *Beaupreau* into a simple Dutchy, in 1562. It belongs to the House of *Brissac*.

Chateau-Thierry, with the Union of *Chatillon on the War*, and of *Epernay*, into a *Dutchy pairie*, the 8th of *February* 1566; verified in Parliament the 29th of *March* following. It is given to the House of *Boüillon*.

Penthievre, in the Province of *Britanny*, into a *Dutchy pairie*, the 8th of *February* 1569; verified in Parliament the 15th of the same Month. It belongs at present to the Duke of *Penthievre*, only Son of the late Count of *Tholouse*.

Evreux, into a simple Dutchy, in the Month of *October* 1569; having been re-united to the Crown, it was given to the House of *Boüillon*.

Usés, into a *Dutchy pairie*, in the Month of *January* 1572; verified in the Parliament of *Paris*, *March* 3d of the same Year. It belongs to the House of *Crussol*, who for that Reason, have took the Name of *Usés*.

Mayenne, into a *Dutchy pairie*, in the Month of *September* 1573; re-united to the Crown.

Mercœur, in *Auvergne*, into a *Dutchy pairie*, in the Month of *December* 1569; it is re-united to the Crown.

St. Fargeau, into a *Dutchy pairie*, in the Month of *September* 1569; re-united to the Crown.

Henry III. erected *Loudun* into a simple Dutchy, in the Month of *November* 1579. It belongs to the House of *La Tremouille*.

Joyeuse, into a *Dutchy pairie*, in the Month of *August* 1581.

Espernon, into a *Dutchy pairie*, in the Month of *November* 1581.

Elbœuf, into a *Dutchy pairie*, in the Month of *November* 1581; verified in Parliament the 29th of *March* 1582.

Brienne, into a simple Dutchy in the Month of *August* 1587; but the Letters have not been verified.

Montbazon, into a *Dutchy pairie*, in the Month of *May* 1588; verified the 27th of *April* 1589. — This Dutchy belongs to the Duke of *Montbazon*, Prince of *Guimené*, in *Britanny*, at present reputed Chief of the eldest Branch of the House of *Roban*; though I was once intimately acquainted with a Gentleman of that House, called *Poulduc Roban*, who has much more Right to it, but is not rich enough to dispute it with the Duke of *Montbazon*.

Ventadour, into a *Dutchy pairie*, in the Month of *June* 1589; verified in Parliament the 24th of *January* 1594; that Dutchy belongs to the House of *Levis*. The late Dutchess of *Ventadour*, was Governess of the Children of *France*.

Henry IV. erected *Croüy* into a Dutchy, in the Month of *July* 1598. It is at present extinct; and the Estate belongs to the Descendants of *Charles de Croüy*, Duke of *Arscot*.

Toüars, antient Viscounty, into a *Dutchy pairie*, in the Month of *August* 1595; verified the 7th of *December* 1599. It belongs to the House of *La Tremouille*.

Suilly, on the *Loire*, into a *Dutchy pairie*, in the Month of *February* 1606; verified in Parliament the 9th of *March* of the same Year. It belongs to the House of *Bethune*.

Louis XIII. erected *Damville* into a *Dutchy pairie*, in the Month of *September* 1610, at present extinct. The Estate belongs to the House of *Levis*.

Chateau Roux, into a *Dutchy pairie*, in the Month of *May* 1616. The present King *Louis* XV. has given that Dutchy to *Madamoiselle de la Tournelle*, of the House of *Mailli*.

Maillé Luynes, into a *Dutchy pairie*, in the Month of *August* 1619. — This Dutchy belongs to the House of *Albert*.

Lédiguiéres, into a *Dutchy pairie*, in the Month of *May* 1611. This Dutchy is extinct, together with the House of *Bone*, of *Crequi*, of *Blanchefort*; and the greatest Part of the large Estate of that House, which amounted to above 100,000 *l.* Sterling, *per Annum*; is fell into the House of *Villeroy*.

Seurre-Bellegarde, in the Month of *September* 1619. This Estate belongs to the House of *Condé*.

Brissac, into a *Dutchy pairie*, in the Month of *April* 1611. It belongs to the House of *Cossé*.

Alwin, into a *Dutchy pairie*, the 26th of *February* 1620.

Chaûnes, into a *Dutchy pairie*, in the Month of *January* 1621.

Villars, into a *Dutchy pairie*, in the Month of *July* 1652. That Dutchy is in the House of *Brancas*, settled in *France*.

Richelieu, into a *Dutchy pairie*, in the Month of *August* 1631.

Rochefoucault, into a *Dutchy pairie*, the 4th of *September* 1631.

La Valette, into a *Dutchy pairie*, in the Month of *March* 1622.

Pondevaux, into a simple Dutchy, by *Louis* XIII. in the Month of *February* 1623.

Montmorency, into a *Dutchy pairie*, by *Henry* II. in the Month of *July* 1551. It belongs to the House of *Condé*.

Rais, into a *Dutchy pairie*, in the Month of *November* 1581; extinct.

Fronsac, into a *Dutchy pairie*, in *January* 1634. It belongs to the Duke of *Richelieu*.

St. Simon, into a *Dutchy pairie*, in the Month of *January* 1635.

La Force, into a *Dutchy pairie*, the 29th of *July* 1637.

Aiguillon, into a *Dutchy pairie*, in the Month of *August* 1599.

Valentinois, once re-united to the Crown, but given afterwards, *viz.* in 1642; by *Louis* XIII. to the Prince of *Monaco*.

Roban, into a *Dutchy pairie*, by *Henry the Great*, in the Month of *April* 1603. That Dutchy is in the House of *Chabot*, by Marriage, with the Heiress of the House of *Roban*.

Nevers, into a *Dutchy pairie*, by *Francis* I. in *January* 1538.

Piney-Luxembourg, into a *Dutchy pairie*, in the Month of *September* 1576.

Carignan, into a *Dutchy pairie*, in Favour of the House of *Savoy*, settled in *France*, by *Louis* XIV. in the Month of *July* 1662.

Verneüille, into a *Dutchy pairie*, the 15th of *December* 1663.

Etrées, into a *Dutchy pairie*, the 15th of *Dec.* 1663.

Gramont, into a *Dutchy pairie*, the 31st of *Dec.* 1663.

La Meilleraye, into a *Dutchy pairie*, in 16—
Rethelois, into a *Dutchy pairie*, in *December* 1582, by *Henry* III.
Villeroy, into a *Dutchy pairie*, in 1651, by the late King *Louis* XIV.
Mortemar, into a *Dutchy pairie*, in 1653.
Crequi, into a *Dutchy pairie*, in 1653.
St. Aignan, into a *Dutchy pairie*, in 1663.
Foix-Rendan, into a *Dutchy pairie*, the 15th of *December*, 1663.
Liancourt, into a *Dutchy pairie*, in 1643.
Gêvres, into a *Dutchy pairie*, in 1648.
Noailles, into a *Dutchy pairie*, the 15th of *December*, 1663.
Coisling, into a *Dutchy pairie*, the 15th of *December*, 1663.
Choiseul, into a *Dutchy pairie*, the 2d of *December*, 1665.
Aumont, Dutchy pairie, verified in Parliament the 2d of *December*, 1665.
La Ferte-Senneterre, Dutchy pairie, verified in Parliament the 2d of *December*, 1665.
Montausier, into a *Dutchy pairie*, in the Month of *August*, 1664.
La Valiere, into a *Dutchy pairie*, the 13th of *May*, 1667.
Roüanez, into a *simple Dutchy*, in *November*, 1566.
Chevreuse, into a *Dutchy pairie*, in the Month of *March*, 1612.
Beaufort, a simple Dutchy, Female, erected a-new in *May*, 1668. in favour of *Charles Francis Frederick*, of *Montmorency Luxembourg*, Prince of *Tingry*.

The Quality of the twelve antient Peers of *France*, is no more at present but a mere Dignity, in virtue thereof, those who possess it in *France* have Rank at the Coronation of the Kings, their Seats in Parliament, and in the Assembly of the *Estats Generaux*, and enjoy the Honours of the *Louvre*. Their Institution is so very uncertain, that it is impossible to draw the Origin thereof from History; some attributing it to *Hugh Capet*, and others to *Charlemagne*.

The Origin of the Name, and of the Functions of Peers of *France*, must be drawn, according to *Pithou*, from the common Use of the Fiefs, which is, that the Vassals holding Fiefs, moving plainly and directly from the same Lord, are called *Peres curiæ aut domus*; which is nothing else but to be *Peers of Fiefs*, or *of Court*, who must be present when a Lord takes Possession of his Estate; and when the Causes of the Fiefs are tried, and have several other Rights in common, in Proportion with the Peers of *France*, who likewise assist at the Coronation of the King, are Counsellors in his Court of Parliament, which for that Reason is called the *Court of the Peers*. So that, in a Word, they are nothing else but Fief-holders of the Kingdom, and depending immediately on the Crown. Such were the seven Peers, in the Time of *Louis the Younger*, in 1179, or in the Time of *Hugh Capet*, who re-united to the Crown the *Dutchy pairie* of *France*, or of *Paris*, which he possessed.

So that there were but six antient Peers left, *viz.* the Duke of *Burgundy*, that of *Normandy*, and that of *Aquitaine*, the Count of *Toulouze*, that of *Flanders*, and that of *Champagne*.—Afterwards were added to them at different Times, the ecclesiastick Peers, to the Number of six, among whom *Louis the Younger*, in 1179, gave the Precedency to that of *Rheims*, and the Prerogative of anointing and crowning the King, That Number of twelve Peers has continued ever since.

Du Cange, in his Observations on the Establishments, at the End of the Life of St. *Louis*, by the Sire of *Joinville*, *pag.* 178. says, that our Kings, who had a great Number of Vassals and Barons, reduced their Peers to twelve.

Among the six Ecclesiasticks, there are three Dukes and three Counts; and among the secular, three Dukes and three Counts likewise.

The three ecclesiastick Dukes and Peers of *France*, are the Archbishop of *Rheims*, the Bishop of *Laôn*, and the Bishop of *Langres*, and the three ecclesiastick Counts and Peers of *France*, are the Bishop of *Beauvais*, the Bishop of *Châlons*, and the Bishop of *Noïon*.

The six secular, were the Duke of *Burgundy*, that of *Normandy*, and that of *Guienne*; the Count of *Toulouse*, that of *Flanders*, and that of *Champagne*.

Their several Functions at the anointing and Coronation of the King are, that

The Archbishop of *Rheims*, anoints the King.
The Bishop of *Laôn*, carries the *St. Ampoule*.
The Bishop of *Langres*, the Sceptre.
The Bishop of *Beauvois*, the royal Mantle.
The Bishop of *Châlons*, the Ring.
The Bishop of *Noïon*, the Belt.
The Duke of *Burgundy*, carries the royal Crown, and girts the Sword to the King.
The Duke of *Guienne*, carries the first square Banner.
The Duke of *Normandy*, the second.
The Count of *Toulouze*, the Spurs.
The Count of *Champagne*, the royal Banner.

The Day of the King's Coronation, and during the Ceremony, those Peers have on their Head a Coronet. But because those six Laick Peers, have been re-united to the Crown, except one Part of *Flanders*, which is yet in foreign Hands; six Princes or Lords are chosen to discharge their Functions, and represent the Peers.

The Dukes in *France*, take no Titles different from those of other Lords, all indifferently stiling themselves high and mighty Lords, *&c. Messire*, &c.

In *England*, Duke is become a mere Title of Dignity, affected to a Person, and his Heirs male, without giving him any Domaine, Territory, or Jurisdiction, over the Place whereof he is Duke. All the Advantages thereof consist in the Name, and the Precedence it gives.

The Dukes of our Days retain nothing of their antient Splendor, but the Coronet of their Escutcheon; which is the only Mark of their departed Sovereignty. They are created by Patent, Cincture of the Sword, Mantle of State, Imposition of a Cap, and Coronet of Gold on the Head, and a Verge of Gold in their Hand.

The eldest Sons of Dukes are by the Courtesy of *England* and *France*, stiled *Marquises*. In *France* the second Sons Counts, the third Viscounts, the fourth Barons, and the fifth, Chevalier. In *England* all the younger Sons of Dukes are only called Lords, with the Addition of the christian Name, as Lord *James*, Lord *Thomas*, &c. and take Place of Viscounts, though not so privileged by the Laws of the Land.

A Duke has the Title of *Grace* in *England*, and being wrote to, is stiled in the Heralds Language, *most high, potent*, and *noble Prince*.

Dukes of the Blood Royal, are stiled *most high, most mighty*, and *illustrious Princes*.

The first Duke in *England*, after those of the Blood Royal, is the Duke of *Norfolk*; but being a Roman Catholick he does not enjoy the Privileges annexed to his high Dignity.

Note, That there are also sovereign Princes, who bear the Title of *Duke*, such are the Duke of *Lorain*, Duke of *Modena*, Duke of *Parma*, Duke of *Holstein*, &c. antiently the Dukes of *Milan*, of *Burgundy*, of *Britanny*, &c. And two who stile themselves *Grand Dukes*; as the *Grand Duke* of *Tuscany*, and the *Grand Duke* of *Muscovy*, now called *Czar*, or Emperor of *Russia*. In *Germany*, there is also the *Arch Duke* of *Austria*, which is a very antient Title. There have also formerly been *Arch-Dukes* of *Lorrain* and *Brabant*. *Austria* was erected into a Marquisate by *Otho*, or *Henry* I. and into a Dutchy by *Frederick* I. in 1156; but we don't well know when, nor why the Title *Archduchy* was given it:—It is commonly held, that Duke *Frederick* IV. first assumed the Quality; others say it was first given by the Emperor *Maximilian* I. in 1459, and ample Privileges annexed to it. The principal Privileges of this State are, that the *Archduke* shall distribute Justice in his own Dominions without Appeal; that he shall be judged to have received the Investiture of his States, after having demanded it three Times; and cannot be deprived of his Countries, even by the Emperor, and the States of the Empire: That no Affair of the Empire can be concluded without his Participation; and that he has a Power of creating Counts, Barons, and Gentlemen, throughout the whole Empire; which are Privileges to

to which the other Dukes of the Empire are Strangers.

Note, alſo, That *Duke Duke* is a Quality given in *Spain* to a Grandee of the Houſe of *Sylva*, on account of its having ſeveral Dutchies, by the uniting of two conſiderable Houſes in his Perſon. *Don Roderigo de Sylva*, eldeſt Son of *Don Ruy Gomer de Sylva*, and Heir of his Dutchies and Principalities, married the eldeſt Daughter of the Duke *de Linfantado*; in vertue of which Marriage, the preſent Duke *de Paſtrana*, who is deſcended therefrom, and is Grandſon of *Don Roderigo de Sylva*, has added to his other great Titles that of *Duke-Duke*, to diſtinguiſh himſelf from other Dukes, ſome whereof may enjoy ſeveral Duchies, but none ſo conſiderable ones, nor the Titles of ſuch eminent Families.

A *Marquis*, or *Marqueſs*, *Marchio*, is a Title given to a Perſon in Poſſeſſion of a conſiderable Demeſne, erected into a Marquiſate by Letters Patent, holding a middle Place between the Dignity of a Duke, and that of an Earl or Count.

Note, That the Word *Marquis*, according to ſome Authors, comes from the *Marcomanni*, an antient People who inhabited the Marſhes of *Brandebourg*; others derive it from the German, *Marcke*, Limit; and others from *Marciſia*, which in the *Celtick* Language ſignified a Wing of Cavalry: *Nicod* derives it from the corrupt *Greek* νομαρχια, Province: *Alciat* and *Fauchet* bring it from *Mark*, Horſe, taking a Marquis to be properly an Officer of Horſe: *Menage* derives it from *Marca*, Frontier; and *Selden*, *Krantrius* and *Hottoman* do the ſame: Laſtly, *Paſquier* fetches Marquis from the old French *Marche*, Limit, or from *Marchir*, to confine; the Guard of the Frontiers being committed to them.

Marqueſſes, were antiently Governors of Frontier Cities or Provinces, called *Marſhes*.

In *Germany* Marqueſſes are called *Margraves*.

Marquis, is ordinarily a *French* Title; the *Romans* were unacquainted with it: In the *Notitia Imperii*, they are called *Comites Limitanii*.—The firſt Time we heard of Marqueſſes, *Marchiones*, is under *Charlemagne*, who created Governors in *Gaſcony* under this Denomination.

Alciat has ſtarted a Queſtion, whether a Marquis or Count ſhould have the Precedence? To decide the Queſtion he goes back to the antient Function of Counts, and obſerves that Counts who are Governors of Provinces, are above Marqueſſes, who are only Governors of Frontiers; and that Marqueſſes who are Governors of frontier Cities, are above Counts who are Governors of ſmall Towns. He adds, that in conſequence of this Diſtinction, the Book of Fiefs ſometimes places Marqueſſes above Counts, and ſometimes Counts above Marqueſſes.

In *France* we have two Sorts of Marqueſſes, *viz. true Marqueſſes*, i. e. thoſe Marqueſſes whoſe Eſtates have been erected into Marquiſates, or the Sons of Dukes; and petty Marquis, *i. e.* thoſe who have the Vanity to call themſelves Marqueſſes, without any Right or Title.

Froiſſart obſerves, that the Marquiſate of *Juliers* was erected into a County; but now a-days neither Marqueſſes nor Counts are any longer Governors; and as they are mere Titles of Honour, the Counts make no Scruple of reſigning the Precedency.

King *Richard* II. was the firſt who introduced the Dignity of Marquis in *England*, by creating *Robert de Vere*, Earl of *Oxford*, Marquis of *Dublin*; but this was a Title without Office, the Frontiers being governed by Lords Marchers.

A *Count*, *Comes*, is a Nobleman, who poſſeſſes a Domain erected into a County.

Engliſh Counts are diſtinguiſhed by the Title of *Earls*, but few ſtill retain the proper Name.

The Dignity of a Count, is a Medium between that of a Duke and a Baron.

According to the modern Uſe, moſt Plenipotentiaries and Embaſſadors aſſume the Title of *Counts*, though they have no Counties, as the Count *d'Avaux*, Plenipotentiary at the Congreſs of *Nimeguen*, &c.

Antiently, all Generals, Counſellors, Judges, and Secretaries of Cities under *Charlemagne*, were called Counts; the diſtinguiſhing Character of a Duke and a Count being this, that the latter had but one Town under him, but the former ſeveral.

A Count has a Right to bear on his Arms a Coronet, adorned in *England* with three precious Stones, and ſurmounted with three large Pearls, whereof thoſe in the Middle and Extremities of the Coronet advance above the reſt. In *France* a Count's Coronet is all ſurmounted with Pearls even with one another.

Counts were originally Lords of the Court, or of the Emperor's Retinue, and had their Name *Comites*, *à Comitando*; hence thoſe who are always in the Palace, or at the Emperor's Side, were called *Counts Palatine*, or *Comites à latere*.

In the Time of the Commonwealth, *Comites*, among the *Romans*, was a general Name for all thoſe who accompanied the Proconſuls and Proprætors into the Provinces, there to ſerve the Commonwealth, as the Tribunes, Præfecti, Scribes, *&c.*

Under the Emperors *Comites* were the Officers of the Palace. The Origin of what we now call *Counts* ſeems owing to *Auguſtus*, who took ſeveral Senators to be his *Comites*, as *Dion* obſerves, *i. e.* to accompany him in his Voyages and Travels, and to aſſiſt him in hearing of Cauſes; which were here judged with the ſame Authority as in full Senate. *Gallienus* ſeems to have aboliſhed this Council, by forbidding the Senators being found in the Armies; and none of his Succeſſors re-eſtabliſhed it.

Theſe Counſellors of the Emperor, were really Counts *Comites*, i. e. Companions of the Prince; and they ſometimes took the Title thereof, but always with the Addition of the Emperor's Name whom they accompanied; ſo that it was rather a Mark of their Office, than a Title of Dignity.

Conſtantine was the firſt who converted it into a Dignity, and under him it was that the Name was firſt given abſolutely.

The Name once eſtabliſhed was in a little Time indifferently conferred, not only on thoſe who followed the Court, and accompanied the Emperor, but alſo on moſt Kinds of Officers; a long Liſt whereof is given us by *Du Cange*.

Euſebius tells us, that *Conſtantine* divided the Counts into three Claſſes; the firſt bore the Title of *Illuſtres*, the ſecond that of *Clariſſimi*, and afterwards *Spectabiles*, the third were called *Perfectiſſimi*.

Of the two firſt Claſſes was the Senate compoſed; thoſe of the third had no Place in the Senate, but enjoyed ſeveral others of the Privileges of Senators.

There were Counts who ſerved on Land, others at Sea, ſome in a civil, ſome in a religious, and ſome in a legal Capacity, as *Comes Ærarii*, *Comes Capellæ*, *Comes Archiatrorum*, *Comes Commerciorum*, *Comes Veſtiarius*, *Comes Horreorum*, *Comes Opſoniorum*, or *Annonæ*, *Comes Domeſticorum*, *Comes Equorum Regiorum*, or *Comes Stabuli*, *Comes Domorum*, *Comes Excubitorum*, *Comes Notariorum*, *Comes Legum*, or *Profeſſor in Jure*, *Comes Limitum Marcarum*, *Comes Oræ Maritimæ*, *Comes Portus Romæ*, *Comes Patrimonii*, &c.

The *Franks*, *Germans*, &c. paſſing into *Gaul* and *Germany*, did not aboliſh the Form of the *Roman* Government; and as the Governors of Cities and Provinces were called Counts, *Comites*, and Dukes, *Duces*, they continued to be called ſo.

Theſe Governors commanded in Time of War; and in Time of Peace adminiſtered Juſtice. Thus, in the Time of *Charlemagne*, Counts were the ordinary Judges and Governors of the Cities, all under one.

Theſe Counts of Cities were beneath the Dukes and Counts who preſided over Provinces; the firſt being conſtituted in the particular Cities under the Juriſdiction of the latter. The Counts of Provinces were in nothing inferior to Dukes, who themſelves were only Governors of Provinces.

Under the laſt of the ſecond Race of the Kings of *France*, they got their Dignity rendered hereditary, and even uſurped the Sovereignty when *Hugh Capet* came to the Crown: His Authority was not ſufficient to oppoſe their Encroachments; and hence it is they date the Privilege of wearing Coronets in their Arms: They aſſumed it

it, then, as enjoying the Rights of Sovereigns in their particular Districts or Counties. But by Degrees, most of the Counties became re-united to the Crown.

The Quality of *Count* is now become very different from what it was antiently; being now no more than a Title, which a King grants by erecting a Territory into a County, with a Reserve of Jurisdiction and Sovereignty to himself.

At first there was no Clause in the Patent of Erection intimating the Reversion of the County to the Crown in Default of Heirs Male. But *Charles* IX. to prevent their being too numerous, ordained that Dutchies and Counties, in Default of Heirs Male, should return to the Crown.

The Point of Precedence, between *Counts* and *Marquisses*, has been formerly much controverted; the Reason was, that there are *Counts* who are Peers of *France*, but no *Marquisses*; but the Point is now given up, and *Marquisses* take Place; though antiently when *Counts* were Governors of Provinces, they were on a Level even with Dukes.

William the Conqueror, as is observed by *Camden*, gave the Dignity of *Counts* in Fee to his Nobles; annexing it to this or that County or Province, and allotting for their Maintenance a certain Proportion of Money, arising from the Prince's Profits in the Pleadings and Forfeitures of the Provinces. To this Purpose he quotes an antient Record, thus; *Hen.* II. *Rex Angliæ his verbis* Comitem *creavit; Sciatis nos fecisse Hugonem Bigot* Comitem *de Norf.* &c. *de tertio denario de Norwich & Norfolk, sicut aliquis* Comes *Angliæ*, &c.

Counts or *Earls* are now created by Charter, without any Authority over, or particular Relation to, their Counties; and without any Profit arising thence, except some annual Stipend out of the Exchequer, for Honour Sake. The Number of *Earls* being of late much increased, and no more Counties being left for them, several of them have made Choice of some eminent Part of a County, as *Lindsey*, *Holland*, *Craven*, &c. others of some Towns, as *Marlborough*, *Exeter*, *Bristol*, &c. and others of some Village, or their own Seat, Park, *&c.* as *Godolphin*, *Bolton*, *Danby*, *Wharton*, &c.

There are two Earls in *England*, which are not local, *i. e.* not dignified from any Places, but from noble Families, *viz.* Earl *Rivers*, and Earl *Paulet*. A third is denominated from his Office, *viz.* the Earl Marshal, who is a great Officer, having antiently several Courts under his Jurisdiction, as the Court of Chivalry, now almost forgotten; and the Court of Honour lately revived.

He has also some Pre-eminence in the Court of Marshalsea; where he may sit in Judgment against Criminals, offending within the Verge of the Court; whence the chief Officer under him is called *Knight-Marshal*. — Under him is also the Herald's Office, or College of Arms; as observed in my Treatise of Heraldry.

The Office of Earl-Marshal is hereditary in the most noble Family of *Howard*; and enjoyed by the Duke of *Norfolk*, the principal Branch thereof; though now, because *Roman Catholicks*, it is discharged by Deputation: But yet it is to be observed, it is not given out of the Name and Family of *Howard*.

Earls are created by Cincture of Sword, Mantle, Cap, and a Coronet put on his Head, and a Charter in his Hand. They are styled by the King, *Consanguinei nostri*, our Cousins. Their Title is, *Most potent and noble Lord*. Their Coronet has the Pearls raised on Points, with Leaves between.

Earl was a mighty Title among the *Saxons:* It is observed to be the most antient of any of the Peerage; and that there is no other Title of Honour in Use among the present Nobility, which was likewise used among the *Saxons* beside it. — The original Titles of Honour among the *Saxons*, were *Atheling*, *Thane*, and *Thegn*. The first was appropriated to those of the Royal Family: The other two to the rest of the Nobility: Only the *Thani* were afterwards distinguished into *Majores* and *Minores*.

Note, That the *Majores Thani*, or *Thanes*, were those who attended the *English-Saxon* Kings in their Courts, and who held Lands immediately of the King: Whence in Doom's Day Book they are promiscuously called *Thani* and *Servientes Regis*. Soon after the Conquest the Name was disused; and instead thereof they were called the *King's Barons*, *Barones Regis*. Their Origin is referred to King *Canutus*, who, taking the Chief of the *Danish* Nobility, to the Number of 3000, for his Guard; and arming them with Battle-Axes, and Sabres with gilt Handles, called them *Thing-lith*, from the two *Danish* Words *theing* or *thein*, Body of Nobility, and *lith*, Order of Battle. The ordinary *Thanes*, or *Thani minores*, were the Lords of Manors, who had particular Jurisdiction within their Limits, and over their own Tenants. These two changed their Name for that of Barons; and hence their Courts are called *Courts-Baron* to this Day. In old Authors, Charters, *&c.* we also meet with *Thane*, as signifying a Nobleman; sometimes a Freeman; and sometimes a Magistrate.

The *Germans* call a *Count*, *Graf*, or *Graff*; which, according to a modern Critick, properly signifies *Judge*; and is derived from *Gravio* or *Graffio*, of γραφω, I write. They have several Kinds of these *Counts* or *Graffs*, as *Landgraves*, *Marchgraves*, *Burghgraves*, and *Palsgraves*, or *Counts Palatine*.

This last Title, *i. e. Count Palatine*, *Comes Palatinus*, in antient Customs was a Title given to all Persons who had any Office or Employment in the Prince's Palace.

Matthæus says, that *Palatines* were originally those who had the Super-Intendance of the Palace; the same with what the *Greeks* called *Curopalatæ*, and the *French Maires du Palais*; tho' in Time the Name became more general.

The only *Palatine* of this Kind now subsisting, is the Prince *Palatine* of the *Rhine*.

Palatine was afterwards a Title conferred on those delegated by Princes to hold Courts of Justice in the Provinces; and on such among the Lords as had a Palace, *i. e.* a Court of Justice in their own Houses.

The *French* Writers make the *Palatines* of *Champagne* to be the first who bore the Title; which they will have it, the *Germans* and other People borrowed from them; not they from the *Germans*.

At present, the Word *Palatine* is restrained, to a Prince of *Germany*, or a Lord of *Poland* possessed of a *Palatinate*.

In the Code we find a Title *De Palatinis sacrarum Largitionum*, who were a Kind of Treasurers of the Empire.

Note, That *Palatinate*, *Palatinatus*, is a Province or Signory, possessed by a *Palatine*, and from which he takes his Title and Dignity. The *Palatinates* now subsisting, are either those of *Germany* or *Poland*. Those of *Germany* are the Principalities of the *Upper* and *Lower Rhine*, i. e. of *Bavaria* and the *Rhine*. The *Palatinates* in *Poland*, are the Provinces and Districts of the *Polish* Grandees, or Senators, who are the Governors thereof.

Note also, That the Territory of a Count or Earl, was originally called a County. But now it is used in the same Sense with Shire; the one Word coming from the *French*, the other from the *Saxon*. In this View, a County is a Circuit or Portion of the Realm, into 32, of which the whole Land, *England* and *Wales*, is divided, for the better Government thereof, and more easy Administration of Justice therein. Those Counties are subdivided into *Rapes*, *Laths*, *Wapentakes*, *Hundreds*; and these again into *Tithings*. For the Execution of the Laws in the several Counties, excepting *Cumberland*, *Westmoreland*, and *Durham*, every *Michaelmas* Term, Officers are appointed, under the Denomination of Sheriffs. This Officer has a double Function; first, *ministerial*, to execute all Processes and Precepts of the Court of Law directed to him: And secondly, *judicial*; whereby he has Authority to hold two Courts, the one called the Sheriff's Turn, the other the County-Court. Other Officers of the several Counties are, a *Lord-Lieutenant*, who has the Command of the Militia of the County; *Custos Rotulorum*, *Justices of Peace*, *Bailiffs*, *High Constable*, and *Coroner*. Of the 52 *Counties*, there are four of special Note, which are therefore termed *Counties Palatine*, as *Lancaster*, *Chester*, *Durham*, and *Ely*; *Pembroke* also, and *Hexham*,

Hexham, were antiently *Counties Palatine*; which last belonged to the Archbishop of *York*, and was stripped of its Privilege in the Reign of Queen *Elizabeth*, and reduced to be a Part of the County of *Northumberland*. The chief Governors of these *Counties Palatine* heretofore, by a special Charter from the King, sent out all Writs in their own Names; and touching Justice, did all Things as absolutely as the King himself in other Counties; only acknowledging him their Superior and Governor. But in *Henry* VIIIth's Time, the said Power was much abridged. There is also *County-Corporate*, which is a Title given to several Cities, or antient Boroughs, on which the *English* Monarchs have thought fit to bestow extraordinary Privileges; annexing to them a particular Territory, Land, or Jurisdiction. — The chief of these, is the famous City of *London*; with *York*, *Canterbury*, *Bristol*, *Chester*, *Norwich*; the Town of *Kingston upon Hull*, *Newcastle upon Tyne*, *Haverford West* in *Wales*, &c.

A *Vicount*, or *Viscount*, is a Degree of *Nobility*, next below a Count or Earl, and above a Baron.

Camden observes, that this is an antient Name of Office, but a new one of Dignity, never heard of in *England* till *Henry* VIth's Days, who, in his 18th Year, created in Parliament *John* Lord *Beaumont*, Viscount *Beaumont*; but it is much more antient in other Countries. The second Viscount in *England*, is that excellent Nobleman my Lord *Montacute Browne*.

Du Cange, indeed, will have the Dignity to have had its first Rise in *England*; but it is much more probable, it was first brought over hither by the *Normans*.

The Privileges of a *Viscount* are, that he may have a Cover of Assay held under his Cup when he drinks, and may have a Traverse in his own House. And a Viscountess may have her Gown bore up by a Man, out of the Presence of her Superiors; and in their Presence by a Woman.

A *Baron*, is a Lord or Peer of the lowest Class; or a Degree of Nobility, next below that of a Viscount, and above that of a Knight or Baronet.

Note, That *Baron* is a Term whose Origin and primary Import is much contested; some will have it originally denote a Man, ανηρ; some a Hero or valiant Man; some a *Libertinus* or Freeman; some a great or rich Man; some a Vassal or Liege-Man. *Menage* derives it from the *Latin Baro*, which we find used in the pure Age of that Language for *Vir*, a stout or valiant Man: Whence, according to this Author, it was, that those placed next the King in Battles, were called *Barones*, as being the bravest Men in the Army: And as Princes frequently rewarded the Bravery and Fidelity of those about them with Fees, the Word came to be used for any noble Person, who holds a Fee immediately of the King. *Isidore*, and after him *Camden*, takes the Word in its original Sense to signify a mercenary Soldier. Messieurs of the *Port Royal* derive it from βαρος, Weight, or Authority; *Cicero* uses the Word *Baro* for a stupid brutal Man; and the old *Germans* make mention of buffetting a Baron, *i. e.* a Villain; as the *Italians* still use the Word *Barone*, to signify a Beggar. M. *de Marca*, derives *Baron* from the *German Bar*, Man, or Freeman: Others derive it from the old *Gaulish*, *Celtick*, and *Hebrew* Languages: But the most probable Opinion is, that it comes from the *Spanish Varo*, a stout, noble Person; whence Wives come to call their Husbands Princes, and their Tenants *Barons*. In the Salick Laws, as well as the Laws of the *Lombards*, the Word *Baron* signifies a Man in the general; and the old Glossary of *Philomenes*, translates *Baron* by ανηρ, Man.

Barons, in *England*, are Lords of Parliament and Peers of the Realm, and enjoy all the Privileges thereof. They are not girt with a Sword at their Creation, nor had they any Coronets till the Reign of King *Charles* II. who gave them a Circle of Gold with six Pearls set close to the Rim.

In antient Records, the Word *Barons* included all the *Nobility* of *England*, because regularly all Noblemen were *Barons*, though they had a higher Dignity. And therefore the Charter of King *Edward* I. which is an Exposition of what relates to *Barons* in *Magna Charta*, concludes, *testibus Archiepiscopis*, *Episcopis*, *Baronibus*, &c. and the great Council of the Nobility, when they consisted of, besides Earls and Barons, Dukes, Marquisses, &c. were comprehended under the Name *de la Council de Baronage*.

Barons by antient Tenure, were those who held certain Territories of the King, who still reserved the Tenure in Chief to himself. We also read of *Barons by temporal Tenure*, who are such as hold Honours, Castles, Manours, as Heads of their *Barony*, that is, by Grand Sergeanty; by which Tenure they were antiently summoned to Parliament. But at present a *Baron by Tenure* is no Lord of Parliament, till he be called thither by Writ.

The *Barons by Tenure* after the Conquest, were divided into *Majores* and *Minores*, and summoned accordingly to Parliament; the *Majores* or greater *Barons*, by immediate Writ from the King; the *Minores* or lesser *Barons*, by general Writ from the High Sheriff, at the King's Command.

The Antients distinguished the greater *Barons* from the less, by attributing high, and even sovereign Jurisdiction to the former, and only inferior Jurisdiction over smaller Matters to the latter.

The Lordship or Fee of a *Baron*, either temporal or spiritual, is called *Barony*. In which Sense *Barony* amounts to the same with what is otherwise called Honour.

A *Barony* may be consider'd as a Lordship held by some Service, in Chief of the King, coinciding with what is otherwise called *grand Sergeanty*.

Note, That *Baronies*, in their first Creation, moved from the King himself, the chief Lord of the whole Realm; and could be holden immediately of no other Lord: For Example, the King enfeoffed a Man, of a great Seigneury in Land; to hold to the Person enfeoffed and his Heirs, of the King and his Heirs, by Baronial Service, to wit, by the Service of 20, 40, 60 Knights, or of such other Number of Knights, either more or less, as the King by his Enfeoffment limited or appointed. In the Ages next after the Conquest, when a great Lord was enfeoffed by the King of a large Seigneury, such Seigneury was called a *Barony*; but more commonly an *Honour*, as the *Honour* of *Gloucester*, the *Honour* of *Wallingford*, the *Honour* of *Lancaster*, the *Honour* of *Richmond*, and the like. There were in *England* certain *Honours*, which were often called by *Norman* or other foreign Names, that is to say, sometimes by the *English*, and sometimes by the foreign Name. This happened when the same Person was Lord of an *Honour* in *Normandy*, or some other foreign Country, as also of an *Honour* in *England*. For Example, *William de Forz*, *de Force*, or *de fortibus*, was Lord of the *Honour* of *Albemarle* in *Normandy*, he was also Lord of two *Honours* in *England*, to wit, the *Honour* of *Holderness*, and the *Honour* of *Skipts* in *Craven*. These *Honours* in *England*, were sometimes called by the *Norman* Name, the *Honour* of *Albemarle*, or the *Honour* of the Earl of *Albemarle*. In like Manner the Earl of *Britanny*, was Lord of the *Honour* of *Britanny*, in *France*, and also of the *Honour* of *Richmond* in *England*. The *Honour* of *Richmond*, was sometimes called by the foreign Name, the *Honour* of *Britanny*, or the *Honour* of the Earl of *Brittanny*. This serveth to explain the Terms, *Honour* of *Albemarle* in *England*, *Honor Albemarliæ*, or *Comitis Albermaliæ in Angliâ*; *Honor Britannicæ*; *Honor Britannicæ*, or *Comitis Britannici in Angliâ*, the *Honour* of *Britanny*, or of the Earl of *Britanny* in *England*. Not that *Albemarle* or *Britanny* were in *England*, but that the same Person respectively was Lord of each of the said Honours abroad, and each of the said Honours in *England*.

The *Baronies* belonging to Bishops, are by some called *Regalia*, as being held solely on the King's Liberality. These do not consist in one *Barony* alone, but in many; for *tot erant Baroniæ*, *quot majora prædia*.

A *Barony*, according to *Bracton*, is a Right Indivisible. Therefore, if an Inheritance be to be divided among Copartners, though some capital Messuages may be

be divided, yet if the capital Messuage be the Head of a County or Barony, it may not be parcelled; and the Reason is, lest by this Division, many of the Rights of Counties and Baronies, by Degrees, come to nothing, to the Prejudice of the Realm; which is said to be composed of Counties and Baronies.

All Lords of the different Degrees heretofore mentioned, are in *England*, Peers of the Realm, i. e. have their Seats and Votes, in the Upper House of Parliament; hence called the *House of Peers*.

All Peers of the Realm being consider'd as the King's hereditary Counsellors, their Persons, out of Parliament-Time, are privileged (as others in Parliament Time) from all Arrests, unless for Treason, Felony, or Breach of Peace, Condemnation in Parliament, or Contempt to the King. No *Supplicavit* can be granted against them; no *Capias* or *Exigent* sued out against them, for Actions of *Debt* or *Trespass*. No *Essoin* lies against any Peer of the Realm. In criminal Causes, Treason, or Felony, they cannot be tried by any other Jury, but by a Jury of Peers of the Realm, who are not as other Juries, to be put to their Oath, but the Verdict given in upon their Honour sufficeth. In civil Causes they are not to be impanelled upon any Jury, nor upon any Inquest, *de facto*, though in a Matter between two Peers. In case any Peer be returned upon any such Jury, there is a special Writ for his Discharge. Upon no Case to be bound upon their good Behaviour, nor put to swear they will not break the Peace, but only to promise it *upon their Honour*; which was ever accounted so sacred, as upon no Terms to be violated. A Peer of the Realm may not be put to the Rack or Torture to discover the Truth, tho' accused of High-Treason. Every Peer of the Realm called to Parliament has the Privilege, in his lawful Absence, to constitute a Proxy to vote for him, which none of the Commons may do. Also in Places of Trust committed to them, they are allowed to make Deputies by reason of the Necessity supposed in the Law, of their Attendance on the Person of the King, though neither civil Law nor common Law allow any other Testimony to be valid, but what is given upon Oath; yet the Testimony of a Peer of *England* given in upon his Honour, without any Oath, is esteemed valid; and they were antiently examined upon their Allegiance, and the Loyalty of their Chivalry, and to put in their Answer to a Bill *super honorem*, without taking an Oath; though of later Times, that Privilege, by the neglect of some Lords, has been infringed sometimes. A Day of Grace by the Favour of the Court, is not to be granted to the Plaintiff in any Suit or Action, wherein a Peer of the Realm is Defendant; and this by Statute-Law, because the Law presumes, that a Peer of the Realm must always be ready to attend the Person of the King, and the Service of the Commonwealth; and therefore it is not to be delayed any longer than the ordinary Use of the Court, but to have Expedition of Justice.

At the Beginning of Parliament, when the Oath of Supremacy is exacted of all those of the House of Commons, yet it is not required of any of the Lords, because the King is presumed to be otherwise assured of their Loyalty and Fidelity.

In all Cases, wherein the Benefit of the Clergy is allowed to other Men; and also in divers Cases, where that Privilege is taken away from other Men, every Peer of the Realm, having Place and Voice in Parliament, shall, upon his Request, by *Stat.* 1 *Edw.* VI. without burning in the Hand, Loss of Inheritance, or Corruption of Blood, be adjudged for the first Time, as a Clerk Convict, though he cannot read.

For the suppressing of *Riots* and *Routs*, the Sheriff may raise the *Posse Comitatus*, that is, all able Men are to assist him; yet may not the Sheriff command the Person of any Peer of the Realm to attend that Service.

A Baron of Parliament being sent for by the King's Writ or Letter, or by his Messenger, to come to Court, or to Parliament, or to appear before the Council Board, or in his Court of Chancery, may, both coming and returning, by the King's Forest or Park, kill one or two Deers.

In any civil Trial, where a Peer of the Realm is Plaintiff or Defendant, there must be returned of the Jury, at least one Knight, otherwise the *Array* may be quasht by Challenge.

The Laws of *England* are so tender of the Honour, Credit, Reputation, and Persons of Noblemen, that there is a Statute on purpose to hinder all Offence by false Reports, whereby any Scandal to their Person may arise, or Debate and Discord between them and the Commons; and because it is to defend, not only *Lay-Lords* but Bishops, and all the great Officers of the Realm, it is called *Scandalum Magnatum*.

The House of a Peer cannot, in some Cases (as in Search for prohibited Books, for Conventicles, *&c.*) be entered by Officers of Justice, without a Warrant under the King's own Hand, and the Hands of six of his Privy Council, whereof four to be Peers of the Realm.

No Peer can be assessed towards the Standing Militia, but by six or more of themselves.

The Law allowing any one of the Commonalty to be arraigned for Felony or Treason, *in favorem vitæ*, to challenge thirty-five of his Jury without shewing Cause; yet allows not a Peer of the Realm to challenge any of his Jury, or to put any of them to their Oath, the Law presuming, that they being all Peers of the Realm, and judging upon their Honour, cannot be guilty of Falshood, Favour, or Malice; though perhaps the Law sometimes may be mistaken.

All Peers of the Realm have a Privilege of qualifying a certain Number of Chaplains, who after a Dispensation from the Archbishop (if to him it seems good, and the same ratified under the Great Seal of *England*) may hold a Plurality of Benefices with *Cure of Souls*; in this Manner every Duke may qualify six Chaplains, every Marquis and Earl five a-piece, every Viscount four, and every Baron three.

A Peer of the Realm may retain six Aliens born, whereas another may retain not above four.

In case of Amercements of the Peers of the Realm for *Nonsuits*, or other Judgments, a Duke is to be amerced only ten Pounds; and all under, only five Pounds; and this to be done by their Peers, according to *Magna Charta*, although it is often done now by the King's Justices, instead of their Peers.

The Estates of all Peers of the Realm being judged, in the Eye of the Law, to be sufficient at all Times to satisfy all Debts and Damages, Satisfaction is to be sought by Execution taken forth upon their Land and Goods, and not by Attachments, Imprisonments of their Persons, nor by *Exigents*, or *Capias utlegatum*.

There are other Privileges belonging to the Peers of *England*, as eight Tuns of Wine, Custom-free, to every Earl, and to the rest proportionable, *&c.*

Note, That notwithstanding these great Privileges belonging to the Nobility of *England*, yet the greatest of them (no, not the Brother, or Son of the King) never had the Privilege of the Grandees of *Spain*, to be covered in the King's Presence; nor ever had that high Privilege of the Nobility of *France*, whose *domain Lands*, and their *Dependants* holding them, are exempted from all Contributions and *Tailles*, by which Favour they are tied to their King, and so enabled to serve him, that though there have been Rebellions in the Kingdom, yet seldom of long Continuance, and never prosperous; whereas the highest-born Subject in *England* has herein no more Privilege than the meanest Ploughman.

Touching the Places and Precedences among the Peers of *England*, it is to be observed, that (after the King and Princes of the Blood, *viz.* the Sons, Grandsons, Brothers, Uncles, or Nephews of the King, and no further) Dukes, among the Nobility, have the first Place, then Marquisses, Dukes eldest Sons, Earls, Marquisses eldest Sons, Dukes younger Sons, Viscounts, Earls eldest Sons, Marquisses younger Sons, Barons, Viscounts eldest Sons, Earls younger Sons, Barons eldest Sons, Viscounts younger Sons.

Note, That it was decreed by King *James* I. that the younger Sons of Barons and Viscounts should yield Place and Precedence to all Knights of the Garter, *quatenus tales*, and to all Privy Counsellors, Master of the Wards, Chancellor, and Under-Treasurer of the Exchequer, Chancellor of the Duchy, Chief-Justice

Justice of the King's Bench, Master of the Rolls, Chief-Justice of the Common Pleas, Chief-Baron of the Exchequer; and all other Judges and Barons of the Degree of the Coif of the said Courts, and that by reason of their honourable Order and Employment; and also to all *Bannerets* made under the King's Banner or Standard displayed in an Army Royal in open War, and the King personally present.

Note, also, That all Nobles of the same Degree, take Place according to the Seniority of their Creation. But the Princes of the Blood, the great Officers of the Realm, and the Bishops are to precede, according to an Act of Parliament, 31 *Henry* VIII. The Lord Chancellor, Lord Treasurer, Lord President of the King's Council, Lord Privy Seal; these being Barons, or above, shall in Parliament sit above all Dukes, except the Son, Brother, or Nephew of the King. The Lord High Steward of *England* is not here named, because it was not intended that he should not continue beyond the Occasion, for which he should be made. Next has Place the Lord Great Chamberlain of *England*, then the Lord High Constable, the Earl Marshal, the Lord High Admiral, Lord Steward of the King's Houshold, Lord Chamberlain of the King's Houshold. Those shall sit after the Lord Privy Seal, above all of their Degree only. And if the King's principal Secretary be a Baron, he takes Place of all Barons, that are not of the Offices before-mentioned; but if he be a Viscount, or higher Degree, he shall take Place only according to his Degree. Also, if the King's Secretary be a Bishop, as antiently was usual, he takes Place next to the Bishop of *Winchester*, before all other Bishops, who have none of the Offices aforesaid.

All Dukes, Marquesses, Earls, Viscounts, and Barons, having none of the said Offices, shall take Place according to the Antiquity of their Creation.

Note, That there are certain Marks of State that belong to each Degree among the *Nobility*, which they may practise, or not practise at Pleasure. A Duke may have in all Places, out of the King's Presence, a Cloth of Estate hanging down, within half a Yard of the Ground; so may his Dutchess, and her Train borne up by a Baroness; and no Earl to wash with a Duke, unless the Duke permits him. A Marquis may have a Cloth of Estate reaching within a Yard of the Ground, and that in all Places out of the Presence of the King, or a Duke; and his Marchioness to have her Train borne up by a Knight's Wife; and no Viscount to wash with a Marquis, but at his Pleasure. An Earl also may have a Cloth of Estate, without Pendants, and fringed only; and a Countess may have her Train borne by a Gentlewoman, out of the Presence of her Superiors, and in their Presence by a Gentleman.

All Dukes eldest Sons are born as Marquesses, and the youngest as Lords, with the Addition of their Christian Names, as Lord *Thomas*, Lord *John*, &c.

A Marquis's eldest Son is called Lord of a Place, and the youngest Sons, as Lord *Thomas*, Lord *John*, &c.

An Earl's eldest Son is born as a Viscount, and shall go as a Viscount, and shall have as many Powdrings as a Viscount; so their younger Sons are said to be born as Barons, but shall go after all Barons, and before all Baronets.

An Earl's eldest Son is called Lord of a Place, and all his Daughters Ladies; but his youngest Sons are not Lords.

A Viscount's eldest Son is no Lord, nor his Daughters Ladies, and therefore the eldest Son and the eldest Daughter of the first Viscount of *England*, is said to be the first Gentleman and Gentlewoman without a Title in *England*; yet a Viscount's eldest Son is said to be born as a Baron.

All Sorts of Persons in *England*, under the Degree of a Baron, are called the *Commons* of *England*, including the Orders of Knights, Esquires, Gentlemen, the Sons of the Nobility, *&c.*

Knight, properly signifies a Person, who for his Virtue and martial Prowess, is by the King raised above the Rank of Gentlemen into an higher Class of Dignity and Honour.

Note, That the Word *Knight*, in its original German *Knecht*, signifies a Servant; and has since been used for a Soldier, or Man of War.—There is but one Instance among the *English*, where Knight is used in the first Sense, and that is in *Knight of the Shire*, who properly serves in Parliament for such a County. In the *Latin*, *French*, *Italian*, *Spanish*, and *Dutch* Languages, Knight is expressed by a Word, which properly signifies a *Horseman*, as being usually employed on Horseback. Indeed the common Law of *England* calls them *Milites*, Soldiers, because they usually held Lands in Knight-Service, to serve the King as Soldiers in his Wars; in which Sense the Word *Miles* was used *pro vassallo*.

Knighthood, was the first Degree of Honour in the antient Armies, and was conferred with a great deal of Ceremony on those who had distinguished themselves by some notable Exploits in Arms. They were originally said to be adopted, which we now call *dubb'd*, as being supposed in some measure the Sons of him who knighted them.

The Ceremonies at the Creation of a Knight have been various: The principal were, a Box on the Ear, and a Stroke with a Sword on the Shoulders; then they put on him a Shoulder-Belt, and gilt Sword, Spurs, and other military Accoutrements; after which, being armed as a Knight, he walks in great Pomp to the Church.

The Manner of making a Knight in *England*, is described by *Camden* in a few Words; *Qui Equestrem dignitatem suscipit, flexis genibus leviter in humero percutitur, Princeps his verbis affatur, sus, vel sois Chevalier au nom de Dieu, surge, vel sis eques in nomine Dei*; *Rise, or be Knight in the Name of God.*

There are several Kinds of Knights in this Sense, *viz.* *Knights-Batchelor*, *Knights-Bannerets*, and in *England* *Knights-Baronets*.

Knights-Batchelor, were those, who though they had attained to Knighthood, were not rich enough, or had not a sufficient Number of Vassals to have their Banner carried before them in Battle, but were obliged to fight under the Banner of another.

At present they are called *Equites Aurati*, from the gilt Spurs that are put on them at the Time of their Creation. The Dignity was at first confined to military Men, but afterwards was conferred on Men of the long Robe.

Knights Bannerets, is an antient Order of Knights, or feudal Lords, who possessing several large Fees, led their Vassals to Battle, under their own Flag or Banner, when summoned thereto by the King.

To be qualified for a Banneret, one must be a Gentleman of Family, and must have a Power to raise a certain Number of armed Men; with Estate enough to subsist, at least, twenty-eight or thirty Men.—This must have been very considerable in those Days, in regard each Man, beside his Servant, had two Horsemen to wait on him, the one armed with a Cross-bow, the other with a Bow and Hatchet.

As he was not allowed to be a Baron, who had not above thirteen Knights-Fees, so he was not admitted to be a Banneret, if he had less than ten.

Banneret, according to *Spelman*, was a middle Order between a Baron and a simple Knight, called sometimes also *Vexilarius Minor*, to distinguish him from the greater, that is, from the Baron, to whom alone properly belonged the *Jus vexilli*, or Privilege of the square Flag.

Hence the Banneret was also called *Bannerettus*, *quasi Baro minor*, a Word frequently used by *English* Writers, in the same Sense as *Baneret* was by the *French*; though neither of them occur before the Time of *Edward* II.

Some will have Bannerets to have originally been Persons who had some Portion of a Barony assigned them; and enjoy'd it under the Title of *Baro proximus*, with the same Prerogative as the Baron himself.

Some again find the Origin of Bannerets in *France*; others in *Britanny*; others in *England*.—This last attribute the Institution of Bannerets to *Conon*, Lieutenant of

of *Maximus*, who commanded the *Roman* Legions in *England* under the Empire of *Gratian*, in 383. This General, say they, revolting, divided *England* into forty Cantons, and in these Cantons distributed forty Knights, to whom he gave a Power of assembling, on Occasion, under their several Banners, as many effective Men as were found in their respective Districts; whence they are called *Bannerets*.

However this be, it appears from *Froissart*, &c. that antiently such of the military Men who were rich enough to raise and subsist a Company of armed Men, and had a Right to do so, were called *Bannerets*. Not however, that these Qualifications rendered them Knights but only Bannerets; the Appellation of Knight being only added thereto, because they were simple Knights before.

Bannerets were second to none but Knights of the Garter; they were reputed the next Degree below the Nobility; and were allowed to bear Arms with Supporters, which none else may, under the Degree of a Baron. In *France* the Dignity was hereditary, but in *England* it died with the Person who gained it. The Order dwindled on the Institution of Baronets by King *James* I. and at length became extinct. The last Person created Banneret was Sir *John Smith*, made so after *Edgehill* Fight, for rescuing the Standard of King *Charles* I.

The Form of the Banneret's Creation was this: On a Day of Battle the Candidate presented his Flag to the King, or General, who cutting off the Train, or Skirt thereof, and making it a Square, returned it again, the proper Banner of Bannerets; who are hence sometimes called *Knights of the square Flag*.

Note, That in *France* those two Orders of *Knights-Bachelor* and *Knights-Banneret*, have been long since entirely extinct, though all Noblemen who are high and low Justiciaries, stile themselves yet *Chevalier*, *Seigneur*; to these have succeeded the military Orders, with which the King is pleased to honour those who have either signalized themselves in his Armies, or elsewhere in his Service; as I'll explain it in a more particular Manner in my Treatise of *Religious* and *Military Orders* under the Letter O.

Knights Baronet, (which is a Dignity peculiar to the *English* Nation) is a Degree of Honour next beneath a Baron, and above a Knight; having Precedency of all Knights, excepting those of the Garter.

The Dignity of Baronet is given by Patent, and is the lowest Degree of Honour that is hereditary.—The Order was founded by King *James* I. in 1611, when 200 Baronets were created at once; to which Number, by the Patent, they were always to be restrain'd: Tho' it is said there are now four Times that Number.

They had several considerable Privileges given them, with an *Habendum* to them, and their Heirs Male. They were allowed to charge their Coat with the Arms of *Ulster*, which are, in a Field argent a Hand gules; and that upon Condition of their defending the Province of *Ulster*, in *Ireland*, against the Rebels, who then harrassed it extremely; to which End, they were each to raise and keep up thirty Soldiers at their own Expence, for three Years; or to pay into the Exchequer a Sum sufficient to do it; which at 8 *d.* a Day *per* Head, was 1095 *l.* now always remitted them.

Baronets take Place according to the Date of their Patents, by the Terms of which no Honour is to be erected between Barons and Baronets.

The Title, *Sir*, is granted them by a peculiar Clause in their Patents, though they be not dubbed Knights. But both a Baronet and his eldest Son, being of full Age, may claim Knighthood.

Note, That Knight, *Eques*, among the *Romans*, was the second Degree of *Nobility*, following immediately that of the Senators. At the Time of building the City of *Rome*, the whole Army of *Romulus* consisted of 3000 Foot and 300 Horse; which 300 Horse were the Original of the Roman *Equites*, or Knights. These made the second Order that had Places in the Senate. *Manutius* and *Sigonius* are of Opinion, that besides the Equestrian Order, and these Knights immediately below the Senators, *Romulus* instituted a military Order, whereof the *Roman* Cavalry was composed. But no antient Author takes Notice of any Order of Knighthood instituted on purpose for the War, nor any other Knights but those 300, which, as we have observed, were the first Foundation of the Equestrian Order. The Knights had a Horse kept them at the publick Charge; but when they were taken in among the Senators, they resigned that Privilege to be a Knight. It was necessary they should have a certain Revenue, that their Poverty might not disgrace the Order; and when they failed of the prescribed Revenue, they were expunged out of the List of Knights, and thrust down among the Plebeians. Ten thousand Crowns is computed to have been the Revenue required. The Knights grew so very powerful, that they became a Balance between the Power of the Senate and the People. They neglected the Exercises of War, and betook themselves principally to civil Employments in *Rome*; insomuch that *Pliny* observes, in his Time, they had no longer a Horse kept at the publick Expence. Some say, that the Order of Knights, as distinct from the People, did not begin from the Time of the *Gracchi*; others say, the Privilege was then first granted them, that no Judge should be chosen but out of their Order; some Time after which they took them into the Senate. This however is certain, it was only necessary, and that this intitled them to the Knighthood, without being descended from antient Knights.

Next below the Title of a Knight, and above that of a simple Gentleman, is the Quality of *Esquire*.

The Origin both of the Name and the Thing, *Esquire*, is very dark; the *English* Denomination is confessedly borrowed from the *French*, *Ecuyer*, and that from the Latin *Scutum*, Shield, as some will have it; or as others, from *Scutarius*, or *Scutiger*, Shield-bearer; or from *Scuria*, Stable, or *Equiso*, Groom.

So many different Opinions of the Formation of the Words have given Rise to as many about the primitive Office of *Esquires*; unless, perhaps, the latter has given Occasion to the former.

Pasquier, in his Researches, *lib.* 2. *c.* 15. maintains the Title of *Esquire*, *Escuyer*, *Scutarius*, to be very antient. From the Time of the Declension of the *Roman* Empire, he observes, there were two extraordinary Kinds of Soldiery in the *Roman* Army, the one called *Gentiles*, and the other *Scutarii*.

Ammian. Marcellin, *l.* 14. *c.* 7. and *l.* 16. *c.* 4. speaks of these *Scutarii* as Men of redoubted Prowess, and even deemed invincible. It is added, that *Julian* the Apostate set a mighty Value on those Troops when he was among the *Gauls*; and hence probably it was that the *Gauls*, or perhaps the *Franks*, finding the bravest among the *Roman* Forces, were called *Gentiles*, and *Scutarii*, gave the like Name to the boldest and bravest among themselves; such, according to that curious Antiquary, is the Origin of *Esquire*.

Esquire, however, afterwards came to be used in somewhat different Sense, *viz.* for a Gentleman who attended a Knight in the Wars, and on other military Occasions, bearing his Shield, *Scutum*, before him (whence he was called *Scutarius*, *Scutiger*, or *Scutifer*) as also his Launce, and other Weapons: Whence his other Appellation usual among us, *Armiger*, q. d. Armour-bearer. And hence likewise it is, that in all our antient Romances, the Hero is constantly attended by a gentle and trusty 'Squire.

After all, the most probable Derivation of *Escuyer*, is not from *Escu*, *Scutum*, as is the common Opinion, but from *Equus*, Horse, the primitive Esquires being no other but what the *Latins* call *Equisones*, who had the Care and Intendence of the Equeries, or Stables only.

Be this as it will, the Title of Esquire, *Armiger*, as now established among us, is the next below that of a Knight, *Eques*. They who bear the Title are all younger Sons of Noblemen, and the eldest Son of such younger Sons; the eldest Sons of Knights, and their eldest Sons successively; the four Esquires of the King's Body, and Esquires created by the King, by putting about their Neck a Collar of S S's, and bestowing on them a Pair of

of Silver Spurs. Lastly, divers others in the superior publick Offices, are reputed Esquires, or equal to Esquires, as Sheriffs of Counties, Serjeants at Law, Justices of Peace, Mayors of Towns, Counsellors at Law, Batchelors of Divinity, Law, Physick, &c. though none of them are really so: Lastly the Heads of some antient Families are likewise Esquires by Prescription.

Note, That in *France* the first Degree, next below a Baron, or rather the last Degree of Nobility, is that of *Escuyer*, Esquire; and that Persons, newly made Nobles, take all the Title of *Escuyer*, *Sieur*, &c. *Esquire*, *M.* &c. for the King of *France*, when he makes a Nobleman, seldom or never raises him to a higher Rank. And then he does not enjoy all the Privileges of the Nobility, neither do his Children divide his Estate among them, as Noblemen, but only his Grandchildren.

Next below an Esquire, in *England*, is a *Gentleman*, who is a Person of a noble Birth, or descended of a Family which has long bore Arms.

Note, That the Word is formed of the *French Gentilhomme*, or rather of genteel, fine, fashionable, or becoming; and the *Saxon Man*, q. d. *Honestus*, or *Honesto loco natus*. The same Signification has the *Italian Gentilhuomo*, and the *Spanish Hidulgo*, or *Hijo Dalgo*, that is, the Son of Somebody, or of a Person of Note. If we go farther back we shall find Gentleman originally derived from the *Latin*, *Gentilis homo*, which was used among the *Romans* for a Race of noble Persons of the same Name, born of free or ingenuous Parents, and whose Ancestors had never been Slaves, or put to Death by Law. Thus *Cicero*, in his Topicks, *Gentiles sunt, qui inter se eodem sunt nomine, ab ingenuis oriundi, quorum majorum nemo servitutem servivit, qui capite non sunt diminuti*, &c. Some hold that it was formed from *Gentile*, i. e. Pagan, and that the antient *Franks*, who conquered *Gaul*, which was then converted to Christianity, were called *Gentiles* by the Natives, as being yet Heathens. Others relate, that towards the Declension of the *Roman* Empire, as recorded by *Ammianus Marcellinus*, there were two Companies of brave Soldiers, the one called *Gentilium*, and the other *Scutariorum*; and that it was hence we derived the Name Gentleman and Esquire. This Sentiment is confirmed by *Pasquier*, who supposes the Appellation *Gentiles* and *Ecuyers*, to have been transmitted to us from the *Roman* Soldiery; it being to the *Gentiles* and *Scutarii*, who were the bravest of the Soldiery, that the principal Benefices, and Portions of Lands, were assigned. The *Gauls* observing, that during the Empire of the *Romans*, the *Scutarii* and *Gentiles* had the best Tenements or Appointments of all the Soldiers on the Frontiers of the Provinces, became insensibly accustomed to apply the same Names, *Gentilhomme* and *Escuyers*, to such as they found their Kings gave the best Provisions and Appointments to.

In Strictness, *Chamberlayne* observes, a Gentleman is one whose Ancestors have been Freemen, and have owed Obedience to none but their Prince: On which Footing no Man is a Gentleman who is not born so.

Among the *English*, the Term Gentleman is applicable to all above Yeomen; so that Noblemen may be properly called Gentlemen.

In the *English* Statutes, *Gentilis homo* was adjudged a good Addition for a Gentleman, 27 *Ed.* III. the Addition of Knight is very antient, but that of Esquire or Gentleman rare before 1 *Hen.* V.

Note, That what we call *Gentlemen*, *Gentilhommes*, in *France*, are all Noblemen born, except those whom the King is pleased to make such, either for some signal Services, or on any other Consideration, since all Noblemen, of what Rank soever, call themselves *Gentilhommes*, and glory in that Appellation. All others who are not such, let them be every so rich, are all included under the common Appellation of Burghesses; and all accounted Roturiers, *i. e.* of the third Estate, or *tiers Estat*, as we call it; none of them enjoying any of the Privileges of the Nobility.

Note also, That the Privileges of the *lower Nobility*, in *England*, are as follows, *viz.* Knights are excused from Attendance at Court-Leets. By *Magna Charta*, *c.* 21. they are so freed that no Demesne Cart of theirs may be taken. The Son and Brother of a Knight by Statute Law, are capacitated to hold more than one Benefice for the Cure of Souls. By the Stature, *Prim. Jacob.* it seems that Knights and their Sons (though they cannot spend 10 *l. per Ann.* nor are worth 200 *l.*) may keep Greyhounds, Setting Dogs, or Nets, to take Pheasants or Partridges.

Some Privileges, also, belong to Gentlemen. Antiently, if an ignoble Person did strike a Gentleman in *England*, he was to lose his Hand. A Gentleman, by *Stat. quint. Elizab.* may not be compelled to serve in Husbandry. The Child of a Gentleman brought up to sing, cannot be taken without the Parents and Friends Consent, to serve in the King's Chapel, as others may. The Horse of a Gentleman may not be taken to ride Post, &c.

OPTICKS.

OPTICKS, according to Sir *Isaac Newton*, is a mixed mathematical Science, which explains the Manner wherein Vision is performed in the Eye; treats of Sight in the general; gives the Reason of the several Modifications or Alterations which the Rays of Light undergoes in the Eye; and shews why Objects appear sometimes greater, sometimes smaller, sometimes more distinct, sometimes more confused, sometimes nearer, and sometimes more remote.

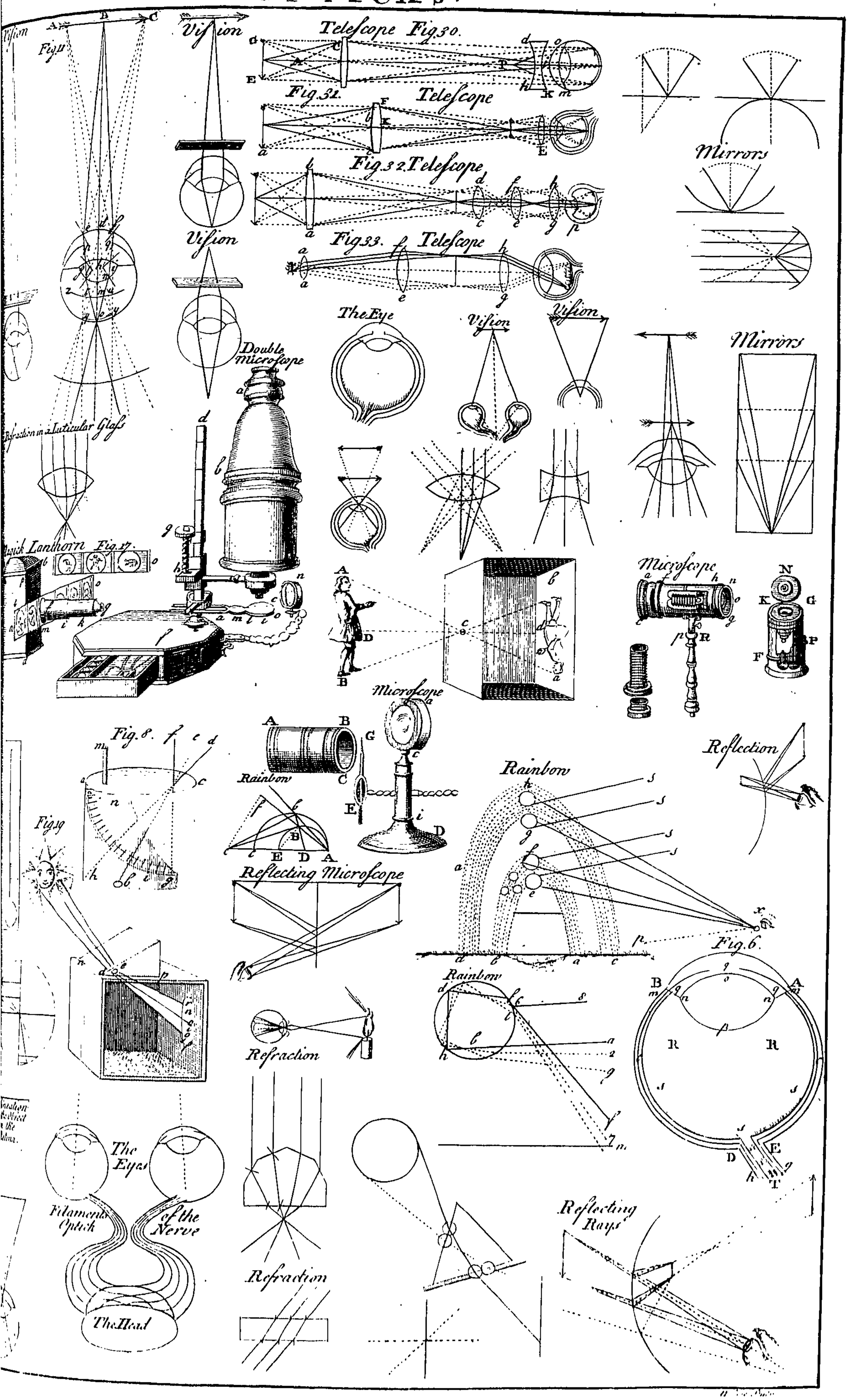
Note, That to proceed in the same Order I have observed in all my other Treatises, I'll begin this by treating of Sight in general; and previously to it, by an exact Description of several Parts which compose the Eye; that thereby the Reader may understand better the Manner wherein the Vision is performed, and account more pertinently for the several Modifications or Alterations which the Rays of Light undergo in the Eye; then I'll pass to *Catoptricks*, and from thence to *Dioptricks*, leaving *Perspective* for a Treatise a-part.

SIGHT is of such Necessity and Excellence, that every Body would rather chuse to be deprived of any other of their Senses, than that of *Sight*. For with its Assistance, the Body is directed by the Soul, the great and beautiful Fabrick of this aspectable World is known; and the Things invisible render'd conspicuous by the visible.

The Organ of *Sight* is the Eye, or rather the Eyes; since Nature has presented us with two; that if by some Misfortune or other, one should fail us, the other remaining should discharge the Office of both. But the Author of Nature has provided for the Security of both, by placing them under the Forehead, on the Sides of the Nose, in two Orbits, dug in the Bones of the Cranium, that in those osseous Seats, they may be the better shelter'd against all foreign Accidents. To these Orbits, he was pleased to add, for a still greater Security, two Eye-Lids, or Veils, to cover the Eye, and defend it from Dust, Smoak, and all other Things which could hurt it.

There occurs in the Eye-Lids several small Glands, which with the Humour contained therein, water the Eye; but more particularly in the great Angle, called *Canthus*, there is the lachrymal Gland, whence Tears flow, excited to it, either by an Excess of Sorrow, or by some acrimonious Humour, or some sharp Wind affecting that Gland.

In the Orbit are found six Muscles, applied to the Motion


Vision
Fig. 11
Vision
Telescope Fig. 30.
Fig. 31. Telescope
Fig. 32. Telescope
Mirrors
Vision
Fig. 33. Telescope
Mirrors
The Eye
Vision
Vision
Double Microscope
Refraction in a Lenticular Glass
Magick Lanthorn Fig. 17.
Microscope
Microscope
Fig. 8.
Rainbow
Reflection
Rainbow
Fig. 9
Reflecting Microscope
Rainbow
Fig. 6.
Refraction
The Eyes
Filaments of the Optick Nerve
The Head
Refraction
Refraction
Reflecting Rays

tion of the Eye. The first of them draws the Eye upwards, and therefore is called *Elevator* or *Superbus*. The second, which is opposite to it, casts it down, whence it is called *Deprimens*, or *Humilis*. The third, placed in the internal Angle, or great *Canthus*, draws the Eye towards the Nose, whence it is called *Adducens* and *Potator*. The fourth draws the Eye towards the little or external *Canthus*, and is for that Reason called *Abducens* or *Indignator*. These four Muscles are called *Recti* or straight Muscles.

The two other Muscles are the *Obliqui*, which environ the Eye, and move it obliquely.

While the oblique Muscles act in Concert, and with an equal Strength, the Sight is strait; but if one of them be stronger than the other, then the oblique Motion is bad; but to prevent, as much as possible, that Deformity in the oblique Motion of the Eye, cautious Nature has placed at the Root of the Nose, a certain perforated Cartilage, called the *Troclea*, whereby that deformous Motion is moderated.

As to the particular Structure of the Eye itself; it is composed of three proper Membranes, and of so many Humours. I call them *proper Membranes*, and not *common*, as is the *Adnata*, called by *Hippocrates* and *Galen*, the *White of the Eye*; and which, because it joins the Eye with the Orbit, and inward Bones, is called the *Conjunctive*, and is thought to be propagated from the *Pericranium*.

The first *proper Membrane*, is said to be expanded round the Ball of the Eye; the hind-Part thereof, A F, is called *Sclerotica*, or hard; and the Anterior, *viz.* A B, *Cornea*, because transparent like Horn. Fig. 6.

The second, which is thinner, proceeds from the *Pia Mater*, and is commonly called in its posterior Parts C C *Choroides*, either because it contains the Humours of the Eye, in very near the same Manner the *Chorion* contains the Fœtus, or because the small Vessels it is cover'd with, are disposed in Form of a Chorus; and *Uvea*, in its Anterior, Q II Q; thus called, because it is transparent like a Grain of a Grape.

The Perforation of the *Uvea*, II. is called the *Pupil*, or *Apple* of the Eye; which by Means of muscular Fibres, is sometimes contracted, when too much Light offends the Eye; and sometimes dilated, when there is but a moderate Light. Those muscular Fibres being disposed round the Pupil, in a circular Manner, are called the *Iris*.

The third Membrane, or Tunick S S S, is the *Retina*, so called as resembling a Net, and covering only the Fund or Bottom of the Eye, opposite to the Sight. This Membrane derives from the medullary Substance, T S S S, of the *Optick* Nerve; and is considered as the proper Organ of the Sight.

Three *Humours* are conspicuous in the Eye, and inclosed between these Tunicks, *viz.* 1. The *Aqueous*, a limpid transparent Humour, situated in the fore-Part of the Eye, immediately under the *Cornea*, and occasioning its Protuberance.

The *Crystalline*, situated immediately under the aqueous, behind the *Uvea*, opposite to the Pupil.

3. The *vitrous* or *glassy Humour*, which fills all the hind-Part of the Cavity of the Globe; and is that which gives the spherical Figure to the Eye. On its back-Part is the *Retina* spread.

Some Authors finding these Humours covered with proper Membranes, have given distinct Names to them, as the *aqueous*, *crystalline*, and *vitreous Tunicks*; but these being only Productions of the other Coats above-mentioned, the Distinction is not much regarded.

These previously observed with Respect to the Organ of Sight, I'll pass to the Explication of *Vision*; which is the Act of seeing, or perceiving Objects by the Organ of Sight.

VISION, is very well defined to be a Sensation, whereby, from a certain Motion of the *Optick* Nerve, made in the Bottom of the Eye, by the Rays of Light emitted or reflected from Objects, and hence conveyed to the common Sensory in the Brain, the Mind perceives the luminous Object; its Quality, Quantity, Figure, *&c.*

The Phænomena of *Vision*, the Causes thereof, and the Manner wherein it is effected, make one of the greatest and most important Articles of the whole System of natural Knowledge. Indeed a great Part of the physical, mathematical, and anatomical Discoveries of the Moderns terminate here, and only tend to set the Business of *Vision* in a clearer Light.

Hitherto refers what Sir *Isaac Newton*, and others, have discovered of the Nature of Light and Colours, the Laws of Inflection, Reflection, and Refraction of the Rays; the Structure of the Eye, particularly the *Retina*, and *Optick* Nerves, *&c.*

The better to understand this Article, we must carefully examine, previously to all other Things, the Nature of *Light* and *Colours*, which is the Medium, or Vehicle, whereby Objects are carried to the Eye.

LIGHT, is that Sensation occasioned in the Mind, by the View of luminous Bodies; or that Property in Bodies, whereby they are fitted to excite those Sensations in us.

Light is also used to denote a certain Action of the luminous Body, on a Medium between it and the Eye; by Means whereof, some suppose the one to act on the other.

This they call *secundary* or *derivative Light*; to distinguish it from that of luminous Bodies, which is called *primary* or *minute*.

Aristotle explains the Nature of *Light*, by supposing some Bodies to be transparent, as Air, Water, Ice, *&c.* But since, in the Night-time, we do not see any Thing through those Bodies, he says, they are only transparent potentially; whereas in the Day they become really and actually transparent: And since it is *Light* alone that can reduce that Power into Act, he defines *Light* to be the Act of a transparent Body, consider'd as such. He adds that *Light* is no Fire, nor is it any Thing bodily, radiating from the luminous Body, and transmitted thro' the transparent one; but the mere Presence of Fire, or some other luminous Body, at the transparent one.

This is *Aristotle*'s Doctrine of *Light*, which his Followers mistaking, have foisted on him another, very different; making Light and Colours to be Qualities of the luminous and colour'd Bodies themselves, and in all Respects like those Sensations which they occasion in us: Adding, that Things lucid, or colour'd, could not produce any Sensations in us, unless they had something similar in themselves, since *Nihil dat quod in se non habet*.

But the Sophism is apparent; for we find, that a Needle, in pricking the Flesh, gives us Pain, which no Body ever imagined to exist in the Needle. But that it is not necessary there should be any Similitude between the Quality of the Object, and the Sensation it produces, appears still more evident from a Glass Prism, which is formed to exhibit blue, yellow, red, and other Colours, extreamly vivid; and yet no Body will say there is any Thing in the Glass Prism, like those Sensations.

The *Cartesians* have refined considerably on this Notion; and own, that *Light*, as it exists in the luminous Body, is nothing but a Power or Faculty of exciting in us a very clear and vivid Sensation; adding, that what is required to the Perception of *Light*, is, that we be so formed, as to be capable of such Sensations; that in the hidden Pores of the transparent Bodies, there be a certain subtile Matter, which, by Reason of its exceeding Smallness, may penetrate even Glass, and yet be strong enough to shake certain Capillaments at the Bottom of the Eye; and lastly, that this Matter be impelled by the luminous Body, so as to move the Organ of Sight.

Primary *Light*, therefore, they say, consists in a certain Motion of the Particles of the luminous Bodies, whereby they are enabled to propel, every Way, the *Materia Subtilis*, lodged in the Pores of transparent Bodies; and secundary or derivative *Light*, in a *Conatus* to Motion, or an Inclination of that Matter, to recede from the Center of the luminous Body in right Lines.

Father *Malebranche* explains the Nature of *Light* from a supposed Analogy between it and Sound; the latter, it is allowed, is produced by the Vibrations of the insensible Parts of the sonorous Body: Which Vibrations, if they be greater or less, that is, if they run through greater or less Arches of the same Circle, are still performed in the same Time, and the Sounds produced by them, only differ in greater or less Degree of Strength; but if there be a greater Number of Vibrations, in the same

ſame Time, in one ſonorous Body, than in another, theſe being cloſer, become of a different Kind: And thus their Sounds alſo differ, forming what we call different Tunes or Notes; the quick Vibrations forming the acute, and the ſlower the grave Notes.

Thus he ſuppoſes it to be with the *Light* and Colours: All the Parts of a luminous Body are in a rapid Motion, which, by very quick Pulſes, is conſtantly compreſſing the ſubtile Matter, between the luminous Body and the Eye, and excites Vibrations of Preſſions. As theſe Vibrations are greater, the Body appears more luminous; and as they are more quick, or more ſlow, the Body is of this or that Colour.

This Hypotheſis, how ingenious ſoever, is entirely diſregarded by the *Newtonians*; who ſay, that the primary *Light*, Father *Malebranche* tells us of, conſiſts wholly in a certain Motion of the Particles of the lucid Body, whereby they do not propel any fictitious Matter, ſuppoſed to be lodged in the hidden Pores of tranſparent Bodies; but throw off from the luminous Body, certain very ſmall Particles, which are emitted every Way with great Force: And that the ſecundary or derivative *Light* conſiſts, not in a *Conatus*, but a real Motion of theſe Particles, receding every Way from the luminous Body, in right Lines, and with an incredible Velocity.

For, ſay they, if *Light* conſiſted in a mere Preſſion, or Pulſe, it would be propagated to all Diſtances, in the ſame Inſtant of Time; the contrary of which appears, from the Phænomena of the Eclipſes of *Jupiter*'s Satellites, whoſe Immerſions, as the Earth approaches towards *Jupiter*, are found to anticipate ſomewhat on the true Time, and to commence ſooner; and again, as the Earth retires from *Jupiter*, their Emerſions, which alone, in that Caſe obſerved, happen later and later, or loſe Time: Deviating thus, very conſiderably on either Side, from the true Time marked by the Tables.

This was firſt obſerved by M. *Ramer*, and ſince by other Aſtronomers; the Reaſon of which is not owing to any Eccentricity; but does apparently follow from this, that the *Light* of the Sun, reflected from the Satellites, has further to travel, e'er it reaches the Eye, in the one Caſe, than in the other, by a Space equal to the Diameter of the Earth's annual Orbit.

Light, therefore, according to this Sentiment, like other real Bodies, do not move inſtantaneouſly, but in Time. Sir *Iſaac Newton* has ſhewn, that the *Light* of the Sun is near ſeven Minutes in its Paſſage to the Earth, which is the Space of 70,000,000 Miles; a Velocity 10,000,000 greater than that wherewith a Ball flies out of the Mouth of a Cannon.

They ſay, further, that if *Light* were not a Body, but conſiſted in a mere Pulſion or Preſſion, it would never be propagated in right Lines, but would be continually inflected *ad umbram*. Thus Sir *Iſaac Newton*, 'A Preſſure on a fluid Medium (*i. e.* a Motion propagated by ſuch a Medium) beyond any Obſtacle, which 'impedes any Part of its Motion, cannot be propagated 'in right Lines, but will be always inflecting and diſpo'ſing itſelf every Way, to the quieſcent Medium beyond 'that Obſtacle. The Power of Gravity tends down'wards, but the Preſſure of Water riſing from it, tends 'every Way with an equal Force, and is propagated with 'equal Eaſe, and equal Strength in Curves, as in ſtrait 'Lines. Waves on the Surface of the Water, gliding 'by the Extremes of any very large Obſtacle, inflect, 'and dilate themſelves, ſtill diffuſing gradually into the 'quieſcent Water, beyond that Obſtacle. The Waves, 'Pulſes, or Vibrations of the Air, wherein Sound con'ſiſts, are manifeſtly inflected; though not ſo conſidera'bly as the Waves of Water; and Sounds are propagated 'with equal Eaſe, through croſſed Tubes, and through 'ſtrait Lines; but *Light* was never known to move in 'any Curve, nor to inflect itſelf *ad umbram*.' Whence it is concluded by Sir *Iſaac*'s Diſciples, that the Rays of *Light*, are ſmall Corpuſcles, emitted with exceeding Celerity from the luminous Body. As to the Force wherewith theſe Corpuſcles are emitted, ſo as to enable them to move at the inconceivable Rate of 10,000,000 Miles in a Minute, hear the ſame Author: 'Among Bodies of 'the ſame Kind and Virtue, by how much any one is 'ſmaller, by ſo much is its attractive Power greater, in 'Proportion to its Bulk. This Power we find ſtronger 'in ſmall Magnets, than in large ones, Regard being had 'to the Difference of their Weights; and the Reaſon is, 'that the Particles of ſmall Magnets being nearer each 'other, more eaſily unite their Forces intimately toge'ther, and act conjunctly. For the ſame Reaſon, the 'Rays of *Light*, being of all other Bodies the moſt mi'nute, it may be expected, that their attractive Powers 'ſhould be, of all others, the ſtrongeſt; and how ſtrong 'in Effect they are, may be gathered from the follow'ing Rules. The Attraction of a Ray of *Light*, accord'ing to the Quantity of its Matter, in a Ratio, com'pounded of the Velocity of the Ray of *Light*, to the 'Velocity of that projected Body; provided, however, 'the Inclination of the Ray, to the refracting Surface, 'be the ſame with that of the projected Body to the Ho'rizon. From which Proportion I gather, that the At'traction of the Rays of *Light*, is above 1,000,000,000,000,000 Times greater; that the Gravity of Bo'dies, on the Surface of the Earth, in Proportion to the 'Quantity of Matter in each, if the *Light* paſſes from 'the Sun to the Earth in the Space of ſeven Minutes. 'But now, as in Algebra, where affirmative Quantities 'ceaſe, there negative ones begin; ſo in Mechanicks, 'where Attraction ceaſes, there the repelling Power muſt 'ſucceed: Therefore a Ray of *Light*, as ſoon as it is 'caſt off from the luminous Body, by the vibrating Mo'tion of its Parts, and is got out of the Sphere of its At'traction, is propelled with an immenſe Velocity.'

The wonderful Diviſibility of the Parts of Matter, is no where more apparent, than in the Minuteneſs of the Particles of *Light*: Dr. *Niewentiit* has computed, that an Inch of Candle, when converted to Light, becomes divided into 269617040 Parts, with 40 Cyphers annexed; at which Rate there muſt iſſue out of it, when burning 418660, with 39 Cyphers more, Particles in the ſecond of a Minute, vaſtly more than a thouſand Times a thouſand Million Times the Number of Sand the whole Earth can contain; reckoning 10 Inches to a Foot, and that 100 Sands are equal to an Inch.

The Expanſion, or Extenſion of any Portion of *Light*, is thought inconceivable; Dr. *Hook* ſhews, it is as unlimited as the Univerſe; proving it from the immenſe Diſtance of ſome of the fixed Stars; the *Light* whereof becomes ſenſible to the Eye by Means of a Teleſcope; nor, adds he, is it only the great Bodies of the Sun and Stars, that are thus able to diſperſe their *Light* through the vaſt Expanſe of the Univerſe; but the ſmalleſt Spark of a lucid Body muſt do the ſame, even the ſmalleſt Globule, ſtruck from a Steel by a Flint.

Dr. *Graveſand* aſſerts, a lucid Body to be that, which emits or gives Fire a Motion in right Lines; and makes the Difference between *Light* and Heat to conſiſt in this, that to produce the former, the fiery Particles muſt enter the Eye, in a rectilinear Motion, which is not required in the latter: On the contrary, an irregular Motion ſeems more proper for it, as appears from the Rays coming directly from the Sun, to the Tops of Mountains, which have not near that Effect with thoſe in the Valleys, agitated with an irregular Motion, by ſeveral Reflections.

Whether or no there be always *Light* where there is Fire, is diſputed among Authors; as alſo whether there be any luminous Body without Heat; Heat being a Motion that may be infinitely diminiſhed, and *Light* a Matter that may be infinitely rare: To which we may add, that no Heat is ſenſible to us, unleſs it be more intenſe than that of our Organs of Senſe.

Sir *Iſaac Newton* obſerves, that Bodies and *Light* act mutually on one another; Bodies on *Light* in emitting, reflecting, refracting, and inflecting it; and *Light* on Bodies, by heating them, and putting their Parts into a vibrating Motion, wherein Heat principally conſiſts. For all fixed Bodies, he obſerves, when heated beyond a certain Degree, do emit *Light* and ſhine; which Shining, *&c.* appears to be owing to the vibrating Motion of their Parts; and all Bodies abounding in earthy and ſulphurous Particles, if ſufficiently agitated, emit *Light*, which Way ſoever that Agitation be effected. Thus Sea-Water ſhines in a Storm, Quickſilver, when ſhaken *in vacuo*, Cats, or Horſes, when rubbed in the Dark; and Wood, Fiſh, and Fleſh, when putrified.

M. *Hawkſbee* has furniſhed us with a great Variety of

of Instances of the artificial Production of *Light*, naturally not luminous; as of Amber rubbed on Woollen Cloth *in vacuo*, of Glass on Woollen, of Glass on Glass, of Oyster-Shells on Woollen, and of Woollen on Woollen, all *in vacuo*.

On the several Experiments hereof, he makes the following Reflections; that different Sorts of Bodies afford remarkably different Kinds of *Light*, different both in Colour and in Force: That the Effects of an Attrition are various, according to the different Proportions and Managements of the Bodies that are to endure it; and that Bodies which have yielded a particular *Light*, may be brought by Friction, to yield no more of that *Light*.

M. *Bernoulli* found by Experiment, that Mercury amalgamated with Tin, and rubbed on Glass, did it still in a greater Degree: But that of all others, the most exquisite *Light* was that produced by the Attrition of a Diamond; being equally vivid with that of a burning Coal, briskly agitated by the Bellows.

Mr. *Boyle* tells us of a Piece of shining rotten Wood, which, upon exhausting the Air from it was extinguished; but upon its Re-Admission, seemed to come to Life again, and shone as before: Being no doubt a real Flame, and like other Flames, not to be preserved without Air.

That the Particles of *Light* are attracted by other Bodies, is evident, from innumerable Experiments. This Phænomena was first observed by Sir *Isaac Newton*, who found by repeated Trials, that the Rays of Light, in their Passage near the Edges of Bodies, whether opake or transparent, as Pieces of Metal, the Edges of Knives, broken Glasses, *&c.* are diverted out of the right Lines, and always inflected or bent towards those Bodies.

This Action of Bodies on *Light*, is found to exert itself at a sensible Distance, though it always increases as the Distance is diminished; as appears very sensible in the Passage of a Ray between the Edges of two thin Planes at different Apertures; in which there is something very peculiar; the Attraction of one Edge being increased as the other is brought nearer to it. The Rays of *Light* in their Passage out of Glass into *Vacuum*, are not only inflected towards the Glass, but if they fall too obliquely, will revert back again to the Glass, and be totally reflected.

The Cause of which Reflection cannot be attributed to any Resistance of the *Vacuum*, but must be entirely owing to some Force or Power in the Glass, which attracts or draws back the Rays, as they were passing into the *Vacuum*. And this appears farther from hence, that if you wet the posterior Surface of the Glass with Water, Oil, Honey, or a Solution of Quick-Silver, then the Rays, which would otherwise have been reflected, will pass into and through that Liquor: Which shews, that the Rays are not reflected till they come to that posterior Surface of the Glass, nor even till they begin to go out of it; for if at their going out they fall into any of the foresaid Mediums, they will not then be reflected, but persist in their former Course, the Attraction of the Glass being in this Case counter-ballanced by that of the Liquor.

From this mutual Attraction between the Particles of *Light* and other Bodies, arise two other grand Phænomena, which we call the *Reflection* and *Refraction of Light*: We know, that the Determination of a Body in Motion, is changed by the Interposition of another Body in its Way: Thus *Light* impinging on the Surface of solid Bodies, should be turned out of its Course, and beaten back or reflected, so as, like other falling Bodies, to make the Angle of its Reflections, equal to that of Incidence.

This is found by Experience, *Light* does; and yet the Cause of this Effect is different from that just now assigned: The Rays of *Light* are not reflected by striking on every Part of the reflecting Bodies, but by some Power equally diffused throughout the whole Surface of the Body, whereby it acts on the *Light*, either attracting or repelling it without Contact: By which same Power, in other Circumstances, the Rays are refracted; and by which also the Rays are first emitted from the luminous Body: As is abundantly proved by great Variety of Arguments, by Sir *Isaac Newton*; which are as follows:

1. Because the Surfaces of polished Glasses, which to the Eye appears smooth, are yet in Reality very rugged and uneven; (Polishing being nothing but grating, scratching, and breaking off the coarser Protuberances, by Means of Sand, Glass, Putty, or Tripoli) if the Rays of *Light*, therefore, were reflected by striking on the solid Parts of the Glass, the Reflections would never be so accurate as we find they are; but the Rays would even be as much scatter'd by the most polished Glass, as by the roughest. It remains, therefore, a Problem, how Glass, polished by fretting Substances, can reflect *Light* so regularly as it does, which Problem is scarce otherwise to be solved than by saying, that the Reflection of a Ray is effected, not by a single Point of the reflecting Body, but by some Power of the whole Body, evenly diffused all over its Surface, and by which it acts on a Ray without immediate Contact.

2. If the Colours separated by a Prism, placed at the Entrance of a Beam of *Light*, into a darken'd Room, be successively cast on a second Prism, placed at a greater Distance from the former, in such Manner, as that they all fall alike, or with an equal Obliquity upon it; the second Prism may be so inclined to the incident Rays, that those which are of a blue Colour, shall be all reflected by it; and yet those of a red Colour pretty copiously transmitted. Now if the Reflection were caused by the Parts of the Air, or Glass, we would ask why, at the same Obliquity of Incidence, the blue should only impinge on those Parts so as to be all reflected, and yet the red finds Pores enough, to be in a great Measure transmitted?

3. Where two Glasses touch one another, there is no sensible Reflection, and yet we see no Reason why the Rays should not impinge on the Parts of the Glass, as much when contiguous to other Glass, as when contiguous to Air.

4. When the Top of a Water-Bubble, by the continual subsiding, and exhaling of the Water, grows very thin, there is such a little, and almost insensible Quantity of *Light* reflected from it, that it appears intensely black; whereas round about that black Spot, where the Water is thicker, the Reflection is so strong as to make the Water seem very white. Nor is it only at the least Thickness of thin Plates or Bubbles, that there is no manifest Reflection, but at many other Thicknesses, gradually greater and greater. For in one of our Author's Observations, the Rays of the same Colour were by Turns transmitted at one Thickness, and reflected at another Thickness for an undeterminate Number of Successions; and yet in the Superficies of the thin Body, where it is of one Thickness, there are as many other Parts for Rays to impinge on, as where it is of any other Thickness.

5. If red and blue Rays, separated by a Prism, fall successively on a thin Plate of any pellucid Matter, whose Thickness increases in continual Proportion (such as a Plate of Air between two Glasses, the one Plane, and the other a little Convex) the same Part reflects all the Rays of one Colour, and transmits all those of the other; but in different Parts, will reflect the Rays of one and the same Colour, at one Thickness, and transmit them at another; and thus alternately, and *in infinitum*. Now it can never be imagined, that at one Place, the Rays which, for Instance, exhibit a blue Colour, should have the Fortune to strike on the solid Parts; and those which exhibit a red to hit on the void Parts of the Body; and at another Place, where the Body is either a little thicker, or a little thinner, that on the contrary the blue should hit on the Pores, and the red upon the solid Parts.

6. In the Passage of *Light* out of Glass into Air, there is a Reflection as strong as in its Passage out of Air into Glass, or rather a little stronger, and by many Degrees stronger than in its Passage out of Glass into Water.

Now it seems improbable that Air should have more reflecting Parts than Water or Glass; but if that should be supposed, yet it will avail nothing; for a Reflection is as strong, or stronger, when the Air is drawn from the Glass by the Air-Pump, as when it is adjacent to it. If any should here object, on *Des Cartes*'s Hypothesis, that though the Air be drawn, there is a subtle Matter remaining to supply its Place, which being of a denser Kind, is better fitted for the Reflection of *Light*, than any

any other Body, the *Newtonians* pretend that the following Experiment does evidently convince that Reasoning of Falsity.

7. If *Light* in its Passage out of Glass into Air, strike more obliquely than at one Angle of 40 or 41 Degrees, it is wholly *reflected*, if less obliquely it is in great measure transmitted. Now it is not to be imagined, that *Light* at one Degree of Obliquity should meet with Pores enough in the Air to transmit the greater Part of it, and at another Degree should meet with nothing but Parts to reflect it wholly, especially considering that in its Passage out of Air into Glass, how oblique soever be its Incidence, it finds Pores enough in the Glass to transmit a great Part of it. If any suppose that it is not reflected by the Air, but by the utmost superficial Parts of the Glass, there is still the same Difficulty: Besides, that such a Supposition is unintelligible, and will also appear to be false, by applying Water behind some Part of the Glass instead of Air: For so in a convenient Obliquity of the Rays, suppose of 45 or 46 Degrees, at which they are all reflected where the Air is adjacent to the Glass, they shall be in great measure transmitted where the Water is adjacent to it; which argues, that their Reflection or Transmission depends on the Constitution of the Air and Water behind the Glass, and not on the striking of the Rays upon the Parts of the Glass; the Rays not being reflected until they have reached the last Parts of the Surface, and are begun to go out. For if in going out they fall upon a Surface of Oil and Water, they proceed; the Attraction of the Glass being ballanced by an equal Force the contrary Way, and prevented from having its Effect, by the Attraction of the Liquor adhering to it: But if the Rays in passing out of this last Surface fall into a Vacuum which has no Attraction, or into Air which has but little, not enough to counterballance the Effect of the Glass; in this Case the Attraction of the Glass draws them back and reflects them.

This will appear still more evident, say they, by laying two Glass-prisms, or the object Glasses of two Telescopes, the one plain, and the other a little convex, upon each other, so as they may neither touch, nor yet be too far a-part, will be transmitted above 1000000 Part of an Inch a-part, will be transmitted through the Surface, and through the Air, or Vacuum between the Glasses, and pass into the second Glass; but if the second Glass be taken away, then the Light passing out of the second Surface of the first Glass into the Air or Vacuum will not proceed, but return into the first Glass and be reflected.

Whence it follows, that the Rays are drawn back again by some Force in the first Glass, there being nothing else to occasion their Return. And hence too it follows, that the *Reflection* is not effected, say they, by any subtle Matter, contiguous to the hind Surface, according to the Principles of *Des Cartes*; since that Matter ought to reflect them when the Glasses were nearly contiguous, as well as when the second Glass is quite removed.

Lastly, if it be asked how some Rays come to be reflected, and others transmitted; and why they are not all alike reflected, supposing the *Reflection* owing to the Action of the whole Surface? The same Authors shew, that there are both in the Rays of *Light*, and in the Bodies themselves, certain Vibrations (or some such Property) impressed on the Rays by the Action, either of the Luminary that emits them, or of the Bodies that reflect them; by means whereof it happens, that those Rays in that Part of their Vibration, which conspire with the Motion of the Parts of the Body, enter the Body, are refracted and transmitted; but those in a contrary Part of their Vibration reflected.

They add, that every Ray of *Light* in it's Passage through any refracting Surface, is put into a certain transient Constitution or State, which in the Progress of the Ray returns at equal Intervals, and disposes the Ray at each Return to be easily transmitted through the next refracting Surface, and between each Return to be easily reflected by it.

These alternate Dispositions, which Sir *Isaac Newton* calls Fits of *easy Reflection*, and of *easy Transmission*, he accounts for, by supposing that the Rays of *Light*, in impinging on Bodies, excite Vibrations therein, which happening to move faster than the Rays, when a Ray is in that Part of the Vibration which conspires with its Motion, it passes through; but when in the contrary Part of the Vibration, is beat back again: Whence every Ray is successively disposed to be easily reflected, or easily transmitted by every Vibration which overtakes it.

Further, a Ray of *Light* passing out of a Medium into another of different Density, and in its Passage making one oblique Angle with the Surface that separates the Medium, will be refracted or turned out of its Right-Line, by reason the Rays are more strongly attracted by a denser, than a rarer Medium.

The *Refraction* of Light, Sir *Isaac Newton* shews, is not performed by the Rays falling on the very Surface of Bodies; but without any Contact, by the Action of some Power in Bodies equally diffused throughout their Surfaces; by which some Power acting in other Circumstances, they are also emitted and reflected.

The same Arguments whereby Sir *Isaac* proves, that *Reflection* is performed without immediate Contact, he imagines, go a great Way towards demonstrating the same of *Refraction*; to which he adds the following ones.

1. Because, if when Light falls out of Glass into Air, with the utmost Obliquity it will be transmitted at, it be then made to fall a little more obliquely, it becomes wholly reflected. For the Power of the Glass after it has reflected Light emerging as obliquely as possible, supposing the Rays to fall still more obliquely, will be too strong to let any of the Rays pass; consequently instead of being refracted they will be all reflected.

2. Because in thin Lamellæ, or Plates of Glass, Light is reflected and refracted several Times alternately, as the Thickness of the Lamellæ increases in arithmetical Progression. For where it depends on the Thickness of the Lamina, which of the two it shall do, whether reflect it, or let it be transmitted.

3. Because, whereas the Power of other Bodies, both to reflect and refract Light, are very nearly proportional to their Densities; yet unctuous and sulphurous Bodies are found to reflect more strongly than according to their Densities. For as the Rays act more strongly on those Bodies to kindle them than on others; so do they again by their mutual Attraction, act more strongly on the Rays to refract them.

Lastly, because not only those Rays transmitted thro' Glass, are found to be *refracted*, but also those passing in the Air, or in a Vacuum near its Extremities, or even near the Extremes of many opake Bodies, *e. gr.* the Edge of a Knife, undergo a similar Inflection, from the Attraction of the Body.

In Island Crystal is observed a Kind of double *Refraction*, very different from what we find in any other Body; the Rays that fall obliquely being not only dispersed, with a double *Refraction* in one and the same Surface, but even the perpendicular Rays themselves are most of them divided into two Beams, and are equal in Degrees of *Light*, at least nearly to each other: Whence Sir *Isaac Newton* takes Occasion to suspect that there are in Light some other original Properties besides those hitherto described; and particularly, that the Rays have different Sides, endowed with several original Properties.

For, of these *Refractions* the one is performed in the usual Manner, *i. e.* the Sine of Incidence is to that of *Refraction* as 5 is to 3, and the other in an unusual Manner; and yet the same Ray is refracted sometimes in one Manner and sometimes in another, according to the various Positions which its several Sides have, in respect of the Crystal. These Dispositions, he shews, must have existed originally in the Rays, without having undergone any Alterations in that Respect, by the Crystal.

Every Ray of Light therefore has two opposite Sides, the one originally endued with a Property, whereon its unusual *Refraction* depends, and the other not endued with that Property.

Sir *Isaac Newton* having observed the vivid coloured Image, projected on the Wall of a darkened Room, by the Sun-Beams transmitted through a Prism, to be five

Times as long as broad, setting himself to enquire into the Reason of this Disproportion, was led from the other Experiments to the *experimentum crucis*; whence, he pretended, he discovered the Cause of the Phænomenon to be, that some of the Rays of *Light* were more *refracted* than others, and therefore exhibited several Images of the Sun under the Appearance of one extended Lengthwise.

Thence he proceeded to conclude, that *Light* itself is a heterogeneous Mixture of Rays differently refrangible; and hence he distinguishes *Light* into two Kinds, *viz.* that whose Rays are equally refrangible, which he calls *homogeneal*, *similar*, or *uniform Light*; and that whose Rays are unequally refrangible; which he calls *heterogeneal Light*.

There are but three Affections of *Light*, wherein he observed its Rays to differ, viz. *Refrangibility*, *Reflexibility*, and Colour; and those Rays which agree in *Refrangibility*, agree also in the other two: Whence they may be well defined homogeneal, though in some other Respects they may possibly be heterogeneal.

Again, the Colours exhibited by homogeneal *Light*, he calls homogeneal Colours; and those produced by *heterogeneal Light*, *heterogeneal Colours*. These Definitions laid down, he advances several Propositions.

As, first, that the Sun's Light consists of Rays differing by indefinite Degrees of Refrangibility. Secondly, that Rays which differ in Refrangibility, when parted from one another, do proportionably differ in the Colours which they exhibit. Thirdly, that there are as many simple and homogeneal Colours as Degrees of Refrangibility; for to every Degree of Refrangibility belongs a different Colour. Fourthly, Whiteness in all Respects like that of the Sun's immediate *Light*, and of the usual Objects of our Senses, cannot be compounded of simple Colours, without an indefinite Variety of them; for to such a Composition there are required Rays endued with all the indefinite Degrees of Refrangibility, which infer as many simple Colours. Fifthly, the Rays of *Light* do not act on one another, in passing through the same Medium. Sixthly, the Rays of *Light* do not suffer one Alteration of their Qualities from *Refraction*, nor from the adjacent quiescent Medium. Seventhly, there can be no homogeneal Colours produced out of *Light* by *Refraction*, which are not commixed in it before; since *Refraction*, as was before observed, changes not the Qualities of the Rays, but only separates those which have divers Qualities, by means of their different Refrangibility. Eighthly, the Sun's Light is an Aggregate of homogeneal Colours; whence homogeneal Colours may be called *primitive* or *original*.

We have already observed, that the Rays of Light are composed of dissimilar or heterogeneous Parts; some of them being, in all Probability greater, others less. Now the smaller the Parts are, by so much the more refrangible they are, *i. e.* they are so much the more easily diverted out of their rectilinear Course; and those Parts which differ in Refrangibility (consequently in Bulk) we have also observed differ in Colour.

Hence arises the whole Theory of Colours; those Parts, *v. gr.* which are the most refrangible, constitute Violet Colours (say some modern Philosophers) that is, the most minute Particles of Light, when separately impelled on the Organ, do there excite the shortest Vibrations in the Retina, which are thence communicated by the solid Part of the optick Nerve in the Brain, and excite in us the Sensation of Violet-Colour, the dimmest and most languid of all Colours; and those Particles on the contrary, which are the least refrangible, constitute a Ray of a red Colour, *i. e.* the greatest Particles of *Light* excite the longest Vibrations in the Retina, and so convey the Sensation of a red Colour, as being the most bright and vivid of all others. The other Particles being distinguished into little Rays, according to their respective Magnitudes and Degrees of Refrangibility, excite intermediate Vibrations, and so occasion Sensations of the intermediate Colours; in like Manner as the Vibrations of the Air, according to their different Magnitudes, excite Sensations of different Sounds. The Colours then of these little Rays not being any adventitious Modifications of them, but connate, primitive, and necessary Properties, resulting in all Probability from their different Magnitudes, must be perpetual and immutable, not to be altered by any Reflection, Refraction, or any subsequent Modification.

Others explain Refraction in a clearer and more concise Manner, and say that it happens either *by acceding to the Perpendicular, or receding from it.* For when Light passes from a rarer or thinner Medium into one more dense, *viz.* from Air into Water or Glass, then it is refracted by acceding to the Perpendicular; but when it passes from a thicker Medium into a thinner, *viz.* from Glass into Water, or from Water into Air, the *Refraction* happens by its Recess from the Perpendicular.

But to give a still clearer Notion of the *Refraction* of Light, they illustrate it with the following Experiments: —Therefore let us imagine that A H B G C, fig. 8. is an earthen Vessel, in the Bottom whereof there is the Crown-piece B, that Crown-piece will certainly be seen by the Eye placed in E, by means of the Ray B E; but not by the Eye placed in D; for the Ray D H is terminated in H, not in B. But if the Vessel be filled with Water to the very Top or Superficies, A C (which though it be seen here covered with a Cloth, can notwithstanding, be imagined uncovered) then the Ray which was carried from the Point B into E, will be refracted in the Point I, where the Superficies of the Air occurs, and tends towards D, in receding from the Line F *i* G, which is perpendicular to the Superficies A *i* C: And then the Crown-piece will be seen by him who will be placed in D; and will be referred not to the Point B, but to the Point H.

The Experiment of this is easily made, by taking a pretty deep Dish, and putting in the Bottom a Crown or Half a Crown-piece, and then going backward from the Dish till the Edges thereof hinder us from seeing the Piece any longer; but if we put Water in the Dish, we shall see the Piece from that Place; whence we could not see it before.

If the Vessel A H B G C, fig. 8. be a Glass Vessel, and the Side C G opposed to the Sun, as well as the Superficy A *i* C, be covered in such a Manner, that there be but the very little Hole *i* left for the Passage of the Light, then the Ray D *i* will tend towards the Point H. But if the Vessel be filled with Water, through the small Tube M N, then the Ray which was carried into H will be *refracted* by acceding to the perpendicular F *i* G, and environ the Point B. The Quantity of this *Refraction* will be known, by adapting either a Semicircle or the Quadrant of a Circle within the Vessel, or in any other Manner; for I do not pretend to relate here the different Means invented, used, and adapted by the Learned, to the Mensuration of *Refraction*.

But to understand better what follows; we must admit here the Definitions of divers Angles: Therefore let's examine the 19th Figure of our Table of *Opticks*, in which the Ray A B is imagined to pass obliquely from Air into Water or Glass; this being directed towards P, will notwithstanding descend refracted into the Point I, because meeting with a denser Body, by acceding to the Perpendicular H B G, and for the same Reason the Ray K B, which inclined towards O, will incline towards L.

Then the Angle A B C formed by the Ray A B, and the Superficy B C, is called *Angle of Incidence*; likewise the Angle K B C, is an *Angle of Incidence*.

The Angle A B H, formed by the Ray A B, and the Perpendicular H B, is the *Angle of Inclination*, and the same is to be said of the Angle K B M.

The Angle G B I, formed by the refracted Ray B I, and the Perpendicular B G, is called a *refracted Angle*, as well as the Angle N B L.

Lastly, the Angle I B P, formed by the refracted Ray B I, and the right Ray A B, imagined to be carried into P (the same to be said of the Angle L B O) is called the *Angle of Refraction*.

Des Cartes has very ingeniously observed, that there is not always the same Ratio between the *Angles of Inclination*, and those *refracted*. For that Ratio changes according to the various Inclination of the Rays; whence though the Ratio which is between the Angle of Inclination A B H, and the refracted Angle G B I, be very well understood, it cannot be carried to K B M and N B L,

N B L, because the Angle A B is more inclined on the Superficy C B than K B. But the Ratio of the Sines of the Angles of Inclination to the Sines of the *refracted* Angles, is always the same, *v. gr.* if we know the Ratio of the Line A H, which is the Sine of the Angle A B H to the Line G I, which is the Sine of the refracted Angle G B I; we'll find the same Ratio between the Angle K M, the Sine of the Angle K B M, and the Line N. L, the Sine of the Angle N B L.

This having not been attentively considered by *Alhazenus*, an *Arab*, who lived in the 11th Century; nor by *Vitellius* who lived in the 14th, both attempted to observe by means of Instruments the Quantity of the refracted Angles, to reduce them into Tables; but as there is always the same Ratio between the Sines of the Angles of Inclination, and the Sines of the refracted Angles; therefore all other *Refractions* must be reduced by Calculation, from the sole known *Refraction of Light*, from Air into Water, or into Glass, or *vicissim*.

Des Cartes has observed, that the Ratio of the Sines of the Angles of Inclination to the Sines of refracted Angles, when the Rays of Light pass from the Air into Water, is almost as 4 to 3; or if we want a more accurate Measure, as 250 to 187.

Therefore if the Line A H, which is the Sine of the Angle of Inclination A B H, be divided into four Parts; we'll find in the Line G I, or in the Sine of the refracted Angle G B I, three Parts equal to those four. Likewise the Line K M, will be to the Line N L, as 4 to 3; and the same Ratio will be between all Sines of the Angles of Inclination, and the Sines of refracted Angles.

If the Refraction should happen from Water into Air; the Ratio of the Sines should be inverted, *viz.* as 3 to 4, or as 187 to 250.

But if the Ray A B was to fall in Glass, not in Water, its Refraction would be greater; or it would approach nearer the Perpendicular; and then the Ratio of the Sine A H, to the Sine G I, would be as 3 to 2. The same must be understood of all the Sines of an Angle whatever.—More of this in the *Dioptricks*.

As to COLOUR, some define it a Property inherent in Light, whereby, according to the different Sizes, or Magnitudes of its Parts, it excites different Vibrations in the Fibres of the *Optick* Nerve; which propagated to the *Sensorium*, affect the Mind with different Sensations.

Or, *Colour* may be defined a Sensation of the Soul, excited by the Application of Light to the Retina of the Eye; and different as that Light differs in the Degree of its Refrangibility, and the Magnitude of its component Parts.

In the former View, therefore, Light is the Subject of *Colour*; in the latter it is the Agent.

Various are the Opinions of antient and modern Authors, of the several Sects of Philosophers, with Regard to the Nature and Origin of the Phænomenon *Colour*: The most popular Opinion is that of the *Aristotelians*; who maintain *Colour* to be a Quality residing in the colour'd Body; and to exist independently of Light: Tho' *Aristotle* says, at the same Time, that *Colour* cannot be seen without Light: For Light is the Act of that which is clear, *viz.* of the Air. For *Colour*, approached near the Eye, cannot be seen but by Means of the interjected Air. Whereby *Aristotle* seems to insinuate, that Light is entirely different from *Colour*.

The *Cartesians* come nearer the Matter; they own that as the colour'd Body is not immediately applied to the Organ, to occasion the Sensation; and that as no Body can affect the Sense but by immediate Contact; the coloured Body does not excite the Sensation of itself, or contribute any Thing to it; otherwise than by moving some interposed Medium, and by that the Organ of Sight.

They add, that as we find that Bodies do not affect the Sense in the Dark, Light only occasions the Sense of *Colour*, by moving the Organ; and that colour'd Bodies are no further concerned, than as they reflect the Light with a certain Modification: The Differences in their *Colours* arising from a Difference in the Texture of their Parts, whereby they are disposed to reflect the Light, with this or that Modification.

But Sir *Isaac Newton* thinks, that he has established a solid and consistent Theory of *Colours*; built on sure Experiments, and solving all the Phænomena thereof: His Doctrine is as follows:

That Author says, that it is found by Experience, that Rays, or Beams of Light, are composed of Particles very heterogeneous, or dissimilar to each other, *i. e.* some of them, as it is highly probable, are larger, and others less. For a Ray of Light being received on a refracting Surface, in a dark Place, is not wholly refracted to a single Point; but split, as it were, and diffused into several Radioli, or little Rays, *i. e.* those Particles of the Light which are the most minute, are of all others the most easily and most considerably diverted, by the Action of the refracting Surface, out of their rectilinear Course: And the rest, as each exceeds another in Magnitude, so is it with more Difficulty, and less considerably turned of its right Line to the intermediate Points.

Now each Ray of Light, as it differs from another in its Degree of Refrangibility, so does it differ from it in *Colour*; this is warranted by numerous Experiments. Those Particles, *v. gr.* which are more refracted, are found to constitute a Ray of a Violet *Colour*, i. e. in all Probability, the most minute Particles of Light, thus separately impelled, excite the shortest Vibration in the Retina; which are thence propagated by the solid Fibres of the *Optick* Nerves into the Brain, there to excite the Sensation of Violet *Colour*; as being the most dusky and languid of all *Colours*.

Again, those Particles which are the least refracted, constitute a *Radiolus*, or Ray of a red *Colour*, i. e. the largest Particles of Light excite the longest Vibrations in the Retina; so as to excite the Sensation of red *Colour*, the brightest and most vivid of all others.

The other Particles being in like Manner separated, according to their respective Magnitudes, into little Rays, excite the intermediate Vibrations, and thus occasion the Sensation of the intermediate *Colours*; much in the same Manner as the several Vibrations of the Air, according to their respective Magnitudes, excite the Sensations of different Sounds.

To this it may be added, that not only the more distinct and notable Colours of red, yellow, blue, *&c.* have thus their Rise from the different Magnitude and Refrangibility of the Rays; but also the intermediate Degrees or Shades of the same Colour, as of yellow up to green, of red down to yellow, *&c.*

Further, the *Colours* of these little Rays, not being any adventitious Modifications thereof, but connate, primitive, and necessary Properties; as consisting, in all Probability, in the Magnitude of their Parts, must be perpetual and immutable, *i. e.* cannot be changed by any future Refraction or Reflection, or any Modification whatsoever.

This, the *Newtonians* pretend, is confirm'd by Abundance of Experiments; all Endeavours having been used, after separating a colour'd Ray from those of other Kinds, to change it into some other *Colour*, by repeated Refractions, but to no Effect. Apparent Transmutations of *Colours*, indeed, may be effected, *viz.* where there is an Assemblage, or Mixture of Rays of different Kinds; the component *Colours* never appearing in their natural Hue in such Mixtures, but always allayed, and tempered with each other: Whence results a middling Kind of *Colour*, which, by Refraction, may be separated into the component ones: And those after Separation, being remitted, return to their former *Colour*.

Hence the Transmutations of *Colours*, by mixing those of different Kinds, are not real, but mere Appearances or Deceptions of the Sight: For the Rays being again severed, exhibit the same *Colours* as at first. Thus blue and yellow Powders, well mixed, appear to the naked Eye green; yet, without having passed any Alteration, when viewed through a Microscope, the blue and yellow Particles still appear distinct.

Hence there arise two Kinds of *Colours*, the one *original* and *simple*, produced by homogeneal Light; or by Rays that have the same Degree of Refrangibility, and the same Magnitude of their Parts; such as red, yellow, blue, green, violet, purple, orange, and Indigo; with all their intermediate Teints and Gradations.

The other Kind of Colour is *secondary* or *heterogeneous*, compounded of the primary ones, or of a Mixture of Rays differently refrangible, *&c.*

There

There may also be secondary *Colours*, produced by Composition, like the primary ones, or those consisting of homogeneal Light, as to the Species of Appearance of the *Colour*; but not as to the Permanency, or Immutability thereof. Thus yellow and blue make green, red and yellow, orange, orange and yellowish green, yellow: And in the general, if any two *Colours* be mixed, which in the Series of those generated by the Prism, are not too far apart, from their Mixture results that *Colour*, which in the said Series is found in the Midway between them: But those situated at too great a Distance do not so.

Indeed the more any *Colour* is compounded, the less perfect and vivid it is; by too much Composition they may be dilated and weaken'd till they cease. By Composition there may likewise be produced *Colours*, not like any of those of homogeneal Light.

The most extraordinary Composition is that of Whiteness; for to this all the primary *Colours* above-mentioned are required; and those to be mixed in a certain Degree. Hence it is that white is the ordinary *Colour* of Light; Light being nothing else but a confused Assemblage of Rays of all *Colours*.

If the Rays of different *Colours* do thus begin to be separated by one Refraction of one single Surface, the Separation is much promoted, so as even to become sensible to the Eye by a double Refraction. This is observed in the two Surfaces of any Glass, provided those Surfaces be not parallel: But of all others it is most sensible in the two Faces of a triangular Prism, the Phænomena whereof, as they are the Touchstone of all Theories of Colours; and as they contain the Foundation of that here delivered, we shall lay down as follows.

1. The Rays of the Sun transmitted through a triangular Prism, exhibit an Image of various Colours (the Chief whereof are Red, Yellow, Green, Blue, and Violet) on the opposite Wall.

The Reason is, that the different coloured Rays are separated by Refraction.

2. This Image is not round but oblong; its Length, when the Prism is an Angle of 60 or 65 Degrees, being five Times its Breadth. The Reason is, that some of the Rays are refracted more than others; and by that Means exhibit several Images of the Sun, extended Lengthwise instead of one.

3. Those Rays which exhibit yellow, are turned further from the rectilinear Course, than those which exhibit red; those which exhibit green than those which exhibit yellow: But of all others, those which exhibit Violet the most: Accordingly, if the Prism through which the Light is transmitted be turned about its Axis, so as the red, yellow, green, *&c.* Rays be projected, in order, through a narrow Aperture into another Prism placed at the Distance of about 12 Feet; the yellow, green, *&c.* Rays, though falling through the same Aperture, in the same Manner, and on the same Point of the second Prism, will not be refracted to the same Place as the Red, but to a Point at some Distance from it; on that Side to which the Rotation is made.

This is what Sir *Isaac Newton* calls the *experimentum crucis*; being that which led him out of the Difficulties, into which the first Phænomenon, *&c.* had thrown him, and plainly shewed a different Degree of Refrangibility, and a different Colour corresponding thereto in the Rays of Light; and that yellow Rays, *v. gr.* are more refracted than red ones; green ones more than yellow ones; and blue and violet ones most of all.

4. The *Colours* of coloured Rays, well separated by the Prism, are not at all changed or destroyed by passing an illuminated Medium, nor by their mutual Decussation, their bordering on a deep Shadow, nor their being reflected from any natural Body, or refracted through any one, in a Place howsoever obscure.

The Reason is, that *Colours* are not Modifications arising from Refraction, or Reflection, but immutable Properties, and such as belong to the Nature of the Rays.

5. An Assemblage of all the Kinds of coloured Rays, collected either by several Prisms, by a Convex Lens, or a Concave Mirror, or in any other Manner, form what we call *Whiteness*, yet each of these, after Decussation, becoming separated, again exhibits its proper *Colour*; for as the Ray was white before its Parts were separated by Refraction; so the Parts being remixed it becomes white again; and coloured Rays, when they meet together, do not destroy one another, but are only interspersed.

Hence a red, green, yellow, blue, and violet Colour, being mixed in a certain Proportion, appear whitish, *i. e.* are of such a *Colour* as rises from white and black mixed together: And were there not some Rays absorbed and lost, would be plainly white. In like Manner, if a Paper cut into a Circle, be stained with each of those *Colours* separately, and in a certain Proportion, the several *Colours* will disappear, add the whole Paper appear of one continued Colour; which will be a Mean between white and black.

6. If the Rays of the Sun fall very obliquely on the inner Surface of a Prism, those that are reflected will be Violet, those transmitted Red.

For the Rays were coloured before any Separation; and by how much they are the more refrangible, by so much they are the more easily reflected, and by that Means are separated.

7. If two hollow Prisms, the one filled with blue Fluid, the other with a red one, be joined together, they will be opake, though each a-part be transparent. For the one transmitting none but blue Rays, and the other none but red ones, the two together will transmit none at all.

8. All natural Bodies, especially white ones, viewed through a Prism held to the Eye, appear fimbriated, or bordered, on one Side with Red and Yellow, and on the other with Blue and Violet; for those Fimbriæ are the Extremes of entire Images, which the Rays of any Kind, as they are more or less refracted, would exhibit nearer, or at a greater Distance from the real Place of the Object.

9. If two Prisms be so placed, as that the Red of the one, and the Purple of the other meet together, in a Paper fit for the Purpose, incompassed with Darkness, the Image will appear pale; and if viewed through a third Prism, held to the Eye at a proper Distance, it will appear double; the one Red and the other Purple.

In like Manner if two Powders, the one perfectly red, the other blue, be mixed; any little Body covered pretty deeply with this Mixture, and viewed through a Prism held to the Eye, will exhibit a double Image, the one Red and the other Blue: In regard, the Red and Purple of blue Rays are separated by their unequal Refraction.

10. If the Rays transmitted through a Convex Lens be received on a Paper, ere they meet in a Focus, the Confines or Boundaries of Light and Shadow, will appear tinged with a red *Colour*; but if they be received beyond the Focus, with a blue one.

Because, in the first Case, the red Rays being somewhat more refracted, are the higher; but in the second, after Decussation in the Focus, the blue ones.

11. If the Rays about to pass through either Side of the Papillæ, be intercepted by the Interposition of any opake Body near the Eye, the Extremes of Bodies, placed as if viewed through a Prism, will appear tinged with *Colours*, though those not very vivid.

For then the Rays transmitted through the rest of the Pupil, will be separated by Refraction into *Colours*, without being diluted by the Admixture of the intercepted Rays, which would be refracted in a different Manner. And hence it is, that a Body viewed through a Paper pierced with two Holes, appears double, and also tinged with Colours.

As to *Colours of thin Laminæ*, or *Plates*.—As Rays of different *Colours* are separated by the Refraction of Prisms and other thick Bodies, so are they separated, though in a different Manner, in the thin Lamellæ or Plates of any pellucid Matter, *v. gr.* the Bubbles raised in Water, thickned by Soap, *&c.* for all Lamellæ, under a determinate Thickness, transmit Rays of all *Colours*, without reflecting any at all: But as they increase in Thickness, in arithmetical Proportion, they begin to reflect, first blue Rays, then in Order, green, yellow and red, all pure: Then again, blue, green, yellow, red, more and more mixed and diluted, till at length arriving at a certain Thickness, they reflect Rays of all

Colours

Colours perfectly intermixed, *viz.* white.

But in whatsoever Part a slender Lamella reflects any *Colour*, v. gr. blue; in that Part it always transmits the opposite *Colour*, v. gr. red or yellow.

It is found by Experiment, that the Difference of *Colours* of a Plate, does not depend on the Medium that encompasses it; but the Degree of Vividness does: *Cæteris paribus*, the *Colour* will be more vivid, if the denser Medium be encompassed with the rarer. A Plate, *Cæteris paribus*, reflects more Light as it is thinner; as far as a certain Degree of Thinness, beyond which it reflects no Light at all.

In Plates, whose Thickness increase in the arithmetical Proportion of the natural Numbers 1, 2, 3, 4, 5, *&c.* if the first or thinnest reflect any homogeneal Ray, the second will transmit it; the third again will reflect it: And thus is the same Ray alternately reflected and transmitted, *i. e.* the Plates corresponding to the odd Numbers, 1, 3, 5, 7, *&c.* will reflect the same Rays that those corresponding to the even ones, 2, 4, 6, 8, *&c.* transmit.

Hence an homogeneous *Colour* in a Plate, is said to be of the *first Order*, if the Plate reflects all the Rays of that *Colour*. In a Plate, whose Thinness is triple the first, it is said to be of the *second Order:* In another, whose Thinness is five times that of the first, it is said to be of the *third Order*, &c.

A *Colour* of the *first Order* is the most vivid of any; and successively the Vividness of the *Colour* increases, as the Quantity of the Order increases: The more the Thickness of the Plate is increased, the more *Colours* it reflects; and those of more different Orders. In some Plates, the *Colour* will vary as the Position of the Eye varies; in others it is permanent.

With respect to *Colours of natural Bodies*, they only appear of different *Colours*, as their Surfaces are disposed to reflect Rays of this or that *Colour* alone; or of this or that *Colour* more abundantly than any other: Hence Bodies appear of that *Colour* which arises from the Mixture of the reflected Rays.

All natural Bodies consist of very thin, transparent Lamellæ, which, if they be so disposed, with regard to each other, as that there happens no Reflections or Refractions, in their Interstices, those Bodies, become pellucid, or transparent: But if their Intervals be so large, and those filled with such Matter; or so empty (with regard to the Density of the Parts themselves) as that there happens a Number of Reflections and Refractions within the Body; the Body, in that Case, becomes opake.

The Rays which are not reflected from an opake Body, penetrate into it; and there suffering innumerable Reflections and Refractions, at length unite themselves to the Particles of the Body itself.

Hence an opake Body grows dark the sooner, as it reflects Light less copiously: Whence we see why a white Body, which reflects almost all the Rays that strike upon it, heats much more slowly than a black one, which reflects scarce any.

To determine that Constitution of the Surface of Bodies, whereon their Colour depends, it must be observed, that the smallest Corpuscles, or first Particles whereof Surfaces are made up, are most thin and transparent, and separated by a Medium of a different Density, from the Particles themselves. In the Surface then of every coloured Body, are innumerable smaller, thin Plates, corresponding to those of Bubbles: Wherefore what has been observed of those, may be understood of these.

Hence we gather, that the *Colour* of a Body depends on the Density and Thickness of the Parts of the Body, between the Pores of the Surface: That the *Colour* is more vivid and homogeneous, as the Parts are thinner; that, *Cæteris paribus*, the said Parts are the thickest when the Body is red; and the thinnest when violet: That the Parts of Bodies are usually much denser than the Medium contain'd in their Interstices; but that in the Tails of Peacocks, in some Silks, and generally, in all Bodies whose *Colours* vary according to the Situation of the Eye, it is less: And that the *Colour* of a Body is less vivid to the Eye, as it has a denser Medium within its Pores.

Now of the several opake Bodies, those consisting of the thinnest Lamellæ, are black; those consisting either of the thickest Lamellæ, most of which are of some intermediate Thickness, are blue, green, yellow, or red; inasmuch as they reflect the Rays of that particular *Colour*, much more copiously than that of any other *Colour*; most of which last, either absorb and extinguish, by intercepting them, or else transmit.

Hence it is, that some Liquors, *v. gr.* an Infusion of *Lignum Nephreticum*, appears red, or yellow, if viewed by reflected Light; and blue by transmitted Light: And Gold Leaves yellow in the former Circumstances, but green or blue in the latter.

To this may be added, that some of the Powders used by Painters, have their *Colour* changed by being finely ground; which must be occasioned by the Comminution or breaking of their small Parts into others still smaller, just as a Lamella has its Colour altered, by altering its Thickness.

In fine, those odd Phænomena arising from the Mixture of Liquors of different Colours, can no Way be better accounted for, than from the various Actions of the saline, *&c.* Corpuscles of one Liquor, with the colour'd Corpuscles of another: If they unite, the Mass will either swell or shrink, and thereby its Density will be altered; if they ferment, the Size of the Particles may be diminished, and thereby colour'd Liquors may become transparent: If they coagulate, an opake Liquor may be produced of two transparent ones.

Hence it is easy to see why a coloured Liquid, in a Glass of a conical Figure, placed between the Eye and the Light, appears of a different Colour in different Parts of the Vessel; there being more and more Rays intercepted, as they pass through a longer or a shorter Section of the Vessel: Till, at the Base, they are all intercepted; and none seen but those reflected.

From the various *Colours* of natural Bodies, Sir *Isaac Newton* observes, the Bigness of their component Parts may be estimated: For that the Parts of Bodies do properly exhibit the same Colour with a Lamella of equal Thickness, provided the Density in both be the same.

Note, That *Ray* has been heretofore so often mention'd, that it is proper I should inform the Reader what *Ray* is: Therefore,

RAY, is a Beam, or Line of Light, propagated from a radiant Point, through an unresisting Medium.

Sir *Isaac Newton* defines *Rays* to be the least Parts of Light, whether successive in the same Line, or contemporary in several Lines.

For that Light consists of Parts of both Kinds, appears hence, that one may stop what comes this Moment in any Point, and let pass that which comes the next. Now the least Light, or Part of Light, which may be thus stopped alone, he calls a *Ray of Light.*

If the Parts of a *Ray* of Light do all lie strait between the Radiant and the Eye, the *Ray* is said to be *direct.* If any of them be turned out of that Direction, or bent in their Passage, the *Ray* is said to be refracted. If it strikes on the Surface of any Body, and be driven back, it is said to be reflected.

In each Case, the *Ray*, as it falls either directly on the Eye, or on the Point of Reflection, or of Refraction, is said to be *incident*.

Again, if several *Rays* be propagated from the Radiant equi-distantly from one another, they are called *parallel Rays*. If they come inclining towards each other, they are called *converging Rays*. And if they go continually receding from each other, they are called *diverging Rays.*

It is from the Circumstances of *Rays*, that the several Kinds of Bodies are distinguished in *Opticks*. A Body, *e. gr.* that diffuses its own Light, or emits *Rays* of its own, is called a lucid or luminous Body. If it only reflects *Rays* which it receives from another, it is called an *illuminated Body*. If it only transmits *Rays*, it is called a *transparent Body*. If it intercepts the *Rays*, or refuses them Passage, it is called an *opake Body*.

Hence no Body radiates, *i. e.* emits *Rays*, unless it be either luminous or illumined.

It is by Means of *Rays* reflected, from the several Points of illumined Objects to the Eye, that they become visible, and that Vision is performed, whence such *Rays* are called *visual.*

In

In effect we find that any Point of an Object is seen in all Places to which a Right-Line may be drawn from that Point: But it is allowed nothing can be seen without Light, therefore every Point of an Object diffuses innumerable *Rays* every Way. Again, from other Experiments it appears, that the Images of all Objects, whence Right-Lines may be drawn to the Eye, are pointed in the Eye behind the Cryſtaline, very ſmall, but very diſtinct.

And laſtly, from other Experiments, that each *Ray* carries with it the Species, or Image of the radiating Point; and that the ſeveral Rays emitted from the ſame Point are again united in one Point, by the Cryſtaline, and thus thrown on the Retina.

It is the Spiſſitude or Cloſeneſs of the *Rays* emitted from a luminous Body, that conſtitutes the Intenſeneſs of the Light. Yet the Direction wherein the Rays ſtrike the Eye has a good Sway. In effect a perpendicular Ray ſtriking with more Force than an oblique one, in the Ratio of the whole Sine of the Angle of Obliquity (as follows from the Laws of Percuſſion) a perpendicular Ray will affect the Eye more vividly than an oblique one in that Ratio.

If then the Spiſſitude of the *Rays* be equal, the Intenſity will be as the Direction; if the Direction be the ſame, the Intenſeneſs will be as the Spiſſitude. If both differ, the Intenſeneſs will be in a Ratio compounded of the Direction, and the Spiſſitude.

Hence, *firſt*, if Light be propagated in *parallel Rays*, through an unreſiſting Medium, its Intenſity will not be varied by Diſtance.

Secondly, if Light be propagated in *diverging Rays*, through an unreſiſting Medium, its Intenſity will decreaſe in a duplicate Ratio of the Diſtances from the radiant Point reciprocally.

Thirdly, if Light be propagated in *converging Rays*, through an unreſiſting Medium; its Intenſity will increaſe in a duplicate Ratio of the Diſtances from the Point of Concourſe, reciprocally.

Fourthly, if the Breadth of an illuminated Plane be to the Diſtance of the radiant Point, as 1 to 2000000, it is the ſame Thing as if the *Rays* ſtruck upon its Parallel: And hence, ſince the Diameter of the Pupil of the Eye, when largeſt, ſcarce exceeds $\frac{1}{4}$ of an Inch; the *Rays* will fall upon it parallel, as to Senſe, at the Diſtance of 3860 *Engliſh* Feet, which is nearly ſix Furlongs.

The Effect of concave Lenſes and convex Mirrors is to make parallel Rays diverged; *converging Rays* become parallel, and *diverging Rays* to become more divergent.

The Effect of *convex Lenſes*, and concave Mirrors, is to make *diverging Rays* become parallel; *parallel Rays* become convergent, and converging *Rays* to converge the more.

The *Rays* of Light are not homogeneous or ſimilar, but differ in all the Properties we know of, *viz.* Refrangibility, Reflexibility, and Colour.

It is probably from the different Refrangibility, that the other Differences have their Riſe, at leaſt it appears, that thoſe *Rays* which agree or differ in this, do ſo in all the reſt.

That from the different Senſations the differently diſpoſed *Rays* excite in us, we call them *red Rays*, *yellow Rays*, &c.

The Effect of the Priſm is to ſeparate and ſort the different Kinds of *Rays*, which come blended promiſcuouſly from the Sun; and to throw each Kind by itſelf, according to its Degree of Refrangibility and Colour, Red to Red, Blue to Blue, *&c.*

Beſides, Refrangibility and the other Properties of the *Rays* of Light already aſcertained by Obſervation and Experiment, Sir *Iſaac Newton* ſuſpects they may have many more, particularly a Power of being inflected, or bent by the Action of diſtant Bodies; and thoſe *Rays* which differ in Refrangibility, he conceives likewiſe to differ in this Flexibility.

In paſſing by the Edges and Sides of Bodies, he conceives that the Rays may be bent ſeveral Times backwards and forwards, with a Motion like that of an Eel; and that thoſe *Rays* which appear to fall on Bodies, are reflected or refracted before they arrive at the Bodies. And add, that they may be refracted, reflected, and inflected, all by the ſame Principle acting in different Circumſtances.

Again, do not the *Rays* which fall on the Bottom of the Eye, excite Vibrations in Retina; which being propagated along the Fibres of the optick Nerve into the Brain cauſe Viſion? And do not ſeveral Sorts of Rays make Vibrations of ſeveral Bigneſſes, which excite Senſations of ſeveral Colours, much after the Manner as the Vibrations of the Air, according to their ſeveral Bigneſſes, excite Senſations of ſeveral Sounds? Particularly, do not the moſt refrangible *Rays* excite the ſhorteſt Vibrations, to make a Senſation of a deep Violet; and the leaſt refrangible, the largeſt, to make a Senſation of a deep Red? And the ſeveral intermediate Kinds of *Rays*, Vibrations of intermediate Bigneſs, to make Senſations of intermediate Colours?

And may not the Harmony and Diſcord of Colours ariſe from the Proportion of theſe Vibrations, as thoſe of Sound depend on the Vibrations of the Air? For ſome Colours, if viewed together, are agreeable, as Gold and Indico; others diſagreeable, as Blue and Green, *&c.*

Again, have not the *Rays* of Light ſeveral Sides endued with ſeveral original Properties?—It is certain we find that every *Ray* of Light has two oppoſite Sides, originally endued with a Property whereon the unuſual Refraction of Iſland Cryſtal depends, and others two oppoſite Sides not endued with that Property.

Laſtly, are not the *Rays* of Light very ſmall Bodies emitted from ſhining Subſtances?

Such Bodies may have all the Conditions of Light; and there is that Action and Re-action between tranſparent Bodies and Light, which very much reſemble the attractive Force between other Bodies. Nothing more is required for the Production of all the various Colours, and all the Degrees of Refrangibility, but that the *Rays* of Light be Bodies of different Sizes; the leaſt of which may make Violet, the weakeſt and darkeſt of the Colours, and be the moſt eaſily diverted by refracting Surfaces from its rectilinear Courſe; and the reſt as they are bigger and bigger, may make the ſtronger and more lucid Colours, Blue, Green, Yellow, and Red.

Nor is any Thing more requiſite for the putting of the *Rays* into Fits of eaſy Reflection and eaſy Tranſmiſſion, than that they be ſmall Bodies, which by Attraction or ſome other Force, excite Vibrations in the Body they act upon; which Vibrations being ſwifter than the *Rays*, overtake them ſucceſſively, and agitate them ſo as by Degrees to increaſe and diminiſh their Velocity, and thereby put them into thoſe Fits.

Laſtly, the unuſual Refraction of Iſland Cryſtal, looks very much as if it were performed by ſome attractive Virtue lodged in certain Sides, both of the *Rays* and the Cryſtal.

In *Opticks*, we commonly call *common Ray* a Right-Line drawn from the Point of Concourſe of the two optical Axes, through the Middle of the Right-Line which paſſes through the Middle of the Centers of the Pupil of the two Eyes.

Note, That an *optical Axis*, is a *Ray* paſſing through the Center of the Eye, or it is that Ray which proceeding through the Middle of the luminous Cone, falls perpendicularly on the cryſtaline Humour, and conſequently paſſes through the Center of the Eye.—*Common* or *mean Axis*, is a Right-Line drawn from the Point of Concourſe of the two optick Nerves, thro' the Middle of the Right-Lines, which joins the Extremity of the ſame optick Nerves.

Note, alſo, That a *Cone of Rays* includes all the ſeveral *Rays* which fall from any Point of a Radiant, on the Surface of a Glaſs.

Note, again, That a *radiant Point* is any Point of a viſible Object, whence *Rays* proceed. Every *radiant Point* diffuſes innumerable *Rays* all around; but only thoſe Radiants are viſible, from which Right-Lines may be drawn to the Pupil, becauſe the Rays are all Right-Lines.—All the Lines proceeding from the ſame *Radiant*, continually diverge; the Cryſtaline collects or reunites them again.—Every Ray is ſuppoſed to carry with it the Species or Image of the *Radiant*.

Note, again, That the Medium so often mentioned in this Treatise, is that Space or Region, through which a Body passes, in its Motion towards any Point.

Note, besides, That having thus carefully examined the *Organ of Vision*; the Nature of *Light*, and *Colours*, *Reflection*, *Refraction*, *Ray*, *Medium*, &c. what remains with regard to *Vision*, is only to give a general Idea of the whole Process, in which all the several Parts are concerned: Therefore,

As to the different Opinions or Systems of *Vision*.—The *Platonists* and *Stoicks*, held it to be effected by the Emission of Rays out of the Eyes; conceiving, that there was a Sort of Light thus darted out, which, with the Light of the external Air, taking as it were hold of the Objects, rendered them visible; and thus returning back again to the Eye, altered and new modified by the Contact of the Object, made an Impression on the Pupil, which gave the Sensation of the Object.

The Reasons whereby they maintain their Opinion, are fetched, 1. From the Brightness and Lustre of the Eye: 2. From our seeing a remote Cloud, without seeing one which we are encompassed withal; (the Rays being supposed too brisk and penetrating to be stopt by the near Cloud, but growing languid at a greater Distance, are returned to the Eye:) 3. From our not seeing an Object laid on the Pupil: 4. From the Eyes being weary with Seeing, *i. e.* by emitting great Quantities of Rays: And, lastly, From Animals which see in the Night; as Cats, Lions, Moles, Owls, and some Men.

The *Epicureans* held Vision to be performed by the Emanation of corporeal Species or Images from Objects; or a Sort of atomical Effluvia, continually flying off from the intimate Parts of Objects to the Eye.

Their chief Reasons are, 1. That the Object must necessarily be united to the visive Faculty; and since it is not united by itself, it must be so by some Species that represents it, and that is continually flying from Bodies: 2. That it frequently happens, that old Men see remote Objects better than near ones; the Distance making the Species thinner, and more commensurate to the Delicacy of their Organ.

The *Peripateticks* hold, with *Epicurus*, that Vision is performed by the Reception of Species; but differ from him in the Circumstances: For they will have the Species (which they call *intentional*) to be incorporeal.

It is true *Aristotle*'s Doctrine of *Vision*, delivered in his Chapter *De Aspectu*, amounts to no more than this; that Objects must move some intermediate Body, that by this they may move the Organ of Sight.—To which he adds, in another Place, that when we perceive Bodies, it is their Species, not their Matter, that we receive; as a Seal makes an Impression on Wax, without the Wax retaining any Thing of the Seal.

But this vague and obscure Account, the *Peripateticks* have thought fit to improve.—Accordingly what their Master called *Species*, the Disciples understanding of real proper Species, and assert, that every visible Object expresses a perfect Image of itself, in the Air contiguous to it; and this Image, another somewhat less, in the next Air; and the third another, &c. till the last Image arrives at the Crystalline, which they hold for the chief Organ of Sight; or that which immediately moves the Soul.—These Images they call *intentional Species*.

The modern Philosophers, as the *Cartesians* and *Newtonians*, give a better Account of *Vision*. They all agree, that it is performed by Rays of Light reflected from the several Points of Objects, received in at the Pupil, refracted and collected in their Passage through the Coats and Humours to the Retina; and thus striking, or making an Impression on so many Points thereof: Which Impression is conveyed, by the correspondent Capillaments of the optick Nerve, to the Brain, &c.

As for the *Peripatetick* Series, or Chain of Images, it is a mere Chimera; and *Aristotle*'s Meaning is better understood without, than with them. In Effect, setting this aside, the *Aristotelian*, *Cartesian*, and *Newtonian* Doctrines, of *Vision*, are very consistent: For Sir *Isaac Newton* imagines, as already observed, that *Vision* is performed chiefly by the Vibrations of a fine Medium, which penetrates all Bodies, excited in the Bottom of the Eye by the Rays of Light; and propagated through the Capillaments of the optick Nerves to the Sensorium. And *Des Cartes* maintains, that the Sun pressing the *Materia subtilis*, wherewith the World is filled every Way, the Vibrations or Pulses of that Matter reflected from Objects, are communicated to the Eye, and thence to the Sensory: So that the Action or Vibration of a Medium, is equally supposed in all.

In order to *Vision*, we are certain, it is required that the Rays of Light be thrown from the visible Object to the Eye: What befalls them in the Eye, will be conceived from what follows.

Suppose, *e. gr.* Z the Eye, and A B C the Object, (Tab. *Optick*, fig. 11.) now though every Point of an Object be a radiant Point, that though there be Rays reflected from every Point of the Object to every Point of the circumambient Space, each carrying with it its respective Colour, (which we falsly imagine to be those of the Object) yet as only those Rays which pass thro' the Pupil of the Eye affect the Sense, we shall here consider none else.

And again, though there be a great Number of Rays passing from one radiant Point, as B, through the Pupil, yet we shall only consider the Action of a few of them; as B D, B E, B F.

Now then the Ray B D falling perpendicularly on the Surface, E D F, will pass out of the Air into the aqueous Humour, without any Refraction, and proceed right to H; where, falling perpendicularly on the Surface of the crystaline Humour, it will go on, without any Refraction, to M; where again falling perpendicularly on the Surface of the vitreous Humour, it will proceed streight to the Point O, in the Fund or Bottom of the Eye. Again, the Ray B E passing obliquely out of the Air upon the Surface of the watery Humour E D F, will be refracted, and approach towards the perpendicular E P: Thus proceeding to the Point G, in the Surface of the crystalline, it will be there refracted still nearer to the Perpendicular.—So also E G falling obliquely out of the Air into a harder Body, will be refracted towards the Perpendicular G R, and falling on the Point L of the Surface of the vitreous Humour, it will still be brought nearer to M.

Lastly, G L falling obliquely out of a denser, upon the Surface of a rarer Body, L M N, will be refracted, and recede from the Perpendicular L T; in receding from which, it is evident it approaches towards the Ray B D O, and may be so refracted as to meet the other in O.—In like Manner the Ray B F being refracted in B will turn to I, and thence to N, and thence to the others in O. But the Rays between B E and B F, being somewhat less refracted, will not meet precisely in the same Point O.

Thus will the radiant Point B affect the Fund of the Eye, in the same Manner as if the Pupil had had no Breadth, or as if the Radiant itself had only emitted one single Ray, such as were equal in Power to all those between B E and B F.

In like Manner the Rays proceeding from the Point A, will be so refracted in passing through the Humours of the Eye, as to meet near the Point X; and the Rays from any intermediate Point between A and B, will nearly meet in some other Point in the Fund of the Eye between X and O.

Upon the whole it may be asserted universally, that every Point of an Object affects only one Point in the Fund of the Eye; and, on the contrary, that every Point in the Fund of the Eye only receives Rays from one Point of the Object. Though this is not to be understood in the utmost Rigour.

Now if the Object recede from the Eye in such Manner, as that the radiant Point B does not decline from the Line B D; the Rays which should proceed from B, not enough divaricated, would be so refracted in passing the three Surfaces, as that they would meet ere they reached the Point O: On the contrary, if the Object should be brought nearer the Eye, the Rays passing from the Point B in the Pupil, too much divaricated, would be refracted so as not to meet till beyond the Point O; nay the Object may be so near, that the Rays proceeding from any Point may be divaricated, as that they shall

shall never meet at all. In all which Cases, there would be no Point of the Object, but would move a pretty large Portion of the Fund of the Eye; and thus the Action of each Point would be confounded with that of the contiguous one.

And this would commonly be the Case, but that Nature has provided against it; either by contriving the Eye, so as its Bulb may be lengthen'd or shorten'd, as Objects may be more or less distant; or, as others will have it, so as that the Crystalline may be made more convex, or more flat; or, according to others, so as that the Distance between the Crystalline and the Retina, may be lengthen'd or shorten'd.

The first Expedient is the most probable; on the Footing of which, when we direct our Eyes to an Object so remote, as that it cannot be distinctly viewed by the Eye in its accustom'd Figure, the Eye is drawn back into a flatter Figure, by the Contraction of four Muscles; by which Means, the Retina becoming nearer the crystalline Humour, receives the Rays sooner: And when we view an Object too near, the Eye being compressed by the two oblique Muscles, is render'd more globular; by which Means, the Retina being set further off from the Crystalline, does not receive the Rays of any Point before they meet.

It may be here added, that this Access, and Recess of the Crystalline, is so necessary to Vision, that whereas in some Birds the Coats of the Eye are such a bony Consistence, that Muscles would not have been able to contract or distend them; Nature has taken other Means, by binding the Crystalline down to the Retina, with a Kind of blackish Threads, not found in the Eyes of other Animals. Nor must it be omitted, that of the three Refractions above-mentioned, the first is wanting in Fishes; and that to remedy this, their Crystalline is not lenticular, as in other Animals, but globular. Lastly, since the Eyes of old People are generally worn flatter than those of young ones; so that the Rays from any Point, fall on the Retina, ere they become collected into one; they must exhibit the Object somewhat confusedly: Nor can such Eyes see any but remote Objects distinctly.

Note, That those who have the Crystalline of the Eye thus configurated, are called *Presbytæ*. This Defect is helped only with Convex-Glasses or Spectacles; which will make the Rays converge sooner, and if they are well fitted, fall exactly on the Retina. If the Distance between the Retina and the Crystalline be too small, the Person will likewise be a *Presbyta*. The Word is formed from the *Greek* πρεσβυς, *Senex*; because old People are naturally subject to this Defect; Time, and the Friction of the Eye-lids, *&c.* gradually wearing the Ball flat.

In others, whose Eyes are too globular, the Case is just the Reverse; and these are called *Myopes*.

From what has been shewn, that every Point of an Object moves only one Point of the Bottom of the Eye; and, on the contrary, that every Point in the Fund of the Eye, only receives Rays from one Point of the Object; it is easy to conceive, that the whole Object moves a certain Part of the Retina; that in this Part there is a distinct and vivid Collection of all the Rays received in at the Pupil; and that as each Ray carries its proper Colour along with it, there are as many Points pointed in the Fund of the Eye, as there are Points visible in the Object. Thus is there a Species or Picture, on the Retina, exactly like the Object; all the Difference between them is, that a Body is here represented by a Surface; a Surface frequently by a Line, and a Line by a Point: That the Image is inverted, the right Hand answering to the left of the Object, *&c.* and that it is exceedingly small, and still the more so, as the Object is more remote.

What we have shewn of the Nature of Light and Colours, readily accounts for this Painting of the Object on the Retina. The Matter of Fact is proved by an easy Experiment first tried by *Des Cartes*; thus, the Windows of a Chamber being shut, and Light only admitted at one little Aperture; to that Aperture apply the Eye of some Animal newly killed, having first dextrously pulled off the Membranes that cover the Bottom of the vitreous Humour, *viz.* the hind Part of the Sclerotica, Choroides, and even Part of the Retina; then will the Images of all the Objects, without Doors, be seen distinctly painted on any white Body, as on an Egg-Shell, that the Eye is laid upon. The same Thing is better shewn by an artificial Eye, or *Camera obscura*.

The Images of Objects, then, are represented on the Retina; which is only an Expansion of the fine Capillaments of the *Optick* Nerve, and from which the *Optick* Nerve is continued in the Brain. Now any Motion or Vibration, expressed on one Extreme of the Nerve, will be propagated to the other: Hence the Impulse of the several Rays, sent from the several Points of the Object, will be propagated as they are on the Retina (*i. e.* in their proper Colours, *&c.* or in particular Vibrations, or Manners of Pressure corresponding thereto) to the Place where those Capillaments are interwoven into the Substance of the Brain. And thus is Vision brought to the common Case of Sensation.

For such we know is the Law of the Union between the Soul and Body; that certain Perceptions of the first do necessarily follow certain Motions of the last: But the different Parts of the Object do separately move different Parts of the Fund of the Eye; and those Motions are propagated to the Sensory: It follows, therefore, that there must arise so many distinct Sensations at the same Time.

Hence, 1. We easily conceive, that the Perception, or Image in the Mind, must be the clearer and most vivid, the more Rays the Eye receives from the Object: Consequently the Largeness of the Pupil will have some Share in the Clearness of Vision.

2. Considering only one radiant Point of an Object, we may say, that that Point would move the Sense more weakly, or be seen more obscurely, as it is more remote; by Reason the Rays coming from any Point, like all Qualities propagated *in Orbem*, are always diverging; and therefore the more remote, the fewer of them will be received in at the Pupil. But as it is not a single Point of an Object, but all of them together, that affect the Organ of Sense; and as the Image of the Object still possesses a less Part of the Retina, as it is more remote; therefore, though the Rays that flow from any Point of an Object two Miles off, into the Pupil, be rarer, or fewer by half, than those flowing from the same Point at a Mile's Distance, yet the same Capillaments of the *Optick* Nerve, which, in the latter Case, would only be moved by that one Point, in the former, will be affected with the joint Action of the neighbouring Points; and therefore the Image be as clear as in the other Case. Add, that the Pupil dilating itself more, as the Object is more remote, takes in more Rays than it would otherwise do.

3. The Distinctness of Vision, is somewhat concerned in the Size of the Image, exhibited in the Fund of the Eye. For there should be, at least, as many Extreams of Capillaments, or Fibres of the *Optick* Nerve, in the Space that Image possesses, as there are Particles in the Object, that sends Rays into the Pupil: Otherwise every Particle will not move its separate Capillament: And if the Rays from two Points fall on the same Capillament, it will be the same, as if only one Point had fell there; since the same Capillament cannot be differently moved at the same Time. And hence it is, that the Images of very remote Objects being very small, they appear confused, several Points of the Image affecting each Capillament: And hence also, if the Object be of different Colours, several Particles affecting the same Capillament at the same Time, only the brightest and most lucid will be perceived: Thus a Field, furnished with a good Number of white Flowers, among a much greater Quantity of green Grass, *&c.* at a Distance, appears all white.

Our seeing of Objects *simple*, though with two Eyes, in each of which is a several Image, or Picture; and our seeing of them *erect*; whereas the Picture inverted, are two other very great Difficulties in the *Theory of Vision*.

As to our seeing Objects *single*, though with two Eyes, *&c.* the best Anatomists differ greatly about the Cause thereof. *Galen*, and others after him, ascribe it to a Coalition or Decussation, of the *Optick* Nerve, behind the *Os Sphenoides*. But whether they decussate, or coalesce, or only barely touch one another, is not so well agreed. The *Bartholines* and *Vesalius*, say expressly, they are united

united by a perfect Confusion of their Substance: Dr. *Gibon* allows them to be united by the closest Conjunction, but not Confusion of their Fibres.

Des Cartes, and others, account for the Effect another Way, *viz.* by supposing that the Fibrillæ constituting the medullary Part of those Nerves, being spread in the Retina of each Eye, have each of them corresponding Parts in the Brain; so that when any of those Fibrillæ are struck by any Part of an Image, the corresponding Parts of the Brain are affected thereby. Somewhat like which is the Opinion of Dr. *Briggs*, who takes the *Optick* Nerve of each Eye to consist of homologous Fibres, having their Rise in the *Thalamus Nervica Opticorum*, and thence continued to both the Retina, which are composed of them: And further, that those Fibrillæ have the same Parallelism, Tension, *&c.* in both Eyes; consequently when an Image is painted on the same corresponding, sympathizing Parts of each Retina, the same Effects are produced, the same Notice carried to the *Thalamus*, and so imparted to the Soul. Hence that double Vision ensuing upon an Interruption of the Parallelism of the Eyes; as when one Eye is depressed by the Finger, or their Symphony interrupted by Disease. But Dr. *Briggs* maintains, that it is but in few Subjects there is any Decussation; in none any Conjunction more than mere Contact.

Whence it is that we see Objects *erect*, when it is certain the Images thereof are painted invertedly on the Retina. *Des Cartes* accounts for it hence; that the Notice the Soul takes of the Object, does not depend on any Image, nor on any Action coming from the Object, but merely on the Situation of the minute Parts of the Brain, whence the Nerve arises. As for Example, the Situation of a Capillament of the *Optick* Nerve, corresponds to a certain Part of the Brain, which occasions the Soul to see all those Places lying in a right Line therewith.

But M. *Molyneux* gives us another Account: The Eye, he observes, is only the Organ, or Instrument; it is the Soul that sees. To enquire then, how the Soul perceives the Object erect by an inverted Image, is to enquire into the Soul's Faculties. Again, imagine that the Eye receives an Impulse on its lower Part, by a Ray from the upper Part of an Object; must not the visive Faculty be hereby directed to consider this Stroke as coming from the Top rather than the Bottom of the Object, and consequently be determined to conclude it, the Representation of the Top?

My own Sentiment is, that as it is the Soul, which not only operates (all our external Faculties being nothing else but imbecil Instruments, without its Influences or Concourse) but unfolds likewise all our Actions, from that Chaos they are promiscuously confounded in, at the first Instant of their Existence, to appropriate each of them to the instrumental Faculty it is attributed to, in order to render them discernible; when it perceives any of those Operations imperfect or irregular, it rectifies it; therefore when she is struck with an inverted Image; in the second Instant of that Vision, she conceives the Irregularity of its Situation; and in the third changes the Rays, which represented it such, and which had first struck the Retina, to bring it to its natural Situation, in the same Manner as when we suffer in any of our Members, she appeases the Anguish, which often, was it left to itself, would become insupportable.

Besides Light and Colours, which we have consider'd as the *proper* and *adequate Objects of Vision*, and which are no other Way perceivable, but by Sight alone; Philosophers admit another Sort of *Visibles*, which they call *common*, and which are subject to divers Senses, as the Sight, Hearing, Feeling, *&c.*

Aristotle, *de Anima*, *lib.* 2. enumerates five Kinds of *common Visibles*, which are usually received for such in the Schools, *viz.* Motion, Rest, Number, Figure, and Magnitude. Others maintain nine, contained in the following Verses.

Sunt objecta novem visus communia: quantum,
Inde figura, locus, *sequitur* distantia, situs,
Continuumque & discretum, motusque, quiesque.

Authors reason very variously as to these common Objects of Vision: There are two principal Opinions among the Schoolmen. The Adherents to the first, hold, that the *common Visibles* produce proper Representations of themselves, by some peculiar Species or Image, whereby they are formerly perceived independently of the proper Visibles.

But the second Opinion prevails most, which is, that the *common Visibles* have not any such formal peculiar Species, to become visible by; but that the proper Objects are sufficient to shew themselves in this or that Place, or Situation, or in this, or that Distance, Figure, Magnitude, *&c.* by the Circumstances of their Conveyance to the Sensory.

In Effect, since these *common Visibles* cannot be represented alone (for whoever saw Place, Distance, Figure, Situation, *&c.* of itself) but are always conveyed along with the Images of Light and Colour to the Organ; what Necessity is there to conceive any such proper Images, whereby the *common Visibles* should be formally perceived by the Soul? It is much more probable, that from the peculiar Manner, wherein the sensitive Faculty perceives a proper Object, it is apprized of its being in this or that Situation, or Place; in this or that Figure, Magnitude, *&c.* How this is effected, may be conceived from what follows.

I. The Situation and Place of visible Objects, are perceived without any intentional Species thereof, merely by the Impulse being made from a certain Place and Situation, either above or below, on the right or left, before or behind; whereby the Rays of the proper *Visibles* are thrown upon the Retina, and their Impression conveyed to the Sensory.

For since an Object is seen by those Rays, which carry its Image to the Retina, and in that Place to which the visive Power is directed, by the Rays it receives: As it perceives the Impulse of the Rays to come from any Place, *&c.* It is abundantly admonished of the Object being in that Place and Situation.

From this Principle, several remarkable Phænomena of Vision are accountable for; as,

1. That if the Distance between two visible Objects, be an Angle that is insensible, the distant Bodies will appear as if contiguous: Whence a continuous Body being the Result of several contiguous ones; if the Distances between several Visibles subtend insensible Angles, they will appear one continuous Body: Which gives a pretty Illustration of the Notion of a Continuum.

2. If the Eye be placed above an horizontal Plane, Objects, the more remote they are, the higher will they appear, till the last be seen in a Level with the Eye. Whence it is, that the Sea, to Persons standing ashore, seems to rise higher and higher the further they look.

3. If any Number of Objects be placed below the Eye, the most remote will appear the highest; if they be above the Eye, the most remote will appear the lowest.

4. The upper Parts of high Objects appear to stoop, or incline forwards; as the Fronts of Churches, Towers, *&c.* And Statues a-top of Buildings, to appear upright, must recline, or bend backwards.

II. The Mind perceives the Distance of visible Objects, from the different Configurations of the Eye, and the Image impressed thereon.

For the Eye disposes itself differently, according to the different Distances it is to see, *viz.* for remote Objects the Pupil is dilated, and the Crystalline brought nearer the Retina, and the whole Eye made more globous: On the contrary, for near Objects, the Pupil is contracted, the Crystalline thrust forwards, and the Eye lengthen'd.

The Distance again, is adjudged of by the Angle the Object makes, from the distinct or confused Representation of the Object, and the Briskness or Feebleness of the Rarity, or Spissitude of the Rays.

To this it is owing, 1. That Objects which appear obscure or confused, are judged to be more remote; a Principle which the Painters use, to make some of their Figures appear further distant, than others in the same Plane.

To this it is likewise owing, that Rooms whose Walls are whitened appear the smaller: That Fields covered with Snow, or white Flowers, shew less than when cloathed with Grass: That Mountains covered with Snow,

Snow, in the Night-time, appear the nearer; that opake Bodies appear the more remote in the Twilight.

III. The Quantity or Magnitude of visible Objects, is known chiefly by the Angle comprehended between two Rays drawn from the two Extremes of the Object, to the Center of the Eye.

An Object appears so big as is the Angle it subtends; or Bodies seen under a greater Angle appear greater; and those under a less, &c.—Hence the same Things appear now bigger, and now less, as it is more or less distant from the Eye.—This we call *apparent Magnitude*.

Now, to judge of the real Magnitude of an Object, we consider the Distance; for since a near and remote Object may appear under equal Angles, the Distance must necessarily be estimated; that if it be great, and the optick Angle small, the remote Object may be judged great, and *vice versâ*.

The Magnitude of *visible* Objects, is brought under certain Laws demonstrated by the Mathematicians; as,

1. That the apparent Magnitudes of a remote Object, are as the Distances reciprocally.

2. That the Cotingent of half the apparent Magnitude of the same Objects are as the Distances; hence, the apparent Magnitude and Distance being given, we have a Method of determining the true Magnitude: The Canon is this, as the whole Sine is to the Tangent of half the apparent Magnitude, so is the given Distance to half the real Magnitude. The same Canon, inverted, will from the Distance and Magnitude given, determine the apparent one.

3. Objects seen under the same Angle, have their Magnitudes proportional to their Distances.

4. The subtense Angle of any Arch of a Circle, appears of equal Magnitude in all the Points, though one Point be vastly nearer than another, and the Diameter appears of the same Magnitude in all the Points of the Periphery of the Circle. Hence we take a pretty Hint for the most commodious Form of Theatres.

5. The Eye being placed in any Angle of a regular Poligon, the Sides will appear equal.

6. If the Magnitude of an Object directly opposite to the Eye, be equal to its Distance from the Eye, the whole Object will be taken in by the Eye, but nothing more. Whence the nearer you approach an Object, the less Part you see of it.

IV. The Figure of *visible* Objects is estimated chiefly from our Opinion of the Situation of the several Parts thereof.

This Opinion of the Situation, &c. enable the Mind to apprehend an external Object under this or that Figure, more justly than any Similitude of the Images in the Retina with the Object can; the Images being frequently elliptical, oblong, &c. when the Objects they exhibit to the Mind are Circles, Squares, &c.

The Laws of *Vision*, with regard to the Figures of *visible* Objects, are,

1. That if the Center of the Pupil be exactly against, or in the Direction of a Right Line, the Line will appear as one Point.

2. If the Line be placed in the Direction of a Surface, so that only one Line of the Perimeter can radiate on it, it will appear as a Line.

3. If a Body be opposed directly towards the Eye, so as only one Plane of the Surface can radiate on it, it will appear as a Surface.

4. A remote Arch, viewed by an Eye in the same Place, will appear as a Right-Line.

5. A Sphere viewed at a Distance appears a Circle.

6. Angular Figures at a Distance appear round.

7. If the Eye look obliquely on the Center of a regular Figure, or a Circle, the true Figure will not be seen; but the Figure will appear oval.

V. The Number of *visible* Objects is perceived, not only by one or more Images formed in the Fund of the Eye; but also by such Opposition of those Parts of the Brain, whence the optick Nerves spring, as the Mind has been used to, in attending to a certain Place, and that either single or manifold.

Accordingly when either of the Eyes, with the contiguous Part of the Brain, are forced out of their just Parallelism with the other, *v. gr.* by pressing it with the Finger, &c. all Things appear double: But when they are in the requisite Parallelism, though there be two Images in the Fund of the two Eyes, yet the Object will appear single.—Again, one Thing may appear double, or even manifold, not only with both Eyes, but even with only one of them open; by reason the common Concourse of the Cones of the Rays, reflected from the Object to the Eye, either falls short of the Retina or goes much beyond it.

VI. Motion and Rest are seen, when the Images of Objects represented in the Eye, and propagated to the Brain, are either moved or at Rest: And the Mind perceives these Images either moving or at Rest, by comparing the moved Image to another, with respect to which it changes Place; or by the Situation of the Eye to the Object being continually changed.

So that Motion is only perceived by perceiving the Images to be in different Places and Situations: Nor are these Changes perceived unless effected in Time. So that to perceive Motion a sensible Time is required. But Rest is perceived by the usual Faculty, from the Perception of the Image in the same Place of the Retina, and the same Situation for some sensible Time.

Hence, the Reason why Bodies moving exceedingly fast appear at Rest: Thus a live Coal swung briskly round, appears a continued Circle of Fire; the Motion not being commensurate with *visible* Time, but much swifter than the same: So that in the Time the Soul requires to judge of any Change of Situation of the Image on the Retina, or that it is moved from this Place to that, the Thing itself performs its whole Circuit, and is in its former Place again.

The *Laws of Vision, with regard to the Motion of Visibles*, are, 1. That if two Objects unequally distant from the Eye, move from it with equal Velocity, the more remote one will appear, the slower; or if their Celerities be proportionable to their Distances, they will appear to move equally swift.

2. If two Objects, unequally distant from the Eye, move with unequal Velocities in the same Direction, their apparent Velocities are in a Ratio compounded of the direct Ratio's of their true Velocities, and the reciprocal ones of their Distances from the Eye.

3. A *visible* Object, moving with any Velocity, appears to be at Rest, if the Space described in the Interval of one Second be imperceptible at the Distance of the Eye. Hence it is that a near Object, moving very slowly, as the Index of a Clock, or a remote one very swiftly, as a Planet, seem at Rest.

4. An Object moving with any Degree of Velocity will appear to rest, if the Place it runs over in a Second of Time, be to its Distance from the Eye, as 1 to 1400, nay, in fact, if it be as 1 to 1300.

5. The Eye proceeding straight, from one Place to another, a natural Object, either on the Right or Left, will seem to move the contrary Way.

6. If the Eye and the Object move both the same Way, only the Eye much swifter than the Object, that last will appear to go backwards.

7. If two or more Objects move with the same Velocity, and a third remains at rest, the Moveables will appear fixed, and the Quiescent in Motion the contrary Way.—Thus Clouds moving very swiftly, their Parts seem to preserve their Situation, and the Moon to move the contrary Way.

If the Eye be moved with a greater Velocity, lateral Objects at Rest, appear to move the contrary Way.—Thus to a Person sitting in a Coach, and riding briskly through a Wood, the Trees seem to retire the contrary Way; and to People in a Ship, &c. the Shores seem to recede.

Note, That the *apparent Magnitude* above-mentioned, and conceived as one of the *common Visibles*, is that measured by the optick or visual Angle, intercepted between Rays drawn from its Extremes to the Center of the Pupil of the Eye.

The apparent *Magnitudes* of the two great Luminaries, the Sun and Moon, at Rising and Setting, are Phænomena that have extremely embarassed the modern Philosophers. According to the ordinary Laws of *Vision*, they should appear the least when nearer the Horizon,

Horizon, as being then furtheſt diſtant from the Eye; and yet we find the contrary true in Fact. *Ptolemy*, in his Almageſt, *lib.* 1, 2, 3, aſcribed this Appearance to a Refraction of the Rays by Vapours, which actually enlarge the Angle under which the Moon appears, juſt as the Angle is enlarged by which an Object is ſeen from under Water: And his Commentator *Theon* explains diſtinctly how the Dilatation immerſed in Water is cauſed. But it was afterwards diſcover'd, that there is no Alteration in the Angle; upon which another Solution was ſtarted by the Arab *Alhazen*; and followed and improved by *Vitellio*, *Kepler*, *Peckam*, *Rog. Bacon*, and others, according to *Alhazen*, the Sight apprehends the Surface of the Heavens as flat, and judges of the Stars, as it would of ordinary viſible Objects, extended upon a wide Plain; that the Eye ſees them under equal Angles, but withal perceives a Difference in their Diſtances, and (on account of the Semi-Diameter of the Earth, which is interpoſed in one Caſe, and not in the other) that it is hence induced to judge thoſe which appear more remote to be greater. *Des Cartes*, and from him Dr. *Wallis*, and moſt other Authors, account for the Appearance of a different Diſtance under the ſame Angle from a long Series of Objects interpoſed between the Eye, and the Extremity of the ſenſible Horizon, which make us imagine it more remote than when in the Meridian, where the Eye ſees nothing in the Way between the Object and itſelf. This Idea of a great Diſtance, makes us imagine the Luminary the bigger: For any Object being ſeen under any certain Angle, and believed, at the ſame Time, very remote, we naturally judge it muſt be very large, to appear under ſuch an Angle, at ſuch a Diſtance. And thus a pure Judgment of the Mind makes us ſee, the Sun or the Moon bigger in the Horizon, than in the Meridian, notwithſtanding their Images painted in the Retina, are leſs in the former Situation than the latter.

This Hypotheſis F. *Gouye* deſtroys, by obſerving, that the narrower and more confined the ſenſible Horizon is, the greater does the Sun and Moon appear; the contrary of which ſhould happen on the Principle laid down.

Gaſſendus is of Opinion, that the Pupil of the Eye, which is always more open as the Place is more dark; being more ſo in the Morning and Evening than at other Times, by Reaſon the Earth is covered with groſs Vapours; and beſides, being obliged to paſs through a longer Column or Series of Vapours, to reach the Horizon; the Image of the Luminary enters the Eye at a greater Angle, and is really painted there larger at the former Time. In anſwer to which, it may be ſaid, that notwithſtanding this Dilatation of the Pupil, occaſioned by the Obſcurity; if the Moon be viewed through a little Pin-Hole, made in Paper, ſhe appears leſs when in the Horizon than in the Meridian. F. *Gouye*, finding both the Conjectures falſe, advances a third; which is, that when the Luminaries are in the Horizon, the Neighbourhood of the Earth, and the groſs Vapours wherewith they appear enveloped, have the ſame Effect with Regard to us, as a Wall, or other denſe Body placed behind a Column, which in that Caſe appears bigger than when inſulate, and encompaſſed on all Sides with an illumined Air. Farther it is obſerved, that a Column when fluted, appears bigger than before, when it was plain; the Flutes being ſo many particular Objects, which by their Multitude occaſion the Mind to imagine the whole Object, whereof they are compoſed of a larger Extent. The ſame Thing may be ſaid of the ſeveral Objects ſeen towards the Horizon, to which the Sun or Moon correſpond at their Riſing and Setting. And hence it is, that they appear longer ſtill, when they Riſe or Set between Trees; the narrow, yet diſtant Intervals whereof, have the ſame Effect with Regard to the apparent Diameter of the Luminary, as a greater Number of Flutes, with Regard to the Shaft of a Column.

Note alſo, That having thus clearly and diſtinctly explained the firſt Principles and Rudiments of *Optick*, with Regard to the ſpeculative Part thereof; I'll next reduce all thoſe Rules into Practice, and ſhew by plain Demonſtration, that they are true and well founded, by Means of the *Catoptricks* and *Dioptricks*; therefore,

CATOPTRICKS, is that Branch of *Opticks*, which delivers the Laws of Light reflected from *Mirrours*, or *Specula*.

Mirrour, in *Catoptricks*, denotes any poliſhed Body impervious to the Rays of Light, and which of Conſequence reflects them equally.

Note, That the Doctrine of *Mirrours* is founded on the following general Principles. 1. Light reflected from any *Mirrour*, or *Speculum*, makes the Angle of Incidence equal to that of Reflection. Hence a Ray of Light falling perpendicularly on the Surface of a *Speculum*, will be reflected back upon itſelf. Which we find by Experience it actually does. From the ſame Point of a *Mirrour*, therefore, there cannot be ſeveral Rays reflected to the ſame Point; ſince in that Caſe, all the Angles of Reflection muſt be equal to the ſame Angle of Incidence, and therefore to each other; which is abſurd; nor can the Ray be reflected to two or more Points; ſince in that Caſe, all the Angles of Reflection, would be equal to the ſame Angle of Incidence: Which is likewiſe abſurd.

2. From every Point of a *Mirrour*, are reflected Rays thrown on it, from every Point of a radiant Object. Since then Rays coming from different Parts of the ſame Object, and ſtriking on the ſame Point of the *Mirrour*, cannot be reflected back to the ſame Point; the Rays which flow from different Points of the ſame radiating Object, are again ſeparated after Reflection: So that each Point ſhews whence it came. Hence it is, that the Rays reflected from *Mirrours*, exhibit the Objects to View. Hence alſo it appears, that rough uneven Bodies muſt reflect the Light in ſuch a Manner, as that Rays coming from different Points will be blended or thrown confuſedly together.

MIRROURS, are commonly divided into *Plane*, *Concave*, *Convex*, *Cylindrical*, *Conical*, *Parabolical*, and *Elliptical*.

Plane MIRROURS are thoſe which have a Plane or flat Surface, commonly called *Looking Glaſſes*; the Manner of making which I have given in my Treatiſe of *Glaſs-Grinding*, under the Letter *G*.

The Laws or Phænomena of *plain Mirrours*, are as follows. 1. Every Point of an Object is ſeen in the Interſection of the *Cathetus* of Incidence, with the reflected Ray.

Note, That the *Cathetus of Incidence*, in *Catoptricks*, is a right Line drawn from a radiant Point, perpendicular to the reflecting Line, or the Plane of the *Speculum* or *Mirrour*. The *Cathetus of Reflection*, or of the Eye, is a right Line drawn from the Eye, or from any Point of a reflected Ray, perpendicular to the Plane of Reflection, or of a *Speculum*.

Hence, 1. As all the reflected Rays meet with the *Cathetus of Incidence* in the Interſection; by whatever reflected Ray the radiant Point be ſeen, it will ſtil appear in the ſame Place. Conſequently any Number of Perſons viewing the ſame Object in the ſame *Mirrour*, will all ſee it in the ſame Place behind the *Mirrour*. And hence it is, that the ſame Object has only one Image, and that we do not ſee it double with both Eyes.

Hence alſo the Diſtance of the Image from the Eye, is compounded of the Ray of Incidence, and the reflected Ray: And the Object radiates reflectedly, in the ſame Manner as it would do directly, were it removed into the Place of the Image.

2. The Image of a radiant Point, appears juſt ſo far behind a *plain Mirrour*, as the radiant Point is before it.

Hence, if the *Mirrour*, A G, *Table Opticks*, *fig.* 15. be placed horizontal, the Point A will ſeem ſo much below the Horizon as it is really elevated above it; conſequently erect Objects will appear as if inverted; and therefore Men ſtanding on their Feet as if on their Heads, or if their *Mirrour* be faſtened to the Cieling of a Room, parallel to the Horizon, Objects on the Floor will appear above the Cieling as much as they really are below it; and that upſide-down.

3. In

3. In a *plain Mirrour*, the Images are perfectly similar and equal to the Objects. And hence they are us'd as Looking-Glasses.

4. In a *plain Mirrour*, Things on the Right-Hand appear as on the Left, and *vice versâ*.

Hence also we have a Method of measuring any inaccessible Altitude by means of a *plain Mirrour*.—Thus the *Mirrour* being placed horizontally in C, fig. 16. retire from it till such Time as the Top of the Tree be seen therein. Measure the Height of the Eye D E, the Distance of the Station from the Point of Reflection E C, and the Distance of the Foot of the Tree from the same. Then to E C, C B, and E D, find a fourth Proportional A B. This is the Altitude sought.

5. If a *plain Mirrour* be inclined to the Horizon, in an Angle of 45 Degrees, an Object perpendicular to it will appear parallel, and an horizontal Object perpendicular.

And hence the Eye being placed beneath the *Mirrour*, the Earth will appear perpendicularly over it; or if placed over it, the Earth will appear perpendicularly under it. Hence also a Globe descending down a Plane a little inclined, may, by means of a *Mirrour*, be exhibited as mounting up a vertical Plane, to the great Surprize of such as are unacquainted with *Catoptricks*.—And hence we have a Method of representing ourselves as if flying. For a *Mirrour* inclined to the Horizon under an Angle of 45°, we have observed, will represent vertical Objects as if horizontal. Consequently a large *Mirrour* being so disposed, as you advance towards it, you will seem to move horizontally; and nothing will be wanting to the Appearance of flying, but to strike out the Arms and Legs. It must be added however, that as the Floor is elevated along with you, your Feet will still be seen to walk as along a vertical Plane. To deceive the Eye entirely, therefore, it must be kept from the Feet.

6. If the Object be parallel to the Speculum, and equally distant from it, with the Eye; the reflecting Line will be half the Length of the Object.

And hence to be able to see the whole Body in a *plain Mirrour*, its Height and Breadth must be half your Height and Breadth. Consequently the Height and Breadth of any Object to be seen in a *Mirrour*, being given; we have also the Height and Breadth of the *Mirrour* wherein the whole Object will appear at the same Distance with the Eye.

Hence also, as the Length and Breadth of the reflecting Parts of the Speculum, are subduple of those of the Object to be reflected; the reflecting Part of the *Mirrour*, is to the Surface reflected in a sub-quadruple Ratio. Consequently, the reflecting Portion being a constant Quantity; if any Place you see the whole Body in a *Mirrour*, you will see it in every other Place, whether you approach nearer or recede further from it.

7. If *several Mirrours*, or several Fragments, or Pieces of a *Mirrour* be all disposed in the same Plane, they will only exhibit an Object once.

8. If two *plain Mirrours*, or Specula, meet in any Angle; the Eye placed within that Angle, will see the Image of an Object placed within the same, as often repeated as there may be Catheti drawn, determining the Places of the Images, and terminated without the Angle.

Hence as the more Catheti terminated without the Angle may be drawn as the Angle is more acute; the acuter the Angle the more numerous the Images. Thus Z. *Traler* found at one Angle of one Third of a Circle, the Image was represented twice, at $\frac{1}{4}$ thrice, at $\frac{1}{5}$ five Times, and at $\frac{1}{12}$ eleven Times.

Further, if the *Mirrours* be placed upright, and so contracted, or if you retire from them or approach to them, till the Images reflected by them coalesce, or run into one, they will appear monstrously distorted: Thus if they be at an Angle somewhat greater than a right one, the Image of your Face will appear with only one Eye; if the Angle be less than a right one, you will see three Eyes, two Noses, two Mouths, *&c.* at one Angle still less the Body will have two Heads. At an Angle somewhat greater than a right one, at the Distance of four Feet, the Body will be headless, *&c.*—Again, if the *Mirrours* be placed one parallel to the Horizon, the other inclined to it, or declined from it, it is easy to perceive that the Images will be still more romantick.—Thus one being more declined from the Horizon to an Angle of 144°, and the other inclined to it; a Man sees himself standing with his Head to another's Feet.

Hence it appears how *Mirrours* may be managed in Gardens, *&c.* so as to convert the Images of those near them into Monsters of various Kinds: And since Glass Mirrours will reflect the Image of a lucid Object twice or thrice; if a Candle, *&c.* be placed in the Angle between two *Mirrours*, it will be multiplied an infinite Number of Times.

On this Principle are founded various catoptrick Machines, some of which represent Objects infinitely multiplied and distorted; others infinitely magnified, as the *catoptrick Cystula*, &c.

The *catoptrick Cystula*, is a Machine or Apparatus, whereby little Bodies are represented extremely large, and near ones extremely wide, and diffused through a vast Space, with other agreeable Phænomena; by means of *Mirrours*, disposed by the Laws of *Catoptricks*, in the Concavity of a Kind of Chest.

Of these there are various Kinds accommodated to the various Intentions of the Artificer; some multiply the Objects, some deform them, some magnify them, *&c.* The Structure of one or two of them will suffice to shew how infinite more may be made.

To make a *Catoptrick Cystula to represent several Scenes of Objects, when looked in at different Foramina or Holes.* Provide a polygonous *Cistula*, or Chest, of the multilateral Prism A B C D E F (Plate *Opticks*, Fig. 17.) and divide its Cavity by diagonal Planes E B, F C, D A, intersecting each other in the Center, into as many triangular Locules or Cells, as the Chest has Sides. Line the diagonal Planes with *plain Mirrours*, in the lateral Planes make round Holes, through which the Eye may peep within the Locules of the Chest. The Holes are to be covered with plain Glasses, ground within-side, but not polished, to prevent the Objects in the Locules from appearing too distinctly. In each Locule are placed the different Objects, whose Images are to be exhibited; then covering up the Top of the Chest with a thin transparent Membrane, or Parchment, to admit the Light, the Machine is compleat.

For from the Laws of Reflection it follows, that the Images of Objects, placed within the Angles of *Mirrours*, are multiplied, and appear some more remote than others; whence the Objects in one Locule will be seen, but those multiplied and diffused through a Space much larger than the whole Chest. Thus every new Hole will afford a new Scene: According to the different Angles the *Mirrours* make with each other, the Representations will be different; if they be at an Angle greater than a right one, the Images will be monstrous, *&c.*

The Parchment that covers the Machine, may be made pellucid, by washing it several Times in a very clear Lye, then in fair Water, and bracing it tight, and exposing it to the Air to dry. If it be desired to throw any Colour on the Objects, it may be done by colouring the Parchment. *Zahnius* recommends Verdigrease ground in Vinegar, for green; Decoction of Brasil Wood, for red, *&c.* He adds, it ought to be varnished to make it shine.

To make a *Catoptrick Cistula*, to represent the Objects within it *prodigiously multiplied*, and *diffused through a vast Space.* Make a *Polygonous Cistula*, or Chest, as before, but without dividing the inner Cavity, into any Apartments or Locules. Line the lateral Planes with *plain Mirrours*, and at the *Foramina* or Apertures, pare off the Tin and Quicksilver, that the Eye may see through: Place any Object in the Bottom, *v. gr.* a Bird in a Cage, *&c.* Here the Eye looking through the Apertures, will see each Object placed at Bottom, vastly multiplied, and the Images removed at equal Distances from one another. Hence where a large multangular Room, in a Prince's Palace, lined with large *Mirrours*, over which were plain pellucid Glasses to admit the Light; it is evident the Effects would be very surprising and magnificent.

Convex MIRROURS, are those whose Surface is convex; meaning by convex Surfaces, such as are spherically convex.

Note,

Note, That there are divers Methods used by divers Artists, for preparing or making *convex Mirrours*, particularly as to the Matter and Composition. One of the best that is known is given us by *Wolfius*, thus: Melt one Part of Tin, another of Marcasite together, and to the melted Mass add two Parts of Mercury; as soon as the Mercury begin to evaporate into Smoak (which it presently does) the whole Compost is to be thrown into cold Water, and when well cooled, the Water decanted off. The Mixture is then to be strained through a Linen Cloth in two or three Folds; and what is thus secerned, poured into the Cavity of a Glass Sphere: This Sphere is to be turned gently round its Axis, till the whole Surface is covered; the rest being reserved for future Use. If the Sphere were of colour'd Glass, the *Mirrour* will be so too. And in the same Manner, may conick, elliptick, cylindrick, and other *Mirrours* be made.

As to the Laws or Phænomena of *convex Mirrours*.

1. In a spherical *convex Mirrour*, the Image of a radiant Point appears between the Center and the Tangent; but nearer to the Tangent than the Center.

Hence the Distance of the Object from the Tangent, is greater than that of the Image; and consequently the Object is further distant from the *Speculum*, than the Image.

2. If the Arch intercepted between the Point of Incidence, and the *Cathetus*; or the Angle formed in the Center of the *Mirrour*, by the *Cathetus* of Incidence, and that of Obliquation, be double the Angle of Incidence; the Image will appear on the Surface of the *Speculum*.

3. If the Arch intercepted between the Point of Incidence, and the *Cathetus*; or the Angle formed in the Center of the *Mirrour* by the *Cathetus* of Incidence, and the *Cathetus* of Obliquation, be more than double the Angle of Incidence; the Image will be without the *Mirrour*.

4. If the Arch intercepted between the Point of Incidence, and the *Cathetus*; or the Angle formed in the Center of the *Mirrour*, by the *Cathetus* of Incidence, and that of Obliquation, be less than double the Angle of Incidence; the Image will appear within the *Speculum*.

5. In a *concave Mirrour*, a remoter Point is reflected, from a Point nearer the Eye, than any nearer Point in the same *Cathetus* of Incidence.

6. A nearer Point, not in the same *Cathetus*, with a remoter, is reflected to the Eye, from a nearer Point of the *Speculum*, than the remoter.

7. In a spherical *convex Mirrour*, the Image is less than the Object.

And hence the Use of such *Mirrours* in the Art of Painting, where Objects are to be represented less than the Life.

8. In a *convex Mirrour*, the more remote the Object, the less its Image: And again, the smaller the *Mirrour*, the less the Image.

9. In a *convex Mirrour*, the right Hand is turned to the left; and the left to the right: And Magnitudes perpendicular to the *Mirrour*, appear topsy turvey.

10. The Image of a right Line, perpendicular to the *Mirrour*, is a right Line; but that of a right Line either oblique to the *Mirrour*, or parallel thereto, is convex.

11. Rays reflected from a *convex Mirrour* diverge more than if reflected from a plain *Mirrour*.

Hence Light, by being reflected from a spherical *Mirrour*, is weaken'd; and, consequently, the Effects of reflected Light, are weaker than those of direct. Hence also, *Myopes* see remote Objects more distinctly in a *convex Mirrour*, than they do directly.

Rays reflected from a *convex Mirrour* of a smaller Sphere, diverge more than if reflected from a larger. Consequently the Light is more weaken'd, and its Effects are less considerable in the former Case than in the latter.

Concave MIRROURS, are those whose Surface is concave; meaning *spherically concave*.

Note, That to prepare, or make *concave Mirrours*; first, a Mould is to be provided for casting them: In order to this, take Clay well dried, pulverize and sift it; mix it up with Water, and then strain or sift it; with this work up Horse-dung and Hair shred very small, till the Mass be sufficiently tough; to which, on Occasion may be added Charcoal-dust, or Brick-dust well sifted. Two coarse Moulds are to be prepared of a gritty Stone, the one concave, the other convex, which are to be ground on one another, with wet Sand between, till such Time as the one perfectly fits the other. By this Means a perfect spherical Figure is acquired.—The Mass prepared before is now to be extended on the Table by means of a wooden Roller, till it be of a Thickness proper for the *Mirrour*; and then being strewed with Brick-dust, to prevent its striking, it is laid over the convex Mould, and so gets the Figure of the *Mirrour*. When this is dry it is covered with another Lay of the same Mass; which once dried, both Covers, or Segments of the hollow Sphere, made of Clay, are taken off. The innermost of the two being laid aside, the Stone-Mould is anointed with a Pigment prepared of Chalk and Milk, and the outer Cover again put over it.—Lastly, the Joining being covered over with the same Clay whereof the Cover is formed; the whole Mould is bound together with Iron Wire, and two Holes cut through the Cover, the one for the melted Matter of the *Mirrour* to be poured through, the other for the Air to escape at, to prevent the *Mirrour* being spoiled with Bubbles. The Mould thus prepared, eight Parts of Copper, one of *English* Tin, and five of Marcasite, are melted together; a little of the Mixture is taken out with a Ladle, and if it be too red when cold, more Tin is put in, if too white, more Copper: The Mass is then poured into the Mould before prepared, and so assumes the Figure of a *Mirrour*.—Some with ten Parts of Copper mix four of *English* Tin, a little Antimony and Sal Armoniack, stirring the Mass about as long as any Fumes arise from it. Others have other Compositions; many of which are described by Shutters, and *Zahnius*. The *Mirrour* being thus cast, is cemented to a wooden Frame, and thus worked to and fro over the convex Stone Mould, first with Water and Sand; and lastly without Sand, till it be fit for polishing. The Stone Mould is then cover'd with Paper, and that smear'd over with Tripoli Dust, and Calx of Tin: Over which the *Mirrour* is worked to and fro, till it has got a perfect Polish. And in the same Manner are Glass *Mirrours* polished, excepting that the convex Surface is there worked in the concave Mould. When the *Mirrours* are very large, they are fixed on a Table, and first ground with a gritty Stone, then with Pumice, then with fine Sand, by Means of a Glass, cemented to a wooden Frame; and lastly, rubbed with Calx of Tin, and Tripoli Dust, by a wet Leather.—For *concave Mirrours* of Glass; the Mould is usually made of Alabaster: The rest as in Metal *Mirrours*.

The Laws and Phænomena of *concave Mirrours*, are,

1. If a Ray falls on a concave *Mirrour*, under an Inclination of 60 Degrees, and parallel to the Axis; the reflected Ray will concur with the Axis in the Pole of the Glass. If the Inclination of the incident Ray be less than 60 Degrees, the reflected Ray will concur with the Axis, at a Distance less than a fourth Part of the Diameter. And universally, the Distance of the Point, wherein the Ray concurs with the Axis, from the Center, is to half the Radius, in the Ratio of the whole Sine, to the Cosine of Inclination.

Hence it is gather'd by Calculation, that in a concave spherical *Mirrour*, whose Breadth subtends an Angle of six Degrees, parallel Rays meet after Reflection, in a Part of the Axis less than one thousand four hundred fifty seventh Part of the Radius: If the Breadth of the concave *Mirrour* be 6, 9, 12, 15, or 18 Degrees; the Part of the Axis wherein the parallel Rays meet, after Reflection is less than $\frac{1}{1457}$, $\frac{1}{1600}$, $\frac{1}{1849}$, $\frac{1}{2025}$, $\frac{1}{2304}$ of the Radius.

And on this Principle it is that Burning-Glasses are built. For since the Rays diffused through the whole Surface of the concave *Mirrour*, after Reflection are contracted into a very small Compass; the Light and Heat of the parallel Rays must be prodigiously increased thereby, *viz.* in a duplicate Ratio of the Breadth of the *Mirrour*, and the Diameter of the Circle, wherein all the Rays

Rays are collected: And since the Sun's Rays are, as to any Purposes on Earth, parallel, no Wonder concave *Mirrours* should burn with such Violence.

But as the Focus of a concave *Mirrour* is there where the Rays are more closely contracted, if it be a Segment of a large Sphere, its Breadth must not subtend an Arch above eighteen Degrees; if it be a Segment of a smaller Sphere, its Breadth may be thirty Degrees, which is verified by Experiment.

As the Surface of a *Mirrour*, which is a Segment of a larger, receives more Rays than another of a less, if the Latitude of each subtend an Arch of 18 Degrees, or even more or less, provided it be equal: The Effects of the greater *Mirrour* will be greater than those of the less.

And as the Focus is contained between the fourth and fifth Part of the Diameter, Mirrours that are Segments of greater Spheres, *burn* at a greater Distance than those which are Segments of a smaller.

Since, lastly, the *Burning* depends on the Union of the Rays, on the concave spherical Figure, it is no Wonder that even *Mirrours* gilt, or those prepared of Alabaster, *&c.* covered with Gold; nay, even that those made of Paper and covered with Straw, should be found to *burn*.

Note, That among the Antients the *burning Mirrours* of *Archimedes* and *Proelles* are eminent; by one of which the *Roman* Ships besieging *Siracuse*, under the Command of *Marcellus*, according to the Relations of *Zonaras*, *Tzetres*, *Galen*, *Eustathius*, &c. and by the other the Navy of *Vitalian* besieging *Bizantium*, according to the same *Zonaras*, were burnt to Ashes. Among the Moderns the most remarkable burning *Mirrours* are those of *Villette*, a *Frenchman*, *Settala*, and *Tschirnhausen*. *Settala*, Canon of *Padua* made a parabolick *Mirrour*, which, according to *Shottus*, burnt Pieces of Wood at the Distance of 15 or 16 Paces. M. *Tschirnhausen*'s Mirrour is at least equal to the former, both in Bigness and Effect. The following Things are noted of it in the *Acta Eruditorum*: 1. Green Wood takes Fire instantaneously, so as a strong Wind cannot extinguish it. 2. Water boils immediately, and Eggs in it are presently edible. 3. A Mixture of Tin and Lead three Inches thick drops presently, and Iron or Steel Plate becomes red-hot presently, and a little after burns into Holes. 4. Things not capable of melting, as Stones, Bricks, *&c.* become red-hot like Iron. 5. Slates become first white, then a black Glass. 6. Tiles are converted into a yellow Glass, and Shells into a blackish yellow one. 7. A Pumice-stone emitted from a Volcano melts into white Glass: And, 8. A Piece of a Crucible also vitrifies in eight Minutes. 9. Bones are soon turned into an opake Glass, and Earth into a black one. The Breadth of this Mirrour is near three *Leipsick* Ells, its Focus two Ells distant from it; it is made of Copper, and its Substance is not above half the Thickness of the Back of a Knife. *Vilette*, a *French* Artist of *Lyons*, made a large *Mirrour*, bought by *Tavernier*, and presented by him to the King of *Persia*; a second bought by the King of *Denmark*, a third presented by the King of *France* to the Royal Academy; a fourth has been in *England*, where it was publickly exposed. The Effects whereof, as found by Dr. *Harris* and Dr. *Desaguliers*, are, that a Silver Six-pence is melted in 7″ and $\frac{1}{4}$; a King *George*'s Halfpenny in 16″, and runs with a Hole in 34; Tin melts in 3″, cast Iron in 16″, Slate in 3″, a Fossil-Shell calcines in 7″, a Piece of *Pompey*'s Pillar at *Alexandria*, vitrifies in the black Part in 50″, in the white in 54, Copper Ore in 8″: Bone calcines in 4″, vitrifies in 33″. An Emerald melts into a Substance like a Turquois Stone; a Diamond weighing 4 Grains, loses $\frac{3}{4}$ of its Weight: The Asbestos vitrifies, as all other Bodies will do, if kept long enough in the Focus: But when once vitrified, the Mirrour can go no further with them. This *Mirrour* is 47 Inches wide, and is ground to a Sphere of 76 Inches Radius; so that its Focus is about 38 Inches from the Vertex.— Its Substance is a Composition of Tin, Copper, and Tin-Glass.

Wolfius tells us, that an Artist of *Dresden* made *burning Mirrours* of Wood, bigger than those of M. *Tschirnhausen*, or *Vilette*, which had Effects at least equal to any of them. *Traberus* teaches how to make *burning Mirrours* of Leaf-Gold, *viz.* by turning it Concave, laying its Inside equally with Pitch, and covering that with square Pieces of Gold, two or three Fingers broad, fastening them on, if need be, by Fire. He adds, that very large *Mirrours* may be be made, of 30, 40, or more concave Pieces, artfully joined in a wooden Dish or Skuttle, the Effects of which will not be much less than if the Surface was continuous. *Zahnius* adds further, that *Newman*, an Engineer at *Vienna*, in 1699, made a Mirrour of Pasteboard, covered within Side with Straw glewed to it; by which all Kinds of Metal, *&c.* were readily melted.

From this same Principle is likewise deduced a Method of representing the Images of Objects in a *dark Room*.

2. A lucid Body being placed in the Focus of a concave *Mirrour*, the Rays after Reflection become parallel.

Hence an intense Light may be projected to a vast Distance, by a lighted Candle, *&c.* placed in the Focus of a concave *Mirrour*. Hence also, if the parallel Rays be received by another concave *Mirrour*, they will again concur in its Focus and burn.

Zahnius mentions an Experiment of this Kind made at *Vienna*, where two concave *Mirrours*, the one six, the other three Foot Diameter, being placed about 24 Feet apart, with a live Coal in the Focus of the one, and a Match and Tinder in the other, the Rays of the Coal lighted the Candle.

3. If a lucid Body be placed between the Focus and *Mirrour*, the Rays after Reflection will diverge from the Axis. Whence it follows that Light is weaken'd by Reflection.

4. If a lucid Body be placed between the Focus and the Center, the Rays after Reflection will meet in the Axis beyond the Center.

5. If a luminous Body be placed in the Center of the *Mirrour*, all the Rays will be reflected back upon themselves.

Hence, if the Eye be placed in the Center of a concave *Mirrour*, it will see nothing but itself, and that confused through the whole *Mirrour*.

6. If a Ray falling from the Point of the Cathetus, on the convex *Mirrour*, be together with its Reflex, continued within the Concavity of the *Mirrour*; there will be a Ray of Incidence from the Point of the Cathetus, together with its Reflex.

Hence, if the Image of an Object reflected by a convex *Speculum*, be seen by a Reflection made in its Concavity, it will appear like the Object itself.

And since the Image of an infinite Cathetus, is less in a convex Glass by one Fourth of its Diameter; a Portion of the Cathetus less than a fourth Part of the Diameter, may appear of any Magnitude required in a concave one.

A Point therefore distant from a concave *Speculum*, less than one Fourth of the Diameter, must appear behind the *Mirrour*, at any Distance, how great soever.

Since the Image of any Object, how broad soever, is contained in a convex *Speculum*, between the two Lines of Incidence of its extream Points; if an Object be placed between the two Lines, at a Distance less than one Fourth of its Diameter, the Breadth of the Image, how great soever, may all appear.

Since then the Image of an Object included between two Lines, at a Distance less than one Fourth of the Diameter, may exceed the just Height and Breadth of the Object; nay, may be made of any Magnitude, how big soever, Objects placed between the Focus and the *Mirrour*, must appear of enormous Magnitudes in concave *Mirrours*, as it is less in the Convex.

In a convex *Mirrour*, the Image of a remote Object appears nearer the Center than that of a nearer Object: Therefore in a concave *Mirrour*, the Image of an Object remote from the Mirrour, appears at a greater Distance than that of a nearer Object, provided the Distance of the Object from the Center, be less than a fourth

fourth Part of the Diameter.

In a convex *Speculum*, the Image of a remote Object is less than that of a near one; therefore in a concave one, the Image of an Object placed between the Focus and the *Mirrour*, is nearer the Focus than the Speculum.

The Image therefore of an Object receding continually from a concave Speculum, becomes continually greater, provided it do not recede beyond the Focus where it becomes confected; and as it approaches it grows continually less.

In a convex Speculum, if the Sphere whereof it is a Segment be smaller, the Image is smaller than in another of a larger Sphere; therefore in a Concave, if the Sphere whereof it is a Segment be smaller, the Image will be larger than in another, whose Sphere is larger; whence concave *Mirrours*, if they be Segments of very small Spheres, will do the Office of Microscopes.

7. If an Object be placed between a concave *Mirrour* and its Focus, its Image will appear behind the *Mirrour*, in an erect, but inverted Situation.

8. If an Object be placed between the Focus and the Center, its Image will appear inverted, and in the open Air, beyond the Center, the Eye being placed beyond the Center.

9. If an Object be placed beyond the Center, and the Eye likewise beyond the Center, the Image will appear inverted in the open Air between the Center and the Focus.

Hence, the inverted Images of Objects placed beyond the Center are reflected by a concave *Mirrour*, erect, and may be received on a Paper applied between the Center and the Focus, especially if the Room be dark: If the Object be further distant from the Center than the Focus, the Image will be less than the Object.

On this Principle concave *Mirrours*, especially those which are Segments of large Spheres, and are capable of reflecting entire Objects, exhibit many pleasing Phænomena. Thus, if a Man flourish a Sword against the *Mirrour*, another comes out thereof, and meets him with the same Motions; and the Image of this Head coming out of the Mirrour, if he strikes it with his real Sword, the imaginary Sword will strike his real Head. If he stretches out his Hand, another Hand will be stretched out of the *Mirrour*, and meet it at a great Distance in the open Air, *&c.*

10. The Image of a Right-Line, perpendicular to a concave *Mirrour*, is a Right-Line; but all oblique or parallel Lines are concave.

Cylindrical, *conical*, *parabolical*, and *elliptical* MIRROURS, or Specula, are those terminated by a Surface, respectively *cylindrical*, *conical*, *parabolical*, and *spheroidical*.

Note, That to *prepare* or *make cylindrical*, *conical*, &c. *Mirrours*, the Process is as follows:—For the *cylindrical* and *conical* Sort, if they are to be of Glass, the Method of preparing them is the same as that already laid down for convex *Mirrours*. If of Metal they are to be made after the Manner of concave *Mirrours*, only that the Clay Moulds there described require other wooden ones of the Figure of the *Mirrour*.—For *elliptical*, *parabolical*, and *hyperbolical Mirrours* the Mould is to be thus prepared: On a wooden or brazen Plane or Table, describe the Figure of an *Ellepsis*, *Parabola*, or an *Hyperbola*; which done, cut out the Figure from the Plane, with all the Accuracy imaginable. To the elliptick Figure fit an Axis, with two Fulcra to sustain it, *&c.* and a Handle to move it. Lay a Quantity of the Clay above-described under it, and turn about the Axis with the Handle, till the Plane has turned or impressed the elliptical Figure thereon.—The Axis of the *parabolical*, or *hyperbolical* Figure, is to be fixed at the Vertex in such Manner as that it may always remain erect. This to be turned about as above, till it has given its own Figure to the Clay applied about it.—The Part of the Mould thus formed is to be dried, and either smeared over with Fat, or sprinkled with Brick-dust. Then a convex Mould to be made, by putting a Quantity of the same Clay into a Cavity thus formed. This latter is called the *Male*, as the former the *Female* Mould.—The *male* Mould being well dried, is to be applied within the *Female*, in such Manner as only to leave the intended Thickness of the Mirrour between them. The rest as for concave Mirrours.—These *Mirrours* are not made without the utmost Difficulty; by reason, be the Moulds ever so just, the Figure of the Mirrour is apt to be damaged in the grinding.

As to the *Phænomena*, and *Properties* of *cylindrical Mirrours*.—1. The Dimensions of Objects corresponding Length-wise to the Mirrour, are not much changed; but those corresponding Breadth-wise have their Figures altered, and their Dimensions lessened so much the more, as they are further from the Mirrour. Whence arises a very great Distortion.

2. If the Plane of Reflection cuts the *cylindrick Mirrour* through the Axis, the Reflection is performed in the same Manner as in a plain Mirrour; if it cuts its Parallel to the Base, the Reflection happens in the same Manner as in a spherical Mirrour; if, lastly, it cuts it obliquely, or be oblique to its Base, the Reflection is the same as in an elliptick Mirrour.

Hence as the Plane of Reflection never passes through the Axis of the Mirrour, except when the Eye and objective Line are in the same Plane, nor parallel to the Base, except when the radiant Point and the Eye are at the same Height: The Reflection in a *cylindrical Mirrour* is usually the same as in an elliptick one.

3. If a hollow *cylindrick Mirrour* be opposed directly to the Sun, instead of a Focus of a Point, the Rays will be reflected into a lucid Line parallel to its Axis, at a Distance somewhat less than a fourth Part of its Diameter.

Hence arises a Method of drawing *Anamapholes*, i. e. wild deformed Figures on a Plane, which appear beautiful and well proportioned when viewed in a *cylindrical Mirrour*.

We are not much acquainted with the Properties of *elliptick*, *conic*, and *pyramidal Mirrours*; only that in the *first*, if a Ray strike on it from one of its Focus's, it is reflected into the other: So that a lighted Candle being placed in one, its Light will be collected in the other.

That the *second*, inasmuch as all the Rays they reflect meet in one Point, make the best Burning-Glasses of all others.

And, lastly, that wild irregular Figures may be so drawn on a Plane, as that the Eye being placed over the Axis of the two last, they shall appear beautiful and well proportioned.

Besides the *catoptrick Machines* above-mentioned, and accurately described and explained, there is another called *reflecting*, or *catoptrick Telescope*, which instead of Lens, consists chiefly of *Mirrours*, and exhibits remote Objects by Reflection instead of Refraction.

This Instrument is the Invention of Sir *Isaac Newton*; what determined him to apply his Thought this Way, was the different Refrangibility, which, in his new Doctrine of Light and Colours he found the Rays of Light were of. In effect, as he found the Ratio between the greatest and least Refractions of the different Rays to be nearly as 28 to 27, it easily followed, that the Rays could never be all refracted parallel from any Lens, but would some of them divaricate more, some less; besides, that the Foci would be disturbed; the Focus of the most refrangible Rays being nearer the Lens than that of the least refrangible ones, by a Distance which is the 27th Part of the Distance between the Object-Glass, and the Focus of the least refrangible ones.

Hence he concluded, that Refraction was too unequal a Principle; and that Lens's of whatever Figures, whether spherical, parabolical, or any of the other conick Sections, and how truly soever ground, would never suffice for the Perfection of *Telescopes*.

Upon this he had Recourse to another more equal Principle, *viz.* Reflection, and made a Telescope consisting of Specula, or *Mirrours*: The first Hint whereof, he took from Dr. *Gregory's Opticks*.

Note, That for the Construction of this *reflecting Telescope*, a Tube A B C D, fig. 22. must be provided, open in A D, and closed in B C, well blacked within Side, and of a Length equal to the Distance of the Focus; from the concave *Speculum* E F, to the Bottom B C, is to be fitted a concave metallick *Speculum*, *a b*,

a b, polished to the greatest Perfection; or rather, to have the Objects clearer, and more distinct, let it be a Glass *Speculum*, concave on its fore Side, and equally convex on the hind Side; for unless it be of the same Thickness every where, it will reflect the Images of Objects tinged with a spurious Colour; and indistinct. Towards the other End of the Tube, is fixed an Iron Piece, to which is cemented a plain metallick Speculum; or, which is better, a triangular Prism of Glass or Crystal, whose upper Angle is a right Angle, the two others half right. The Faces or Planes that meet in the upper Angle to be square, and the third a Parallelogram. This Prism is to be disposed as that a Ray reflected from the *Speculum*, passing through the Middle of the Face G M, may cut it at right Angles; but be inclined to Rectangle M N, in an Angle of 45°. Its Distance from the concave *Speculum* E F, is to be such, as that the Rays *a c* and *b d*, reflected from the concave *Speculum*, may, after a second Reflection, from the Base of the Prism, concur in the Point *e*; that is, the Distance of the Focus *e*, from the reflecting Surface of the Prism, and the Distance of that from the concave *Speculum*, is to be equal to the Distance of the Focus from the concave *Speculum*. In I is placed a Plano-Convex Lens, whose Focus is in *e*, that the reflected Rays may enter the Eye parallel. Lastly, this Lens is covered with a thin Brass or Leaden Plate, having a little round Perforation therein, for the Eye to look through, by which Means all foreign Rays are excluded, which would otherwise occasion Confusion.

In the first Telescope of this Kind, which the Inventor made, the Semi-Diameter of the concave metallick *Speculum*, was $12\frac{2}{3}$ Digits, or Tenths of an Inch; from which, therefore, the Focus was $6\frac{1}{2}$ Digits distant. The Diameter of the Eye-Glass was $\frac{1}{6}$ of a Digit; so that it magnified the Diameter of the Object in the Ratio of 1 to 38; but he found that Objects were found somewhat obscure hereby; on which Account, he afterwards recommended Glass *Specula* instead of metallick ones; adding that there is nothing more required to the Perfection of this Telescope, but that the Art of polishing Glass be brought to greater Perfection; for that some Inequalities, which do not hurt Lens's, are found to affect *Specula*, and prevent Objects being seen distinctly.

The same Author observes, that if the Length of the Instrument be 6 Feet, and consequently the Semi-Diameter of the concave *Speculum* 12, the Aperture of the *Speculum* is to be 6 Inches; by which Means the Object will be increased in the Ratio of 1 to 200 or 300.

If it be longer or shorter, the Aperture must be as the Cube of the Quadrato Quadrate Root of the Length, and its magnifying Power as its Aperture. The *Speculum* he orders to be an Inch or two broader than the Aperture.

Note also, That having thus ended what regards the Doctrine of *Catoptricks*, I'll pass to that of *Dioptricks*; which is properly the third Branch of *Opticks*.

DIOPTRICKS (formed of δια, *per*, *through*, and ωπτομαι, *I see*) is the Doctrine of refracted Vision, called also *Anaclasticks*: Its Office being to consider and explain the Effects of Light refracted by passing through different Mediums, as Air, Water, Glass, &c. and especially Lenses.

To proceed with some Order on this curious Subject, I'll explain first the Laws of *Dioptricks*; and conclude by the Application thereof, in the Construction of *Telescopes*, *Microscopes*, and other *Dioptrical* Instruments.

The most essential of those Laws, are those of *Refraction*, which in *Dioptricks* is in the Inflection or Bending of the Rays of Light, in passing the Surfaces of Glasses, Lenses, and other transparent Bodies of different Densities.

The *general Laws of Refraction* are as follow: 1. *A Ray of Light in its Passage out of a rarer, into a denser Medium*, e. gr. *out of Air into Glass, is refracted towards the Perpendicular*, i. e. *towards the Axis of Refraction*. Hence the refracted Angle is less than the Angle of Inclination: And the Angle of Refraction less than that of Incidence.

Hence also a Ray perpendicular to the refracting Surface, will pass through without being refracted; as it cannot be refracted to the Perpendicular. The physical Cause thereof is, that the Attraction of the denser Medium, which in Incidences oblique to its Surface acting perpendicular to that Surface, draws the Ray out of its Course: This Attraction, we say, in a perpendicular Incidence, acts in the Direction of the Ray.

2. *The Ratio of the Sine of the Angle of Inclination, to the Sine of the refracted Angle, is fixed and constant*, viz. if the Refraction be out of Air into Glass, it is found greater than as 114 to 76; but less than 115 to 76; that is, nearly as 3 to 2.

This Ratio assigned by *Huygens*, agrees with another of Sir *Isaac Newton*, who makes the Sine of the Angle of Inclination, to the Sine of the refracted Angle, as 31 to 20; which is, likewise, nearly as 3 to 2. Indeed there is some Difference in the Quantity of Refraction, in different Kinds of Glass; but in physical Matters, Preciseness is not necessary. In Rain-Water, *Des Cartes* found, the Ratio of the Sine of the Angle of Inclination, to the Sine of the refracted Angle, as 250 to 187, that is, nearly as 4 to 3; which agrees with Sir *Isaac Newton*'s Observation, who makes it as 529 to 396. In Spirit of Wine, the same great Author makes the Ratio as 100 to 73; which is not far from the sesquitertian Ratio. In Air he makes it as 3851 to 3850.

Whence the different refractive Power in different Fluids arises, is not determined. Clear Water, of all others, refracts the least; and if impregnated with Salts, its Refraction is increased in Proportion to the Quantity of Salt. Sir *Isaac Newton* shews, that in many Bodies, *e. gr.* Glass, Crystal, a Selenites, Pseudo-Topaz, &c. the refractive Power is proportionable to their Densities; only in sulphurous Bodies, as Camphire, Oil, Amber, Spirit of Turpentine, &c. the Power is two or three Times greater than in other Bodies of equal Density; yet they have the refractive Power with Respect to each other, nearly as their Densities. As to Air, he shews, that a Ray of Light in traversing quite thro' the Atmosphere, is refracted the same it would be, were it to pass with the same Obliquity out of a Vacuum into Air of equal Density with that in the lowest Part of the Atmosphere.

From the Laws just laid down, it follows, that one Angle of Inclination, and its corresponding refracted Angle being found by Observation; the refracted Angles corresponding to the several other Angles of Inclination, are easily computed. Now *Zahnius* and *Kircher* have found, that if the Angle of Inclination be 70°, the refracted Angle will be 38°, 50′; on which Principle, *Zahnius* has constructed a Table of Refractions out of Air into Glass, for the several Degrees of the Angle of Inclination; a Specimen whereof follows:

Angle of Inclination.	*Refracted Angle.*	*Angle of Refraction.*
10	0° 40′ 5″	0° 19 55″
2	1 20 6	0 39 54
3	2 0 3	0 59 56
4	2 40 5	1 19 55
5	3 20 3	1 39 57

Angle of Inclination.	*Refracted Angle.*	*Angle of Refraction.*
10°	6° 39′ 16″	3° 20′ 44″
20	13 11 35	6 48 25
30	19 29 29	10 30 31
45	28 9 19	16 50 41
90	41 51 40	48 8 20

Hence it appears, that if the Angle of Inclination be less than 2°, the Angle of Refraction out of Air into Glass, is almost $\frac{1}{3}$ of the Angle of Inclination: And therefore the Ray is refracted to the Axis of Refraction, by almost a third Part of the Quantity of its Angle of Inclination. And on this Principle it is, that *Kepler*, and most other dioptrical Writers, demonstrate the Refractions in Glasses.

The

The constant Ratio of the Sines of the Angles of Inclination, and the refracted Angles, was first discovered by *Snellius*, according to some *English* Authors, who are willing to rob *Des Cartes* of that Honour, though all *Europe* agree that he was the Inventor thereof.

Indeed as the Rays of Light are not of the same Degree of Refrangibility; this constant Ratio must be different in different Kinds. The Ratio therefore observ'd by Authors, is to be understood of Rays of the mean Refrangibility, *i. e.* of green Rays. The Difference of Refraction between the least and most refrangible Rays, that is, between violet and red Rays, Sir *Isaac Newton* shews it about $\frac{1}{23}$ Part of the whole Refraction of the mean refrangible, which Difference he owns so small, that there seldom needs any Regard had to it.

3. *When a Ray passes out of a denser into a rarer Medium*, e. gr. *out of Glass into Air, it is refracted from the perpendicular, or from the Axis of Refraction.* And hence the Angle of Refraction is greater than the Angle of Inclination.

Hence also, if the Angle of Inclination be less than 30°; M B C is nearly equal to $\frac{1}{3}$ of M B E. Therefore M B C, is one Half of C B E; consequently if the Refraction be out of Glass into Air; and the Angle of Inclination be less than 30°; the Ray is refracted from the Axis of Refraction, by almost one half Part of the Angle of Inclination. And this is the other *dioptrical* Principle, used by most Authors after *Kepler*, to demonstrate the Refractions of Glasses.

If the Refraction be out of Air into Glass, the Ratio of the Sine of Inclination, to the Sine of the refracted Angle, is as 2 to 3; if out of Air into Water, as 4 to 3: Therefore, if the Refraction be the contrary Way, *viz.* out of Glass or Water into Air; the Ratio of the Sines, in the former Case, will be as 2 to 3, in the latter as 4 to 3.

4. *A Line falling on a Curve Surface, whether concave or convex, is refracted after the same Manner, as it fell on a Plane, which is a Tangent to the Curve in the Point of Incidence.*

For the Curve and Plane Surface touching it, have an infinitely small Part common to them both; (each being originally generated by the Flux of a Point) but a Ray is refracted in such a little Part; therefore it is the same as if it was refracted in such a Plane.

5. *If a right Line cuts a refracting Surface at right Angles, and if from any Point in the denser Medium, be drawn a Parallel to the incident Ray, this will meet the refracted Ray, at the less Extreme of the Parallel; and will be to it as the Sine of the refracted Angle, to the Sine of the Angle of Inclination.*

Hence if B C, fig. 25. pass out of Glass into Air, it is in a subsequialterate Ratio, to C D; if out of Air into Glass, into a sesquialterate Ratio to C D.

Hence also, if Light pass out of Water into Air; C B is in a subsesquitertian Ratio to C D; if out of Air into Water in a Sesquitertian.

The *Laws of Refraction in Plane Surfaces*, are, 1. If parallel Rays be refracted out of one transparent Medium into another of different Density, they will continue parallel after Refraction.

The physical Reason is, that being parallel, their Obliquity, or Angle of Incidence is the same: But at equal Obliquities we have shewn the Refraction is equal; consequently the Parallelism, which they had before the Refraction, will be retained after it.

But this may be also demonstrated geometrically, thus: If the Rays be perpendicular to the refracting Surface, they will pass without any Refraction; consequently being parallel before their Passage, they will be so after it. If they fall obliquely, the Angle of Incidence, and consequently also the Angle of Inclination, have the same Ratio to the Sines of the refracted Angles; therefore the refracted Angles are also equal; consequently the refracted Rays are parallel.

Hence a Glass, plain on both Sides, being turned directly to the Sun; the Line passing through, it will be propagated after the same Manner as if the Glass was away: For the Rays being perpendicular, will pass without Refraction. If the Glass be turn'd obliquely to the Sun, the Light after Refraction will be of the same Intensity as before; the Intensity depending on the Spissitude or Closeness of the Rays, and on the Angle wherein they strike the Object, or the Eye, both which are here unvaried.

2. If two Rays proceeding from the same Radiant, and falling on a Plane Surface of a different Density, so as the Points of Refraction are equally distant from the Cathetus of Incidence; the refracted Rays have the same virtual Focus, or Point of Dispersion.

Hence, 1. Since in Rays very near each other, the Distance of the Cathetus is the same as to Sense; very near Rays will diverge from the same Point, *i. e.* have the same virtual Focus.

And hence, 2. When refracted Rays falling on the Eye, placed out of the Cathetus of Incidence, are either equally distant from the Cathetus, or very near each other; they will flow upon the Eye, as if they came to it from the virtual Focus; consequently the Radiant will be seen by the refracted Rays as in the Focus.

3. If a Ray fall obliquely out of a thinner into a denser Medium, having a Plane Surface; the Distance of the radiant Point will have a less Ratio to the Point of Dispersion, or virtual Focus, than the Sine of the refracted Angle to the Sine of the Angle of Inclination. But if the Distance of the Point of Refraction from the Cathetus of Incidence, than the 11th or 19th Part of the Distance of the radiant Point; and if in the former Case the 10th, in the latter the 100th Part thereof be so small, that it cannot be assigned, or need not be minded; then will the Radiant be to the virtual Focus, as to Sense, in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination.

Hence, 1. If the Refraction be out of Air into Glass, the Distance of the Point of Dispersion of Rays near the Cathetus, is sesquialterate of the radiant Point; of more remote Rays, greater than sesquialterate.

Hence, 2. If the Eye be placed in a double Medium, Objects in a rarer, will appear more remote than they are; and the Place of the Image in any given Case, may be determined from the Ratio of the Refraction. Thus *to Fishes swimming under Water, Objects out of Water must appear further distant than in Reality they are.*

4. If a Ray fall obliquely out of a denser into a rarer Medium, the Distance of a radiant Point has a greater Ratio to the Distance of the Point of Dispersion, than the Sine of the refracted Angle, has to the Sine of the Angle of Inclination. In the other Case of the preceding Theorem, will be to the Point of Dispersion, as to Sense, in the Ratio of the Sine of refracted Angle, to the Sine of the Angle of Inclination.

Hence, 1. If the Refraction be out of Glass into Air, the Distance of the Point of Dispersion of Rays near the Cathetus of Incidence, is subsesquialterate of the Distance of the radiant Point; that of the more remote Rays, is less than subsesquialterate.

But, 2. If the Refraction be out of Water into Air, the Distance of the Point of Dispersion of Rays, near the Cathetus, is subsesquitertian; of those more remote, less than subsesquitertian.

And, 3. The Eye therefore being in a rarer Medium, Objects placed in a denser, appear nearer than they are; and the Place of the Image may be determined in any given Case by the Ratio of Refraction. Hence the Bottom of a Vessel full of Water, is raised by Refraction to a third Part of his Height, with Respect to an Eye perpendicularly over the refracting Surface; and hence *Fishes and other Bodies under Water, appear nearer than they really are.*

5. If the Eye be placed in a rarer Medium, an Object seen in a denser Medium, by a Ray refracted in a Plane Surface, will appear larger than it really is. If the Object be in a rarer, and the Eye in a denser Medium, the Object will appear less than it is. And in each Case the apparent Magnitude, is to the real one, in a Ratio compounded of the Distance of the Point, to which the Rays tend before Refraction, from the refracting Surface, to the Distance of the Eye, from the same, and of the Distance of the Object, from the Eye, to its Distance from a Point to which the Rays tend before Refraction.

Hence, 1. If the Object A D, be very remote, F M

will be physically equal to G M; and therefore the real Magnitude M B, to its apparent one M H; or the Distance of the Eye from the refracting Plane, to the Distance of the Point of Convergence from the same Plane.

Hence, 2. *Objects under Water, to an Eye in the Air, appear larger than they are; and to Fishes under Water, Objects in the Air appear less than they are.*

The *Laws of Refraction in spherical Surfaces, both concave and convex*, are, 1. A Ray of Light D E (fig. 19.) parallel to the Axis of a denser Sphere; after a single Refraction in E, falls in with the Axis in the Point *f*, beyond the Center C.

For the Semi-Diameter C E drawn to the Point of *Refraction* E, is perpendicular to the Surface, and is therefore the Axis of Refraction; and therefore the Ray D E will converge to the Axis of the Sphere A F; and will, therefore, at length concur with it; and that beyond the Center C, in F, because the Angle of Refraction F E H, is less than the Angle of Inclination C E H.

2. If a Ray fall on a spherically convex Surface of a denser Medium, parallel to its Axis; the same Diameter will be to the refracted Ray, in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination: But the Distance of the Focus or Point of Concurrence, from the Center, is to the refracted Ray in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination.

3. If a Ray fall on a denser Spherical convex Surface parallel to the Axis; the Distance of the Focus from the refracting Surface, is to its Distance from the Center, in a Ratio greater than that of the Sine of the Angle of Inclination, to the Sine of the refracted Angle. But if the Ray be very near the Axis, and the Angle of Inclination only of a few Degrees; the Distances of the Focus from the Surface, and the Center, will be nearly in the Ratio of the Sine of the Angle of Inclination, to the Sine of the refracted Angle.

Hence, 1. If the Refraction be out of Air into Glass; in the Case of Rays near the Axis B F : F C : : 3 : 2. And in the Case of the Rays remote from the Axis, B F : F C 7 3 : 2. Consequently in the former Case, B C : B F : : 1 : 3; and in the latter B C : C F ∠ 1 : 3.

And, 2. If the Refraction be out of Air into Water; in the former Case, B F : F C : : 4 : 3; and in the latter B F : F C 7 4 : 3. Consequently in the former Case B C : B F : : 1 : 4; and in the latter B C : B F ∠ 1 : 4.

Hence, 3. Since the Sun's Rays are parallel as to Sense; if they fall on the Surface of a solid Glass Sphere, or of a Sphere full of Water, they will not concur with the Axis within the Sphere: So that *Vitellio* was mistaken when he imagined that the Sun's Rays falling in the Surface of a crystalline Sphere, refracted to the Center.

4. If a Ray parallel to the Axis fall out of a denser into a rarer spherical Medium, after Refraction it will diverge from the Axis; and the Distance of the Point of Dispersion, or the virtual Focus from the Center of the Sphere, will be to its Semi-diameter, in the Ratio of the Sine of the refracted Angle to the Angle of Refraction; but to the Portion of the refracted Ray drawn back, in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination.

5. If a Ray fall parallel to the Axis on the spherical convex Surface, of a rarer Medium out of a denser; the Distance of the Point of Dispersion from the Center, is to its Distance from the Surface, in a Ratio greater than that of the Sine of the refracted Angle to the Sine of the Angle of Inclination. But if the Rays be very near the Axis, the Ratio will be very nearly the same with that of the refracted Angle to the Sine of the Angle of Inclination.

Hence, 1. If the Refraction be out of Glass into Air; in the Case of Rays near the Axis, F C : F B : : 3 : 2. consequently B C : : F B : : 1 : 2. Therefore in the Case of Rays more remote from the Axis B C : F B ∠ 1 : 2.

2. If the Refraction be out of Water into Air; in the former Case F C : F B : : 4 : 3. Consequently B C : F B : : 1 : 3; in the latter Case therefore, B C : F B : ∠ 1 : 3.

3. Since then the Point of Dispersion is more remote from the refracting Surface, if the Rays proceed out of Water, then out of Glass into Air; parallel Rays are less dispersed in the former Case than in the latter.

6. If a Ray H E (fig. 23.) fall parallel to the Axis F A, out of a rarer, on the Surface of a spherically concave denser Medium; the refracted Ray E N will be driven from the Point of the Axis F; so as F E will be to F C, in the Ratio of the Sine of the Angle of Inclination, to the Sine of the refracted Angle.

7. If a Ray fall parallel to the Axis on the concave Surface of a spherical denser Medium, from a rarer; the Distance of the Point of Dispersion from the refracting Surface, is to its Distance from the Center, in a Ratio greater than that of the Sine of the Angle of Inclination, to the Sine of the refracted Angle, but if the Rays be very near the Axis, and the Angle very small, the refracting Surface will be to the Center, very nearly in the Ratio of the Sine of the Angle of Inclination, to the Sine of the refracted Angle.

Hence, 1. If the Refraction be out of Air into Glass; in the Case of Rays near the Axis, F B : F C : : 3 : 2; in the Case of Rays more remote from the Axis, F B : F C 7 3 : 2. Consequently in the former, B C : F C : : 1 : 2: And hence, in the latter B C : F C ∠ 1 : 2.

Hence also, 2. If the Refraction be out of Air into Water; in the Case of the Rays near the Axis, F B : F C : : 4 : 3. In the Case of Rays more remote from the Axis F B : F C 7 4 : 3. Consequently in the first Case, B C : F C : : 1 : 3. And hence in the latter B C : F C 7 1 : 3.

And hence, 3. Since the Point of Dispersion, is farther from the Center, if the Refraction be in Water then in the Air; the Rays will be less dispersed in the latter Case than in the former.

8. If the Ray H E (fig. 22.) fall parallel to the Angle A F, from a denser, upon the Surface of a spherically concave rarer Medium; the refracted Ray will concur with the Axis A F, in the Point F; so as the Distance of the Point of Concourse from the Center, may be to the refracted Ray in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination.

Note, That from this accurate Examen of the Laws of Refraction in *Dioptricks*, in general, I'll pass to a more particular one, of those Laws with Respect to *Lens's*, *Telescopes*, *Microscopes*, *Prisms*, &c. beginning by the Definition of *Lens*, &c.

LENS, in *Dioptricks*, properly signifies a small, oblong Glass, of the Figure of a Lentil; but is extended to any *Optick* Glass, not very thick, which either collects the Rays of Light into a Point, in their Passage through it, or disperses them further apart, according to the Laws of Refraction.

Lens's have various Figures; that is, are terminated by various Surfaces, from which they acquire various Names. Some are plain on one Side, and convex on the other; others convex on both Sides; both which are ordinarily called *convex Lens's*; though when we speak acurately, the former are called *Plano-Concave*. Others again, are concave on both Sides; others are concave on one Side, and convex on the other; which are called *Convexo-Concave*, or *Concavo-Convex Lens's*, according as the one or other Surface is more curve, or a Portion of a less Sphere.

It is to be here observed, that in every *Lens* terminated in any of the afore-mentioned Manners, a right Line perpendicular to the two Surfaces, is called the Axis of the *Lens*. Which Axis, when both Surfaces are spherical, passes through both their Centers; but if one of them be plane, it falls perpendicularly upon that, and goes thro' the Center of the other.

A *Lens*, one of whose Surfaces is convex, and the other concave, is called a *Meniscus*; sometimes also *Lunula*.

In a *Meniscus*, if the Diameter of the Convexity be equal to that of the Concavity, or Ray falling parallel to the Axis, will continue parallel thereto after Refraction.

Such a *Meniscus*, therefore, will neither collect nor disperse the Rays; and is therefore of no Use in *Dioptricks*.

To find the Focus of a *Meniscus*, the Rule is, as the Difference of the Semi-diameters of the Convexity and Concavity, is to the Semi-diameter of the Convexity:

So is the Diameter of the Concavity, to the Diſtance from the Focus to the *Meniſcus*. Hence, if the Semi-diameter of the Concavity be triple the Semi-diameter of the Convexity, the Diſtance of the Focus from the *Meniſcus* will be equal to the Semi-diameter; and therefore the *Meniſcus* will be equivalent to a Lens equally convex on either Side.

Again, if the Semi-diameter of the Concavity be double that of the Convexity, the Diſtance of the Focus will be equal to the Diameter; and therefore the *Meniſcus* will be equivalent to a *plano-convex Lens*.

If the Semi-diameter of the Concavity be quintuple that of the Convexity, the *Meniſcus* will be equivalent to a Sphere.

The Semi-diameter therefore of the Convexity being given, that of the Concavity required to remove the Focus to any given Diſtance from the *Meniſcus* is eaſily found.

Note, That Lens's are diſtinguiſhed, with regard to their Manner of Preparation, into *ground*, and *blown*.

Blown *Lens's* are little Globules of Glaſs, melted in the Flame of a Lamp or Taper. But the Figure of theſe is ſeldom exact; beſides, that the Smoak of the Lamp cleaves to the Surface in melting; on both which Accounts they come ſhort of the Clearneſs of thoſe that are ground, or turned and poliſhed in the Bathe, in little Copper Baſons or Diſhes. The Secret is now found of making theſe exquiſitely ſmall, ſo as ſome of them do not exceed in Diameter, the ſixth Part of a Line, which are found to magnify Objects ſeveral Millions of Times.

Note, alſo, That as to the Manner of grinding *Lens's*, I have explained it in my Treatiſe of *Glaſs-Grinding*, under the Letter G.

Now as to the *Laws of Refraction*, with regard to Lens's, thoſe of *convex Lens*, and the Effects depending thereon are as follow.—1. A Ray of Light near the Axis and parallel thereto (*Table Opticks, fig.* 25.) ſtriking on the plain Surface of a *plano-convex Lens*, directly oppoſite to the luminous Body, after Refraction concurs with the Axis in the Point F, and if C be the Center of the Convexity, C F will be to F L, that is, from the Diſtance of the Center from the Point of Concourſe, or Focus, will be to the Diſtance of the Center in the convex Surface, in the Ratio of the Refraction.

For the plain Surface being directly oppoſed to the luminous Body, the Ray E G is perpendicular to A B, and therefore will paſs unrefracted to H: Thus it ſtrikes on A H B, ſtill parallel to the Axis; and therefore coming out of a denſer Medium into a rarer, will meet with the Axis of the Lens in *b*; and ſo as that C F will be to F L, in the Ratio of the Sine of the refracted Angle to the Sine of the Angle of Inclination, as demonſtrated when I have explained *Refraction*.

Then the Refraction be out of a Glaſs Lens into Air C F : E L : : 3 : 2, and therefore F L = 2 C L, that is parallel Rays, near the Axis, will concur with it at the Diſtance of the Diameter.—Again, if the Refraction were out of a Water Lens, *i. e.* out of a *plano-convex Lens* filled with Water, C F : E L : : 4 : 3, and therefore F L = 3 C L, *i. e.* parallel Rays nearer the Axis, will concur with it at the Diſtance of half the Diameter. So that if a lighted Candle be placed in the Focus of a *plano-convex Lens*, that is, in the Point *f*, diſtant from the Surface of the Lens A L B, by the Length of the Diameter; and from the Surface of the Water *Lens*, by half the Diameter, its Rays, after Refraction, will become parallel.

2. If the Ray K L (*fig.* 24.) near the Axis of a *plano-convex Lens*, and parallel thereto, ſtrikes on its convex Surface A O I I B, after a double Refraction, it will meet the Axis in F; ſo as that I H G will be to G C, and G F to F I I, in the Ratio of the Refraction.

For the Ray K I, parallel to the Axis E G, by virtue of the firſt Refraction in I, will tend to the Point G, ſo as G H will be to G C in the Ratio of the Sine of the Angle of Inclination to the Sine of the refracted Angles: Therefore by virtue of the ſecond Refraction in L, it will concur with the Axis in F; ſo as G D will be to F D, in the Ratio of the Sine of the refracted Angle, to the Sine of the Angle of Inclination.

So that the Semi-diameter and Thickneſs of the *plano-convex Lens*, with the Ratio of the Refraction being given, hence ariſes a Method of determining the Focus of parallel Rays, ſtriking on the convex Surface. For,

Hence, if the Lens be Glaſs, F D = 2 C H = $\frac{2}{3}$ H D, ſo that if two Thirds of the Thickneſs of the Lens be inconſiderable (as in Practice it uſually happens) parallel Rays meet with the Axis at the Diſtance of the Diameter from the Lens, even when they ſtrike on the convex Surface.

So that as to the Place of the Focus, it is the ſame Thing whether the plane Surface, or the convex one, be turned to a Luminary of parallel Rays; though it appears, both from Experience and trigonometrical Calculations, that there are more Rays united in a leſs Space, if the convex Surface, than if the plain one be turned towards the Sun.

If the Lens were full of Water F D = 3 C H = $\frac{3}{4}$ H D; wherefore if $\frac{3}{4}$ H D be inconſiderable, F D = 3 C H, or if $\frac{1}{4}$ H D be inconſiderable, F H = 3 C H, parallel and near the Rays, therefore are united at the Diſtance of half the Diameter, if the Refraction be in Water, even when the convex Surface is oppoſed to the luminous Body. Hence alſo ariſes a Method of determining the Focus of parallel Rays ſtriking on a Lens convex on both Sides, the two Semi-diameters, and the Thickneſs of the Lens being given.

On this Principle is founded the Structure of refracting Burning-Glaſſes, the Sun's Light and Heat being exceedingly augmented in the Focus of a Lens, whether convex or plano-convex, ſince the Rays falling parallel to the Axis of the Lens, are reduced into a much narrower Compaſs; ſo that it is no wonder they burn ſome Bodies, melt others, and produce other extraordinary Phænomena.

3. If a luminous Body be placed in a Focus behind a Lens, whether plano-convex, or convex on both Sides, or, whether equally or unequally, the Rays after Refraction become parallel.

Hence, by means of a convex Lens, or a little Glaſs Bubble full of Water, a very intenſe Light may be projected to a vaſt Diſtance.

And this furniſhes us with the Structure of a Lamp, or Lanthorn, to project an intenſe Light to an immenſe Diſtance: For a Lens convex on both Sides being placed oppoſite to a concave Mirrour, if in the common Focus of both be placed a lighted Candle, or Wick, the Rays reflected back from the Mirrour to the Lens will be parallel to each other; and after Refraction will converge, till they concur to the Diſtance of the Semi-diameter, after which they will again diverge.—But the Candle being likewiſe in the Focus of the Lens, the Rays it throws on the Lens will be parallel: And therefore if a very intenſe Light meet with another equally intenſe at the Diſtance of the Diameter from the Lens, the Light will be ſurpriſing: And though it afterwards decreaſe, yet the parallel and diverging Rays going a long Way together, it will be very great at a very great Diſtance.—Lanthorns of this Kind are of conſiderable Service in the Night-time, to diſcover remote Objects, and are u'ed with Succeſs, by Fowlers and Fiſhermen, to gather their Prey together in order to take them.

If it be required to have the Light, at the ſame Time, tranſmitted through ſeveral Places, as through ſeveral Streets, *&c.* the Number of Lens's and Mirrours is to be increaſed.

If the luminous Body placed in the Focus, be of a larger Extent, the Rays flowing from Points ſenſibly diſtant from each other cannot be parallel; but will conſtitute ſeveral Trains or Parcel of Rays parallel to each other.

3. The Images of Objects, oppoſed in any Manner to a convex Lens, are exhibited invertedly in its Focus.

Hence, if a Paper be applied to a convex Lens (eſpecially in a dark Room) at the Diſtance of its Focus, the Images of Objects ſhining upon it, will be repreſented diſtinctly, and in their natural Colours thereon: Nor is the Focus of the Sun's Rays any Thing elſe in effect, but the Image of the Sun. Hence in later Eclipſes

Eclipses the Sun's Image, eclipsed as it is, may be burnt by a large Lens on a Board, &c. a very entertaining Phænomenon.

Hence also, if a convex Lens of any Kind be exposed both to nearer and remoter Objects, and a Paper at the same Time be applied, so as to receive the Images of Objects distinctly, the Distance of the Focus from the Lens, and thence the Diameter of the Convexity may be determined.

4. If a concave *Mirrour* be so placed, as that an inverted Image, formed by Refraction through a Lens, be found between the Center and the Focus, or even beyond the Center, it will again be inverted by Reflection, and so appear erect in the first Case beyond the Center; and in the latter, between the Center and the Focus. On these Principles is built the *Camera obscura*.

Note, That *Camera obscura*, is a Machine or Apparatus, representing an artificial Eye; whereon the Images of external Objects, received through a double convex Glass, are exhibited distinctly, and in their native Colours, on a white Matter placed within the Machine, in the Focus of the Glass. The Use of the *Camera obscura* is manifold; it serves to very good Purposes in explaining the Nature of Vision; and hence it is that some call it the artificial Eye. It affords very diverting Spectacles; both by exhibiting Images perfectly like their Objects, and each cloathed with their native Colours; and by expressing, at the same Time, all their Motions: Which latter, no other Art can imitate. By Means of this Instrument, especially the third Contrivance under mentioned, a Person unacquainted with designing, will be able to delineate Objects to the last Accuracy and Justness; and another well versed in Painting, will find many Things herein to perfect his Art.

5. The Diameter of the Image of an Object, delineated beyond a convex Lens, is to the Object itself in the Ratio of the Distance of the Image to that of the Object.

Since then the Image of a remoter Object is less distant from the Lens than that of the nearer, the Image of the more remote, will be less than that of the nearer. And because the Distance of the Image from the Lens is greater, if the Lens be a Segment of a greater Sphere than of a less; hence the Image will be greater in the former Case than in the latter. The Image therefore will be of such a Magnitude, as it would be of, were the Object to shine into a dark Room, through a little Hole upon a Wall, at the same Distance from the Hole, at which the Focus is from the Lens. When an Object is less distant from a Lens than the Focus of parallel Rays, the Distance of the Image is greater than that of the Object; otherwise the Distance of the Image is less than that of the Object; in the former Case, therefore, the Image is greater than the Object, in the latter, less.

If the Images be made greater than the Objects, they will not appear distinctly; because in that Case there are fewer Rays which meet after Refraction in the same Point; whence it happens, that Rays proceeding from different Points of an Object, terminate in the same Point of an Image, which is the Cause of Confusion. Hence it appears, that the same Aperture of a Lens may not be admitted in every Case, if we would keep off the Rays which produce Confusion. However, though the Image is then more distinct, when no Rays are admitted but those near the Axis, yet for Want of Rays, the Image is apt to be dim.

6. If the Eye be placed in the Focus of a convex Lens, an Object viewed through it appears erect, and enlarged in the Ratio of the Distance of the Object from the Eye, to that of the Eye from the Lens, if it be near; but infinitely, if remote.

The Laws of concave Lens are as follows. 1. If parallel Rays strike on a Plano-Concave Lens K L, fig. 7. and F C be to F B in the Ratio of Refraction, the Rays will diverge from the Axis, and the Point of Divergency, or Dispersion, called the virtual Focus, will be F.

For the Ray H I, parallel to the Axis, is perpendicular to K L, and will therefore pass unrefracted to E. Wherefore F C being to F B in the Ratio of Refraction, F will be the virtual Focus.

If then, the Lens be Glass, F B = 2 B C, *i. e.* the virtual Focus F will be distant from the Lens K L, by the Space of the Diameter 2 B C.

If the Refraction be in Water, F B = 3 B C, *i. e.* the virtual Focus F, will be distant from the Lens K L, a Diameter and a half 3 B C.

2. If the Ray A E, parallel to the Axis F P, strike on a Lens concave on both Sides; and both F C be to F B, and I P to P H, in the Ratio of Refraction; and F P : P H : : F B : B G; G will be the Point of Dispersion, or the virtual Focus, fig. 5.

If therefore the Refraction be in a Glass Lens, the Sums of the Semi-Diameters C B and H I, will be to the Diameter of the Concavity of either 2 H I, as the Semi-Diameter of the other C B, to the Distance of the virtual Focus, from the Lens B G.

Hence the Sun's Rays striking on a concave Lens, their Light after Refraction will be considerably weaken'd; so that the Effect of concave Lens is opposite to that of convex ones.

3. An Object viewed through a concave Lens, appears erect, and diminished in a Ratio compounded of the Ratio's of the Space in the Axis, between the Point of Incidence, and the Point to which an oblique Ray would pass without Refraction, to the Space in the Axis, between the Eye and the Middle of the Object; and the Space in the same Axis, between the Eye and the Point of Incidence, to the Space between the Middle of the Object, and the Point the oblique Ray would pass to without Refraction.

Though the Properties of Lens have been here considered principally with Regard to Rays falling near the Axis, and parallel thereto; yet the Reasoning will be easily transferred to Rays remoter from the Axis, and falling in any Direction. Thus we may say universally, that in a convex Lens, all parallel Rays become converging, and concur in a Focus; that diverging Rays either become less diverging, or run parallel, or converge; and that converging Rays converge the more: All which Alterations are more sensible in oblique Rays, than in perpendicular ones, by Reason the Angles of Incidence in that Case are greater.

In concave Lens, all parallel Rays become diverging, diverging Rays diverge the more; converging Rays, either converge less, or become parallel, or go out diverging: All which Things hold of oblique, as well as direct Rays, but more sensible in the first.

Note, That *Focus* (so often repeated throughout the Course of this Treatise) is, in *Opticks*, a Point wherein several Rays concur, and are collected; either after having undergone Refraction or Reflection. It is thus called, by Reason the Rays being here brought together, and united; their Force and Effect is increased; so that they become able to burn: Accordingly, it is in this Point, that Bodies are placed to sustain the Force of Burning-Glasses, or Mirrours. It must be observed, that *Focus* is not strictly a Point; the Rays are not all accurately collected in the same Place: *Huygens* demonstrates, that the *Focus* of a Lens convex on both Sides, is $\frac{5}{8}$ of the Thickness of the Lens. In *Dioptricks*, *Focus* is the Point wherein refracted Rays, render'd convergent by Refraction, do concur or meet, and cross the Axis. The same Point is also called the *Point of Concourse*, or *Concurrence*. And in *Catoptricks Focus*, is a Point wherein the Rays reflected from the Surface of a Mirrour or Speculum, and by Reflection render'd convergent, do concur, or meet.

Note also, That the Laws of the *Foci* of Glasses, and the Method of finding the same, being those of most Use and Importance; we shall here subjoin them apart, as deliver'd and demonstrated by M. *Molineaux*, in his *Dioptrica Nova*.

1. Then the Focus of a convex Glass, *i. e.* the Point wherein parallel Rays transmitted through a convex Glass, whose Surface is the Segment of a Sphere, do unite, is distant from the Pole or Vertex of the Glass, almost a Diameter and a half of the Convexity.

2. In a Plano-Convex Glass, the Focus of parallel Rays, or the Place where they unite with the Axis, is distant from the Pole of the Glass, a Diameter of the Convexity; provided the Segment do not exceed thirty

thirty Degrees. The Rule, or Canon in Plano-Convex Glass, is as 107 : 193 : : so is the Radius of the Convexity, to the refracted Ray, taken in its Concourse with the Axis; which in Glasses of larger Spheres, is almost equal to the Distance of the Focus taken in the Axis.

3. In double convex Glasses of the same Sphere, the Focus is distant from the Pole of the Glass about the Radius of the Convexity, if the Segment be but thirty Degrees. But if the Convexity be unequal, or if the two Sides be Segments of different Spheres, then the Rule is, — as the Sum of the Radii of both Convexities : to the Radius of either Convexity alone : : so is the double Radius of the other Convexity : to the Distance of the Focus. Here observe, that the Rays which fall nearer the Axis of any Glass, are not united with it so soon as those further off: Nor will the focal Distance be so great, in a Plano-Convex Glass, when the convex Side is towards the Object. Hence it is easily concluded, that in viewing any Object in a Plano-Convex Glass, the convex Side should be turned outward; as also in burning by such a Glass.

For the *virtual Focus*, observe, 1. That in concave Glasses, when a Ray falls from Air parallel to the Axis, the *virtual Focus*, by its first Refraction, becomes at the Distance of a Diameter and a half of the Concavity.

2. In Plano-Concave Glasses, when the Rays fall parallel to the Axis, the virtual Focus is distant from the Glass, the Diameter of the Concavity.

3. In Plano-Concave Glasses, as 107 : 193 : : so is the Radius of the Concavity to the Distance of the virtual Focus.

4. In double Concaves of the same Sphere, the virtual Focus of parallel Rays, is as the Distance of the Radius of the Concavity. But whether the Concavities be equal or unequal, the virtual Focus, or Point of Divergency of the parallel Rays, is determined by this Rule. As the Sum of the Radii of both Concavities, is to the Radius of either Concavity : : so is the double Radius of the other Concavity : to the Distance of the virtual Focus.

5. In concave Glasses, if the Point to which the incident Rays converge, be distant from the Glass farther than the virtual Focus of parallel Rays, the Rule for finding the virtual Focus of this Ray is this: As the Difference between the Distance of this Point from the Glass, and to the Distance of the virtual Focus, so is the Distance of this Point of Convergence from the Glass, to the Distance of the virtual Focus of this converging Ray.

6. In concave Glasses, if the Point to which the incident Rays converge, be nearer the Glass, than the virtual Focus of parallel Rays, the Rule to find where it crosses the Axis is this: As the Excess of the virtual Focus, more than this Point of Convergency, is to the virtual Focus; so the Distance of this Point of Convergency from the Glass, is to the Distance of the Point where this Ray crosses the Axis.

The Rules for finding the *Foci* of Glasses, are these: To find the Focus of a convex spherical Glass, being of a small Sphere, apply it to the End of a Scale of Inches, and decimal Parts, and expose it before the Sun; upon the Scale you will have the bright Intersection of the Rays measured out; or expose it in the Hole of a dark Chamber; and where a white Paper receives the distinct Representation of distinct Objects, there is the Focus of the Glass. For a Glass of a pretty long Focus, observe some distant Object thro' it, and recede from the Glass, till the Eye perceives all in Confusion, or the Object begins to appear inverted; here the Eye is in the Focus. For a Plano-Convex Glass, make it reflect the Sun against the Wall, you will on the Wall perceive two Sorts of Light; one more bright within, another more obscure: Withdraw the Glass from the Wall, till the bright Image is at its smallest; the Glass is then distant from the Wall about the fourth Part of its focal Length. For a double Convex; expose each Side to the Sun in like Manner; and observe both the Distances from the Wall. The first Distance is about half the Radius of the Convexity turned from the Sun; and the second, about half the Radius of the other Convexity. Thus we have the Radii of two Convexities; whence the Focus is found by this Rule: As the Sum of the Radii of both Convexities : is to the Radius of either Convexity : : so is the double Radius of the other Convexity : to the Distance of the Focus.

Note also, That the next Thing we have to do, is to apply all the Rules above given to Practice, in the making of *Telescopes*, *Microscopes*, *Prisms*, *Spectacles*, &c. and giving the necessary Instructions for the Use thereof; and previously to all, the Definition of each in particular, beginning by the *Telescope*.

A Telescope, is an optical Instrument, consisting of several Glasses, or Lens fitted into a Tube, thro' which remote Objects are seen, as if nigh at Hand.

In *Telescopes*, the Lens or Glass turned towards the Object, is called the *Object-Glass*; and that next the Eye, the *Eye-Glass*; and if the *Telescope* consists of more than two Lens's, all, but that next the Object, are called *Eye-Glasses*.

Note, That to prove the Regularity and Goodness of an *Object-Glass*, we must strike two concentrick Lines on a Paper, the one having its Diameter the same with the Breadth of the *Object-Glass*; the other half the Diameter; and divide the inner Circumference into six equal Parts, make six fine small Holes therein with a Needle, and cover one Side of the Glass with this Paper; then exposing it to the Sun, receive the Rays that pass through these six Holes, on a Plane, at a just Distance from the Glass; and by withdrawing, or approaching this Plane, from or to the Glass; we shall find whether the Rays that pass through these six Holes, unite exactly together at any Distance from the Glass; if they do, we may be assured of the Regularity of the Glass; that is, of its just Form; and at the same Time we obtain exactly the Glass's focal Length. Indeed there is scarce any better Way to prove the Excellency of an *Object-Glass*, then by placing it in a Tube, and trying it with small Eye-Glasses, at several distant Objects; for that *Object-Glass* which represents Objects the brightest, and most distinct, which bears the greatest Aperture, and most convex, and concave Eye-Glass, without Colouring or Haziness, is the best. To prove whether *Object-Glasses* be well center'd, we hold the Glass at a due Distance from the Eye; and observe the two reflected Images of a Candle; where those Images unite or coalesce, there is the true Center; if this be in the Middle or central Point of the Glass, it is truly center'd.

Telescopes are of several Kinds distinguished by the Number and Form of their Lens's or Glasses; and denominated from their particular Uses; such are the *Terrestial* or *Land Telescope*; the *Celestial* or *Astronomical Telescope*; to which may be added, the *Galilean* or *Dutch Telescope*, the *reflecting Telescope*, and the *aerial Telescope*.

The *Galilean* or *Dutch Telescope*, is a *Telescope*, consisting of a convex *Object-Glass*, and a concave *Eye-Glass*.

This of all others, is the most antient Form, being the only Kind made by the Inventors *Galileo*, &c. or known, before *Huygens*; whence its Name. Its Construction, Perfections, Imperfections, &c. are delivered in what follows:

For the Construction of a *Dutch Telescope*; in a Tube prepared for the Purpose, at one End is fitted a convex Object Lens, either a plain Convex, or convex on both Sides, but a Segment of a very large Sphere: At the other End is fitted an Eye-Glass, concave on both Sides, and the Segment of a less Sphere; so disposed, as to be the Distance of the virtual Focus, before the Image of the convex Lens.

Note, That in the Construction of a *draw Tube* for a *Telescope*; the chief Points to be regarded are, that the *Tube* be not troublesome by its Weight, nor liable to warp and disturb the Position of the Glasses; so that any Kind of *Tube* will not serve in every Case. But

But, — 1. If the *Tube* be ſmall, 'tis beſt made of thin Braſs Plates covered with Tin, and formed into Pipes or Drains, to ſlide within one another. — 2. For long *Tubes*, Iron would be too heavy; for which Reaſon ſome chuſe to make them of Paper, thus: A wooden Cylinder is turned, of the Length of the Paper to be uſed; and of a Diameter equal to that of the ſmalleſt Draw; about this Cylinder is rolled Paper, till it be of a ſufficient Thickneſs: When one Pipe is dry, provide others after the ſame Manner; ſtill making the laſt ſerve for a Mould for the next, till you have enough for the Length of the *Tube* deſired. Laſtly, to the Extremes of the Draws are to be glewed wooden Ferrils, that they may be drawn forth the better. — 3. Since Paper-Draws are apt to ſwell in moiſt Weather, ſo as to ſpoil their ſliding; and in dry Weather to ſhrink, which renders them looſe and tottering: In both which Caſes, the Situation of the Lens's is eaſily diſturbed; the beſt Method of making *Tubes* is as follows:

Glue Parchment round a wooden Cylinder, and let the Parchment be coloured black, to prevent the reflected Rays making any Confuſion; provide very thin Slits of Beech, and bending them into a Cylinder, glue them carefully to the Parchment: Cover this wooden Caſe with white Parchment, and about its outer Extreme make a little Ring or Ferril: After the ſame Manner make another Draw over the former; and then another, till you have enough for the Length of the *Tube*. — To the inner Extreme of each Draw, fit a wooden Ferril, that the ſpurious Rays ſtriking againſt the Sides, may be intercepted and loſt: In thoſe Places where the Lens's are to be put, it will be proper to furniſh the Ferrils with female Screws. Provide a wooden Cover to defend the object Glaſs from the Duſt, and putting the Eye Glaſs in its wooden Ferril, faſten it by the Screw to the *Tube*. Laſtly, provide a little wooden *Tube* of a Length equal to the Diſtance the Eye-Glaſs is to be from the Eye; and fit it to the other Extreme of the *Tube*.

Now in an Inſtrument, thus framed, all People, except *Myopes*, or thoſe ſhort-ſighted, muſt ſee Objects diſtinctly in an erect Situation, and increaſed in the Ratio of the Diſtance of the virtual Focus of the Eye-Glaſs, to the Diſtance of the Focus of the Object-Glaſs.

But for *Myopes* to ſee Objects diſtinctly through ſuch an Inſtrument, the Eye-Glaſs muſt be ſet nearer the Object-Glaſs. The Reaſon of theſe Effects will appear from what follows: For,

1. Since it is far diſtant Objects that are to be viewed with a *Teleſcope*, the Rays proceeding from the ſame Point of the Object, will fall on the Object-Glaſs parallel, and conſequently by their Refraction through the Convexity, will be thrown converging on the Eye-Glaſs; but by their Refraction through the Concavity hereof, they will be again rendered parallel, and in ſuch Diſpoſition will enter the Eye. — But all, excepting *Myopes*, ſee Objects diſtinctly by parallel Rays.

2. Suppoſe A (fig. 30.) to be the Focus of the Object-Glaſs; and ſuppoſe A C, the farthest Rays on the right Hand of the Object that paſſes through the Tube: After Refraction it will become Parallel to the Axis B I, and conſequently after a ſecond Refraction through the concave Lens, will diverge from the virtual Focus. Wherefore ſince all the Rays coming from the ſame Extreme, to the Eye placed behind the concave Lens, are parallel to L E; and thoſe from the Middle of the Object parallel to F G; the middle Point of the Object will be ſeen in the Axis G A; and the right Extreme, on the right Side, *viz.* in the Line L N, a Parallel thereto; that is, the Object will be erect: Which is the ſecond Point.

3. Since all Right-Lines, parallel to L N, cut the Axis under the ſame Angle, the Semi-diameter of the Object will be ſeen through the *Teleſcope*, under the Angle A F N, or E F I: The Rays L E, and G I, entring the Eye in the ſame Manner, as if the Pupil was placed in F. If now the naked Eye were in A, it would ſee the Semi-diameter of the Object under the Angle *c* A *b* or C A B. But ſince the Object is ſuppoſed very remote, the Diſtance A F, in reſpect hereto is nothing, and therefore the naked Eye, even in F, would ſee the Semi-diameter of the Object under an Angle equal to A.

The Semi-diameter of the Object therefore, ſeen with the naked Eye, is to that ſeen through the *Teleſcope*, as I M to I E. But it is demonſtrated, that I M : I E : I F : R B; that is, the Semi-diameter ſeen with the naked Eye, is to that viewed through the *Teleſcope*, in the Ratio of the Diſtance of the virtual Focus of the Eye-Glaſs F I, to the Diſtance of the Focus of the Object-Glaſs A B; which was the third Point.

Laſtly, *Myopes* have their Retina too far from the cryſtaline Humour; and diverging Rays concur at a greater Diſtance than parallel ones; and thoſe that were parallel become diverging, by bringing the Eye-Glaſs nearer the Object-Glaſs; by means of ſuch Approach, *Myopes* will ſee Objects diſtinctly through a *Teleſcope*; which is the fourth Point.

Hence, 1. To have the whole Object viſible, the Semi-diameter of the Pupil muſt not be leſs than the Diſtance of the Rays L E and G I; and therefore the more the Pupil is dilated, the greater Field or Compaſs will be taken in by the *Teleſcope*, and *vice verſâ*; ſo that coming out of a dark Place, or ſhutting the Eye for ſome Time before you apply it to the Glaſs, you will take in a greater Field at firſt Glance than afterwards, when the Pupil is again contracted by the Increaſe of Light.

2. Since the Diſtance of the Rays E L and I G, is greater at a greater Diſtance from the Lens, the Compaſs taken in by the Eye at one View, will be greater as the Eye is nearer the concave Lens.

3. Since the Focus of a plano-convex Object Lens, and the virtual Focus of a plano-concave Eye lens, is at the Diſtance of the Diameter; and the Focus of an Object Glaſs convex on both Sides, and the virtual Focus of an Eye-Glaſs concave on both Sides, is at the Diſtance of a Semi-diameter; if the Object-Glaſs be plano-convex, and the Eye-Glaſs plano-concave, the *Teleſcope* will increaſe the Diameter of the Object in the Ratio of the Diameter of the Concavity to that of the Convexity; if the Object-Glaſs be plano-convex, and the Eye-Glaſs concave on both Sides, the Semi-diameter of the Object will be increaſed in the Ratio of the Diameter of the Convexity to the Semi-diameter of the Concavity. And laſtly, if the Object-Glaſs be convex on both Sides, and the Eye-Glaſs plano-concave, the Increaſe will be in the Ratio of the Diameter of the Concavity, to the Semi-diameter of the Convexity.

4. Since the Ratio of the Semi-diameter is the ſame as that of the Diameters, *Teleſcopes* magnify the Object in the ſame Manner, whether the Object-Glaſs be plano-convex, and the Eye-Glaſs plano-concave; or whether the one be convex on both Sides, and the other concave on both.

5. Since the Semi-diameter of the Concavity has a leſs Ratio to the Diameter of the Convexity than its Diameter has, a *Teleſcope* magnifies more if the Object-Glaſs be plano-convex, than if it be convex on both Sides.

6. The greater the Diameter of the Object-Glaſs, and the leſs that of the Eye-Glaſs, the leſs Ratio has the Diameter of the Object viewed with the naked Eye, to its Semi-diameter viewed with a *Teleſcope*; and conſequently the more is the Object magnified by the *Teleſcopes*.

7. Since the Semi-diameter of the Object is increaſed in the Ratio of the Angle E F I, and the greater the Angle E F I is, the leſs Part of the Object does it take in at one View; the *Teleſcope* exhibits ſo much a leſs Part of the Object, as it increaſes its Diameter more.

And this is the Reaſon that determined the Mathematicians to look out for another *Teleſcope*, after having clearly found the Imperfection of the firſt, diſcovered by Chance; nor were their Endeavours vain, as appears from the *Aſtronomical Teleſcope*, hereafter to be deſcribed.

If the Semi-diameter of the Eye-Glaſs have too ſmall a Ratio to that of the Object-Glaſs, an Object through the *Teleſcope* will not appear ſufficiently clear, by reaſon the great Divergency of the Rays will occaſion the ſeveral Pencils, repreſenting the ſeveral Points of the Object on the Retina, to conſiſt of too few Rays. This too is found, that equal Object-Lens's will not bear the ſame Eye-Lens's, if they be differently tranſparent, or there be

be a Difference in their Polish: A less transparent Object-Glass, or one less accurately ground, requires a more spherical Eye-Glass, than another more transparent, &c.

Hence, though it be found by Experience, that a *Telescope* is good, if the Distance of the Focus of the Object-Glass be six Inches, and the Diameter of the Plano-Concave Eye-Glass be one Inch and one Line, or of one equally concave on both Sides one Inch and a half; yet it is by no Means expedient, to recommend to the weaker, either this, or any particular Combination, but to try several Eye Glasses, both greater and smaller, with the same Object-Glass, and try that through which Objects appear most clear and distinct.

Hevelius recommends an Object-Glass, convex on both Sides, whose Diameter is four *Dantzick* Feet; and an Eye-Glass concave on both Sides, whose Diameter is $4\frac{1}{2}$ Digits, or Tenths of a Foot. An Object-Glass, equally convex on both Sides, whose Diameter is five Feet, he observes, will require an Eye-Glass of $5\frac{1}{2}$ Digits; and adds, that the same Eye-Glass will also serve an Object-Glass of eight or ten Feet.

Hence, as the Distance of the Object-Glass and the Eye-Glass, is the Difference between the Distance of the virtual Focus of the Eye-Glass, and the Distance of the Focus of the Object-Glass; the Length of the *Telescope* is had by substracting that from this; that is, the Length of the *Telescope* is the Difference between the Diameter of the Object-Glass and Eye-Glass, if that be convex on both Sides, and this concave on both; or the Difference between the Semi Diameter of the Object-Glass, and the Diameter of the Eye-Glass, if that be convex on both Sides, and this plano-concave; or the Difference between the Diameter of the Object-Glass, and the Semi-Diameter of the Eye-Glass, if that be plano-convex, and this concave on both Sides.

Thus, *e. gr.* if the Diameter of an Object-Glass on both Sides, be four Feet, and that of an Eye-Glass concave on both Sides, be four and a half Digits, or Tenths of a Foot; the Length of the *Telescope* will be one Foot eight Digits. Thus much of a *Dutch Telescope*.

An *Astronomical* TELESCOPE, is a *Telescope* consisting of an Object-Glass and an Eye-Glass, both convex. It has its Name from its being wholly used in astronomical Observations.

For the Construction of an *Astronomical Telescope*. The Tube being prepared, an Object-Glass, either plano-convex, or convex on both Sides, but to be a Segment of a large Sphere, is fitted in at one End; at the other End, an Eye-Glass, convex on both Sides, which is the Segment of a small Sphere, is fitted at the common Distance of the Foci.

The Theory of this *Telescope* is as follows. An Eye placed near the Focus of the Eye-Glass, will see Objects distinctly, but inverted and magnified in the Ratio of the Distance of the Focus of the Eye-Glass, to the Distance of the Focus of the Object-Glass.

For, 1. Since it is very remote Objects are viewed through *Telescopes*, the Rays from one Point of the Object fall parallel on the Object-Glass; and consequently after Refraction, will meet in a Point behind the Glass, which Point is the Focus of the Eye-Glass. From this Point they begin to diverge, and fall diverging on the Eye-Glass, where, being refracted, they enter the Eye parallel.

Hence, as all but *Myopes*, see distinctly by parallel Rays, a *Telescope* thus disposed, will exhibit remote Objects distinctly.

Suppose the common Focus of the Lens's in F, fig. 32. and make A B = B F. Since one of the Rays A C, proceeding from the right Side of the Object, passes through A; the Ray C E will be parallel to the Axis A I, and therefore after Refraction in the Eye-Glass, will fall in with it in its Focus G. Since then, the Eye is placed near it, and all the other Rays proceeding from the same Point of the Object with E G, are refracted parallel thereto; the Point in the right Side of the Object, will be seen in the right Line E G.

After the like Manner it appears, that the middle Point of the Object is seen in the Axis G B, so that the Object appears inverted.

3. From what has been already shewn, it appears, that the Semi-Diameter of the Object will be seen thro' the *Telescope*, under the Angle E G I, which to the naked Eye placed in A, is seen under the Angle *b* A *c*. Suppose now I F equal to the Distance of the Focus I G; since the right Angles at I are equal, E G F = E F I. Therefore, drawing F M, parallel to A C, we shall have I F M = B A C. — The Semi-Diameter, therefore, viewed with the naked Eye, is to that viewed through the *Telescope*, as I M to I E; draw K E parallel to F M, we shall have I M : I E : : I F : I K; but by Reason of that Parallelism of the Lens, C E = B I = B F + F I = A B + F I; and by Reason of the Parallelism of the right Lines C A and E K, C E = A K, therefore B I = A K, consequently A B = I K. And therefore I M : I E : : I F : A B; that is, the Semi-Diameter seen with the naked Eye, is to the Semi-Diameter viewed through the *Telescope*, in the Ratio of the Distance of the Focus of the Eye-Lens I F, to the Distance of the Focus of the Object-Glass A B.

Hence, 1. As the *Astronomical Telescope* exhibits Objects inverted; it serves commodiously enough, for observing the Stars (it signifying little, whether they be seen erect or inverted) but for terrestrial Objects, it is much less proper, as the inverting frequently prevent their being known.

2. If between the Eye-Glass, and its Focus G, be a plain well polished Speculum L N, of the Length of an Inch, and of an oval Figure, inclined to the Axis, under an Angle of 45°, the Rays E P and M Q will be reflected in such Manner, as that concurring in *g*, they make an Angle P *g* Q, equal to P G Q: And therefore the Eye being placed in *g*, will see the Object of the same Magnitude as before, only in an erect Situation. By the Addition therefore of such a Speculum, the *Astronomical Telescope* is render'd fit to observe terrestrial Objects.

3. Since the Focus of a Glass, convex on both Sides, is distant from the Glass itself a Semi-Diameter; and that of a plano-convex Glass, a Diameter: If the Object-Glass be convex on both Sides, the *Telescope* will magnify the Semi-Diameter of the Object, in the Ratio of the Semi-Diameter of the Eye-Glass to the Semi-Diameter of the Object-Glass; but if the Object-Glass be a Plano-Convex, in the Ratio of the Semi-Diameter of the Eye-Glass, to the Diameter of the Object-Glass.

4. Wherefore, since the Semi-Diameter of the Eye-Glass has a greater Ratio to the Semi-Diameter of the Object-Glass, than to its Diameter; a *Telescope* magnifies the Semi-Diameter of the Object more, if the Object-Glass be a Plano-Convex, than if convex on both Sides.

5. The Ratio of the Semi-Diameter of the Eye-Glass, to the Diameter or Semi-Diameter of the Object-Glass, is the less, as the Eye-Glass is a Segment of a less Sphere, and the Object-Glass of a greater. A *Telescope*, therefore, magnifies the Diameter of the Object more, as the Object-Glass is a Segment of a greater, and the Eye-Glass of a lesser Sphere. And yet the Ratio of the Semi-Diameter of the Eye-Glass to the Object-Glass, must not be too small; if it be, it will not refract Rays enough to the Eye from each Point of the Object; nor will it separate those coming from different Points sufficiently: By which Means, the Vision will be render'd obscure and confused. To this may be added, what we have shewn of the Ratio of the Object-Glass to the Eye-Glass in the *Dutch Telescope*.

De Chales observes, that an Object-Lens of $2\frac{1}{4}$ Feet, will require an Eye-Glass of $1\frac{3}{4}$ Digit, or Tenth of a Foot; and an Object-Glass of eight or ten Feet, an Eye-Glass of 4 Digits; in which he is confirmed by *Eustachio de Divinis*.

Huygens's great *Telescope*, wherewith *Saturn*'s true Face, and one of his Satellites, were first discovered, consists of an Object-Glass of 12 Feet, and an Eye-Glass of a little more than 3 Digits. Though he frequently used a *Telescope* 23 Feet long, with two Eye-Glasses joined together, each, in Diameter, $1\frac{1}{2}$ Digit; so that the two were equal to one of 3 Digits. The same Author observes, that an Object-Glass of 30 Feet, requires an Eye-Glass of $3\frac{1}{10}$ Digits; and gives us a Table of Proportions, for the constructing of *Astronomical Telescopes*; an Abridgement whereof we shall here give the Reader.

Dd

Dist. of Focus of Obj. Glass.	Diameter of Apert.	Dist. of Focus of Eye-Glass.	Mag. Diameter.
Rhineland Feet.	Digits and Decim.	Digits and Decem.	
1	0 55	0 61	20
2	0 77	0 85	28
3	0 05	1 05	34
4	1 09	1 20	40
5	1 23	1 35	44
6	1 34	1 47	49
7	1 45	1 60	53
8	1 55	1 71	56
9	1 64	1 80	60
10	1 73	1 90	63

Dist. of Focus of Obj. Glass.	Diameter of Apert.	Dist. of Focus of Eye-Glass.	Mag. Diameter.
Rhineland Feet.	Digits and Decim.	Digits and Decim.	
15	2 12	2 33	72
20	2 45	2 70	89
25	2 74	3 01	100
30	3 00	3 30	109
40	3 46	3 56	126
50	3 87	4 26	141
60	4 24	4 66	154
70	4 58	5 04	166
80	4 90	5 39	178
90	5 05	5 56	183
100	5 48	9 03	199

If in two or more *Telescopes*, the Ratio between the Object and the Eye-Glass be the same, the Object will be magnified the same in both.

Hence some may conclude the making of large *Telescopes* a needless Trouble. But it must be remembered what we have already laid down: An Eye-Glass may be in a less Ratio to a greater Object-Glass than to a smaller; thus, *e. gr.* in *Huygen*'s Telescope of 25 Feet, the Eye-Glass is three Digits. Now, keeping this Proportion in a *Telescope* of 50 Feet, the Eye-Glass should be six Digits; but the Table shews four and a half are sufficient. Hence from the same Table it appears, that a *Telescope* of 50 Feet magnifies in the Ratio of 1 : 141; whereas that of 25 Feet only magnifies in the Ratio of 1 : 100.

Since the Distance of the Lens's is equal to the Aggregate of the Distance of the Foci of the Object and Eye-Glasses; and the Focus of a Glass convex on each Side, is a Semi-diameter's Distance from the Lens; the Length of a *Telescope* is equal to the Aggregate of the Semi-diameters of the Lens's, if the Object-Glass be convex on both Sides; and to the Sum of the Semi-diameter of the Eye-Glass, and of the Diameter of the Object-Glass, if the Object-Glass be a Plano-convex.

But as the Semi-diameter of the Eye-Glass is very small, in respect of that of the Object-Glass, the Length of the *Telescope* is usually estimated from the Distance of the Object-Glass, *i. e.* from its Semi-diameter, if it be convex on both Sides; or its Diameter, if plano-convex. Thus a *Telescope* is said to be 12 Feet, if the Semi-diameter of the Object convex Glass on both Sides be 12 Feet, *&c.*

Since *Myopes* see near Objects best; then the Eye-Glass is to be removed nearer the Object-Glass, that the Rays refracting thro' it may be the more diverging.

To take in the larger Field at one View some use two Eye-Glasses, the foremost whereof is a Segment of a larger Sphere than that behind: To this it must be added, that if two Lens's be joined immediately together, so as one touch the other, the Focus is removed to double the Distance which that of one of them would be at.

To shorten the *Astronomical Telescope*, i. e. to construct a *Telescope*, so as that tho' shorter than a common one, it shall magnify as much.

1. Having provided a drawing Tube, fit an Object Lens E G (fig. 36.) which is a Segment of a moderate Sphere; let the first Eye-Glass be concave on both Sides, and so placed in the Tube, as that the Focus of the Object-Glass may be behind it, but nearer to the Center of the Concavity: Then will the Image be thrown in Q, so as that G A : G I : : A B : Q I.—Lastly, fit in another Object-Glass, convex on both Sides, and a Segment of a lesser Sphere, so as that its Focus may be in Q.

This *Telescope* will magnify the Diameter of the Object more, than if the Object-Glass were to represent its Image at the same Distance E Q, and consequently a shorter *Telescope* constructed this Way, is equivalent to a longer in the common Way.

Sir *Isaac Newton* furnishes us with another Method of contracting the *Telescope*, in his catoptrical or reflecting *Telescope*, the Construction whereof I have given in the Article *Catoptricks*.

Land Telescope, or *Day Telescope*, is a Telescope consisting of more than two Lens's, commonly of a convex Object-Glass, and three convex Eye-Glasses; or, a *Telescope* that exhibits Objects erect, yet different from that of *Galileo*.—It has its Name from being used to view Objects in the Day-time, on or about the Earth.

Note, That to construct a *Land* or *Day Telescope*.—A Tube being provided, fit in an Object-Glass, which is either convex on both Sides, or plano-convex, and a Segment of a large Sphere: To this add three Eye-Glasses, all convex on both Sides, and Segments of equal Spheres, disposing them in such Manner, as that the Distance of any two may be the Aggregate of the Distances of their Foci.

Then will an Eye applied to the last Lens, at the Distance of its Focus, see Objects very distinctly, and magnified in the Ratio of the Distance of the Focus of one Eye-Glass, to the Distance of the Focus of the Object-Glass.

For, 1. The Rays, from what has been already said, falling on the Object parallel, the Image of the Object will be represented invertedly at the Distance of the principal Focus; wherefore since this Image is in the Focus of the first Eye-Glass, the Rays, after a second Refraction, will become parallel; and thus falling on the third Lens, after a third Refraction, they exhibit the Image invertedly, that is, an erect Image of the Object. Since then this Image is in the Focus of the third Eye-Glass, the Rays after a fourth Refraction will become parallel, and in this Disposition the Eye will receive them, and consequently there will be distinct Vision, and the Object will appear erect.

2. If I Q = I K, that is, equal to the Focus of the Object-Glass, an Eye placed in M, will see the Semi-diameter of the Object increased in the Ratio of L M to K I; but the Ray A Q proceeding from the Focus Q of the Object Lens A B, after Refraction becomes parallel to the Axis I L, consequently the first Eye-Lens C D joins it to the Axis in M, the Distance of a Semi-diameter.

And since the Focus of the second Eye-Glass E F, is also in M, the Ray F H, after Refraction, will be parallel to the Axis N O, and therefore the third Eye-Glass will join it at the Axis in P, but the Semi-diameters of the Lens's G H and C D are supposed equal; therefore P O—L M. Wherefore since the Right Angles at O and L are equal, as also H O—C L, the Angle O P H is equal to C L M. The Semi-diameter of the Object therefore appears the same in P as in M, and is consequently magnified in the Ratio of L M, or P O to K I.

Hence, 1. An *Astronomical Telescope* is easily converted into a Land Telescope, by using three Eye-Glasses for one; and the Land-Telescope on the contrary, into an astronomical one, by taking away two Eye-Glasses, the Faculty of magnifying still remaining the same.

2. Since the Distance of the Eye-Glasses is very small, the Length of the *Telescope* is much the same as if you only used one.

3. From the Construction it is evident, that the Length of the *Telescope* is found by adding five Times the Semi-diameter of the Eye-Glasses to the Diameter of the Object-Glass, if a Plano convex; or its Semi-diameter, if convex on both Sides.

Huygens first observed, both in the Astronomical and Land Telescope, that it contributes considerably to the Perfection of the Instrument, to have a Ring of Wood or Metal with an Aperture, a little less than the Breadth of the Eye-Glass, fixed in the Place where the Image is found to radiate upon the Lens next the Eye: By means hereby the Colours, which are apt to disturb the Clear-

ness

nefs and Diftinctnefs of the Object, are prevented, and the whole Compafs taken in at a View, perfectly defined.

Note, That fome make Land-Telefcopes of three Lens's, which yet reprefent Objects erect and magnified as much as the former. But fuch *Telefcopes* are attended with great Inconveniencies, both as the Objects herein are tinged with falfe Colours, and as they are diftorted about the Margin. Some again ufe four Lens's and even more; but fince fome Part of the Rays are intercepted in paffing every Lens, Objects are hereby exhibited dim, and very feeble.

There is alfo a Kind of *Telefcope* called *Binocular*, becaufe both Eyes may be applied to it; and confequently the fame Object be obferved at the fame Time by both. It confifts of two Tubes, with two Sets of Glaffes of the fame Power, and adjufted to the fame Axis; and has been pretended to reprefent Objects much larger and clearer than a fingle, or monocular Glafs.

Note, That the Invention of the *Telefcope* is one of the nobleft, and moft ufeful thefe Ages have to boaft of; by means whereof the Wonders of the Heavens are difcovered to us, and Aftronomy brought to a Degree of Perfection, which former Ages could have no Notion of. Indeed the Difcovery is owing rather to Chance than to Thought; fo that it is the good Fortune of the Difcoverer, rather than his Skill and Ability, we are indebted to: On this Account it concerns us the lefs to know, who it was firft hit on this admirable Invention. It is certain it muft be cafual, fince the Theory it depends on was not then known. *Johannes Baptifta Porta*, a noble *Neapolitan*, is afferted by *Wolfius* to be undoubtedly the firft that made a *Telefcope*; from this Paffage in his *Magia Naturalis*, printed in 1549; 'If you do but know how to join 'the two (*viz.* the concave and convex Glaffes) rightly 'together, you will fee both remote and near Objects, 'much larger than they otherwife appear, and withal 'very diftinct. In this Way we have been of good 'Help to many of our Friends, who either faw remote 'Things dimly, or near ones confufedly; and have 'made them fee every Thing perfectly.'—But it is certain *Porta* did not underftand his own Invention; and therefore never troubled himfelf to bring it to greater Perfection, nor ever applied it to celeftial Obfervations. What is more, the Account *Porta* gives of his concave and convex Lens's is fo dark and indiftinct, that *Kepler* who examined it, by particular Command of the Emperor *Rudolphus*, declared to that Prince that it was entirely unintelligible.—Fifty Years afterwards, a *Telefcope* 12 Inches long was made and prefented to Prince *Maurice* of *Naffau*, by a Spectacle-maker of *Middlebourg*; but Authors are divided about his Name. *Sirtutus*, in a Treatife of the *Telefcope*, printed *Anno* 1618, fhews it to be *Zachary Janfen*, or, as *Wolfius* has it, *Hanfen*.—*Joh. Lapreius*, another Workman of the fame Town, paffes for a third Inventor; having made one in 1610, on the mere Relation given him of that of *Zachary*. In 1620 *James Metius*, Brother of *Adrian Metius*, Profeffor of Mathematicks at *Franker*, came with *Drebel* to *Middlebourg*, and there bought *Telefcopes* of *Zachary*'s Children, who had made them publick; and yet *Adrian Metius* has given his Brother the Honour of the Invention, in which he is miftakenly followed by *Des Cartes*. But none of thefe Artificers made *Telefcopes* of above a Foot and a Half: *Simon Marius* in *Germany*, and *Galileo* in *Italy*, firft made long ones fit for celeftial Obfervations. *Le Roffi* relates, that *Galileo* being then at *Venice*, was told of a Sort of optick Glafs made in *Holland*, which brought Objects nearer: Upon which fetting himfelf to think how it fhould be, he ground two Pieces of Glafs into Form, as well as he could, and fitted them to the two Ends of an Organ-Pipe, and fhewed at once all the Wonders of the Invention to the *Venetian* Nobleffe on the Top of the Tower of St. *Mark*. That Author adds, that from this Time *Galileo* devoted himfelf wholly to the improving and perfecting the *Telefcope*; and that he thereby almoft deferved all the Honour ufually done him, of being reputed the Inventor of the Inftrument, and of its being denominated from him *Galileo's Tube*. F. *Mabillon* indeed relates, in his Travels through *Italy*, that in a Monaftery of his own Order he faw a manufcript Copy of the Works of *Commeftor*, written by one *Coradus*, who lived in the 13th Century; in the third Page whereof was feen a Portrait of *Ptolemy*, viewing the Stars through a Tube of four Joints or Drawers: But that Father does not fay that the Tube had Glaffes in it. In effect, it is more than probable, that fuch Tubes were then ufed for no other Purpofe but to preferve and direct the Sight, or to render it more diftinct by fingling out the particular Object looked at, and fhutting out all the foreign Rays reflected from others, whofe Proximity might have rendered the Image lefs precife.

This Conjecture is verified by Experience, we having often obferved, that without a Tube, by only looking through the Hand, or even the Fingers, or a Pin-hole in Paper, Objects fhall appear more clear and diftinct than otherwife.

Be this as it will, it is certain the optical Principles whereon *Telefcopes* are founded, are contained in *Euclid*, and were well known to the antient Geometricians; and it is for want of Attention thereto, that the World was fo long without that admirable Invention, as no doubt there are numerous others lying hid in the fame Principles, only waiting for Reflection or Accident to bring them forth. From this I'll pafs to the *Microfcope*.

A MICROSCOPE, is a dioptrical Inftrument, by means whereof very minute Objects are reprefented exceedingly large, and viewed very diftinctly, according to the Laws of Refraction.

Microfcopes, are properly diftinguifhed into fimple, or fingle; and compound or double.

Single Microfcopes, are thofe which confift of a fingle Lens, or a fingle Spherule.

Compound Microfcopes, confift of feveral Lens's duly combined.

As *Optics* have been improved, other Varieties have been contrived, in the Sorts of *Microfcopes*; hence *reflecting Microfcopes*, *Water Microfcopes*, &c.

With regard to the Foundation and Theory of *fingle Microfcopes*.—If an Object A B (fig. 34.) be placed in the Focus of a fmall convex Lens, or a *fimple Microfcope* D E, and the Eye be applied clofe to the other Side of the *Microfcope*, the Object will be feen diftinct in an erect Situation, and magnified in the Ratio of the Diftance of the Focus, to the Diftance wherein Objects are to be placed to be feen diftinctly with the naked Eye.

For the Object A B, being placed in the Focus of the convex Lens D E, the Rays iffuing from the feveral Points thereof after Refraction, will be parallel to each other. Confequently the Eye will fee it diftinctly, by virtue of what we have proved in fpeaking of *Telefcopes*.

Farther, fince one of the Rays A F proceeding from the Point A, after Refraction, becomes parallel to the incident Rays; and therefore fetting afide the Thicknefs of the Lens, is found directly againft it; and the fame holds of all the other Rays carried to the Eyes: The Rays A F and B F, to which the reft coming from A and B are parallel, will enter the Eye in the fame Manner as if they had entered without paffing through the Lens, and will therefore appear erect, as if the Lens were away.

Laftly, it is manifeft that the Object A B will be feen under the fame Angle, as if viewed by the naked Eye: But fince it appears very diftinct, whereas to the naked Eye, at the fame Diftance, it would appear extremely confufed, it is the fame Thing as if the Object fhould feem removed to the Diftance F H, wherein it is viewed with equal Diftinctnefs, and under the fame Angle. The Diameter of the Object A B therefore, will be to the apparent Diameter I K as F C to F H, *i. e.* as the Diftance of the Focus of the Lens to the Diftance wherein an Object is to be placed in order to view it diftinctly.

Huygens takes it for granted, that an Object feen with the naked Eye is then in its utmoft Diftinctnefs, when feen at the Diftance of eight Digits, or Tenths of a Foot; which agree pretty near with the Obfervations of others.

The Laws of *fimple Microfcopes*, are,—1. That *fimple Microfcopes*

Microscopes magnify the Diameter of the Object A B, in the Ratio of the Distance of the Focus F C to an Interval of eight Digits; *v. gr.* if the Semi-diameter of a Lens convex on both Sides be half a Digit, A B; $IK = \frac{1}{2}$ $8 = 1 : 16$, that is, the Diameter of the Object will be increased in a sedecuple Proportion, or as sixteen to one.

2. Since the Distance F H is constant, *viz.* eight Digits, by how much Distance of the Focus F C is smaller, so much the smaller Ratio will it have to F H; consequently the Diameter of the Object will be so much the more magnified.

3. Since in the plano-convex Lens, the Distance of the Focus is equal to the Diameter; and in Lens's convex on both Sides, to the Semi-diameter; *simple Microscopes* will enlarge the Diameter so much the more, as they are Segments of smaller Spheres.

4. If the Diameter of the Convexities of a plano-convex Lens, and a Lens convex on both Sides, be the same, *viz.* = 1; the Distance of the Focus of the first will be 1, of the second $\frac{1}{2}$; consequently the Semi-diameter of the Object A B, will be to the apparent one in the first Case as 1 to 8, in the latter as $\frac{1}{2}$ to 8, *i. e.* as 1 to 16. A Lens therefore convex on both Sides magnifies twice as much as a plano-convex.

As the whole depends on the just and steady Situation of Objects with regard to the Lens, various Methods have been contrived to that End; whence we have several Kinds of *Microscopes*; the most simple is as follows.

1. *A B* (fig. 34.) is a little Tube, to one of whose Bases *B C*, is fitted a plain Glass, to which an Object, *viz.* a Gnat, Wing of an Insect, Down, or the like, is applied: To the other Base, A D, at a proper Distance from the Object is applied a Lens convex on both Sides, whose Semi-diameter is about half an Inch. The plain Glass is turned to the Sun, or the Light of a Candle, and the Object is seen magnified: And if the Tube be made to draw out, Lens's of different Spheres may be used.

Again, a Lens convex on both Sides, is inclosed in a Cell A C (fig. 35.) and by a Screw H, there fastened a-cross; through the Pedestal C D passes a long Screw, by means whereof, and the female Screw I, a Style or Needle fixed perpendicular to its Extreme, is kept firm at any Distance from the Lens. In E is a little Tube, on which, and on the Point G, the various Objects are to be disposed; there may be Lens's of various Spheres applied.

2. But the *Microscope*, which is found to answer the End best is as follows; A B, fig. 39. is a round Brass Tube, whose exterior Surface is formed into a Screw of a Length somewhat less than the Distance of the Focus of a Glass convex on both Sides, used here for illuminating the Object, and fitted to its Base A C, by a Ring with a Screw in it D E.

F G, is another Brass Tube, somewhat wider than the first, and open each Way for an Object to be applied to the *Microscope*. To its upper Base G H, is fastened a Spring of Steel Wire, twisted into a spiral I, whereby an Object placed between two round Plates, or Slices, K and L, in the Manner hereafter mentioned, is by means of the Screw B C, brought to the microscopial Lens (or magnifying Glass, whereof there are several) and kept firm in its Place, to the Basis H G, which has a female Screw M, are fitted Cells N, with a male Screw O, wherein Lens's of various Spheres guarded by Ferrils, are included. In P is a female Screw, by which an Ivory Handle P Q is fastened to the *Microscope*.

In the Ivory Slice T are round Holes, in which are fitted little Circles of *Muscovy* Talc for Objects, especially small and pellucid ones, as little Insects, or the Wings, Scales, *&c.* of larger to be fastened to.

When live Insects are to be viewed, they are covered with the Brass Slice Y, which is put in a little square Brass Bed, perforated with Hole X; and the same Slice, whether alone, or enclosed in the Bed, being laid between the round Plates K and L, is brought to the Lens by means of the Screw A B, till the Object may be distinctly viewed.

If other pellucid oblong Objects are to be viewed, as Down, Cuticle, *&c.* instead of the Slice above, is used the Instrument, mentioned above for viewing Wings of Flies; whose Structure is manifest by Inspection.

There are other Instruments in the Apparatus of the *Microscope*, as little Tongs, *&c.* for taking up small Objects, a Glass Tube for viewing the Circulation of the Blood in Fishes, *&c.* which need no Description.

What has been said hitherto, is to be understood of *lenticular Microscopes*; for spherical ones, their Doctrine will be understood from what follows.

If an Object A B (fig. 40.) be placed in the Focus of a Glass Spherule F, and the Eye be behind it, *v. gr.* in the Focus G, the Object will be seen distinct in an erect Situation, and magnified, as to its Diameter, in a Ratio of $\frac{3}{4}$ of the Diameter E I, to the Distance at which Objects are to be placed, to be seen distinctly with the naked Eye.

The first Part of the Proposition is proved in the same Manner of Spheres, as of Lens's; as then a good Eye sees an Object distinctly at the Distance of eight Digits, a Glass Spherule will enlarge the Diameter of an Object in a Ratio of $\frac{3}{4}$ of the Diameter to 88 Digits. Suppose then the Diameter of the Spherule, E I $\frac{1}{10}$ of a Digit, C E will be $= \frac{1}{20} + \frac{1}{40} = \frac{3}{40}$: Consequently, the true Diameter of an Object to its apparent one is in the Ratio of $\frac{3}{40}$ to 8, *i. e.* as 3 to 320, or 1 to 103 nearly.

Now a Lens convex on both Sides, increases the Diameter in a Ratio of the Semi-diameter, to the Spaces of eight Digits; wherefore $\frac{1}{2}$ having a less Ratio to 8 than $\frac{3}{4}$; if a Lens and a Sphere have the same Diameter, the former will magnify more than the latter, and pretty much after the same Manner it may be shewn, that a Sphere of a less Diameter, magnifies more than that of a large one.

Note, That there are various Methods of casting little Spherules for *Microscopes*. *Wolfius* describes one as follows: A small Piece of very fine Glass, sticking to the wet Point of a Steel Needle, is to be applied to the extreme bluish Part of the Flame of a Torch; or, which is better, to the Flame of Spirit of Wine, to prevent its being blackned. Being there melted, and run into a little round Drop, it is to be removed from the Flame; upon which it instantly ceases to be fluid: Folding then a thin Plate of Brass, and making very small smooth Perforations, so as not to leave any Roughness on the Surfaces; and further, smoothing them over to prevent any grating: Fit the Spherule between the Plates against the Apertures, and the whole in a Frame, with Objects convenient for Observation.—Dr. *Adams* gives another Method, thus: Take a Piece of fine Window-Glass, and raise it with a Diamond into as many Lengths as you think needful, not exceeding an Eighth of an Inch in Breadth; then holding one of those Lengths between the Fore-Finger and Thumb of each Hand over a very fine Flame till the Glass begins to soften; draw it out till it be as fine as an Hair, and breaks; then applying each of the Ends into the purest Part of the Flame, you have two Spheres presently, which you may make larger or less at Pleasure. If they stay long in the Flame they'll have Spots; so they must be drawn out immediately after they are turned round. As to the Stem, break it off as near the Ball as possible, and lodging the Remainder of the Stem between the Plates, by drilling the Hole exactly round, all the Protuberances are buried between the Plates; and the *Microscope* performs to Admiration. After those Manners may Spheres be made much smaller than any Lens; so that the best *Microscopes*, or those which magnify the most, are made thereof. For suppose the Diameter of a Spherule to be $\frac{1}{16}$ of a Digit, the Distance of its Focus will be $\frac{1}{64}$; and therefore its real Diameter to its apparent one is $\frac{1}{32} + \frac{1}{64}$; that is, as $\frac{1}{64}$ to 8, or as 3 to 512; or lastly, as 1 to 170. Its Surface therefore will be increased in the Proportion of 1 to 28900, and its Bulk in a Ratio of 1 to 4913000. M. *Lucuenhack* and M. *Muschenbrack*, have succeeded very well in spherical *Microscopes*; and the Apparatus of the latter is much commended: But we forbear any Descriptions thereof, it being easy for any who considers the Structure of those consisting of Lens's, to conceive how those of Spheres may be contrived.

As to *Water-Microscopes*.—M. *S. Gray*, and after him

him *Wolfius*, and others, have contrived *Water Microscopes*, consisting of Spherules or Lens's of Water instead of Glass, fitted up somewhat after the Manner abovemention'd (as Spheres of Water may be likewise used instead of Glass in any of the common *Microscopes*) but since the Distance of the Focus of a Lens or Sphere of Water, is greater than one of Glass (the Spheres whereof they are Segments being the same) Water Microscopes magnify less, and are therefore less esteemed than those of Glass. The same Mr. *Gray* first observed, that a small Drop of hemispherale Water held to the Eye by Candle-light or Moon-light, without any other Apparatus, magnified the Animalcule contained in it, vastly more than any other *Microscope*. The Reason is, that the Rays coming from the interior Surface of the first Hemisphere, are reflected so as to fall under the same Angle on the Surface of the hind Hemisphere, to which the Eye is applied, as if they came from the Focus of the Spherule, to which the Eye is applied; whence they are propagated to the Eye in the same Manner as if the Objects were placed without the Spherule in its Focus.

Hollow Glass Spheres, of the Diameter of about half a Digit, filled with Spirit of Wine, are frequently used for *Microscopes*; but they do not magnify half so much.

As to the Theory of compound, or double Microscopes.—Suppose an Object-Glass E D, fig. 43. the Segment of a very small Sphere, and the Object A B placed without the Focus F.

Suppose an Eye-Glass G H, convex on both Sides, and the Segment of a Sphere greater (though not too great) than that of D E, and let it be so disposed behind the Object, as that if C E : C L : : C L : C K, the Focus of the Eye-Glass may be in K.

Lastly, suppose L K : L M : : L M : L I.

If then O be the Place wherein an Object is seen distinct with the naked Eye; the Eye in this Case being placed in I, will see the Object A B in an inverted Situation, and magnified in a compound Ratio of M K to L K and L C to C O; as is proved from the Laws of Dioptricks.

The Laws of double Microscopes are,—1. The more an Object is magnified by the *Microscope*, the less is its Field, *i. e.* the less it takes in at one View.

2. To the same Eye-Glass may be successively applied Object-Glasses of the same Spheres, so as that both the entire Objects, but less magnified, may be viewed thro' the same *Microscope*. In which Case, by reason of the different Distance of the Image, the Tube L K, in which the Lens's are fitted, should be made to draw out. For the Proportion of the Object-Glass to the Eye-Glass some commend the subduple Ratio, and some the subsesquisextile. *De Chales* will have the Semi-diameter of the Convexity of the Object-Glass to be $\frac{1}{3}$ of a Digit; or at most $\frac{1}{2}$, in the Eye-Glass an entire Digit, or even 1 $\frac{1}{2}$. F. *Cherubin* makes the Semi-diameter of the Object-Glass $\frac{1}{4}$, $\frac{1}{3}$ or $\frac{1}{2}$ of a Digit; the Semi-diameter of the Eye-Glass 1 $\frac{1}{4}$, or 1 $\frac{1}{2}$ of a Digit.

Since it is proved, that the Distance of the Image L K from the Object-Glass D E, will be greater, if another Lens concave on both Sides be placed before its Focus; it follows that the Object will be magnified the more, if such Lens be here placed between the Object-Glass D E, and the Eye-Glass G H.—Such a *Microscope* is much commended by *Conradi*, who used an Object-Lens convex on both Sides, whose Semi-diameter was two Digits, its Aperture equal to a Mustard-Seed; a Lens concave on both Sides, 12, or at most 16 Digits; and an Eye-Glass convex on both Sides, of 6 Digits.

4. Since the Image is projected to the greater Distance, the nearer another Lens of a Segment of a larger Sphere, is brought to the Object-Glass; a *Microscope* may be composed of three Lens's, which will magnify prodigiously.

5. From these Considerations it follows, that the Object will be magnified the more, as the Eye-Glass is the Segment of a smaller Sphere; but the Field of Vision will be the greater; as the same is a Segment of a larger Sphere: If then two Eye-Glasses, the one a Segment of a large, the other of a small Sphere, be so combined, as that the Object appearing very near thro' them, *i. e.* not further distant than the Focus of the first, be yet distinct; the Object at the same Time will be exceedingly magnified, and the Field of Vision much greater than if only one Lens were used; and the Object will be still more magnified, and the Field enlarged, if both the Object and the Eye-Glass be double. But in regard an Object appears dim, when viewed through so many Glasses, Part of the Rays being reflected in passing thro' each; the multiplying of Lens's is not advisable: And the best among compound *Microscopes* are those which consist of one Object-Glass and two Eye-Glasses.

For a *Microscope* of three Lens's, *De Chales* uses an Object Glass of $\frac{1}{3}$ or $\frac{1}{4}$ of a Digit; the Distance between the Object-Glass and Eye-Glass about twenty Lines. *Conradi* had an excellent Microscope, the Object-Glass whereof was half a Digit, and the two Eye-Glasses (which were placed very near) four Digits: But it answered best, when in lieu of the Object-Glass, he used two Glasses convex on both Sides, their Sphere about a Digit and a half, or at most two, and their Convexities touching each other, within the Space of half a Line. *Eustathius de Divinis*, instead of an Object-Glass convex on both Sides, used two plano-convex Lens's whose Convexities touched. *Grindelius* did the same, only that the Convexities did not quite touch. *Jahnius* made a Binocular Microscope, wherein both Eyes were used.

The most commodious double Microscope, is of the Contrivance of Mr. *Marshall*, an *Englishman*. In this the Eye-Glasses are placed in the Tube at A and B (fig. 47.) and the Object-Glass at C, the little Pillar D E is turned by means of a Ball E, movable in the Socket F; and thus the *Microscope* is accommodated to any Situation. The same Pillar is divided into as many Parts, 1, 2, 3, 4, 5, *&c.* as there are Lens's of different Spheres to be used in viewing different Objects; so that the Distance of the Object from the Object-Glass may be found without any Trouble. But as it is scarce exactly enough determined this Way, the Tube may be brought nearer the Object at Discretion, by means of the Screw G H.

The Objects are either laid on the Circle I, or fitted to proper Instruments, having their Points or Stiles passing through the little Tube I M.

Lastly, to illuminate the Object, a Lens convex on both Sides, is disposed in a convenient Situation.

Note, That there are reflecting *Microscopes* which magnify by Reflection as the above-mentioned ones do by Refraction. The Structure of such a *Microscope* may be conceived thus; near the Focus of a common Speculum A B C (fig. 48.) place a minute Object C, that its Image may be formed larger than itself in D. To the Speculum join a Lens convex on both Sides E F, so as the Image D may be in its Focus. The Eye will here see the Image inverted, but distinct and enlarged; consequently the Object will be larger than if viewed through the Lens alone. Sir *Isaac Newton* has invented this *Microscope*, but it is somewhat to be feared lest the Object appear dim.

Note, also, That any Telescope is converted into a *Microscope*, by removing the Object-Glass to a greater Distance from the Eye-Glass. And since the Distance of the Image is various, according to the Distance of the Object from the Focus; and it is magnified the more, as its Distance from the Object-Glass is greater; the same Telescopes may be successively converted into *Microscopes*, which magnify the Object in different Degrees.

Note, besides, That the next Thing which occur are *Spectacles*.

SPECTACLES, are an optick Machine, consisting of two Lens's set in Horn or other Matter, and applied on the Nose, to assist in defect of the Organ of Sight.

Old People, and all Presbytæ, use *Spectacles* of convex Lens's, to make amends for the Flatness of the Eye, which does not make the Rays converge enough to have them meet in the Retina.

Short-sighted People, or Myopes, use concave Lens's, to keep the Rays from converging so fast, through the great Roundness of the Eye, as to make them meet ere they reach the Retina.

In *Spain*, and at *Venice* especially, *Spectacles* are used with a different View: All the People of Note and Fashion

ſhion there, have them continually on their Noſes; a Folly that has its Source in the natural Pride of thoſe People, who value themſelves on a profound Wiſdom; and affect to ſtare very near at every Thing, as if their Eyes were weaken'd, and wore out with Exceſs of Attention. I never laughed more heartily, than the firſt Time I ſaw in *Portugal*, a Man mounted on a Mule, with huge *Spectacles* on his Noſe; and having enquired afterwards what could be the Signification of ſo groteſque a Figure, I was told, that *Spectacles* on the Noſe of a *Portugueſe*, had the ſame Signification, as the Doctoral Cap in *France*, and that thoſe Gentlemen of the *Spectacles*, were Doctors, though the Doctrine of moſt of them conſiſted in the Largeneſs of their Spectacles.

F. *Cherubin*, a *Capuchin*, deſcribes a Kind of *Spectacle-Teleſcopes*, for the viewing of remote Objects with both Eyes; hence called *Binoculi*, in *French*, *Binocles*. Though Father *Rheita* had mentioned the ſame before him, in his *Oculus Enoch* and *Eliæ*. The ſame Author invented a Kind of *Spectacles*, with three or four Glaſſes, which performed extraordinarily.

Spectacles were certainly unknown to the Antients; yet are they not of ſo late a Date as the Teleſcope. *Franciſco Redi*, in a very learned Treatiſe on *Spectacles*, will have them to have been invented in the 13th Century, between the Years 1280, and 1311; and adds, that *Alexander Deſpina*, a Monk of the Order of Predicants of St. *Catherine*, at *Piſa*, firſt communicated the Secret, which was of his own Invention; upon learning that another Perſon had it as well as himſelf. The Hiſtory is wrote in the Chronicles of that Convent.

The ſame Author tells us, that in an old Manuſcript, ſtill preſerved in his Library, compoſed in 1299, *Spectacles* are mentioned as a Thing invented about that Time: And that a famous *Jacobine*, one *Jordan de Rivolto*, in a Treatiſe compoſed in 1305, ſays expreſly, that it was yet 20 Years ſince the Invention of *Spectacles*. He likewiſe quotes *Bernard Gordon*, in his *Lilium Medicinæ*, who wrote the ſame Year, where he ſpeaks of a Collyrium, good to enable an old Man to read without *Spectacles*.

Du Conge, however, carries the Invention of *Spectacles* farther back; aſſuring us, that there is a *Greek* Poem in Manuſcript, in the King of *France*'s Library, which ſhews, that *Spectacles* were in Uſe in the Year 1150; nevertheleſs, the Dictionary of the Academy *Della Cruſca*, under the Word *Occhial*, inclines to *Redi*'s Side; and quotes a Paſſage from *Jourdan*'s Sermons, which ſays, that *Spectacles* had not been 20 Years in Uſe: Now *Salviati* has obſerved, that thoſe Sermons were compoſed between the Years 1330 and 1336.

Note, That from this I'll paſs to the Deſcription of a *Priſm*, in *Dioptricks*; and to the Explication of the Phænomena thereof.

PRISM, in *Dioptricks*, is a Glaſs in Form of a triangular Priſm, much uſed in Experiments about the Nature of Light and Colours.

Note, That *Priſm*, in Geometry, whence this borrows its Name, is an oblong Solid or Body, contained under more than four Planes, and whoſe Baſes are equal, parallel, and equally ſituated.

The Phænomena and Uſe of the *Priſm*, ariſe from its ſeparating the Rays of Light in their Paſſage thro' it.

The more general of theſe Phænomena are as follow: For to enumerate all would be endleſs; and even theſe are ſufficient to demonſtrate, that Colours do not either conſiſt in the Contorſion of Globules of Light, as *Des Cartes* imagined; nor in the Obliquity of the Pulſes of the æthereal Matter, as *Hook* fancy'd; nor in the Conſtipation of Light, and its greater or leſs Concitation, as Dr. *Barrow* conjectured; but that they are original and unchangeable Properties of Light itſelf: Therefore the Phænomena of the Priſm are as follow.

1. The Sun's Rays tranſmitted thro' a *Priſm* to an oppoſite Wall, project an Image like the Rainbow, of various vivid Colours; the chief whereof are red, yellow, green, blue, and violet.

The Reaſon is, that the various colour'd Rays, which were before mixed and blended together, are now, in Virtue of their different Refrangibilities, ſeparated by Refraction, in paſſing thro' the *Priſm*, and thrown each Colour by itſelf.

For the blue Rays, *v. gr.* repreſented by the dotted Lines, fig. 50. beginning to be ſeparated from the reſt in the Side *c a*, of the *Priſm a b c*, by the firſt Refraction in *d d*, are again ſeparated further in the other Face of the *Priſm b c*, by a ſecond Refraction, the ſame Way in *e e*; whereas in a plain Glaſs, or even in a *Priſm* in a different Poſition, the blue Rays ſeparated by the firſt Refraction, are again mixed by the ſecond Refraction, at the other Surface, which is made a contrary Way.

2. The Image thus projected, is not round; but when the Angle of the *Priſm* is 60 or 65 Deg. about five times as long as broad.

Becauſe ſome of the Rays are refracted more than others, and therefore exhibit ſeveral Images of the Sun, ſtretched out in length, as if it were but one.

3. Thoſe Rays which exhibit the yellow Colour, ſwerve more from the rectilinear Courſe, than thoſe which exhibit the red; and the green more than the yellow; and the violet moſt of all.

4. If the *Priſm*, through which the Rays are tranſmitted, be turned about its Axis; ſo as the red, yellow, green, *&c.* Rays, be received in order on another *Priſm* about 12 Feet diſtant from the former, through a little Hole, and thence projected further, the yellow, red, *&c.* Rays, though they fall in the ſame Manner, on the ſecond *Priſm*, yet will not be projected on the ſame Place as the red, but will be deflected further that Way towards which the Refraction is.

And if, in lieu of the ſecond *Priſm*, they be received on a Lens a little convex; the yellow, green, *&c.* Rays, will be collected each in its Order, into a nearer Focus than the red ones. The Reaſon of which two laſt Phænomena is, that the yellow Rays are refracted more than the red ones; the green ones more than the yellow ones, and the violet ones moſt of all.

5. The Colours of coloured Rays well ſeparated, can neither be deſtroyed, nor in any Manner alter'd by repeated Refractions through a Number of *Priſms*; nor by paſſing through an illumined Space, nor by their mutual Decuſſations, nor by the Neigbourhood of the Shade, nor by being reflected from any natural Bodies.

Becauſe their Colours are not Modifications ariſing from Reflection, but original and immutable Properties thereof.

6. All coloured Rays collected together in any Manner, either by ſeveral *Priſms*, or a convex Lens, or concave Speculum, form Whiteneſs; but being again ſeparated after Decuſſation, each exhibits its proper Colour.

Becauſe, as the Ray was white ere its Parts were ſeparated by Refraction; ſo thoſe Parts being remixed, it recovers its Whiteneſs; and the coloured Rays, when they meet, do not deſtroy one another, but only intermix.

Hence Duſts or Powders, red, yellow, green, blue, violet, *&c.* mixed in a certain Proportion, become grey; or of the Colour ariſing from a Mixture of black and white; and would be perfectly white, but that ſome of the Rays are abſorbed.

Thus, if a Circle of Paper be ſmeared with all theſe Colours a-part, in a certain Proportion, and turn'd ſwiftly about its Center, ſo that the Species of the ſeveral Colours may be confounded in the Eye by the Velocity of the Motion, the ſeveral Colours will diſappear, and the whole be ſeen of one uniform Colour between black and white.

7. If the Sun's Rays fall very obliquely on the inner Superficies of a *Priſm*, the Rays reflected will be violet; thoſe tranſmitted, red.

8. If there be two *Priſms*, the one full of a red Liquor, the other of a blue one; the two joined together will be opake; though, if both be filled either with a blue or a red Liquor, they will together be tranſparent: For the one tranſmitting none but blue, the other none but red Rays, the two together will tranſmit none at all.

9. All natural Bodies, eſpecially white ones, viewed through a *Priſm* held to the Eye, ſeem fringed or hammed on one Side, with red and yellow, on the other with blue and violet.

1. If

10. If two *Prisms* be so placed, that the red of the one, and the purple of the other, meet on a Paper encompassed with Darkness, the Image will be pale; but viewed through a third *Prism*, held to the Eye at a due Distance, will appear double, red, and purple.

And if two Kinds of Powder, the one perfectly red, the other blue, be mixed, a little Body being covered thick with the Mixture, will exhibit a double Image, the one red, the other blue, through a *Prism* applied to the Eye.

11. If the Rays transmitted through a convex Lens be received on a Paper before they meet in the Focus, the Confine of Light and Shadow will seem tinged with a red Colour; if beyond the Focus, with a blue.

12. If the Rays about to be transmitted through one Part of the Pupil, be intercepted by the Opposition of some opake Body near the Eye, the Extremes of Bodies laying beyond it, will seem tinged with Colours, as is seen through a *Prism*, though less vivid.

Because the Rays transmitted through one Part of the Pupil, are separated by Refraction into divers Colours; and the intercepted Rays, which would be refracted a contrary Way, are prevented from mixing and dilating them: Whence also it is, that a Body viewed with both Eyes, through two little Holes made in a Paper, does not only appear double, but tinged with Colours too.

Note, That *Euclid* has wrote on the antient *Opticks*, and *Catoptricks*: *Dioptricks* were unknown to them. F. *Honorat. Fabri* has an Abridgment of *Opticks*, *Catoptricks*, and *Dioptricks*: Father *Eschinard* has given a Century of Problems in *Opticks*; *Vitellio* and *Alhazen*, have performed well on the Elements of *Opticks*. Father *Kircher* has a large Volume on the Secrets of *Opticks*, of Light and Shadow, and their surprizing Effects, which pass on the People for Magick. We have also *L'Optique* and *Catoptrique* of Father *Mersenne*, *Paris* 1651. *Dioptrique Oculaire* of Father *Cherubin*, *Paris* 1671. *Fol. Christop. Cheiveri Optica*, *London* 1658. *Jacobi Gregorii Optices*. *Barrovii Lectiones Opticæ*, *London* 1663. *Joh. Bapt. Porta*, *De refractione Optices*, *London* 1669. *Principes generales de l'Optique*, by M. *Leibneitz*, in the *Leipsick* Acts, 1642. *L'Occhiale a l'Occhia*, or *Dioptrica Practica*, *Carol. Anton. Maniné*, *Bologna* 1660, 4*to*. Sir *Isaac Newton*'s *Opticks*, *Latin* and *English* 4*to*. and 8*vo*. &c.

APPENDIX.

Note, As the *Phosphorus* has some Relation to *Opticks*, in that it is consider'd as a luminous Matter; I take this Place to be the propereſt, to take a particular Notice of it: Therefore,

A *Phosphorus* (from the *Greek* φως, *Light*, and φερω, *I bear*) is a Matter which shines, or even burns spontaneously, and without the Application of any sensible Fire.

Phosphorus, is either *natural* or *artificial*.

Natural PHOSPHORI, are Matters which become luminous at certain Times, without the Assistance of any Art or Preparation. Such are the *Glow-Worms*, frequent in cold Countries, *Rotten Wood*, the *Eyes*, *Blood*, *Scales*, *Flesh*, *Sweats*, *Feathers*, &c. of several Animals; *Diamonds* when rubbed after a certain Manner; *Sugar* and *Sulphur*, when pounded in a dark Place; *Sea-Water*, and some *Mineral-Waters*, when briskly agitated; a Cat's or Horse's *Back*, duly rubbed with the Hand, &c. in the Dark; nay Dr. *Croon* tells, that upon rubbing his own Body briskly with a well warmed Shirt, he has frequently made both to shine; and Dr. *Sloane* adds, that he knows a *Bristol* Gentleman and his Son, both whose Stockings will shine after much Walking.

All natural *Phosphori* have this in common, that they do not shine always, and that they never give any Heat.

But that which of all *natural Phosphori* has occasioned the most Speculation, is the *Barometrical* or *Mercurial Phosphorus*. M. *Picard* first observed, that the Mercury of his Barometer, when shaken in a dark Place, emitted Light, with this Circumstance, that in shaking the Mercury with Rapidity, sometimes above and sometimes below its Equilibrium with the Air, the Light was only seen when below it, where it appear'd as if adhering to the Surface.

But this Light is not found in the Mercury of all Barometers, which occasions a great Difficulty.

M. *Bernoulli*, upon examining the Circumstances of this Phænomenon, invented a Solution of the same: He imagines, that upon the Mercury's descending, the Vacuum in the Tube increasing, there issues out of the Mercury to fill up this Excess of Vacuity, a very subtile Matter, before dispersed throughout the Pores of this Mineral; and that, at the same Time, there enters through the Pores of the Tube, another finer Matter: Thus, the first Matter emitted from the Mercury, and collected over its Surface, striking impetuously against that received from without, has the same Effect with *Des Cartes*'s first Element against the second; that is, produces the Motion of Light.

But why then is not the Phænomenon common to all Barometers? To this he answers, that the Motion of the subtile Matter out of the Mercury may be weaken'd, and prevented by any heterogeneous Matter collected on its upper Surface into a Kind of Pellicle: So that the Light should never appear but when the Mercury is perfectly pure.

This Reasoning was confirmed from the Experiments of several Barometers which he made according to his Plane; but the Royal Academy of Sciences, who repeated Experiments with Barometers, made after the same Manner, did not meet with the same Success; the Light being found in some, not in others.

M. *Homberg*, therefore, conjectured, that the Difference consisted in the different Qualities of the Quicksilver: In some, he observed, they used Quicklime to purify; in others, Steel-filings. The Mercury, then rising in the Distillation, and passing through the Lime, might take away Parts thereof, capable, by their extreme Smallness, to lodge in its Interstices. Hence, as Quicklime always retains some fiery Particles, it is possible, in a Place void of Air, where they swim at Liberty, they may produce this Lustre.

M. *Hawksbee* has several Experiments on the mercurial *Phosphorus*. Passing Air forcibly through the Body of Quicksilver, placed in an exhausted Receiver, the Parts were violently driven against the Side of the Receiver, and gave all around the Appearance of Fire; continuing thus till the Receiver was again full of Air.

From other Experiments he found, that though the Appearance of Light was not producible by agitating the Mercury in the same Manner in the common Air; yet, that a very fine Medium, nearly approaching to a Vacuum, was not at all necessary.

And, lastly, from other Experiments he found, that Mercury inclosed in Water, which communicated with the open Air, by a violent shaking of the Vessel, wherein it was inclosed, emitted Particles of Light in great Plenty, like little Stars.

By including the Vessel of Mercury, &c. in the Receiver, and exhausting the Air, the Phænomenon was changed; and upon shaking the Vessel, instead of Sparkles of Light, the whole Mass appeared one continued Circle of Light.

There are three Kinds of *artificial Phosphori*, i. e. of those which owe their luminous Quality to some Art or Preparation, *viz.* a burning one, which consumes every combustible it touches; and two others, which have no sensible Heat, and are called the *Bononian* and *Hermetick Phosphorus*.

The *burning* PHOSPHORUS may be made of Urine, Blood, Hair, and generally of any Part of an Animal, that yields an Oil by Distillation. The Matter it is most easily drawn from, is human Urine, in the following Manner.

Evaporate a good Quantity of Urine of Beer-Drinkers, to the Consistence of Honey. Cover it up in an earthen Vessel, and set it three or four Months in a Cellar to ferment or putrify. Mix a double Quantity of Sand, or Powder of Potshards, with one Part of this Urine; put it into a Retort, fitted to a long necked Receiver, with two or three Quarts of Water. Distil it at a naked Fire, in a reverberatory Furnace; at first gently; after two Hours, augment the Fire gradually, till all the black fetid Oil be drawn off. Rise the Fire to the highest Degree; upon which white Clouds will come into the Receiver, and fix by little and little on one Side, in Form of

of a yellowish Skin; and another Part will precipitate to the Bottom in Powder. Keep the Fire thus violent for three Hours, till no more Fumes arise. Let all cool and unloose the Vessels; and throwing more Water into the Receiver, shake all well about to loosen what sticks to the Sides. Pour the whole into a Glass Vessel to settle.

The volatile Salt will now dissolve in the Water, and the *Phosphorus* and Oil sink to the Bottom; pour off the Water, and gathering the remaining Matter together, put it into a Glass Vessel with a little fresh Water, and digest it in a sand Heat, stirring it from Time to Time with a wooden Spatula.

By this Means the *Phosphorus* will separate from the Oil, and sink to the Bottom; pour off the Oil, and make up the *Phosphorus*, while hot, into Sticks for Use.

Boerhaave gives us other Ways of making *Phosphorus*. Recent Urine, he observes, digested three or four Times in a tall Glass, with a Heat no greater than that of a healthy Man, grows reddish, fetid, and cadaverous: This digested Urine being put to distil in a Retort, yields a clear fetid Liquor, then a yellow volatile Salt, which evaporated to the Consistence of a Sapor, and mixed with four Times its Weight of dry Sand, and the Distillation continued in a covered Retort; there successively comes over, by greater and greater Degrees of Fire, a fetid brown Oil, bluish Fumes, and a gross shining Matter, which sinks in Water, and is the solid *Phosphorus*.

To make it more directly, and to the best Advantage, it may be proper to take a sufficient Quantity of human Urine, afforded by a Person not much given to drink Wine, and exhale it away in an open Vessel to a Rob, or the Consistence of Honey; then set it to putrify for half a Year, and upon Distillation it will afford a large Proportion of Salt; after which, if six Times its own Quantity of Sand, or Brick-dust be added to the Remainder, and the Distillation be continued, as in the Case last mentioned, the *Phosphorus* will fall into the Water. Or it may commodiously be prepared, by suffering the Rob of Urine to digest for two Years in an open Vessel in the open Air; during which Time a slimy, fæculent, unctuous, earthy Matter, will fall to the Bottom; which being frequently washed with pure Water, wherein it will not dissolve, will leave a white Matter behind it, neither of an alkaline, acid, saline, or terrestrial, or scarce of an unctuous Nature: And this is of itself a proper Matter for making of *Phosphorus*, by Distillation with Sand.

To render this *Phosphorus* liquid, a little Bit of some Scrapings of it, must be put in Digestion, in Oil, or Essence of Cloves, Oil of Turpentine, and the like, in Horse-dung; after Dissolution, the Oil will be so impregnated with it, that upon opening the Bottle the Matter will appear in a Flame.

Note, That the Properties of the solid and liquid *Phosphorus*, are as follow.—1. If a little Bit of the solid be thrown into some of the strongest Oil of Vitriol, mixed with half the Quantity of common Water, and the Phial be shaken, the Mixture will grow very hot, and smoak, and the *Phosphorus* fall into Powder to the Bottom. If the Operation be made in the Dark, the *Phosphorus* will be seen to light by the Heat of the Liquor, and Flakes of Light, like the Glittering of a Diamond, will appear in several Places of the Phial. The Liquor being cooled, produces the same Effect for a considerable Time, when the Phial is shaken; but the Light is not so strong then as it was at first.

2. The solid *Phosphorus*, mixed with Mercury, constitutes a luminous Amalgama, in this Manner: Put in a long Phial about six Grains of *Phosphorus*, and pour over it two Drachms of Oil of Aspic, the Phial being so big, that two Thirds thereof at least may remain empty: Heat it a little at the Light of a Candle, the *Phosphorus* will dissolve with Ebullition, pour into the Phial during that Dissolution half a Drachm of Quicksilver, shake the whole Mixture, and then will be formed an Amalgama, which will appear all on Fire in the Dark.

3. Camphor mixed with the *Phosphorus* does not interrupt the Light, but it hinders it from bursting into Flames, which is surprizing, since that Mixture is almost all volatile Sulphur, which seems very agreeable to the Nature of the *Phosphorus*; therefore there must be in the Camphor a Kind of Salt, which fixes the Sulphur of the *Phosphorus*, and hinders it taking Fire.

4. With this *Phosphorus* one may write on Paper as with a Pencil, and the Letters appear like Flame in the Dark; yet in the Light nothing appears but Smoak.

5. A little Piece rubbed between two Papers takes Fire instantaneously. If Care be not taken in the Management of it, there is Danger of burning the Fingers, the Phosphorus being exceedingly inflammable. M. *Cassini* happening to press a Piece in a Cloth between his Fingers, the Cloth immediately took Fire; he endeavour'd to put it out with his Foot; but his Shoe caught the Flame, and he was obliged to extinguish it with a Brass Ruler, which cast forth Rays in the Dark for two Months after. M. *L'Emery* relates, that having made one Day some Experiments of the *Phosphorus* in his own House, he left unawares a little Bit of it on the Table of the Room. The Maid, in making the Bed, carried it off with the Blankets, which she had put upon it; the Person who laid in that Bed, having wak'd in the Night, because, perhaps, of some Heat he felt, perceived that the Blanket was on Fire. In fact, the *Phosphorus* having been excited by the Heat of his Body, had set the Blanket on Fire, and had made a great Hole in it.

3. The Air lighting the Fire, by exciting the Motion of its Parts, renders, likewise, the *Phosphorus* luminous, for when the Matter has remained, sometimes, in a Bottle well corked, it lights no more, and re-assumes its Light, when Air is given to it, by uncorking the Bottle. Notwithstanding which, some Experiments made at *Paris*, by M. *Homberg*, seem to shew, that Air is not always necessary to render the *Phosphorus* luminous. A very little Bit of the *solid Phosphorus* was put in a small Glass-Bottle, to which had been adapted a small Brass-Cock, which could be introduced into another Brass-Cock, of another Glass-Bottle, but very large. The Bottle which contained the *Phosphorus* was heated, and the Cock of that Bottle applied to that of the large Bottle, out of which the Air had been pumped. As soon as the Cocks were open'd, the Air came out of the little Bottle, together with large Flashes of Light, the little Bottle being separated from the little one, the Light diminished considerably, and was even seen, sometimes, almost extinguished; the Cock was open'd to let the Air enter, and presently the *Phosphorus* was seen to light again. Which, notwithstanding, the Heat of the *Phosphorus* diminished much, and gave but a dim Light: The Experiment was renewed, a large Glass-Bottle was adapted to the little one which contained the *Phosphorus*, and the Air being come out of the Bottle, the *Phosphorus* appeared more shining; on the contrary, when the Air was re-introduced into it, the *Phosphorus* was seen extinguished; which was entirely opposite to what happen'd when the Bottle of the *Phosphorus* was set in the former Experiment. The same Experiments were repeated several Times, and the same Thing happened every Time, *i. e.* that the *Phosphorus* being hot, lost much of its Light when the Air was pumped out of the Bottle it was contained in, and lighted again when the Air was introduced into it anew. The *Phosphorus*, on the contrary, being cold, lighted again when the Air was pumped out of the Bottle, and put out, by the Air being re-introduced into it. It suffices to have related the two Experiments, the most opposite to each other, to judge what might happen, when the *Phosphorus* is not so hot as in the first, nor so cold as in the second, the least Circumstance causing an Alteration in the Experiment.

What is the most surprizing in those Experiments, is, that the Air renders, sometimes, the *Phosphorus* luminous, and sometimes extinguishes it. To solve that Difficulty, I say, that in the first Experiment, the greatest Part of the luminous Matter of the *Phosphorus* was expelled, and what remained in the Bottle, after it was separated from the large one, being divested of its most subtile Sulphurs, was not capable to produce

as much Light as before: But as the Matter was yet hot, there arose from it a sufficient Quantity of Particles to give Light when the Bottle was uncorked, and as the Cold condenses the small Bodies, and makes them lose much of their Motion, that *Phosphorus* likewise lost much of its Force in cooling, and gave but a dim Light. When the Air was pumped out of the Bottle, the Matter appeared more shining, and by its being re-introduced into it, it was extinguished. The Reason of this is, that the Light being weak, it could not preserve itself without a sufficient Proportion of Air, and there was enough left in the Bottle; for let the Air be pumped out of a Vessel with ever so much Exactness, there remains always a little in it: The *Phosphorus* was extinguished by the Introduction of a great Quantity of Air, as the Snuff of a Candle is extinguished by an Air a little too strong; or as a small Fire is extinguished by too much Wind. While the *Phosphorus* supplies the Place with Abundance of Matter, it wants much Air to appear luminous, and a small Quantity of Air would not be sufficient; therefore, while the *Phosphorus* was hot, it gave no Light 'till the Bottle was uncorked; but when cooled, as none but weak Vapours were exalted from it, then there wanted but very little Air to render it luminous; and when too much was introduced into the Bottle, it was suffocated.

Note also, That the *burning Phosphorus* was invented by M. *Kunkel*, Chymist of the Elector of *Saxony*, brought into *France* by M. *Kraft*, a Physician of *Dresden*, by whom it was communicated to Mr. *Boyle*. In 1676, M. *Elrholt* published a Treatise expresly on it at *Berlin*; and in 1680 Mr. *Boyle* published another in *English*, under the Title of *Noctiluca*. M. *Homberg* first made it at *Paris* in 1679, and communicated the Method of Preparation to the Publick.

When we consider the *Phosphori*, either *natural* or *artificial*, and the Experiments made on them, we must confess that the general Cause of the Light they give, proceeds from a too great Agitation of their insensible Parts; and as there is a great Appearance that the ordinary Fire is but a very violent Motion of small Bodies round their Centre, it may be said that the Parts of the *Phosphorus* have received the same Determinations by Fermentations, or by Fire; for Wood is luminous but when it is rotten; *i. e.* when it has received enough Fermentation, for its most subtile Parts to be moved with Rapidity round their Centre, the *Bononian Stone* is luminous, but after it has been calcined a certain Space of Time. A Cat is not luminous in its Body, but if you rub him hard on the Back, in the Night, it will produce Light; because in irritating the Animal by that extraordinary rubbing, you'll excite an Agitation of the Spirits, much stronger than it was before; and it may be said, *en Passent*, that a Cat's Eyes, which light in the Night, are a Kind of *Phosphorus*. A Viper, being irritated, thrusts out its Tongue with so much Rapidity, that it appears all on Fire. Several little Animals, as some Kinds of Caterpillars, and Wood Mille-Pedes, or Wood-Lice, in the Night, because they have towards the Tail a Matter so very subtile, that it produces a Kind of Fire; and it is for the same Reason of the Motion of the Parts, that Urine becomes luminous. What has given Room to work an Urine for the Discovery of this is, that it was observed, by Chance, that in Places where Urine had stood for some Time, Light was seen in the Night.

If I be asked why the greatest Parts of the Mixts do not give Light, though the same Means are used to put their Parts into Motion?

I'll answer, that all the Mixts have not their insensible Parts disposed to move themselves with the same Rapidity, and in the same Manner, as those above-mention'd; we may make a Flame with Wood, but we cannot do it with a Stone, because we cannot give the same Determination to the Parts of a Stone we give to those of Wood; Mixts, to give Light or Fire, must be composed of sulphurous Particles; for Sulphurs are very susceptible of Motion.

I don't question but we could find *Phosphori* in an infinite Number of Things, where we see none at present, if we would apply ourselves to search them.

It has been observed in several Men, that when they are in a Passion, or in a violent Agitation of Spirit, their Hairs shine like Fire, and we may easily believe what has been said of *Alexander the Great*, that while in the Heat of a Battle, his Eyes darted Fire, because he gave then an extraordinary Rapidity of Motion to its Humours. Linen, which has been kept seven or eight Days on the Body of a Man, provided it has all that Time touch'd his Flesh, becomes luminous; therefore shaking, in the Summer, a Shirt, at the Time it is left off, it gives Light.

What I have said on this Subject may very well pass for a general Explication; but when we descend into Particulars, it is very difficult to resolve several Doubts: For Instance, in what consists the Difference of Fermentations; which causes that of several semblable Matters, the one are shining, and the others not, though they seem to have received the same Elaborations and the same Fermentations in an equal Time? Why some having but very little fermented give Light, and others of the same Nature, though they have fermented as much or more, give none? Why certain Sides of a Matter are luminous, and the other not? One should know perfectly the Structure and Arrangement of the Matter, to account for all those Phænomena, and solve all those Difficulties.

We find, sometimes, in Butchers Shops, Pieces of Veal, Mutton, and Beef, which shine in the Night, though they are newly killed, and others killed at the same Time, which do not shine.

This Phænomenon, in my Opinion, may be attributed to two Causes, the first to the Pasture; for it is certain, that in certain Countries the Grass is more spirituous than in others, and therefore gives a greater Motion to the Humours of the Cattle which feed upon it, and a Disposition towards making that *Phosphorus*. The second to that those Beasts may have been more over-heated on the Road, than the others, and have, perhaps, been killed before they were cold enough; for the Spirits, being in a violent Agitation, do not entirely lose their Motion, though the Beast be killed; and while they continue to move with Rapidity, the *Phosphorus* appears; but when the Meat begins to grow stale, it is no longer luminous, because those subtile Spirits are either dissipated, or have been confounded in the Meat, by a new Fermentation begun.

It may be objected, perhaps, that if the *Phosphorus* consists in the violent Emotion of the insensible Parts, stinking Meat should rather shine, than that newly killed, since the offensive Smell proceeds wholly from the Principles of a Mixt, which having loosened themselves by Fermentation, strike in their Exaltation the olfactory Nerve; and, therefore, there must be a greater Motion of the Parts in stinking Meat than in that which smells nothing.

To this I answer, that what causes that the *Phosphorus* in Meat newly killed, is a Matter much more in Motion, and much more subtile, than that which causes the ill Smell of stinking Meat; it is a Remnant of the Spirits which did run with a prodigious Swiftness in the Body of the Animal, while alive, through all the Parts, and for want of a Matter in that Degree of Motion, there will be no *Phosphorus*; no more than if inflammable Matters were not put in a very rapid Motion of their insensible Parts, they would produce no Fire.

Here follows the Description of a *Phosphorus*, discovered by M. *Homberg*:—Mix exactly together one Part of Sal-Armoniac, in Powder, and two of Quick Lime, slacken in the Air; put that Mixture in a Crucible, the Third thereof must be left empty: Place that Crucible in a Furnace, and surround it with Fire to make it red hot: The Matter, which will swell in melting, must be stirred with an Iron Spatula, left it should run over while in Fusion; it must be poured into a Copper Basin, very clean, and very dry; where it will congeal, and appear of a grey Colour.

If that Matter be stricken with a Hammer, it will be seen in an Instant all on Fire, in that Place where it has been stricken; but as it is very brittle, the Experiment cannot be repeated often; for so soon as it is reduced into Powder it produces no longer its Effect. To prevent that Accident, small Bars of Iron or Copper, heated, must be dipped in the Matter, while yet in Fusion;

in the Crucible, that they may be covered with it; one may strike on those small Bars commodiously, and make several Experiments before the Matter is separated from them; but if they are to be kept, they must be put in a warm and dry Place, for that Matter grows damp easily, and then gives no Light.

Note, That the Time in that Operation fixes the acid Part of the Sal Armoniac, and sets the volatile Salts at Liberty, which, disengaging themselves, and being forced out by the Fire, are dissipated in the Air. But there is more Appearance that the Light, which comes out of the Matter calcined, when stricken, proceeds from some volatile Corpuscles, which being concentred in the fixt Sal Armoniac, and joined with what's left of the igneous Particles of the Lime, move with much Rapidity, when they are excited to it.

Note also, that Urine is not the only Excrement whence a *burning Phosphorus* has been extracted. M. *Homberg* gave, in 1710, to the Royal Academy of the Sciences at *Paris*, the Manner of extracting a very excellent one out of the human fecal Matter, or gross Excrements, which he has discovered after much Labour and long Application: The Method of making it is as follows:

Take four Ounces of human fecal Matter, newly voided, of a common Consistence, and as much Roch Alum in Powder; incorporate that Alum exactly with the Matter: Put the Mixture in a Skillet, and stir it with an Iron Spatula on a moderate Fire, to an entire Siccity, provided the Skillet does not grow red hot; pound and keep the Powder, which must be reduced to an Ounce and a half, or thereabouts.

Take two Drachms of that Powder; put it in a Mattrass of a double or triple Capacity, with a Neck six or or seven Inches long, and corked only with Paper; put that Mattrass on a Crucible on the Sand, so that the Sand surrounds the whole Body thereof; place the Crucible in a Furnace six Inches deep, and eight or ten Inches of Diameter; make in that Furnace, round the Crucible, a small Fire during a Quarter of an Hour; afterwards give it half an Hour of good Fire, and lastly, an Hour of very strong Fire, to make the Matter red hot; there will come out a thick Smoak; let the Crucible grow cold; take off the Mattrass by little and little, and cork it with a good Cork to keep it for Use.

This Powder calcined will be yellowish, grey, brown, or bluish, of a sulphurous Smell.

If some Portion of it be exposed to the Air, on Paper, it will take Fire of itself, and communicating its Flame to the Paper, be consumed with it.

To preserve it, it must remain in the Mattrass, or in a glass Bottle well corked, in a dry and dark Place; that newly made is best, because it takes Fire sooner.

Note, That it would be very proper to dry the Fecal Matter and the Alum together, that the Mixture may be more exact; but this Drying must be done at several different Times, to hinder the Powder from growing lumpy when calcined in the Crucible, for those Lumps could hinder an exact Calcination, and the Powder resulting from it would not take Fire so easily.

This *Phosphorus* is a Kind of very porous Calx; which takes Fire the sooner, that the igneous Corpuscles, which have impregnated the Pores of its fix'd Salt, are found in it in great Quantity.

If this *Phosphorus* be exposed to the Air on a very dry Paper, it will not take Fire so soon, as on one which has its common and natural Humidity, because a small Quantity of the Humidity will give Room for the igneous Particles unfolding themselves, and direct themselves to Motion to produce Flame, which does not happen when the Paper is too dry; as Quick-Lime does not take Fire without Humidity.—Now for the *Bononian Phosphorus*.

Those who have treated of the *Bononian Stone*, have given but an imperfect Sketch of its Nature and Effects. They have spoke in a Manner, which shews plainly, that they have not well fathomed the Subject, and that they knew nothing of the greatest and most marvellous Faculties of that Stone. It is true that an *Italian* having applied himself particularly to the Research, and Preparation of the *Bononian Stone*, had made great Progress in it; but it does not appear that he had opened himself to any Body on that Subject, and his Secret was buried with him.

It may be said that M. *Homberg*, a *German* Gentleman, so well known in the learned World, for the fine Discoveries he has made in natural Philosophy, has set to light that Stone, which was then almost forgotten; and has enriched extremely on what had appeared before with Regard to it. A Journey he made in *Italy* to find it, gave Occasion to several curious Remarks, I have taken from him, on the Places where that Stone is found, on its Nature, and on the Means of preparing it well to render it luminous.

Though the *Bononian Stone* is found in the Neighbourhood of the City of *Italy*, whence it borrows its Name; it was so little known in that City, in the latter End of the last Century, that no Body there could give any News of it, and few Persons had heard of it; which is the Reason why Travellers could learn nothing about it, and the greatest Part of them imagined that the *Bononian* was a Composition, the Secret whereof was lost.

The *Bononian Stone*, is a small grey Stone, heavy, though tender, sulphurous, shining in several Places, of the Bigness of a Walnut, but flat and uneven on its Superficy. It is always disposed so, that on the Side opposite to its Prominency, is found a Cavity; it commonly weighs an Ounce and a half, or two Ounces. Being broke, it appears in Crystals very near like the Talc of *Montmarte* near *Paris*. One of these Stones is kept, for Curiosity Sake, in the Cabinet of *Aldovrandi* at *Bologna*, where I have seen it, which weighs two Pounds and a half, and another at *Rome*, weighing five Pounds; but those large Stones are only valuable for their Rarity, for they are not the best to make the *Phosphorus*, by Reason of their Opacity; the small ones are much better, and particularly the most shining, and most full of Spots. Those with Veins of Vitriol, or Iron, are the worse. There are, sometimes, found *Bononian Stones*, cover'd superficially with a thin, white, and opake Crust; these are very rare, but they are the best.

The *Bononian Stone* is found in several Places of *Italy*, as near the City of *Roncario*, at *Pradalbino*, at the Foot of Mount *Paterno*, which makes Part of the *Alps*, and is about a *French* League distant from *Bologna*. Father *Kircher* says, that he has found some near the Mine, of Roch-Allum, which is near *Tolfa*; but the greatest Quantity, and the best come from Mount *Paterno*. They are not easily discover'd, but after a great Shower of Rain which usher'd them into the Brooks it has formed, washes them, and causes that they are distinguished from the other Stones of the Mountain, by small Sparks they have on their Superficy. The Foot of Mount *Paterno*, where they are found is quite sterile, but the Top, where there is none, is fertile in Fruit-Trees, Vineyards, and Pastures.

The *Preparation* or *Calcination* of the *Bononian Stone*, to render its Sulphur more purified and more exalted, is made in the following Manner.

Take seven or eight *Bononian Stones*, and rasp off the Superficy till all the heterogenous Earth be entirely separated from it. Pulverize one or two of the best of those Stones, in a Brass Mortar, and sift the Powder through a very fine Searce, dip your Stones one after another into a very clear Brandy, and cover them, afterwards, all over with your Powder. Have a small earthen Furnace, the Grate whereof must be made of Brass: Heat that Furnace with two or three lighted Coals, and when those Coals are more than half consumed, fill the Furnace up to the Chops, with Cinders of an Oven, not lighted, and of the Bigness of a Walnut. Dispose gently your Stones over it, and cover them with other such Cinders, and of the same Bigness, till the Furnace be quite full; put the Top of the Furnace over it, and let the Coals burn without touching it, till it be quite reduced to Ashes. When the Furnace is cold, take off the Top, and the Hearth; you'll find on the Grate your Stones well calcined, carry gently that Grate on white Paper, and gather them, separating from them the Crust which environs them, and keep them in

a Box with Cotton; preſerve likewiſe the Cruſt, after you'll have reduced it into a fine Powder.

The Stones thus calcined, make *Phoſphori*, which being expoſed for a Moment to the open Light of the Day, either in a Yard or in a Street, and afterwards carry them quickly to a dark Place, they'll appear for a little Time like lighted Coals, without a ſenſible Heat, then they go out by Degrees. If thoſe Stones are expoſed anew to the Light, they kindle as before. They remain thus *Phoſphori*, for two, three, and four Years, according as they are expoſed more or leſs often to the Light: And when they have loſt their Virtue, it may be reſtored by calcining them anew, and obſerving the ſame Circumſtances as before, but their Light is more dim.

The Cruſt reduced into Powder, is likewiſe a very fine, and very luminous *Phoſphorus*, after it has been expoſed to the Light. Several different luminous Figures can be made of that Powder, by drawing firſt thoſe Figures on Paper or Wood, with Whites of Eggs, and ſpreading over them, while the Lines are yet humid, the luminous Powder that it may ſtick every where. Thoſe Figures muſt be left, afterwards, to dry in the Shade. When dry, they are put in a Frame, and covered with a Glaſs, that they may be touched no more. When it is wanted to render thoſe Figures luminous, they muſt be expoſed thus framed, and covered with the Glaſs, to the Light, and carried afterwards to a dark Place.

A luminous Cryſtal can alſo be made, in filling exactly with that Powder, a ſmall Cryſtal-Bottle, and corking it well, ſo that it may be open'd no more. It will produce an Effect like that of the Stones, and its Light will laſt longer, but will be more dim.

Note, That the firſt who took a Fancy to calcine the *Bononian Stone* was a Shoemaker, called *Vincenzo Caſuarolo*, Fool enough to neglect his Profeſſion, to turn Alchymiſt. That Man taking a Walk, at the Foot of *Mount-Paterno*, gather'd ſome of thoſe Stones, in which he imagined he could find Silver, becauſe they glitter like Silver, and are very heavy; but inſtead of finding Silver, or any other Metal in calcining them, he found by a marvellous Accident the Phænomenon we ſee in them. *Poterius*, *Montalbus*, *Maginus*, *Licetus Menzelus*, and ſeveral other Authors have wrote of this Stone, and given the Manner of calcining it, but their Deſcriptions are of no Uſe, becauſe one cannot ſucceed in following what they have ſaid.

As the *Bononian Stone* is very tender, its Superficy is eaſily carried off with a Raſp; if any Earth remains, there remain Spots after Calcination, where there appears no Light. If one was to calcine the Stone without wrapping it in the Powder of a like Stone, it would produce, after Calcination, but very few Sparks of a very weak Light; therefore it is neceſſary to obſerve exactly my Deſcription. What gave Occaſion to M. *Homberg* to prepare it in this Manner, entirely unknown before his Time, is, that on a Journey, carrying ſome of thoſe Stones along with him, by rubbing againſt one another, they formed a Duſt, which ſtuck to them in Part; and as he calcined them in that Condition, without ſeparating the Duſt, he found, after Calcination, that the Places where that Duſt had ſtuck, were much more luminous than the other.

The Powder muſt be ſubtile to ſtick to the Stone, and to take better the Light after Calcination: For the Light faſtening only on the Superficy, the ſubtile Powder will have much more of it than a coarſer, which has leſs Surfaces. — This Powder muſt be made of the moſt fixed Stones, the cleaneſt, and the moſt tranſparent; becauſe the luminous Brightneſs of the calcined Stone, proceeds entirely from the Goodneſs of the Powder which has covered them. Bad, and opake Bononian Stones have been wrapped in very good Powder, and thoſe Stones, have well anſwered the Purpoſe. On the contrary, very fine and tranſparent ones have been cover'd with Powder made of bad Stones, and thoſe fine Stones have produced no more Effect, than if they had been calcined, without being covered with Powder, *i. e.* that they were ſcarce luminous.

The Powder muſt be made in a Braſs Mortar, otherwiſe the Stone cover'd with it, would not become luminous, though ever ſo exactly calcined; ſome have been pounded in Mortars of Iron, Marble, Porphiry, or Cryſtal; and the Operation has always miſcarried; that ſame Powder has been pounded over again, in a Braſs Mortar, and it has been uſed on the ſame Stones, which have appear'd a little luminous after Calcination; but the Powder which has been made in an Iron-Mortar, was but very little corrected in the Braſs one; and gave ſcarce any Light to the Stone wrapped in it. There muſt be in Iron ſomething prejudicial to that Effect, and, on the contrary, Braſs agrees with the Nature of the Stone. As to Marble, Porphiry, and Cryſtal, they want certainly what the Braſs has to ſuit the Stone; but, however, thoſe Matters do not communicate ſo hurtful Impreſſions to it, as Iron does. The bad Quality of Iron, with that Reſpect, proceeds, perhaps, from that the vitriolick acid of that Metal, uniting with the Sulphur of the Stone, which is much exalted, fixes it ſo that it hinders the Light from lighting it, to make it light in its Turn.

One may uſe common Water inſtead of Brandy, to wet the Stone, provided the Water be very clear, and leaves no Sediment; ſome have uſed even acid Spirits, which have ſucceeded as well as Brandy; it is wetted to make the Powder ſtick to it the better, and form a Kind of Cruſt upon it.

The Furnace uſed for the Calcination of the *Bononian Stone*, muſt be made of the ſame Matter all other portative Furnaces are made of: It muſt be round, about a Foot high, without the *Dome*, and very near half a Foot Diameter. It muſt have two Regiſters to manage the Fire: It muſt be cover'd with a ſmall Dome, to make the Fire reverberate on the Matter. The Grate muſt be of Braſs, for if of Iron, it would perhaps as much prejudice the Stone, as an Iron Mortar does; and if of Earth, the Fire could not be violent enough, beſides that Braſs helps towards rendering the Stone luminous. Copper does not produce ſo good an Effect, becauſe, perhaps, it contains no Calaminaris; for it may happen, that that Stone may communicate ſome Vapours to the *Bononian Stone* in the Calcination, and open the Pores thereof to render its Sulphur more ſuſceptible of the Impreſſion of Light. It is proper the little Furnace ſhould be divided in two Parts, that when the Fire is extinguiſhed, the upper Part thereof may be eaſily taken off, to gather the calcined Stone.

As the firſt Coal put in the Furnace ſerves only to heat it, it ſuffices that it be common Coal; but if the ſame Coal was uſed during the Calcination, that Coal, in cracking, ſhaking the Stones might chance to let fall the Powder which is round them; the Cinders of Bakers is the moſt commodious; and thoſe Cinders muſt not be bigger than Walnuts, leſt they ſhould make a too violent Fire; neither are they to be too ſmall, for Fear they ſhould ſmother the Fire, and hinder the Calcination from being perfect.

The Stone retains the Colour of the Fire which has been given to it; therefore when the Fire can be made white, the Light of the Stone appears whitiſh; if violet, the Light will be violet; if green, the Stone will have a green Light; if yellow, the Stone will give a yellow Light; but when one wants to excite thoſe Colours, Care muſt be taken not to uſe fixed Matters, they muſt be entirely volatile, leſt they ſhould leave a Scurf on the Stone, which would hinder its Light.

When he is contented with calcining the Stone as I have deſcribed it, without adding any Artifice to the Fire; it repreſents always a red hot Coal, unleſs it contains ſome Part of the Metal or Mineral. If it partakes of Copper, it gives a greeniſh or bluiſh Colour; if of Iron, it is opake, and worth nothing; if of Sal Armoniac, the Light is whitiſh: The Stones covered naturally with the white and thin Cruſt abovementioned, take a blue or green Light.

If the Stones have a yellowiſh Colour, when taken out of the Furnace, they are good to receive Light, but when they have grey, white, or black Spots, they do not ſhine.

The

The Furnace must be quite cold before the Stones are taken out, for if it was yet hot, they would fall into Pieces.

The Powder fasten'd round the Stone by Means of the Brandy, dries up, during the Calcination, into a Crust; and often little Bits thereof fall from it into the Ashes. That Accident is prejudicial to the Operation, for the Stone is but very little luminous in those Places which the Powder has left off.

If by some Accident the Stones were not become luminous after the Calcination, the Operation should be renewed, and by observing the same Circumstances, they could be made good.

The Stones calcined anew, after they have served two, three, or four Years, though they re-assume a whitish Light, are never so luminous as after the first Calcination.

After the first Calcination, the Stones quit easily the Powder or small Crust formed on them; but after they have been calcined a second Time, it sticks faster; the Reason is, that after the first Calcination, there is much more Sulphur on the Superficy of the Stone, than there was after the second, and that Sulphur that is oily, hinders the Crust from fastening to the Stone.

The *Bononian Stone* acquires by Calcination a sulphurous Smell, very much like that proceeding from the *Phosphorus* made with Urine or Lye, drawn from a Mixture of Lime and Orpiment, but much weaker.

If the *Bononian Stone* calcined, be left sometimes on a Piece of Brass, polished on its Superficy, the Brass will take the Colour of Silver, not only in the Place touched by the Stone, but all round, which proceeds from the Penetration made in the Brass by the saline Sulphur of the Stone, which having changed the Disposition of the exterior Parts of the Metal, there happens to our Sight a Reflection of Light different from that, which happen'd when we look on the Brass.

The calcined Stone must be left to cool before it is exposed to the Light: For it does not become so luminous while hot, as when it is cold. It does not suffice, to render it luminous, to make it receive the Light in a close Place, as in a Room, Hall, *&c.* but it is necessary to expose it with the Hand, out at a Window, in the Street, in a Yard, or any other such Place, that the Rays of Light may fall perpendicularly upon it; but it must not be immediately to the Sun, for the Light it would take then would not be so beautiful, and the Sun, besides, would wear it out too soon by its Heat, in carrying off too many of the Particles of the Sulphur which are necessary to it. It takes a finer Light at Sun's Setting, than when it is much above the Horizon, but it takes none, after the Sun is set, tho' it be Day-light yet. During the thickest Clouds and darkest Tempests, provided the Sun be on the Horizon, it becomes more luminous than in a clear Sky; but never in the Night; and very little by the Moon's Light; and still less by that of a Flambeau. The Air avails it nothing; for if after it has been pumped out of a Bottle, the Stone is shut in it close with a Glass-Cork, and Sealing-Wax, and that Bottle exposed to the Light, the Stone will receive as much of it, though it be in the Vacuum, as if it was out of the Bottle; but as it is cover'd with Glass or Crystal, its Fire does not appear so brisk, because the Rays darted from it, being a little broken in passing thro' those transparent Walls, do not strike the Retina with so much Force, as when it is naked. The Differences between this *Phosphorus*, and that made of Urine, is, that this wants Light, and the other wants but Air.

To be in a Condition to consider well the luminous Brightness of the *Bononian Stone*, the Place must be darken'd, and one must remain sometimes in the Obscurity, before he looks at it; and this must be observed particularly in a clear Day; for in a dark one, when it rains, there needs no such Precaution; for our Eyes being not then used to a great Light, are more capable to discern that of the Stone.

The *Bononian Stone*, is only luminous in its Surface, for if it be broken it shews no Light inside; it is true, that if that Inside was calcined, it would appear luminous like the rest on its Superficy. The Powder which has served to cover the Stones during the Calcination being exposed to the Light, and afterwards carried in a dark Place, appears all on Fire on its Surface; but if it be stirred, the Powder which was underneath is opake; if it be spread, and exposed anew to the Light, all that is seen of it appears luminous.

Having thus far related the marvellous Effects of the *Bononian Stone*; it will not be improper, next, to reason on them, and to explain, as clearly as possible, how that Stone is impregnated with the Light; which to do with some Order, we should consider two Things, *viz.* what Light is, and what Disposition the Stone must have to receive it; but as I have already treated the first in the *Opticks*, nothing else remains but to explain the last.

The *Bononian Stone*, as I have observed already, is full of Sulphur, but that Sulphur before Calcination is so well united with the other Principles which compose the Stone, that it does not appear, and this is no more luminous than the other Stones. The Fire opening its Pores, causes thereby the Exaltation of the Sulphur, the greatest Part whereof is lost in the Air; though there remains still much of it, stopped by the Powder the Stone is cover'd with. If it was calcined less than I have prescribed, its Pores would not be sufficiently open'd, nor its Sulphur enough in Motion; it may even happen, that a Part of the coarse Sulphur which is dissipated first, would obstruct the Effect of the Stone was it to remain in it. If, on the contrary, it was calcined longer, there would be a too copious Evaporation of the Sulphur, by the Action of the Fire, and the Stone would produce little or no Effect, which happens when it is not covered with the Powder of another Stone; for the Sulphur, then, coming out with too great Facility, is almost entirely lost, and the Stones take but very little Light, whereas that Powder not only stops Part of the volatilized Sulphur, but furnishes some itself. The sulphurous Smell the Stone has after Calcination, shews very well that there is much Sulphur left in it; it is evidenced then, by all Experiments, that the calcined Stone which takes Light, contains a very exalted Sulphur, the insensible Parts whereof fly to the Surface.

This pre-supposed as a Thing, which to me appears unquestionable, I say, that the *Bononian Stone* calcined, becomes luminous when exposed to Day-light, because the Light, which is a Fire, lights the superficial Sulphur, and makes it appear Burning-hot, in the same Manner the Fire lights a Coal. Let's see if I'll account for all the Experiments, and if I'll be capable to solve all the Difficulties.

The *Bononian Stone* in the Calcination, has been reduced into a Kind of Calx, and there is much Appearance, that in the Room of the Sulphurs which have been exalted from it, have been introduced igneous Particles, which have entangled themselves in the ramous Particles of those left. Those igneous Particles can contribute much towards rendering the Sulphur of the Stone susceptible of that Fire of Light. For though they be shut in the Pores of the Matter as in little Cells, they notwithstanding make some Effort by their Motion to sally out; and they volatilize and divide the Parts of that Sulphur so subtilly, that the weakest Fire, which is that of the Light, weaken'd by Clouds, is capable to light it.

When the Stone is on Fire, it does not appear luminous in Day-light, because our Eyes being drenched with a greater Light, is uncapable of perceiving that little Fire, very near as we do not distinguish the Light of the Moon while the Sun is on our Horizon; but when the Place where the Experiment is to be made, is darken'd, the Light of the Day striking the Eyes no longer, the Fire of the Stone is seen in all its Brightness, that Fire lasts about half a Quarter of an Hour, and no longer, for that Fire, weaken'd by Degrees, is extinguished at last, because the lighted Particles of the Sulphur being environ'd with a great Quantity of terrestrial Matter, have not Strength enough to continue their Motion of the Fire, and must be lighted again at the Light, if one wants they should burn.

But there occurs here a Difficulty, which is to know why the Stone appears less luminous, when exposed yet hot to the Light, than when it is quite cold: For it seems

ſeems that its Sulphurs being puſhed with more Rapidity to the Circumference, while it remains hot, than when it is grown cold, it ſhould likewiſe take more Fire and appear more luminous.

This Objection may be anſwered in two Manners; the firſt, that it may happen that the Sulphur has been more inflamed while the Stone remained hot, than when it became cold; but that the Sulphur burning with too much Impetuoſity, its Fire has been rarified in ſuch a Manner, that it is not ſo viſible as when it's fixed. Juſt as lighted Coals have much more Colour, than the Flame of Wood which is a Fire much more exalted.

The ſecond Anſwer is, that as more Sulphur riſes to the Surface of the Stone while yet hot, than when it is cold, as that Sulphur can uſher along with it a great Quantity of coarſe Particles, the Light which is a very ſubtile Fire, has not the Strength to inflame it ſo eaſily; whereas when the Stone is cold, the exalted Sulphur which flies to its Superficy, being much more ſubtile, becauſe the coarſer Particles thereof are precipitated in the Stone, has much more Proportion with the Strength of the Light, and therefore is eaſier inflamed.

It may be objected, that there is a great Number of Sulphurs, and ſulphurous Matters, which appear to us much exalted and rarified, as the Spirit of Wine, Camphir, *&c.* which are not inflamed at the Light.

To this I anſwer, that as thoſe Sulphurs have not ſo much Subtility nor Delicacy in their Parts, as that of the *Bononian* Stone; they want a Fire much more material than Light, to put them into Motion and inflame them.

The Fire which appears on the *Bononian Stone*, is not capable to burn or to heat the Skin when applied to it, becauſe its being too delicate, it has not Strength enough to hurt or ſhake the Nerves ſo as to make Impreſſion on them.

When the Stone is expoſed to the Sun, it not only wears it out by a too quick Diſſipation of its Sulphur, but hinders it likewiſe from appearing ſo luminous, for the ſame Reaſons I have mentioned, in ſpeaking of the Heat of that Stone, at its coming out of the Fire. There is the ſame Appearance that the Evening Light, a little before the Sun-ſetting, or that of a rainy, or dark Day, is more proportioned to the Sulphur of the Stone, than a very clear or fair Day, ſince it appears with more Luſtre at that Time. There wants but very little Fire to light a very ſmall Quantity of ſulphurous Matter; a too large Fire ſwallows it, and hinders it from being ſeen to burn. The Sulphur of the Stone being much exalted, a weak Fire ſuffices to light it. It muſt be obſerved notwithſtanding, that a Light which is too far diſtant from the Sun, is a too weak Fire to light well that Sulphur, for when the Stone is expoſed to the Light which remains after Sun-ſet, or to Moon-light, or to that of a Flambeau, it becomes but very little luminous.

It is very ſurprizing, that that Stone be capable to receive the Light for four Years ſucceſſively, and even longer, which makes me believe that the ſame ſulphurous Particles which appear in Fire can be extinguiſhed, and lighted again a vaſt Number of Times, before they are diſſipated, though we muſt believe that ſome Part thereof is conſumed, every Time the Stone is rendered luminous; but it may happen likewiſe, that that ſmall Fire rarifies and exalts other Fire from the Inſide of the Stone, which takes the Place of that which is loſt.

The Delicacy of the ſulphurous Particles which fly to the Superficy of the Stone, muſt be very great, ſince by pulverizing only the Powder it is covered with in an Iron Mortar, the Impreſſion that Powder can take then of the Metal, let it be ever ſo little, is capable to hinder the Stone from receiving Light.

The Stone takes a Light of the ſame Colour of the Fire which has been given to it in the Calcination, becauſe its Sulphur having tinged itſelf with that Colour, when lighted by the Light it muſt produce one like it. The Sulphur takes likewiſe the Colour of any metallick Impreſſion it receives from the Stone, or makes a bluiſh, greeniſh, or whitiſh Light, according to the Nature or Colour of thoſe metallick Matters, for the ſame Reaſon.

After the moſt inflammable ſulphurous Particles of the Stone have been entirely conſumed by the Fire of the Light, which happens in the Space of ſeveral Years, as already obſerved; it is calcined anew, to exalt and rarify the Sulphur left in it, and render it capable of being inflamed by the Light. But as it is neither ſo ſubtile nor ſo ſuſceptible of Motion as that of the firſt Calcination, its Fire is neither ſo quick nor ſo bright.

The Powder ſcraped from the Stone after Calcination, being ſpread on Paper and expoſed to Light, takes much more Fire from it in Proportion than the Stone itſelf, becauſe the outward Surfaces of the Parts of the Powder have been all lighted, and take up much more Room than that of the Stone.

It is often objected, that if it is true that the Light of the *Bononian Stone* calcined, proceeds from that its Sulphur has been lighted by the Fire of the Light, Air was neceſſary as well to form that Fire as to keep it up; which notwithſtanding, we ſee that the Stone and the Powder calcined, take and maintain their Light *in vacuo*.

I anſwer, that the ſulphurous Particles of the Stone being ſuppoſed of a Delicacy proportioned to the Fire of the Light, there wants no Air either to light them or to keep them on Fire; for if Light paſſes and maintains itſelf *in vacuo*, it can likewiſe light a very ſubtile Sulphur *in vacuo*, and keep it on Fire: But if this Anſwer does not ſeem ſatisfactory to thoſe that make the Objection, and they are reſolved on having Air to light the *Bononian Stone*, we'll find as much of it as is neceſſary, in what is called *Vacuum*, ſince the Air cannot be entirely exhauſted out of a Glaſs Veſſel, a ſmall Quantity thereof remaining ſtill in it, and that Quantity muſt ſuffice to light ſo ſubtile a Sulphur.

But we ought not to conſider that Fire as a common one, which is fed and kept up by coarſe Matters, and can neither be made nor ſubſiſt without Air; becauſe it is the Air which excites and maintains the Motion of the Parts of the common combuſtible Matter; but our Fire of Light is of a much greater Delicacy, its being formed and kept up by the Motion of a very ſubtile Matter, on which the Air can make no Impreſſion, it is a concentred Light, which the moſt impetuous Winds could neither light nor extinguiſh; and it may be ſaid, that that Fire has no more need of Light to burn, than Light has to ſhine.

There are ſeveral very conſiderable Differences between the Phoſphorus extracted from Urine, and that of the *Bononian Stone*; for the former becomes luminous Day and Night, provided it be expoſed to the Air; but if it be deprived of Air it cannot light; the laſt receives Light but in Day-time in the Air, or without Air, but never in the Night; which ſhews plainly that thoſe two Sorts of *Phoſphori* are lighted in a different Manner.— The *Urinous Phoſphorus*, is capable to light in all its Parts; the *Bononian Stone* lights but on its Superficy. The Light of the *Urinous Phoſphorus* is always of the ſame Colour; that of the *Bononian Stone* appears often of different Colours, and always brighter than the other: The *Urinous Phoſphorus* ſpreads at Pleaſure; for we may form Letters and other Figures with it, by rubbing it on Paper or elſewhere, which cannot be done with the *Bononian Stone*; the *Urinous Phoſphorus* burns the Fingers, when it is held ſome Time, and ſets Fire to ſeveral combuſtible Matters. The Fire of the *Bononian Stone* is not in the leaſt ſenſible: The *Urinous Phoſphorus* cannot be well preſerved when extinguiſhed, but in Water; it always ſmoaks when it is out of it, and is deſtroyed in a very ſhort Time; the *Bononian Stone* is kept dry in a Box, and emits no ſenſible Smoak: The *Urinous Phoſphorus* diſſolves in an oily Liquor, which the *Bononian Stone* does not: The *Urinous Phoſphorus* produces more Light hot, than cold; the *Bononian Stone* on the contrary takes Light better when it is cold, than when it is hot; for all which Differences I'll account in the following Manner.

1. The *Urinous Phoſphorus* cannot be ſet on Fire by the Light alone; becauſe its Sulphur is too coarſe to be lighted by a Fire of ſo ſubtile a Nature: There wants a Pair of Bellows, ſuch as the Air to put into Motion the Parts of the *Phoſphorus* which are ſaline and ſulphureous, that rubbing with much Rapidity againſt one another they may take Fire, as it happens when a Steel is rubbed hard againſt a Flint; therefore there ſhould be in the

the Parts of the Matter, a very great Disposition to Motion.—As for the *Bononian Stone*, its Sulphur is so much exalted, and so well divested of all coarse Particles, that it needs, to take Fire, no other Motion, than that it borrows from the Light; that Sulphur does not take Fire in the Night, because there is then nothing that can light it; all the Air in the World is not capable to move its Parts with Rapidity enough to make them take Fire; they are too subtile to receive the Impressions thereof.

2. The *Urinous Phosphorus* lights in all its Parts, and the *Bononian Stone* lights only on its Superficy, because all the Parts of the *Urinous Phosphorus* are susceptible of the Motion which sets them on Fire, whereas in the *Bononian Stone* none but the superficial sulphurous Particles can be set on Fire, because those have been exalted enough, and put enough in Motion in the Calcination.

3. The Light of the *Urinous Phosphorus* is always of the same Colour, because it proceeds always from a Fire produced of a Matter of the same Nature; but the *Bononian Stones* give their Light of different Colours, because they partake of different Marcasites, which in the Calcination acquire Colours according to their Species, and communicate them to the Fire they make appear. The Light of the *Bononian Stone* is brighter than that of the *Urinous Phosphorus*, because its Sulphur is purer.

4. The *Urinous Phosphorus* spreads, because it is almost all Sulphur, there being but very little Salt and Tartar in it; the Sulphur being a Substance which spreads much more than any other. The *Bononian Stone* contains Sulphur, but it is environ'd with so much Earth, that it can neither spread nor stick to Paper.

5. The *Urinous Phosphorus* burns the Fingers, and the *Bononian Stone* gives no Heat, because the Fire of the *Urinous Phosphorus* is made and kept by a Matter coarse enough to make the Impression of Heat, in shaking hard the nervous Fibres, whereas that of the *Bononian Stone* being only produced by Light, and kept by a very subtile Sulphur, has not Strength enough to shake the Nerves, or to render its Heat sensible to the Part that touches it. It is for the same Reason that the *Urinous Phosphorus* sets combustible Matters on Fire; and the *Bononian Stone* has no such Faculty; for the great Rapidity of Motion excited in the insensible Parts of the *Urinous Phosphorus*, in rubbing it with a Point of a Knife on the Matter to be set on Fire, or in having it wrapped with some Heat, is capable to excite in it a Fire much more violent than is that of the Light it produced before, and capable to light that Matter. But it must be observed, that when we want to set on Fire, with that *Phosphorus*, Paper, or some other white and polished Matter, it must be a little rasped previously to it, to raise a kind of Down on the Superficy, which may easily take Fire; for when this Circumstance is neglected, though the *Phosphorus* lights, it does not communicate its Fire to the Paper; and the Reason is, that the insensible Parts which compose what we call White, being all much more disposed to reflect Light than any others, the Fire of the *Phosphorus* cannot fasten to it, unless a Kind of Match be given to it by scraping the Paper. There is not the same Difficulty in written Paper, nor in any other black combustible Matter, tho' polished, the Fire of the *Phosphorus* fastening to it easily, because as Black does not reflect the Light, it penetrates it easily. Very near the same Thing happens, when white and written Paper are exposed to the Sun near a concave Mirrour; for the written Paper takes Fire much easier than the white: As for the *Bononian Stone*, it can communicate its Fire to nothing, because it is too subtile, and passes and repasses as Light does, through combustible Matters without lighting them, because it has no Strength to shake enough their insensible Parts.

6. The *Urinous Phosphorus* is preserved in Water, and the *Bononian Stone* is kept dry; the Reason is, that the *Urinous Phosphorus* being almost all Sulphur, Water condenses its Parts, as it does those of other Sulphurs, and thereby hinders the Air from dissipating them, whereas the sulphurous Particles of the *Bononian Stone* being environed with much Earth which stops them, they want no Water for that Purpose; it suffices to keep that Stone with Cotton in a Box. There is much Appearance, likewise, than the sulphurous Particles flying perpetually to the Superficy of the Stone, few of them are dissipated; but that the greatest Part fall back, and re-enter the Pores, to produce always Light, till all the Sulphur be evaporated; but a greater Quantity thereof is dissipated, while it is lighted, than when it is extinguished; therefore it lasts much less when it is often lighted, than when but seldom exposed to the Light. The *Bononion Stone* takes Light as well when it is wet, as when it is dry; the aqueous Humidity being uncapable to hinder its Sulphur from lighting; because it cannot mix with it, but slides over it as it does over other Sulphurs. But if it was left to soak in Water, like the *urinous Phosphorus*, its terrestrial Parts then growing soft like a Calx, could not wrap up its sulphurous Parts, and confound them so that they could not receive the Light.

7. The *Urinous Phosphorus* dissolves in Oil, and the *Bononian Stone*, not: The Reason is, that the *Urinous Phosphorus* being properly a Sulphur, or a coagulated Oil, oily Liquors are dissolvent very agreeable to its Nature, because they mix easily with its fatty and ramous Parts, and rarify them. But the *Bononian Stone* containing much more Earth than Sulphur, is not dissolved in Oil, but remains in it as luminous as it was before: If notwithstanding it was left a long Time to steep in an oily Liquor, part of its Sulphur would be thereby loosen'd, and the Stone become less luminous, though not the Liquor, either because it would contain too little of the Sulphur of the Stone, or because the luminous Sulphur being loosen'd, would be confounded with the coarse and opake Sulphur.

8. The *Urinous Phosphorus* lights better, while hot, than when cold; on the contrary, the *Bononian Stone* becomes more luminous when it is cold, than when hot; the Reason is, that the Parts of the *Urinous Phosphorus* acquire by Heat a more impetuous Motion, and consequently are more capable then to make Fire, than when they have not been heated; but the Sulphur of the *Bononian Stone* being very subtile, and freed from the coarse Matter, is rarified in such a Manner, and so soon dissipated while hot, that it does not appear so much as when it is cold.

There is another Kind of *Phosphorus*, which is that called the *Hermetick Phosphorus of Balduinus*; its being a Mixture of Chalk, and of the Acids of the Aqua-fortis, which produces Light.

This *Phosphorus* is made in the following Manner: Take what Quantity you please of Aqua-fortis, for Instance, a Pound, pour it into a large Cucurbite, and throw into it a Spoonful of white Chalk, well dried, and pulverized, there will ensue a strong Ebullition; the Matter being dissolved, throw in again the same Quantity, continuing thus till there happens no more Effervescence: Leave the Liquor to settle, and then pour it by Inclination into a Stone Pan; place it on the Sand; making all the Humidity to evaporate at a very slow Fire; there will remain a saline Matter at the Bottom.

Put that Salt in a Coppel or in an earthen Dish, not glazed; and place the Vessel over a very slow Fire, the Matter as it grows hot, will swell: Continue that slow Fire for about an Hour, or till the Matter be sunk a little; cover it then with a Lid with three or four Holes; increase the Fire by Degrees, till it be strong enough to melt the Matter; and when melted, you must wait for a yellowish Vapour, which will come out at the Holes: As soon as that Vapour shall appear, take your Vessel off the Fire; and having cover'd it with an earthen Lid without Holes, in the Room of that with Holes, leave it to cool, you'll find round your Vessel a yellowish Matter, sometimes a Finger thick, which is the *Phosphorus*, and which is not to be broke, but kept as it is in a dark and close Place.

To render this *Phosphorus* luminous, it must be exposed for a Moment to the Light, then carried to a dark Place.

Note, That the Cucurbite must be large, and the Chalk thrown by Degrees into it, otherwise the Matter would run over; the Chalk is entirely dissolved in Aqua fortis, and there is some thrown into it, till there happens no more Ebullition; for it is a Mark then, that the acid Points have made all the Effort they could

could in the Rarefaction, and that being entangled, or sheathed in the Particles of the Matter they suspend, they are no longer capable to dissolve any more of it. When the Aqua-fortis is good, it dissolves very near its Weight of Chalk, the Dissolution is yellow. The Humidity which is made to evaporate, is the most phlegmatick Part of the Aqua-fortis, and the Acids being incorporated with the Chalk, make a Kind of very acrimonious Salt; which Salt could be very easily dissolved in the Air, into a Liquor. It must be very dry when it is put in the Coppel, that the Operation be sooner perfected. The Vessel is cover'd with a Lid, to hasten the Fusion of the Matter; but it must be pierced, to give Vent to the Vapours which arise from it; and that it may be seen when they are yellow to take the Vessel off the Fire; for those yellow Vapours make the Light of the *Phosphorus*. The Matter must necessarily be kept in the Coppel, or in the Dish, in the same Disposition it is found after Calcination; for though nothing else be luminous, but the yellow Border, it cannot be separated from the Vessel, nor from a terrestrial and useless Matter, which is at the Bottom, without destroying it: The Reason is, that the Light of that *Phosphorus* proceeds from its Surface only; therefore in separating the yellow Border, it would be very difficult to hinder the superficial Top from being confounded with the Matter underneath, which is not luminous. To preserve better this *Phosphorus*, it may be shut in a Box, with a Glass Lid, to prevent its Sulphur being too much dissipated: It takes Light through the Glass, in the same Manner the *Bononian Stone* does, and for the same Reason; but its Fire is not so bright, and remains luminous but fifteen Days, or thereabout; after which it is extinguished for ever. It is kept in a dark Place, that its Particles being more condensed, may be better kept.

ORDERS.

ORDER, in the Sense I take it here, is a Society, or Congregation of Persons, assembled together under a Superior, to live in Unanimity and Concord, obey the same *Orders*, and follow the same Rule.

This was the Appellation, almost from the very Infancy of Christianity, till now, of those truly apostolical Men, who taking the Counsels of the Gospel in the strictest Sense, have abandon'd the World and its Pomps, to follow Christ, and to lead in a mortal Body, an angelical Life; at least this was the Motive of the holy Institutors of the first *Religious Orders* established in the Christian Church.

The same was attributed afterwards to the illustrious Societies, of those valiant Knights, who exposed their Lives, and fought bravely in those Holy Wars, undertaken for the Recovery of those Places, which our blessed Saviour had sanctified by his sacred Presence, during his mortal Life; and which has been extended to several others, which have been established since on the same Model.

Whence those two Sorts of *Orders* have been distinguished since from one another, by the Addition of two characteristical Words, *viz. Religious* and *Military*: Therefore as the *Military Orders* are inferior with Respect to Time to the *Religious* ones, since those have been instituted on the Model of these; I think proper to give first a concise Account of the Beginning, Progress, *&c.* of all the *Religious Orders*, and of every one of them in particular; and pass afterwards to that of the *Military* ones.

It is the common Sentiment of the Christian Church, supported by undeniable Authorities, that the Persecution of the Emperor *Decius*, in 254; was the first Occasion of the Institution of the *Religious Orders*.

In effect, a great Number of Christians not finding themselves strong enough to suffer the cruel Torments which Hell itself had invented then to destroy the Empire of Christ, which his Disciples were endeavouring to establish on the Ruins of that of the Devil, fled to hide themselves in the most frightful and unfrequented Solitudes, where they soon found themselves entirely deprived of all that was necessary for the Support of their Life, and exposed to the Injuries of the Air, to the Inclemency of the Seasons, and to the Rage and Fury of the most wild, and most voracious Beasts. *Paul* and *Antony*, whose Lives have been wrote by St. *Jerome*, were of that Number; the first is consider'd as the Founder of the *Anachoretical*, and the other of the *Cenobitick* Life; though M. *Fleury*, in his Ecclesiastical History, refers the Institution of *Cenobites* to the Time of the Apostles, and makes it a Kind of Imitation of the ordinary Life of the Faithful of *Jerusalem*.

Other Authors consider the Prophet *Elias* and *John the Baptist*, as the first Institutors of a religious retired Life.

Philo the *Pythagorician* says, according to *Sozomene*, that the most excellent Men among the *Jews* met in his Time on a Hill, near the Lake *Maræotis*, to follow that Kind of Life; he describes their Buildings and Exercises, and represents them such as those of the Christian Monks who came afterwards. He says, that so soon as they begin to apply themselves to the Study of the sacred Wisdom, they leave their Estate to their Relations, renounce the World, and Marriage, and retire into Gardens out of the Cities; that they have Monasteries and Chapels for Divine Service, where they sing Psalms and Hymns; that they never eat till after Sun-set; some of them eating but once in three Days, and others seldomer: That at certain Days they lay on the Ground, and eat nothing but Bread, Salt, and Hyssop, and drink nothing but Water, *&c.*

But without going so far back for the Origin of the Institution of a monastick Life, I'll follow the common Opinion of the Christian Church, which is, that St. *Paul* was the first *Anachorete*, and the Inventor of that sublime Philosophy, which his Disciples have endeavoured to follow since; though *Sozomene* attributes that Institution to St. *Antony*, born in a Borough of *Egypt*, called *Cana*, near *Heraclea*. Having lost his Father and Mother, while he was yet very young, he abandon'd their Succession to his Countrymen, and having sold his Goods, he distributed the Price thereof to the Poor, in the Belief, that a true Philosopher must not content himself with renouncing his Estate, without making a good Use of it. He contracted a particular Friendship with all those of his Time, he knew the most eminent in Piety, and endeavoured to imitate them. Knowing very well, that the Practice of Virtue is bitter to Beginners, and becomes sweet to those who have made some Progress in it; he applied himself to it in such a Manner, that he was consider'd afterwards, as a perfect Model of all the Christian Virtues; the Reputation whereof, gain'd him soon a great Number of Disciples; among whom some rank St. *Paul* himself.

It is true, that the Life of St. *Antony*'s Disciples, cannot be called *Cenobitick*, if we understand by *Cenobites*, living in Community, under the same Rool, in the same Convent or Monastery: But if we understand by it a Society of Persons following the same Rules of Life, and under the Direction of the same Superior; St. *Antony* was certainly the Institutor or Founder of a *Cenobitick* Life; since, according to St. *Jerome*, who has wrote his Life, he was the Director of a vast Number of Monks, who were all under his Discipline, whom he visited continually, and by whom he was always accompanied; he being stiled, besides, an Abbot in the *Roman* Martyrology. Which proves manifestly that the monastick Life is not of a modern Institution; as the vicious Monks and Friars, who have endeavour'd to hide their criminal and debauched Life under that false Pretence, have made the Vulgar believe. Let's hear what *Sozomene* says, *l.* 12. *l.* 1. *Eccles. Hist.* to confirm my Sentiment. "To

'Those (says he) who embraced at that Time, the 'monastick Life, did a great deal of Honour to the 'Church, and confirmed the Truth of her Doctrine, 'by the Purity of their Manners. The Philosophy they 'profess, is one of the richest Gifts, Heaven has ever be-'stowed on Earth. They neglect the mathematical De-'monstrations, and the Arguments of Logick, because 'they are persuaded, that they steal much Time, and 'are of no Service to a godly Life; to apply them-'selves entirely to a natural Prudence, which roots out 'Vice, or at least diminishes it. They do not rank a-'mong Goods, what keeps a Sort of Ballance between 'Vice and Virtue, and believe that it is to be wicked, 'to abstain from Evil, without doing Good. They 'search Virtue for itself, and not for human Praise. 'They fight continually their Passions, without any Re-'gard to the Necessities of Nature, or to the Infirmities 'of the Body. Being supported by the omnipotent 'Strength of the Creator, they look upon him, adore 'him Day and Night, and address continually their 'Prayers to him. Making his true Worship to consist 'in the Purity of their Heart, and in the Holiness of 'their Life; they care very little for external Purifica-'tions. They do not believe that there are any true 'Spots, but *those which proceed from Sin*, therefore 'they do not care to wash those of the Body. As they 'are above all Accidents and Dangers, which may hap-'pen in the Course of their Life; Inconstancy, which 'reigns with so much Power in the World, and Neces-'sity, which exercises in it a tyrannical Empire, never 'make them change Sentiments, they are never *provoked* '*at the Injuries done to them*, and never thirst after Re-'venge. They do not lose Courage when attacked by 'Malady, or oppress'd by Want. They rather glory 'in it, and suffer with Patience. They use themselves, 'during their whole Life, to be contented with little; 'and thereby approach the Independency of God as 'much as it is possible for the human Infirmity. They 'do not *endeavour to acquire Estates*, because they only 'consider this Life as a Passage, and *make no other* '*Provisions* but those which an *indispensible Necessity re-*'*quires*. They value that Manner of Life which is the 'most simple, and think of nothing but of the eternal 'Felicity promised to them. They only breathe Piety, 'and avoid in their Discourse the Impurities they have 'banished from their Actions. They use their Body to 'be contented with little, and conquer Intemperance by 'Temperance, Injustice by Justice, and Falshood by 'Truth. They live in Peace and Harmony with all 'those who frequent them. They take Care of their 'Friends and of Foreigners. They give Part of what 'they have to those in Want. They comfort those in 'Affliction, and do not afflict those in Mirth. As they 'are serious in all Things, and refer all their Actions 'to the sovereign Good, they instruct by wise and 'judicious Remonstrances, where there is neither Flat-'tery nor Bitterness, and where those who hear them 'find salutary Remedies for the Maladies of their Souls. 'They converse together with Honour and Respect, 'without Contestation, Raillery or Wrath, being wholly 'governed by Reason. They curb all contrary Mo-'tions, and command the Passions of the Mind and 'of the Body.'

This is the concise Sketch of the Life of the *first Monks*, given by an Author, who cannot be suspected of Falshood, or of having been imposed upon by false Memoirs; since he lived in the Time he speaks of, and had been an Eye-witness to what he says; since he had been converted from Paganism to Christianity, by some of those Monks, whose Life he paints with so divinely beautiful Colours. These are the Men, whom *Calvin*, &c. and his Followers, are pleased to call the *Locusts of the Abyss*. Tho' I must confess ingenuously, that the Monks of our Time have much degenerated from those above-mention'd; and their Life and Conduct, is a tacit Condemnation of that of their holy Founders, or rather that of their Founders is a sure Condemnation of theirs; as we'll see in the Sequel of this historical Account of all the different *Religious Orders*.

Note, That in those fortunate Days, the Name *Monk* was given to all those indifferently who retired from the World, to give themselves up wholly to God; tho' they were distinguished into several Classes, *viz.* of *Anachorets* or *Solitaries*, *Cœnobites*, and *Sarobites*.

The *Anachorets* or *Solitaries*, were those who lived alone, in Places remote from all Towns, or Habitations of Men, as do still those few we call Hermits, though that Sort of Life is grown much obsolete, especially in the West, where most of those who follow it, are despised as Strollers and Vagabonds.

The *Cœnobites*, as already observed, were those who lived in Community with several others, in the same House, and under the same Superiors. This Kind of Life is the only one followed, and approved, at present, in the Christian Church, where it is arrived to such a Pitch of Grandeur, Opulence, and Power, that the first Institutors thereof would never know it, were they to return upon Earth.

The *Sarobites* were strolling Monks, having no fixed Rule or Residence.

The first who is thought to have assembled Monks together, into a religious Community, is St. *Pachomius*; who caused large Houses to be built for their Reception, called since *Lauræ*, and *Monasteries*.

Authors cannot agree about the Difference between a *Laura* and a *Monastery*; some pretend, that a *Laura* was a *Monastery*, wherein there lived at least a thousand Monks: But this is in no wise credible. The more natural Opinion is, that the antient *Monasteries* were the same with the modern, consisting of large Buildings, divided into Halls, Chapels, and Cells, possessed by the Monks, each of whom had his Apartment: But the *Lauræ* were a Kind of Villages, whereof each several House was inhabited by one or two several Monks at the most: So that the Houses of the *Chartreux*, seem, in some Measure, to represent the antient *Lauræ*, and those of the other Monks, proper Monasteries.

The Term *Laura* was only understood of the religious Places in *Egypt*, and the East, where their Houses stood a-part from each other, and were not joined by any common Cloister, the Monks that inhabited them only meeting in publick, once a Week. Therefore I am of Opinion, that the Houses inhabited by the first Monks under the Discipline of St. *Antony*, were *Lauræ*; and those inhabited by the Disciples of St. *Pachomius*, who first assembled them together in the same House, Monasteries.

The Orders for the Government and Regulation of those *Monasteries*, were digested into a Form, which were called since *Rules*, with the Addition of the Name of the Person who had established those *Orders*, as the *Rule of St.* Antony, *of St.* Basil, *&c.* which in those Days were nothing else but a certain Compilation of some Counsels of the Gospel, with some Regulations of Discipline, and which every Monk observed freely, without being constrained to it by Vow, or any other compulsive Means.

The *Cœnobitick* or monastical Life, above-mention'd, flourished in the East, till the Monks forsaking their first Institution, which confined them to their Desarts, *Lauræ* or *Monasteries*, began to learn something else besides *Jesus Christ*, and *him crucify'd*. For the common Enemy of Mankind taking Occasion of the great Reputation their exemplary Life and Piety had gained them among the rest of the Christians, to excite their Ambition, they soon began to think, that if they were worthy of being consulted by the rest of the Christians for their spiritual Conduct, they were as worthy being consulted on the Government of the Church, though excluded from it by their holy Founders; and some presumed to decide with Authority, of the unhappy Controversies, which divided then the Christian Church, to make Idolatry triumph.

The Arrogance of the Monks of those Times, went even so far on that Subject, that the Church in several Councils, was forced to make Canons to restrain it. So that their Solitudes, which till then had been admired for the Peace, Unanimity, and Concord, which reigned between the Inhabitants thereof, became soon a Theatre of Disorders and Confusion; for they divided themselves into Parties, and erected Altar against Altar, in the same Monastery, breaking sometimes into open Ruptures, and even coming to Blows. Deserting often their Solitude, to

to run to the Succour of the Party they favoured most, where they committed all Sorts of Outrages and Violences; deposing Bishops, setting up others of their own Authority; dipping often their sacrilegious Hands in the Blood of their Enemies, and sometimes assailing the Throne with insolent Requests, which they obliged the Prince, by their rebellious Menaces, both to hear and to grant.

As this scandalous Conduct of the Monks, diminished much the Reputation they had acquired while they lived according to their first Institution; it contributed afterwards to render the monastick Life odious, and brought it at last, to that low and despicable State it is reduced at present: For though there are still in those Parts, Monks of the Orders of St. *Antony*, and of St. *Basil*, they are neither commendable for their Piety, nor respectable for any personal Merit; but are most of them ignorant and despicable Wretches, all infected with some of the Heresies, which have reigned most in those Countries; and all included under the general Name of *Caloyer*. *Tavernier* observes, that they live a very retired austere Life, eating no Flesh; and keeping four Lents, besides a great Number of Fasts, with great Strictness. They eat no Bread till they have earn'd it by the Labour of their Hands. During their Lents, some do not eat above once in three Days, others but twice in seven. Most of the Night they spend in Weeping, *&c.* they still retain their original Institution, keep their former Habit, *&c.* to a Tittle.

But if the monastick Life suffered so great an Eclipse in the East, it sometimes afterwards appeared with as great a Lustre as ever in the West, by the Cares of St. *Benedict*, the Restorer of the *Cœnobitism*, in this Part of the World.

This holy Personage quitted *Rome*, where he was born, at the Age of seventeen, in the Year 494, according to Cardinal *Baronius*, to retire into the Desart of *Sublacus*, or *Sublaco*, forty Miles distant from the City, and where he remained three Years shut up in a Cave; till the Reputation of his Piety being spread throughout his Desart, reached the Monks of a Monastery, which was not very far from his Solitude, who desired him to take Care of their Conduct. He at first refused; but as he saw they insisted upon it, he acquiesced at last to their Intreaties, and came to their House; where he had not been long, before those who had called him, unwilling to bear the Severity of the Discipline he wanted to establish among them, formed the criminal Design of poisoning him; but *Benedict* having discovered it, abandoned them, and returned to his former Solitude, where in a short Time he built twelve Monasteries, which were soon filled with excellent Men, who led rather an angelical, than a human Life. *Maurus* was his first Disciple; he was brought to him at the Age of twelve, and made in a short Time so great a Progress under so good a Master, that he was himself the Founder of several Houses.

The Devil was yet adored on Mount *Cassin*, in an old Temple dedicated to *Apollo*; *Benedict* expelled it from the Place, and built there Oratories under the Invocation of St. *Martin*, and St. *John*: There he founded his famous Order, which did spread, in a very short Time, throughout the Earth. The Chronicle of that Order reckons in it 40 Popes, 200 Cardinals, 50 Patriarchs, 1600 Archbishops, 4600 Bishops, 4 Emperors, 12 Empresses, 46 Kings, 41 Queens, and 3600 Saints canonized; but I would not warrant this Account; and Cardinal *Baronius* has Reason to blame the Authors of that Chronicle, who, by a blind Love for their Order, have brought into it the holy Personages of all Ages; as *Trithemius* has done *Cesarius* of *Arles*, *Faustus* of *Rhiez*, and the Abbot *Eugipius*, who all lived before St. *Benedict*. How could *Cassiodorus* be one of his Disciples, he who does not so much as mention St. *Benedict*'s Rules to the Monks he had assembled? We must form the same Judgment of St. *John Damascenus*, and of several eastern Fathers, who were all Monks living under the Constitutions of St. *Basil*.

In *Gaul*, the monastick Life was professed before St. *Benedict* was born; and St. *Honoratus* had already founded the Monastery of *Lerins*, and digested a Rule for their Conduct. *Cassian*, likewise, had governed the Monastery he had founded at *Marseilles*, under the Constitutions he had made there. It is true that the Institution we speak of, did soon spread throughout the West, and that several religious Houses received it. The Devotion was so great for the new ones which were founded, that Kings, Princes, Lords, Noblemen, and even the common People, gave their Estates, as if wanting to outvie each other, for their Foundation; engaged into it by the Sanctity of Life, and the excessive Charity of the first Monks who inhabited those Houses, and who were the faithful Œconomists of their Revenues, for all the Poor of their Neighbourhood. But by Degrees the Riches, which could have been called the Daughters of the Devotion of the Publick, smothered their own Mother. If we want to be convinced of it, read but the Epistles of St. *Bernard*, whereby we may see the Disorders of that Order in the Abbey of *Cluny*. The Commendams were introduced, and ruined quite the Monasteries, which those who possessed them left filled of ignorant, idle, and debauched People. Therefore it was necessary, from Time to Time, to reform that great Body; which has been done in *Italy* by the Congregation of St. *Justina* of *Padua*; and in *France* by that of St. *Maur*, under the Ministry of Cardinal *Richelieu*.

These different Reformations of the *Order* of St. *Benedict*, are called *Congregations*. The most celebrated of them is that of *St. Maur*, as well for its immense Revenues, as for the profound Learning, extraordinary Merit, and exemplary Piety, without Hypocrisy, or Affectation, of most of its Members; and also for the good Order, and beautiful Regulations, established and religiously observed among them. The Church is indebted to them for several valuable, and useful Works; particularly of late for a new Version of the Works of St. *Augustin*. The divine Service is celebrated in their Church with that truly holy Pomp, which is a Prelibation of that everlasting Musick, which will make Part of our Felicity in the celestial Mansions.

Though the Abbeys and Priories of the *Congregation of St. Maur* be almost all in Commendam, the Chapter-General takes Care, notwithstanding, that there shall be in every House a certain Number of Monks sufficient to celebrate Divine Service with a becoming Decency, that the Intention of the Founders may not be frustrated; and to practise the Rules of the Order.

There is another reform'd *Congregation* of the *Order* of St. *Benedict*, in *France*, called of *St. Vannes*, which is neither so extended, nor so celebrated, as is that of *St. Maur*, though they do not want for good Subjects, nor for very fat Benefices.

All the reformed Congregations of the *Order* of St. *Benedict* abstain from Flesh, except in Time of Malady; and rise at Two in the Morning for Mattins. Their claustral Superior, *i. e.* he who has the Government of the whole Monastery, is called the *Father Prior*; and he who manages their Affairs abroad, *Father Procurator*; though they have few Abbeys left them, which they call *en Regle*, and to which they promote, by Election, some of the most deserving among them; but those Abbots are only triennial, *i. e.* enjoy that eminent Post but for three Years only.

The rest of the *Order*, which would not accept of the Reformation, live in Opulence and Idleness, few excepted.

The *Benedictines*, like all other religious Orders, make three Vows, *viz.* of *Poverty*, *Chastity*, and *Obedience*. They wear a loose black Gown, with large wide Sleeves, and a Capuche on their Heads, ending in a Point behind.

The CISTERCIANS, is an *Order* of Religious, reformed from the *Benedictines*, consisting of an hundred Monasteries, and near as many Nunneries.

The *Order* took its Rise in 1075, from twenty-one zealous Monks in the Monastery of *Molesme* in *Burgundy*; who with their Abbot *Robert*, complaining that the Rule of St. *Benedict* was not strictly enough observed, obtained Permission of *Hugh* Archbishop of *Lyons*, and Legate of the Holy See, to settle in a Place called *Cisteaux*, five Miles from *Dijon*.

Here *Eudes* Duke of *Burgundy* erected them a House, into which they were admitted in 1098; endowing it with a considerable Revenue. The Bishop of *Chalons* Lave

gave *Robert* the paſtoral Staff, in quality of Abbot; and erected the new Monaſtery into an Abbey.

Such was the Beginning of the *Ciſtertians*, ſo famous in After-times, and now ſo extended throughout all *Europe*: And the Abbot thereof is Counſellor born of the Parliament of *Burgundy*, Superior-General of all his Order, and of five military ones, viz. *Alcantara*, *Calatrava*, *Avis*, *Monteza*, and of *Chriſt*, which are in the Kingdoms of *Spain* and *Portugal*.

The Order of *Ciſtaux*, was further reformed by St. *Bernard*, Abbot of *Clervaux*, towards the Beginning of the Twelfth Century; whence thoſe reformed were called BERNARDINS: Therefore the *Bernardins* very little differ from *Ciſtercians*.

Their uſual Habit is a white Gown, with a black Scapulary; but when they go to the Choir, for their Office, they put on a large white Cowl, with great Sleeves, and a Hood of the ſame Colour.

The BERNARDINS have no other Rule but that of St. *Benedict*; they abſtain from Fleſh, except when they are indiſpoſed, and in the Infirmary. They alſo riſe in the Night to their Mattins.—The Abbot of *Clervaux* is the general Superior of this Reformation, and alſo of the five military Orders above-mentioned.

Note, That all the Members of theſe different Reformations of the Order of St. *Benedict*, ſtile themſelves DON, viz. *Don* John, *Don* William, *Don* James, *&c.* with the Addition of their Sirname, and ſometimes this alone with the *Don*, as *Don Calmet*, *Don Piete*, &c. in Contradiſtinction of the *Mendicants*, whom they conſider much beneath them, and who call themſelves *Friars*.

Note, alſo, That the Head or Chief of the Congregations of the Order of St. *Benedict*, who refuſed the Reformation, is the celebrated Abbey of *Cluny*, ſituated in the *Maſconnois*, a ſmall Province of *France*, on the River *Soane*, and was founded by *William* Duke of *Berry* and *Acquitain*; or as others ſay, by the Abbot *Bernon*, ſupported by the Duke in 910. This Abbey was antiently ſo very ſpacious and magnificent, that in 1245, after the holding of the firſt Council of *Lyons*, Pope *Innocent* IV. went to *Cluny*, accompanied with the two Patriarchs of *Antioch* and *Conſtantinople*, twelve Cardinals, three Archbiſhops, fifteen Biſhops, and a great Number of Abbots; who were all entertained without one of the Monks being put out of their Place: Though *St. Louis*, King of *France*, Queen *Blanche* his Mother, the Duke of *Artois* his Brother, and his Siſter, the Emperor of *Conſtantinople*, the Kings of *Arragon* and *Caſtile*, the Duke of *Burgundy*, ſix Counts, and a great Number of Lords, with all their Retinue, were there at the ſame Time. *Cluny*, at its firſt Inſtitution, was put under the Protection of the Holy See; with expreſs Prohibition to all ſecular and eccleſiaſtick Powers, to diſturb the Monks in the Poſſeſſion of their Effects, or the Election of their Abbot. By this they pretended to be exempted from the Juriſdiction of the Biſhops; which at length gave the Hint to the other Abbeys to inſiſt on the ſame.

Cluny was famous alſo for having produced ſeveral good Subjects, which have been an Ornament to the Church; ſome of them having been placed on the Chair of St. *Peter*; but as the Monks have much degenerated from their antient Diſcipline, *Cluny* has likewiſe loſt a great deal of its antient Luſtre; and ſcarce any Thing remains of it at preſent, but the Name and its antient Buildings. Out of Doors their Habit is very little different from that of ſecular Prieſts; and they profeſs a Rule, which they ſeldom obſerve, or even mind. They have no other Lents or Abſtinence, but what is obſerved by the Generality of Chriſtians. They ſtile themſelves neither *Dons* nor *Friars*, but only *Gentlemen*. Their Abbey is at preſent, *in commendam*, and has been ſo for a conſiderable Time, and in the Houſe of *Bouillon*, though the Abbot ſtiles himſelf the *Abbot General of Cluny*. The preſent Abbot is the Abbot *d'Auvergne*, Archbiſhop of *Vienne* in *Dauphine*. All the *Monks* or *Friars* of the other Orders, who are tired of the Kind of Life they have embraced, and want to paſs what they call *ad Laxiora*, were permitted to enter the Order of *Cluny*, after they had obtain'd the Pope's Bull for the Purpoſe; but as ſuch Tranſmigration could not be made without the Conſent of the General Abbot of *Cluny*; they have thought proper lately not to be ſo free to give that Conſent as they uſed to be; whereby they have excluded from among them, a great Number of worthleſs and idle Subjects; through Conſciouſneſs, perhaps, that they had already enough in their Order.

The CAMALDULIANS, or *Camaldunians*, are alſo a Reform of the Order of St. *Benedict*, made by St. *Romuald*, in 1009; or, according to others, in 960; in the horrible Deſart of *Camaldoli*, ſituated in the State of *Florence*, on the *Appenines*.

Their Rule is that of St. *Benedict*; and their Houſes, by the Statutes, are never to be leſs than five Leagues from Cities.

The *Camaldulians* have not bore that Name from the Beginning of the Order; till the Cloſe of the eleventh Century, they were called *Romualdins*, from the Name of their Founder. Till that Time, *Camaldulian* was a particular Name for thoſe of the Deſart *Camaldoli*, and Dr. *Grandi* obſerves, was not given to the whole Order, in Regard it was in this Monaſtery that the Order commenced; but becauſe the Regulation was beſt maintained there.

The *Camaldulians* do not dwell in Monaſteries, all under the ſame Roof; but have each their different Apartment, diſpoſed in the Manner of a Street; the Superior having his at the Head thereof; tho' they eat together in a common Refectory, and viſit one another, when, and as often as they pleaſe. They let their Beard grow in the Manner of the eaſtern Nations, and their Cloaths are brown. I have never ſeen but one of their Habitations, (for that Order is not very numerous) and that was the Houſe they have in the Province of *Brie*, ſix Leagues diſtant from *Paris*, while I was with the late Prince *Ragotzki*, at the Seat which Mareſchal *Teſſé* had near the *Camaldulians*, which he had lent to the Prince, who loved Solitude, to live in; and who had an Apartment made in one of the Gardens, in the Form of thoſe of the *Camaldulians*, where he retired ſometimes for a whole Week, attended only by a *Valet de Chambre*.

The FEUILLANS, which is an Order of Religious, who live under the ſtrict Obſervance of the Rule of St. *Bernard*, borrow their Name from a Reform of the Order of *Bernardins*, firſt made Abbey of *Feuillans*, a Village in *France*, five Leagues diſtant from *Thouloufe*, by the Sieur *Barrier*, who was Abbot thereof, 1589.

It was approved of by Pope *Sixtus* V. and the Popes *Clement* VIII. and *Paul* V. granted it its particular Superiors. King *Henry* IV. founded a Monaſtery of *Feuillans*, in the *Fauxbourg*, St. *Honoré* at *Paris*.

The *Feuillans* are cloathed in white, and go barefoot.

LA TRAPPE, is alſo a Reformation of the Order of *Ciſteaux*, made in the laſt Century, by Don *Armand John le Boutellier de Rancé*, Abbot thereof. This Reformer, it ſeems, had been very debauched, though an Eccleſiaſtick, but being moved to Repentance by an irreſiſtible Grace, he abandoned the World, and retired to his Abbey of *La Trappe*, in *Normandy*, which he had then, *in commendam*; and where with much Fatigue, and much more Oppoſition, particularly from the Order of *Ciſteaux*, and from the Monks of *La Trappe*, he not only reformed himſelf, but likewiſe a few Monks whoſe Lives had not been much more regular than his.

This Reformation (very different from that *Luther*, *Calvin*, &c. have made in the Church, for this was to quell all our Paſſions, and refrain our diſorder'd Appetites, and that was to indulge them all) ſoon made much Noiſe in *France*, and though attended with that Auſterity, which had never been thought of before, brought a vaſt Number of Proſelytes to the Reformer Abbot; ſo that in a very ſhort Time, *La Trappe*, which till then had been a Sort of Solitude, inhabited by ſeven or eight Monks only at a Time, became a large Nurſery of them.

The Monks of *La Trappe*, like the *Carthuſians*, devote themſelves to a perpetual Silence, a perpetual Faſt, and a perpetual Abſtinence from Fleſh, was it even ne-

ceſſary

ceſſary to ſave their Life, and a perpetual *Cilice*. They never eat Fleſh, Fiſh, Eggs, Cheeſe, nor Butter, and never drink Wine. Their whole Time is divided between Praying and Working; for they till their own Land for their Subſiſtance, wanting nothing elſe for it but what the Earth produces, as Corn for their Bread, Pulſes, Roots, and Fruits for their Cyder. Their common Salutation, between themſelves is this, *Frere il faut mourir*, i. e. *Brother we muſt die*. There are but very few Prieſts among them; for as they ſtudy ſcarce any Thing there, but their own Salvation, none of them are ordained, unleſs they have ſtudied before they enter the Order, which is the Caſe of ſeveral of them. Their divine Service is celebrated with much Piety and Decency; their Church Muſick, or rather *plain Chant*, is excellent, and very edifying.

They are cloathed like the *Bernardines*, from whom they are deſcended, *i. e.* in white.

Though the Revenues of the Abbey is but very ſmall, and the Number of Monks is very great, they are obliged by their Conſtitutions, to feed and refreſh all Travellers, who deſire it, with the ſame Fare they have themſelves, for they are not allowed to treat with any other.

This Order has never been approved by the Holy See, but tolerated only like that of the *Carthuſians*, becauſe of the Clauſe in their Conſtitutions, which forbids eating Fleſh, even at the Peril of their Life. Moſt commonly old Sinners retreat thither, to ſpend the Remainder of their Days in Penance, without taking the Habit of the Order. They have an Abbot, whom they chuſe among themſelves, and who is for Life.

The Reformation has met with Encouragement no where elſe, and except the *Clerets*, which is a Monaſtery of the ſame, there is no other in Chriſtendom.

The Affair of the Conſtitution *Unigenitus*, cauſed ſome Confuſion at *La Trappe*, as it did every where elſe, for the Monks divided then into two Parties, of *Conſtitutionaries*, and *Anti-Conſtitutionaries*; and the Abbot himſelf being for the Conſtitution, the contrary Party took the ſpecious Pretence of all thoſe who are not pleaſed with the Kind of Life they have embraced (*viz.* a *ſafe Conſcience*) to deſert their Monaſtery. This happen'd in 1720, and ſome of thoſe Fugitives retreated to *Holland*; and ſome into the Archbiſhoprick of *Paris* under the Protection of the late Archbiſhop Cardinal *de Noailles*.

The *Carthuſians* is alſo an Order of Religious, remarkable for the Auſterity of their Rule, which obliges them to a perpetual Solitude, a total Abſtinence from Fleſh; even at the Peril of their Lives, and abſolute Silence, except at ſtated Times. This Order was inſtituted by St. *Bruno*, in 1086.

Their Houſes were uſually built in Deſarts, their Fare courſe, and their Diſcipine ſevere; but at preſent, though their Houſes are ſtill built out of the Tumult of Cities and Towns; the Severity of their Diſcipline is much mitigated, and their Fare much refined; for they, at preſent, eat and walk together, once a Week, and even ſtop where, and when they pleaſe; tho' according to their Conſtitutions, they ſhould eat together, or in Community, but at all the ſolemn Feaſts of the Year, *viz. Chriſtmaſs*, *Eaſter*, *Whitſontide*, &c. and walk abroad but ſeldom, without ſtopping any where.

As for their Houſes, they are commonly pleaſantly ſituated, and environ'd with Woods, and very large Ponds full of Fiſh, for their own Uſe. They all live apart, round a Cloiſter, where they have each their Apartment, divided into ſeveral Rooms, all on a Ground Floor, and each a Garden, with a Well of Spring-Water between two. The firſt Room is a Kind of Veſtibulum, or Hall, where they put their Fuel for their Fire, and other Incumbrances. The next is their Oratory and Library; the next to it is their Bed-Chamber; and the next to that their Laboratory; where every one follows what Buſineſs he pleaſes to divert his Thoughts, and for his own Pleaſure; every *Cartuſian* Monk following ſome particular Occupation; for ſome are Painters, ſome Sculptors, ſome Silverſmiths, ſome Turners, and the like; ſome play on Inſtruments, ſome Study, *&c.* for the *Cartuſian* Monks are all Prieſts, except ſome few Lay-Brothers, who are kept out of Doors, and do the Drudgery of the Monaſtery; and ſome of them have done, by their Learning, a great deal of Honour to the Church, witneſs my Name-Sake *Denis* the *Cartuſian*. They riſe in the Night to go to Church, and their Service is very long. They are cloathed in white, much like the *Bernardines*, and ſtile themſelves *Don* like them. *Don Prior*, and *Don Praureur*, are not obliged to the Silence obſerved by the reſt of the Monks; but may ſpeak to whom they pleaſe, and when they pleaſe. All their Monaſteries are ſo well founded, and ſo rich, that a Monk may deſire what he pleaſes, either Books, Tools, Materials to work upon, and muſical Inſtruments, and he has it, coſt what it will; but his Works are ſold for his own Uſe, if he deſires it. Each tills his own Garden, and reaps the Fruit thereof. At their Dinner, every Monk has always two or three different Diſhes, and very well dreſſed, a Deſſert, and as much Wine as he pleaſes.

Note, That next in Dignity to the *Order of St. Benedict* and the Reformations thereof are the *regular Canons*.

Regular Canons, are *Canons* that ſtill live in Community, and who like Religious, have in Proceſs of Time, to the Practice of their Rule, added the ſolemn Profeſſion of Vows.

They are called *Regular*, to diſtinguiſh them from thoſe *Canons*, who abandon'd living in Community, and at the ſame Time the Obſervance of the *Canons* made as the Rule of the Clergy, for the Maintenance of the antient Diſcipline.

Canons ſubſiſted in their Simplicity till the 11th, others ſay the 12th Century, when ſome of them ſeparating from the Community, took with them the Name of *Canons*, or *acephalous Prieſts*, becauſe they declined to live in Community with the Biſhops; and thoſe who were left, thenceforth acquired the Denomination of *Canons Regular*, and adopted moſt of the Profeſſions of the Rule of St. *Auguſtine*.

Note, That it is diſputed to which Claſs the *Canons Regular* belong, whether to the Clergy, or the Religious; both the clerical and monaſtical State being united in them. The Point of Priority and Precedency is hotly conteſted, both between the *regular Canons*, and the *Prieſts*; and the *regular Canons* and *ſimple Monks*: The double Capacity of *Canons* is the Foundation of this Controverſy.

All the *regular Canons*, at preſent, follow the Rule of St. *Auguſtin*, and for that Reaſon are called *regular Canons of St. Auguſtin*; ſuch are the Congregation of St. *Genevieve*, that of St. *Victor*; and the *Norbertins*, or *Premontres*.

The Congregation of St. *Genevieve*, is a Reform of the *Auguſtine Canons*, began by *Charles Faure*, in the Abbey of St. *Vincent de Senlis*, whereof he was a Member, in the Year 1618.

The Reform ſoon ſpread into other Houſes, particularly that of *Notre Dame d'Eu*, and the Abbey of St. *Genevieve*, at *Paris*, chiefly by the Intereſt of the Cardinal *de la Rochefoucaut*, who was choſe Abbot thereof in 1619; and in 1621, propoſed the Reform to the Religious of his Abbey.

In the Year 1634, the Abbey was made elective; and a general Chapter, compoſed of the Superiors of fifteen Houſes, who had now received the Reform, choſe F. *Faure*, Co-adjutor of the Abbey of St. *Genevieve*, and General of the whole Congregation. Such were its Beginnings.

It has ſince increaſed very much, and now conſiſts of above an hundred Monaſteries; in ſome whereof the Religious are employed in the Adminiſtration of the Pariſhes, and Hoſpitals; and in others, in the Celebration of divine Service, and the Inſtruction of Eccleſiaſticks in Seminaries for the Purpoſe.

The Congregation takes its Name from the Abbey of St. *Genevieve*, which is the Chief of the Order; and whoſe Abbot is the General thereof.—The Abbey itſelf took its Name from St. *Genevieve*, the Patroneſs of the City of *Paris*, who died in the Year 512. Five Years after her Death, *Clovis* erected the Church of St. *Genevieve*, under the Name and Invocation of St. *Peter*; where her Reliqts are ſtill preſerved, her Shrine viſited, and

and carried with great Proceſſions and Ceremonies, upon extraordinary Occaſions, as when ſome great Favour is to be intreated of Heaven.

Theſe regular Canons of St. *Auguſtin* are cloathed in white, excepting their Cope, which is black; they alſo wear the Rochet like Biſhops.

The Religious of the famous Abbey of St. *Victor*, at *Paris*, are alſo *regular Canons*; their Habit is very decent, all white, without the leaſt Thing monaſtical.—This Abbey has produced very learned Men, as *Hugh*, and *Richard* of St. *Victor*, &c.

The NORBERTINES, otherwiſe *Premonſtratenſes*, is a religious Order of *regular Canons*, inſtituted in 1120 by St. *Norbert*, whence they are called *Norbertines*.

The firſt Monaſtery of this Order was built by *Norbert* in the Iſle of *France*, three Leagues to the Weſt of *Loan*, and by him called *Præmonſtré*, *Præmonſtratum*, whence the Order itſelf was denominated; though, as to the Occaſion of that Name, the Writers of that Order are divided.

The Order was approved by *Honorius* II. in 1120, and again by ſeveral ſucceeding Popes. At firſt the Abſtinence from Fleſh was rigidly obſerved. In 1245 *Innocent* IV. complained of its being neglected, to a general Chapter. In 1288 their General, *William*, procured Leave of Pope *Nicolas* IV. for thoſe of the Order to eat Fleſh on Journeys. In 1460 *Pius* II. granted them a general Permiſſion to eat Meat, except from *Septuageſima* to *Eaſter*.

The Religious of this *Order* are cloathed in White, with a ſcapulary before the Caſſock. Out of Doors they wear a white Cloak and white Hat; within a little Camail, and at Church a Surplice, *&c.*

In the firſt Monaſteries built by *Norbert*, there was one for Men and another for Women, only ſeparated by a Wall. In 1137, by a Decree of a general Chapter, this Practice was prohibited, and the Women removed out of thoſe already built, to a greater Diſtance from thoſe of the Men.

CROISIERS, *Crucigeri*, or *Croſsbearers*, is a religious Order, or Congregation of *regular Canons* ſo called.

There are three Orders which have, or do ſtill bear this Name; one in *Italy*, another in the *Low Countries*, and a third in *Bohemia*.

The firſt pretended to be derived from *S. Clet*, and add, that *S. Quiratus* the *Jew*, who ſhewed St. *Helena* the Place of the true Croſs, and was afterwards converted, reformed them. All we know for certain is, that they ſubſiſted in *Italy* before *Alexander* III. mounted the Thone; for that *Pontiff* flying from the Emperor *Frederic Barbaroſſa*, found an Aſylum in the Monaſtery of the *Croiſiers*, which he afterwards, in 1169, took under his Protection, giving them the Rule of St. *Auguſtin*, &c.

They were confirmed by *Pius* V. but the Diſcipline being much relaxed, they were ſuppreſſed in 1656 by *Alexander* VII.

Matt. Paris ſays, that the *Croiſiers* bearing Staffs with Croſſes at the End, came into *England* in 1244, and preſented themſelves before a Synod held by the Biſhop of *Rocheſter*, demanding to be admitted.

Dodſworth and *Dugdale* mention two Monaſteries of this Order in *England*, the one at *London*, the other at *Ryegate*; the firſt founded in 1245, the latter in 1298: Some add a third at *Oxford*, where they were received in 1349. M. *Allemand* ſays, there were fourteen Monaſteries of *Croſs-bearers* in *England*, adding, that they came from *Italy*; thoſe of the *Low Countries* diſowning them.

The *Croiſiers* of the *Low Countries* and *France* were founded in 1211, by *Theodore* the *Celles*, Son of *Boſon*, who having ſerved in a Croiſade in *Paleſtine*, in 1188, and there found ſome of the *Croiſiers* inſtituted by St. *Clet*, conceived a Deſign of inſtituting another Congregation in his own Country. This is certain, that *Theodore*, at his Return from *Paleſtine* engaged himſelf in the eccleſiaſtical State; and went in Quality of Miſſionary to the Croiſade againſt the *Albigenſes*; and that at his Return in 1211, the Biſhop of *Liege* gave him the Church of St. *Thibault* near *Huy*; where, with four Companions, he laid the Foundation of his Order, which was confirmed by *Innocent* III. and *Honorius* III.—*Theodore* ſent his Religious to *Thoulouze*, to join thoſe of St. *Dominic*, and combat the *Albigenſes*, and the Congregation multiplied in *France*. The Popes have endeavoured to bring the *Croiſiers* of *Italy* under thoſe of *Flanders*.

The *Croiſiers* or *Port Croix with a Star* in *Bohemia*, derive their Origin from St. *Quiriacus*, and ſay they came from *Paleſtine* into *Europe*, where they embraced the Rule of St. *Auguſtin*, and built Monaſteries. They add, that St. *Agnes* of *Bohemia*, to diſtinguiſh them from other *Croiſiers*, obtained of *Innocent* IV. to add a Star to their Habit. But the Story of S. *Quiriacus* has no Foundation; and it was *Agnes* herſelf, Daughter of *Primiſlas*, King of *Bohemia*, who inſtituted the Order at *Prague* in 1234. They are very numerous, and have now two Generals.

Note, That Father *Mabillon* ſhews, that till the ninth Century almoſt all the Monaſteries in *Europe* followed the Rule of St. *Benedict*; and that the Diſtinction of *Orders* did not commence till upon the Re-union of ſeveral Monaſteries into one Congregation: That St. *Ado*, Abbot of *Cluny*, firſt began this Re-union, bringing ſeveral Houſes under the Dependance of *Cluny*; that a little afterwards, in the ninth Century, the *Camaldulians* aroſe; then, by Degrees, the Congregation of *Vallombroſa*; the *Ciſtertians*, *Carthuſians*, *Auguſtines*; and at laſt, in the thirteenth Century, the *Mendicants*. He adds, that *Lupus Servatus*, Abbot of *Ferrieres*, in the ninth Century, is the firſt that ſeems to diſtinguiſh the *Order* of St. *Benedict* from the reſt, and to ſpeak of it as a particular Order.

Note, alſo, That next comes the numerous Families of the *Mendicants*.

MENDICANTS, is a Term applied to ſeveral Orders of Religious, who live on Alms, and go begging from Door to Door.

There are four antient *Orders* which paſs principally by the Name of the four *Mendicants*, viz. the *Franciſcans*, *Dominicans* or *Jacobines*, *Carmelites*, and *Auguſtines*.

The FRANCISCANS, is a religious Order, founded in the Beginning of the thirteenth Century, by the Son of a Merchant of *Aſſiſium* in the Province of *Ombria*, in *Italy*, called *Francis Bernardone*; whence their Name *Franciſcans*. Contrary to the Maxims of the Founders of all other religious *Orders*, *Francis* renounced all Revenues, under what Denomination ſoever, either of Foundation, Gifts, or the like; and truſted entirely to the divine Providence for the Subſiſtence of his Family; therefore he obliged his Diſciples, in the three Vows they make, like the reſt of the Monks and Friars, to expreſs that of Poverty, by theſe two particular, and more ſignificative Words, SINE PROPRIO, *i. e.* without any Property; ſo that they even renounce that of their own Houſes, Gardens, Cloaths, Books, *&c.* which they ſay belong to the Pope; they living entirely on Alms, and begging from Door to Door.

The firſt Houſe of that *Order* was a ſmall Chapel, which St. *Francis* obtained from the *Benedictine* Monks of *Aſſiſium*, and which he called *Portiuncula*, the ſmall *Portion*.

This was the Cradle of that numerous Progeny, which divided ſoon into ſeveral Branches; and has been ſince diffuſed throughout the whole Earth. Thoſe ſeveral Branches, all cloathed in a different Manner, and all pretending to wear the true Dreſs of the Order, are the *Conventuals*, *Obſervantines*, *Cordeliers*, *Capuchins*, and *Recolects*.

The *Conventuals*, are the leſs fruitful Branch of the Order of St. *Francis*, though they pretend to be his firſt-born; and their Houſes do not ſmell much of that ſtrict Poverty they profeſs. They are moſt confined in *Italy*; they have alſo a Houſe at *Avignon*, which I have ſeen, and where every Friar has two Apartments, one for the Summer and another for the Winter, more proper for a Perſon of the firſt Quality, than for a Mendicant Friar, and a Diſciple of St. *Francis*.

The Habit of the *Conventuals* is black, their Sleeves large, and their Capuche wide, and not prominent. They wear a Cord round their Waſte inſtead of a Girdle, like the reſt of the Order; but it is a very ſmall, very white, being made of Cotton, and very ſoft one. They alſ

alſo wear Linnen, Shoes, and Stockings, contrary to the Example which their Patriarch gave them.

There are two Sorts of OBSERVANTINES, *viz.* of the *great* and *leſſer Obſervance*.

Thoſe of the *great Obſervance*, are very little or not at all different from the Conventuals, unleſs it be in the Form and Colour of their Habit.

Thoſe of the *leſſer Obſervance*, are called Cordeliers, and cloathed ſometimes in thick grey Cloth, ſometimes finer, if they can afford it of their own Perquiſites, with a little Cowl, a Chaperon, and Cloak of the ſame; having a Girdle of Rope, or Cord tied with three Knots, ſignifying their three Vows, of *Chaſtity*, *Poverty*, and *Obedience*. From this Cord they were called *Cordeliers*.

The *Cordeliers* are otherwiſe called *minor Friars*, the original Name of the whole Order in general. The Denomination *Cordelier* is ſaid to have been firſt given them, in the War of St. *Louis*, King of *France*, againſt the Infidels, wherein the *Friars minor* having repulſed the *Barbarians*, and the King having enquired their Name, it was anſwered they were People *Cordeliez*, tied with Ropes. The *Cordeliers* have produced, and produce ſtill a great Number of very learned and profound Theogians, and very eloquent Preachers; they are received into the *Sorbonne* and made Doctors thereof: Their Church Muſick is much admired, and they delight in having a great Number of very good Voices; therefore we ſay in France, *un Cordelier en Chœur*, to ſignify that the Cordeliers ſing well. *Sixt.* IV. and *John* XX. Popes, were both Cordeliers.

The *Conventuals*, *Obſervantines*, and *Cordeliers*, ſeldom beg at preſent from Door to Door, unleſs their Convent be very poor indeed.

The CAPUCHINS (thus called from their *Capuche* or *Capuchon*, a Stuff Cap, or Cowl, wherewith they cover their Heads) is a Reform from the Cordeliers, ſet on Foot in the ſixteenth Century, by *Matthew Baſhi*, a Religious of the Monaſtery of *Monte Fiaſcone*, who being at *Rome*, was advertiſed ſeveral Times from Heaven, to practiſe the Rule of St. *Francis* to the Letter. Upon this he made Application to Pope *Clement*, in 1525, who gave him Permiſſion to retire into a Solitude, and not only him but as many others as would embrace the ſtrict Obſervance; which ſome did accordingly. In 1528 they obtained the Pope's Bull. In 1529 the Order was brought into compleat Form; *Matthew* was elected General, and the Chapter made Conſtitutions. In 1543 the Right of Preaching was taken from the *Capuchins* by the Pope: But in 1545 it was reſtored to them again with Honour. In 1578 there were already ſeventeen general Chapters in the Order of the *Capuchins*.

The *Capuchins* obſerve the Rule of St. *Francis* to the Letter.—They are cloathed with a very coarſe brown Cloth; wear no Linnen, go bare-legg'd, and bare-footed, except that they wear Sandals; never ſhave their Beard, and are not allowed to ride, either in a Coach or on Horſe-back, except in caſe of an extream Neceſſity; the General excepted, who, when he viſits his Order, rides on a Mule, which the Pope preſents him with ſoon after his Election to the Generalate.

The *Capuchins* are not accounted very learned, becauſe they are diſturbed from their Studies by their frequent Beggings, without which it would be impoſſible for them to ſubſiſt, ſince they have not the leaſt Poſſeſſion in the World; but they are in general of a conſummate Piety, and very exemplary Life. There is a great Number of Perſons of Diſtinction among them, eſpecially in the Province of *Britanny*, where they are extreamly reſpected. They ſend Miſſionaries into the *Levant*, the *Eaſt*, and *Weſt-Indies*, and on the Coaſt of *Africa*, who work to the Converſion of the Infidels.

The RECOLLECTS, are alſo a Reform from the Cordeliers.

They were eſtabliſhed about the Year 1530, when ſome Religious of the Order of St. *Francis*, willing to keep his Rule to the Letter (which has always been the Pretence of all the Reformers) *Clement* VII. gave them Houſes, particularly *Tulles* in the *Limoſin*, and *Murat* in *Auvergne*, whither they might retire, and receive ſuch as were diſpoſed to follow them. The ſame Year he approved the Reform; and in 1584 it was carried into *Italy*.

The Habit of the *Recollect*, is of the ſame Colour of that of the Capuchins, *i. e.* a brown coarſe Cloath, but the Form is different, for the Capuce is ſhorter, and they wear the Chaperon like the Cordeliers, which they call *Moſette*. Their Cloak is tied under their Chin, with a Kind of Faſtening made of Wood, or of Box, very well turned; which they call *Tibi*. They wear no Linnen, and go bare-legged and bare-footed; wearing only *Socks*, as they call them, which is a Kind of Sandals, the Soal and Heels thereof are of Wood.

Note, All the different Branches of the Order of St. *Francis*, above-mentioned, poſſeſs no apparent Revenues; but the Conventuals, Obſervantines, and Cordeliers, receiving Foundations, burying in their Houſes, aſſiſting at Buryings, for which they are handſomely paid, as well as for their Maſſes, Sermons, *&c.* are not ſo burthenſome to the publick, as are the *Capuchins* and *Recollects*, who have nothing to depend upon but the Retribution of their Maſſes, and that of their Sermons when they preach a Lent, Advent, or a Dominical, in the Cathedral Churches, *i. e.* every *Sunday* throughout the whole Year, the Advent, Lent, and Sunday in the Octave of *Corpus Chriſti* excepted, all which is not capable to maintain a Monaſtery of twenty, thirty, forty, and ſometimes fifty Religious, who, therefore, are obliged to have Recourſe to the publick Charity for the reſt; which is the only Clauſe in the Rule of St. *Francis*, and in all other Rules of Mendicants, which I cannot approve. For if we conſult all the eccleſiaſtical Hiſtorians, who have wrote before the Eſtabliſhment of the Mendicants, we'll find, that the Intention of the firſt Founders of the monaſtick Life, was, that they all ſhould work for their Subſiſtence; and that to act otherwiſe, is entirely contrary to the Practice of the Apoſtles, and of St. *Paul* in particular, who calls the Faithful to witneſs, that he was burthenſome to none of them, but worked with his own Hands for his Subſiſtance, though not brought up to it, ſince he learned a Trade after he was called to the Apoſtolate. It is true, that ſince our Times are different from thoſe of the Primitive Church, and a Chriſtian Liberality have provided with a prodigal Hand for the Subſiſtence of the Miniſters of Chriſt, thoſe who ſerve to the Altar ſhould live by the Altar; but the Number of thoſe holy Servants, ſhould not exceed the Revenue ſufficient to maintain them, and if it does, they ſhould make up the Deficiency thereof, by their own Induſtry, and not by a lazy Life, which is diſhonourable to the Sacerdoce, and oppreſſive to the Publick. How cruel it is to ſee a Friar, whoſe ſole Aſpect witneſſes nothing leſs than Indigence, teaſing a poor Handicraft Man for Relief, who can ſcarce maintain his own Family with the Sweat of his Brows, and which perhaps would be very well fed and ſatisfy'd with the Crumbs which fall from the Table of the Perſon who pleads Poverty to him, and will not leave him, till he has extorted ſomething from him? If they muſt beg, let them beg among the Rich only, who can relieve them out of their Plenty, without feeling it: But Princes, in whoſe Dominions the Mendicant Friars are eſtabliſhed, ſhould forbid them, under ſevere Penalties, robbing the induſtrious Part of their Subjects of the Fruits of their Induſtry and Labour; for if Charity has the Power to open the Gates of Heaven, as thoſe devout Mendicants are themſelves pleaſed to tell us, it is when well applied, *i. e.* to worthy Objects thereof, and who really want; but do theſe really want, and are they worthy Objects of Charity, who have ſo many Means of relieving themſelves if they pleaſe, without being oppreſſive to the poorer Sort of People? Do thoſe really want, who feed on Delicacies, while thoſe they beg from, think themſelves too happy, if they have a very frugal Sufficiency, to keep themſelves and Family from ſtarving? I'll never be perſuaded, that to renounce all that one poſſeſſes in the World, under Pretence of following Chriſt, is a Sacrifice agreeable to him, when that Sacrifice is to be offer'd on ſo bloody an Altar as is the publick Oppreſſion. It would be much more according to the Maxims of the Goſpel, much more diſintereſted, and more generous, if thoſe holy Sacrificators would ſay, that if they renounce their Poſſeſſions, it is to be ma-

at Liberty, to bear the whole Weight of the Punishment which God inflicted on the Original Sin, when he said to *Adam*, *Thou shall eat thy Bread by the Sweat of thy Brows.*

All the Order of St. *Francis*, at least all those abovementioned, keep three Lents in the Year, according to their Rule, *viz.* the first, which begins at *All-Souls Day*, and ends at *Christmass*; the second, which begins the next Day after the *Epiphany*, and ends at the *Sexagesima*; and the last, is the Lent kept by the *Catholicks*, i. e. from *Ash-Wednesday* to *Easter*.

They also rise at twelve at Night to go to Church. The *Capuchins* and *Recollects* have no Church Musick, but Psalmody their whole Office.

There is also a *third Order* of *Franciscans*, instituted by St. *Francis* himself, in 1221, in Favour of People of both Sexes, who being smitten with the Preaching of that Saint, demanded of him an easy Manner of living a Christian Life; upon which he gave them a Rule, the Constitutions whereof are not now extant, as wrote by himself, but only as reduced and confirmed by Pope *Nicolas* IV. 68 Years afterwards.

Of this *Order*, which was only established for secular Persons, several of both Sexes, to attain the greater Perfection, have since commenced Religious, and form'd various Congregations, under various Names, as *religious Penitents of the third Order*, &c.

The DOMINICANS are also one of the Mendicant *Orders*, and take their Name from their Founder *Dominick de Gusman*, a *Spanish* Gentleman, born in 1170, at *Calaveger* in *Old Castile*. He was first Canon and Archdeacon of *Osma*; and afterwards preached with great Zeal and Vehemence against the *Albigenses* in *Languedoc*, where he laid the first Foundation of his *Order*. It was approved of in 1215, by *Innocent* III. and confirmed in 1216; by a Bull of *Honorius* III. under the Rule of St. *Augustin*, and the Title of *Preaching Friars*.

The first Convent was founded at *Thoulouse*, by the Bishop thereof, and *Simon de Montford*. Two Years afterwards they had another at *Paris*, near the Bishop's House; and sometimes after a third in the *Rue St. Jacques*, St. *James's Street*, whence the Denomination of *Jacobines*.

St. *Dominick*, at first, only took the Habit of the *regular Canons*, that is, a black Cassock and Rochet; but this he quitted in 1219, for that which they now wear, which, it is pretended, was shewn by the Blessed Virgin herself to the beatified *Renaud d'Orleans*. It is a white Cassock, a black Scapulary, and black Camail, with a very wide Cowl, lined with white, or rather two Camails, one white, the other black, and over all, a large Cloak or Cap, reaching almost to the Ground.

This *Order* is diffused throughout the whole Earth. It has 45 Provinces under the General, who resides at *Rome*; and 12 particular Congregations, or Reforms, govern'd by Vicars General.

They reckon 4 Popes of this *Order*, above 60 Cardinals, several Patriarchs, 150 Archbishops, and about 800 Bishops, besides Masters of the sacred Palace, whose Office has been constantly discharged by a Religious of this Order, ever since St. *Dominick*, who held it under *Honorius* III. in 1218. St. *Thomas Aquinas*, called the *Angelick Doctor*, was of this Order.

Note, That it was St. *Dominick*, who was the first Promoter of the Inquisition, under Pope *Innocent* III. That Pontiff sent several Priests, with St. *Dominick* at their Head, to *Thoulouse*, to give him an Account of the Number of Hereticks in those Parts, and of the Behaviour of Princes and Prelates towards them; and thence they acquired the Name of *Inquisitors*: But these original *Inquisitors* had not any Court, or any Authority; they were only a Kind of spiritual Spies, who were to make Report of their Discoveries to the Pope. The Emperor *Frederick* II. at the Beginning of the 13th Century, extended their Power very considerably, and committed the taking Cognizance of the Crime of Heresy, to a Set of ecclesiastical Judges; and as Fire was the Punishment decreed for the Obstinate, the Inquisitors determined indirectly with Regard both to the Person and the Crimes: By which Means the Laity was cut off from its own Jurisdiction, and abandoned to the Zeal and devout Madness of the Ecclesiasticks. After the Death of *Frederick*, who had long ago repented the Power he had given the Churchmen, as having seen some of the Fruits of it; Pope *Innocent* IV. erected a perpetual Tribunal of *Inquisitors*, and deprived the Bishops and secular Judges, of the little Power the Emperor *Frederick* had left them. And this Jurisdiction, which depended immediately on himself, he took Care to introduce into most of the States of *Europe*. But the *Inquisitors* were so fiery, hot, and made such Butchery among the Hereticks, that they raised an universal Detestation, even in some Catholick Countries themselves. Hence it was that their Reign proved very short both in *France* and in *Germany*; nor was even *Spain* entirely subject to them till the Time of *Ferdinand* and *Isabella*, in 1448, when their Power was increased, under Pretence of clearing the Country of *Judaism* and *Mahometanism*. The Power of the *Inquisition* is very much limited in some Countries, particularly at *Venice*, where it is received under such Modifications, as to prove a great Check to its Authority. Indeed, at *Venice*, it seems rather a political than a religious Contrivance, and serves rather for the Security of the State, than of the Church. There are Appeals from the subaltern *Inquisitions* in *Italy*, to the Congregation of the *Holy Office* residing at *Rome*. It is the constant Practice of the *Inquisition*, to affect, in all their Procedures, to inspire as much Terror and Amazement as possible; every Thing is done with the profoundest Silence and Secrecy, and with the greatest Rigour and Impartiality. When a Person is seized, all the World abandons him, not the nearest Friend dares to speak a Word in his Defence; that alone would be enough to render them suspected of Heresy, and would bring them within the Claws of the *Inquisition*. The Criminals are seized, examined, tried, tortured, and unless they recant, condemned, and executed, without ever seeing or knowing their Accusers; whence the Revengeful have a fair Occasion of wreaking their Malice on their Enemies. When the *Inquisition* has done with them, and condemned them to Death, they are turned over to the secular Arm, with a World of Prayers and pious Intreaties, that their Lives may not be touched. Time is no Manner of Security in Point of Heresy; nor does the Grave itself shelter the Accused from the Pursuits of the *Inquisition*; even the Deceased have their Trials, and they proceed in all their Form and Solemnity against the dead Carcasses. The Executions are always deferred till the Number of the condemned is very great, that the Multitude of Sufferers may strike the deeper Horror, and make the Scene more shocking and terrible. The *Inquisition* of *Rome* is a Congregation of 12 Cardinals, and some other Officers, where the Pope presides in Person. This is accounted the highest Tribunal in *Rome*; it began in the Time of Pope *Paul* IV. on Occasion of the spreading of *Lutheranism*. The *Inquisition* is very severe in the *Indies*. It is true there must be the Oaths of seven Witnesses to condemn a Man; but then the Depositions of Slaves or Children are taken. The Person is tortured till he condemns himself, for his Accusers are never brought to confront him. Persons are accused for the slendereſt Expression against the Church, or even for a disrespectful Word of the *Inquisition*. The Standard of the *Inquisition* is a Piece of red Damask, on which is painted a Cross with an Olive-Branch on one Side, and a Sword on the other: With these Words of the Psalmist, *Exurge Domine, & Judica causam meam.* The *Dominicans* have always been *Inquisitors*, ever since their Patriarch St. *Dominick*; though it must not be supposed, that his Intention was, when he proposed the *Inquisition* first, that it should be made a hellish Tribunal, abhorred by Heaven and Earth; his great Zeal for the Faith, and the Extinction of Heresy, if it could be accused of Indiscretion, was not criminal.

The CARMELITES, who are also reckoned Mendicants, are religious, who take their Name from *Carmel*, a Mountain of *Syria*, formerly inhabited by the Prophets *Elias* and *Elisha*, and by the Children of the Prophets; from

from whom this Order pretends to descend in an uninterrupted Succession.

The Manner in which they make out their Antiquity has something in it too ridiculous to be rehearsed. Some among them pretend they are Descendants from *Jesus Christ*: Others go further, and make *Pythagoras* a *Carmelite*, and the antient Druids regular Branches of their Order.

Phocas, a *Greek* Monk, speaks the most reasonably; he says, that in his Time, *viz.* in 1185, *Elias*'s Cave was still extant on the Mountain, near which were the Remains of a Building, which intimated there had been antiently a Monastery; that some Years before an old Monk, a Priest of *Calabria*, by Revelation, as he pretended from the Prophet *Elias*, fixed there, and assembled ten Brothers. In 1209, *Albert* Patriarch of *Jerusalem*, gave the Solitaries a rigid Rule; which *Papebroch* has since printed. In 1217, or according to others in 1226, Pope *Honorius* III. approved and confirmed it; though it was afterwards mitigated by *Innocent* IV. S. *Louis*, King of *France*, brought some of these *Carmelites* with him from the Holy Land into his Kingdom: Many of the Popes give them the Title of *Brothers of the Blessed Virgin*.

This *Order* is eminent for the Order of the Scapulary, for its Missions, and its great Number of Saints. In the last Century, there were four Canonizations of this Order, *viz.* of St. *Theresa*, St. *Andrew Corsin*, St. *Magdalaine de Pazzi*, and St. *John de la Croix*.

The Order of *Carmelites* is divided into two Branches, viz. *Carmelites of the antient Observance*, called *the mitigated*, or *moderate*, and those of the *strict Observance*, called *bare-footed Carmelites*.

The *antient Observance* has only one General, under whom are forty Provinces; and the Congregation or *Mantua*, which has a Vicar-General.

Their Habit, is a black Cassock, a white Cloak or Cop, reaching almost to the Ground, and a white Cowl.

The *strict Observance*, has two Generals, one in *Spain*, having six Provinces under his Command; and another in *Italy*, with twelve in several Parts of *Europe*.

Bare-footed Carmelites, are a Reform of the *antient Carmelites*, set on foot in 1540 by *Theresa*, so called from their going bare-footed.

She began with the Convents of Nuns, whom she restored to the primitive Austerity of the Order, which had been mitigated by *Innocent* IV. in 1245; and at length carried the same Reform among the Friars. *Pius* V. approved the Design, and *Gregory* III. confirmed the Reform in 1580.

There are two Congregations of *bare-footed Carmelites*, which have each their General and their several Constitutions; the one the *Congregation of Spain*, divided into six Provinces; the other called the *Congregation of Italy*, comprehending all the rest, not depending on *Spain*.

Their Habit is a brown Cassock, a white scanty Cop, or Cloak, and a Cowl of the same Colour.

F. *Diego de Coria Maldonado*, a *Spanish* Carmelite, has a particular Treatise on the third Order of the *Carmelites*, where he derives them immediately, as well as the *Carmelites* themselves, from the Prophet *Elias*; and among the great Men who have made Profession of that *third Order*, reckons the Prophet *Obadiah*, who lived 800 Years before Christ; and among the Women our Saviour's Great Grandmother, under the borrowed Name of St. *Emerentiana*. This *Obadiah*, he says, was Controller-General of the House of King *Ahab*, mentioned in the First Book of *Kings*, chap. xviii. and Disciple of the Prophet *Elijah*. After serving that Prince and his Successors, he retired to serve God, and entered the prophetick *Order* of *Elijah*, but without quitting his House, his Wife, or Children.

The Author adds, that he was not properly of the *third Order* but of the second, which consisted of married People, and was called the *Order of Eunuchs*, under the Direction of *Elijah*. Such, according to him, is the Foundation of the *third Order of the Carmelites*.

F. *Helyot* shews, that this third Order was not in Being until the Year 1476, when *Sixtus* IV. gave Permission to the Prior and Provincials of the *Carmelites* to give the regular Habit and Rule of their Order to People of both Sexes, married or unmarried, living at Liberty in the World. *De Coria* reckons St. *Louis* King of *France*, in the third Order of the *Carmelites*.

Note, That this Order has never been very famous for Subjects of Merit, and has not produced a great Number of very learned Men. But however, the *Carmelites* in general, whether of the antient or strict Observance, lead a very exemplary Life, and are not oppressive to the Publick.

The AUGUSTINES, or *Augustinians*, make also one of the four Orders of the Mendicants; and are called *Augustins* from St. *Augustin*, whose Rule they observe.

The *Augustins*, popularly also called *Austin Friars*, were originally Hermits, pretended to have been instituted by St. *Augustin* himself, but without much Ground. This is pretty certain, he laid the Foundations of a monastick Order about the Year 388, and retired to his Father's Estate near *Tagasta*, to lead a religious Life with some Companions: But it does not at all appear, that this Order has subsisted ever since, nor that the Hermites of St. *Augustin* are descended without Interruption from them.

This Order in Reality only commenced under *Alexander* IV. in the Middle of the thirteenth Century; and was formed gradually by the Union of divers Congregations, which had no Rule, or at least had not that of St. *Augustin*. Those Congregations were that of *John Bonites*, the most antient of all; that of the *Hermites* of *Tuscany*; that of the *Sack*, or *Bag*; those of *Vallersuta*, of St. *Blaise*, of St. *Benedict de Monte Fabalo*, of the *Tower of Palmes*, of *Sancta Maria de Murcetta*, of St. *James de Molinio*, and the *Loupsavo* near *Lucca*.

This Coalition was not made by *Innocent* IV. as most Historians of the Order contend; all that *Pontiff* did was to unite some *Hermits* in *Tuscany*, to whom he gave the Rule of St. *Augustin*; but these were a distinct Body from those just mentioned. It was *Alexander* IV. that made the grand Union, as appears from his Bull published in the *Magnum* of the *Augustins*.

That *Pontiff* undertook this Union from the first Quarter of his Pontificat, *viz.* in the Year 1254. It was the Year 1256, ere the Superiors of all the Congregations could be got together. In the general Chapter the Union was effected: *Lanfranc Septala*, a *Milaneze*, was chosen General; and the Order divided into four Provinces, *viz.* those of *France*, *Germany*, and *Italy*.

Since that, other *Orders* have been united to the *Hermits* of St. *Augustin*; as the poor Catholicks, *&c.* and the *Order* now consists of 42 Provinces.

After so many Unions the *Order* began to divide again into separate Congregations, according to the Relaxations and Reformations that afterwards got Footing. Such are the *bare footed Hermits* of St. *Augustin*; the Congregation of *Centorbi*, or the *Sicilian Reform*; the Congregation of the *Colorites* in *Calabria*, &c.

The *Augustins* are cloathed in Black.

The *third Order* of *Augustins*, if we credit F. *Bruno*, was instituted by St. *Augustin* himself: But the Arguments he produces are so frivolous, that F. *Heliot* observes they are not worth the refuting.

Note, That the *Dominicans*, *Carmelites*, and *Augustins*, though accounted Mendicants, seldom beg from Door to Door, unless it be now and then, for Form Sake, and in Places where they are very poor indeed; and they seldom fix on such Places. The *Dominicans* have publick Schools of Philosophy, and Theology, where they teach the Doctrine of St. *Thomas*; and from which they reap some Benefits, which help towards their Subsistence.

I place the MINIMS next the *Mendicants*, because St. *Francis de Paulo*, their Patriarch, derived their Name *Minims*, q. d. *least* or *smallest*, from that of the *Franciscans*, who call themselves *Minors*.

This *Order* was instituted in 1440, and brought into *France* by St. *Francis de Paulo* himself, under the Reign of *Louis* XI. at that Prince's Sollicitation, who thought that St. *Francis de Paulo*'s Prayers could lengthen his Life.

The *Minims* abstain from Flesh, Cheese, Butter, *&c.* and dress all their Food with Oil; but in such a Manner as to render it of a delicious Taste; at least I have been

been regaled with ſome very good Diſhes in their Houſes.

They are dreſſed in black, and wear alſo a ſmall black Cord, inſtead of a Girdle, in Imitation of the *Franciſcans*. They have no Church-Muſick, but pſalmodize all their Office.

I place next the TRINITARIANS, though a more antient Order than the *Minims*; thus called, becauſe they were inſtituted in Honour of the Trinity, for the redeeming of Chriſtian Captives from the Infidels; vulgarly called *Mathurins*, from their Monaſtery at *Paris*, and Brothers of the Redemption.

They are cloathed in white, and bear on the Stomach a Croſs, partly red, and partly blue; by which three Colours, white, red, and blue, is ſuppoſed to be repreſented the Myſtery of the Trinity.

The *Trinitarians* make it their Buſineſs to go and ranſom Chriſtians held in Slavery in the Republicks of *Algiers*, *Tunis*, and *Tripoli*, and the States of *Morocco*. They have a Rule peculiar to themſelves; tho' ſeveral Hiſtorians rank them among the Obſervers of the Rule of St. *Auguſtin*.

The *Order* had its Riſe in 1198, under the Pontificate of *Innocent* III. the Founders were *S. John de Matha*, and *Felix de Valois*: The firſt of *Faucon* in *Provence*; the ſecond, not of the Royal Family of *Valois*, as ſome have imagined; but thus called, in all Probability, as being a Native of the Country *Valois*.

Gauthier of *Chatillon* was the firſt who gave them a Place in his Land to build a Convent; which afterwards became the Chief of the whole Order: *Honorius* III. confirmed their Rule. *Urban* IV. appointed the Biſhop of *Paris*, and others, to reform them: They did it, and the Reform was approved in 1267, by *Clement* IV.

This *Order* poſſeſſes about 250 Convents, divided into 13 Provinces; whereof ſix are in *France*, three in *Spain*, one in *Italy*, and one in *Portugal*. Formerly there was one in *England*, another in *Scotland*, and a third in *Ireland*. But the Reformers have thought, that the Slaves of thoſe three Kingdoms might very well ranſom themſelves if they pleaſed.

In the general Chapters held in 1573 and 1576, a Reform was order'd, and begun ſometime afterwards by *Julian de Nantonville*, and *Claude Aleph*, two Hermits of St. *Michael*, but now permitted by Pope *Gregory* to take the Habit of the Trinity; upon which their Hermitage was converted into a Houſe of the *Order*.

In 1609, the Pope allowed them to build new Houſes, and to introduce the Reform into the old ones. In 1635, *Urban* VIII. by a Brief, appointed the Cardinal *de Rochefaucaut*, to introduce the Reform into all the Houſes of the *Order*, which was done acordingly, by a Sentence containing the Reform in eight Articles; the principal whereof were, that they ſhould obſerve the primitive Rule approv'd of by *Clement* IV. ſhould abſtain from Fleſh, uſe woollen Shirts, have Mattins at Midnight, *&c.* In 1554, there was alſo a Reform made among thoſe of *Portugal*.

The Habit of the *Trinitarians* is different in different Countries, and that of the Reformed different from the reſt.

There are alſo *bare-footed* TRINITARIANS, who are a Reform of this *Order*, made in *Spain*, in a general Chapter, held in 1594, where it was reſolved, that each Province ſhould eſtabliſh two or three Houſes, where the primitive Rule ſhould be obſerved, and where the Religious ſhould live up to a greater Auſterity, uſe coarſer Cloaths, *&c.* and yet ſhould have the Liberty of returning to their antient Convent, when they thought fit.

Don *Alvarez Baſan*, intending to found a Monaſtery at *Valdepagnas*, and deſiring to have it occupied by bare-footed Religious, it was agreed to add Nudity of Feet to the Reform, that the *Trinitarians* might have the Benefit of that Eſtabliſhment. The Reform afterwards grew into three Provinces, and was at laſt introduced into *Poland* and *Ruſſia*: And thence into *Germany* and *Italy*.

There are alſo bare-footed *Trinitarians* in *France*, eſtabliſhed by F. *Jeroſm Hallius*, who being ſent to *Rome* to ſollicit the firſt Reform mentioned above; not content therewith, carried it further, and obtained a Permiſſion of Pope *Gregory*, to add a coarſe Habit, and Nudity of Feet thereto. He began with the Convent of St. *Dionyſius* at *Rome*, and thoſe of *Aix* in *Provence*.

In 1670 there were Houſes enough of this Reform to make a Province, and accordingly they held their firſt general Chapter the ſame Year.

Note, That there are ſtill ſubſiſting ſeveral Orders, who ſtile themſelves *Hermits*, though they retain but the bare Name thereof, as the *Hermits of St. Auguſtin*, and the *Camalduly* heretofore mentioned, the *Hermits* of *Brittini*, the *Hermits of St. Jerom*, the *Hermits of St. John Baptiſt*, otherwiſe called *Jeronymits*, the *Hermits of St. Paul*, &c.

The *Hermits of Brittini*, was a Congregation formed under Pope *Gregory* IX. who gave them the Rule of St. *Auguſtin*.

Their firſt Hermitage or Abode, was in a ſolitary Place called *Brittini* in the Marquiſate of *Ancona*; whence their Name, they led a very auſtere Life, never eat any Meat, and faſted much.

The *Hermits of St. Jerom*, or *Jeronymites*, or *Hieronymites*, is a Denomination given to divers Orders or Congregations of Religious.

The firſt called *Hermits of St. Jerom* of *Spain*, owe their Origin to the third Order of St. *Francis*, whereof the firſt *Jeronymites* were Members. *Gregory* XI. confirmed this Order under the Name of St. *Jerom*, whom they had choſen for their Patron and their Model, and gave them the Conſtitutions of the Convent of St. *Mary* of the Sepulchre, with the Rule of St. *Auguſtin*; and for Habit a white Tunick, with a Scapulary, a little Capuche, and a Mantle, all of their natural Colour without dying, and of a mean Price.

The *Jeronymites* are in Poſſeſſion of the Convent of St. *Laurence* in the Eſcurial where the Kings of *Spain* are buried.

Hermits of St. Jerom, of *the Obſervance*, or of *Lombardy*, were founded by *Lupus d'Olmedo* in 1424, in the Mountains of *Cazalla*, in the Dioceſe of *Seville*.

The *third Order* of *Jeronymites* was founded by *Peter Gambacorti*, about the Year 1377; but the Vows they made were only ſimple, till the Year 1568, when *Pius* V. appointed them to be ſolemn. They have Houſes in *Tirol*, *Italy*, and *Bavaria*.

The fourth Congregation of *Jeronymites*, or the *Hermits* of St. *Jerom of Fieroli*, began in 1360. When *Charles de Monte Grenali*, of the Family of the Count of that Name, retiring into Solitude, firſt eſtabliſhed it at *Verona*. It was approved by *Innocent* VII. under the Rule and Conſtitutions of St. *Jerom*: But *Eugenius* in 1441 changed it for that of St. *Auguſtin*. As the Founder was of the third Order of St. *Francis*, they preſerved that Habit; but in 1460, *Pius* permitting ſuch as pleaſed to change it, occaſioned a Diviſion among them. This Order was finally ſuppreſſed in 1668.

The *Hermits of St. John Baptiſt*, was a religious Order in *Navarre*, whoſe principal Convent or Hermitage was ſeven Leagues from *Pampelona*.

Till the Time of *Gregory* XIII. they lived under the Obedience of the Biſhop of that City; but the Pope confirmed them a religious Order, approved their Conſtitutions, and admitted them to make the Vows. Their Way of living was exceeding auſtere: They went bare-footed, wore no Linnen, lay on Boards, with a large Stone for a Pillow, and bore a large wooden Croſs upon their Breaſts.

Their Houſe was a Kind of Laura, rather than a Convent cantoned out into Cells, in which they lived ſolitary in the Middle of a Wood.

The *Hermits* of St. *Paul* the firſt *Hermit*, is an Order formed in the thirteenth Century, by the Union of two Bodies of *Hermits* in *Hungary*, viz. thoſe of St. *James de Patach*, and thoſe of *Piſilia* near *Zante*.

Upon their being incorporated, they choſe St. *Paul* the firſt *Hermit* for the common Patron and Protector of their Order, and aſſumed his Name. They multiplied very conſiderably in *Hungary*, *Germany*, *Poland*, and other Provinces; and came to have ſeventy Provinces in *Hungary* alone; but the Revolutions and Wars in that Kingdom reduced them again.

Note, That the next that follows in Order, are what

we call regular Priests, or Clerks, as the *Fathers of the Oratory*, the *Jesuits*, *Jesuastes*, *Fathers of the Mission*, or of St. *Lazarus*, the *Theatins*, &c.

The *Fathers*, or *Priests of the Oratory*, is a celebrated Congregation of Priests, who live together in a monastick Manner, but without Vows, first established at *Rome*, about the Year 1590, by St. *Philip Neri*, a *Florentine*, under the Title of *Oratory of Santa Maria in Valicella.*

On the Model of this the Cardinal *Berulla*, established a Congregation of the *Oratory of Jesus* in 1612, in *France*, which has since increased; so that there are now 60 Houses of Priests of the Oratory in the Kingdom.

There is some Difference however, between the *Italian* and *French* Institutions. St. *Philip Neri*, to prevent the Confusion which the great Number of Houses usually occasion in Congregations, would have his to be a single House. And though others were at Liberty to form the like Congregations, yet they were to have no Dependance on one another.

For this Reason the Houses of the Oratory in *Italy* and *Flanders* are all independent; whereas those in *France* have all a Relation to each other, and all depend on the same Chief, who has the Quality of Superior General; and with three Assistants govern the whole Congregation.

The chief Occupation of the Priests of the Oratory is the Instruction of Youth, for which Purpose they have publick Schools in the Places where they are established. They are most of them Men of the greatest Piety, and most profound Erudition; and have among them very good Philosophers, profound Theologians, and excellent Orators; who fill with great Reputation and an universal Applause the best Chairs in *France*, and have often the Honour to preach before the King.

The Priests of the Oratory and the Jesuits are Antagonists, as well in Point of Doctrine, as by a Motive of Emulation; the former espouse the Doctrine of St. *Augustin* on Grace, which they teach efficacious of itself; and the latter the Doctrine of *Molina*, a famous Theologian of their Society, who rejects that Sort of Grace, and pretend that it is no otherwise efficacious, but by the Consent of our Will.

The *Priests of the Oratory*, in general, have seldom any other Ambition, than to acquit themselves well of their publick Functions, and never thrust themselves into the Palaces of Princes, and are never seen there unless they be called to it. I was educated by them from seven Years of Age, to eleven and a half, when I made my first Voyage to Sea, with the Marquis *de Coetlogon*, my Uncle, afterwards Vice-Admiral of the *Ponant*, and Marshal of *France*; but the Peace being concluded soon after, I returned to my Studies under the same Masters, without neglecting entirely the military Profession I was designed for, if my Misfortunes had not proved an Obstacle to it.

The *Priests of the Oratory* are at Liberty to stay in the Congregation as long as they please, and to go out of it when they please.

The JESUITS, is an *Order* of Religious, founded by *Ignatius Loyola*, called also the *Society of Jesus.*

This *Order* has render'd itself very considerable by its Missions into the *Indies*, and by its other Employments relating to the Study of the Sciences, and the Education of Youth. — The Council of *Trent* calls them, *Regular Clerks of the Company of Jesus.*

It was in the Year 1538, that *Ignatius* having assembled ten of his Companions at *Rome*, chosen mostly out of the University of *Paris*, proposed to them to make a new *Order*. After this he presented the Plan of his Institution to *Paul* III. who appointed three Commissioners to examine it; upon whose Report the Pontiff confirmed the Institution, under the Name of the *Company of Jesus*, by a Bull in 1540. By this Bull, their Number was restrained to sixty; but that Restriction was taken away, two Years afterwards, by another Bull. The *Order* has been since confirmed by several succeeding Popes, who have added many new Rights and Privileges to it.

The End principally proposed by this *Order*, is, as pretended, to gain Converts to the *Roman* Church; with which View they disperse themselves in every Country, and Nation. But they are accused (if very justly, is what I leave to the Judgment of the whole World) of making this holy Motive subservient to their own Interest, and of propagating their Grandeur, Ambition, Power, &c. under the specious Pretence of propagating the Gospel. It is even pretended, that in the *Protestant* Countries, where they are sent into Mission, they make a greater Number of Proselytes to *Protestantism*, in one Year, by their Supineness, Want of Charity, Calumnies, revengeful Spirit, Love of Money, and all hid under a great outward Shew of Religion, than the best *Protestant* Preacher can do in ten. It is true, that I have known some *Jesuits* guilty of those Crimes, and more in *England* than any where else; but I have, likewise, known a far greater Number of very worthy *Jesuits*, especially in other Countries, and I think it very unjust and barbarous to make a celebrated Congregation as that is, answerable for the Crimes of a few Particulars. If some of them have been suspected of having contributed to the Deposition of *some Princes*, and even to the Parricide of others, the whole *Order* had certainly no Hand in it: Even in the *first Company of Jesus*, there was a *Judas*, and the *Jesuits* who are guilty of the Crimes above-mentioned, are in all Appearance, the Disciples of that Traitor; since, like him, they consult nothing but their own Interest, and would sell their divine Master as he did, if they could find Purchasers.

Their Conduct in the *Indies* is also censured, under Pretence of having established their Empire there, instead of that of Jesus Christ; and of having made a monstrous and prophane Mixture of the Ceremonies of *Confucius*, with those of the *Christianism*. Though all this may proceed from the Jealousy of their Enemies; as well as what is rumour'd here at present, of their wanting to deprive an illustrious Family of a large Sum, because it was found in the Possession of one of the Society at his Death, though that Money is the Product of an Estate belonging to that Family; and the Conscience of the Heiress does not permit her to have Recourse to the Laws of the Realm, for a Redress; though I cannot help thinking her Conscience a little too scrupulous in that Case; and that that Money would be far better in her own Hands, which are always open for charitable Deeds, whereas those of the *Jesuits* are always shut to the Distressed; for if that Money falls in their Hands, it will be of no Benefit to the Publick, but if the good Lady has the Disposal thereof, her present extensive Charity gives us Hope, the greatest Part of it will be employ'd in feeding the Hungry, and cloathing the Naked. To remit the Decision of that Affair to the Court of *Rome*, is to give up her Right.

The *Jesuits* have the Politicks to receive no other Subjects among them, but those who are born either of an illustrious, or of a rich Family, or in whom they find a very great Disposition for the Sciences. For those of an illustrious Family introduce them at the Court of Princes, where there are always some of them seen, and render them formidable: The Rich increase their Store; and those of an extraordinary Merit heighten the Reputation of the *Order*.

The *Jesuits* have no particular Habit; but change and accommodate it to Time and Occasions.

The *Order* consists of five different Classes; *professed Fathers*, *spiritual Coadjutors*, *approved Scholars*, *Lay-Brothers*, called also *temporal Coadjutors*, and *Novices*.

The *professed Fathers*, who make the Body of the Company, take the three solemn Vows of Religion publickly; and to these add a special Vow of Obedience to the Head of the Church (which last Vow they observe while it suits their Conveniency, otherwise they make no Scruple of breaking it.) — The *spiritual Coadjutors* make also publick Vows of Chastity, Poverty, and Obedience; but omit the fourth relating to Missions, &c. *Approved Scholars* are those, who after two Years *Noviciat*, have been admitted, and have made the three Vows of Religion; not solemn, indeed, but yet declared. These are in the Way to become *professed* or *spiritual Coadjutors*, according as the General thinks fit. — These Degrees, except that of *professed*, are never conferred till after two Years *Noviciat*, and seven Years Study, seven or Regency, a third Year of *Noviciat*, and thirty three Years of Age. The Vows of the Scholars are absolute

lute on their Side, but only conditional on the Side of the *Order*; the General having it in his Power to dispense with them.

The *Order* is divided into *Assistances*; the *Assistances* into *Provinces*; and the *Provinces* into *Houses*. It is govern'd by a General, who is perpetual and absolute; he resides at *Rome*, and is elected by a general Congregation of the *Order*. He has with him five Persons, who are, as it were, his *Ministers*; they are called his *Assistants*, and bear the Name of the Kingdom or Country to which they belong, and by whom they are appointed, *viz.* of *Italy*, *France*, *Spain*, *Germany*, and *Portugal*. To these belongs the Care of preparing the Matters of their respective Assistances, and of putting them in a Method to facilitate their Dispatch. It is by these, that both Inferiors and Superiors go regularly before the General. They are chosen by the Congregation, and are not only the General's Counsellors to assist him in his Business, but also to observe his Conduct; and, if they find Occasion, they may call a general Congregation without his Consent, who may depose him in Form; or they have it in their Power to depose him themselves, after having, by Letter, obtain'd the Suffrages of their Provinces.

Each Province has four Kinds of Houses, *viz. professed Houses*, which can have no Lands belonging to them; *Colleges*, where the Sciences are taught; *Residences*, where are a Number of Workmen, employ'd in such Offices as have any immediate Relation to Preaching, Confession, Missions, *&c.* and Houses of *Novices*.

Among the *Colleges*, there are some called simply *Colleges*, and others called *Seminaries*. These last are set apart for the young *Jesuits* to go through their Courses of Philosophy and Theology in; the others are for Strangers.

Each Province is govern'd by a *Provincial*, and each House by a *Superior*; who is called a *Rector* in the Colleges, and a *Superior* in other Houses. *Ignatius* regulated the Discipline of those Houses, especially of the Colleges, by what he had observed in the *Sorbonne*, while he studied at *Paris*.

The Professed of this *Order*, renounce by a solemn Vow, all Preferment, and especially Prelacy; and cannot receive any, unless enjoined thereto by the Pope, under Pain of Sin. This the Pope sometimes does; insomuch that they have had eight Cardinals of their *Order*.

Note, That the greatest Ornament of the *Society of Jesus*, was St. *Francis Xaverius*, justly stiled the Apostle of the *Indies*; who by the Austerity of his Life, a truly angelical Unction and Energy of his Discourse, and by exposing himself to continual and innumerable Dangers, converted almost all *Japan* to Christianity, without procuring the least temporal Advantage either to himself or his *Order*; and died there the Death of the Elect, rather full of Merits than of Years.

The *Fathers of the* MISSION, is also a Congregation of Priests and Lay-Men, instituted by *Vincent de Paul*, and confirmed in 1626, by Pope *Urban* VIII. under the Title of *Priests of the Congregation of the Mission*.

These profess to make it their whole Business to assist the poor People in the Country; and to this Purpose oblige themselves not to preach, or administer any of the Sacraments in any Town where there is an Archbishop, Bishop, or Provincial residing.

They are settled in most Provinces of *France*, *Italy*, *Germany*, and in *Poland*. At *Paris* they have a Seminary which they call the *foreign Mission*; where Youth are bred up, and qualified for *Missions* abroad.

The *Fathers of St.* LAZARUS, called also LAZARITES, are certain regular Clerks of a Congregation, instituted in *France* in the seventeenth Century, by M. *Vincent*.

They take the Denomination from a House in the *Fauxbourg* of *Paris*. They have a Seminary at *Paris*, call'd *Le Seminaire des bons Enfants*; where young Rakes of Quality, or Burghers of *Paris*, are sometime shut up, to learn a better Course of Life, and undergo a severe Correction for their past Debaucheries; which Correction consists most commonly in severe and frequent Verberations of the Posteriors.

These Fathers have also the Direction in several of the Bishoprics of the Kingdom of *France*, of the Seminaries established to instruct young Clerks in all the Exercises of Piety, and prepare them for their Admission into Holy Orders.

The Habit of these Priests is not different from that of the secular Priests. They are govern'd by a General, who has his Assistants like that of the Jesuits. They are, in general, Persons of Merit, and of a very exemplary Life.

The THEATINS are also regular Priests; thus called from their first Superior Don *John Pietro Caraffa*, Archbishop of *Chiesi*, in the Kingdom of *Naples*, which was antiently called *Theate*.

The same Archbishop was afterwards Pope, by the Name of *Paul* IV. after having been a Companion of *Gaëtan*, a *Venetian* Gentleman, the first Founder of this *Order*, at *Rome*, in 1524.

The *Theatins* were the first who assumed the Title of *regular Clerks*. They have not only no Lands or fixed Revenues, either in Common or in Propriety; but they do not even ask or beg any Thing; but wait for what Providence shall send them for their Subsistance.

They employ themselves much in foreign Missions; and in 1627, enter'd upon *Mingrelia*, where they have an Establishment: They have had the like in *Tartary*, *Circassia*, and *Georgia*, which they have since abandoned by Reason of the little Progress they made in the Conversion of those People.

Their first Congregation appeared at *Rome*, in 1524, and was confirmed the same Year by *Clement* VII. Their Constitutions were drawn up at a general Chapter in 1604, and approved by *Clement* VII. They wear the Priests Habit.

Note, That having thus given a concise historical Account of all the different *Orders* of *Monks* and *Friars*, ever since their first Institution, to this present Time; it is proper I should give next one of all the different *Orders* of *Nuns*, or religious Congregations of Women; beginning by the most antient, which in the West is that of the *Benedictine Nuns*.

The *Benedictine* NUNS follow the Rule of St. *Benedict*, except that they do not abstain from Flesh: They celebrate the divine Service in the same Manner the *Benedictines* do, and have the same Church-Musick. They rise at Two in the Morning to their Matins; and go to Church five times a Day.

Their Habit is black like that of the *Benedictine* Monks; except that in lieu of a Cowl, they wear a Veil, and under it a Cambrick Forehead-Cloth, which covers about a third Part of their Forehead; their Bosom being also covered with what they call a *Guimpe* of the same. This Habit is very noble, decent, and becoming.

Most of their Houses in *France* are royal Abbeys, or Priories, at the King's Nomination.

The *Bernardine* NUNS follow the Reform of St. *Bernard*, and abstain from Flesh. Their Habit is white, with a black Scapulary, and a black Veil.

The FUILLANTINES, are still more reformed than the *Bernardines*, and follow the Constitutions of the *Fuillants*. In some of their Houses they undertake the Correction of Prostitutes, or debauched Women.

The CLARISSES, or *Nuns* of St. *Claire*, follow the Rule of St. *Francis*, and was founded by St. *Claire*, even in St. *Francis*'s Time.

Their Habit is a coarse grey Cloth; they wear no Linen, and go barefoot. They have no Revenues, but employ Lay-Brothers, called *Freres Chapeau*, because they wear a Hat, in lieu of a Cowl, to go a begging for them.

The *Dominican* NUNS, called in some Places, *Preaching Sisters*, are even more antient than the Friars of that Order; St. *Dominick* having founded a Society of religious Maids at *Pouilles*, some Years before the Institution of his Order of Men, *viz.* in 1206. Their Habit is like that of the *Dominican* Friars, white and black.

The *Norbetine* NUNS, in the first Monasteries built by S. *Norbert*, were only separated from the Men by a Wall: But in 1137, by a Decree of a general Chapter, this Practice was prohibited, and the Women removed out of those already built, to a greater Distance from those of the Men. Their Habit is all white, like that of the Men.

The

The THEATINES, are *Nuns*, under the Direction of the *Theatins*.

There are two Kinds of *Theatines*, under the Title of *Sisters of the immaculate Conception*, who form two different Congregations, the one engaged by solemn Vows, and the other only by simple Vows. Their common Foundress was *Ursula Benincasa*. Those who make the simple Vows are the most antient, and are called absolutely *Theatines of the Congregation*: They had their Rise at *Naples*, in 1583.

The others are called *Theatines of the Hermitage*: The whole Business of these are praying in Retirement, and an austere Solitude, to which they engage themselves by solemn Vows.

The *Theatines* of the first Congregation, take Care of the temporal Concerns of these last. Their Houses stand together, and communicate by a large Hall. Their Foundress drew up their Constitutions, and laid the Foundation of their House at *Naples*, but died before it was finished.

Gregory XIV. who confirmed the new Institute, under the Rule of St. *Augustin*, appointed that they should be under the Direction of the *Theatines*. *Urban* VIII. revoked this Article by a Brief in 1624, and subjected them to the Nuncio of *Naples*; but *Clement* IX. annulled this Brief, and submitted them anew to the *Theatines*, by a Brief in 1668.

The URSULINES, is an *Order* of *Nuns*, who observe the Rule of St. *Augustin*; and are chiefly noted for taking on them the Education of young Maids.

They take their Name from their Instituteress S. *Ursula*; and are cloathed in white or black. The *Ursulines* have spread exceedingly in *France*, &c. within these few Years. — Few Maids but are put out to School to them. They are all under the Jurisdiction of the Diocesan.

Note, One of the most celebrated *Order* of *Nuns*, is that of *Fontevrault* in *France*, founded by *Robert d'Arbre Sec*, or *Arbricelle*, *Britanny*, according to some Authors, or of the little Province of *Perche*, according to others. This Man caused himself to be followed by a vast Number of Men and Women, who at first lived lovingly together; but the *French* Clergy, afraid, with much Reason, that that Mixture of Sexes, might be attended at last with some very great and frequent Inconveniencies, obliged *Robert* to separate his Female Proselytes from the Men; which he did with so much Reluctancy, that he made that Separation consist only in the Partition of few Walls; and order'd, contrary to the common Practice of all the Founders of religious Congregations, that the Men should be subject to the Women, and that the Abbess of *Fontevrault*, should be the Superior of the whole Order, and admit both Men and Women to Profession; which has continued ever since. The Historians of those Times relate of *Robert*, that the better to practise the Virtue of Chastity, he laid a whole Night between the two prettiest Women of his Followers, and rose the next Morning as pure and undefiled as he went to Bed; this the Abbot *Fleury*, in his ecclesiastical History, calls *Novum genus Martyrii*, a new Kind of Martyrdom. The Abbess of *Fontevrault* is always either a Princess, or a Person of the first Quality, who has embraced the monastick Life. Monks, Religious, or what you will be pleased to call them, of *Fontevrault*, do seldom any Thing else but eat, drink, and sleep; and are very little known, either in the Church, or the learned World.

Towards the Middle of the last Century, F. *Joseph le Clerc du Tremblay*, a *Capuchin* Friar, and sometimes Confident of Cardinal *Richlieu*, instituted a Congregation of *Nuns*, whom he called *Les Filles du Calvaire*, Maids of the Calvary, and to whom he gave the Rule of St. *Benedict*; and Constitutions, which, in several Particulars, are like those of his own *Order*.

These *Nuns* are cloathed in black, rise at Two in the Morning to their Matins, abstain from Flesh, and are never seen by any Body, except their near Relations, after they have been admitted to Profession. They sing all their Offices, as the other *Benedictines* do, with a very great Decency, and their Musick is heavenly fine.

There are also *Nuns of the* VISITATION; whose Rule is not very austere. Their Habit is black, and they wear a Silver Cross hanging down on their Breast.

Most of the *Nuns*, called HOSPITALLIERES, follow the Rule of St. *Augustin*, and are appointed to govern Hospitals, which they do with a great deal of Humanity and Compassion. Their Habit is white, with a black Scapulary and a black Veil.

The most celebrated Monastery of this Kind, is that of the *Hotel Dieu* at *Paris*, which consists always of a hundred professed *Nuns*, and fifty *Novices*. They attend the Sick Night and Day, having all the Wards of the Hospital distributed between them, where they relieve one another, and watch almost every Motion of the poor Patients committed to their Care, with a truly Christian Patience and Tenderness, and without giving them the least angry Word; never refusing them what the House can afford, *i. e.* all they can ask for, if it be not prejudicial to their Health, or contrary to their Recovery.

Besides the above-mention'd different Congregations of *Nuns*, there are also CANONESSES, who are Women who enjoy a Prebend, affixed by the Foundation to Maids; without being obliged to renounce the World, or make any Vows.

There are few of these, except in *Flanders* and *Germany*: They are rather looked upon as a Seminary and Retreat of Girls for Marriage, than an Engagement for the Service of God.

CANONESSES *of St.* Augustin, or *regular Canonesses*, are a Kind of Religious, who follow the Rule of St. *Augustin*, of which there are various Congregrations.

Note, That the 20th Canon of the second Council of *Nice*, in *Bithynia*, held in 785, condemns the double Monasteries, *i. e.* where Men and Women inhabited together, as scandalous, and giving Occasion to Sin. They were very antient, and we learn from History, that there were such of the Rule of St. *Pachomius*, which were separated but by the River *Nile*. Pope *Gelasius* reprimands severely, in his Epistle to the Bishops of the March of *Ancona*, a *Pelagian* Priest, called *Seneca*, who wanted to introduce such. The Emperor *Justinian* separated them by a Law inserted in the Codex, because, says he, it procures Means to the Monks to converse at all Times with the Nuns. *Paschalis* II. writing to *Didacus* Archbishop of *Compostella*, says, that it is a Thing quite unbecoming, that in his Country the Monks should inhabit with the Nuns, and that he must abolish that bad Custom, and procure that they should lodge in different Houses. The *Order* of the *Norbertins*, as already observed, had at its Beginning these double Monasteries; and the *Order* of the *Cisterians*, which came afterwards, had the like, which multiplied much in *Brabant*, and in the Diocese of *Liege*. The Canon we speak of, excepts the Monasteries of St. *Basil*; and is willing they should subsist; but those Monasteries were so well regulated, that there was nothing to fear. The Council of *Basil* approved, likewise, the double Monasteries of St. *Bridget*, at the Request of *Erick* King of *Sweden*.

Note also, That in the 11th Canon of the Synod of *Seville*, held in 619, it is order'd, that the Monasteries of Nuns in the *Bethick*, shall be govern'd by Monks, because, say the Fathers of that Synod, we provide efficaciously for the Salvation of the Virgins consecrated to *Jesus Christ*, by appointing them spiritual Directors, who can not only defend them by their Conduct, but likewise instruct and edify them by their Doctrine and their Example.

In *Italy*, particularly, and in *France*, most of the Nuns are governed by Monks or Friars of their own *Order*; which notwithstanding several Monasteries of Nuns have asked the Popes to be free from that Government, which was granted them without Difficulty. The Reason is, that most of the Religious of these Times, have neither the antient Piety, nor the Learning necessary for the Government of Nuns; nor a certain Meekness and Condescension, which they require. We have seen in *France* a great Schism on that Subject, among the *Carmelite* Nuns, some wanting to be govern'd by the bare-footed *Carmelite* Friars, according to the Constitutions of St. *Theresa*; and others

thers wanting to remain under the Direction of particular Priests appointed by the Holy See. The Difpute went so far, that whole Convents of those Nuns quitted the Kingdom, and retired into *Flanders*, where they are govern'd by the *Carmelite* Friars.

But the same Canon which gives Monks for Superiors to Maids consecrated to God, orders that they shall be chosen amongst the oldest, and the most virtuous; forbidding them to have any Familiarity with them, to approach the Gate of the Monastery, and to speak to any but the Superior, who even then must be accompanied with two or three other Nuns; never speaking of any Thing else, but of what has Relation to the Preservation of the Institution.

Almost all the *Monks*, *Friars*, and *Nuns*, mentioned throughout this Treatise, should postulate a considerable Time before they are admitted into a Monastery; and those to whom they address themselves for their Admission, should paint to them, in the most vivid Colours, all that the *Order* they desire to be received into, has the most capable to deter young Minds from it.

When a *Postulant* is known a good Subject, the Monk or Friar he has addressed himself to, informs the Father Provincial of it, who sends the *Postulant* his *Obedience*, i. e. an *Order*, which he is to present to the Superior of the House, where he is to make his *Noviciate*, to receive him. That *Noviciate* lasts commonly a whole Year, which is called the *Year of Probation*, because the Novice runs then through all the Exercises of the Monastery, and learns the Rule he is to observe all his Life-time, if he happens to be a professed Monk.

The Year of Probation expired, if the Novice continues in his former Sentiments, all the Professed meet together, and consult among themselves, if the Novice be worthy of being admitted to make his solemn Vows; which is determined by the Plurality of Voices; and if the Novice has a Majority thereof, a Day is fixed for his solemn Profession; if not, he is turn'd out of the Monastery. And the same in Monasteries of *Nuns*.

The *Vows* made on that solemn Occasion are three, *viz.* of *Poverty*, *Chastity*, and *Obedience*.

Note, That Authors are divided as to the Antiquity of these *Vows*. It is agreed the antient *Anachorets* and *Hermits* of the *Thebaide* made none; they did not consecrate themselves to God by an indissolvable Obligation, but were at Liberty to quit their Retirement, and return into the World, whenever the Fervour that drove them out of it came to abate. — *Vows* were not introduced till long after; and that to fix the too frequent Inconstancy of such as, after retiring from the World, repented too soon, or too slightly, and by that Means scandalized the Church, and disturbed the Quiet of Families by their Return.

Erasmus will have it, that *solemn Vows* were not introduced till the 13th Century, under the Pontificate of *Boniface* VIII. Others hold them as antient as the Council of *Chalcedon*: But the Truth is, before *Boniface* VIII. there were none but simple *Vows*, and such as might be dispensed withal. Their *Vows* till that Time, were not deemed eternal Chains; they were not indissoluble. It is true they were obligatory Promises, as to Conscience, and the Inconstancy of such as violated them, was held an odious Desertion: But as to Law, the Persons were not held to be civilly dead, so as, upon their Return, to render them incapable of all Acts of civil Society.

The most common *Vow* was that of *Poverty*, but this only regarded the Convent; on Account of which, every Person divested himself of all Property: But the making of *Vows* did not at all exclude them from the Right of Blood, or render them incapable of inheriting. No Religious, it is true, acquired the Property of the Effects that fell to him; they all belonged to the Monastery, in favour of which he had divested himself of every Thing; and the Monastery only left him the *Usu-fruits* and Direction of them. The Popes have frequently confirmed this Privilege to divers Orders, and permitted the Monks to inherit, as much as if they were Seculars, and had made no *Vows*. At present the civil Death of a Religious is dated from the Day he makes the *Vows*; and from that Time he is utterly incapable of inheriting. A Religious may reclaim or protest against his *Vows*, within five Years; but after that it is no longer admitted. The Failures in the Profession, are esteemed to be purged, by his Silence, and Perseverance for five Years. Indeed to be relieved from his *Vows*, 'tis not enough the Party reclaim within the five Years, but he must likewise prove he was forced to take the Habit. Tho' a Religious, of an austere Order, on Account of his ill State of Health, which renders him incapable of observing the Rule of the Order he is enter'd into, may, with a Dispensation from the Pope, pass into a more mitigated Order, which is stiled *ad Laxiora*.

For my Part, I will not pretend to condemn the *monastical Vows*, on the contrary, I am of Opinion, that *solemn Vows* are sacred, and were considered as such even among the *Pagans* themselves; it was always permitted, in all Sorts of Religions, to consecrate one self in a particular Manner to the Service of God; but then I would have that Consecration made, with mature Deliberation, and in an Age where he that consecrates himself knows what he does, without following the first Movements of an indiscreet Zeal; and in an Age, where even the civil Law does not think a Person capable of being his own Master, in temporal Affairs, so as to manage them without the Direction of a Tutor. For if a Man or a Woman is not accounted to have Judgment or Discretion enough to make Choice of a settled State in the World, or to enter into civil Engagements, how can they be permitted to oblige themselves by the most solemn Protestation, to follow a Kind of Life, and that without being permitted ever to quit it afterwards, on any Consideration whatever, when Reason has quite open'd their Eyes, and made them repent of their Choice? It is true, that the Council of *Trent* has in some Measure remedied Part of the Abuses committed in these Cases; for before that Council, Children were shut up in a Monastery, almost from their Cradle, and obliged to embrace the monastick Life, without consulting their Inclination; and before they knew any Thing of another: But even since the Sanction of that Council, is sixteen Years accomplished, a fit Age to embrace a Profession for one's Life? Can one know what he does, when he is supposed not to know himself yet? Does not a Child at that Age (for he is then no other but a Child) who follows the too great Impetuosity of his Passions, deserve Correction? Why then should he be permitted to follow the Impetuosity of an indiscreet and fiery Zeal, which a few Years more of Experience, and a more free Use of his Reason, will, in all Likelihood, disapprove, and perhaps condemn. I would not have the Gates of Monasteries quite shut against all Sorts of Persons, without Distinction; but I would not have them open but to those only who have had a long Experience of the World, and quit it, either because they have discovered the Vanity thereof, or to repent, in a solitary Life, of the Faults they have committed in it. Thirty or forty Years would be a very good Age to embrace such a Kind of Life; for then a Man is capable to make such a Choice; otherwise it is captivating Man's Liberty, which God designed we should enjoy in its full Extent. It is true, that if this wholesome Rule was observed, the Monasteries would be neither so numerous, nor so well filled as they are; but then they would perhaps be kept in a better Order; and the Monks and Friars would not repent so soon, nor be so ready to desert their Monastery on the first favourable Opportunity, to the great Scandal of the monastick Life. Besides, would it not be more honourable, and more agreeable to the Intention of the Founders, to have a small Number of Religious, who would be contented with their Profession, than to have a vast Number of them, the greatest Part whereof repent of the Choice they have made? For as they were too young to know any Thing of the World, when they entered the Monastery; when they begin to have an entire Use of their Reason, they imagine, on what they hear and see of it, that it has *many* more Charms than it has in Reality, and therefore wish to return into it; which some of them do by

by a clandestine Desertion of their Monastery, which the World itself considers as a Crime; and where they can scarce live publickly without Scandal; though God, who cannot approve those indiscreet Vocations, may look on those Flights with an Eye of Compassion, and procure some Means to those Deserters, to make Attonement for it, otherwise than by returning to their Monastery, where they are sure to meet with a very severe Punishment, exposed perhaps to end the Remainder of their unfortunate Days in Despair.

What I say here of Men must be likewise understood of young Girls, who are forced into a Convent, either because they have no Fortune to procure them an honourable Establishment in the World; or Nature has not been favourable to them; and they are shut up there to hide their Imperfections, or Deformities; for those Sacrifices to God are not always made of a Victim without Spots or Imperfections; for commonly the Parents offer to God those of their Children, whom they imagine the World would refuse; but were they to follow the Dictates of Nature, and the Principles of a Christian Equity, they should offer none but those who offer themselves voluntarily, nor even suffer they should offer themselves, till they are capable to do it; for those forced Vocations, or which proceed from want of Reflection, Disappointments, or any other indiscreet Motives, are not at all agreeable to God, and rather renders Salvation uncertain than ascertain it. So many Monasteries which swallow up the Fortune of Families, or are otherwise oppressive to the Publick, is a great Obstacle to the Reunion of several Nations in the same Faith. Let it be granted that the Monks and Nuns pray for us; but their Prayers do not dispense us from praying ourselves, therefore it seems, that it is in some measure needless to hire others to do it. If we be obliged to practise a Christian Charity, we see daily a great many Objects thereof, who are much more worthy of it than those who live in a holy Indolence; though I would not have Religious deprived of a decent Subsistence, but their Number should be limitted, and a Competency allowed for such a Number; and what remains of their immense Revenues applied to better Uses; Part to ease the Subjects of some of their most heavy Taxes, and Part for the Maintenance of the Poor, and the Education of Orphans, and other Children born in Indigency. Of what Service is it to me to have the Name of my Ancestors chronicled in the Archives of Monasteries, under the fastuous Title of *Benefactors*, if I am reduced to Beggary, and want the Necessaries of Life?—An indiscreet Zeal throws sometimes a Man into a Monastery, who had perhaps served his Prince and Country with Reputation, either in the Armies, in the Cabinet, or in the Administration of Justice; and renders several Maids very bad Nuns, who had been very good Mothers of Families. Myself have known Nuns, whose Cloister was a frightful Prison for them, and whose Life was a continual Torment; and others who led in their Monastery an angelical one.

Note, also, That from this historical Account of the *Religious*, I'll pass to that of the *military Orders*; therefore,

Military ORDERS, are Companies of Knights, instituted by Kings and Princes; either for Defence of the Faith, or to confer Marks of Honour, and make Distinctions among their Subjects.

The *Military Orders*, instituted in Defence of the Faith, are called *religious military Orders*.—Of this Kind are the *Knights of St. Sepulchre*, of *Malta*, or of St. *John of Jerusalem*. Such were also the *Knights Templers*, the *Knights of Calatrava*, *Knights of St. Lazarus*, and the *Teutonick Knights*, &c.

The *Knights of* MALTA, is an Order of military Religious, who have bore various Names, as Hospitalers of St. *John of Jerusalem*, Knights of St. *John*, Knights of *Rhodes*, Order of *Malta*, Religion of *Malta*, &c.

About the Year 1048, some *Neapolitan* Merchants founded a Church after the *Latin* Rite at *Jerusalem*, giving it the Name of *Santa Maria della Latina*. They also founded a Monastery of Religious, after the Order of St. *Benedict* for the Reception of Pilgrims; and afterwards an Hospital near the Monastery, to take Care of the Diseased under the Direction of a Master or Tutor, to be nominated by the Abbot of *Santa Maria della Latina*. Besides which they also built a Chapel in honour of St. *John Baptist*.

In 1099, *Godfrey de Bulloign* having taken *Jerusalem*, endowed this Hospital with some Demesnes he had in *France*; and others imitating his Liberality, the Revenues of this Hospital became considerably augmented. Upon this *Gerard Tern*, their Rector, in concert with the Hospitalers, resolved to separate from the Abbot and Religious of *Santa Maria*, and to form a distinct Congregation, under the Name and Protection of St. *John Baptist*: And hence it was that they had the Name of *Hospitalers*, or *Brothers of St. John of Jerusalem*.

Pope *Paschal* II. by a Bull in 1113, confirmed the Donations made to this Hospital, which he settled under the Protection of the holy See; ordering that the Rector, after *Gerhard*'s Death, should be chosen by the Hospitalers. *Raymond du Puy*, *Gerhard*'s Successor, took the Title of *Master*; he gave a Rule to the Hospitalers, which was approved by *Calixtus* II. in 1220. Such was the first Rise of the Order of *Malta*.

Their first grand Master, finding the Revenues of the Hospital vastly to exceed what was necessary for the Entertainment of poor Pilgrims and diseased Persons, resolved to employ the Surplus against the Infidels; and with this View offered himself to the King of *Jerusalem*.

He divided his Hospitalers into three Classes: The first consisted of Nobles, whom he destined to the Profession of Arms, for the Defence of the Faith, and the Protection of Pilgrims; the second consisted of Priests or Chaplains, who were to say Mass; and the third of Servitors, who were not Nobles, but were also appointed for the War. He also regulated the Manner of admitting Knights Brothers; and had the whole confirmed by Pope *Innocent*; who gave them for Arms a White Cross in a Field Argent, which continues still the Standard of this Order.

After the Loss of *Jerusalem* they retired; first to *Margath*, then to *Acre*, which they defended very vigorously in 1290. After the entire Loss of the holy Land, they withdrew to *Cyprus*, where King *Henry* of *Lusignan*, whom they had followed thither, gave them the City of *Limisson*. Here they continued 18 Years; when taking the Island of *Rhodes* from the *Saracens* in 1308, they settled there. And now it was that they first took the Name of *Knights*, viz. *Knights of Rhodes*.

Andronicus, Emperor of *Constantinople*, granted to their grand Master, *Fulk de Villaret*, a *Frenchman*, as was the first *Raymond du Puy*, the Investiture of this Order; and the Donation was confirmed by Pope *Clement*. The Year following, with the Assistance of *Amadeus* IV. Duke of *Savoy*, they defended themselves and their Island against an Army of *Saracens*. In 1480, their grand Master *d'Aubusson*, a *Frenchman*, made a vigorous Defence against *Mahomet* II. Emperor of the *Turks*, and preserved the Island in Spite of a formidable Army, which besieged it for the Space of three Months. But in 1522, it was attacked by *Soliman the Magnificent*, with an Army of 300,000 Men, and taken at last by the Treason of the Treasurer of the Order. *Villiers l'Isle Adam*, a *Frenchman*, being then Grand Master, whose great Valour *Soliman* himself commended, in the most generous Terms deploring his unhappy Fate, and offering him all that was in his Power to make it better, which *l'Isle Adam* generously refused. *Rhodes* had been in the Knights Possession 213 Years.

After this Loss the Grand Master and Knights retired first into the Isle of *Candia*: Some Time after Pope *Clement* VII. gave them *Viterbo*; lastly, the Emperor *Charles* V. in 1530 gave them the Island of *Malta*, which they still hold, whence it is impossible to dislodge them; and hence they come by the Appellation of *Knights of Malta*; though their proper Name is that of the Order of St. *John of Jerusalem*; and their Grand Master, among his other Titles, still retains that of *Master of the Hospital of St. John, and Guardian of the Poor of our Saviour Jesus Christ*.

The *Order of Malta* have no other Domination besides their Island; and some other little Places in the Neighbourhood

bourhood, the Chief whereof are *Gaza* and *Comino*.

The Government is both Monarchical and Ariſtocratical, the Grand Maſter being Sovereign, and the Chapter the Senate.—It is Monarchical with regard to the Inhabitants of *Malta*, and the Iſles adjacent, and even with regard to the *Knights*, in every thing relating to the Statutes and Rule of their Order: And Ariſtocratical, with regard to the Deciſion of any important Affairs, which are not to be diſpatched but by the Grand Maſter and the Chapter.

There are two Councils; the one ordinary, compoſed of the Grand Maſter as Chief, and the grand Croſſes; the other compleat, conſiſting of the Grand Maſter, the grand Croſſes, and the two ſenior Knights of each Language.

By the *Languages* of *Malta*, are meant the ſeveral Nations whereof the Order is compoſed, viz. *Provence*, *Auvergne*, *France*, *Italy*, *Arragon*, *Germany*, *Caſtille*, and *England*: Therefore *France* has three of thoſe *Languages*, viz. *Provence*, *Auvergne*, and *France*.

The *Pillar* (as he is called) of the *Language* of *Provence*, is the *grand Commander* of the Order: He of *Auvergne*, the *grand Mareſchal*: He of *France*, the *grand Hoſpitaller*: He of *Italy*, grand *Admiral*: He of *Arragon*, grand *Conſervator*, or *Draper*, as he was anciently called: The *Pillar* of the *Language* of *Germany*, is *grand Bayliff*: And he of *Caſtile*, grand *Chancellor*: The *Language* of *England*, which has been extinct ſince the Time of the Reformation under *Henry* VIII. had for his *Pillar*, or Chief, the *grand Turcopolier*, or Colonel of the Cavalry.—The *Language* of *Provence* is the firſt, on account of *Raymond du Puy*, their firſt Grand Maſter, who was a Provincial.

In each *Language*, there are ſeveral grand *Priories*, and capital Bailiages; the Kingdom of *France* alone having ſix of them, *viz.* the *grand Priory* of *Provence*, the *grand Priory* of *Auvergne*, the *grand Priory* of *France*, the *grand Priory* of *Aquitaine*, the *grand Priory* of *Champagne*, and the *grand Priory* of *Thoulouſe*.

To each *Language* belongs a Hall, called *Auberge*, where the Knights eat, and hold their ordinary Aſſemblies: Each *grand Prior* has a Number of *Commanderies*.

The Commanderies are either magiſterial, by Right, or by Favour: The *Magiſterial* are thoſe annexed to the Grand Maſterſhip, whereof there is one in each grand Priory: *Commanderies by Right*, are thoſe which come by Right of Seniority; their Seniority is computed from the Time of their Admiſſion, but they muſt firſt have lived five Years at *Malta*, and have made four *Caravannes*, or cruiſing Voyages on the *Turks* and Corſairs: *Commanderies by Favour*, are thoſe which the Grand Maſter, or the grand Priors have right to confer; one of thoſe they confer every five Years on whom they pleaſe.

The *noble Knights*, are called *Knights by Right*; excepting whom, none can be Bailiffs, grand Priors, or Grand Maſters.—*Knights by Favour* are thoſe who, not being noble of themſelves, are raiſed on account of ſome great Exploit, or notable Service, into the Rank of Nobles.

The *Servitors*, or *Serving-Brothers*, are of two Kinds: 1. The *Servitors of War*, whoſe Functions are the ſame with thoſe of the *Knights*. 2. *Servitors of Religion*, whoſe whole Buſineſs is to ſing the Praiſes of God in the conventual Church, and to officiate each in his Turn, as Chaplain on board the Veſſels and Galleys of the Order.

The *Brothers of Obedience* are Prieſts, who, without being obliged to go to *Malta*, take the Habit of the Order, make the Vows, and attach themſelves to the Service of ſome of the Churches of the Order, under the Command of a grand Prior, or Commander, to whom they pay Obedience.

The *Knights of Majority*, are thoſe who, according to the Statutes, are admitted at ſixteen Years of Age.

The *Knights of Minority*, are thoſe who are admitted from the Time of their Birth; which however cannot be done without a Diſpenſation from the Pope.

The Chaplains can only be admitted regularly from ten to fifteen Years of Age; after fifteen, they muſt have a Brief from the Pope; till fifteen, the Grand Maſter's Letter is ſufficient: Thoſe are called *Diacos*, and muſt give Proof of their being born of creditable Families.

For the Proofs of Nobility to be made, ere the Admiſſion of *Knights*, in the *Language* of *Germany*, they go back ſix Generations; in the reſt it is ſufficient to go back to the great Grandfather, on the Father's, and Mother's Side.

The Knights, at their Profeſſion, make the three Vows of Poverty, Chaſtity, and Obedience, in common with all other Religious, and a fourth of never making Peace with the Infidels; tho' they ſeldom obſerve any other but the two laſt.

After their Profeſſion they are obliged to wear a *white Croſs*, or Star with eight Points, ſew'd on the Cloak, or Coat on the left Side, which is the proper Habit of the Order. The Knights who have not made their Vows, wear a gold Croſs with eight Points, enamelled with white, and hanging at a black Ribband.—A Knight may defer making his Vows as long as he pleaſes, but then he is entitled to no *Commanderies*; and he ſeldom makes them till he be ſure of a Commandery.

The *Grand Maſterſhip* is for Life, and great Cabals are at his Election, each *Language* endeavouring to promote one of theirs; but as *France* has the greateſt Number of *Languages*, and the greateſt Number of Commanderies, there have been more Grand Maſters of that Nation, than of all the others put together.

When *Malta* is menaced by the *Turks*, the Grand Maſter calls all the Commanders and Knights to the Aſſiſtance of the Order, who are obliged to obey, unleſs they can alledge ſome valuable Excuſe to the contrary.

The *Grand Maſter* ſends Embaſſadors to all the Courts of *Europe*, who profeſs the *Roman* Religion, who are received and treated like Embaſſadors of crowned Heads.

The Dean of St. *John*'s Church at *Malta*, officiates pontifically, with the Mitre, and Croſier, though he be not a Biſhop.

This *illuſtrious Order* is the Bulwark of Chriſtendom, and have often made the *Ottoman* Empire tremble.

Note, That here follows an Abridgment of the *Statutes* and *Canons* of the Order of St. *John of Jeruſalem*, made by their Grand Maſter *Raymond du Puy*, tranſlated from the *Latin* Original.

'I *Raymond Pogge*, Servant of the Poor of *Jeſus* 'Chriſt, and Guardian of the Hoſpital of *Jeruſalem*, 'after a mature Deliberation with my Brethren, with 'their Conſent, and with that of the whole Chapter, I 'have confirmed the following Articles in the Houſe of 'the Hoſpital of St. *John Baptiſt of Jeruſalem*.'

I. Each Brother received in this Order, and has given his Name in it, ſhall keep the three Vows, *viz.* of Chaſtity, Obedience, and voluntary Poverty, without having any thing in proper.

II. He'll fight for the Chriſtian Religion and the divine Worſhip: He'll take always the Defence of a juſt Cauſe, and give Aſſiſtance to thoſe who are oppreſſed: He'll make Incurſions againſt the Pagans, Infidels, and *Mahometans*, by the Example of the *Maccabees*, who gave no Quarter to the Enemies of God's People: He'll apply himſelf to the Practice of all the Chriſtian Virtues: He'll defend the Widows and Orphans, and thoſe who will tranſgreſs this Rule, ſhall be ſubject to a temporal and eternal Puniſhment.

III. This Rule ſhall be read in Preſence of all the Brethren, at the Day appointed for the Aſſemblies, which are kept every Quarter of a Year.

IV. Whoever ſhall be loaded with Debts, and engaged in the Service of ſome other who has a Right over him, ſhall not be admitted into this Order; and though ſome body had been flattered by ſome of the Brethren with the Hope of receiving the Croſs, he notwithſtanding, before he receives the Knight's Habit, muſt be examined to know if he has not given his Name to ſome other Order, and if he has not contracted ſome other Engagement, like that of Marriage; for if he has contracted any he muſt not be received into the Order.

V. His Cloaths of Knight ſhall be of a brown Colour, and diſtinguiſhed on the Left-Side by the Sign of a white Croſs; and theſe will be his common Cloaths in Time of

of Peace; but in Time of War, when he takes the Field, his Habit shall be Red with a white Cross.

VI. No illegitimate Children shall be admitted into the Order, except the natural Children of Persons of a high Rank, provided their Mother has not been a menial Servant.

VII. All those born or descended from a Race of Infidels, as of *Marans*, *Jews*, *Saracens*, *Mahometans*, *Turks*, and the like, shall be absolutely excluded from the Order: Which must be understood likewise of Children of Princes, let their Birth be ever so illustrious.

VIII. Likewise these who have engaged their Faith in another Order, or in the State of Marriage, who are guilty of Homicide, or other enormous Crimes, shall not enter this Order.

IX. He that desires to be received into the Order, must be at least thirteen Years of Age, healthy, vigorous of Body, and sound of Mind, have noble Inclinations, and be naturally patient in Toils and Adversities.

X. Before he enters the Order he shall make his Proofs of Nobility, before those appointed by the Prior or Chapter, at the usual Convent; for after he has been once received he is free from Enquiries, as well for his Nobility as for his past Life.

XI. All the Brethren shall assist constantly at divine Service, and instead of the seven canonical Hours established among Regulars, they shall recite a hundred and fifty Times the Lord's Prayer; they'll fast at the Day appointed: They'll receive the blessed Sacrament of the Eucharist thrice a Year, and always at the solemn Feasts of *Christmas*, *Easter*, and of the *Pentecost*.

XII. Each Knight shall, before he goes to Sea for the Service of his Profession, confess to a Priest, and after he has cleared his Conscience, he shall think no more of his temporal Affairs, to which he must have provided by Testament or any other Means.

XIII. At the Time of divine Service, they shall not approach in the Choir too near the Altar, where they could hinder the Devotion of one another.

XIV. They'll keep their Rank, either for Precedency or for the Place they must have, according to the Order of their Reception.

XV. They'll make, at certain Times, Pilgrimages with Devotion, where they'll pray God, for Peace and Concord among the Christians, and that he be pleased to bless the Grand Master, and the whole Order.

XVI. Thirty Masses shall be celebrated for every Brother deceased; and each Knight shall offer a lighted Taper, with a Denier.

XVII. There shall be preaching in the Convent during the whole Time of the *Advent* and *Lent*.

XVIII. They shall not engage themselves by Oath to any body. They shall not fit out any Men of War, unknown to, and without the Consent of the Grand Master. In case of a War between two Christian Princes, they shall espouse the Party of neither, but use all their best Endeavours to procure Peace and Concord between them.

Note, That here follows likewise an Abridgement of some Privileges granted to the *Order of Malta*.

I. The Disobedient, or those in Debt, are to be deprived of their Honours.

II. Those that have obtained the Cross of the Order of Knights, and have been named to some Office, shall indispensably appear when summoned, to receive the Marks of the Order on their Cloaths, and the Offices they have been promoted to, and that within six Months.

III. Those only can enjoy the Privileges of the Order, who have receiv'd the Cross from the Grand Master, or from some other by his Order.

IV. All those are excluded from the Benefit of the Privileges of the Order, who of their own Accord, and to indulge themselves, are Vagabonds in the World, and do not assist the Religion with their Services, according to the Engagements they are enter'd into by their Profession.

V. However, through an extreme Necessity, or by some unexpected Accident, has took Sanctuary in any of the Churches of the Order, shall not be taken from them by Force.

VI. All those born of an Adultery shall not be received into the Order, unless they be Children of Persons of a high Rank.

VII. The Knights are allowed to exercise themselves in the secular Way, to give Marks of their Courage, or learn to imitate others.

VIII. The Knights are granted a full Power to administer Justice, to take Cognizance, and decide Causes, to execute Sentences, *&c.* So that it is not even permitted to Clerks to have Recourse to any other Tribunal than that of *Malta*.

IX. They cannot ask for another Magistrate, nor appeal to another Tribunal, unless they want to appeal from a former Judgment, to the Grand Master and his Council, and from thence to a Chapter of the whole Order, where all Affairs are terminated *in dernier ressort*.

X. The Grand Master and the Convent shall have full Power to execute all his Decrees, Sentences, Deeds, *&c.* in any Place whatever, without being obliged to ask the Consent of any other Person.

XI. The Grand Master has the Power to arrest, and punish the Priors and other Brothers of the Order, who have committed some Offence, or have shewn themselves refractory.

XII. The Knights that have received the Habit of the Order, either in the Convent, or in some other Place, and who are absent, are obliged before the End of the Year to appear in the Convent, otherwise they are punished, or deprived of some other Advantages.

XIII. The Knights that have a certain Portion of Revenue, assigned to them at *Malta*, or any where else, are obliged to appear when summoned by the Grand Master, under Penalty of being deprived of their Immunities.

XIV. The Presidents of the Chamber of Accounts, or the *Archimandrites*, and Priors of the Commonalties, can in virtue of their Office, for the common Good of the Order, appropriate to themselves, in any Place whatever, and enter into Possession of all the Farms or other Estates, which are mortgaged to the Order for Debts.

XV. The Cardinals themselves of the *Roman* Church, that have the Usu-fruit of some Estates belonging to the Order, cannot, under what Pretence soever, dispense themselves from Paying to the Chamber of St. *John* the Revenue of what is owing to it.

XVI. Those that have accepted Offices, or farmed Estates of the Order, are obliged to take the Habit of Knight, under the Penalty of forfeiting their Rights.

XVII. The Officers of Justice, as well those of the first, second, as of the last Order, shall protect the Order, in the Preservation and Recovery of all the Priories, Commanderies, and other Estates belonging to it, till they have received a full and entire Satisfaction.

XVIII. The Island of *Malta* shall remain under the Protection of the Apostle St. *Paul*, its Patron.

XIX. To the Grand Master, and to his ordinary Consistory, belong all Offices, Benefices, and Honours.

XX. The Clergy of *Malta* has not the Power to deprive any Knight of his Rank of Honour, but such Things must be done by the Grand Master's Order.

Note, That I'll add to these the Ceremonies observed in giving the *Habit* to the Knights, and in admitting them to Profession; the Form of the Habit, *&c.*—Likewise those used at the Election of the Grand Master, the Form of his Habit; and the Chronology of all the Grand Masters, ever since the first Institution of the Order; when each Grand Mastership began, how long it lasted, and when it ended.

The *Ceremonies* observed in giving the *Habit* of the *Order of Malta*, are these.—The *Postulant*, or Candidate, having obtained Leave of the Grand Master, and of the Council to take the Habit, and be admitted to Profession; the Day having been fixed, he comes to Church, where kneeling before the Altar, dressed in a long Gown, and Cloak, which is the Habit of the Order, holding a Taper in his Hand, he offers the Priest his naked Sword to be blessed. The Priest holding it naked tells him, *Receive this blessed Sword in the Name of the Father, and of the Son, and of the Holy Ghost*, Amen. *And use it for your Defence, and for that of God's Holy Church, to the Confusion of the Enemies of the Cross of Jesus Christ, and of the Christian Religion.* and [illegible]

Care, as much as human Frailty will allow it, to strike no Body with it unjustly. May the Grace of using it thus be granted to you, by him who lives and reigns with the Father and the Holy Ghost, for ever and ever, Amen. Afterwards the Sword is return'd into the Scabbard, and the Priest fastens it at the Side of the Knight, that is to be admitted to Profession; telling him, *Put your Sword on your Side, and remember that it is not so much by Arms, that the Saints have conquered Kingdoms, as by their great Faith.*

This done, the Priest kisses the Knight on the Cheek, and he is fit to be admitted to Profession, which is performed in the following Manner.

The Knight kneeling, and holding in his Hand a Taper of white Wax lighted, to which is commonly fastened a Gold Crown, the Priests ask him if he be ready to promise, not by Word of Mouth only, but from the Bottom of his Heart, all the salutary Advices which have been given him; to which the Knight, who makes Profession, answers, I. N. *Swear and promise to* Jesus Christ, *who is God, to the blessed Virgin* Mary, *to St.* John Baptist, *that I'll use all my best Endeavours to observe punctually those Things.*

Before the Priest reads the Gospel, the Knight who is to receive the Vows of the Professed, says to him, *What do you ask?* To which the other having answer'd, that he asks the Order of Knighthood; he says to him again, *Have you ever received it from any Prince, or other Person who had Power to give it?* The Professed having answered what he thinks fit, the Knight continues to say to him, *It is a noble and salutary Thing to serve the Poor of* Jesus Christ, *to practise the Works of Mercy, and to consecrate oneself to the Service and Defence of the Faith. But however, you ask a Thing which several others have asked, and desired, and could not obtain. For this Order of Knighthood you ask, is commonly given to those, who for the Antienty of their noble Descent deserve it, or have rendered themselves worthy of it by their proper Merit. Wherefore knowing you such a one as the Order of Knighthood requires, we grant your Request, putting you in Mind that those to whom it is granted to receive this Order, are obliged to be Defenders of the Faith, of the poor Widows, and of the Orphans; do you promise to be such?* To which having answered, *I do, Sir*; the Knight gives him the Sword in the Scabbard in his Hand, telling him at the same Time, *To the End that you shall maintain what you have promised, take this Sword in the Name of the Father, of the Son, and of the Holy Ghost,* Amen. The Knight drawing the Sword afterwards, and giving it to the Professed, tells him, *Take this Sword, which by its Brightness, is inflamed with Faith, by its Point with Hope, and by its Hilt with Charity, of which you'll use virtuously, in your own Defence, and of the Catholick Faith, and you shall not fear the Perils and Dangers for the Name of God, for the Sign of the Cross, and for the Liberty of the Church; maintaining Justice, and comforting Widows, and poor Orphans, for that's the true Faith, and Justification of a Knight,* &c.

The Knight bids the Professed to clean, and rub the Sword on his Arm, then put it back into the Scabbard, saying to him, *So as you put that Sword clean, and polished into the Scabbard, you must not defile it by striking any Body unjustly with it, but employ it as above; God grant you to do it,* Amen.

The Professed still kneeling, and holding the Sword in the Scabbard, the Knight takes it from him, and girts him with it, saying, *I girt you with this Sword in the Name of the Almighty God, of the glorious Virgin* Mary, *of St.* John Baptist, *and of the glorious St.* George, *in whose Honour you receive the Honour of Knighthood,* &c.

The Professed rises afterwards, holding his Sword naked, which he brandishes three Times, and the Knight says to him, *These three Times you have brandished your Sword, signify, that in the Name of the blessed Trinity, you have Power to challenge all the Enemies of the Catholick Faith, with Hope of Victory; may God grant it to you,* Amen. The Professed cleans his Sword afterwards, and puts it into the Scabbard; and the Knight having drawn it, he strikes him with it three Times on the Shoulder, saying to him, *I make you a Knight in the Name of God, of the Virgin* Mary, *of St.* John Baptist, *and of St.* George, *be vigilant and pacifick, in Honour of Knighthood*; then puts again the Sword in the Scabbard, and looking on the Professed, he gives him a gentle Slap on the Face, saying, *Awake, and be not drowsy in Business, but watch in the Faith of* Jesus Christ, *and let this be the last Affront or Shame you'll receive for the Cause of* Jesus Christ, *having the Peace of our Lord within you.*

He shews him afterwards the *gilt Spurs*, and says, *See these Spurs; they signify to you, that as the Horse fears them, while he neglects his Duty, thus you must fear coming out of your Ranks and Vows, and doing evil: They are put gilt on your Feet, because Gold is the richest Metal, and the Emblem of Honour.* Another Knight fastens them to his Feet, and then he returns to his Place, to continue to hear Mass.

As to the Manner of giving the Habit and Cross of the Order of St. John *of* Jerusalem. — The Professed having requested to be admitted into the Company of the Brothers of the holy Religion of St. *John* of *Jerusalem:* He that receives him says to him, *The Favour you ask has been refused to others; but we confiding in your Probity and Sufficiency, are determined to grant it to you, hoping with a good Zeal and Charity, that you exercise yourself in Deeds of Compassion, and entirely in the Service of the Hospital of this Religion, not only enriched, and amplified with many great Privileges, Freedoms, Franchises, and Immunities, by the holy apostolical See,* &c. *Therefore I am obliged to let you know here, in Presence of all the Assistants, and ask you if you be entirely willing to observe the Rule thereof; if so you must be prepared henceforward, to bear with Patience all the Troubles and Difficulties you'll meet with in the Service of our Religion, and entirely divest yourself of your own Will, resigning it this Day into the Hands of all the Superiors placed in it, commanding you to obey them in all Things.*

The Professed having answer'd that he is content; he that receives him commands him to go, and take the Missel from off the Altar, and bring it to him; and making him put his Hands on the Canon of the Mass, the Professed pronounces his Vows in the following Manner. I. N. *Vow and promise to God Almighty (to the glorious Virgin* Mary, *to St.* John Baptist *our Patron) with the Assistance of his Grace, to observe and keep true Obedience to him, who shall be order'd by God, and my Religion, to live without Property, and to keep Chastity, as it becomes all good Catholick Religious.* Then he that receives him continues, *Now we acknowledge you for one of the Defenders of the Catholick Church, and for a Servant of the Poor of the Hospital of St.* John *of* Jerusalem.

This done, he that receives, takes the Mantle, shews the Cross to the Profess, and makes him kiss it, saying, *Take this Cross, and Habit, in the Name of the blessed Trinity, where you'll find Peace and the Salvation of your Soul, for the Increase of the Catholick Faith, and the Defence of good Christians, for the Honour of our Lord* Jesus Christ; *and therefore I'll put this Cross on your left Side near the Heart,* &c. *You'll be obliged to recite every Day a hundred and fifty* Pater-Nosters, *or the Hours of the blessed Virgin, or the Vigils of the Dead. You'll be likewise obliged to recite one of the three Forms of Prayers abovementioned for each of our Brethren deceased, and remain bare-headed, till the Master commands you to put on your Hat; and after the Collect and Blessing of the Priest, you'll embrace all the Brothers, and make your Obedience to the Hall, before you go to Dinner.*

Note, That next follows the Ceremonies observed at the *Election of a Grand Master.*

When the *Grand Master* falls sick, the Seal, all the secret Letters, and Ornaments are carried off, and secured; if the Malady grows worse, and is judged mortal; they are put in the Hands of the Grand Justiciary, who takes, then, the Conduct of the *Order.*

When the Grand Master is dead, a Lieutenant is chosen, who has the Regency till another Grand Master is elected. Afterwards the Chapter-General is assembled, where Measures are taken for the approaching Election. The next Day the Bell is rung, to have it assembled again in the Church of St. *John*, which is the Place appointed for the Election. While the Assembly holds, the Gates are shut, and no Knight is permitted to assist there with his Arms. That Assembly must be composed of the eight Languages or Nations, each whereof is composed of its Priors, Bailiffs, Grand-Priors, great Crosses, Knights

Knights, Priests or Chaplains, &c. they take altogether the usual Oath before the Lieutenant, and the whole Chapter, on the Cross of the Order which they wear on their Cloaths, and the Lieutenant is the last to take the Oath. Afterwards it is declared to the Orator or Speaker, that the Chapter is assembled for the Election of a *Grand Master*.

The Election begins by three Persons, a Knight, a Chaplain, and a Servant at Arms; they give their Votes with an entire Freedom, and choose eight Brothers of Election of the eight Languages, which is done by Balots put in a little Box which shuts, whereby the Votes are collected, those who are elected, taking the Oaths immediately. Which done, they withdraw from the Assembly into a particular Place, where they choose a Commander of Election, of which they inform immediately the Lieutenant, and the whole Assembly; then the new Commander approaches, kneels down, and takes the Oaths before the Lieutenant, whose Authority ends at that Instant, and the new Commander becomes Chief, and President of the whole Order. At the same Instant the eight Elects above-mention'd, come likewise to take the Oath, that they'll choose three other Brothers, worthy Subjects, *viz.* a Knight, a Chaplain, and a Servant at Arms, and those three joining the others choose a Master. This done, the three last shut themselves in a particular Chamber, whence they are called, after the President has done his Function. Then the Power of the eight ceases, and the three last approaching the President with Respect, take the Oaths before him, and choose a fourth; then afterwards a fifth, proceeding thus till they have chose eight, one of each Language: Afterwards they proceed again to the Election of eight others, so that there are two of each Language. These sixteen confess their Sins, take the Sacrament, and hear Mass; which done, they declare that they think themselves sufficiently enlightened, to raise a worthy and virtuous Subject to the Dignity of Grand Master, and take again the usual Oath before the whole Assembly: On which the Brothers swear likewise on their Cross, and the Habit of the Order, to acknowledge for their Grand Master, him that shall be elected by the sixteen, and to render him all Sort of Respect.

Afterwards the sixteen go to shut themselves in a Chamber, where they deliberate on the Subject of the Person they are to elect, and each judges with all the Freedom imaginable, of the Perfections and Imperfections, of the Virtues and Vices of those who are thought worthy of being elected. When they have made their Reflections, they throw anew wooden Balots into the Box, through the several Holes which are in it; and he who is found to have most Votes, is acknowledged for Grand Master. On this the sixteen rise, and go out of the Room they were shut in, and go to the President, and the whole Assembly, which wait their Return with Impatience. One of those who have made the Election asks, if all the Formalities have been well observ'd; and if the whole Order is of that Opinion, if they hold their Choice lawful; and if they will accept for Grand Master and Prince, him they have elected; to which the whole Nobility answers in the Affirmative. At the same Instant, one of those who have made the Election, proclaims aloud the Grand Master by his Name; and if he be present he is conducted with Respect to the Altar, where having been cloathed with new Vestments, he takes the usual Oaths on the Book of the Laws and Institutes, in the Hands of the Prior of the Church of St. *John*. Afterwards all the Brothers go to compliment and kiss him. Then the Organ plays; and after the Ecclesiasticks have sung the *Te Deum*, the new Grand Master is conducted to his Palace; but if he be not present, a Deputy is sent to him immediately, to bring him to the Church of St. *John*, where being arrived, he is confirmed with all the Solemnities and Ceremonies above-mentioned; and if he was not in the Island, the Lieutenant continues to govern the Order till his Arrival.

The common Habit of the Grand Master, is a Cassock of Tabis, or Cloth, girt with a Girdle, to which is fastened a Purse, to signify Charity towards the Poor: And over that Cassock he wears a Kind of Velvet Gown, on the left Side whereof, and on the Shoulder, is the Cross of the Order, which he wears likewise on his Breast. The Cloak heretofore already mentioned, called by the Order *Manteau a bec*, which is that given at the Profession, is black, and is fastened on the Neck by the String of the Order, which is of white and black Silk, where are represented the Mysteries of the Passion of our Lord *Jesus Christ*, interwoven with Baskets, which represent the Charity they exercise towards the Poor. This Mantle or Cloak has two Sleeves, very near a Yard long, wide of about half a Foot, terminating into a Point; which formerly were thrown over the Shoulders, and tied together on the Loins.

It appears by a Gold Coin of the Grand Master *Theodat de Gozon*, elected in 1346; and by the Seal of the Grand Master *Philibert de Naillac*, who succeeded *Fernandez Heredia* in the Year 1396; that antiently a *Capuche* was fasten'd to that Mantle.

The Habit of the great Crosses, when they are at Church, is a Kind of black Gown, called *Clocia* or *Bell*, open before, with large Sleeves, on the left Side thereof, on the Breast, and the Shoulder is the Cross of the Order, with the great String, and a Sword at their Side. When they go to the Council they have such a black Gown, but shut before, having only the great Cross on the Breast, without Sword or String.

The Brother's Chaplains, when they go out through the Town, are dressed like other Ecclesiasticks, having only on their Cassock and Cloak, on the left Side, the Cross of the Order. At Church they have a Linen Rochet, and over it a black Camail, where is the Cross of the Order. Pope *Clement* XI. at the Request of the Grand Master *Raymond de Perellos de Rocafull*, granted to sixty Chaplains of this Order, leave to wear a Violet Camail; but none but those who reside at *Malta*, make Use of that Privilege; some in *France*, wanting to wear that Violet Camail, the Archbishop of *Aix* was the first who opposed it.

Note, That next follows the *Chronological Succession* of all the Grand Masters of the Order of St. *John* of *Jerusalem*, or of *Malta*. The first Column contains the Number of Grand Masters; the second the Years of Christ; the third, their respective Names, &c. and the fourth, their Years of Mastership.

CHRONOLOGICAL SUCCESSION *of the* GRAND MASTERS *of the* Order *of St.* John *of* Jerusalem, *or* Malta.

		GERARD, was Rector of the Hospital of St. *John* of *Jerusalem*, after the taking of the City in 1118.	
1	1118	Fr. RAYMOND DU PUY, a *Frenchman*, was the first who bore the Title of Grand Master.	42
2	1160	Fr. EUGENIUS DE BALBEN.	3
3	1163	Fr. ARNAUD DE COMP.	4
4	1167	Fr. GILBERT D'ASSALI.	2
5	1169	Fr. CASTE.	1
6	1169	Fr. JOBERT.	10
7	1179	Fr. ROGER DE MOULINS.	8
8	1187	Fr. GARNIER DE SORIA, a *Neapolitan*, who died the same Year.	1
9	1187	Fr. EMENGARD D'APS.	5
10	1192	Fr. GEOFROY DE DUISSON.	2
11	1194	Fr. *Alphonsus* of *Portugal*: He abdicated	2
12	1196	Fr. GEOFROY LE ROY, a *Frenchman*	10
13	1207	Fr. GUERIN DE MONTAIGNE, *ditto*	23
14	1230	Fr. BERTRAND DE FOIX, *ditto*	10
15	1240	Fr. GERIN, a *Frenchman*	4
16	1244	Fr. BERTRAND DE CAMPS.	4
17	1248	Fr. PETER DE VILLEBRIDE, *Frenchman*	3
18	1251	Fr. WILLIAM DE CHATEAUNEUF, a *Frenchman*	9
19	1260	Fr. HUGUES REVEL.	18
20	1278	Fr. NICOLAS LORGUE, a *Frenchman*	10
21	1288	Fr. JOHN DE VILLIERS, a *Frenchman*, who died at *Limisso*, in the Island of *Cyprus*	
22	1294	Fr. ODO DE PINS, a *Frenchman*, elected in *Cyprus*, but died in his Way to *Rome*	2
23	1298	Fr. WILLIAM DE VILLARET, a *Frenchman*, elected at *Limisso*	12

24	1306	Fr. FOULQUES DE VILLARET, a *Frenchman*, who conquered *Rhodes*, was depoſed, and afterwards reſtored by Pope *John* XXII. after which he abdicated voluntarily. During his Depoſition Fr. *Maurice* of *Pagnac*, a *Frenchman* likewiſe, was elected; but his Election having been declared null, he ought not be ranked among the Grand Maſters. The former governed the Order.	3
25	1312	Fr. ELION DE VILLENEUVE, a *Frenchman*, elected by Pope *John* XXII. in *Avignon*, at the Nomination, and with the Suffrages of the Knights	7
26	1346	Fr. THEODORE DE GOZON, a *Frenchman*, elected at *Rhodes*, the firſt who bore the Title of Grand Maſter.	1
27	1353	Fr. PETER DE CORINGLAND, a *Frenchman*	9
28	1355	Fr. ROGER DE PUIS, a *Frenchman*	8
29	1365	Fr. RAYMOND BERENGER, *Frenchman*	3
30		Fr. ROBERT DE JULIAC, a *Frenchman*	19
31	1376	Fr. JOHN FERNANDEZ D'EREDIA, *Aragoneſe*, died at *Avignon*	
32	1385	Fr. RICHARD CARACCIOLI, a *Neapolitan*, elected at *Valmont* by Pope *Urban* VI. againſt *Fernandez*; but he was not acknowledg'd at *Rhodes*, and governed only in *Italy*	11
33	1396	Fr. PHILIBERT DE NAILLAC, a *Frenchman*	25
34	1421	Fr. ANTONY FLUVIANO, a *Catalonian*	16
35	1437	Fr. JOHN LASTIC, a *Frenchman*, called *the Great*, a Name which devolved afterwards to his Succeſſors	16
36	1454	Fr. JAMES DE MILLY, a *Frenchman*, the firſt who bore the Title of Grand Maſter	7
37	1461	Fr. PETER RAYMOND JACOSTE, a *Frenchman*, who died at *Rome*	5
38	1467	Fr. BAPTIST URSINI, a *Roman*, elected at *Rome*; he died at *Rhodes*	9
39	1476	Fr. PETER D'AUBUSSON, a *Frenchman*, made Cardinal by Pope *Innocent* VIII. in 1488.	27
40	1503	Fr. AMERIC D'AMBOISE, a *Frenchman*	9
41	1512	Fr. GUY DE BLANCFORT, a *Frenchman*	1
42	1513	Fr. BABRICIUS DE CATETTO, *Italian*	7
43	1521	Fr. PHILIP DE VILLIERS DE LISLE ADAM, a *Frenchman*, under whom *Rhodes* was loſt, and the Religion eſtabliſhed in the Iſland of *Malta*, by a Conceſſion from the Emperor *Charles* V.	13
44	1534	Fr. PERRIN DEL POUTE, an *Italian*, the firſt elected at *Malta*	1
45	1535	Fr. DIDIER DE SAINTE GALLE, a *Frenchman*, died at *Montpellier*	¾
46	1536	Fr. JOHN OMEDES, an *Arragoneſe*	16
47	1553	Fr. CLAUDIUS DE LA SANGLE, a *Frenchman*	3
48	1557	Fr. JOHN DE LA VALETTE, *Frenchman*	11
49	1568	Fr. PETER DEL MONTE, an *Italian*	3
50	1572	Fr. JOHN L'EVESQUE, a *Frenchman*; he was ſuſpended of his Office, which was diſcharged by a Lieutenant; and reſtored afterwards by Pope *Gregory* XIII.	9
51	1582	Fr. HUGUES LOUBENS DE VERDALE, a *Frenchman*, made Cardinal by Pope *Sixtus* V. in 1587.	13
52	1595	Fr. MARTIN GARCIAS, an *Arragoneſe*	5
53	1601	Fr. ALOPHE DE VIGNACOURT, a *Frenchman*	21
54	1622	Fr. LOUIS MENDEZ DE VASCONCELOS, a *Portugueſe*	½
55	1623	Fr. ANTONY DE PAULE, a *Frenchman*	13
56	1636	Fr. JOHN PAUL LASCARIS DE CASTELLARE, a *Frenchman*	21
57	1657	Fr. MARTIN REDIN, *Arragoneſe*, elected while he was Viceroy of *Sicily*	2
58	1660	Fr. ANET DE CLERMONT, or DE GASSAN, a *Frenchman*	¼
59	1660	Fr. RAPHAEL COTTONERO, a *Spaniard*	3
60	1663	Fr. NICOLAS COTTONERO, *Raphael*'s Brother	16
61	1680	Fr. GREGORY CARAFFA, a *Neapolitan*	
62	. .	. . . . .	
63	. .	Fr. RAYMOND DE PERELLES DE ROCAFULT.	
64	. .	. . . . .	

Note, That there are alſo Ladies, *Chevaliereſſes* of the Order of St. *John of Jeruſalem*, or *Malta*, whoſe Inſtitution is as follows.

When *Godfrey de Bouillon* entered *Jeruſalem* in the Year 1099, *Gerard*, as already obſerved, was then Director of the Hoſpital of St. *John Baptiſt*, having afterwards changed that Hoſpital into a religious Order, he took the Habit thereof, and made three Vows of Religion; which Example was alſo followed by a *Roman* Lady called *Agnes*, who was then Abbeſs of the Hoſpital of St. *Mary Magdalen*, who together with her Nuns, made a ſolemn Profeſſion of the ſame Rule eſtabliſhed by *Gerard*, took the ſame Habit, and obliged themſelves to obſerve the ſame Vows. This was the Origin of the Orders of Knighthood founded for Women; and the Eſtabliſhment was made like that of the Knights, 1104, under *Baudouin* I. King of *Jeruſalem*.

The *Chevaliereſſes* of *Agnes*'s Inſtitution, were not contented with aſſiſting the Poor who viſited the holy Places, but lifted up their Hands likewiſe to Heaven, the better to contribute by their Prayers towards maintaining the Faith and Religion, while the Knights were fighting the *Saracens*. Theſe Ladies had, like the Knights, for Mark of Diſtinction, a white Croſs with eight Points.

There is a great Appearance that the Eſtabliſhment ſubſiſted in *Paleſtine*, till the Knights of St. *John of Jeruſalem* were forced to abandon it, after the Infidels had rendered themſelves Maſters of the whole Country.

We do not know for Truth, if what remained of thoſe illuſtrious Ladies, fled to *Cyprus* together with the Knights of their Order who eſcaped the Fury of the *Barbarians*, after the Ruin of St. *John of Acre*. What's certain is, that the Inſtitution of thoſe Ladies paſſed into *Spain*, when the Chriſtian Princes, and the Knights of St. *John of Jeruſalem*, were expelled from that City by the *Saracens*, and perhaps ſome Time before.

It was Queen *Sancha*, Daughter of *Alphonſe* King of *Caſtile*, and Wife of *Alphonſe* King of *Arragon*, called the Chaſte, who founded at *Sexena*, in the Kingdom of *Arragon*, a Monaſtery of Ladies of St. *John of Jeruſalem*, for the Reception of young Maids of Quality who had no Fortune. That Houſe was richly endowed by her Liberalities. Therefore thoſe are certainly miſtaken who have made the Grand Maſter *Raymond Berenger*, Founder of that Monaſtery in 1365, but that Glory is due to another *Raimond Berenger*, ſtiled the *Proviſor of the Brothers of St. John*, and who lived in 1188, which is the Year that that Houſe was founded.

After King *Alphonſus*'s Death, *Sancha*'s Huſband, that Princeſs retired with her Daughter *Dulcis*, into that Monaſtery, where, together with ſome other Ladies of the Royal Blood, they took the Habit. *Blanche*, Daughter of *James* II. King of *Arragon*, has been ſuperior in that Monaſtery, which is built in a ſpacious Place, and environed with Walls like a Citadel. The Princeſs has her Palace apart, richly furniſhed. The Ladies wear a white Croſs, and the Prioreſs a great one on the Stomach. When ſhe dies her Obſequies are celebrated during ſeven Days, and afterwards her Seal is broke.

The Ladies of *Arragon* and of *Catalonia*, who enter that Houſe muſt be of ſo illuſtrious a Race, as to have no need to make Proofs of Nobility. The others make them in the Manner of the Knights. When they go to Church they wear a large Mantle, and a Sceptre of Silver in their Hand. The Prioreſs names to all the Benefices with Care of Souls, within her Territories, and gives the Habit of Obedience to all the Prieſts. She viſits her Eſtates, with the Ladies her Aſſiſtants, and aſſiſts at the provincial Chapters of the Order in *Arragon*, where ſhe has her Seat and Vote, like the Knights.

About

About the Year 1460 the Ladies Chevaliereſſes of that Monaſtery, ſubſtracted themſelves from the Obedience of the Grand Maſters of the Order, and ſubmitted immediately to the holy See. But *Hieronima d'Olbino*, Prioreſs of that Houſe, ſent to *Malta Alphonſus Studillo*, to negotiate the Reunion of that Monaſtery with the Order of St. *John of Jeruſalem*, which was executed in 1569.

In 1212 another Monaſtery of *Chevaliereſſes* of the ſame Order was founded, under the Name of *Noſtra Signora d'Algaire*. It was built on a high Mountain of *Catalonia*, on the River *Ravacorga*. *Saurina de Jorba*, and *Etta de Segardia*, two *Catalan* Ladies, gave large Eſtates to that Monaſtery. To be received in it one muſt make Proofs of Nobility by the Atteſtation of ſeveral Witneſſes; and by Preſentation of Quarters.

About the Year 1370, five noble *Florentine* Ladies founded a Monaſtery of this Order, under the Name of St. *Joannin*. The Grand Maſter *Caracciolo*, or *John Fernandez de Eredia*, after he had founded that Houſe at *Florence*, gave them the Hoſpital of St. *Nicolas*, with the Eſtates and Rights depending thereof. *Perette Andrætiviani* was elected firſt Abbeſs, and *Commendatrice* of that Houſe.

Iſabella of *Leon*, who deſcended from one of the moſt illuſtrious Houſes of *Andalouſia*, reſolved to eſtabliſh at *Seville* a Convent of *Cordelieresſes* under the Rule, and with the Habit of St. *John of Jeruſalem*, with Leave from the Grand Maſter *d'Aubuſſon*, which ſhe obtained, and was called Prioreſs of the Convent of which ſhe was Founder.

Another *Iſabella Fernandez* founded in *Portugal*, a Monaſtery of the ſame Order in the City of *Evora*. The Infant *Don Louis*, perpetual Adminiſtrator of the Priory of *Portugal* erected another Houſe of the ſame *Chevaliereſſes* at *Flor de Roſes*, in the City of *Eſtremos*.

There is alſo in the *Quercy*, a ſmall Province of *France*, a celebrated Monaſtery of reformed Nuns of the Order of St. *John of Jeruſalem*.

Thoſe Ladies *Chevaliereſſes* are cloathed in Black, have a white Croſs with eight Points on the Breaſt, and another on the Left-Side of their Mantle; where they have likewiſe eight ſmall different Rounds, where are repreſented the principal Myſteries of the Paſſion.

There is alſo another of theſe Monaſteries at *Toulouſe*.

The TEMPLARS, TEMPLERS, or *Knights of the* TEMPLE, was a religious-military Order, firſt eſtabliſhed at *Jeruſalem*, in favour of the Pilgrims travelling to the holy Land. The Original of this Order is this: In 1118, ſome pious noble Perſons devoted themſelves to the Service of God, in the Preſence of the Patriarch of *Jeruſalem*; promiſing to live in perpetual Chaſtity, Obedience, and Poverty, after the Manner of Canons.

The two principal Perſons were *Hugo de Paganis*, and *Geofroy* of *St. Omers*. *Baldwin* II. then King of *Jeruſalem*, gave them an Apartment in his Palace, near the Temple of *Jeruſalem*, not far from the Sepulchre of our Saviour; whence their Denomination *Templars*.

Soon afterwards the Canons of the Temple gave them a Piece of Ground hard by the ſaid Temple, to build them regular Houſes on; and the King, the Lords, the Patriarchs, and the Prelates, each gave them ſomewhat out of their Revenue for Food, and Cloaths.

Their firſt Undertaking, and what they had firſt in View, at their Inſtitution, was to guard the Highways againſt Robbers, chiefly for the Safety of Pilgrims and Croiſes.

The principal Articles of their Rule, were: That they ſhould hear the holy Office throughout every Day; or, that when their military Duties ſhould prevent this, they would ſupply it by a certain Number of *Pater noſters*: That they would abſtain from Fleſh four Days in the Week, and on *Fridays* from Eggs and Milk-meats: That each Knight might have three Horſes, and one Eſquire; and that they ſhould neither hunt, nor fowl.

Their firſt Rule was that of St. *Bernard*: Nine Years after their Foundation, a particular Rule was preſcribed them in the Council of *Troyes*.

In every Nation they had a particular Governor, called *Maſter of the Temple*, or of the *Militia of the Temple*.—Their *Grand Maſter* had his Reſidence at *Paris*, ſtill called of their Name, the *Temple*.

The Order of *Templars* was aboliſhed at the Beginning of the 14th Century under *Clement* V. Pope, *Philip the Fair* King of *France*, and *Edward* IV. King of *England*.—In 1307, thoſe in *England* were all arreſted, and ſeven burnt alive. In 1312, the Order was quite ſuppreſſed in the Council of *Vienne*, in *Dauphiny*, and fifty burnt alive at *Paris*, their Grand Maſter included; who, while at the Stake, ſummoned the Pope, and the King of *France*, to God's Tribunal, who both died the ſame Year.

The Crimes they were charged withal, were apoſtatizing to the *Saracens*, and holding Correſpondence with them: Of making nocturnal Aſſemblies, where they adored the Head of an Aſs, *&c.* Some Authors will have it thoſe Crimes were all pretended; and that the true Reaſon of the Suppreſſion of the Order was the immenſe Riches they were poſſeſſed of. The Truth is, that a ſordid Avarice reigned among them, which had made them commit very enormous Crimes, particularly of having refuſed to remit ſome Tributes to a *Saracen* Prince, called *Le Vieux de la Montagne*, who offered to turn Chriſtian, with all his Subjects on that Condition. But though this might be ſome Reaſon for their Suppreſſion, it could be none for burning them alive: Add to this, that their Effects were given to the Hoſpitalers, or Knights of St. *John*. What then did the Kings of *France* and of *England* get by their Suppreſſion? and what was it to them which of thoſe Orders had the Effects?—There is ſtill remaining in the Chapel of the Temple, in *London*, a beautiful Monument of *Knights Templar*, which has eſcaped the Fury of the Rabble, during the late Civil Wars of *England*; and which the celebrated Society of the Temple preſerve with great Care.

Note, That here follows an Abridgment of the Rules of the Knights *Templars*; of the *Ceremonies* uſed at their Reception, and the *Chronological Succeſſion* of their Grand Maſters.

C. I. *In what Manner they are to aſſiſt at the divine Service.*—You that have renounced the Pleaſures of this World, *&c.* muſt be very devout to hear with a pure and devout Heart the Matins and the whole divine Service, according to the canonical Inſtitution, and the Cuſtom of the regular Doctors of the holy City, *&c.* and it behoves you in particular, after you have fed yourſelves of the divine Aliment, and ſtrengthned yourſelves with the Precepts of the Lord, to have no Fear at the Approach of the Fight, but rather be ready to go and receive the everlaſting Crown.

C. II. *If they cannot aſſiſt at divine Service, they muſt recite ſeveral Times the Lord's Prayer.*—But if any Brother for the Affairs of the Eaſtern Chriſtian Church, finds himſelf at a greater Diſtance from Churches, we agree with an unanimous Conſent, that in ſuch a Caſe he ſhall ſay, for Matins, thirteen Times the Lord's Prayer, and ſeven Times for each Hour; but twelve Times for Veſpers, *&c.*

C. III. *What muſt be done for every Brother deceaſed.*—When any Brother of the Houſe ſhall pay the Tribute to Death, *&c.* we commonly call all the Chaplains, Clerks, Servants, *&c.* to offer, in the ſame Spirit of Charity, with a pure Heart, and in a ſolemn Manner, to *Jeſus Chriſt*, the Sacrifice of the Maſs for the Repoſe of his Soul; and the other Brothers ſhall be obliged to ſay a hundred Times the Lord's Prayer, till the ſeventh Day, *&c.* We deſire beſides, by a Motive of Charity and Mercy, and with a paſtoral Authority command, that every Day, for forty Days ſucceſſively, ſhall be given to ſome poor Perſon what was neceſſary for the Subſiſtance of the deceaſed Brother, as to Eating and Drinking, while alive. As for the other Charities which were given indiſcretely to thoſe who profeſs a voluntary Poverty to the Lord of the poor Knights of *Jeſus Chrſt*, at the Death of the Brothers, at *Eaſter*, and other ſolemn Feaſts, we forbid them abſolutely.

C. IV. *The Chaplains muſt be contented with their Victuals, and the Veſtment.*—With regard to all Sorts of Liberalities, and Sort of Alms, in what Manner ſoever they be adminiſtered, we order the Chaplains, and other Servant Brethren, to return them to the capitulary Commonalty; contenting themſelves with their Victuals and

and Cloaths, without pretending any thing elſe, unleſs the Maſters give it them with a free Will, and for Charity.

C. V. *Of the deceaſed Knights, who were only Knights for a Time.* — There are Knights in the Houſe of God, and the Temple of *Solomon*, who ſtay with us, through God's Mercy, but for a certain Time; therefore we deſire you, and ſtrictly enjoin you, that when the Almighty has called ſome of them to himſelf, to give for God's Sake, and by the Motive of a paternal Piety, to ſome Poor, the Subſiſtence of ſeven Days, for the Soul of the Deceaſed.

C. VI. *That no private Brother of the Houſe ſhall give Alms.* We have decreed, that no Brother of the Houſe ſhall give Alms, but that Day and Night he ſhall remain in the Duty of his Profeſſion; and ſhall conform himſelf to the wiſeſt of all the Prophets: *I'll take the Chalice of Salvation, and I'll imitate in my Death, the Lord's Death, becauſe as Chriſt has given his Life for me, I am ready to give up my Life for my Brethren.* That's the Oblation that is to be made; that's the living Hoſt which is agreeable to God.

C. VII. *Not to remain too long ſtanding.* — We have been informed by credible Witneſſes, that while you aſſiſt at the divine Service, you ſtand too long, and without Rule, which Practice we condemn. Therefore after the Pſalm, *Venite exultemus*, the Invitatory, and the Hymn, we command you, both ſtrong and weak, to ſit down, to avoid Scandal, riſing only from your Seats, at the *Gloria Patri* of each Pſalm, and bowing to the Altar, by a Motive of Reſpect for the Bleſſed Trinity; as well as at the Beginning of the Goſpel, and at *Te Deum laudamus*; and you ſhall ſtand up during all the *Lauds*, the *Benedicamus Domino*, &c.

C. VIII. *Of the conventual Refection.* — We are perſuaded that you take your Refection altogether in the ſame Place, or rather Refectory; therefore when you'll want ſomething, and cannot be heard by Signs, you muſt go to fetch it gently. If at all Times you are obliged to fetch what you want with Meekneſs and Submiſſion, how much more are you obliged to it at the Refectory, where the Apoſtle ſays, *You muſt eat your Bread in Silence.*

C. IX. *Of the Lecture, or reading at Table.* — A pious Lecture ſhall be made, while the Dinner and Supper laſt; for if we love the Lord, we muſt wiſh to hear with Attention his Word, and ſalutary Precepts.

C. X. *Of the Meal of Fleſh.* — You muſt be ſatisfied to eat Fleſh only three Times a Week, unleſs it be at *Chriſtmas*, *Eaſter*, at the Feaſts of the bleſſed Virgin, and *All Saints* Day. A too frequent Uſe of Fleſh, ſerves only to fill the Body with an onerous Corruption: But if that Day of Faſt, in which you are forbid Fleſh, ſhould happen on a *Tueſday*, the next Day following you ſhall have a ſufficient Refection thereof. *Sunday*, it ſeems good and convenient, that there be given to all the Knights and Chaplains, two Diſhes, becauſe of Chriſt's Reſurrection; but the Servants at Arms, and other Servants, muſt be contented with one Diſh, with Thankſgiving.

C. XI. *In what Manner the Knights ſhall eat.* — The Knight ſhall eat two and two, *&c.* but each Knight ſhall have an equal Meaſure of Wine in his particular.

C. XII. *The other Days two or three Diſhes of Legums muſt ſuffice.* — The other Days, viz. *Tueſday*, *Wedneſday*, and *Saturday*, we are of Opinion that two or three Diſhes of Legums, or other ſuch Meats can ſuffice; therefore we order that no other ſhall be ſerved, *&c.*

C. XIII. *What muſt be* Friday's *Victuals.* — We have agreed, that for Frugality's Sake, from the Feaſt of *All Saints* to *Eaſter*, a ſingle quadrageſimal Meal ſhall ſuffice to all the Congregation, *&c.* except in caſe of Infirmity, or *Chriſtmas*, or a Feaſt of the bleſſed Virgin, or of an Apoſtle, ſhould happen on that Day, but at another Time, unleſs it be a general Faſt, two Meals a-day are allowed.

C. XIV. *Of returning Thanks after their Meals.*

C. XV. *Of giving always the tenth Loaf to the Almoner.* — Though the Price of Poverty, which is the Kingdom of Heaven, be certainly due to the Poor, we command you notwithſtanding, to give every Day to your Almoner the tenth of all the Loaves.

C. XVI. This Chapter regards only ſome Refreſhment they were permitted to take, at the Diſcretion of the Superior, before they went to *Complies*, or Evening Prayers; and which conſiſted only in a Glaſs of Wine or Water, or Wine without Water, or Water alone.

C. XVII. *After Complies the Silence begins.* — After *Complies* the Knights muſt go to Bed. They are not to ſpeak any more together, unleſs indiſpenſably obliged to it. And if a Knight is to command ſomething to his Servant at Arms, he muſt do it with a very low Voice; though in that Interval it is ſometimes neceſſary to entertain the Maſter, or the Knight who under him has the Government of the Houſe, and ſpeak to him perhaps with other Brothers of ſome military Expedition, which muſt be done in few Words, *&c.*

C. XVIII. *Thoſe who are fatigued, ought not to aſſiſt at Matins.* — We do not intend to oblige the Knights who are fatigued to riſe in the Night for Matins, but on the contrary, they muſt take their Reſt, which notwithſtanding we leave to the Diſcretion of the Maſter, *&c.*

C. XIX. *An Equality muſt be obſerved between the Brethren in their Eating.* — The ſacred Scripture teaches us, that there was an Allowance for every one, according to his Wants; therefore we do not ſay to have Regard to Perſons, but to their Infirmity, *&c.*

C. XX. *Of the Quality and Faſhion of the Veſtment.* — We order that the Habits be always all of a Colour, either White or Black, and of a coarſe Stuff; and we grant to all profeſſed Knights to have two white Suits in Winter and Summer, if it can be done eaſily, *&c.* which Cloaths muſt be all of a Faſhion, neither too long, nor too ſhort, but ſuitable to the Shape of every one. When the Brethren have new Cloaths, they muſt immediately return their old ones, to be kept in the Wardrobe, or ſome other Place, for the Uſe of the Servants at Arms, or other Servants, and ſometimes for the Poor.

C. XXI. In this Chapter the Servants are only forbidden to wear white Mantles.

C. XXII. This Chapter ſays, that none but the Knights of the Houſe ſhould wear white Cloaths.

C. XXIII. This forbids the Knights wearing any other Skins but thoſe of Lamb or Ram.

C. XXIV. This orders that the old Cloaths ſhall be divided among the Servants at Arms.

C. XXV. *He that wants to have the beſt ſhall have the worſt.* — If any Brother of the Houſe, by a Spirit of Pride, claims a Right to what is finer and beſt, he ſhall deſerve for his Preſumption to have the worſe.

C. XXVI. This regards the Quantity and Quality of the Veſtments, which muſt be obſerved according to the Height and Bulk of the Knight.

C. XXVII. This treats of the ſame Subject.

C. XXVIII. *Of the Superfluity of the Hairs.* — All Brethren, eſpecially thoſe of the Houſe, muſt have their Hair cut in ſuch a Manner, that they may appear behind and before even and decent; obſerving inviolably the ſame Rule for the Beard and Muſtachoes, that nothing appears ſuperfluous and ridiculous.

C. XXIX. This Chapter relates to the ſame Thing.

C. XXX. *Of the Number of Horſes and Servants at Arms.* — Each Knight is allowed to have three Horſes, becauſe the Houſe of God, and of the Temple of *Solomon* cannot furniſh more at preſent, and becauſe of his Poverty, unleſs the Maſter orders it otherwiſe.

C. XXXI. *No Body ſhall ſtrike a Servant at Arms that ſerves gratis.* — We do not allow more than a ſingle Servant at Arms for each Knight. And if that Servant at Arms gives himſelf to the Knight *gratis*, and for Charity, he ſhall neither ſtrike nor chaſtiſe him for any Fault whatever.

C. XXXII. *In what Manner are to be received thoſe that are Knights for a Time only.* — We order to provide faithfully, for all the Knights who deſire to ſerve for a Time in the ſame Houſe, to *Jeſus Chriſt*, Horſes proper for that Service, Arms and all that is neceſſary, *&c.* And in the ſame Manner the ſaid Knights ſhall be provided by the Houſe, with a fraternal Charity, all he wants for himſelf, his Horſes, and his Servant at Arms, with the Shoes for his Horſes, *&c.* That if by ſome Accident the Knight ſhould loſe his Horſes, the Maſter, according as the Faculties of the Houſe ſhall allow it, muſt furniſh him with others. But the Time of the Repartition happening,

About the Year 1460 the Ladies Chevaliereſſes of that Monaſtery, ſubſtracted themſelves from the Obedience of the Grand Maſters of the Order, and ſubmitted immediately to the holy See. But *Hieronima d'Olbino*, Prioreſs of that Houſe, ſent to *Malta Alphonſus Studillo*, to negotiate the Reunion of that Monaſtery with the Order of St. *John of Jeruſalem*, which was executed in 1569.

In 1212 another Monaſtery of *Chevaliereſſes* of the ſame Order was founded, under the Name of *Noſtra Signora d'Algaire*. It was built on a high Mountain of *Catalonia*, on the River *Ravacorga*. *Saurina de Jorba*, and *Etta de Segardia*, two *Catalan* Ladies, gave large Eſtates to that Monaſtery. To be received in it one muſt make Proofs of Nobility by the Atteſtation of ſeveral Witneſſes; and by Preſentation of Quarters.

About the Year 1370, five noble *Florentine* Ladies founded a Monaſtery of this Order, under the Name of St. *Joannin*. The Grand Maſter *Caracciolo*, or *John Fernandez de Eredia*, after he had founded that Houſe at *Florence*, gave them the Hoſpital of St. *Nicolas*, with the Eſtates and Rights depending thereof. *Perette Andrætiviani* was elected firſt Abbeſs, and *Commendatrice* of that Houſe.

Iſabella of *Leon*, who deſcended from one of the moſt illuſtrious Houſes of *Andalouſia*, reſolved to eſtabliſh at *Seville* a Convent of *Cordelieresſes* under the Rule, and with the Habit of St. *John of Jeruſalem*, with Leave from the Grand Maſter *d'Aubuſſon*, which ſhe obtained, and was called Prioreſs of the Convent of which ſhe was Founder.

Another *Iſabella Fernandez* founded in *Portugal*, a Monaſtery of the ſame Order in the City of *Evora*. The Infant *Don Louis*, perpetual Adminiſtrator of the Priory of *Portugal* erected another Houſe of the ſame *Chevaliereſſes* at *Flor de Roſes*, in the City of *Eſtremos*.

There is alſo in the *Quercy*, a ſmall Province of *France*, a celebrated Monaſtery of reformed Nuns of the Order of St. *John of Jeruſalem*.

Thoſe Ladies *Chevaliereſſes* are cloathed in Black, have a white Croſs with eight Points on the Breaſt, and another on the Left-Side of their Mantle; where they have likewiſe eight ſmall different Rounds, where are repreſented the principal Myſteries of the Paſſion.

There is alſo another of theſe Monaſteries at *Toulouſe*.

The TEMPLARS, TEMPLERS, or *Knights of the* TEMPLE, was a religious-military Order, firſt eſtabliſhed at *Jeruſalem*, in favour of the Pilgrims travelling to the holy Land. The Original of this Order is this: In 1118, ſome pious noble Perſons devoted themſelves to the Service of God, in the Preſence of the Patriarch of *Jeruſalem*; promiſing to live in perpetual Chaſtity, Obedience, and Poverty, after the Manner of Canons.

The two principal Perſons were *Hugo de Paganis*, and *Geofroy* of *St. Omers*. *Baldwin* II. then King of *Jeruſalem*, gave them an Apartment in his Palace, near the Temple of *Jeruſalem*, not far from the Sepulchre of our Saviour; whence their Denomination *Templars*.

Soon afterwards the Canons of the Temple gave them a Piece of Ground hard by the ſaid Temple, to build them regular Houſes on; and the King, the Lords, the Patriarchs, and the Prelates, each gave them ſomewhat out of their Revenue for Food, and Cloaths.

Their firſt Undertaking, and what they had firſt in View, at their Inſtitution, was to guard the Highways againſt Robbers, chiefly for the Safety of Pilgrims and Croſſes.

The principal Articles of their Rule, were: That they ſhould hear the holy Office throughout every Day; or, that when their military Duties ſhould prevent this, they would ſupply it by a certain Number of *Pater noſters*: That they would abſtain from Fleſh four Days in the Week, and on *Fridays* from Eggs and Milk-meats: That each Knight might have three Horſes, and one Eſquire; and that they ſhould neither hunt, nor fowl.

Their firſt Rule was that of St. *Bernard*: Nine Years after their Foundation, a particular Rule was preſcribed them in the Council of *Troyes*.

In every Nation they had a particular Governor, called *Maſter of the Temple*, or of the *Militia of the Temple*.—Their *Grand Maſter* had his Reſidence at *Paris*, ſtill called of their Name, the *Temple*.

The Order of *Templars* was aboliſhed at the Beginning of the 14th Century under *Clement* V. Pope, *Philip the Fair* King of *France*, and *Edward* IV. King of *England*.—In 1307, thoſe in *England* were all arreſted, and ſeven burnt alive. In 1312, the Order was quite ſuppreſſed in the Council of *Vienne*, in *Dauphiny*, and fifty burnt alive at *Paris*, their Grand Maſter included; who, while at the Stake, ſummoned the Pope, and the King of *France*, to God's Tribunal, who both died the ſame Year.

The Crimes they were charged withal, were apoſtatizing to the *Saracens*, and holding Correſpondence with them: Of making nocturnal Aſſemblies, where they adored the Head of an Aſs, *&c.* Some Authors will have it thoſe Crimes were all pretended; and that the true Reaſon of the Suppreſſion of the Order was the immenſe Riches they were poſſeſſed of. The Truth is, that a ſordid Avarice reigned among them, which had made them commit very enormous Crimes, particularly of having refuſed to remit ſome Tributes to a *Saracen* Prince, called *Le Vieux de la Montagne*, who offered to turn Chriſtian, with all his Subjects on that Condition. But though this might be ſome Reaſon for their Suppreſſion, it could be none for burning them alive: Add to this, that their Effects were given to the Hoſpitalers, or Knights of St. *John*. What then did the Kings of *France* and of *England* get by their Suppreſſion? and what was it to them which of thoſe Orders had the Effects?—There is ſtill remaining in the Chapel of the Temple, in *London*, a beautiful Monument of *Knights Templar*, which has eſcaped the Fury of the Rabble, during the late Civil Wars of *England*; and which the celebrated Society of the Temple preſerve with great Care.

Note, That here follows an Abridgment of the Rules of the Knights *Templars*; of the *Ceremonies* uſed at their Reception, and the *Chronological Succeſſion* of their Grand Maſters.

C. I. *In what Manner they are to aſſiſt at the divine Service.*—You that have renounced the Pleaſures of this World, *&c.* muſt be very devout to hear with a pure and devout Heart the Matins and the whole divine Service, according to the canonical Inſtitution, and the Cuſtom of the regular Doctors of the holy City, *&c.* and it behoves you in particular, after you have fed yourſelves of the divine Aliment, and ſtrengthned yourſelves with the Precepts of the Lord, to have no Fear at the Approach of the Fight, but rather be ready to go and receive the everlaſting Crown.

C. II. *If they cannot aſſiſt at divine Service, they muſt recite ſeveral Times the Lord's Prayer.*—But if any Brother for the Affairs of the Eaſtern Chriſtian Church, finds himſelf at a greater Diſtance from Churches, we agree with an unanimous Conſent, that in ſuch a Caſe he ſhall ſay, for Matins, thirteen Times the Lord's Prayer, and ſeven Times for each Hour; but twelve Times for Veſpers, *&c.*

C. III. *What muſt be done for every Brother deceaſed.*—When any Brother of the Houſe ſhall pay the Tribute to Death, *&c.* we commonly call all the Chaplains, Clerks, Servants, *&c.* to offer, in the ſame Spirit of Charity, with a pure Heart, and in a ſolemn Manner, to *Jeſus Chriſt*, the Sacrifice of the Maſs for the Repoſe of his Soul; and the other Brothers ſhall be obliged to ſay a hundred Times the Lord's Prayer, till the ſeventh Day, *&c.* We deſire beſides, by a Motive of Charity and Mercy, and with a paſtoral Authority command, that every Day, for forty Days ſucceſſively, ſhall be given to ſome poor Perſon what was neceſſary for the Subſiſtance of the deceaſed Brother, as to Eating and Drinking, while alive. As for the other Charities which were given indiſcretely to thoſe who profeſs a voluntary Poverty to the Lord of the poor Knights of *Jeſus Chriſt*, at the Death of the Brothers, at *Eaſter*, and other ſolemn Feaſts, we forbid them abſolutely.

C. IV. *The Chaplains muſt be contented with the Victuals, and the Veſtment.*—With regard to all Sorts of Liberalities, and Sort of Alms, in what Manner ſoever they be adminiſtered, we order the Chaplains, and other Servant Brethren, to return them to the capitulary Commonalty; contenting themſelves with their Victuals and

and Cloaths, without pretending any thing elſe, unleſs the Maſters give it them with a free Will, and for Charity.

C. V. *Of the deceaſed Knights, who were only Knights for a Time.* — There are Knights in the Houſe of God, and the Temple of *Solomon*, who ſtay with us, through God's Mercy, but for a certain Time; therefore we deſire you, and ſtrictly enjoin you, that when the Almighty has called ſome of them to himſelf, to give for God's Sake, and by the Motive of a paternal Piety, to ſome Poor, the Subſiſtence of ſeven Days, for the Soul of the Deceaſed.

C. VI. *That no private Brother of the Houſe ſhall give Alms.* We have decreed, that no Brother of the Houſe ſhall give Alms, but that Day and Night he ſhall remain in the Duty of his Profeſſion; and ſhall conform himſelf to the wiſeſt of all the Prophets: *I'll take the Chalice of Salvation, and I'll imitate in my Death, the Lord's Death, becauſe as Chriſt has given his Life for me, I am ready to give up my Life for my Brethren.* That's the Oblation that is to be made; that's the living Hoſt which is agreeable to God.

C. VII. *Not to remain too long ſtanding.* — We have been informed by credible Witneſſes, that while you aſſiſt at the divine Service, you ſtand too long, and without Rule, which Practice we condemn. Therefore after the Pſalm, *Venite exultemus*, the Invitatory, and the Hymn, we command you, both ſtrong and weak, to ſit down, to avoid Scandal, riſing only from your Seats, at the *Gloria Patri* of each Pſalm, and bowing to the Altar, by a Motive of Reſpect for the Bleſſed Trinity; as well as at the Beginning of the Goſpel, and at *Te Deum laudamus*; and you ſhall ſtand up during all the *Lauds*, the *Benedicamus Domino*, &c.

C. VIII. *Of the conventual Refection.* — We are perſuaded that you take your Refection altogether in the ſame Place, or rather Refectory; therefore when you'll want ſomething, and cannot be heard by Signs, you muſt go to fetch it gently. If at all Times you are obliged to fetch what you want with Meekneſs and Submiſſion, how much more are you obliged to it at the Refectory, where the Apoſtle ſays, *You muſt eat your Bread in Silence.*

C. IX. *Of the Lecture, or reading at Table.* — A pious Lecture ſhall be made, while the Dinner and Supper laſt; for if we love the Lord, we muſt wiſh to hear with Attention his Word, and ſalutary Precepts.

C. X. *Of the Meal of Fleſh.* — You muſt be ſatisfied to eat Fleſh only three Times a Week, unleſs it be at *Chriſtmas*, *Eaſter*, at the Feaſts of the bleſſed Virgin, and *All Saints* Day. A too frequent Uſe of Fleſh, ſerves only to fill the Body with an onerous Corruption: But if that Day of Faſt, in which you are forbid Fleſh, ſhould happen on a *Tueſday*, the next Day following you ſhall have a ſufficient Refection thereof. *Sunday*, it ſeems good and convenient, that there be given to all the Knights and Chaplains, two Diſhes, becauſe of Chriſt's Reſurrection; but the Servants at Arms, and other Servants, muſt be contented with one Diſh, with Thankſgiving.

C. XI. *In what Manner the Knights ſhall eat.* — The Knight ſhall eat two and two, *&c.* but each Knight ſhall have an equal Meaſure of Wine in his particular.

C. XII. *The other Days two or three Diſhes of Legums muſt ſuffice.* — The other Days, viz. *Tueſday*, *Wedneſday*, and *Saturday*, we are of Opinion that two or three Diſhes of Legums, or other ſuch Meats can ſuffice; therefore we order that no other ſhall be ſerved, *&c.*

C. XIII. *What muſt be* Friday's *Victuals.* — We have agreed, that for Frugality's Sake, from the Feaſt of *All Saints* to *Eaſter*, a ſingle quadrageſimal Meal ſhall ſuffice to all the Congregation, *&c.* except in caſe of Infirmity, or *Chriſtmas*, or a Feaſt of the bleſſed Virgin, or of an Apoſtle, ſhould happen on that Day, but at another Time, unleſs it be a general Faſt, two Meals a-day are allowed.

C. XIV. *Of returning Thanks after their Meals.*

C. XV. *Of giving always the tenth Loaf to the Almoner.* — Though the Price of Poverty, which is the Kingdom of Heaven, be certainly due to the Poor, we command you notwithſtanding, to give every Day to your Almoner the tenth of all the Loaves.

C. XVI. This Chapter regards only ſome Refreſhment they were permitted to take, at the Diſcretion of the Superior, before they went to *Complies*, or Evening Prayers; and which conſiſted only in a Glaſs of Wine or Water, or Wine without Water, or Water alone.

C. XVII. *After Complies the Silence begins.* — After *Complies* the Knights muſt go to Bed. They are not to ſpeak any more together, unleſs indiſpenſably obliged to it. And if a Knight is to command ſomething to his Servant at Arms, he muſt do it with a very low Voice; though in that Interval it is ſometimes neceſſary to entertain the Maſter, or the Knight who under him has the Government of the Houſe, and ſpeak to him perhaps with other Brothers of ſome military Expedition, which muſt be done in few Words, *&c.*

C. XVIII. *Thoſe who are fatigued, ought not to aſſiſt at Matins.* — We do not intend to oblige the Knights who are fatigued to riſe in the Night for Matins, but on the contrary, they muſt take their Reſt, which notwithſtanding we leave to the Diſcretion of the Maſter, *&c.*

C. XIX. *An Equality muſt be obſerved between the Brethren in their Eating.* — The ſacred Scripture teaches us, that there was an Allowance for every one, according to his Wants; therefore we do not ſay to have Regard to Perſons, but to their Infirmity, *&c.*

C. XX. *Of the Quality and Faſhion of the Veſtment.* — We order that the Habits be always all of a Colour, either White or Black, and of a coarſe Stuff; and we grant to all profeſſed Knights to have two white Suits in Winter and Summer, if it can be done eaſily, *&c.* which Cloaths muſt be all of a Faſhion, neither too long, nor too ſhort, but ſuitable to the Shape of every one. When the Brethren have new Cloaths, they muſt immediately return their old ones, to be kept in the Wardrobe, or ſome other Place, for the Uſe of the Servants at Arms, or other Servants, and ſometimes for the Poor.

C. XXI. In this Chapter the Servants are only forbidden to wear white Mantles.

C. XXII. This Chapter ſays, that none but the Knights of the Houſe ſhould wear white Cloaths.

C. XXIII. This forbids the Knights wearing any other Skins but thoſe of Lamb or Ram.

C. XXIV. This orders that the old Cloaths ſhall be divided among the Servants at Arms.

C. XXV. *He that wants to have the beſt ſhall have the worſt.* — If any Brother of the Houſe, by a Spirit of Pride, claims a Right to what is finer and beſt, he ſhall deſerve for his Preſumption to have the worſe.

C. XXVI. This regards the Quantity and Quality of the Veſtments, which muſt be obſerved according to the Height and Bulk of the Knight.

C. XXVII. This treats of the ſame Subject.

C. XXVIII. *Of the Superfluity of the Hairs.* — All Brethren, eſpecially thoſe of the Houſe, muſt have their Hair cut in ſuch a Manner, that they may appear behind and before even and decent; obſerving inviolably the ſame Rule for the Beard and Muſtachoes, that nothing appears ſuperfluous and ridiculous.

C. XXIX. This Chapter relates to the ſame Thing.

C. XXX. *Of the Number of Horſes and Servants at Arms.* — Each Knight is allowed to have three Horſes, becauſe the Houſe of God, and of the Temple of *Solomon* cannot furniſh more at preſent, and becauſe of his Poverty, unleſs the Maſter orders it otherwiſe.

C. XXXI. *No Body ſhall ſtrike a Servant at Arms that ſerves gratis.* — We do not allow more than a ſingle Servant at Arms for each Knight. And if that Servant at Arms gives himſelf to the Knight *gratis*, and for Charity, he ſhall neither ſtrike nor chaſtiſe him for any Fault whatever.

C. XXXII. *In what Manner are to be received thoſe that are Knights for a Time only.* — We order to provide faithfully, for all the Knights who deſire to ſerve for a Time in the ſame Houſe, to *Jeſus Chriſt*, Horſes proper for that Service, Arms and all that is neceſſary, *&c.* And in the ſame Manner the ſaid Knights ſhall be provided by the Houſe, with a fraternal Charity, all he wants for himſelf, his Horſes, and his Servant at Arms, with the Shoes for his Horſes, *&c.* That if by ſome Accident the Knight ſhould loſe his Horſes, the Maſter, according as the Faculties of the Houſe ſhall allow it, muſt furniſh him with others. But the Time of the Repartition happening,

happening, the Knight muſt give, for God's Sake, half the Price, and if he pleaſes accept the other from the Brethren in common.

C. XXXIII. *That no Body ſhall undertake a Journey without Leave.*—It becomes all Knights who have nothing more at Heart than to pleaſe *Jeſus Chriſt*, to be obedient to the Maſter, *&c.* executing faithfully all that the Maſter, or the Perſon appointed by him, ſhall command, as if God himſelf was to command it, *&c.*

C. XXXIV. *The Knights are not allowed to go into the City without Leave of the Maſter.*—Therefore we deſire ſuch Knights who have renounced their own proper Will, as well as the other who ſerve for a Time, and command them not to go out of the Houſe without the Maſter's Leave, unleſs it be in the Night to go to the Sepulchre, and other Stations which are within the City.

C. XXXV. *The Knights are not allowed to walk without a Companion.*—But thoſe who walk thus are not allowed to ſet out, either in the Night or Day-time, without a Guard, *i. e.* without a Knight or a Brother; and when they are in the Fields, and have their Lodgment, no Knight, 'Squire, or Servant, ought to walk before the Lodgment of the other Knights, either to viſit any of them, or ſpeak with him, without Leave, *&c.*

C. XXXVI. *No Knight ſhall procure himſelf what he wants.*—Among other Things we command expreſly the Obſervance of this Rule; and after having examined it, we order that it ſhall be obſerved, becauſe of the Inconveniency of Begging. Therefore none of the Brethren is allowed to beg of his own Accord, or in his Name, either Horſe, Equipage, or Arms, *&c.* But if it be known that his Infirmity, the Weakneſs of his Horſe, and the Weight of his Horſe be ſuch, that he cannot travel without Prejudice, he ſhall come before the Maſter, or before whom it belongs to under the Maſter, and expoſe the Thing to him ſincerely, and without Deceit, *&c.*

XXXVII. *Of the Bits and Spurs.*—We are not willing, that either Gold or Silver ſhould appear on the Bits, Spurs, Bridles, *&c.* of the Horſes of Knights, *&c.* neither are they to buy any. That if they be old Ornaments given for Charity, the Gold and Silver muſt be darkened ſo as not to appear with their uſual Luſtre. If they be lately given, the Maſter ſhall diſpoſe of them as he thinks fit.

C. XXXVIII. *That the Launces and Bucklers be without Covering.*—The Launces, Bucklers, and Pikes, ſhall not be covered, becauſe that renders them too cumberſome.

C. XXXIX. This Chapter ſays, that it belongs to the Maſter alone to give Horſes, Arms, and other Things.

C. XL. This Chapter forbids the Knights having either Sack or Mail with a Lock to it, without the Maſter's Leave; from this Rule are excluded the Maſter, and the Procurators of Provinces.

XLI. *Of ſending Letters.*—None of the Brethren is allowed to receive, or give Letters from their Parents, or from any body elſe, to one another, without the Maſter's or the Procurator's Leave. And when the Brother has obtained that Leave, the Maſter may have them read in his Preſence if he pleaſes; and if his Parents ſend him ſomething, he ſhall not accept it till he has declared it to the Maſter: The Maſter and Procurator are excepted from this Rule.

C. XLII. *Of mentioning one's Faults.*—We forbid every Brother living in the Houſe, to entertain his Brother, or any body elſe with the Follies he has been guilty of, either in the World, or in his State of Knighthood; or with the Pleaſures of the Fleſh with common Proſtitutes.

C. XLIII. *Of the Queſt and Acceptation.*—When it ſhall happen that ſomething is given *gratis* to a Brother, without his having aſked for it, he muſt bring it to the Maſter, or to the Steward. But if his Friend or Relation will not give it but for his own proper Uſe, he ſhall not receive it without the Maſter's Leave; and he to whom it is given, muſt not be ſorry if it be given to another, *&c.* From this Rule are excepted the Adminiſtrators, who have the Liberty of the Sack and Mail.

C. XLIV. This Chapter relates to the feeding of Horſes.

C. XLV. This Chapter forbids exchanging and begging.

C. XLVI. *Of Hawking.*—We declare in common, that no body ought to take a Bird with another Bird, becauſe it does not become the Religion to follow the worldly Pleaſures and Diverſions; but rather to hear the Precepts of the Lord, to confeſs every Day in our Prayers our Sins to God, with Sighs and Tears, *&c.*

C. XLVII. *Of not ſhooting with a Bow.*—We forbid expreſly all profeſſed Brothers taking the Liberty of ſhooting in Woods, or Hunting, or accompanying any body to the Chace, *&c.*

C. XLVIII. *Of ſhooting at the Lion.*—Since it is certain, that you are allowed in a particular Manner, and it belongs to you, to give your Soul for your Brethren, and to exterminate from the Earth all Infidels, Enemies of the Son of the Virgin; we have made this Commandement of the Lion, becauſe it always ſeeks ſome body to devour, he is againſt all, and all are againſt him.

C. XLIX. *Of Judgments*, &c.—If any body in any Part of the Eaſt, where the Religion is eſtabliſhed, or in any other Place, claims ſomething againſt you, we command you to ſubmit yourſelves without Difficulty, to the Judgment of the Judges known for their Integrity, *&c.*

C. L. *To obſerve that Rule in all Things.*—We command you to obſerve that Rule for all Things which have been taken from you unjuſtly.

C. LI. *That it is permitted to all profeſſed Knights to have Lands and Servants.*—As we have made a religious Knighthood, and as that Religion follows the Profeſſion of Arms, and you can ſtrike with them without Crime, we judge therefore, that being called Knights of the Temple, you can by reaſon of your rare Merit, and of the particular Gift of your Probity, have and poſſeſs Lands, Servants, and Huſbandmen, and govern them with Juſtice, and that they are obliged to give you what is due to you, *&c.*

C. LII. *Of the Care of the Sick.*—Above all Things, a great Care muſt be taken of the ſick Brethren, as if it was *Jeſus Chriſt* himſelf; ſo that theſe Words of the Goſpel, *I was infirm, and you viſited me*, remain very well printed in the Memory. For they muſt be ſupported with Patience, and treated with Care, ſince it is certain, that thereby we acquire a heavenly Reward.

C. LIII. *The Sick muſt always have what's neceſſary.*—We command with all Sort of Conſideration and Precaution, that the Procurators employed for the Infirm, ſhall furniſh them faithfully, and without Delay, all that is neceſſary for their Subſiſtence, in their ſeveral Maladies, according as the Houſe can afford it, *viz.* Fleſh, Fowls, and other Things, till they have entirely recovered their Health.

C. LIV. *That one ſhall not provoke another to Wrath.*

C. LV. *In what Manner married Brethren can be admitted.*—We permit you to have married Brethren, ſo that if they aſk to be Partakers of your Fraternity, the Man and the Wife may make Donation at their Death of Part of their Revenue, and all they have acquired beſides, provided notwithſtanding they live honeſtly, and procure the Intereſt of the Brethren; but they ſhall not wear the white Habit: If the Huſband dies firſt, he ſhall leave his Part to the Brethren, and the Wife ſhall ſubſiſt of the other. For we do not think it juſt that thoſe Sorts of Brethren ſhould live in the ſame Houſe with thoſe who have made Vows of Chaſtity.

C. LVI. *The Knights are not to have aſſociated Siſters.* As it is dangerous to be aſſociated with Siſters, becauſe the antient Enemy has put ſeveral out of the right Way to Salvation, by the Society of Women; therefore, dearly beloved Brethren, we forbid you to introduce that Cuſtom.

C. LVII. This Chapter forbids the Brother Templars having any Communication with Excommunicates.

C. LVIII. *In what Manner ſecular military Men are to be received.* If any military Men out of the Maſs of Perdition, or other ſecular, makes Choice of your Manner of Life, and your Society, he ſhall not be received immediately, but according to the Precept of St. Paul, *Try the Minds if they be of God*, and afterwards let him be admitted. The Rule ſhall be read in his Preſence, and if he conſents to the Precepts thereof, and it pleaſes the Maſter and Brethren to receive him, he muſt ſhew his Deſire, and make his Demand before the Aſſembly of

the Brethren. And afterwards the Master shall regulate the Conditions of his Probation, according to the Proofs he'll have of the good Life of the Candidate.

C. LIX. *All the Brethren shall not be called to the Privy Council.* We forbid calling always all the Brethren, but those whom the Master knows to be proper for it, and capable of advising well; but when he shall want to treat of important Affairs, as of alienating some Land, or receiving a Brother, then it is proper, if he pleases, he should convoke the whole Congregation, and after he has heard the Advice of the whole Chapter, he shall do what he judges best, and most useful.

C. LX. In this Chapter it is commanded to pray in Silence.

C. LXI. *Of the Admission of Servants.* We have certain Knowledge, that several from different Provinces, as well Servants as Esquires, desire, for the Salvation of their Soul, to serve with Zeal in our House; therefore it is very well done to receive their Faith, that the Enemy should not suggest to them cunningly something bad in the Service of God, or hinder them from accomplishing their good Designs.

C. LXII. *Of not receiving young Children among the Templars.* Though the Rule of the holy Fathers allows to have Children in the Congregation; we do not approve of it; but he who intends to put his Son or Kinsman in the Religion of the Knights, and has made great Instances for it, must bring him up, till he has Strength and Courage enough to bear Arms to expel the Enemies of *Jesus Christ* from the holy Land. Afterwards, the Father or Parents must bring him, according to the Rule, in the Assembly of the Brethren, and there declare his Desire. *For it is much better not to devote oneself in Infancy, than to be guilty of a Recantation in a more advanced Age.*

C. LXIII. *Of the Honour due to Old Age.* The Old must be bore with, and honoured, through a Sentiment of Piety, and because of the Infirmity of their Age; and are not obliged to do the Duty of the Rule, *&c.*

C. LXIV. *Of the Brethren who are in the several Provinces.* The Brethren sent into several Provinces, must observe the Rule, as much as their Strength will allow it, as well in Eating and Drinking as in all other Things; and lead an irreproachable Life, *&c.* giving Examples of Wisdom, accompanied with good Works: Never lodging but in Houses of good Fame, and if it can be done there shall be Light that Night in the House of the Landlord, lest the tenebrous Enemy should procure some Occasion which we do not desire should happen, *&c.* We approve that the Brethren beyond the Seas should receive those who would make Instances for their Admission into the Order, on Condition that the Husband and the Wife shall come together before the Bishop of the Place, who shall hear the Request of the Postulant; and the Request heard, the Brother shall send the Husband to the Master and Brethren, who are in the Temple at *Jerusalem*; and if he be a good Liver, and worthy of such Society, he shall be received, if the Master and Brethren judge it proper. And if he happens to die afterwards, through much Fatigue and Labour, he shall be Partaker of all the Advantages of the poor Knights, as a Brother himself.

C. LXV. This Chapter regards the equal Distribution of Victuals.

C. LXVI. *Of the Templars being allowed to receive Tithes.* After you have quitted the Affluency of Riches, and have subjected yourselves to a voluntary Poverty, we think we are obliged to shew you how you can justly receive the Tithes to live in common. If the Bishop of the Church to which the Tithes are due of Right, will give them to you, with the Consent of his Chapter, they must be the Tithes which that Church possesses at that Time, *&c.*

C. LXVII. *Of slight and considerable Faults.* If a Brother, either in speaking, or fighting, or otherwise, has committed some slight Fault, himself must declare it to the Master, that he may receive a slight Penance for a slight Fault, and which is not too often repeated; but if he hides it, and it be known by some other, he must be subject to a more severe and more publick Correction; but if the Delict be great, he shall be sequestrated from the Company of the Brethren, and from eating with them at the same Table, and must take his Refection alone by himself, *&c.*

C. LXVIII. *For what Faults a Brother must be expelled.* —Previously to any Thing else, Expedients must be found that a Brother, powerful or not, strong or weak, and growing proud by Degrees, who undertakes to defend his Offence, shall not remain unpunished. If he will reform, a severe Correction will be sufficient; but if after salutary Advices, and Prayers made for him, he will not, but on the contrary grows more and more insupportable, then, according to the Apostle's Command, he must be separated from the Flock. *Expel the Wicked from among you.* But however, the Master must have the *Staff* and *Rod* in his Hand; the *Staff* to support the Infirmitities of the Weak, and the *Rod* to punish the Vice of the Delinquent by a Zeal of Justice. Which he must do in concert with the Patriarch, and after much Reflection; lest according to St. *Maxime*, a too great Weakness, or a too great Severity, should hinder the Sinner from repenting of his Fault.

C. LXIX. *There will be allowed but one Linnen Shirt from Easter to All-Saints Day.* Having considered that some Regard should be had to the great Heats of the East, there shall be given, not of Right, but by Favour, a single Linnen Shirt to every one from *Easter* to *All-Saints* Day; and at other Times they shall wear Woollen Shirts.

C. LXX. *Of the Furniture of the Beds.* We all judge proper, that every one shall lay a-part in a Bed, unless it be in case of Necessity; each having a Couch or a Bed, at the Discretion of the Master; but we believe that a Sacking or Matrass, and a Blanket are sufficient, *&c.* Linnen Sheets shall be allowed, and the Brothers shall lie in their Shirts and Drawers, having a Light in their Room while they are asleep.

C. LXXI. *Of Murmuring.* We command you to avoid, according to the divine Exhortation, *Envies, Jealousies, Confidences, Evil-speaking*, as a Sort of Plague. Let every one take great Care not to accuse his Brother in Secret, or reprimand him, remembering what the Apostle says, *Be not Reprehensors nor Murmurers among the People.* When you'll know manifestly that a Brother has sinned, reprimand him gently in private, according to the Command of our Lord; and if he does not mind you, call another Brother, and if he despises both, let him be reprimanded publickly in the Convent before all. Those are very blind that speak ill of the others, and it is a great Misfortune for those who cannot refrain their Tongue, which plunges them in the antient Malice of the cunning Enemy.

C. LXXII. *Of not kissing a Woman.*—We think it very dangerous to all Religion to mind too much the Face of Women; therefore none of the Brethren shall take the Liberty to kiss either a Widow, a Virgin, a Sister, an Aunt, a Friend, or any other Woman. The Knights of *Jesus Christ* must avoid the Kisses of Women, whereby Men commonly run very great Risks, that they may always walk with a pure Conscience, and without Fear in the Presence of the Lord.

Note, That the above-mentioned Rules were proposed by St. *Bernard*, Abbot of *Clairvaux*, and approved and confirmed by the Council of *Troyes* in *Champagne*, Nine Years after the Institution of the *Order* of the *Templars*.

In that same Council was regulated by the Pope's Order, the particular Form of their Habit, which was a white Mantle to cover their Arms; and *Stephen*, Patriarch of *Jerusalem*, affixed on the left Side of that Mantle a red patriarchal Cross. If we believe certain Authors, they were not allowed during the first nine Years of their Institution to be more than nine; but fifty Years afterwards their Number was so much increased, that they found themselves capable to undertake any Thing. Then they assembled at *Jerusalem*, and resolved, without the Participation of the Patriarch, to chuse a Chief, and accordingly by the Example of the Knights of St. *John*, they elected a *French man* for Grand Master, and to succeed *Hughes* their Institutor; whereby there were instituted in the *Order* Knights great Crosses, Commanders, Knights, and Esquires.

Note, That here follows a *Chronological Succession* of some of

of the *Grand Masters* of the *Order* of the *Templars*.

A CHRONOLOGICAL SUCCESSION *of some of the* Grand Masters *of the* Templars.

HUGUES, Founder, Chief, and first Grand Master of the Order, lived till the Year 1130.

Fr. ROBERT, called the *Bourgignon*, of the County of *Guyenne*, was Grand Master in the Time of *Foulques*, King of *Jerusalem*, from the Year 1131 to 1142.

Fr. BERNARD DE TREMULAY, Grand Master, at the Time of the Siege of *Ascalon*, who enter'd first, with his Knights, into the City, through the Breach, in the Year 1152.

Fr. BERTRAND DE BLANCFORT, Grand Master, who was in the Christian Army, in 1156.

Fr. OTHO DE S. AMAND, who was in the first War made in the Holy Land; and remain'd *Saladin*'s Prisoner from the Year 1173, till the Year 1178, when he died.

Fr. ARNOUD DE TROYES, who was at the Victory of *Turbolet*, gained against *Saladin*, about the Year 1179. He repassed afterwards into *Europe*, and died at *Verona*. The Chronicle of the Order of *Calatrava*, marks in the same Year for Grand Master of the Order of the Templars, in *Spain*, Fr. *Herminde*, who had some Differences with *Fernandez d'Escoza*, Grand Master of the Order of *Calatrava*, for the Limits of some of their Lands; but that Grand Master was not the Chief of the Order which was then in the Army of the East.

Fr. PHILIP DE NAPLES, Grand Master, in the Year 1180, and following; who was at the taking of *Ascalon*, where he defended a Post vigorously, at the Head of his Knights, in 1183.

Fr. GIRARD DE REDOFERT, Grand Master, in the Year 1184, till the Death of *Boudain* IV. King of *Jerusalem*, which happen'd in 1186.

Fr. HUGUES TABORIO, who, according to *Mennens*, on the Testimony of *Claudius Fauchet*, armed Knight *Saladin* Sultan of *Egypt*.

We find in the Chronology of *Calatrava*, in the Year 1210, Fr. Don *Gomez Ramire*, Grand Master, who was with his Knights at the *Croisade* which was undertaken for the Recovery of *Calatrava* on the Moors.

In the Year 1218, Don PETER ALBITIN, is found to have been Grand Master of the Templars in *Spain*, and to have been named as present at the Donation made by King Don *Alphonso* of *Leon*, and Don *Martin Fernandez*, Grand Master of the Order of *Calatrava*, and *Nugno*, Grand Master of the Order of St. *Julian de Peregro*, of the Estate of *Alcantara*; and no Body knows if he must be considered as true Grand Master and first Chief of the Order, or as one of the Grand Masters, subordinate to him who possessed that Dignity.

Fr. PETER DE BELIOX, Grand Master of the Temple, in the Year 1261, and Governor of *Ptolemaide*. He passed into *Europe* under the Pontificate of *Clement* IV.

Fr. JAMES DE MOLAY, born in *Burgundy*, Grand Master of the Order, at the Time of its Suppression, and who was burnt at *Paris*, for the Crimes all the Templars in general were accused of. He was arrested at *Paris* in 1307, in the House belonging to the Order, called till now, of their Name the Temple; and it is pretended, that he confessed all, *viz.*

1. That when a Knight was received into the Order, he was made to deny Christ, and to spit thrice on a Crucifix.

2. That he that was received, kissed the Mouth of the Person who receiv'd him, then his Navil, afterwards his Back, and for Conclusion his Backside.

3. That he was forbidden to have any criminal Commerce with Women, but that he was permitted to abandon himself with his Brethren to the most horrible, and most infamous Disorders. In another Information, it is said, that the Commerce with Women was forbidden them, lest it should scandalize them.

4. That they were made to adore a wooden Head, Part gilt, and Part silver'd; and had a great Beard; which was only seen in the general Chapters, where none but the Principals of the Order were admitted to it.

The Pope was resolved to content himself for the Punishment of this Grand Master, of *Guy*, Master of *Normandy*, and Brother of the Dauphin of *Auvergne*, of *Hugues* of *Peraldo*, who had been Intendant of the Finances of *Philip the Fair*, and of a fourth, who had also possessed great Employments in the Order, with a perpetual Prison, but he wanted they should confess publickly their Crimes. He sent for that Effect, two Cardinals to *Paris*, where these four Knights were in Prison. A Scaffold was erected before the Porch of the Church of our Lady, which the Cardinals mounted, and ordered the Criminals to mount likewise; and there was read to them with a loud Voice, the Confession they had made of the Corruption of their Order, and the Sentence which condemned them all four to a perpetual Imprisonment.

After that Reading, the Grand Master and the Dauphin's Brother asked Leave of the Cardinals to speak. The Assistants were much surprized to hear them both protest, that they retracted all they had said before their Judges, and declared that they had deposed false against their Order; that it was a very holy Order, and that all they had done was only to please the Pope and the King; and that they were ready to die to maintain that Truth.

The Cardinals extremely disconcerted, had them carried back to Prison, and granted their Life to the two others who had not retracted. The Grand Master, and the Master of *Normandy*, were soon afterwards tried and condemned to be burnt alive, and the Sentence was executed over-against the Convent of the *Augustines*, in the Island of the Palace: Both persisting in their Retractation, and the Grand Master citing, as already observed, the Pope and the King to God's Tribunal.

Thus that celebrated Order, after it had flourished during 184 Years, was extinguished throughout all Christendom, except in *Germany*, where they, the Knights, were absolved in a Provincial Council.

St. LAZARUS, or LAZARO, was a military *Order*, instituted at *Jerusalem* by the *Christians* of the West, when they became Masters of the *Holy Land*, whose Business was to receive Pilgrims under their Care, guard them on the Roads, and defend them from the Insults of the *Mahometans*.

This *Order* was instituted in 1119. Pope *Alexander* IV. confirmed it by a Bull in 1255, giving it the Rule of St. *Augustin*.

The Knights of this *Order* being driven out of the *Holy Land*, Part of them retired into *France*, and were established there under *Louis* III. who bestowed on them the County of *Bogny*, near *Orleans*, which is still the Conventual House of the *Order*, of which I have the Honour to be a Member. *Innocent* VIII. suppressed the *Order* of St. *Lazaro* in *Italy*, in 1490, or rather united it to that of *Malta*. *Leo* X. re-established it in *Italy*, in the Beginning of the sixteenth Century. In 1572, *Gregory* XIII. united it in *Savoy* to that of St. *Maurice*, just instituted by Duke *Emanuel Philibert*.

In *France*, this *Order* was united to that of *N. D.* of *Mount Carmel*, in 1608; and had some new Advantages conferred on it by the late King *Louis* XIV. The *Knights of St.* Lazarus are allowed to marry, and yet have Pensions upon Benefices.

Note, That this *Order* is considered as more antient than the two former above-mentioned, but as it was never so famous for their Feats of Arms, I only give it the third Place in this Account of the *Military Orders*. For some Authors pretend, that it owes its Origin to an Hospital built by St. *Basil*, in one of the Suburbs of *Cæsarea*, in 370 or 371, and that the Zeal of St. *Basil* was imitated by several Cities, which, by his Example, built Hospitals, likewise, and that as the Leprous were very common at that Time, and could communicate their Malady by the single Frequentation; the Hospitals assigned to them, were called *Maladeries*, under the Title of St. *Lazare*; and that those who took Care of those Hospitals embraced the Rule of St. *Basil*; and formed an Institution different from his *Order*, under the Name of St. *Lazare*, which was approved by Pope *Damasus*. What can be said for Truth, with Regard to the Knights of St. *Lazarus* is, that they began first by exercising Charity towards the poor Leprous, appointed for their Recep-

tion, taking the Name of *Hospitallers*, and that afterwards Part of them, at the Example of the other *Hospitallers*, followed the military Profession, and served with Honour and Courage the Christian Princes who conquer'd the *Holy Land*; without forgetting to practise Hospitality. This engaged the Kings of *Jerusalem*, *Baudouin* II. *Foulques*, *Amaury* III. and IV. and the Queen *Melesinda* and *Theodore*, to take their *Order* under their Protection, and to give it very large Possessions. They received likewise several Privileges from the sovereign Pontiffs; and being passed into *Europe*, the Princes of this Part of the World gave them large Possessions. *Alexander* IV. put them under the Protection of the Holy See, in the Year 1257, and confirmed all the Donations, which the Emperor *Frederick* II. had made them in *Sicily*, in the *Pouille*, in *Calabria*, and in some other Provinces. *Henry* King of *England*, Duke of *Anjou*, and *Normandy*, *Thibaut* Earl of *Blois*, and several others, increased their Revenues. But of all the Christian Princes, there were none from whom the Knights of St. *Lazare* received greater Advantages, than from the Kings of *France*: For having been expelled from the *Holy Land* in 1253, they followed St. *Louis* into *France*, who, in Gratitude for the Services they had done him in the East, confirmed to them the Donations of the Kings his Predecessors, put them in Possession of several Houses, Commanderies, and Hospitals, which that Prince founded. It was then they established the Chief of their *Order* at *Boigny* near *Orleans*, which had been given them ever since the Year 1154, by *Louis* VII. called the *Younger*; and that the Grand Master took the Title of Grand Master of the *Order* of St. *Lazare*, as well this Side as beyond the Seas; his Jurisdiction extending not only on the Knights who were in *France*, but likewise on Foreigners. Therefore *John* of *Couras*, who had been promoted to that Post in 1342, by *Philip* of *Valois*, gave Power in 1354, to Brother *John Hallided*, a *Scotchman*, to govern in his Name, as well in the spiritual as the temporal, all that belonged to the *Order* in *England* and *Scotland*, on Condition, that he should remit every Year to the Grand Commandery of *Boigny*, 30 Marks Sterling of Silver. King *Charles* V. called the *Wise*, having given the Grand Mastership in 1477, to *James de Bernes*, that Grand Master gave to Brother *Dominick* of St. *Roy*, the Commandery of *Seringon* in *Hungary*, and constituted him his Vicar General in that Kingdom, on Condition to assist at the general Chapters at *Boigny*, and to bring along with him 40 Marks of fine Silver.

The Knights of *Lazare*, made antiently solemn Vows, and there were even Nuns of that *Order*, and there is yet a Monastery of them in *Switzerland*. It is pretended, that the Knights of St. *Lazare* did not begin to wear the Cross with eight Points, before the End of the fifteenth Century; or the Beginning of the sixteenth. The most antient Monument which can shew which was the Habit of those antient Knights, is found in the Commandery of *Gratemont*, where at the Foot of an Image of St. *Antony* in Relievo, placed on a Kind of Column, are seen five Knights of St. *Lazarus* kneeling, armed with Cuirasses, and a Chaplain of the same *Order*, having all a long black Mantle, on which is a simple Cross, a little adorned at the Extremities, but that which is on their Breast is different, in that it is a little longer at the Foot, and terminates into a Point.

For in fact, it was but towards the End of that Century, or at the Beginning of the following, after Pope *Leo* X. re-established the *Order* of St. *Lazarus* in *Italy*, that the Knights of that *Order* took the Cross with eight Points; for in the Privileges of the *Order* printed at *Rome*, in 1566, there is a Vignette, where are seen several Knights having all a long Beard, and receiving the Cross of the *Order* and a Sword from the Pope's Hand; and those Knights have a black Gown with large Sleeves, and a Cross with eight Points on the Breast. There is likewise in the King of *France*'s Library, a Print of the Year 1525, which represents the different *Orders*, who follow the Rule of St. *Augustin*, where is seen a Knight of St. *Lazare*, with such a Gown.

Note, That here follows a *Chronological Succession* of the *Grand Masters* of the *Order* of St. LAZARE. The first Column contains the Years of Christ, the second, the Names of the Grand Masters, *&c.* and the third, the Years of their Mastership.

CHRONOLOGICAL SUCCESSION *of the* Grand Masters *of the* Order *of* St. LAZARE.

1490	PETER D'AUBUSSON, Grand Mast. of *Rhodes*, and Grand Master of St. *Lazare*, by the Union made in 1490. He died in 1503.	13
1503	AIMERIC D'AMBAC, Grand Master of *Rhodes*, and of St. *Lazare*, died in 1512.	9
1512	GUY *of* BLANCFORT, Grand Master of *Rhodes*, and of St. *Lazare*, died in the Year following.	1
1513	FABRICIUS DE CARETTO, Grand Master of *Rhodes*, and of St. *Lazare*, died in 1521.	8
1521	PHILIP DE VILLIERS, Grand Master of *Rhodes*, afterwards of *Malta*, and of St. *Lazare*, died in 1534.	13
1534	PERIN DE PONT, Grand Master of *Malta*, and of St. *Lazare*, died in 1535.	1
1535	DIDIER *of* St. JALLE, Grand Master of *Malta*, and of St. *Lazare*, died in 1536.	1
1536	JOHN DIOMEDE, Grand Master of *Malta*, and of St. *Lazare*, died in 1553.	17
1553	CLAUDIUS DE LA SANGLE, Grand Master of *Malta*, and of St. *Lazare*, died in 1557.	4
1557	JOHN DE LA VALETTE, Grand Master of *Malta*, and of St. *Lazare*, till the Separation made of those two *Orders* in 1565.	8
1565	JEANNOT DE CASTILLON, Grand Master of St. *Lazare*, elected by the Pope, till the Cession he made of that Dignity to the Dukes of *Savoy*.	10
1575	EMANUEL PHILIBERT, Duke of *Savoy*, died in 1580.	5
1580	CHARLES EMANUEL I. Duke of *Savoy*, died in 1630.	50
1630	VICTOR AMADÆUS I. Duke of *Savoy*, died in 1637.	7
1637	CHARLES EMANUEL II. Duke of *Savoy*, died in 1675.	38
1675	VICTOR AMADÆUS, Duke of *Savoy*, King of *Sardinia*, died in 1732.	65
1732	CHARLES EMANUEL III. King of *Sardinia*, one of the greatest Princes of this Age.	

Note, That, by what I have said of the Succession of the Grand Masters of St. *Lazare*, in *France*, ever since Pope *Innocent* VIII. suppressed in *Italy*, in 1490. That Father *Bonani* is mistaken in his Catalogue of the *Military Orders*, when he says, that after the Suppression of that *Order*, its Memory was darken'd by Degrees in *France*; since it has always subsisted in that Kingdom, where it has lost nothing of its Splendor. I'll shew the Sequel of that Succession, when I speak of the *Order* of *Our Lady* of Mount *Carmel*.

The TEUTONICK *Order*, is a military religious Order of Knights, established towards the Close of the 12th Century; and thus called, because consisting principally of *Germans* or *Teutons*.

The Origin, *&c.* of this Order was thus: — The Christians under *Guy* of *Lusignan* laying Siege to *Acre*, or *Acon*, a City in *Syria*, on the Borders of the Holy Land; at which Siege were present, *Philip Augustus* King of *France*, *Richard* King of *England*, &c. Some *Germans* of *Bremen* and *Lubeck*, touch'd with Compassion for the Sick and Wounded of the Army, who wanted common Necessaries, set on foot a Kind of Hospital under a Tent, which they made of a Ship's Sail; and here betook themselves to a charitable Attendance on the Sick.

This started a Thought establishing a military Order, in Imitation of the Templars and Hospitallers.

The Design was approved by the Patriarch of *Jerusalem*, the Archbishops and Bishops of the neighbouring Places, the King of *Jerusalem*, the Masters of the

of the *Grand Masters* of the *Order* of the *Templars*.

A CHRONOLOGICAL SUCCESSION *of some of the* Grand Masters *of the* Templars.

HUGUES, Founder, Chief, and first Grand Master of the Order, lived till the Year 1130.

Fr. ROBERT, called the *Bourgignon*, of the County of *Guyenne*, was Grand Master in the Time of *Foulques*, King of *Jerusalem*, from the Year 1131 to 1142.

Fr. BERNARD DE TREMULAY, Grand Master, at the Time of the Siege of *Ascalon*, who enter'd first, with his Knights, into the City, through the Breach, in the Year 1152.

Fr. BERTRAND DE BLANCFORT, Grand Master, who was in the Christian Army, in 1156.

Fr. OTHO DE S. AMAND, who was in the first War made in the Holy Land; and remain'd *Saladin*'s Prisoner from the Year 1173, till the Year 1178, when he died.

Fr. ARNOUD DE TROYES, who was at the Victory of *Turbolet*, gained against *Saladin*, about the Year 1179. He repassed afterwards into *Europe*, and died at *Verona*. The Chronicle of the Order of *Calatrava*, marks in the same Year for Grand Master of the Order of the Templars, in *Spain*, Fr. *Herminde*, who had some Differences with *Fernandez d'Escoza*, Grand Master of the Order of *Calatrava*, for the Limits of some of their Lands; but that Grand Master was not the Chief of the Order which was then in the Army of the East.

Fr. PHILIP DE NAPLES, Grand Master, in the Year 1180, and following; who was at the taking of *Ascalon*, where he defended a Post vigorously, at the Head of his Knights, in 1183.

Fr. GIRARD DE REDOFERT, Grand Master, in the Year 1184, till the Death of *Boudain* IV. King of *Jerusalem*, which happen'd in 1186.

Fr. HUGUES TABORIO, who, according to *Menmens*, on the Testimony of *Claudius Fauchet*, armed Knight *Saladin* Sultan of *Egypt*.

We find in the Chronology of *Calatrava*, in the Year 1210, Fr. Don *Gomez Ramire*, Grand Master, who was with his Knights at the *Croisade* which was undertaken for the Recovery of *Calatrava* on the Moors.

In the Year 1218, Don PETER ALBITIN, is found to have been Grand Master of the Templars in *Spain*, and to have been named as present at the Donation made by King Don *Alphonso* of *Leon*, and Don *Martin Fernandez*, Grand Master of the Order of *Calatrava*, and *Nugno*, Grand Master of the Order of St. *Julian de Peregro*, of the Estate of *Alcantara*; and no Body knows if he must be considered as true Grand Master and first Chief of the Order, or as one of the Grand Masters, subordinate to him who possessed that Dignity.

Fr. PETER DE BELIOX, Grand Master of the Temple, in the Year 1261, and Governor of *Ptolemaide*. He passed into *Europe* under the Pontificate of *Clement* IV.

Fr. JAMES DE MOLAY, born in *Burgundy*, Grand Master of the Order, at the Time of its Suppression, and who was burnt at *Paris*, for the Crimes all the Templars in general were accused of. He was arrested at *Paris* in 1307, in the House belonging to the Order, called till now, of their Name the Temple; and it is pretended, that he confessed all, *viz.*

1. That when a Knight was received into the Order, he was made to deny Christ, and to spit thrice on a Crucifix.

2. That he that was received, kissed the Mouth of the Person who receiv'd him, then his Navil, afterwards his Back, and for Conclusion his Backside.

3. That he was forbidden to have any criminal Commerce with Women, but that he was permitted to abandon himself with his Brethren to the most horrible, and most infamous Disorders. In another Information, it is said, that the Commerce with Women was forbidden them, lest it should scandalize them.

4. That they were made to adore a wooden Head, Part gilt, and Part silver'd; and had a great Beard; which was only seen in the general Chapters, where none but the Principals of the Order were admitted to it.

The Pope was resolved to content himself for the Punishment of this Grand Master, of *Guy*, Master of *Normandy*, and Brother of the Dauphin of *Auvergne*, of *Hugues* of *Peraldo*, who had been Intendant of the Finances of *Philip the Fair*, and of a fourth, who had also possessed great Employments in the Order, with a perpetual Prison, but he wanted they should confess publickly their Crimes. He sent for that Effect, two Cardinals to *Paris*, where these four Knights were in Prison. A Scaffold was erected before the Porch of the Church of our Lady, which the Cardinals mounted, and ordered the Criminals to mount likewise; and there was read to them with a loud Voice, the Confession they had made of the Corruption of their Order, and the Sentence which condemned them all four to a perpetual Imprisonment.

After that Reading, the Grand Master and the Dauphin's Brother asked Leave of the Cardinals to speak. The Assistants were much surprized to hear them both protest, that they retracted all they had said before their Judges, and declared that they had deposed false against their Order; that it was a very holy Order, and that all they had done was only to please the Pope and the King; and that they were ready to die to maintain that Truth.

The Cardinals extremely disconcerted, had them carried back to Prison, and granted their Life to the two others who had not retracted. The Grand Master, and the Master of *Normandy*, were soon afterwards tried and condemned to be burnt alive, and the Sentence was executed over-against the Convent of the *Augustines*, in the Island of the Palace: Both persisting in their Retractation, and the Grand Master citing, as already observed, the Pope and the King to God's Tribunal.

Thus that celebrated Order, after it had flourished during 184 Years, was extinguished throughout all Christendom, except in *Germany*, where they, the Knights, were absolved in a Provincial Council.

St. LAZARUS, or LAZARO, was a military *Order*, instituted at *Jerusalem* by the *Christians* of the West, when they became Masters of the *Holy Land*, whose Business was to receive Pilgrims under their Care, guard them on the Roads, and defend them from the Insults of the *Mahometans*.

This *Order* was instituted in 1119. Pope *Alexander* IV. confirmed it by a Bull in 1255, giving it the Rule of St. *Augustin*.

The Knights of this *Order* being driven out of the *Holy Land*, Part of them retired into *France*, and were established there under *Louis* III. who bestowed on them the County of *Bogny*, near *Orleans*, which is still the Conventual House of the *Order*, of which I have the Honour to be a Member. *Innocent* VIII. suppressed the *Order* of St. *Lazaro* in *Italy*, in 1490, or rather united it to that of *Malta*. *Leo* X. re-established it in *Italy*, in the Beginning of the sixteenth Century. In 1572, *Gregory* XIII. united it in *Savoy* to that of St. *Maurice*, just instituted by Duke *Emanuel Philibert*.

In *France*, this *Order* was united to that of *N. D.* of *Mount Carmel*, in 1608; and had some new Advantages conferred on it by the late King *Louis* XIV. The *Knights of St.* Lazarus are allowed to marry, and yet have Pensions upon Benefices.

Note, That this *Order* is considered as more antient than the two former above-mentioned, but as it was never so famous for their Feats of Arms, I only give it the third Place in this Account of the *Military Orders*. For some Authors pretend, that it owes its Origin to an Hospital built by St. *Basil*, in one of the Suburbs of *Cæsarea*, in 370 or 371, and that the Zeal of St. *Basil* was imitated by several Cities, which, by his Example, built Hospitals, likewise, and that as the Leprous were very common at that Time, and could communicate their Malady by the single Frequentation; the Hospitals assigned to them, were called *Maladeries*, under the Title of St. *Lazarus*; and that those who took Care of those Hospitals embraced the Rule of St. *Basil*; and formed an Institution different from his *Order*, under the Name of St. *Lazarus*, which was approved by Pope *Damasus*. What can be said for Truth, with Regard to the Knights of St. *Lazarus* is, that they began first by exercising Charity towards the poor Leprous, appointed for their Recep-

tion, taking the Name of *Hospitallers*, and that afterwards Part of them, at the Example of the other *Hospitallers*, followed the military Profession, and served with Honour and Courage the Christian Princes who conquer'd the *Holy Land*; without forgetting to practise Hospitality. This engaged the Kings of *Jerusalem*, *Baudouin* II. *Foulques*, *Amaury* III. and IV. and the Queen *Melesinda* and *Theodore*, to take their *Order* under their Protection, and to give it very large Possessions. They received likewise several Privileges from the sovereign Pontiffs; and being passed into *Europe*, the Princes of this Part of the World gave them large Possessions. *Alexander* IV. put them under the Protection of the Holy See, in the Year 1257, and confirmed all the Donations, which the Emperor *Frederick* II. had made them in *Sicily*, in the *Pouille*, in *Calabria*, and in some other Provinces. *Henry* King of *England*, Duke of *Anjou*, and *Normandy*, *Thibaut* Earl of *Blois*, and several others, increased their Revenues. But of all the Christian Princes, there were none from whom the Knights of St. *Lazare* received greater Advantages, than from the Kings of *France*: For having been expelled from the *Holy Land* in 1253, they followed St. *Louis* into *France*, who, in Gratitude for the Services they had done him in the East, confirmed to them the Donations of the Kings his Predecessors, put them in Possession of several Houses, Commanderies, and Hospitals, which that Prince founded. It was then they established the Chief of their *Order* at *Boigny* near *Orleans*, which had been given them ever since the Year 1154, by *Louis* VII. called the *Younger*; and that the Grand Master took the Title of Grand Master of the *Order* of St. *Lazare*, as well this Side as beyond the Seas; his Jurisdiction extending not only on the Knights who were in *France*, but likewise on Foreigners. Therefore *John* of *Couras*, who had been promoted to that Post in 1342, by *Philip* of *Valois*, gave Power in 1354, to Brother *John Hallided*, a *Scotchman*, to govern in his Name, as well in the spiritual as the temporal, all that belonged to the *Order* in *England* and *Scotland*, on Condition, that he should remit every Year to the Grand Commandery of *Boigny*, 30 Marks Sterling of Silver. King *Charles* V. called the *Wise*, having given the Grand Mastership in 1477, to *James de Bernes*, that Grand Master gave to Brother *Dominick* of St. *Roy*, the Commandery of *Seringon* in *Hungary*, and constituted him his Vicar General in that Kingdom, on Condition to assist at the general Chapters at *Boigny*, and to bring along with him 40 Marks of fine Silver.

The Knights of *Lazare*, made antiently solemn Vows, and there were even Nuns of that *Order*, and there is yet a Monastery of them in *Switzerland*. It is pretended, that the Knights of St. *Lazare* did not begin to wear the Cross with eight Points, before the End of the fifteenth Century; or the Beginning of the sixteenth. The most antient Monument which can shew which was the Habit of those antient Knights, is found in the Commandery of *Gratemont*, where at the Foot of an Image of St. *Antony* in Relievo, placed on a Kind of Column, are seen five Knights of St. *Lazarus* kneeling, armed with Cuirasses, and a Chaplain of the same *Order*, having all a long black Mantle, on which is a simple Cross, a little adorned at the Extremities, but that which is on their Breast is different, in that it is a little longer at the Foot, and terminates into a Point.

For in fact, it was but towards the End of that Century, or at the Beginning of the following, after Pope *Leo* X. re-established the *Order* of St. *Lazarus* in *Italy*, that the Knights of that *Order* took the Cross with eight Points; for in the Privileges of the *Order* printed at *Rome*, in 1566, there is a Vignette, where are seen several Knights having all a long Beard, and receiving the Cross of the *Order* and a Sword from the Pope's Hand; and those Knights have a black Gown with large Sleeves, and a Cross with eight Points on the Breast. There is likewise in the King of *France*'s Library, a Print of the Year 1525, which represents the different *Orders*, who follow the Rule of St. *Augustin*, where is seen a Knight of St. *Lazare*, with such a Gown.

Note, That here follows a *Chronological Succession* of the *Grand Masters* of the *Order* of St. LAZARE. The first Column contains the Years of Christ, the second, the Names of the Grand Masters, *&c.* and the third, the Years of their Mastership.

CHRONOLOGICAL SUCCESSION *of the* Grand Masters *of the* Order *of* St. LAZARE.

1490	PETER D'AUBUSSON, Grand Mast. of *Rhodes*, and Grand Master of St. *Lazare*, by the Union made in 1490. He died in 1503.	13
1503	AIMERIC D'AMBAC, Grand Master of *Rhodes*, and of St. *Lazare*, died in 1512.	9
1512	GUY *of* BLANCFORT, Grand Master of *Rhodes*, and of St. *Lazare*, died in the Year following.	1
1513	FABRICIUS DE CARETTO, Grand Master of *Rhodes*, and of St. *Lazare*, died in 1521.	8
1521	PHILIP DE VILLIERS, Grand Master of *Rhodes*, afterwards of *Malta*, and of St. *Lazare*, died in 1534.	13
1534	PERIN DE PONT, Grand Master of *Malta*, and of St. *Lazare*, died in 1535.	1
1535	DIDIER *of* St. JALLE, Grand Master of *Malta*, and of St. *Lazare*, died in 1536.	1
1536	JOHN DIOMEDE, Grand Master of *Malta*, and of St. *Lazare*, died in 1553.	17
1553	CLAUDIUS DE LA SANGLE, Grand Master of *Malta*, and of St. *Lazare*, died in 1557.	4
1557	JOHN DE LA VALETTE, Grand Master of *Malta*, and of St. *Lazare*, till the Separation made of those two *Orders* in 1565.	8
1565	JEANNOT DE CASTILLON, Grand Master of St. *Lazare*, elected by the Pope, till the Cession he made of that Dignity to the Dukes of *Savoy*.	10
1575	EMANUEL PHILIBERT, Duke of *Savoy*, died in 1580.	5
1580	CHARLES EMANUEL I. Duke of *Savoy*, died in 1630.	50
1630	VICTOR AMADÆUS I. Duke of *Savoy*, died in 1637.	7
1637	CHARLES EMANUEL II. Duke of *Savoy*, died in 1675.	38
1675	VICTOR AMADÆUS, Duke of *Savoy*, King of *Sardinia*, died in 1732.	65
1732	CHARLES EMANUEL III. King of *Sardinia*, one of the greatest Princes of this Age.	

Note, That, by what I have said of the Succession of the Grand Masters of St. *Lazare*, in *France*, ever since Pope *Innocent* VIII. suppressed in *Italy*, in 1490. That Father *Bonani* is mistaken in his Catalogue of the *Military Orders*, when he says, that after the Suppression of that *Order*, its Memory was darken'd by Degrees in *France*; since it has always subsisted in that Kingdom, where it has lost nothing of its Splendor. I'll shew the Sequel of that Succession, when I speak of the *Order* of *Our Lady* of Mount *Carmel*.

The TEUTONICK *Order*, is a military religious Order of Knights, established towards the Close of the 12th Century; and thus called, because consisting principally of *Germans* or *Teutons*.

The Origin, *&c.* of this Order was thus: — The Christians under *Guy* of *Lusignan* laying Siege to *Acre*, or *Acon*, a City in *Syria*, on the Borders of the Holy Land; at which Siege were present, *Philip Augustus* King of *France*, *Richard* King of *England*, &c. Some *Germans* of *Bremen* and *Lubeck*, touch'd with Compassion for the Sick and Wounded of the Army, who wanted common Necessaries, set on foot a Kind of Hospital under a Tent, which they made of a Ship's Sail; and here betook themselves to a charitable Attendance on the Sick.

This started a Thought establishing a military Order, in Imitation of the Templars and Hospitallers.

The Design was approved by the Patriarch of *Jerusalem*, the Archbishops and Bishops of the neighbouring Places, the King of *Jerusalem*, the Masters of the Temple,

Temple, and of the Hospital, and the *German* Lords, and Prelates, then in the Holy Land, *&c.* and, by common Consent, *Frederick* Duke of *Suabia*, who was then at their Head, sent Embassadors to his Brother *Henry*, King of the *Romans*, to sollicit the Pope to confirm the new Order.

Calixtus III. who then governed the Church, granted it by a Bull of the 23d of *February*, 1192; and the new Order was called, *The Order of* TEUTONICK *Knights of the House of St.* Mary *of* Jerusalem.

The Pope granted them all the Privileges of the Templars, and the Hospitallers of St. *John*; excepting that they were to be Subjects to the Patriarchs, and other Prelates; and that they should pay Tithe of what they possessed.

The first *Master* of the Order *Henry Walpot*, elected during the Time of the Siege of *Acre*, after the Taking of that City, purchased a Garden, wherein he built a Church, and an Hospital, which was the first House of the *Teutonick Order*.—Such is the Account given by *Peter* of *Daisbourg*, a Priest of this Order.

Jacques de Vitry differs a little therefrom; and relates, that the *Teutonick Order* was established at *Jerusalem* before the City of *Acre* was besieged.

These two Opinions *Hartnoch*, in his Notes on *Duisbourg*, reconciles, by saying, that the Order was first instituted by a private Person, a *German*, at *Jerusalem*; that it was confirmed by the Pope, the Emperor, and the Princes, at the Siege of *Acre*; and that after the Taking that City it was become so considerable, that it was known all over the World.

If it be true, that it was a private Person who first set on foot the Order, and that those People of *Bremen* and *Lubeck* only joined with them, as some Authors assert, we do not know the precise Year of its Origin.

The Order made no great Progress under the three first Grand Masters; but under the fourth, *Herman de Salza*, it became very powerful; insomuch that *Conrad* Duke of *Mozavia* and *Cujavia*, about the Year 1230, sent an Embassy to him, to sollicit his Friendship and Assistance, offering him and his Order the Provinces of *Culmes* and *Livonia*, with all the Lands they could recover from the idolatrous *Prussians*, who harrassed him exceedingly by their continual Incursions, and against whom he intended this new Militia; his own *Knights* of the Order of *Christ*, or of *Dobrin*, instituted for the like Purpose, being found too weak.

De Salza accepted the Donation; and *Gregory* IX. confirmed it; and to aid the *Knights* in reducing the *Prussians*, *Innocent* IV. published a Croisade.—With this Help, in a Year's Time, they subdued the Provinces of *Warmia*, *Nathongia*, and *Barthia*; the Inhabitants whereof renounced the Worship of the Idols; and in the Course of fifty Years more, they reduced all *Prussia*, *Livonia*, *Samogitia*, *Pomerania*, &c.

In 1204, Duke *Albert* had founded the Order of *Sword-Bearers*, *Port-Glaives*, which now became united to the *Teutonick Knights*, and the Union was approved by Pope *Gregory* IX.

Waldemar III. King of *Denmark* sold to the Order the Province of *Livin*, the City of *Nerva*, and *Wessemberg*, and some other Provinces.

A new Union, some Time afterwards, occasioned great Divisions and Troubles in the Order: It was with the Bishops and Canons of *Prussia* and *Livonia*, who hereupon took the Habit of the *Teutonick* Order, and shared the Sovereignty with the Knights, in their respective Dioceses.

The Order, thus Master of all *Prussia*, built the Cities of *Elbing*, *Marienbourg*, *Thorn*, *Dantzick*, *Koningsberg*, and some others: The Emperor *Frederick* II. permitted to add to the Arms of the Order the Imperial Eagle; and St. *Lewis*, in 1250, allowed them to quarter the *Flowers de Lis*.

After the City *Acre* had been recovered by the Infidels, the Grand Master of the *Teutonick Order* removed his Seat from that City to *Marienbourg*.—As the Order grew in Power, the Knights took more State on them; and at length, instead of Friars, Brothers, as at first, would be called *Lords*. And though the Grand Master *Conrade Zolnera*, of *Rosenstein*, opposed this Innovation, his Successor *Conrade Wallerod* not only approved it, but even procured himself to be treated with Honours only rendered to the greatest Princes.

Divisions being got into the Order, the Kings of *Poland* made their Advantage of them: The *Prussians* revolted to them; and after several Wars between the Knights and the *Poles*, the former yielded to King *Casimir* the upper *Prussia*, and did Homage to him for the lower.

Lastly, at the Time *Luther* did set all *Germany* in Flames, *Albert* Marquis of *Brandenbourg*, then Grand Master, turning *Lutheran*, renounced the Dignity of Grand Master, dissolved the Commanderies, and drove the Knights out of *Prussia*.

Most of the Knights followed his Example, and embraced *Lutheranism*: The rest of their Order transferred themselves to *Margentheim*, or *Mariendal*, in *Franconia*, where they still remain.

They there elected *Walter* of *Cranberg* their Grand Master, formed a Process against *Albert*, and the Emperor put him to the Ban of the Empire. The Order, however, could never recover their Domains; but are now little more than the Shadow of what they formerly were, having only three or four Commanderies, scarce sufficient for the ordinary Subsistence of the Grand Master and his Knights.

The Officers of the *Teutonick Order*, when in its Splendor, were the Grand Master, who resided at *Marienbourg*; under him were the grand Commander; the grand Marshal, who had his Residence at *Koningsberg*; the grand Hospitaller, who resided at *Elbing*; the Draper, who took Care to furnish the Habits; the Treasurer, who lived at the Court of the Grand Master; and several Commanders, as those of *Thorn*, *Culme*, *Brandenbourg*, *Koningsberg*, *Elbing*, &c.

They had also their Commanders of particular Castles and Fortresses; Advocates, Proveditors, Intendants of Mills, Provisions, *&c.*

Waisselius in his Annals says, they had 28 Commanders of Cities, 46 of Castles, 81 Hospitallers, 33 Masters of Convents, 40 Stewards, 37 Proveditors, 93 Masters of Mills, 700 Brothers or Knights to take the Field, 162 Brothers of the Choir, or Priests, 6200 Servitors or Domesticks, *&c.*

Note, That here follows a concise Description of the antient Observances of the *Teutonick Order*, before Ambition was introduced into it.

1. To hinder the Knights from sinning against the Chastity they had vowed, their Rule forbids them all Sort of Conversation with Women, especially young ones; and a Knight was not even allowed to kiss his own Mother, in saluting her.

2. They professed so great a Poverty, that they could have nothing in Property without the Grand Master's, or the other Superior's Leave: Therefore they could have no Trunk, or Box, with a Lock to it, for fear they should be suspected of hiding Money, or locking up some other Thing forbidden by the Rule. What they possessed was only in the Name of the Order, or of the Chapter; and that only to distribute it to the Poor, or to the Sick, or to those of the Order who wanted it.

3. Some Authors say, that their first Grand Master order'd them to recite every Day, and every Night, a hundred Times the Lord's Prayer, the Symbol of the Apostles, and the *Ave Maria*; but the Rule did not order so great a Number.

4. Their Cells were always to be left open, that nothing should be hid from the Sight of the Superior, who was commonly a Commander.

5. There were twelve Knights in every Convent, in Honour of the twelve Apostles, and *Winrick* of *Kniprode*, nineteenth Grand Master, order'd, that besides the twelve Knights, there should be six Chaplains. There were about forty of those Sorts of Convents; and sometimes several of them in the same Place.

6. Their Bed was only Straw in a Sack of coarse Cloth.

7. Their Arms were neither to be gilt nor silver'd.

8. The Age appointed by the Rule, for the Admission into the *Order* was fifteen; and the Subjects were to be strong and robust to bear the Fatigues of the War.

9. The

9. This *Order* was divided like that of *Malta*, into three Classes, *viz.* of *Knights*, *Chaplains*, and *Servant-Brothers*. There were also married Men, who were permitted, as in the *Order* of *Malta*, to wear half Crosses. And I found that there were besides Nuns of that *Order*.

10. The Dignities of the *Order* were, as already mention'd, a *Grand Commander*, a *Grand Marshal*, a *Grand Hospitaller*, a *Draper*, and a *Treasurer*, who had every one their particular Employment. — The *Grand Commander*, presided at all the Councils, and governed the Province in the Grand Master's Absence: He had the Inspection on the Treasure, on the Corn, and on the Navigation; and the Brethren's Chaplains, and Servants at Arms, who lived in the first Convent, were to obey him. — The *Grand Marshal*'s Office was to provide all that was necessary for the War; therefore all the Knights were to obey him in the Grand Master's Absence; he furnish them their Arms and Horses, which notwithstanding he was not allowed to buy without the Grand Master's Leave. Without the same Leave, he could not dismiss any Knight from the Army, or attempt to fight. In Time of Peace the *Grand Commander* had the Precedency of him; but in Time of War he preceded the Grand Commander. The *Grand Hospitaller* had the Care of the Poor, and of all the Hospitals, and commanded the inferior Hospitallers. He was not obliged to account for the Expences he made, and when he wanted Money, or other Things necessary for the Hospitals and the Poor, the Grand Commander was to supply him with them. — The *Draper* had the Care of the Habits of the Brethren. If a Piece of Cloth was given to a Knight, he could not keep it without the *Draper*'s Leave. If the Piece of Cloth given was enough for two Mantles, he kept half of it for himself, and gave the other half to the *Draper*; who was also to furnish the Knights who were sent from one Convent to another, with what was necessary for their Journey; and the Treasurer, to be always ready to distribute what was necessary, lived always at the Grand Master's Court; to whom the great Officers were obliged to give every Month, their Accounts of the Expences they had, except the Grand Hospitaller.

Note, That the Election of the *Grand Master* was made during that flourishing State of the Order in the following Manner.

The GRAND MASTER, on his Death-bed, could give to what Knight he pleased, the Ring and Seal of his Dignity, to deliver it to his Successor. He that was intrusted with that *Depositum*, was declared Vicegerent, and govern'd the *Order* till the Election; but if that Knight was not agreeable to the whole Chapter, another was chosen after the *Grand Master*'s Death.

That Vicegerent informed of that Death the provincial Masters, and fixed a Day for the Election, that those provincial Masters, with one or two Knights who were to be elected, might be present.

During that Time, all the Cloaths of the Deceased *Grand Master* were distributed to the Poor, one of whom was fed during a whole Year, which was also practised during forty Days, at the Death of every Knight.

The Day of the Election happening, the Mass was celebrated, after which, the Statutes of the *Order* were read, the Brethren recited fifteen Times the Lord's Prayer, and afterwards thirteen Poor were fed. The Vicegerent, with the Consent of the Assembly, elected a Knight to be Commander of the Electors. That Commander used to take another Knight for his Collegue; those two a third; and those three a fourth, and always increasing to the Number of thirteen. Among those Electors, there were a Chaplain, eight Knights, and four Brothers Servants, all of different Provinces.

After the Election, the Vicegerent conducted to the Altar, the new *Grand Master*; to whom after he had represented the Obligations, or Duties of his Employment, he deliver'd the Ring and Seal, which he had received from the late *Grand Master*, and kissed him.

Note, That here follows the Ceremonies which are still observed at the Installation of a *Grand Master* of the *Teutonick Order*, according to *Henry Lour*.

He that has been elected for that Dignity, is conducted by all the Knights present, to the great Chapel; where being arrived, he seats himself in a Chair, before which is a Pulpit, cover'd with black Silk, and placed at five Paces Distance from the great Altar. Then all the Bells are rung, and the Priest who officiates with the Deacon, sets the *Te Deum*, which is continued by the Choir, and followed by the Litanies, accompanied with Instruments; which ended, the Priest, before he begins Mass, addresses to the new elected, the following Words:

Most excellent Prince, this Day you are to receive the Marks of the *Grand Mastership* of the illustrious *Teutonick Order*, and intrusted with the Government thereof, it is proper we should humbly give you some Advices on that Employment, *&c.*

The Discourse ended, the Priest reads several Prayers, at the End whereof, he gives the Cross of *Prussia* to the *Grand Master*; then reads other Prayers, which concluded, the Keys and the Seal are deliver'd to him; and after several other Prayers, the Mass of the Holy Cross begins, which ended, the Musick sings the *Benedictus Dominus Deus Israel.*

Besides the Vows of defending the Church, these Knights are obliged to make that of Chastity.

The antient Habit of the *Grand Master*, was a long black Cloak of woollen Cloth, reaching down to the Feet, which *Augustin Maximilian Merhofen* believes to have been rather a Mantle of Parade, than the Habit of the *Order*.

The antient Habit of the Knights consisted of a white short Doublet, with a black Cross on the Breast charged with another Cross Argent. But on the left Side of their Cloak they had a black Cross with eight Points.

At present they wear over their common Cloaths, a white Mantle, on which, on the left Side, is a black Cross, orled Argent. The Cloak of the Knights reaches no farther than the Middle of the Leg.

Note, That next follows a *Chronological Succession* of the Grand Masters of the *Teutonick Order*, according to the Abbot *Giustiniani*. The first Column contains the Number of Grand Masters; the second the Years of Christ; the third, their respective Names, *&c.* and the fourth, their Years of Mastership.

CHRONOLOGICAL SUCCESSION *of the* GRAND MASTERS *of the* TEUTONICK ORDER.

1	1190	HENRY *of* WALPOT, first Grand Master of the Hospital, and Order of St. *Mary* of *Jerusalem*, on Mount *Sion*, built by King *Baudouin*.	10
2	1200	OTHO *of* CARPEN of *Bremen*,	6
3	1206	HENRY, or according to others, HERMAN DE BRAT, of *Alsace*, died at *Ptolemaide*.	4
4	1210	HERMAN DE SALTZA, or GALTA, according to some Moderns, who undertook the Conquest of *Prussia*.	
		Some put for fifth Grand Master, Henry *of* Hohenloe; *but as the* Chasseur *does not mention him in the History of that Order, printed in* 1680, *we'll leave him out likewise.*	
5	1240	CONRAD, Landgrave of *Thuringia*, established Grand Master by the Emperor *Frederick* II. died at *Marpurg* in *Hesse*.	12
6	1252	POPPE D'OSTERN, or D'OSTERLING, whom his great Age obliged to abdicate.	11
7	1263	HANNON, or JOHN ANGERHAUSEN, or SANGERHAUSEN, or ZANGERHAUSEN.	12
8	1275	HERMAN, or HOTMAN HELDRUNGEN, died at *Venice*, where he resided.	8
9	1283	BURCHARD *of* SCHUNDEN.	7
10	1290	CONRAD FUCHTWANGEN, who established his Residence at *Prague*.	7

11	1297	GODEFROI, or GEOFFROI, Count of *Hohenloe*, built *Marienburg* in *Prussia*, and abdicated in 1302.
12	1303	SIGEFROI of FEUCHTWANGEN, transported the Seat of the Grand Masters to *Marpurg* in *Hesse*, then to *Marienbourg* in *Prussia*.
13	1312	CONRAD, or, according to others, CHARLES BEFFAT or BEFFUT, of *Treves*.
14	1325	WERNERE, or WARENARE D'ORSELIM, or ARSEL, or according to others WERSELEN, killed by a Knight.
15	1331	LUDERE, Duke of *Brunswick*, conquered a great Part of *Great Poland* on the *Cossacks*.
16	1335	DIETERIC, Count of *Oldenbourg*, or according to others THEODORICK of *Altembourg*.
17	1342	LUDOLFE KOENIG, or CONING, of *Weirau*.
18	1345	HENRY DUSMER, or DUSNER, of *Alseberg*.
19	1351	WINRIC, or VERNRIC, of *Keciprode* or *Canippenrode*.
20	1382	CONRAD ZOLNER, of *Rodenstain*.
21	1391	CONRAD of *Valenrode*, or *Valrode*.
22	1395	CONRAD of *Jemgingen*, or *Lamgingen*.
23	1407	ULRIC of *Jemgingen*, *Conrad*'s Brother, killed in a Battle against *Jagellon* King of *Poland*.
24	1410	HENRY of *Plowen*, or *Plotten*, deposed.
25	1413	MICHAEL CHUCHENMUSYER, of *Stemberg*, deposed likewise.
26	1422	PAUL BELLIZARE, or BELNITZER, or as others write it, BELLIGERE of *Rusdorff*.
27	1441	CONRAD *D'Erlichshausen*.
28	1450	LOUIS, Son of *Conrad d'Erlichshausen*, under whom Part of *Prussia* passed under the Obedience of the Crown of *Poland*.
29	1467	HENRY of *Plaven*, or *Plavender*.
30	1470	HENRY RESFLE of *Richtenberg*.
31	1477	MARTIN TRUSCHES of *Weshausen*, or according to others TRACHESE of *Wershausen*.
32	1489	JOHN of *Tieffen*, otherwise *Diepen*, confederate with the King of *Poland*.
33	1498	FREDERICK Duke of *Saxony*, Landgrave of *Thuringia*, and Marquis of *Misnia*.
34	1511	ALBERT, Marquis of *Brandebourg*, who embraced *Lutheranism*, and render'd himself Master of *Prussia*.
35	1527	WALTERN of *Cromberg*, who established the Seat of the Grand Master at *Mergentheim* in *Germany*, where it has continued ever since.
36	1543	WOLFANG SCURBAR, or SCUTSPER, called *Mischiling*.
37	1566	GEORGE HUNDT of *Wenkhein*.
38	1572	HENRY OBENHAUSEN, or BOBENHAUSEN, renounced the Administration in 1585, and the Grand Mastership in 1590.
39	1585	MAXIMILIAN, Archduke of *Austria*.
40	1618	CHARLES, Archduke of *Austria*.
41	1625	JOHN EUSTACHIUS, of *Westernac*.
42	1627	JOHN GASPARD, of *Stadion*.
43	1642	LEOPOLD WILLIAM, Archduke of *Austria*.
44	1662	CHARLES JOSEPH, Archduke of *Austria*, elected by three Bailiffs or Directors of the Order.
45	1664	JOHN GASPAR, of *Ampringen*, the last of that House.
46	1684	LOUIS ANTONY, Prince of *Neubourg*, Son of the Duke and Elector Count *Palatine* of the *Rhine*.

The Order of CALATRAVA, was instituted in 1158,
by *Sancho* III. King of *Castile*, on the following Occa-
5 sion: The *Moors* going to attack the City *Calatrava*,
and the Templers who held it, surrendering it up to
the King, on a Suspicion of their Inability to defend it,
Diego Velasquez, a *Cistercian* Monk, but a Man of Qua-
9 lity, persuaded *Raymond* Abbot of *Fitero*, a Monastery
of *Cistercians*, to beg *Calatrava* of the King. He ob-
tained it, and *Raymond* and *Diego* put themselves in it;
12 being followed by a great Number of People, who joined
them out of Zeal for the Defence of *Calatrava*. The
Moors abandoning the Enterprize, many of those who
came to the Defence of the City entered the Order of
6 the *Cistercians*; and that under a Habit more fit for
military, than monastick Exercises. Accordingly they
began to make Incursions on the *Moors*; which was the
4 Rise of the Order of *Calatrava*.

The first Grand Master was *Garcias*; under whose
Government the Order was confirmed by *Alexander* III.
6 in 1164. In 1489, *Ferdinand* and *Isabella*, with the
Consent of Pope *Innocent* VIII. reunited the Grand Ma-
3 stership of *Calatrava* to the *Spanish* Crown; so that the
Kings of *Spain* are now perpetual Administrators thereof:
6 Though the General of the *Cistercian* Monks, and of
the *Bernardins*, stile themselves general Superiors of
31 *Calatrava*.

8 *Note*, That here follows an Abridgment of the antient
4 Rule of the Order of *Calatrava*, of the antient Cere-
12 monies used in the Reception of the Grand Master,
Knights, *&c.* and a chronological Succession of the
Grand Masters: Together with the Institution of the
3 *Nuns*, or *Chevaliereses* of that Order.

3 As the *Knights* of *Calatrava*, at the Beginning of
their Institution, lived in part as Ecclesiasticks, and in
8 part as Laicks; they were always obliged to assist at
the divine Service; and in time of War, used to take
Arms against the *Moors*.—The Archbishop of *Toledo*,
19 on account of the Victory of *Las Novas*, they gained
9 in 1212, speaks of them thus: 'At the same Time
'they are employed in praising God by Canticks, and
'offer him their Sighs and Tears; they likewise take
'the Sword in Defence of their Country. Their Food
17 'is very simple, and their Habit a coarse woollen Stuff.
3 'They exercise themselves by a continual Discipline,
7 'and Silence accompanies all their Actions.

In fact, the Historians of that Order say, that they
were obliged to wear none but woollen Shirts; that their
12 Tunicks were to be made in such a Manner, as not to
hinder them from mounting a Horse; that their Cloaks
9 should be lined with Lamb-skins; and that the Scapu-
lary was the Habit of the Order.—They were to lie
in their Cloaths, have nothing superfluous in them, and
12 which as to the Quality and Colour of the Stuff, were
to be the same as those of the Religious of the same
Order. They were to observe Silence in the Oratory, in
15 the Refectory, and in the Kitchen. They might eat
Flesh three Times a Week.

The Religious of *Cistaux* could not admit a Knight to
Profession, without the Grand Master's Leave; and
16 when they went into some Abbeys of *Cisteaux*, they were
not received in the Apartment of Strangers, but in the
23 Inside of the Monastery like the Religious themselves,
6 and were to live like the Lay Brothers of that Order:
But the Pope gave them Leave afterwards to receive
Chaplains, to administer the Sacraments to them.

After the Abbot *Raymond*'s Death, the Knights of
13 *Calatrava*, though most of them were but Lay Brothers
33 of *Cistaux*, whom he had made take Arms, would have
no more Monks among them, nor be governed by an
2 Abbot: Therefore they elected for their first Grand
15 Master Don *Garcias*, one of them.

Authors do not agree among themselves with Regard
20 to the antient Form of the Habit of the Knights of
Calatrava. Some of them pretend, that it was the
same with that of the Monks of *Cistaux*; others say,
2 that it was not different from that of the Secular; but
they all agree that it had a white Scapulary with a black
20 Capuche, fasten'd to a Kind of Camail, which they
wore till the Year 1397. That the Anti-Pope *Be-*
nedict XIII. whom they acknowledged in *Spain* for le-
gitimate Pontiff, gave them Leave to leave off the Sca-
pulary

pulary, and the Capuche, and order'd them to wear only on their Habit a Flower-de-lised Crofs of red Cloth, fasten'd on the left Side. Pope *Paul* III. permitted them afterwards to marry once.

At present, the Habit of Ceremony of the Knights of *Calatrava*, is a large white Mantle, on which there is, on the left Side, a red Crofs Flower-de-lised. Ever since the Year 1540, that the Knights were permitted to marry, they make but the Vows of Poverty and Obedience, and of a conjugal Chastity; and ever since the Year 1652, they have added a fourth, *viz.* of defending the immaculate Conception of the blessed Virgin *Mary*. They have for their Arms a Crofs of the Order, which is Gules in a Field Argent, with two Shackles Sable at the Foot of the Crofs.

Note, That here follows a *Chronological Succession* of the *Grand Masters* of the *Order* of *Calatrava*. The first Column contains the Number of Grand Masters; the second the Years of Christ; the third their respective Names, *&c.* and the fourth their Years of Mastership.

A CHRONOLOGICAL SUCCESSION *of the* Grand Masters *of the* Order *of* CALATRAVA.

1	1164	DON GARCIAS *of* NAVARRE, who obtained of the King the Dignity of Grand Master, and at the King's Sollicitation, the Confirmation thereof of Pope *Alexander* III.	10
2	2169	D. FERDINAN ESCAZA, of the Frontier of *Navarre*.	3
3	1179	D. MARTIN PEREZ *of* SEJONES of *Tarrazone* in *Arragon*.	16
4	1182	D. NUGNO PEREZ of *Quignonez*, and of *Leon*.	8
5	1198	D. MARTIN MARTINEZ.	6
6	1206	D. RUIZ or RODERICK, of the Country of *Yanguas*.	3
7	1212	D. RODERICK GARCES, or GARCIAS.	2
8	1216	D. MARTIN FERNANDEZ DE QUINTANA.	20
9	1218	D. GONZALEZ YANNEZ, or *John*.	2
10	1238	D. MARTIN RUIZ, or RODRIGUEZ.	3
11	1240	D. GANEZ MANRIQUE.	11
12	1243	FERDINAND ORDONNEZ, or ORDOGNEZ.	13
13	1254	D. PETER JANNEZ, or JOANNES.	17
14	1267	JOHN GONZALEZ.	11
15	1284	D. RUIZ or RODERICK PEREZ PONTE.	1
16	1295	D. DIEGO LOPEZ, of St. *Solez* of *Toledo*.	35
17	1296	D. GARCIAS LOPEZ of *Padiglia*.	26
		D. GUTIERE PEREZ. } intruded and	10
		D. ALEMANO } deposed.	4
18	1329	D. JOHN NUGNEZ of *Prado*.	15
19	1355	D. DIEGO GARCIAS of *Padiglia*.	1
20	1365	MARTIN LOPEZ of *Cordua*.	19
21	1369	D. PETER NUGNES of *Godoy*.	10
22	1384	D. PETER ALVAREZ PEREIRA, a *Portuguese*.	29
23	1385	D. GONZALEZ NAGNEZ of *Guzman*.	1M
24	1404	D. HENRY DE VIGLIENA.	14
25	1414	D. LOUIS GONZALEZ of *Guzman*.	20
26	1443	D. FERDINAND of *Padiglia*.	16
27	1443	D. ALPHONSE of *Arragon*, Son of the Infant Don *John* King of *Navarre*.	5
28	1445	D. PETER GIRON, elected against D. *Alphonse*.	
29	1466	RODERIC TELLEZ GIRON his Son.	
30	1482	D. GARCIAS LOPEZ of *Padiglia*. *There was no Grand Master during two Years.*	
31	1489	D. FERDINAND V. and DONNA ZABELLA, King and Queen, and Administrators, by a Bull of the Pope.	
32	1516	D. CHARLES of *Austria*, Prince of *Spain*, afterwards King and Emperor, and perpetual Administrator, by a Bull of the Pope.	
33	1556	D. PHILIP II. King of *Spain*, by the Renunciation of his Father, perpetual Administrator.	42
34	1598	D. PHILIP III. King and perpetual Administrator.	23
35	1621	D. PHILIP IV. King and perpetual Administrator.	46
36	1667	D. CHARLES II. King and perpetual Administrator.	34
37	1700	D. PHILIP V. the present King of *Spain*.	

Note, That the Grand Master *Gonzalez Yannez*, or *Ibagnez*, founded Nuns Chevaliereffes of *Calatrava*, in 1219. They were first established in a Convent of St. *Felix* near *Amaga*, in a Place called *Barrios*, where they remained about 350 Years, till *Philip* II. King of *Spain*, and Administrator of that *Order*, transferred them into the City of *Burgos*, in the Year 1538. Some devout Maidens who wore the Habit of *Citaux*, and lived in Communality, under the Jurisdiction of the Bishop of *Siguença*, in the Convent of St. *Saviour* of *Pinilla*, submitted themselves, likewise, to the *Order* of *Calatrava*, about the Year 1479, under the Government of the Grand Master *Peter Giron*, who gave them some Inheritances belonging to the *Order*, and formed the second Monastery of the *Order* of *Calatrava*. But the most illustrious was that founded by *Gautier* of *Padilla*, Grand Commander of the *Order*, at *Almagro*, under the Title of *the Assumption of Our Lady*, while King *Ferdinand* had the Administration of the *Order*. Those Nuns have the Title of *Commandresses*; they wear a white Gown and Scapulary, with the Badge of the Knights of *Calatrava* on their Breast, *viz.* a red Crofs with four Lillies at the four Corners, and Shackles, called in *Spanish Trowas*: Those Ladies wear a noble Kerchief under their black Veil, granted them by Pope *Benedict*.

Note also, That I'll give in this Place a concise Account of the *Military Orders*, or accounted such, which are supposed to have preceded those heretofore mention'd; as the *Orders* of the *Golden Angel*, of the St. *Sepulchre*, of the *Croisade*, &c.

The *Order* of the *Golden Angel*, or of St. *George*, is supposed to have been instituted by *Constantine the Great*, and which he composed of *Christian* Soldiers, at the Neck of whom he fasten'd for a Reward of their great Actions, and for Mark of their Dignity, the Name of Christ, design'd by a Cypher, formed of an X and a P; with the Approbation of Pope *Silvester*, who confirmed in an authentick Manner this new Institution, as it appears by an antient Marble, which I have seen at *Rome*, where *Constantine* is represented sitting on his Imperial Throne, giving the Crofs to the Knights, with this *Latin* Inscription.

CONSTANTINUS MAXIMUS IMPERATOR,
POSTQUAM MUNDATUS A LEPRA
PER MEDIUM
BAPTISMATIS, MILITES SIVE EQUITES
DEAURATOS CREAT IN TUTELAM
CHRISTIANI NOMINIS.

i. e. the Emperor *Constantine the Great*, after he was cured of the Leprosy by Means of Baptism, created gilt Soldiers or Knights for the Defence of the Christian Name.

The Knights of this *Order* had a Right to carry the Standards in the Armies, and were called *Præpositi Laborum*, or *Labarorum*, i. e. Chiefs of the military Works, or of the sacred Standards; and also *Torquati*; because of the Collar they wore. The great Number of Medals coined for them, the Statues erected to them, and the Inscriptions made in their Honour, witness enough how much they were esteemed by the Emperors. They were called *Knights of the Angel*, because of the Angel who appear'd to *Constantine*. The *Golden Knights*, because of their Collar which was Gold. And *Knights of Constantine*, because instituted by that Emperor. The Cyphers of their Collar were composed of the Name of Christ, designed by the *Greek* Letters X and P, with the Letters A and

A and Ω, which signify, *Jesus Christus principium & finis*, i. e. Jesus Christ is the Beginning and the End.

The signal Advantages which the Christian Church obtained afterwards, having soon made her take another Form; this *Order* acquired, likewise, in Time, a much greater Lustre; for their Power, and great Riches, put them in a Condition to form a great Society, in which were established ecclesiastical and secular Offices, particularly those of *Grand Master*, of *Knights*, and of *Esquires*.

The *Grand Master* divided the whole *Order* into three Classes, with Regard to their Administration, or Functions. Some of them were called *Torquati*, because of their Collars. The second were *Knights of the Law*, and of what regards the ecclesiastical Functions. The last, was of the *Esquires*, or of those who served to carry the Shield. They were all obliged to obey the Grand Master, who in his Turn was to watch over their Conduct, and make them observe their Vows, and other Duties.

The Habit of Ceremony which the Grand Master wears at present, when he comes to the general Assembly, composed of fifty Counsellors, are, 1. For the Head, a Cap, *Macedonian* Fashion, of Crimson Velvet, lined inside with white Sattin, and on the Borders, which are divided into four Corners, garnished with Gold Threads interwoven together, and forming Cyphers, which contain the Name of *Christ*, composed of the two *Greek* Letters, X and P; over it is a Crown of Lillies and Fleuroons, and a Feather of an *Indian* Bird. The Mantle is lined with Silver Cloth, and the Outside, which is of blue Velvet, is garnished at the Neck with a Crimson String, at both Ends of the String are two rich Buttons; and a large Knot, through which passes two other Strings, which fall negligently on the Back, and reach down as far as the Heels: This is called the Tail.

The Cross of the *Order* is of Crimson Velvet, orled Gold; and terminates into Flowers-de-lis, and has at the four Angles these Letters, I. H. S. V. *In hoc signo vinces*, *In this Sign thou shalt conquer*. The Letters X and P are in the Middle, interwoven together, and A and Ω make the Ornament of the left Side of the Mantle. The Collar is a Mixture of the same Cyphers several Times interwoven together, to which is fasten'd the great Cross of the *Order*, environ'd with Oak and Laurel Leaves; and underneath the Patron of the *Order*, viz. St. *George* fighting the Dragon. On the Cassock, which is of Silver Tissue is also the Cross embroider'd which covers the Breast.

The Virgin *Mary* holding the Infant *Jesus* in her Arms, is painted in their Banners of Procession, and in their Standards of War; and underneath a small Pendant, on which are read these same Words, *In hoc signo vinces*. On the other Side of the Banner are seen the Arms of the Grand Master.

The *Esquires* which compose the third Branch of the *Order*, have no other Marks of Distinction, but a blue Scarf, embroider'd with a Cross with three Points.

The *Senators* of this *Order*, who are fifty in Number, wear all a Cap like that of the Grand Master, the Crown, and the Bird's Feather excepted; instead whereof they have each another Kind of Feather. The Fashion of their Habit is like that above described, but the Stuff is different; for the Outside of the Cloak is of blue Armoisin, with a Lining of white Taffetas, and is fastened with a double red String hanging down to the Ground. This Mantle is adorned on the left Shoulder with a red Silk Cross embroider'd, and environ'd with Gold. The Collar is Gold, like that of the Grand Master, but smaller, and of a less Price. The Waistcoat and Girdle are of blue Silk, the military Coat and Buskins are of white Silk; the Shoes of the same Colour, fasten'd with Silk Strings, or Silver Buckles; and under the Cloak is a Sword fastened to a Belt, the Belt fastened over the Waistcoat.

The third Class of the *Knights of the Golden Angel*, includes those called *common Knights of Justice* of *Policy*, or of the *Law*, called also *given* or *gracious*, because, in their Reception, less Regard is had to their Birth, than to their Manners and Probity: Notwithstanding which, they arrive by Degrees to all the Honours and Employments of the *Order*. They are cloathed in a Manner very different from the other Knights: Their Cap blue, lined with white Armoisin, without a Crown, and only adorned with the Feather of an Ostrich. Their Mantle is like that above-mention'd, but they have neither Collar nor Cross on their Coat; in lieu thereof they wear on the Breast a Gold Cross fastened to a Chain of the same Metal, and on the left Shoulder of the Cloak a silk Cross embroider'd. Their Waistcoat is of white Silk, and all the rest of their Dress, is like that of the Knights great Crosses.

The *Ecclesiasticks*, or *Priests* of the *Order*, wear in the solemn Functions the common Cap of Priests, unless they be of the Number of Senators; for then their Cap is of blue Silk adorned, on the fore Part with a Cypher of the Name of Christ embroider'd Gold. Their Cloak is like that of the common Knights above-mention'd. But those who are not Senators, but only simple Chaplains, wear in the Function of their Ministry a long Cassock of blue Silk, and semblable, for the Form, to that which the other Ecclesiasticks commonly wear. They have over it, a Surplice of Cambrick, reaching to their Knees, with wide Sleeves, garnished as well as the Body of the Surplice, with a fine Lace. On the left Sleeve of the Surplice is embroidered with Silk the Cross of the *Order*. At other Times they wear a Gold Cross hanging at their Neck, and another fastened on their Cloak, *&c.*

The last Class of the *Order* of the *Golden Angel*, is that of the Servant Knights, who are of two Sorts, *viz.* the first who carry the Shield and Arms of the other Knights, and fight at their Side, to assist them on all Occasions; and the second are employed in the most servile Offices of the *Order*: They are inferior to others, and wear neither Sword nor Spurs, nor the rest of the military Ornaments the first are honoured with; they are, notwithstanding reputed Members of the *Order*, and though they wear also the Cross, they are not ranked among the Knights.

The principal Ornaments of the Servant Knights is a Sort of blue Silk Scarf, to which is fasten'd the Cross of the *Order* on the Breast, but without any Ornament, and without the Cypher, which compose the Cross of the other Knights. Moreover they wear a common Hat, and change nothing in the common Form of their Cloaths. In the Field they wear a short Waistcoat, on which is fastened the Cross of the *Order*. They use a Buckler, a Cuirass, and besides the Sword they wear at their Side, they are armed with a Pike. When they quit their Arms, they are obliged to wear always a Cross of Silk, embroider'd on their Cloak; and another of Gold hanging down on their Breast.

Among the most famous Heroes, who have signalized themselves in this *Order*, are reckoned several Saints, and a great Number of Princes and Lords. The Saints are St. *Demetrius*, St. *Procaius*, St. *Hippolitus*, St. *Mercurius*, St. *Martin*, St. *Theodorus*, St. *Vitalis*, and others, who have generously sacrificed their Life for the Defence of the Faith.

Among the Princes are, *Frederick* Emperor of the West, and *Henry* his Son; *Philip* King of *France*, *Richard* King of *England*, *William* King of *Sicily*, *Balthazar* King of *Hungary*, *Casimir* King of *Poland*, *Alphonsus* King of *Arragon*, Don *Alphonsus* King of *Castile*, Don *Emanuel* his Son: Among the Lords, *Otho* Duke of *Burgundy*; *Tancred Guiscard*, *Thomas* Earl of the *Allobroges*, *Obisson* Marquis of *Este*, *Heraclius Cantacusene*, *Michael Sebaste*, *John Frederick Gonzague*, *Albert* Earl of *Habsbourg*, *Don Philip* Earl of *Flanders*, *Lazarus Hersokovius*, the Earl *Michel Complaste*, *Don Guido Turiane*, Governor of *Ravenna*. And *Charles* V. Emperor, as well as his Son Don *Juan* of *Austria*.

The Privileges this *Order* enjoys, were granted to it by Pope *Leo* I. in 456, by the Emperor *Leo*, in 486, by *Isaac Ange Flavius Commene*, in 1191, and by his Son, the Restorer of the *Order*; by *Michel Paleologue*, in 1293, and 1294; by Pope *Paul* III. in 1540; by *Callixt* III. *Pius* III. *Sixtus* IV. *Innocent* VIII. and *Jules* III. in 1545, and by a great Number of other Popes, Emperors, Kings, and other Sovereigns.

Note, That the Ceremonies used at the Reception of the *Knights of the Golden Angel*, having something very particular,

particular, and very auguſt, I'll give here a conciſe Detail thereof, as follows.

At the Day appointed for that Solemnity, whether there be one or ſeveral Knights to be made, Care is taken to adorn magnificently the Church where it is to be celebrated; and a Scaffold is erected in it.

The Grand Maſter ought to be preſent at the Ceremony, accompanied with two Members of the *Order*, or at leaſt with all thoſe who can be there; who all come dreſſed in their Habits of Ceremony, with their Arms, and the Banners of the *Order*, each taking his Place according to his Rank.

The Grand Maſter ſeats himſelf in the Middle, having at his Right the Biſhop or Prieſt, who is to make the Conſecration, and at his Left, he that is entruſted with the Proofs, Letters, and Deeds, to receive and confirm the new Knight. In the Preſence of all the Aſſembly come two or ſeveral Pages who bring in ſeveral Silver Baſons the Habits of Ceremony of the new Knight, a Sword, a Girdle, and Gold Spurs, with Tapers, and go to place themſelves at the Place appointed for them. They are followed by two Knights in long Cloaks, who have been choſen for Proxies, for the Knight who is to be conſecrated, and is between them, and without any Arms, dreſſed in a white Waiſtcoat. In entering they all three go to ſalute the Maſter Altar, afterwards the Grand Maſter, the Prelate, and the Procurator, or him who is charged with the Pieces, and thence go to take their Place. The Tapers are lighted, and one of them is put in the right Hand of the new Knight. Afterwards the Hymn *Veni Creator* is ſung, and the new Knight takes the Communion.

The Maſs ended, the Pages riſe and preſent the Baſons with the Veſtments, the Sword, and the Spurs to the Prelate or Prieſt, who bleſſes them with a Form of Prayers made for that Purpoſe.

The Benediction ended, the two Proxies riſe, and go to place themſelves at the Feet of the Prelate and Grand Maſter, to whom one of them ſhews, with much Reſpect, the Impatience of the Gentleman whom they preſent to be conſecrated, and admitted into the Order. Afterwards the Knight, intruſted with the Proofs and Deeds, and ſits on the Left of the Grand Maſter, aſſures him of their Validity, *&c.* Then one of the Aſſiſtants declares with a loud Voice, that no Body can enter the Order, unleſs he declares in formal Terms that he believes all that the Church believes; that he reſpects all that ſhe reſpects and embraces all the Truths ſhe teaches. On which the Candidate advances towards the Prieſt, who holds in his Hands the Book of the Goſpel open, and repeats the Terms of that Confeſſion, ſuch as they are, contained in the Bull of Pope *Pius* IV. which are as follow.

I. N. believe and profeſs all, and every one of the Articles of the Faith profeſſed by the holy *Roman* Church; *viz.* I believe in one God, the Father Almighty, Creator of Heaven and Earth, *&c.*

I receive and embrace the Apoſtolical and Eccleſiaſtical Traditions, and the other Obſervances and Conſtitutions of the ſame Church; as likewiſe the ſacred Scripture, in the Senſe of our holy Mother the Church, *&c.*

The Confeſſion of Faith ended, the two Knights Proxy take, in the Silver Baſons, the Habits of Knighthood, on which are pronounced ſome Prayers.

After this Benediction, the ſame two Knights, who are always preſent, help the new Knight to dreſs himſelf in the Habit of Ceremony; and the Grand Maſter gives him the Impoſition of Hands; during which the Prieſt recites ſome Prayers.

This done, the Croſs and the Collar of the Order, to which it is faſtened, is preſented to the Prieſt, in a Baſon held by one of the Pages kneeling; and having bleſſed both, he takes the Croſs and kiſſes it, and puts it into the Hands of the Grand Maſter; who having kiſſed it likewiſe, hangs it on the Neck of the Knight. This done, the other Page brings likewiſe, in a Silver Baſon, the Belt and the Sword; which having been bleſſed by the Prieſt, one of the Knights Aſſiſtants takes the Sword and draws it, and Kneeling preſents it to the Grand Maſter, while the Prieſt continues the Prayers.

Then the Grand Maſter gives the Sword back to one of the Proxies, who in taking it kiſſes the Hand of the Grand Maſter, and puts it back into the Scabbard. At the ſame Time the Knight riſes, and the two Proxies girt him with the Sword, while the Choir ſing ſome *Reſponſes.*—Which ended, the Knight ſteps a few Paces backward, ſtrikes three Times in the Air with his naked Sword, leans three Times towards the Earth, and laſtly kneels down.—The Grand Maſter approaches then, and drawing his own Sword, ſtrikes him three Times gently on the Shoulder, ſaying theſe Words: 'Be a pacifick 'and couragious Warrior, and ſubmitted to God.' And the Prieſt touching gently his Cheek, ſays; 'Awake 'from the Sleep of Malice, and watch in the Faith of 'Chriſt, and in a laudable Fame.'

Then the Gold Spurs being preſented to the Grand Maſter, he takes them, and gives them to the Proxies, who has them faſten'd, by two Servants to the Heels of the Knight, while the Choir ſing ſome Prayers.

The Office finiſhed, the Knight comes forwards, and kneels at the Feet of the Grand Maſter, who embraces him: Then he riſes, and goes to ſalute all the Knights of the Order who are preſent. But if he deſigns to make his Vows all at once, he goes to kneel at the Feet of the Prieſt; where he is aſked by the Grand Maſter, if he has a firm Reſolution and Intention to obſerve all the Statutes of the Order in general, and each of the Chiefs they contain in particular? To which he anſwers, Yes. Then two Choriſters having brought the Miſſal with the Statutes of the Order to the Knees of the Prieſt, who having preſented them to the Knight, he takes the Oaths, and makes his Vows.

The Vows made, the Knight kiſſes the Canon of the Maſs, and the Grand Maſter adorns him with the Croſs of the Order, which is the Concluſion of the Ceremony.

Note, That notwithſtanding what the Abbot *Giuſtiniani*, *Schoonbek*, and F. *Bononi* ſays of the Antiquity of the Origin of this Order, I am of Opinion that it is entirely chimerical; and that it was only to give it the Precedency above all others, that the Emperor *Conſtantine* was made Author thereof. For there is no other certain Proof of it but the Marble Stone, which is pretended to have been found at *Rome*, and which repreſents the Emperor ſitting on his Throne, and giving the Collar of the Order to a great Number of Knights: But if that Stone be a mere Fiction, as *Papebroch* ſays it is; if the Figures repreſented upon it are nothing elſe but the Work of a modern Sculptor; laſtly, if the Inſcription read on it has nothing of the antient *Roman* Inſcriptions, one muſt confeſs, that the Authors we have followed them are miſtaken, and that the Abbot *Giuſtiniani* they have took for their Guide, was glad to honour with a very antient Origin, an Order, of which he qualifies himſelf a Knight, and great Croſs.—Not but that there might have been, perhaps, a military Order eſtabliſhed ever ſince the ninth Century. We learn from the Hiſtory of the Earls of *Poitou*, that *William the Pious*, Duke of *Aquitaine*, and Earl of *Auvergne*, who ſucceeded *Guerin* his Brother in the Year 887, had founded 25 Knights in the Church of St. *Julian* of *Brioud* in *Auvergne*, to wage War againſt the *Normans*, which Knights were changed afterwards into Canons. But the Title of that Foundation is ſo dubious, and it even appears ſo formally conteſted by contrary Acts, that one cannot depend much on what the Hiſtory of the Earls of *Poitou* ſays of the Foundation of thoſe Knights.

But let's return to the Proofs alledged in Favour of the Antiquity of the *Golden Angel*, inſtituted by *Conſtantine*. The principal is extracted from the Letters of Pope *Leo*, of the Year 456, addreſſed, as pretended, to the Emperor *Marcian*, whereby he confirms that Order under the Rule of St. *Baſil*; and from ſome other Letters of the Emperor *Leo* I. of the Year 489, found in the Archives of the Court of *Rome*: But we learn from Count *Majolino Biſacciani*, Chancellor of the ſame Order, that thoſe Letters are ſuppoſed: That they were not depoſited in thoſe Archives before the Year 1533, together with ſome other pretended Titles of that Order, printed at *Placentia* in the Year 1575, by the Care of Doctor

Franciſco

Francisco Maleuzzo. This Testimony appears the less suspected, as it is extracted from a Discourse of the same Chancellor found at the Beginning of the Statutes of that Order, printed at *Trente* in 1624; and likewise at *Rome* the same Year, by order of the Grand Master, *Martin Caracciolo* Prince of *Avellino*, who had held the same Year a Chapter of the Order at *Avellino* in the Kingdom of *Naples*, where those Statutes had been digested, and which were no others but those which had been ordered by the Emperor *Isaac Ange Comnene*, in the Year 1190; and which were then renewed. Whence it follows, that that Emperor, called by *Giustiniani* the Reformer of the Order, could very well have been the Institutor thereof, and given the Name of *Constantine* to it, because the *Comnenes* pretended to be descended from him. He might likewise have called it *Angelic*, because of the Name of that Emperor, which was *Angel*; and lastly, St. *George*, because he had put that Order under the Protection of that Martyr.

But however, if this be the most reasonable Antiquity which can be given to this Order, we cannot believe that the Grand Mastership thereof was hereditary in the House of *Comnenes*; which after it had possessed a long Time the Empire of the East, was found at last almost entirely buried under its Ruins. — In fact, after the Infidels had render'd themselves Masters of that Empire, the *Comnenes* found themselves reduced to seek their Subsistence at the Courts of the Christian Princes: Part of them went to *Venice*, and the other Part to *Rome*. — The Count *Andrew Comnene*, to whom the Pope had assigned a Pension of a hundred golden Crowns a Month, about the Middle of the sixteenth Century, being ill paid, and having nothing besides wherewith to subsist, received Money from all Hands to make Knights. He gave, in particular, the Cross of the Order of *Constantine* to two Impostors, who pretended to be of the House of *Comnene*, and who, in Virtue of the Privileges which Count *Andrew* had granted them under that Supposition, pretended afterwards to have a Right to create Knights likewise. But the Grand Master *Peter Comnene*, Prince of *Cilicia*, the Count's Nephew, having opposed himself to it, that Contestation occasioned a Suit of Law, the Judgment whereof proved fatal to the two Impostors; for one of them was condemned to the Galleys, and the other banished by a Sentence of the apostolical Chamber.

Afterwards *Peter Comnene* being employed in the Armies of some Princes, committed the Government of the Order, of which he was Grand Master, to Don *Vincent Leofante Caracciolo*, Grand Prior of *Constantinople*, who caused the Statutes of the Order to be printed in the Year 1583, which had already been printed at *Ravenna* in 1581. He passed afterwards into *Spain*, where they disputed with him the Quality of Grand Prior of that Order, and even seized all his Titles and Privileges; but they were restored to him, by the King's Order, in 1588.

Afterwards the Grand Master *John Andrew Flavius Comnene* himself, Prince of *Macedonia*, was also put to some Trouble, on his Quality of Grand Master. He was cited to *Rome*, where he obtained a Sentence in his Favour. At last, in 1623, this Grand Master resigned the Grand Mastership to *Martin Caracciolo* Prince of *Avellino*, Grand Chancellor of the Kingdom of *Naples*, Knight of the Golden Fleece, and of the Order of *Constantine*; which Resignation was confirmed in the Month of *May* 1624, by *Andrew*, *Peter*, and *John Comnene*, Children of *John Andrew Flavius*.

The Origin of the *Order of* S. SEPULCHRE, is not better ascertained than that of the *Order* of *Constantine*; for some Authors say, that St. *James* first Bishop of *Jerusalem* having established some Guards for the St. *Sepulchre*, formed them into a Kind of Militia under the Standard of the Cross, in the Year of Christ 96. — Others attribute that *Order* to St. *Helena*, *Constantine the Great*'s Mother, after the miraculous Invention of the holy Cross; because that pious Princess built a Church in the Place where the Cross was found; and established Canons in it: As well as Soldiers to defend the Place, in Case of any Insult, and to render the Roads secure for the Pilgrims who should come to visit it. — Lastly, others pretend that after the Holy Land was reduced under the Yoke of the Infidels, and the Christians were allowed the Exercise of their Religion but with much Difficulty, the Lustre and Splendor of that *Order* began to suffer an Eclipse, and was almost lost, till *Charlemagne*, whose Empire lasted from the Year 801, to the Year 815, had re-established the Dignity thereof; that that Emperor made a Treaty with the King of the *Saracens*, whereby those Knights, and all the Christians in his Dominions, had the free Exercise of their Religion. *Mennius* believes that *Charlemagne* was the Restorer of the *Order*, which was almost extinct: That he prescribed the Laws thereof, and gave the Knights the Rule of St. *Basil*; that ever since that Time those Laws have been approved and augmented by the greatest Princes, which Laws are as follow; and are preserved to this Day at *Jereusalem*.

Article I. — In the Name, and in the Honour of God the Father, Son, and Holy Ghost; and of the blessed Virgin *Mary* his Mother; of the Angels and Archangels, of the Patriarchs and the Prophets of God, of the Apostles, Evangelists, holy Disciples, *&c.*

Article II. — May it be known and evident to all the most excellent and illustrious Princes, Nobles, Knights, and to all the Christian People that in the Year of Grace 1099, the most illustrious, invincible, and serene Princes, St. *Charlemagne*, Emperor and King of all *France*, *Louis* VI. of the Name, called the *Wise* and the *Pious*; *Philip* called the *Wise*, the *Magnanimous*, and *Conqueror*, the most holy and magnanimous *Louis*; the President *Godefroy de Bouillon*, and the other magnanimous Christian Princes and Kings; after they had secured their Crown and States, have vowed and freely promised to God, to expose their Life, their own Person, and their Estates; and carry War beyond the Seas, to fight, conquer, and destroy the perverse and tyrannical Nation of the *Saracens*, their Power and Authority; and to conquer the Kingdom of *Jerusalem* in particular, his Territories, Demesnes, *&c.*

Article III. — Let it be known, likewise, that we, just mentioned, have fulfilled our Obligation with Regard to the Vows above expressed; and by God's Grace, we have acquired, through our Cares and Diligence, the Kingdom of *Jerusalem*, and the Territories possessed by the *Saracens*; have gain'd several Victories over them; and extended the Christian Faith; wherefore the Name of most Christian Prince has been given to us, by the other Princes, and all the Christian People, *&c.*

Article IV. — Moreover we have received with Humility from the great City of *Rome*, the most holy Crosses, in the Honour of the Passion of our Lord *Jesus Christ*, &c. that thereby we may be more strengthen'd against the Infidels, *&c.* Therefore all Things duly considered, we have resolved *to establish the Order of St.* Sepulchre, in our City of *Jerusalem*, in Honour, and to the Glory of the *Holy Resurrection*; and have united to our Name of first Christian the first Dignity of that *Order*; and will that five red Crosses shall be wore in Honour of the five Wounds of *Jesus Christ*; and have created several Knights of that *Order*, to whom we have given for Mark and Ornament of their Dignity, the five Crosses above-mentioned, to animate and encourage them against the Infidels, who, for that Reason, have been put to flight, and could not resist our victorious Arms.

Article V. — And that those Knights, and all other military Men, who shall pass into the *Holy Land*, and contribute to the aggrandizing the Christian Faith, *&c.* may be encouraged more and more to do it with greater Facility, we have permitted them, and we permit them to use and enjoy the same Powers, Pre-eminences, Privileges, and Rights, our Officers, and Domesticks enjoy and use, *&c.* All the other Articles run in the same Stile, and contain the Rules or Laws to be observed by the Knights.

Note, That the simple Reading of those Statutes, suffices to shew, that the Antiquity of the *Order* of the Knights of the St. *Sepulchre* is chimerical; not as the Abbot *Justiniani* observes, because the Date, which is of the 1st of *January*, 1099, is not agreeable to the Time,

Time of the taking of *Jerusalem*; for though it was the 17th of *July* of the same Year, that the *Christians* rendered themselves Masters of that City, that's not an Obstacle to the Statutes having been made the 1st of *January*; since *Godefroy de Bouillon*, who was a *Frenchman*, followed the Stile of *France*; where they began the Year at *Easter*; and therefore the City of *Jerusalem* having been taken the 17th of *July* 1099, those Statutes, though dated the 1st of *January* of the same Year, were, notwithstanding, posterior, by very near six Months, to the taking of *Jerusalem*.

But the best Reason which discovers the chimerical Antiquity of those Statutes, is, that they do not answer the Time those Princes lived in, to whom they are attributed. We see, for Example, in the second Article, that mention is made of the Kings of *France*, *Louis* VI. *Philip* II. and of St. *Louis*, who did not begin to reign, *Louis* VI. but in the Year 1108, *Philip* II. in 1180, and St. *Louis* in 1226. We see, likewise, in the same Article, *Charlemagne* among the Princes who vowed to expose their Persons and Fortunes, and to cross the Seas, for the Deliverance of the *Holy Land* from the Tyranny of the *Saracens*; and in the following Article, they are made to speak all together, as having accomplished their Vows, after they had render'd themselves Masters of the Kingdom of *Jerusalem*, and expelled the *Saracens* from what they possessed in the *Holy Land*, which had gained them the Name of *Most Christian*; though it is very certain, that *Charlemagne* never went to the *Holy Land*. We only learn from History, that *Aarat* King of *Persia*, who despised all the Princes of the Earth, valued the Friendship of *Charlemagne*, sent him several Presents, and that knowing the Devotion of that Prince for the *Holy Land*, and for the City of *Jerusalem*, he gave it him, reserving only to himself the Title of his Lieutenant in that Country. If, notwithstanding, that Present was any Thing else but a Compliment void of Reality. We see, afterwards, in the fourth Article, that all those Princes, though they lived in Times so distant from one another, unite, notwithstanding, to establish the *Military Order* of the St. *Sepulchre*.

Therefore it is only to infer hence, that we are not to depend on those supposed Statutes, to attribute to *Godefroy de Bouillon* the Institution of the *Order* of the St. *Sepulchre*, or the Restoration thereof; since it is not to that Prince it is attributed by the best Authors, but to *Baudouin* I. his Successor, in the Year 1103. In effect, we read in *Belloy* and *Favin*, that the *Saracens* having conquer'd the City of *Jerusalem* of the Emperors of the East, they left the Guard of the St. *Sepulchre* to regular Canons: That *Godefroy de Bouillon* having render'd himself Master of that City, gave large Possessions to those Canons; and that *Baudouin* made them Knights of the St. *Sepulchre*. *Favin* adds, that that Prince order'd they should retain their white Habit, on which they should wear a Gold Cross, potenced, and canton'd of Crosselets without Enamel, such as the Kings of *Jerusalem* used to wear in their Arms. And *Du Brueil* in his Antiquities of *Paris* relates the Beginning of the Letters of that Prince for the Institution of those Knights. They are in *French*, which shews the Falsity thereof, for the Language is modern, and has not the least Mark of Antiquity. But if they were in *Latin*, and of a Stile used in the 12th Century, they could not be less apocryphal, as well as the Statutes of the Year 1099, above-mentioned; for it is certain, that there has been in the Church of the St. *Sepulchre*, none but secular Canons, till the Year 1114, that the Patriarch *Arnoul* obliged them to make Vows, and to embrace the Rule of St. *Augustin*. And there is a great Appearance, that the Knights of the St. *Sepulchre*, established themselves but 400 Years afterwards, on the Ruins of the Canons who had the same Appellation, and whose Lands were united and incorporated to the *Order* of St. *John* of *Jerusalem*.

In fact, those Canons having been obliged to abandon the Houses they had in the *Holy Land*, when the *Christians* were expelled from it by the *Saracens*, retired in those they had in several Provinces of *Europe*, where, in most of them, they exercised Hospitality towards the Pilgrims who went to visit the holy Places in *Palestina*. Pope *Pius* II. having instituted in the Year 1459, a *Military Order*, under the Name of *N. D. of Bethleem*, suppressed some other *Military Orders* and Hospitallers, among whom were the Canons of the St. *Sepulchre*, whose Possessions he united to that new *Order* of *N. D. of Bethleem*. But then those Canons of the St. *Sepulchre* opposed that Union, and no more Mention was made of their Suppression, the *Order* of *Our Lady* at *Bethleem* having not subsisted. But in the Year 1484, Pope *Innocent* VIII. united them anew, and incorporated them to the *Order* of the Knights of St. *John* of *Jerusalem*, or of *Rhodes*, as it was called then, because they were still in Possession of that Island; and by the same Bull the Pope unites to that *Order* that of the Knights of St. *Lazare*.

It must be observed, that in that Bull, the Pope does not speak of the *Order* of the St. *Sepulchre*, as of an *Order* of Knighthood: A Title, notwithstanding, which he gives to that of St. *Lazare*. If the Canons of the St. *Sepulchre* had been Knights; we are to presume, that he had given the Title of Militia to their *Order*, as he gave it to that of St. *Lazare*. Therefore there is great Appearance that he did not mention yet the Knights of the St. *Sepulchre*, who were established on the Ruins of the Canons, who, in fact, were suppressed in *Italy*, *France*, and *Flanders*; and their Possessions truly united to the *Order* of the Knights of St. *John* of *Jerusalem*, except in *Poland*, where those Canons have always subsisted. There were, likewise, two or three of their Houses in *Sicily*, who did not enter into that Union, and are, at present, but Priories, *in commendam*, at the Nomination of the Kings of *Sicily*.

Pius IV. having confirmed that Union by a Bull in the Year 1560, does not speak, neither, of the *Order* of the St. *Sepulchre*, as of a *Military Order*; therefore it is without the least Appearance of Reason, that some Writers say, that Pope *Innocent* suppressed the Knights of the St. *Sepulchre*, and united their *Order* to that of the Knights of *Rhodes*. It is much more likely that the Knights of the St. *Sepulchre*, came after the Canons of that Name, and that Pope *Alexander* VI. to excite noble and rich Persons to visit the holy Places in *Palestina*, and to reward them, in some Measure, for the Pains and Fatigues they had undergone in so long and tedious a Journey, wanted that some of them should be honoured with the Quality of Knights of the St. *Sepulchre*, in instituting a *Military Order* of that Name, declaring himself Grand Master thereof, and attributing to the Holy See the Power of making those Sorts of Knights, according to all the Authors who have mention'd it; but who do not relate the Bull of that Pope, assuring only, that that Bull is of the Year 1496, and that as the Religious of the *Order* of St. *Francis* have the Guard of the St. *Sepulchre*, and their Guardian is apostolical Commissary, in those Parts, that Pope gave him Power, likewise, to make those Sorts of Knights; though this is not taken Notice of by the principal Historians of that *Order*. Father *Quaresmo*, who was Guardian of that Convent of the St. *Sepulchre*, speaks of it on the Testimony of *Favin*. He confesses only, that he has found at the End of the Book of the Privileges granted to the Guardian of the Religious of St. *Francis* in the *Holy Land*, a Permission which *Leo* X. gave him *vivâ voce*, in 1516, to make Knights of the St. *Sepulchre*, as his Predecessors had done; which *Clement* VII. granted, likewise, *vivâ voce*, in the Year 1525: and *Pius* IV. confirmed by a Bull of the Year 1561, all the Privileges which had been granted to those Religious, and to the Guardian of the *Holy Land* by the sovereign Pontiffs, as well *vivâ voce*, as in Writing.

Therefore it is certain, that the Guardian of the Religious of St. *Francis* in the *Holy Land*, is in Possession of making Knights of the St. *Sepulchre*, and though those Knights should be noble, most of them, notwithstanding, are but Commoners and Merchants. They enter that *Order* by a false Oath, since they are asked, first, if they be of a noble Extraction, and if they have a Fortune sufficient to live without trading, which is believed on their Word, tho' they never deny it.

The ORDER OF THE CROISADE, is alſo a chimerical *Order* of Knighthood, which has no other Foundation but in what follows.

The great Loſſes which Chriſtendom ſuffer'd from that the *Turks* poſſeſſed all the Fortreſſes and Places where our Lord and his Apoſtles had converſed, engaged in the Year 1095, the Chriſtian Princes, ſollicited by the Zeal of the Popes, and by their Compaſſion for thoſe holy Places, to go and free them from the inſupportable Yoke of thoſe Tyrants. Pope *Urban* II. was the firſt, who, by his Legates, at the general Council of *Placentia*, exhorted the Chriſtian Princes to undertake that Expedition.

At the Sollicitation of the Emperor of the Eaſt, and at the Perſuaſion of *Peter l'Hermite*, another Council was aſſembled at *Clermont* in *Auvergne*, where the Pope himſelf, by his pathetical Diſcourſes, made ſuch an Impreſſion on the Heart of thoſe Princes, that they promiſed to arm for the Deliverance of *Jeruſalem*, and of the *Holy Sepulchre*. — The Chiefs of that Expedition were *Godefroy de Bouillon*, Prince of *Lorrain*, *Euſtachius* and *Baudouin*, his Brothers, *Baudouin del Borgo*, the Earl *Reiner*, *Hugues the Great*, Brother of *Philip* King of *France*, *Robert* Earl of *Normandy*, *Raimond* Earl of *Thouloufe*, *Boemond* Earl of *Pouille*, *Tancrede*, and ſeveral other great Lords of the moſt illuſtrious Houſes of *Europe*.

The Pope having promiſed in full Council a great Quantity of Indulgences to them, and to all thoſe who would go to that War, gave them for Badge a Croſs, which every one was allowed to wear of the Colour he pleaſed, according to the Diverſity of the Inclinations, and Humour of each Nation, and without eſtabliſhing any fixed Rule, the Croſs was faſtened either on the Breaſt, or on the right Shoulder, or on the Cap, or Helmet, or the Shield, according to the Conſtitution of the Council of *Clermont*, conceived in theſe Terms; *That all thoſe who would undertake the Journey to* Jeruſalem *ſhould wear the Sign of the Croſs on their Cap, or on their Habits.*

In 1096, they departed with all their Forces, which ſome make to amount to 30,000, others to 40,000, others to 60,000 fighting Men, and took the Road of *Syria*, where they began their Expedition by the Defeat of 50,000 *Turks*, which was followed by the taking of *Nice*, *Meſopotamia*, and of *Media*. The Year following they gained another ſignal Victory, where 100,000 *Saracens* periſhed, and the Fruit thereof was the Reddition of *Antioch*, which ſurrender'd to the Chriſtians. In 1099, *Jeruſalem*, which had groan'd during 490 Years under the Tyranny of the *Turks*, was alſo taken, and *Godefroy de Bouillon* proclaimed King thereof, and crowned with a Crown of Thorns.

As that War had already laſted four Years, and the Chriſtian Army, which was then much weaken'd, wanted Recruits; Pope *Paſchal* II. provided to it, by engaging the Emperor *Henry* IV. to equip a very large Fleet, which ſet ſail in 1101; at whoſe Arrival the Enemies raiſed the Siege of *Jaffa*. Mean while the *Genoeſe* harraſſed them much at Sea, and even took *Cæſarea*, and ſome other Places on the Coaſt.

Though the Union wherewith that Expedition begun was very great, the Diviſion which Ambition, or Avarice, occaſioned among the Chiefs of the Army, produced Effects very hurtful to the common Cauſe. Which Misfortune did not hinder, notwithſtanding, King *Baudouin* from obtaining, in the Year 1105, a very great Victory over the *Turks*, in a naval Fight; which gave him Occaſion to join to his Kingdom, the Cities of *Tiberiades* in *Galilee*, *Sidon*, and *Accaron*, the Fortreſs of *Sobal*, and other Places beſides on the Coaſts of the *Mediterranean*.

As the Change of Sovereigns cauſes alſo but too often Changes in the Affairs of State, *Foulques* of *Anjou*, having aſcended the Throne after *Baudouin*'s Death; and after that of *Foulques*, his Son *Baudouin* III. a young Prince, who had much Wit, having been called to the Crown, his Forces were not found ſtrong enough to bear the Weight thereof. Notwithſtanding which, the Terror of his Name, and the Reputation of his Arms, had yet Power enough to maintain, while he lived, the Affairs of the Chriſtians; but after his Death, the *Turks* taking Courage, went to ravage *Meſopotamia*, and the Country of *Antioch*.

The Chriſtians finding themſelves much weakened, aſſembled together, and concluded to ſend for Succours out of *Europe*. Pope *Eugenius* was not leſs embaraſſed by the Differences which had happened among the *European* Princes, than the Chriſtians were in the Holy Land. But the Diſorders being appeaſed, at laſt he ſent his Legates to *Louis* VII. King of *France*, and to the Emperor *Conrad*, to exhort them to raiſe in *France* and *Germany* as many Forces as they could. He aſſembled in the Year 1146, a general Council at *Chartres* in *France*, where it was reſolved to make a third *Croiſade*, the Conduct thereof ſhould be given to St. *Bernard*; who excuſed himſelf on his Inſufficency, taking only upon him to go in the neighbouring Countries to excite the People, and engage them by his Reaſons and Prayers to undertake that Expedition. At laſt, by his Means another Council was aſſembled at *Veſelai* in *Burgundy*, at which aſſiſted the Pope, King *Louis*, *Eleonora* his Queen, and a great Number of other Princes, who engaged in this new *Croiſade*. The Emperor *Conrad* did the ſame Thing in the Year 1148; therefore a formidable Fleet was equipped, but not under fortunate Auſpices.

This Fleet arrived on the Coaſt of *Syria*, where the Forces were landed. Having joined thoſe of the Emperor *Conrad*, it was found that the Diviſion which reigned among the Princes had put the Affairs in a very bad Condition, and that the Number of Chriſtians was extremely diminiſhed by Famine, Miſery, and the Plague, which were conſidered as the fatal Conſequences of that Diviſion. The perfidious *Greeks* who ſometimes took the Part of the *Latins*, and ſometimes that of the *Germans*, and even often that of the *Turks*, attacked *Roger* King of *Sicily*, and thereby obliged the Emperor and the King of *France* to return into *Europe*. That Retreat left the Countries conquered in *Syria*, a Prey to *Noradin* and *Saracon*, Generals of the *Turks*, and of the *Saracens*, to *Domaſcus*, and to the Soldan of *Egypt*. The Loſs of *Meſopotamia* and *Aleppo*, having been the Effect of the Diſſentions which were among the Chriſtians, *Emilius* Patriarch of *Jeruſalem*, and the two Grand Maſters of the Knights Templars, and of the Hoſpitallers of St. *John*, ſent Envoys into *Europe*, to inform the Princes of theſe Parts of the Danger they were in. Thoſe ſiniſtrous Events touched ſenſibly the Heart of Pope *Alexander* III. and engaged him to procure a new *Croiſade* in the Year 1180, but he died while it was yet but in Agitation. *Lucius* III. his Succeſſor, followed his Steps in that Affair, and ſpared nothing to make that Project ſucceed. He wrote to the Kings of *France* and *England*, and his Exhortations had ſo much Power, that an Aſſembly was held at *London*, where it was reſolved to undertake a new Expedition for the Holy Land. But this Reſolution remained without Effect, becauſe of the Differences which happened between the two Crowns of *France* and *England*, and which could not be appeaſed by the Mediation of *Urban* III. though he applied himſelf with much Zeal to reunite the Minds of the Chriſtian Princes.

During thoſe Diſſentions, and the others which reigned between *Guy* King of *Jeruſalem*, and *Raimond* Earl of *Tripoli*, *Saladin*, at the Solicitation of the Knights Templars, who pretended to have ſome Reaſons of Diſcontent, retook *Jeruſalem* in the Month of *October* of the Year 1187. In that Expedition more than 220,000 Men periſhed, as well Inhabitants as Soldiers, among whom were ſeveral Templars; and the King himſelf was taken. The Loſs of the holy City carried along with it, that of *Laodicæa*, *Ptolemaide*, *Barut*, *Tiberiade*, *Aſcalon*, and ſeveral other Places, whence the reſt of the Chriſtians were obliged to retreat to *Tyre*, to *Antioch*, and to *Alexandria*. This was a mortal Blow for the Pope, who in fact died of Sorrow for it ſoon afterwards.

Clement III. having ſucceeded him, exhorted with all the Zeal poſſible, the Chriſtians to undertake again a new Expedition; the Publication thereof being made in the Year 1188, there was ſeen a general Empreſſment to march. *William* Archbiſhop of *Tyre*, gave, himſelf, the Croſs to the Kings of *France* and *England*, and to a great Number of Lords of the firſt Rank. The Emperor *Frederick Barbaroſſa* cauſed to be declared to the Sultan *Saladin*, that if by the firſt of *November*, he did not reſtore to the Chriſtians *Jeruſalem*, and all the other holy Places, he would go himſelf in Perſon, and ra-

vage all his Dominions. Mean while new Differences arose between the Kings of *France* and *England*, which the Pope endeavoured in vain to accommodate. But this did not hinder the Emperor *Frederick* from taking, in 1189, the Road of the *Levant*, at the Head of 150,000 fighting Men; which he divided, under the most famous Generals, into a Land Army, and another by Sea, having for that Effect 55 Ships. Those Forces had been furnished to him by *Philip* II. King of *France*, *Richard* I. King of *England*, *Edward* Duke of *Burgundy*, *Henry* Earl of *Champagne*, *Thibaut* Earl of *Blois*, and by a great Number of Bishops, Abbots, and Barons of the Empire, of *England* and of *France*. He arrived in the Year 1190, and began the Course of his Victories by the Defeat of *Melig* Son of *Saladin*, where he took four Princes Prisoners; which happened the second Day after the Feast of the *Pentecost*. And the Duke of *Suabia* advancing into the Country, added to that great Exploit the Victory of *Cogny*; the Emperor beating in another Encounter 2000 *Turks*, who took to Flight; but while he was making Preparations for more important Enterprises, he was drowned in the River *Cydne*, in attempting to bathe himself, and his Death left the Christians in a deplorable Condition.

As the Differences between *England* and *France* were not yet terminated, the King of *France* recalled his Forces, who had made no other Conquests but those of *Acria*. By that Retreat the King of *England*, who was stiled King of *Jerusalem*, was obliged to conclude a Treaty with the Sultan of *Egypt*, and to recall likewise his Forces into his Kingdom. *Henry* VII. *Frederick*'s Son, having took his Place, sent a formidable Fleet into *Syria*, under *Conrad* Bishop of *Hildesheim*, which arrived at the Port of *Syria*. That Arrival served to make the Christians to breed anew, but that was not sufficient to restore their Affairs; to which *Innocent* III. endeavoured to provide in publishing a third *Croisade*. *Baudouin* Earl of *Flanders*, *Henry* Earl of St. *Paul*, the Duke of *Savoy*, and *Baudouin* Earl of *Montferrat*, who had took the *Cross*, with a great Number of *French*, *Italians*, and *Flemish* Lords, went to embark at *Venice* in 240 Ships, and took the Road of *Constantinople*; the Emperor *Isaac Ange*, *Flavius Comnene*, whom his Brother *Alexis* had deposed from the Empire, and confined Prisoner, was restored to his Throne; and the *Croicers* made an Alliance with him to pass together into *Syria*: But that Project vanished into Smoak by the Mutiny of the Soldiery, who opposed him with another Emperor. At last he was massacred; and his Death having put an End to the Disorders, *Baudouin* Earl of *Flanders* was proclaimed Emperor. On the other Side, *Saladin* died; and the Christians made no Difficulty to maintain with his Brother the Alliance they had made with him, while they were employed in destroying one another.

At the same Time all was in Confusion in *Spain*, Part by the Enterprises of the *Moors*, and Part by those of the *Portuguese*, who had attacked the King of *Castille*, which notwithstanding, that Prince sent to *Rome Roderic Ximenes* Archbishop of *Toledo*, to engage the Pope to publish a sixth *Croisade*, which was soon done throughout all *Christendom*. The *Germans* marched under *Leopold* Duke of *Austria*; the *French* under *Arnoud* Bishop of *Narbonne*, the Bishop of *Bourdeaux*, and *Thibaut* Lord of *Poitiers*. Mean while *Constantinople* was closely besieged by the Cham of *Tartary*; and the *Turks* were at War against one another in *Syria*.

These Events obliged the Pope to assemble in 1485, a general Council at *Lateran*, where it was resolved to make a seventh *Croisade*, where there was great Concourse of People from all Parts of Christendom. The Princes of *Spain*, *France* and *Navarre*, and of the neighbouring Kingdoms, went to make War against the *Moors*, whom they defeated in the great Battle of *Las Navas de Tolosa*: The other Princes took the Road of the Holy Land. But Dissention having spread anew among the Christian Princes, *Andrew* II. King of *Hungary* returned into his Kingdom with his Forces; so that *John* King of *Jerusalem*, had no other Succours but from the Duke of *Austria*, and the Grand Masters of the Military Orders; notwithstanding which they took Courage at the Arrival of some new Forces, under the Archbishop of *Cologne*, and the Count *Bergue*; and they began their Conquests by the Reduction of *Damieta*, which surrendered in the Year 1219, after two Years Siege. The Soldan *Conradin*, not finding himself in a Condition to succour his Brother, offered his Mediation by his Embassadors, and promised the Christians to have *Jerusalem* restored to them, with all that Part of *Syria* they had possessed; but they rejected that Proposal. After the taking of *Damieta*, they went, at the pressing Sollicitation of Cardinal *Pelagius*, to search for the Soldan, who retreated as far as *Aleppo*, which they besieged; and before which they ran the Risk of being all drown'd, by the overflowing of the River *Nile*, if they had not saved themselves by a Treaty they made with that Prince, to whom they restored *Damieta*.

That Expedition, attended with so unfortunate, and so unexpected Success, having weakened much the Army of the Christians; *John* King of *Jerusalem*, the Pope's Legate, and the Grand Master of the Order of St. *John* passed into *Europe*, in quest of new Succours; but the Affairs of this Part of the World were not in a much better State. There was a terrible Animosity between Pope *Honorius* III. and the Emperor *Frederick* II. which came to such a Height, that the Pope excommunicated that Emperor. It was that fatal and scandalous Event which had so long retarded the March of the Forces designed for *Syria*. But at last an Accommodation being made between the two contending Parties in 1222, the Emperor *Frederick* married, in the same Year, *Jolante*, the King of *Jerusalem*'s Daughter, who gave him with her the Crown of that Kingdom.

The Forces took then the Road of *Syria*, in the Year 1228, the Emperor himself at their Head. On the Rumour of the great Preparations made for that Voyage, Sultan *Conradin* had plundered and desolated the City of *Jerusalem*, and the Soldan of *Egypt* not thinking himself strong enough to oppose the Forces of the Christians, had Recourse to Negociations, by means whereof he obtained a Truce of 10 Years, on Condition that the City of *Jerusalem*, and all the others of its Dependency should remain in the Emperor's Possession. That Prince was received into it in the Year 1229, and crowned King with much Magnificence. But the new Differences which happened between him and the Pope, having recalled him into *Italy*, to expel from the *Pouille* the Pope's Forces; and on the other Side, the Dissentions between *John Hibelin* (Earl of *Jaffa*, and Baron of the Empire) and the *Germans* in *Syria*, occasioned Civil Wars every where, which proved very fatal to the Affairs of the Christians.

Pope *Gregory*, who designed to publish a new *Croisade*, was hindered from it by the Troubles of *Europe*. *Baudouin* II. Emperor of the East, represented in so pathetical, and moving a Manner the deplorable State of the Christians by the continual Attacks of the *Tartars*, *Turks*, and *Saracens*, and even of the perfidious *Greeks*, and his Sollicitations awakening the Christian Powers, the Pope published at last an eighth *Croisade*, and obliged the Emperor *Frederick*, though he was employed in the War of *Lombardy*, to send Part of his Forces into the *Levant*. Those of the *Venetians* having joined them, *Thibaut* King of *Navarre* was unanimously elected General of the whole Army.

In the Year 1239 he embarked at *Marseilles*, with a great Number of Nobility, and provided with the Pope's Briefs for the Christian Princes, and the Grand Masters of the Military Orders, to engage them to restore Peace among them.

At the same Time the Soldan of *Egypt* had assembled a powerful Army under the Orders of *Barbacas*, a very bold and experienced General, and taking Advantage of the Differences which subsisted between the Knights Templars and those of St. *John*, rendered himself Master of *Gaza*, where a great Number of Templars perished. That Loss obliged the Christians to conclude a Peace with the Soldan of *Damas*, in order to make head against the other. Their Forces being thus reunited, they gained a considerable Victory near *Jordan*. But the Defeat of *Barbacas* served only to render him more vigilant. He re-assembled quickly a second Army, still more formidable than the first, with which he went to fall on the Christians, who inhabited near the Lake of *Nazareth*, and took Prisoners the Earl of *Jaffa*, and the Grand

Master

Master of St. *John*. Afterwards pursuing his Victory, he went straight to *Jerusalem*, which was forced to surrender to him in the Year 1240. Thus the Kingdom of *Jerusalem* was found confined within the narrow Limits of the Cities of *Ptolemaides* and *Tyre*, with some other Fortresses.

This Loss was very sensible to all the Powers of *Europe*. The Pope, who was extreamly touched at it, caused Bulls to be expedited for a ninth *Croisade*, but the Differences which had subsisted between him and the Emperor, happening to manifest themselves anew, and the two Factions of the *Guelphs* and of the *Gibelins*, increasing still the Troubles, all Christendom was found lacerated by those Divisions.

Pope *Gregory* being dead, *Innocent* VI. who succeeded him, assembled a general Council at *Lions*, where the Emperor *Frederick* having been cited, and having not appear'd, he was excommunicated a second Time, and declared Enemy of the Church. It was also resolved there, that another *Croisade* should be published; whereof the King of *France*, St. *Louis*, having been declared Chief, he departed in the Year 1248, at the Head of a powerful Army, and being arrived in *Syria*, he went to re-conquer *Damieta*. The Plague which seized his Army, stopped his Progresses for some Time; notwithstanding which wanting to push his Conquests, and having re-assumed his March, he lost a Battle near the *Nile*, where he was himself taken Prisoner, with the Princes *Charles* and *Alphonse*, his two Brothers, and with the Grand Masters, a great Number of Knights. At first, by the Suggestion of the Pope's Legates, they refused to listen to the Propositions made to them, but afterwards, to obtain their Liberty, they were forced to restore *Damieta*, to pay a large Sum of Money, and to sign a Truce for ten Years, which were employed by the King, in fortifying divers Places.

During that Time, Queen *Blanche* happening to die, the King was obliged to return into his Kingdom, leaving the Command in the Hands of *Louis del Sarge*.

Pope *Innocent* died likewise of Sorrow, and was succeeded by *Urban* IV. who making all his Efforts to engage the Christians to undertake a new Expedition, was, in his Turn, surprised by Death, and was succeeded by *Clement* IV. Mean while the Sultan did not remain idle. In the Year 1266, he besieged *Ptolemaide*, which was taken; and two Years afterwards he took, likewise, *Zaffa* and *Antioch*.

In that Interval, the Troubles were a little appeased in *Europe*, by *Charles* Duke of *Anjou*, the King of *France*'s Brother, being placed on the Throne of *Sicily*; whereby St. *Louis* found himself at Liberty to assemble great Forces, with which having put to Sea, he was forced by a Tempest to put into *Sardinia*, where he passed the Winter. *James* King of *Arragon*, whose Fleet was also under Sail to pass into *Africa*, was likewise stopped by the Tempest, and forced to put back into his own Ports. *Edward* Prince of *England* put himself also at the Head of the Flower of the Nobility of that Kingdom, and took the Road of *Syria*. The Year following St. *Louis* arrived in *Africa*, where he took *Carthage*, and besieged *Tunis*, which submitted after four Months of an obstinate Resistance. He lost at that Siege his Son *John*; and the Plague which seized his Army carried off a great Number of his principal Officers. At last, having been himself attacked with a violent Fever, he died in that Expedition. *Thibaut* King of *Navarre*, returning from *Syria*, died likewise in *Sicily*.

In that Interval, the Forces of the Christians diminished by Degrees, and those of the Infidels increased. *Charles* of *Anjou*, King of *Naples*, who went to endeavour to restore the Affairs of the *Holy Land*, met with so much Difficulty, because of the Dissentions which reigned among the Princes, that he found himself scarce Master of the Commanders of his own Forces; and as there was nothing to be hoped for from the other Princes, because the *Genoese* and *Pisans* were extremely at Variance; the *Venetians* and the Count *Garcia*; the *Florentines* and *Reso*; the *Guelphes* and the *Gibelins*; *France* and *Spain*; *Arragon* and *Anjou*; the *Germans* and the *Bourgignons*; the *English* and the *Scotch*.

The Weakness to which those Divisions reduced the Christians, made the Strength of the Sultan of *Egypt*; who render'd himself Master of *Tripoli* in 1289, and that Loss was followed by those of *Baruth*, *Sidon*, and *Tyre*. Thus the Kingdom of *Jerusalem* was confined within the Walls of *Ptolemaide*, where every one acted as Master, and claimed all the Authority. The Sultan wanting to make Use of so favourable an Opportunity, broke the Truce, and besieged *Ptolemaide*, in 1291. The King seeing no Appearance of his being capable to defend the Place, went out of it in the Night, with the other Princes and Knights; abandoning thus all *Syria*; *Ptolemaide* being the last City he had preserved.

These Misfortunes threatning the Kingdom of *Armenia* with the same Fate, the Kings of those Countries, *Aiton* and *Constantius* entered into an Alliance, in 1297, with *Cossan* King of the *Tartars*, a Catholick Prince, in which the King of *Cyprus*, and the Knights of St. *John*, and the Templars, were included. The Expedition of these confederated Princes was accounted by some a twelfth *Croisade*. The Year following, *Cossan*, who had the Command in Chief, took the Field with an Army of 200,000 Men, and marched towards *Syria*, where in a pitch'd Battle he cut to Pieces the Army of *Melecnasir* Sultan of *Egypt*, who lost in it very near 40,000 Men. After this Victory he render'd himself Master of Mount *Carmel*, where he found the Treasures of the Sultan, which he distributed to his Army. Afterwards he took *Jerusalem* and all *Syria*; the Defence whereof he committed to the *Military Orders*. He sent, likewise, Embassadors to the Pope, to ask for new Succours from the Christian Princes. But while he was engaged in this War he died, and his Loss carried along with it that of the *Holy Land*; and even that of several Countries of *Europe*: For the *Turks* having no more Enemies in a Condition to make Head against them, render'd themselves so powerful, and so formidable, that they brought under their Domination, either entirely, or in Part, the Kingdoms of *Bulgaria*, *Bosnia*, *Servia*, *Rascia*, *Hungary*, and *Bohemia*; and at last *Constantinople*, in 1453, which having put in their Power the whole Eastern Empire; they have ever since given so much Occupation to the Emperors of the West, that they have never found themselves in a Condition to think of the Recovery of the *Holy Land*; not so much through the Impossibility of attempting it with Hope of Success; but because the Christian Princes, have thought of nothing else, ever since, but of invading one another's Dominions, and destroying one another, to the Scandal of the Christian Name, instead of uniting together against the common Oppressor. For if their Ambition cannot be confined within the Limits of their respective Dominions; the *Turks* have so many fine, beautiful, and fertile Countries in *Europe*, capable to flatter it, that it is surprizing to me, that they don't turn that Sword, they employ for the Destruction of those who adore the same God, and profess the same Faith, against him who is a mortal Enemy to both. Is not the Conduct of those Infidels, a tacit Reproach of theirs? Do they not take always for Pretence of their Wars against the Christians, the Propagation of their false Belief, on the Ruin of the Empire of Christ? Do we ever see a *Turkish* Scimeter smoaking with the Blood of *Turks*, unless it be in domestick Divisions? Could the whole Empire of the *Ottomans*, though ever so formidable, make Head, with any Hopes of Success, against the Powers of *France*, *England*, *Spain*, and *Germany*, united together? Would not two or three Campaigns force them to repass the *Hellespont*, and two or three more, restore the Empire of the East, to its antient Lustre? In so noble an Enterprize, every one of those Powers could find wherewith to disdamage himself of the Expences he would be at; the House of *Austria* could be set on the Throne of *Constantinople*, and have all her Dominions contiguous, leaving *France* for her Share, Part of what she possesses in the *Low Countries*, which is more at her Conveniency. *England* could have some of those beautiful and fertile Islands the *Turks* possess in the *Archipelago*, and *Spain* likewise; and his present Imperial Majesty, Part of the Inheritance of his august Ancestors. In these just Wars, the Knights of the different modern *Orders* of Christendom, which Knighthood consists wholly at present, in wearing a Badge, would find the Occasion to signalize their Courage, if they have any, and if not, would leave Room for much better Subjects

This is an Abridgement of the History of the *Croisades*, which if they were not true Knighthood, was notwithstanding a Milice tending to the same End, which was to fight the Enemies of the Church; and they wore the same Badge which distinguished them from others. Therefore *Urban* II. who published the first *Croisade*, was considered as Institutor of the *Military Religious Orders* which flourished in the following Centuries.

Note, That all the other *Orders* which remain to mention, are rather Congregrations or Fraternities, than true *Orders*; since there are no true *Orders* but those where they make solemn Vows, as those above-mentioned. I'll give the Account of those Fraternities, according to the *Order* of the Kingdom where they have been instituted; not according to their Antienty; beginning by those in the Kingdom of *France*; which are four, *viz.* the *Orders* of the *Holy Ghost*, and of St. *Michael*, commonly called the *King's Orders*; those of St. *Lazare*, and *N D. de Mount Carmel*, and of St. *Louis*.

Note also, That the first *Military Order*, in *France*, was that of the STAR, or *Our Lady of the* STAR, instituted by King *John* in the Year 1352, denominated from a *Star* they wore on the Stomach. At first they were but thirty Knights; but the *Order* became *depreciated* by the Multitude of Persons admitted, without Distinction; for which Reason, *Charles* VII. when Grand Master thereof, quitted it, and gave it the Chevalier *du Guet*, Commander of the Watch at *Paris*, and his Archers, who still wear a *Star* on their Coats. But this Account is contradicted by others, who will have the *Order* instituted by King *Robert*, in 1022, in Honour of the holy Virgin; and to have fallen into Disregard during the Wars of *Philip de Valois*.

Giustiniani mentions another *Order of the Star*, at *Messina* in *Sicily*, called also the *Order of the Crescent*. It was instituted in the Year 1268, by *Charles* of *Anjou*, Brother of St. *Louis*, King of the *Two Sicilies*. Others will have it instituted in 1464, by *Renatus* Duke of *Anjou*, who took the Title of King of *Sicily*. At least it appears from the Arms of this Prince, that he made some Alteration in the Collar of the *Order*; for instead of Flower-de-luces and Stars, he only bore two Chains, whence hung a Crescent, with the old *French* Word *Loz*, which in the Language of *Rebus*, signified *Loz in a Crescent*. The *Order* being dropp'd into Obscurity, was raised again by the People of *Messina*, under the Name of *The noble Academy of the Knights of the Star*; reducing the antient Collar to a single *Star* placed on a forked Cross, and the Number of Knights to 62. Their Device was *Monstrant Regibus Astra Viam*, which they expressed with the four initial Letters, M R ✱ A V with the *Star* in the Middle.

The *Order of St.* MICHAEL, was instituted the first of *August* 1469, by *Louis* XI. in Honour of the Archangel St. *Michael*. He order'd that the *Order* should be composed of 36 Knights, who would be obliged in accepting it, to quit all the others they might have received from foreign Princes; except Emperors, Kings, and other Princes who could wear it together with the *Orders* of which they are Chiefs, but not without the Consent of all the Brothers of the *Order*. And likewise the Kings of *France*, might, with that *Order*, wear, besides, that of other Princes.

The Knights of that *Order*, wear a Collar of Gold made of double Shells, interwoven one with the other in form of *Love-Knots*, made of double Silk Laces, with Gold Tags. Underneath is a Rock, on which is St. *Michael* fighting the Dragon. But King *Francis* I. changed the *Love Knots* into Gold knotty Laces, in *French* called *Cordelieres*.

All the Knights of the *Holy Ghost* take this *Order*, the Day before they are to receive that of the *Holy Ghost*.

At present, those who are only Knights of St. *Michael*, wear for Badge a Cross with eight Points, in the Middle whereof, on both Sides, is represented St. *Michael* fighting the Dragon, that Cross tied to a black Ribband, which crosses their Shoulders over their Coat.

The *Habit of Ceremony* of the *Order of St.* Michael, at its first Institution, was a Mantle, or Cloak of white Damask, reaching down to the Ground, border'd with Gold, with Shells, Love-Knots embroider'd, the Mantle lined with Ermine; and the Head cover'd with a Chaperon of Crimson Velvet.

There were at first but four Officers of that *Order*, viz. the Chancellor, Register, Treasurer, and Herald, called Mount St. *Michael*. They had long Robes of white Camblet, with Scarlet Chaperons, and the Chancellor was to be always an Ecclesiastick.

Louis XI. being at *Plessis lez Tours*, in the Year 1476, added to these four Offices a Provost Master of the Ceremonies. *Louis* XII. having, with *Ferdinand* V. King of *Arragon*, conquered the Kingdom of *Naples*, made Knights of St. *Michael Troyano Caraccioli*, Prince of *Melphi*, and Duke of *Atri*, Grand-Seneschal of *Naples*; *Bernardin* of *San Severino*, Prince of *Pisignano*; *Andrew Aquaviva* Duke of *Atri*, and Prince of *Terrane*; and *John Antony Caraffa*, Duke of *Madaloni*: But the *Spaniards* having afterwards expelled the *French* from the whole Kingdom, those *Neapolitan* Lords sent back the Collar of the *Order* to *Louis* XII. in 1511.

Francis I. made some Alterations in that Collar, and changed the Love-Knots into *Cordelleires*, as well because he was called *Francis*, or to preserve the Memory of *Anne* of *Britanny*, his Mother, who, according to *Favin*, had desired it. The same King having sent the *Order* of St. *Michael* to *Henry* VIII. King of *England*, that Prince sent him the *Order* of the Garter, and *Francis* I. having received it, held a Chapter of the Knights of St. *Michael*, before which he caused King *Henry*'s Letters to be read, whereby that Prince declared that he had accepted the *Order* of St. *Michael*, and had associated *Francis* I. to that of the Garter: As it appears by the Letters of *Francis*, placed by Mr. *Ashmole*, at the End of his History of the *Order* of the Garter; and which I'll relate here.

Francis, *by the Grace of God, King of* France, *and Lord of* Genoa, *Sovereign of the most noble* Order *of the* Order *of my Lord St.* Michael, *to all those who these present Letters shall see, Greeting. Whereas Mess.* Artus Plantagenet, *Viscount of* Lisle, *Knight of the most worthy* Order *of my Lord St.* George, *Mess.* John Taillor, *Doctor at Law, Archdeacon of* Buckingham, *Vice-Chancellor of* England; *Mess.* Nicholas Carew, *Grand Equery of* England; *Mess.* Anthony Brown, *Knight, and Mess.* Thomas Wriothes, *Garter-Knight, first King at Arms of the said* Order, *Ambassadors, appointed and delegated from the most high and most potent Prince* Henry, *by the same Grace of God, King of* England, *Lord of* Hibernia, *Defender of the Faith, our most dear, and most beloved Brother, Cousin, perpetual Ally, and good Compere, having exhibited, and represented to us certain Letters Patent, dated the twenty-second of* October 1527, *signed* Sampson, *and sealed in red Wax, with the Seal of the College of the said most worthy* Order *of St.* George, *called the Garter, by the Tenour hereof, which we have caused to be read before us, and the Knights of our* Order *of St.* Michael, *it appear'd to us, that the said Ambassadors, had full Authority, Faculty, and Power to signify and present us, from our said most beloved Brother and Cousin, Sovereign of the said most worthy* Order *of St.* George, *and likewise of the amicable Association thereof, the Election only made of us, by them the Sovereign and Knights of the said most worthy* Order, *and to desire and require of us to accept the said Election, and take the Mantle and Collar, and other Ensigns of Knight of the said most worthy* Order, *and take the Oaths according to the Articles contained in the Book of the Statutes of the said most worthy* Order, *and which the Knights thereof are accustomed to swear and promise; and if the Form of the said Oaths was not agreeable to us, they were empower'd to dispense us making the said Oaths, or Part thereof, as it should appear proper; he contenting himself with our Faith and Word; may it be known, that having Regard and Consideration to the most cordial, most entire Love, indissoluble Alliance, and perpetual Confederacy, which subsist between our said most dear, and most beloved Brother, Cousin, perpetual Ally, and good Compere, and us, and that of his Part he has accepted the Election made by us and our*

our Brothers, of his Person to the most worthy Order *of St.* Michael, *of which we are Sovereigns, have for those Causes and others moving us to it, accepted and accept the said most worthy* Order *of St.* George, *called the* Garter, *and that done, have vested and muffled us with the Mantle, and other Ensigns of the said* Order, *presented and delivered to us by the said Ambassadors, and after the Thanks required in such Cases, have took the Oaths in the Form and Manner following.* 'We *Francis*, by the Grace of God, 'King of *France*, Lord of *Genoa*, and Sovereign of the 'Order of St. *Michael*, promise on the Word of a King 'to keep and observe, and as in our Power lays, main-'tain the Statutes and Ordinances of the most worthy 'Order of St. *George*, called the *Garter*, in what they 'are not incompatible, contrary, nor derogatory of 'those of our *Order* of St. *Michael*, and likewise of those 'of the other *Orders*, which heretofore we may have 'received from other Princes.' *In Witness whereof, we have caused the Seal of the said* Order *to be affixed to these Presents, signed with our own Hand. Given at* Paris, *the* 10*th Day of* November, *in the Year of Grace* 1527, *and of our Reign the thirteenth.*

At *Henry* II's Accession to the Crown of *France*, he order'd in the first Chapter of the *Order* of St. *Michael*, he held at *Lions*, where he made his Entry in the Year 1547, that the Knights of that *Order* should wear for the future, a Cloak of Silver Tissue, embroider'd round with this Device, *viz.* three Half Moons Silver, interwoven with Trophies, strewed over with Tongues and Flames of Fire, with the Chaperon of Crimson Velvet, covered over with the same Embroidery. That the Chancellor should wear the Cloak or Mantle of white Velvet, and the Chaperon of Crimson Velvet. That the Provost and Master of Ceremonies, the Treasurer, Register, and Herald, should have the Cloak of white Sattin, and the Chaperon of Crimson Sattin; and should wear a Gold Chain, at the End whereof should hang on the Breast a Shell only. All the Knights present assisted with the King, for the Solemnity of the *Order*, in the Cathedral Church of St. *John*, at the first Vespers of the Feast of St. *Michael*, and the Day following at the high Mass, and second Vespers.

Under the Reign of this Prince's Children, the *Order* began to be render'd contemptible by the great Number of Knights made, beyond that prescribed by the Statutes, which confined it to thirty-six. *Francis* II. made eighteen, in a single Promotion at *Poissy*, in 1560, which occasioned much Murmuring. The Year following, *Charles* IX. made fifteen in a Promotion at *St. Germain en laye*; to that great Number were added thirty-three Knights in another Promotion; and in 1562 and 1567, twenty-two more were made. The Troubles of *France* obliged, afterwards, the King to make others, some of whom were not of Birth; for *Brantome* says, that the Marquiss of *Trannes* had that *Order* given to his House-Steward; whence it was called, as I suppose, *Le Collier a toutes Betes*, a Collar for all Sorts of Beasts.

These frequent Promotions caused an Interruption in the Pomp of the Chapters and Ceremonies, where the King used to assist with the Knights. Some Receptions were made in the Provinces with little or no Ceremony, by the Knights to which the Commission was directed.

The last Chapter where *Charles* IX. assisted, was that held in the Church of *Our Lady* at *Paris*, the Eve of St. *Michael* of the Year 1572. The King took his Place on the Right Hand, under a Canopy of Gold Cloth; and on the Left was such a Canopy, under which were the Arms of the Kings of *Spain*, *Denmark*, and *Sweden*, who were, likewise, Knights of this *Order*.

M. *le Laboureur* says, that *Henry* III. suppressed it tacitly, by instituting that of the *Holy Ghost*, to which he re-united it. Though that Prince, by the Creation of the *Order* of the *Holy Ghost*, declares, that it was his Will and Intention, that the *Order* of St. *Michael* should remain in its full Force and Vigour, and observed, as it had been practised ever since its first Institution.

The *Order of the* HOLY GHOST, was instituted the first of the Year 1579, by *Henry* III. King of *France* and *Poland*, in Gratitude for the signal Benefits he had received from Heaven, on the Day of the *Pentecost*, viz. his Birth, his Accession to the Crown of *Poland*, and that to the Throne of *France*, having happened on that same Day. He likewise regulated the Number of the Knights to 36; but at present they are without any fixed Number.

The Knights of the *Holy Ghost*, wear a Cross of Orange Colour Velvet, at present all Silver, on the left Side of their Cloaks and Coats, in the Middle whereof is an embroider'd Colomb of Silver, and at the four Angles as many Flower-de luces, and Rays of Silver, likewise: And another Gold Cross fastened to a blue Ribband; that Cross enamell'd white, on the Borders, in the Angles a Flower-de-luce, and in the Middle, on both Sides, a Colomb.

The Collar of this *Order* is composed of Gold Flower-de-luces, canton'd with Gold Flames enamelled red, interwoven with three Cyphers, likewise Gold enamelled white. The first Cypher is an H, and a double L, the whole double, which can be read upwards and downwards. The Letter H for *Henry* III. the Letter L, for *Louisa* of *Lorrain* his Wife, and another whose Mystery is unknown. The Cross of the *Order* is Gold, in the Middle whereof is a Colomb enamell'd white, like the Borders, and on the other Side the Image of St. *Michael*.

The last Day of *June*, of the Year 1594, *Henry the Great* took off from the Collar of the *Order* the Cyphers of *Henry* III. in the Room whereof he caused Trophies to be interwoven, intermixed with crowned H.

The Statutes of the *Order* of the *Holy Ghost*, are different from one another, and have been all followed in their Time. The last which have been printed in 1703, and which are the most correct, contain 95 Articles, which bear, among other Things, that there shall be in that Order a sovereign Chief and Grand Master, who shall have the sole Authority over all the Brethren, Commanders, and Officers, and receive those who enter the Order. *Henry* III. declared himself Chief, Sovereign, and Grand Master thereof, and united the Grand Mastership to the Crown of *France* for ever. The Kings his Successors cannot dispose in any Manner whatever of the Funds affected to the Order, nor of any Commandery, though it be vacant, till after they have been anointed and crowned: And the Day of their Coronation they must be requested by the Archbishop of *Rheims*, or him who is to perform the Ceremony, in Presence of the twelve Peers and Officers of the Crown, to swear to observe the Statutes of the Order, according to the Form prescribed by the said Statutes, which they are obliged to do, and cannot be dispensed from on any Account or Consideration whatever; and the next Day after the Coronation, the King receives the Habit and Collar of the Order from the Hands of the Bishop who has anointed him, in Presence of the Cardinals, Prelates, and Officers of the Order. Therefore *Henry* III. ordered, that the Form of the Oath should be inserted and transcribed in the Book of the Coronation, with the other Oaths the Kings are obliged to take before they are crowned, and as that King had been already anointed and crowned, he reserved to himself the Liberty of taking the Oaths before the Archbishop of *Rheims*, or any other Bishop he should judge proper; in the first Assembly he was to hold of that Order.

We find in some Memoirs, that that Assembly was held for the first Time, the last of *December* 1578, in the Church of the *Augustines* at *Paris*. His Majesty came about Two in the Afternoon, with the Bishops and Abbots, and particularly the Princes and Lords, who were to receive the Order, all cloathed with Hose, and Doublets of Cloth of Silver under their usual Habit. In the Choir of the Church, on the Right Hand, was erected a Throne for the King, covered with Cloth of Gold and Silver strewed over with Flowers-de-luce, with a Canopy over it of the same Stuff; at the Foot of the Throne were Benches for the Officers in the Manner observed at the Ceremonies of the Feasts of the Order of St. *Michael*. At the Entrance of the Choir, on his Majesty's Left Hand, were placed the Princes and Lords who were to be made Knights, according to their Rank; and there were other Benches for the Ambassadors and Lords of the Court. The Vespers ended, which had been sung by the King's Musick, the King rose, and descending from his Throne, accompanied by the Officers of the Order, went to the great Altar, where kneeling, the

the grand Almoner, assisted by five Bishops and Abbots, in their pontifical Habits, one holding the true Cross, and another the Book of the Gospel, presented to his Majesty his Vow and Oath of Chief and Sovereign Grand Master of the *Order* of the Holy Ghost, which he pronounced in this Manner: *We* Henry, *by the Grace of God, King of* France *and* Poland, *swear and vow solemnly in your Hand to God the Creator, to live and die in the holy Faith, and Catholick, Apostolical and* Roman *Religion, as it becomes a most Christian King, and rather die than fail in it: To maintain for ever the Order of the Holy Ghost, founded and instituted by us, without ever suffering it to fall to Decay, or diminish, while it will be in our Power: To observe the Statutes and Ordinances of the said Order, entirely according to their Form and Tenour, and cause them to be exactly observed by all those who are and will be hereafter received in the said Order; and willingly never to contravene, dispense with, or change, or make any Innovations in the irrevocable Statutes thereof,* viz. *the Statute which mentions the Reunion of the Grand Mastership to the Crown of* France; *that containing the Number of Cardinals and Officers: That of not transferring the Provision of the Commanderies either in the whole, or in Part, under Colour of Appenage, or Concession whatever.* Item, *that whereby we oblige ourselves, as much as in us lies, never to dispense the Commanders and Officers received in the Order, from receiving the precious Body of our Lord* Jesus Christ, *at the Days appointed, which are the first Day of the Year, and of the Pentecost. As likewise, that whereby it is said, that we and our Commanders and Officers must be Catholicks, and Noblemen of three Races on the Father Side.* Item, *that whereby we forbid employing elsewhere the Money affected to the Revenue, and Maintenance of the said Commanders and Officers on any Cause or Account whatever.* Item, *admitting into the said Order any Foreigners, unless they be naturalized or regnicole; and particularly that in which is contained the Form of the Vows, and the Obligation of wearing always the Cross, with their common Cloaths, with that of the Order at their Neck fastened to a blue Ribband, and the Habit at the Days appointed: Thus we swear it, vow and promise on the holy true Cross, and the holy Gospel touched.*

The King after he had pronounced that Vow, and signed it with his own Hand, was vested with the Mantle given him, by the Person who officiated then as Lord of his Bed Chamber, and the great Almoner put the Collar round his Neck, and recited some Prayers, after which the King rose, and descended a little lower, where there was a Seat on which he seated. The Chancellor, *Chiverny*, presented himself before his Majesty to receive the Order; he kneeled, and putting his Hands on the holy Gospel, took the Oath, and after he had been cloathed with the Mantle, the King put the Collar round his Neck; and thus of the other Officers and Cardinals. The Chancellor *de Chiverny* received likewise the Seals of the Order, which were given him by his Majesty. The Officers being created, the Provost Master of the Ceremonies, the Herald and Usher went to fetch the most antient of the Princes and Lords who were to be made Knights, and after he had received the Order, they went to take the others, in the same Manner according to their Rank. In that first Promotion, there were twenty-eight Knights received.

The Kings of *France*, Successors of *Henry* III. have taken after their Coronation the same Oaths, that Prince took then, and have endeavoured to give a new Lustre to that Order in which there must be four Cardinals, and five Archbishops, or Prelates, besides the Grand Almoner of *France*, who is Commander of the Order, so soon as he is promoted to that high Office, without being obliged to make Proofs of Nobility as the others do. All those Prelates wear the Cross of the Order hanging at a blue Ribband, and put round their Neck. They are obliged to assist at the Feast and Ceremonies of the Order, the Cardinals with their large red Caps, and the Bishops and Prelates with their violet Cassocks, and a Cloak of the same Colour, a Rochet and a Camail, and on the Mantelet is embroider'd a Cross of the Order.

Each of those Cardinals and Prelates is obliged the Day of his Reception, to take this Oath before the King: *I swear to God and promise you,* Sire, *that I'll be all my Lifetime, a loyal and faithful Subject, will acknowledge, respect, and serve you as Sovereign of the Commanders of the Order of the Holy Ghost, which you are pleased, at present, to honour me with: Will keep and observe the Laws, Statutes, and Ordinances of the said* Order, *without in the least, infringing them; that I'll wear the Marks thereof, and say every Day the Service, as it becomes an Ecclesiastick of my Quality; that I'll appear personally at all the Solemnities, unless hindered by some valid Impediment, as I'll inform your Majesty; that I'll never reveal any Thing transacted or concluded in the Chapter thereof; that I'll make, advise, and procure, all that will seem to me, in my Conscience, belonging to the Manutention, Grandeur, and Increase of the said* Order; *pray God, always, for the Salvation, as well of our Majesty, as of the Commanders and Supporters thereof, living and dead. So help me God, and his holy Gospel.*

As to the other Knights and Commanders, none can be admitted into the *Order*, unless he professes the Catholick, Apostolical, and *Roman* Religion, and be a Nobleman by Name and Arms, of three Generations at least on the Father's Side; and has for Princes twenty-five Years accomplished, and thirty-six for the others.

The King having made Choice of the Subjects he designs to honour with this *Order*, he proposes them in the Chapter, to the Prelates, Commanders, and Officers, that every one may give his Advice on their Reception, and say, in Conscience, to his Majesty the Reasons which should hinder any of them from being received. If they be found worthy of Admission, they are informed that they are received; and the necessary Commissions are sent them, as well to make the Proofs of their Religion, Life, and Manners, as of their noble Extraction; Time being allowed them to prepare the Cloaths necessary, being not permitted to borrow them.

The last Day of *December* is mark'd in the Statutes, to give the Habit and Collar of the *Order*; and the Ceremony is to be celebrated in the Church of the *Augustins* of *Paris*, when the King is in that City. No Knight Commander is admitted into the *Order* of the *Holy Ghost*, till he has received, as already observed, that of St. *Michael*. He kneels before the King, who strikes him gently on the Shoulder with a naked Sword, saying to him *De par S. George, & de par S. Michel sois Chevalier*, i. e. by St. *George* and by St. *Michael* be a Knight.

The next Day he comes to Church with the other Knights, with a Novice's Coat, which is of Cloth of Silver, with a Cope, and a black Cap. He kneels again before the King; to whom the Chancellor of the *Order* presents the Book of the Gospel; on which the Novice laying his Hands, makes his Vows in the following Manner: *I swear, and vow to God, in the Face of his Church, and promise you,* Sir, *on my Faith and Honour, that I'll live and die in the Faith, and Catholick Religion, without ever departing from it; nor from our Mother the Holy, Apostolical, and* Roman *Church: That I'll have towards you an entire and perfect Obedience, without ever failing in it, as a good and loyal Subject ought to do. I'll keep, defend and maintain, with all my Power the Honour, Quarrels, and Rights of your Royal Majesty towards and against all: That in Time of War, I'll accompany your Majesty in the Equipage which becomes my Quality; and, in Peace, when any Occasion of Importance shall require it, as often as you'll be pleased to send for me, to serve you against any Person,* &c. *that on such Occasions I'll never abandon your Person, nor the Place where you shall command me to serve, without your express Leave and Command, signed with your own Hand,* &c. *that I'll never leave your Kingdom, especially to enter into the Service of any Prince, without your said Command, and I'll never take Pension, Wages, or State of another King, Prince, or Potentate, or Lord whatever; nor oblige myself to the Service of any living Person, but of your Majesty, without your express Leave,* &c.

After the Knight has pronounced this Vow and Oath, the Provost and Master of the Ceremonies presents to the King the Mantlet of the *Order*, who, in giving it to the Knight, says to him: *The* Order *cloathes and covers you with the Mantle of their amiable Company, and fraternal Union, at the Exaltation of our Faith, and Catholick Religion, in the Name of the Father, and of the Son, and of the Holy Ghost.* The Treasurer presents afterwards

terwards to his Majesty the Collar of the *Order*, which he puts round the Neck of the Knight, saying, *Receive from our Hands the Collar of our Order of the good Holy Ghost, to which we as Sovereign Grand Master receive you*, &c. *in the Name of the Father, of the Son, and of the Holy Ghost.*

As by the Oath it is expresly declared that the Knights Commanders shall not enter into the Service of any foreign Prince, which could not be observed by those who are not Subjects of the King of *France*, *Henry* III. declared by the XXXVII Article of the Statutes, that no Foreigner, if he was not regnicole, and naturalized in the Kingdom, should be received into the *Order*, nor likewise the *French*, who have already some other *Order*, except that of St. *Michael*. He excepted likewise the Cardinals, Archbishops, and Bishops, and also all his Subjects, who with his Leave, or of the King's his Predecessors, had, or should be henceforwards received, in the *Orders* of the Golden Fleece, or of the Garter.

But *Henry* IV. considering how much it was advantageous for the Reputation of the *Order* of the Holy Ghost, and for the Good of the Kingdom of *France*, that foreign Kings, Princes, and sovereign Lords, not regnicole, should be aggregated to that *Order*, ordered by a Declaration of the last of *December* 1607, in the general Assembly of the *Order* he held at *Paris*, that foreign Kings, sovereign Princes, and Lords, not regnicole, being of a Quality prescribed by the Statutes, might be henceforwards Knights of this Order; that for that Effect a Commander and Knight should be sent towards the King or sovereign Prince elected and associated to the *Order*, to give him the Collar and Cross, *&c.* in the Manner prescrib'd by the Memoirs and Instructions given him: That the King or sovereign Prince having accepted the *Order*, should be oblig'd to return his Thanks for it to the sovereign and Grand Master, by a Person sent on purpose, in the Year of his Reception; and that with regard to the Lords, not Sovereigns, they should be obliged to come in Person to his Majesty, in the Year of their Election, to receive, from his Hand, the Collar and Cross of the *Order*, and take the Oath prescribed by the Statutes, unless they be dispensed from it.

The Church of the *Augustins* at *Paris*, was chosen by *Louis* XIV. to celebrate the 1st of *Jan.* the Feast of the *Order*, which begins the Eve of that Day at Vespers, where the Cardinals, Prelates, Knights and Officers must accompany the Sovereign from his Palace to the Church. The Usher marches before, the Herald next, afterwards the Provost, having the Treasurer on his Right, and the Registerer on his Left; the Chancellor marches alone; then follow the Knights two and two, according to the *Order* of their Reception, and afterwards the Sovereign and Grand Master, and next the Cardinals and Prelates of the *Order*. The Knights are cloathed in long Cloaks of black Velvet strew'd all over with Gold Flames, and embroidered all round with the Collar of the *Order*. That Mantle is garnished with a Mantelet of green Silver Cloth, embroider'd likewise all round with the Collar of the *Order*; and both the Cloak and Mantelet are lined with an Orange-colour Satin. The Cloaks or Mantles are wore turned up on the left Side, and the Opening is on the Right. Under those Cloaks they have Doublets and Hoses of white Satin, and on the Head a Cap of black Velvet, with a white Feather.—With regard to the Officers, the Chancellor is cloathed like the Knights. The Provost, grand Treasurer and the Registerer have Cloaks likewise of black Velvet, and the Mantelet of green Silver Cloath, but they are only bordered with Gold Flames and a small Gold Fringe, and wear the Cross of the *Order* sewed on their Cloak, and another Gold Cross hanging at their Neck. The Herald and Usher have Cloaks of black Satin, and the Mantelet of green Velvet; they have the Cross of the *Order* hanging at their Neck, but that of the Usher is smaller than that of the Herald.

Note, That here follows a *Chronological Succession* of the *Grand Masters* and *Sovereign Chiefs*, and *Knights* of the *Order* of the *Holy Ghost* in *France*. The first Column contains the Years of Christ; the second, the Names of the Grand Masters, Prelates, *&c.* and the third, the Years of their Mastership.

CHRONOLOGICAL SUCCESSION *of the* Grand Masters, *and* Knights *of the* Order *of the* HOLY GHOST, *in* France.

1578	HENRY III. *Institutor, and first Sovereign Chief of the* Order.	
	PRELATES.	13
	Charles de Bourbon.	
	Louis de Lorrain.	
	René de Birague.	
	Philip de Lenoncourt.	
	Peter de Gondy, *Cardinal, Bishop of* Paris.	
	Charles d'Escars, *Bishop of* Langres.	
	René Daillon Du Lude.	
	James Amyot.	
	KNIGHTS.	
	Louis de Gonzague.	
	Philip Emanuel *of* Lorrain.	
	James de Cruffol.	
	Charles *of* Lorrain.	
	Honorat *of* Savoye.	
	Artus de Coffé.	
	Francis de Gouffier.	
	Francis d'Escars.	
	Charles d'Halluque.	
	Charles de la Rochefoucaut.	
	John d'Escars, *Prince of* Carencey.	
	Christopher Juvenal des Ursins.	
	Francis Le Roy.	
	Scipio de Fiesque.	
	Antony Sire de Pons.	
	James Sire d'Humieres.	
	John d'Aumont.	
	John de Chourses.	
	Albert de Gondy.	
	René de Villequier.	
	John de Bloffet, *Baron of* Torcy.	
	Claude Villequier, *called the* Eldest.	
	Antony d'Estrées.	
	Charles Robert de la Mark.	
	Francis de Balzac.	
	Philibert de la Guiche.	
	Philip Strozzi.	
1579	KNIGHTS.	
	Francis de Bourbon, *Prince of* Conti.	
	Francis de Bourbon, *Prince Dauphin of* Auvergne.	
	Henry *of* Lorrain.	
	Louis *of* St. Gelais.	
	John Ebrard, *Baron of* St. Sulpice.	
	James de Matignon, *Count of* Torigny.	
	Bertrand de Salignac.	
1580	KNIGHTS.	
	Francis de Luxembourg.	
	Charles de Birague.	
	John de Leaumont.	
	René de Rochechouart.	
	Henry de Lenoncourt.	
	Nicolas d'Angennes.	
1581	KNIGHTS.	
	Charles de Lorraine.	
	Armand de Goutaut.	
	Guy de Daillon.	
	Francis de la Beaume.	
	Antony Levy.	
	John de Thevalle.	
	Louis d'Angennes.	
1582	KNIGHTS.	
	Charles de Lorrain.	
	Anne, *Duke of* Joyeuse.	
	John Louis de la Valette.	
	Tanneguy le Veneur.	
	John de Mouy.	
	Philip de Volvire.	
	Francis de Mandelot.	
	Triftan de Roftaing.	
	John James de Suzanes, *Count* de Corny.	
1583	PRELATES.	
	Charles de Lorrain.	
	KNIGHTS.	
	Honorat de Buil.	
	René de Rochefort.	

John

John de Vivonne.
Louis Chasteignier.
Bernard *Lord of* La Valette.
Henry de Joyeuse.
Nicholas de Grimonville.
Louis d'Amboise.
Francis de la Valette.
Francis de Cadillac.
Joachim *Lord of* Dinteville.
Joachim de Chateauvieux.
Charles de Balzac.
Charles du Plessis.
Francis de Chabanes.
Robert de Gombault.
Francis *Lord of St.* Nectaire.

KNIGHTS.

1584 John de S. Lary.
John de Vienne.
Louis Adhemar de Monteil.

KNIGHTS.

1585 Charles de Bourbon.
John de Vassé.
Adrian Tiercelin.
Francis Chabot.
Gilles de Souvré.
Francis d'O.
Claude de la Châtre.
Giraud de Mauleon.
John de Loubens.
Louis de Berton.
John d'Angennes.
Francis de la Jugie.
Francis Louis d'Agout.
William de Saulx.
Mery de Barbezieres.
Francis du Plessis.
Gabriel de Caumont.
Hector de Gondrin, *and* Pardaillan.
Louis de Champagne.
René de Bouillé.
Louis du Bossois.
John d'O.
Henry de Silly.
Anthony Beaufremont.
John du Châtelet.
Francis d'Escoubleau.
Charles d'Augnies.
David Bouchard.

KNIGHTS.

1586 George Baron *of* Willequier.
James de Macy.
Charles *of* Vivonne.
James le Veneur.

PRELATE.

1587 Francis de Foix.
1590 HENRY IV. *second Sovereign Chief of the* 20
Order.

PRELATE.

Renaut de la Baume.

KNIGHTS.

Charles de Gontaut de Biron.

PRELATES.

1595 Philip du Bec.
Henry d'Escoubleau.

KNIGHTS.

Henry de Bourbon.
Henry d'Orleans.
Anthony de Brichanteau.
John de Beaumanoir.
Francis d'Espinay.
Henry d'Albret.
Anthony *Lord of* Roquelaure.
Charles Sire d'Humieres.
William de Hautemer.
Francis de Cugnal.
Anthony de Silly.
Odet de Matignon.
Francis de la Grange.
Charles de Balzac.
Charles de Cossé; *afterwards Duke of* Brissac.
Peter de Mornay.
Francis de la Madelaine.

Claude de Lisle.
Charles de Choiseul.
Humbert de Marcilly.
Gilbert de Chazeron.
René Viau.
Claude Gruel.
George Babou.

KNIGHTS.

1597 Henry *Duke of* Montmorency.
Hercules de Rohan.
Charles *of* Montmorency.
Alphonse d'Ornano.
Urban de Laval.
Charles de Luxembourg.
Gilbert de la Trimouille.
James Chabot.
John Sire de Beuil.
William de Gadagne.
Louis de l'Hospital.
Pons de Lauzieres Themines Cardaillac.
Louis Dougnies.
Edme de Malain.
Anthony d'Aumont.
Louis de la Chastre.
John de Durfort.
Louis de Beuil.
Claude de Harville.
Eustache de Conflans.
Louis de Grimonville.
Charles de Neuville.

KNIGHTS.

1599 Anne de Levy.
James Mitte.
James Francis d'Averton.
Bertrand de Baylens.
René de Rieux.
Brandelis de Champagne.
James de l'Hôpital.
Robert de Vieuville.
Charles de Matignon.
Francis Jevenal Ursin, *Marquiss of* Trainel.

PRELATES.

1606 Charles de Bourbon.
John David du Perron.

KNIGHTS.

John Anthony Ursin.
Alexander Sforza Conti.
1610 LOUIS XIII. *third Sovereign Chief of the* 32
Order.

KNIGHT.

Henry de Bourbon.

PRELATE.

Francis de la Rochefoucaut.

PRELATES.

1619 Henry de Gondy.
Bertrand d'Eschaux.
Christopher de l'Estang.
Gabriel de l'Aubespine.
Artus d'Espinay, du Luc.

KNIGHTS.

Gaston John Baptiste, *of* France.
Charles *of* Lorrain.
Henry *of* Lorrain.
Claude *of* Lorrain.
Cæsar *Duke of* Vandosme.
Charles de Valois.
Charles de Lorrain.
Henry *Duke of* Montmorency.
Emanuel de Crussol.
Henry de Gondy.
Charles d'Albret.
Louis de Rohan.
Joachim de Berangueville.
Martin de Bellay.
Charles Sire de Crequi.
Gilbert Filhet.
Philip de Bethune.
Charles de Coligny.
John Francis de la Guiche.
Francis de Bassompierre.
Henry *Viscount of* Bourdeille.
John Baptist d'Ornano.

Timoleon d'Espinay.
René Potier.
Henry de Beaufremont.
Philip Emanuel de Gondy.
Charles d'Angennes.
Louis de Crevant.
Leonor de la Madelaine.
Melchior Mitte.
Honoré d'Albret.
John de Warignies.
Leo d'Albret.
Nicholas de Brichanteau.
Charles de Vivonne.
Andrew de Cochefilet.
Gaspard de Auvet.
Lancelot de Vassé.
Charles Sire de Rambures.
Anthony de Buade.
Nicholas de l'Hôpital.
Louis de la Marck.
Charles Marquis.
Alexander de Rohan.
Francis de Silly.
Anthony Hercules de Budos.
Francis de Rochefaucaut.
James d'Estampes,
1622 Francis de Bonne.

KNIGHT.

1625 Anthony Coiffier, *called* Ruzé.

PRELATE.

1632 Alphonse Louis du Plessis.

PRELATES.

Armand John du Plessis de Richelieu.
Louis Cardinal de la Valette.
Claude de Rubé.
John Francis de Gondy.
Henry d'Escoubleau de Sourdis.

KNIGHTS.

Henry *of* Orleans.
Henry *of* Lorrain.
Louis Emanuel de Valois.
Henry de la Tremouille.
Charles de Levy.
Henry de Valette *and* Foix.
Charles de Schomberg.
Francis de Coffé.
Bernard de la Valette *and* Foix.
Charles Henry *Count of* Clermont.
Francis Annibal d'Estrees.
John de Nettancourt.
Henry de Saint Nectaire.
Philbert *Viscount of* Pompadour.
René aux Epaules, *called* Laval.
William de Simiane.
Charles *Count* de Lannoy.
Francis de Nagu.
Urban de Maillé.
John de Gallard.
Francis de Noailles.
Bernard de Baylens.
Gabriel de la Vallée-Fossez.
Charles de Livron.
Gaspard Armand.
Louis, *Viscount, afterwards Duke of* Arpajou.
Charles d'Escoubleau.
Francis de Bonne.
Francis de Bethune.
Claude de S. Simon.
Charles de Cambout.
Francis de Wignarot.
Charles de la Porte.
Gabriel de Rochechouart.
Anthony d'Aumont.
Just Henry *Count of* Tournon.
Louis de Macy.
Charles de Damas.
Hector de Gelas *and* Voisins.
Henry de Beaudan.
Roger du Plessis.
Charles de S. Simon.

KNIGHT.

1642 Honoré Grimaldi.

1643 Louis XIV. *fourth Sovereign, Chief of the* Order. 72

PRELATE.

1653 Anthony Barberini.

KNIGHT.

1654 Philip *of* France, *Duke of* Anjou.

PRELATES.

1665 Camille de Neuville de Villeroy, *&c.*
Francis Adhemar de Monteil de Grignan, *&c.*
George d'Aubusson, de la Feuillade, *&c.*
Francis de Harlay.
Leonard de Matignon.
Gaspard de Daillon du Lude.
Henry de la Motte-Houdancourt.
Philip Emanuel de Beaumanoir.

KNIGHTS.

Louis de Bourbon.
Henry Jules de Bourbon *D.* d'Enghien, *&c.*
Armand de Bourbon.
Henry de Bourbon.
Louis *Duke of* Vendôme *and* Mercœur.
Francis *of* Vendôme.
Francis de Crussol.
Louis Charles d'Albret.
Charles d'Albret, *called* d'Ailly.
Francis *Duke of* Rochefaucaut.
Peter de Gondy.
Anthony *Duke of* Gramont.
Cæsar *Duke of* Choiseul.
Nicholas de Neuville.
Charles *Duke of* Crequy.
James d'Estampes.
Henry *Duke of* Senecterre.
Philip *of* Montaut.
James Rouxel.
Gaston John Baptist, *Duke of* Roquelaure.
Philip Mancini, *and* Mazarine, *Duke of* Nevers.
Jules Cesarini, *Duke of* Castelnove.
Francis de Beauvilliers.
Henry de Daillon.
Louis de Bethune.
Anne *Duke* de Noailles.
Francis de Comenge.
Francis de Clermont.
Alexander William de Melun.
Cæsar Phæbus d'Albret.
Francis René du Bec.
Charles Maximilian de Belleforiere.
Francis Paul de Clermont.
Philip de Clerembaud.
John de Schulemberg.
Gaston John Baptist *of* Comenge.
Francis de Simiane.
Henry de Beringhen.
John du Bouchet.
Charles de Froulay.
James Francis, *Marquis of* Hautefort.
Francis de Matignon.
Charles de Sainte Maure.
Francis d'Espinay.
Hipolyte *of* Bethune.
Ferdinand de la Baume.
Louis Armand de Polignac.
Anthony de Brouilly.
John *Marquis of* Pampadour.
Louis de Cardaillac, de Levy.
Scipio Grimoard de Beauvoir.
Francis de Monstiers.
Henry de Baylens.
Leo de Sainte Maure.
James Esthuer.
Francis de Japeuse.
Timoleon de Coffé.
Charles Martel, *Count of* Cleves.
Nicholas Joachin Ronant.
Gaudefroy *Count* d'Estrades.
René Gaspard de la Croix.
William *of* Pechepeyron, *&c.*
Christian Louis, *Duke of* Mekelbourg.

PRELATE.

1671 Emanuel Theodore de la Tour d'Auvergne.

KNIGHTS.

KNIGHTS.

Flavio Urſin *Duke of* Braciano.
Louis Sforce.
Philip Colonna.
Francis *Marquis of* Bethune.
John Sobieſki, *called the Great, King of* Poland.
Louis *Dauphin of* France.
Philip *of* Orleans *Duke of* Chartres.
Louis *Duke of* Bourbon.
Francis Louis *of* Bourbon, *Prince of* Conti.
Louis Auguſtus, *Legitimate of* France.

PRELATES.

1688 Cæſar *Cardinal* d'Eſtrées.
Peter *Cardinal* de Bonzi.
Charles Maurice le Tellier.
Peter du Cambout de Coiſlin.

KNIGHTS.

Louis Joſeph *Duke of* Vandome.
Louis *of* Lorrain.
Henry *of* Lorrain.
Philip *Prince of* Lorrain.
Charles *of* Lorrain.
Charles Belgick-Holland de la Tremouille.
Emanuel de Cruſſol.
Maximilian Peter Francis de Bethune.
Charles Honoré d'Albret.
Armand John de Vignerot, du Pleſſis de Richelieu.
Francis *Duke of* Rochefoucaut.
Louis Anibal d'Eſtrées.
Antony Charles *Duke of* Gramont.
Armand Charles de la Porte.
Francis de Neufville.
Paul de Beauvilliers.
Henry Francis *of* Foix Candale.
Leo Potier.
Anne Jules *Duke of* Noailles.
Armand de Cambout.
Auguſtus *Duke of* Choiſeul.
Louis Marie *Duke* d'Aumont.
Francis Henry *of* Montmorency.
James Henry *of* Durfort.
Armand de Bethune.
John d'Eſtrees,
Charles *Duke* de la Vieuville.
John Baptiſt de Caſſagnet.
Louis de Caillebot.
James Louis de Beringhen.
Philip de Courcillon.
Philibert *Count of* Gramont.
Louis Francis *Marquis, and afterwards Duke of* Bouflers.
Francis d'Harcourt.
Henry de Mornay.
Edward Francis Colbert.
Joſeph de Pons de Guimené.
Henry Charles *Sire of* Beaumanoir.
Peter *Marquis of* Villars.
Francis Adheimar de Monteil.
Claude *Count of* Choiſeul.
John Armand de Joyeuſe.
Francis de Calvo.
Claude de Thiard.
Antony Ruze.
Francis *Count of* Montberon, *&c.*
Philip Auguſtus le Hardy.
Francis *of* Moneſtay.
Bernard de la Guiche.
Francis d'Eſcoubleau de Sourdis.
Philip Emanuel Ferdinand Francis de Croy.
Andrew *of* Bethoulat.
George de Monchy.
Oliver *of* St. George.
René Martel *Count* d'Arſi.
Alexis Henry Maximilian, *Marquis of* Chatillon.
Nicolas de Chalon du Blé.
René de Froulay.
Charles de Mornay.
Hyacinthe de Quatre-Barbes *Marquis* de la Rongere.
Charles d'Eſtampes.
John d'Audibert.
1689 Touſſaint de Fourbin de Janſon.
1693 Louis Alexander *of* Bourbon.

PRELATES.

1694 William Egon *of* Furſtemberg.
Henry de la Grange d'Arquien.

KNIGHTS.

Louis *of* France *Duke of* Burgundy.
Philip *of* France *Duke of* Anjou.

PRELATE.

Francis *of* Clermont Tonnerre *Biſhop of* Noyon.

KNIGHTS.

Louis de Guiſcard.
Antonio *Duke of* Lanti.

1698 PRELATES.

Louis Antony *of* Noailles, *late Archbiſhop of* Paris.

1699 KNIGHTS.

Charles *of* France, *Duke of* Berry.
Guido Vaini.
Alexander Sobieſki.
Conſtantine Sobieſki.

1701 PRELATES.

Daniel de Coſnac.
Charles Henry de Cambout.

KNIGHTS.

Camille d'Hoſtun.
Roſtaing Cantelmi, *Duke of* Popoli.
Charles Broglio.
D. Juan Claro Alonzo Perez de Guſmanel Bueno.
D. Franciſco Antonio Caſimiro Alphonſo Pimentel.
Fadriques of Toledo Oſorio.
Juan Franciſco Pacheco Tellez Giron.

1703 PRELATES.

Louis Manuel Portocarero.

KNIGHTS.

Ferdinand Count de Marſin.
1704 Iſidorus de la Cueva *and* Bernavides.
John d'Eſtrées.

1705 KNIGHTS.

Roger Brulart.
Henry *Duke of* Harcourt.
Victor Mary d'Eſtrees.
Francis Hector *Marquis of* Villars.
Noël Bouton.
Francis Louis de Rouſſelet.
Sebaſtian le Pretre, *Lord of* Vauban.
Conrad de Roſen,
Nicolas Auguſtus de la Beaume.

1708 PRELATE.

Joſeph *Cardinal* de la Trimouille.

KNIGHTS.

1709 Louis Henry, *Duke of* Bourbon.
1711 Louis Armand *of* Bourbon.
James Leonard Rouxel.
Leonard Marie Duc du Maine.
Francis Zenobius Philip Albergotti.
Louis Francis *Marquis* de Goeſbriant.
1715 LOUIS XV. fifth Sovereign Chief of the Order.

Note, That at the Death of any of the Knights of the Holy Ghoſt; his Family or Heirs muſt ſend back the Collar of the Order to the King.

The *Order* of SAINT LAZARE, and of *N. D. de* MOUNT CARMEL, was inſtituted in 1607, by *Henry* IV. King of *France*, who wanting, ſays F. *Heliot*, to give ſome ſenſible Marks of his Piety and Devotion towards the bleſſed Virgin, wrote to his Embaſſador at *Rome* to obtain of the Pope *Paul* V. the Erection of that Order, and the Confirmation thereof by apoſtolical Authority: Which that Pontiff granted by a Bull of the 6th of *Feb.* 1607, whereby he gives Power to that Prince to appoint a Grand Maſter of the *Order*, who could create as many Knights as he pleaſed. He permitted thoſe Knights to marry; and after their firſt Wife's Death to marry another, and even a Widow. He obliged them to make Vows of Obedience, and to keep the conjugal Chaſtity; and

and granted them Leave to have Pensions on all Sorts of Benefices in *France*, though they were married and even Bigames.

The King in the Month of *July* 1608, wanting to provide for the Establishment of his new *Order* of *N. D. of Mount Carmel*, suppressed by his Letters Patent the Office of Grand Master of the *Order* of *St. Lazare*, and united all the Commanderies, Priories, and Benefices belonging to that *Order*, to be in the Collation of the Grand Master, to the *Order* of *N. D. de Mont Carmel*. Therefore it was not that new *Order* which was united to that of *St. Lazare*, as several Authors have imagined; but the *Order* of *St. Lazare*, which was united to that of *N. D. Mont Carmel*.

Henry IV. gave afterwards the Post of Grand Master of that *Order* to *Philibert de Nerestang*, Mestre de Camp of a Regiment of Infantry, and one of the Lords of his Bedchamber, who had possessed before that of Grand Master of the *Order* of *St. Lazare*.

Claude Marquis of *Nerestang*, Son of *Philibert*, was received to have the Reversion of the Post of Grand Master, in 1611. *Charles* Marquis of *Nerestang*, *Claude*'s Son, possessed it in 1639, after his Father's Decease, on the Provisions of *Louis* XIII. *Charles Achilles* of *Nerestang*, *Claude*'s second Son, was also promoted to it in 1645 by *Louis* XIV. his Provisions gave him the Quality of *Grand Master of N. D. de Mont Carmel*. He was confirmed in that Office by a Bull of *Innocent* X. and even since that Time the Grand Master and the Knights took the Name of *N. D. de Mont Carmel*, and of *St. Lazare* of *Jerusalem*.

Louis XIV. confirmed besides the Institution of this *Order* in the Month of *April* 1664, and the Cardinal of *Vandôme* being Legate *a latere* in *France*, of Pope *Clement* IX. gave a Bull in 1668 for the Reunion of these two Orders, confirming all the Privileges which had been granted to that of *St. Lazare*, by the Popes, *Pius* IV. and *Pius* V.

In the same Year the King promoted the Marquis *de Nerestang*, Son of *Charles Achilles*, to the Post of Grand Master, who in that Quality took the Oaths of Allegiance to his Majesty, who gave him the Cross of the *Order*. He departed afterwards to go and command the Squadron designed for the Security of the Commerce on the Ocean. He obtained in 1672 an Edict of the King, which restored the Knights of *Mount Carmel*, and of *St. Lazare*, to all the Rights which had belonged to their *Order*, and they might have lost, which confirmed the Union of the two *Orders*, and gave them the perpetual Administration of the Maladreries, Hospitals, *Maisons-Dieu*, and other Places in the Kingdom, where the Hospitality was not observed; and which united to the *Order* of *N. D. of Mount Carmel*, the Lands, Estates, *&c.* of whatever Military Orders and Hospitallers, which by that Edict are reputed extinct, and suppressed in *France* (that of *Malta* excepted) for of the Lands and Revenues of those *Orders*, Maladreries, Hospitals, *Maisons-Dieu*, and other Places, thus reunited to the *Order* of *N. D. of Mount Carmel*, and of *St. Lazare*, to be formed by the King, Commanderies, to be given by his Majesty, and the Kings his Successors, as sovereign Chiefs of that *Order*, to whom they'll think proper.

In Execution of that Edict, and to take Cognizance of all Law-Suits and Differences, which could arise by reason of the Things contained therein, the King resolved to establish a Chamber composed of Officers the most considerable of his Council, in which Chamber the Law-Suits and Differences should be judged *en dernier ressort*, giving it Power to register all the Declarations and Arrests, to make such Regulations they should judge proper, *&c.*

The Grand Master *Nerestang*, to facilitate the Execution of that Edict, convoked a general Chapter at *Boigny*, which he indicated for the 19th of *February* 1673. But before it was held, he resigned his Grand Mastership into the Hands of his Majesty. The Knights being informed of it, assembled their general Chapter the 17th of *January* 1673, and presented a Request to the King, whereby they prayed his Majesty to unite the Dignity of Grand Master of their *Order* to his Crown, and to agree the Postulation they had made of the Marquis *de Louvois* to govern their *Order* in the Quality of Vicar-General.

The King declared that he could not then unite to his Crown the Grand Mastership, but that he granted the Election which had been made by Postulation in the Chapter of the Marquis *de Louvois*, to govern the Affairs of the *Order* under his Authority. And his Majesty caused Provisions of Grand Vicar-General to be dispatched the 4th of *February* 1673, in favour of the Marquis of *Louvois*; who was received in the general Chapter of the *Order* in that Quality, and confirmed in the general Chapter held the 19th of the same Month at *Boigny*.

By Means of those Edicts and Declarations, a great Number of Hospitals, Maladreries, and pious Places, were united to the *Order* of St. *Lazare*, and of *Our Lady of Mount Carmel*, of which were formed five *grand Priories*, and a hundred and forty-five *Commanderies*. The King, by his Letters-Patent of the 28th of *December*, 1680, made the Erection of those five *grand Priories*; which were that of *Normandy*, whose Residence is at the Mount *des Malades*, near *Rouen*. That of *Britanny*, the Grand Prior whereof resides at *Auray*, and has for Adjunct the Commandery of *Blois*. That of *Burgundy*, whose Residence is at *Dijon*. That of *Flanders*, whose Residence is at *Lisle*. And that of *Languedoc*.

There was also a Council of the *Order* established at the Arsenal, composed of the Vicar-General, of the Chancellor, of the Attorney-General, of the Grand Master of the Ceremonies, of the Treasurer, of the Secretary, and of five Chancellors of the *Order*.

After the Marquis *de Louvois*'s Death, his Majesty nominate for Grand Master of the *Order*, the Marquis *de Dangeau*, who, in that Quality, took the Oath of Fidelity the 18th of *December* 1695. The 29th of *January* of the Year following 1696, he went to the Church of the *Carmelites* of the *Bilettes*, where he swore on the Gospel to observe, and cause to be observed by the Knights, the Statutes of the *Order*. Afterwards the antient Knights vowed Obedience to him; and after Mass he made thirty-five new ones, to whom he gave the Sword, the Cross, and the Book of the Rules.

Till then the Knights had no Habit of Ceremony, they only wore at the Button-Hole of their Coat, a Gold Cross, with eight Rays, enamell'd on one Side, with an Amarante Colour and the Image of the Virgin *Mary* in the Middle, and on the other with Sinople, with the Image of St. *Lazare* in the Middle, each Ray pometed with Gold, with a Gold Flower-de-luce in each Angle of the Cross, fastened to a Purple Ribband; and the Brother's Servant wore only a Ribband with the same Enamels fastened to a Chain without a Ribband. But the Marquis *de Dongeau*, order'd Habits for the Ceremonies, which are different according to the Quality of the Knights. That of the Grand Master consisted in a Dalmatick of Cloth of Silver, over which he put a long Mantle of Purple Velvet, strewed over with Gold Flowers-de-luce, Cyphers, and Trophies, all embroider'd with Gold and Silver; the Cyphers formed the Name of *Marie*, in the Middle of two Crowns. That of the Knights of Justice consisted in a Dalmatick of white Satin, on which is a Cross of the Height and Breadth of the Dalmatick quarter'd with a Tanned, and green Colour; and over the Dalmatick a long Cloak of Purple Velvet, on which at the left Side was an embroider'd Cross, in the Middle whereof is the Image of the Virgin *Mary*. The Ecclesiastick Knights, or Chaplains, had a Rochet over their Cassock, and over the Rochet a Camail of Purple Velvet, with a Cross embroider'd on the left Side. The Mantle of the Brother's Servant, was only of Cloth, and they had but their Medal embroider'd on the left Side. The Novices had only a short Mantle of green Satin, to which was fastened a Sort of Capuche; and the Herald had a Dalmatick of Purple Velvet, on the fore Part whereof was an Escutcheon, embroider'd with Silver, of the Arms of the *Order*, which are Argent, with a Cross quarter'd, tanned, and green, over the Escutcheon a ducal Crown. The one and the other, except the Ecclesiastick Knights, who wore a square Cap, had a black Velvet Cap, with black Feathers, and an Aigrette. The Usher of the *Order* had only a Violet Coat, and carried a Mace of Silver gilt. But after the Death of the Marquis *de Dongeau*, his Royal Highness the present Duke of *Orleans*, then Duke of *Chartres*, having been named Grand Master of the *Order*,

Order, and took the Oath in that Quality, before *Lewis* XV. the 23d of *February* 1721. That Prince has since changed the Habit of Ceremony, so that the Knights wear, at present, an Habit of black Damask, with a short Cloak; the Waistcoat and Breeches of black Satin, with a large Cross of the *Order* embroider'd on the Coat.

The Knights assemble most commonly at the *Carmelites* of the *Billets*; but they solemnize the Feast of *N. D. de Mont. Carmel*, in the Church of St. *German des Prez*.

To be received in this *Order*, they must make Proof of Nobility of three Quarters on the Father and Mother's Side. Though the Grand Master can dispense from the Rigour of those Proofs, such as have render'd some considerable Services to the King, or to the *Order*, and receive them Knights of Grace. The Ecclesiasticks, who will make Proofs of Nobility, take Place among the Knights of Justice. There are besides, Chaplains and Brothers Servants, who are not Nobles. The Knights, either Ecclesiasticks or Laicks, pay a thousand Livres for their Admission into the *Order*; and the Chaplains and Brothers Servants, five hundred.

This is the Manner they are received to Profession, according to the Ceremonial printed in 1703. The Mass being ended, and the Grand Master, or his Representative, sitting in a Fautueil, the Priest who officiates blesses the Cross and the Sword, after which the Novice, who kneeled during that Ceremony, rises, and goes and presents himself to the Grand Master, who says to him, *What do you ask? I most humbly pray you, my Lord, to give me the Order of Knight of* N. D. *of Mount* Carmel, *and of St.* Lazare *of* Jerusalem. The Grand Master says to him, *You ask me a Favour, which ought not to be granted but to those whose Merit, as well as their noble Extraction, render worthy of it, and who are disposed to practise the Works of Mercy towards the Poor of* Jesus Christ, *and to spill their Blood for the Defence of the Christian Religion, and the King's Service. We have sure Proofs that the Conditions and Dispositions required for the Favour you ask are found in you, which moves us to ask you. Are you disposed to make use of your Sword for the Defence of the Church, the King's Service, the Honour of the Order, and the Protection of the Unfortunate?* The Novice answers, *Yes, my Lord, with God's Assistance.* Afterwards the Grand Master says to him, *I am a going to receive you into the Royal, Military, and Hospitaller Order of Our Lady of Mount* Carmel, *and of St.* Lazare *of* Jerusalem, *in the Name of the Father, and of the Son, and of the Holy Ghost.* He makes in pronouncing these last Words the Sign of the Cross on the Novice. Then he rises from his Fautueil, draws his Sword, and with it strikes once each Shoulder of the Novice, beginning at the right Shoulder, and saying, *By Our Lady of Mount* Carmel, *and by St.* Lazare, *I make you a Knight.*

This done, the new Knight kneels before the Grand Master, and receives the Sword from him, kissing his Hand. The Grand Master in giving it him, says, *Make use of your Sword according to the Spirit of Religion, and not according to the Motion of your Passions, and remember never to strike any Body unjustly; Knight, be henceforwards vigilant in the Service of God and of Religion, obedient to your Superiors, submissive to their Orders, and patient to their Corrections. Know that the Laws of the Religion you have enter'd into, oblige you to practise all Christian and Moral Virtues*, &c.

The Grand Master in giving the Cross to the new Knight, says, besides, *I give you the Cross of our Order, you shall wear it all your Life-time, in the Name of the blessed Trinity, Father, Son, and Holy Ghost. It must make you remember the Passion of our Lord, and engage you to observe the holy Rules, and Statutes of the Religion. It is adorned with Flowers-de-luce, to teach you the Fidelity you must have for the King's Service*, &c. He gives him afterwards the Book of Prayers and Statutes of the *Order*, saying, *I give you, likewise, the Book of Prayers and Statutes of our Order, where you'll learn your Duties.*

After those Ceremonies, the new Knight having put his Hands on the Gospel, which the Grand Master holds, pronounces aloud, and distinctly, his Vows in these Terms, *I. N. promise and vow to God Almighty, to the glorious Virgin* Mary, *Mother of God, to St.* Lazare, *and to my Lord the Grand Master, to observe all my Life-time the holy Commandments of God, and those of the holy Catholick, Apostolical, and* Roman *Church, to serve with a great Zeal in the Defence of the Faith, when I shall be commanded by my Superiors, to practise Charity, and the Works of Mercy towards the Poor, and particularly the Leprous, according to my Power, to observe an inviolable Fidelity to the King, and to my Lord the Grand Master, to shew him a perfect Obedience, and to keep all my Life-time a free, and conjugal Chastity. So God, most good, most great, and most potent, help me, and his holy Gospel by me touched.*

After the new Professed has pronounced his Vows, the Grand Master says to him; *Come at present, let me embrace you, and acknowledge you as our Brother, and Knight of our Order, and in that Quality Defender of the Faith, faithful Servant of the King, Protector of the Poor*, &c.

Note, That here follows a *Chronological Succession* of the *Grand Masters* of the *Orders* of St. *Lazare*, and of *N. D. de Mount Carmel*, since the Re-union of the two *Orders*. The first Column contains the Number of Grand Masters, the second the Years of Christ, the third their respective Names, *&c.* the fourth their Years of Mastership.

CHRONOLOGICAL SUCCESSION *of the* Grand Masters *of the* Order *of* St. LAZARE, *and of* N. D. de Mount Carmel, *in* Francce.

1	1608	PHILIBERT DE NERESTANG, first Grand Master.	
2	1611	CLAUDE DE NERESTANG, his Son.	3
3	1639	CHARLES DE NERESTANG, his eldest Son.	28 6
4	1645	CHARLES ACHILLES DE NERESTANG, *Claude*'s second Son.	
5	1668	N. MARQUIS DE NERESTANG, Son of *Achilles*.	23
6	1673	MICHAEL FRANCIS LE TELLIER, Marquiss of *Louvois*.	5
7	1693	N. MARQUIS DE DANGEAU.	18
8	1721	LOUIS D'ORLEANS, Duke of *Chartres*, at present Duke of *Orleans*, born in 1703, and still Grand Master of the *Order*.	27

The *Order of* St. LOUIS, was instituted in *France* in 1693, by the late King *Louis* XIV. to reward the Zeal of those who had devoted themselves to his Service, by some particular and visible Mark of Honour. His Majesty appointed, besides, in Favour of those who should be admitted into this new *Order*, Revenues and Pensions, which were to increase in Proportion as they should render themselves more worthy of it by their Conduct; wanting that none should be admitted into the *Order*, but the Officers of his Forces, both in the Land and Sea Service, and that Virtue and Merit, and the Services render'd in his Armies, should be the only Steps towards it.

By the Edict of the Institution of this *Order*, the King declared himself Sovereign Chief and Grand Master thereof, willing that the Grand Mastership should be for ever united and incorporated to his Crown.

This *Order* must be composed of the Person of his Majesty, and of his Successors in the Quality of Grand Masters, of the Dauphin of *France*, or of the Presumptive Heir to the Crown, of eight grand Crosses, of twenty four Commanders, and of the Number of Knights it shall please the King and his Successors to admit into it, and of three Officers, *viz.* a Treasurer, a Registerer, and an Usher.

All those that compose this *Order*, wear a Gold Cross, on which is the Image of St. *Louis*, the grand Crosses wear it fastened to a Scarlet Ribband four Fingers broad, which they put Scarf-wise; and another Gold Cross embroider'd on their Coat and Cloak. The Commanders wear only the Ribband cross-wise, with the Cross fastened to it. The Knights are not allowed to wear the Ribband cross-wise, but only the Cross of the *Order*, fastened to their Button-Hole, with a small Scarlet Ribband.

The King wanting to honour the *Order* as much as possible, declared that himself, the Dauphin, the Kings his Successors, the Dauphins or Heirs presumptive of the

the Crown, ſhould wear the Croſs of St. *Louis* together with that of the Holy Ghoſt: That it was, likewiſe, his royal Intention to adorn with the *Order* of St. *Louis*, the Marſhals of *France*, as principal Officers of his Land Forces, the Admiral of *France*, as principal Officer of the Marine, the General of the Galleys, as principal Officer of the Galleys, and thoſe who ſhould ſucceed them in thoſe eminent Poſts; and his Majeſty declared, likewiſe, that the *Orders* of St. *Michael*, and of the *Holy Ghoſt*, and of St. *Louis*, ſhould be compatible in the ſame Perſon, without one of them giving the Excluſion to the other, nor the two to the third.

The grand Croſſes cannot be taken but from among the Commanders, the Commanders from among the Knights, and all, *viz.* grand Croſſes, Commanders, and Knights, from among the Officers of his Land and maritime Forces. There are always one of the eight grand Croſſes, three of the twenty-four Commanders, and the eighth of the Knights employed in the States of the Revenues, and Penſions affected to the *Order*.

No Body can be admitted in the *Order* of St. *Louis*, unleſs he profeſſes the Catholick, Apoſtolical, and *Roman* Religion, and has ſerved by Land or Sea, in the Quality of an Officer, for the Space of ten Years. The Knight promoted, muſt preſent himſelf before the King to take the Oaths. To that Effect, bending a Knee to the Ground, he ſwears and promiſes to live and die in the Catholick, Apoſtolical, and *Roman* Religion; to be faithful to the King, to never depart from the Obedience due to him, and to all thoſe that command under him; to preſerve, defend, and ſupport, with all his Power, the Honour of his Majeſty, his Authority, Rights, and thoſe of his Crown, towards and againſt all; to never quit his Service, nor paſs, without his Leave, to that of a foreign Prince; to reveal all that ſhall come to his Knowledge againſt the ſacred Perſon of his Majeſty, and againſt the State; to keep exactly the Statutes and Ordinances of the *Order*; and to behave in all Things as a good, wiſe, and virtuous Knight ought to do.

After the Knight has took the Oaths in this Form, the King embraces him, and gives him the Croſs; afterwards he is obliged to have preſented to the Aſſembly held at the Feaſt of St. *Louis*, King of *France*, in whoſe Honour that *Order* was inſtituted, his Proviſions to be there read, and regiſter'd in the Regiſters of the *Order*, and afterwards returned to the King by the Regiſterer. The Knights who have obtained Letters to be advanced to the Rank of Commanders, and the Commanders to the Rank of great Croſſes, muſt alſo preſent them to the Aſſembly.

This *Order* enjoys 300,000 Livres of Revenue, 48,000 Livres whereof are affected to the eight great Croſſes, at the Rate of 6000 Livres each; 32,000 Livres to eight Commanders, at 3000 Livres each; 36,000 Livres to 24 other Knights, at the Rate of 1500 Livres each; 48,000 Livres to 48 other Knights, at the Rate of 1000 Livres each; and 25,600 Livres to 32 Knights, at the Rate of 800 Livres each; 4000 Livres to the Treaſurer, 3000 Livres to the Uſher, for their Wages, Expences of Account, Regiſters, and others, the whole yearly; and the other 6000 Livres remaining, are deſigned for the Croſſes, and other unforeſeen Expences.

The Croſs of this *Order* is Gold, with eight Points, like thoſe of the *Holy Ghoſt*, and of St. *Lazare*, with Flowers-de-luces, at the four Angles. In the Middle is a Circle, in which, on one Side, is the Image of St. *Louis*, armed with a Cuiraſſe, and over it the royal Mantle, holding in his right Hand a Crown of Laurel, and in the left one of Thorns, with the Nails of the Paſſion, and this Legend round, *Ludovicus Magnus Inſtituit*, 1693. And on the other Side of the Circle is a Sword, the Point whereof pierces a Crown of Laurel, faſtened with a white Ribband, and this Legend round, *Bellicæ Virtutis Præmium*. This *Order* is at preſent very common in *France*, almoſt all the Officers being honoured with it.

Note, That before I paſs to the Account of the *Orders* inſtituted in other Countries, I'll ſpeak of the other *French* Orders, which are either *extinct* in *France*, or *apocryphal*, as the *Orders* of St. *Remi*, of the *Dog* and *Cock*, of the *Genette*, of the *Coſſe* of *Geneſt*, of the *Holy Ghoſt* at *Montpellier*, of *Our Lady of the Thiſtle*, of the *Porc Epic*, or *Camal*, of the *Golden Fetter*, of the *Yellow String*, &c.

The *Order of* St. Remi, or of the St. Ampoule, is ſuppoſed to have been inſtituted in the Year of *Chriſt* 499, and conſequently the moſt antient, and the firſt eſtabliſhed in that Kingdom.

The Knights of this *Order* are ſuppoſed to have wore at the Bottom of a black Ribband, a Croſs enamelled Argent, charged with a Dove holding in its Beak a Phiol received by a Hand of Carnation. The Reverſe of the Medal was ſtamped with the Image of St. *Remi*, but as neither *Mezeray*, nor Father *Daniel*, do mention that *Order* in the Relation they give of the Coronation of the great *Clovis*, who is pretended to have been the Inſtitutor thereof at that Time, I'll follow their Example, contenting myſelf with obſerving that we can infer from the Silence of thoſe two celebrated Authors, a negative Argument againſt the Truth of that Inſtitution.

The *Order of the* Dog, was inſtituted by *Bouchard* IV. of *Montmorency*, called *Barbe Torſe*, under *Philip* V. King of *France*, or under his Son *Louis* IV. when at War with *Adrian* Abbot of St. *Denis* in the Year 1202; for that Prince having brought that turbulent Eccleſiaſtick to Reaſon, and concluded a Peace with him, *Bouchard* came to *Paris* with his Friends, to congratulate the King on his happy Succeſs, and all appeared before him, with Gold Collars round their Necks, at which hung the Effigy of a Dog.

The *Order of the* Cock, is attributed likewiſe to the ſame *Bouchard* of *Montmorency*, who having to encounter againſt the *Moors*, choſe the *Cock* for his Symbol. But at laſt thoſe two *Orders* were confounded under the Name or Emblem of *Vigilis*, which was read round the Effigy of the *Dog* and of the *Cock* joined together, which hung at a Collar made in Form of a Hart's Head. It is aſſured that *Philip* I. King of *France* gratified ſeveral Knights with that Mark of Honour.

The *Order of the* Genette, was inſtituted in *France* in 726, by *Charles Martel*, Prince and Governor of the whole Kingdom under the weak Reign of *Childeric* III. after the famous Battle he gained in that ſame Year, over *Abderame* Prince of the *Saracens*; and it was done, in all Appearance, to perpetuate the Memory of that Victory. This Order laſted till King *Robert* had inſtituted the *Order* of the Star, or till the Time of St. *Louis*; though we do not find that it was ever approved or confirmed by the Pope; whence it is concluded, that it was rather a ſimple Dignity of Knighthood, or a Degree of Honour, than a true *Order*.

F. *Honoré de S. Marie* ſays, that the Collar of that *Order* was of three Gold Chains interwoven with Rolls enamelled black and red, where hung a *Genette*, placed on a Terraſs enamelled with Flowers.

The *Order* de la Coſſe de Genette, or *Cod of Broom*, was inſtituted, according to *Favin* (in his *Theatre of Honour and Knighthood*) by St. *Louis* King of *France*, in the Year 1234, to ſhew his Value for the Queen his Spouſe, Daughter of *Berenger* Earl of *Provence*, and that the Evening which preceded the Coronation of the Queen, the King himſelf received the *Order* from the Hands of *Gautier* Archbiſhop of *Sens*. Though other Authors aſſure that St. *Louis* has never inſtituted any military *Order*; and *Peter Beloy* believes that this was not an *Order*, but only a Society of young Gentlemen deſigned for the King's Service, who were to underſtand all Sorts of Languages, to explain and tranſlate the Letters of foreign Embaſſadors.

But *William de Nangis*, a Monk of St. *Denis*, writes, that he has read in the Life of St. *Louis*, that in the Year 1238 that Monarch gave that *Order* to *Robert* his Brother, firſt Earl of *Artois*, in the Church of St. Corneille of *Compeigne*, in the Preſence of a great Number of Nobility, the ſame Morning, and immediately after the Earl had married *Mathilde* Daughter of the Duke of *Brabant*. In the ſame Manner, ſays he, the ſame King gave alſo that *Order* the Day of *Pentecoſt*, 1267, in the Cathedral Church of *Paris*, to *Philip* his eldeſt Son, and to *Robert* his Nephew, Son of the Earl *Robert*, who had been defeated at *Maſſoure* in *Egypt*, with a great Number of Barons, and other *French*; and the Feaſt was ſo magnificent

nificent that it lasted eight Days, during which the Streets of *Paris* were hung with Tapestries, the Shops shut; and there were Tables in the Streets to treat all Passengers.

In the Ornaments of Knighthood printed at *Paris* in 1671, is found the Figure of the Collar of this *Order*, which is composed of small square Gold Plates, on which there are Flowers-de-luce interwoven with Gold *Cods of Broom*, passed into a Gold Chain, at the Bottom whereof hung a Cross flowerdelised at its Extremities. *Ashmole* adds to it those Words, *Exaltat Humiles*, as an Emblem chosen by St. *Louis* to shew his Humility. He says likewise, that the Number of Knights who were to compose the *Order*, was fixed; which was continued till the Time of *Charles* V. that their Cloaths were Coats of white Damask, and violet Hats.

But as for the Collar, though some Criticks pretend that F. *Menestrier* has better described it, when he says, that it was only composed of two Cods of Broom, one white and the other green, with the Word *Jamais*; it is notwithstanding certain, that there was more Ornament in it, a true Description thereof being seen in an antient Register of the Chamber of Accounts of *Paris*, of the Year 1393, where is found an Account given in by *Charles Poupart*, the King's Silver-smith, the 19th of *September* of the same Year, in which is the Expence made for the King's Collar: Another for those sent to the King of *England*, and to some *English* Lords; and others for the *French* Lords. Here follows what that Account contains for the Collars sent into *England*.

'And to the said *John Compere*, Goldsmith, living 'at *Paris*, for four other Gold Collars, one like that of 'the King's for the King of *England*, viz. the said Col'lar made in the Fashion of two large round Quills, 'and betwixt those said Quills Cods of Broom, fastened 'to each other by the Tail, and round it on the Cods of 'Broom which form nine Crutches round nine large Pearls, 'are fifty Gold Letters fastened to one of the said Quills, 'which make ten Times the Name of the Word of 'King JAMES; and on the fore Part of the Collar is a 'large square Broom environed with eight large Pearls 'semblable to the Pearls of the King's Collar; and be'hind has two Cods like the Cods of Broom, open, ena'melled, one white, the other green, and Inside of 'each Cod are three large Pearls; and the said Quills 'chased with Branches, Flowers, and Cods of Broom. 'And the three other Collars, one for the Duke of '*Lancaster*, the other for the Duke of *Glocester*, and 'another for the Duke of *York*, semblable to this, ex'cept that some of the Pearls are not quite so big; there'fore for the whole 830 Francks, 3 S. 4 Den.'

The *Order of the* SHIP, *and of the* SEA-SHELL, is supposed to have been instituted by St. *Louis*, when he embarked in 1269, with his Sons *Philip* and *Peter*, for the Holy Land. We see in the *Theatre of the Honour of Knighthood*, printed at *Paris*, in 1671, the Description of the Collar and Badge of this *Order*, which is a Gold Chain, on which are fastened several Shells; between each Shell two Half-Moons Gules over-against one another. Underneath hung a Medal, where a Ship is represented. The Shells represented the sandy Shore of *Aigues-mortes*; the Half-Moon marks the Power of the *Turks*, and the Ship the maritime Expedition. But there is much Appearance that that *Order* was extinct at St. *Louis*'s Death, which happened the Year following, viz. the 22d of *August* 1270.

The *Order of the* PORCUPINE, was instituted in *France* by the Duke of *Orleans* in the Year 1394, at the Baptism of *Charles* his Son, born of *Valentine*, Daughter of *Galeas*, Duke of *Milan*. The Ornament of the Knights was a Gold Chain, to which hung a *Porcupine* with these Words, *Cominus & Eminus*, wanting to say thereby, that he could as well hurt *John* Duke of *Burgundy* his Enemy, at a great Distance from him, as if he was near.

The Knights were to be noble of four Races. Their Habit consisted of a violet Velvet Mantle, with a Chaperon of Ermines.

The *Order of the* FETTER, was instituted by *John* Duke of *Bourbon*, Son of *Louis* II. in 1414, in the Church of our Lady at *Paris*. Sixteen Gentlemen only were to be received, Part Knights and Part Esquires. The Knights, as well as the Duke of *Bourbon* himself, who was Chief thereof, were obliged to wear every *Sunday* at the left Leg, a Father of Prisoner, hanging at a Chain, and in case of Failure were to give four Sols parisis to the Poor. The Fetter of the Knights was Gold, and that of the Esquires Silver. This *Order* was soon extinct.

The *Order of the* YELLOW STRING, was instituted by the Duke of *Nevers* in 1606, and soon after suppressed by *Henry* IV.

Note, That from *France* I'll pass into *England*, where the only two *Orders* subsisting at present are those of the *Bath*, and of the *Garter*.

The Institution of the ORDER OF THE BATH, is attributed by *Joseph de Michaelis*, and *William Camden*, to *Henry* IV. King of *England*, who, say they, in 1399, the Day of his Coronation, made Knights in the Tower of *London* the 46 *Gendarms* who had watched the preceding Night, and took the Oath. He gave them large green Robes, which reached down to their Feet, lined with Furs, and streight Sleeves, with Cloaks of the same Colour, tied on the left Shoulder with a String of white Silk, at the End whereof were two large Tufts. Others pretend, that the Origin of that Institution comes from that two Widows being at Law together, on which they could not obtain Judgment of the common Judges, went to ask Justice of the King while he was in the Bath: A Knight who was there present, said then to the King, *Sir, the Crown you possess, and which is supported by the Power of God, and your Piety, extends itself over all your Subjects; there are two Widows who ask the Justice from you, which they could not obtain from your Officers.* The King suspending the Pleasure he was taking in the Bath, went to hear those Women, and did them Justice; and in remembrance of that Action instituted the *Order* in Question. But *William Camden* says, that it was then but the Restoration of the *Order*, which at that Time was entirely extinct.

In the preceding Centuries the Knights were commonly chosen among Persons of the first Rank, who had not yet entered into any Order of Knighthood; and it was conferred at the Day of the Coronation of a King or Queen, or of their Nuptials, or when the Investiture was given to a Prince of *Wales*, or to a Duke of *York*. In these Days they had the Honour to serve at the King's Table, and to accompany him to the Places of Ceremony, cloathed in blue Cloaths, with a Knot of white Silk in Form of a Cross, and a Capuce on the Left Shoulder; their Sword at their Side, and their Spurs at their Heels. For Mark of their Dignity they wore three Crowns of Gold within a Circle of Gold likewise, with this Legend in a Border of Purple, TRIA IN UNUM, *three in one*, making an Allusion to the blessed Trinity of the divine Essence: But ever since the three Kingdoms have been reunited, under *James* I. the same Words have been applied to it. The Kings *Henry* IV. in 1399, *Richard* III. in 1480, and *Henry* VIII. in 1533, made Knights of the *Bath*, each the Day of their Coronation.

The learned *Redius*, so well versed in what regards Antiquity, has produced an antient Manuscript whereby he proves three Things.—The first, that this *Order* is very antient, and that there are but few Centuries since it flourished still in *England*.—The second, that the Custom was to create the Knights thereof in Time of Peace.—The third, that Ceremonies of their Reception, and the Conditions they obliged themselves to were as follow.

When a Gentlemn wanted to be made a Knight, he was, according to the *English* Custom, honourably received by the Courtiers, *viz.* by the Grand Chamberlain if he was at Court, or by the Marshal, or some other great Officer: He had two Esquires given him to direct the Ceremony, and instruct him in what he had to do. If he arrived at Court at Dinner-time, he served the King with a Dish only, and afterwards the Esquires conducted him into a Chamber prepared for him, and he was no more seen that Day. Towards the Evening about the Hour of Vespers, the Esquires would send him a Barber, who prepared him a Bath adorned with fine Linnen Cloth, as a Place to repose himself, and hung round with Tapestries, because of the Cold of the Night. As soon as he had had his Beard shav'd, and his Hair cut,

cut, the Esquires were to inform the King that it was Vespers-Time, and that his Subject who aspired to Knighthood, was in the Bath. Then the King commanded a Gentleman of his Bed-Chamber to take along with him, two of the most antient, and most sedate Knights, and go with them to the Chamber of the Novice, to give him their Advice, and instruct him of the Manner he was to receive the *Order*, and behave in the Dignity of a Knight.

Afterwards the other Esquires of the Court, accompanied by Musicians, went jumping, singing, dancing, and making a great Noise before the Door of his Chamber. So soon as the two Esquires who were along with him could hear the Noise, they undressed him, and made him enter the Bath, mean while the Noise and the Symphony ceased. The principal Knights enter'd afterwards the Room, without Noise, and after they had complimented one another, the most antient represented to him who was in the Bath, the Honour he received, adding some Advices, besides, and telling him, *Sir, it is much Honour for you to be put in that Bath.* After he had given him the necessary Instructions, they all, with their Hands, threw some of the Water of the Bath over his Shoulders, and taking their Leave of him, quitted his Room for a little Time. In that Interval the Esquires were to take him out of the Bath, and put him in a very clean Bed, but without Curtains; then they dressed him very warm, because he was to watch all Night, putting, besides, over his common Cloaths, a Coat of red Cloth, with long Sleeves, and a Capuche like those of Hermits. The Barbers returning, carried away the Bath, and all that was in the Room, and whether the Novice was an Earl, Baron, Baneret, or Batchelor, the Barbers kept his Collar on their Word. Afterwards the Esquires opened the Chamber to the Knights, that they should conduct the Novice to the Chapel, which was done at the Sound of the Musick of the Singers, in Dancing and giving several Marks of Mirth. The Esquires and the Priests could alone remain in the Chapel, all Night, with the new Knight, on whom the Doors were shut. The Knight spent that Night in Prayers. At Day break, he confessed his Sins, heard Mass, and took the Sacrament; having all that Time a Taper lighted in his Hand, which he held on the Side of the Gospel while it was reading; and after it was read, he returned to his Place. At the Elevation of the Host, one of the Esquires took his Capuche off his Head; and at the latter End of the Mass, at the Gospel, *In principio*, &c. he returned to the Altar, with his Taper in his Hand, which he offered upon it, at the Moment the Words, *Et Verbum caro factum est*, &c. were pronounced. He offered, likewise, a Piece of Money, which was for him who consecrated him a Knight.

After Mass, the Esquires re-conducted him to his Chamber, putting him to Bed till the next Day, and covering him with a Covering of Cloth of Gold, called by the English, *Sigleton*.

The next Day in the Morning, when the Esquires thought it was Time, they went to tell the King: *Sir, when will it please your Majesty that our Knight should be awaked?* The King commanded immediately that the Knights, Esquires, and Musicians should return in the same Manner as the preceding Day, to awake the Knight, dress him, and conduct him to the King's Presence Chamber. At the Noise made at their Arrival, the Esquires open'd the Doors, and the Knights being enter'd, they said, *Sir, we wish you good Morning, it is Time to rise.* While they were saying this the Esquires lifted him up under the Arms, and the most noble and most sedate Knight, gave him his Shirt, another his Stockings, a third his Coat, and another presented him a Coat of a dark Red, which according to the Mode of those Times, was bordered with Purple. Two others helped him to come out of Bed, two put on his Stockings, and two fastened his Ruffles, and another girted him with a Belt of white Leather, another combed him, another put his Cap on his Head, and lastly, another gave him his Cloak of Purple Silk, with the white String, and a Pair of white Gloves.

All the Ornaments wherewith the Novice came to Court, to receive the Order of Knighthood, were given to keep, to the Knight, who was to serve him of Proxy, as well as the Bed, the Covering, and all the rest; so that nothing was left him but the Cap, the Belt, the String, and the Gloves. Then he mounted his Horse, preceded by the Esquires and Musicians, who conducted him to the King's Presence Chamber. His Horse had a Housing of black Leather; the Stirrups were of white Wood, the Girts black, and the Breast-Leather, black, with a large and very long Cross hanging in the Middle; but he had no Crupper; the Bit was black, with a long Bridle, and a Cross on the Head. Before him walked a young Esquire, carrying his Sword, and the Spurs hanging at the Scabbard, which was of white Leather, as well as the Belt; the whole without any Embroidery.

At his approaching the King's Hall, the Marshal went to meet him, and commanded him to alight, and the Marshal took upon him the Care of the Horse while the Knight conducted the Novice to the first Table of the Hall, and afterwards to the second, where he waited the Arrival of the King. Mean while, the young Esquire who carried the Sword and Spurs, went to place himself between the two other Esquires, who directed all the Feast. The King, at his Arrival, asked for the Spurs, and having given them to the most antient Knight, he commanded him to fasten them at the Heels of the Novice, who was kneeling. That most antient Knight took the Leg of the Novice, putting it a-cross his, and after he had fastened the Spur, kissed it, proceeding in the same Manner to the left Leg. Then the King approaching him, girted him with the Sword; and the new Knight lifting up his two Hands joined together, the King gave him the *Acolade*, touched him behind the Neck, saying, *Be a good Knight*, and kissed him.

Afterwards he was conducted to the Chapel, near the great Altar, always in the Middle of the Musicians. There he kneeled, laying his right Hand on the Altar, and promised to help towards defending the holy Church. Afterwards he took his Sword and Belt, and having consecrated them with much Respect, to God and his Saints, he prayed them to help him to maintain the Dignity of the *Order* to the End of his Life. This done, he drank a Glass of Wine. At his coming out of the Chapel, he was met by the Clerk of the King's Kitchin, who advancing towards him with a Knife, took off his Spurs on his bare Word and Faith, saying, *I am the Clerk of the King's Kitchin, that take on my Word these Spurs, and if you happpen to do something unworthy of a Knight, which God forbid, I'll break them on your Heels.* Then the most antient Knights re-conducted him into the King's Hall, where he sat at Table with them, but without eating, or drinking, and not even making the least Motion.

When the King was gone, the new Knight was re-conducted with the same Ceremony to his Chamber, where he was served a Dinner. Afterwads the Chamber being shut, he was undressed of all his Cloaths and Ornaments, which were put in the Hands of the King at Arms, or of the Musicians, to whom he gave some Money; and the red Capuche he had in the Night, was also given to those who had watched. Afterwards he took his blue Coat with narrow Sleeves, and a String of white Silk hanging on the left Shoulder.

In that Condition he was conducted by the Knights and Gentlemen before the King, to whom he said, *Prince, most worthy of all Respect, I come to return my most humble Thanks to your Majesty for the Honour and Favour you have done me, and protest, that in the Sentiments of the most humble and most profound Gratitude, I'll remain*, &c. and then departed. The Esquires taking their Leave of the Knight, likewise, by a formal Compliment. This done they left the Knight, who was then armed according to the antient Custom of *England*.

Charles II. King of *England*, the Day he was crowned, made several *Knights of the Bath*, according to the antient Custom; whence it is concluded by some Authors, that this *Order* is peculiar to the Kingdom of *England*; but ever since the Church of *England* has been the Dominant, and the Succession to the Throne established in the *Protestant* Line, the *Order of the Bath* has been much neglected; though his present *Britannick* Majesty, made a great Number of them at his Accession to the Throne; but the Ceremony was quite different from the antient, and

and consisted only in a Procession and Installation, his Royal Highness Prince *William*, since Duke of *Cumberland*, being made Grand Master thereof.

Note, That here follows the *Chronology* of the *Grand Masters* of the *Order of the Bath*, to his Royal Highness the Duke of *Cumberland*, inclusively. The first Column contains the Number of Grand Masters, the second the Years of Christ, the third their respective Names, *&c.* the fourth their Years of Mastership.

CHRONOLOGY *of the* GRAND MASTERS *of the* Order *of the* BATH.

1	805	EGBERT, Son of *Botrice* K. of *England*.	32
2	837	ETHELWOLD, Son of *Egbert*.	20
3	857	ETHELBALD, Son of *Ethelwold*.	5M
4	858	ETHELBERT, his Brother.	5
5	863	ETHELRED, third Brother of *Ethelbald*.	9
6	872	ALFRED, his fourth Brother, crowned at *Rome*.	29
7	901	EDWARD I. Son of *Alfred*.	24
8	925	ADELSTAN, natural Son of *Edward*.	15
9	940	EDMUND, legitimate Son of *Edward*.	6
10	946	ELDRED, *Edmond*'s Brother.	9
11	955	EDWIN, *Eldred*'s Son.	4
12	959	EDGAR, *Edwin*'s Brother.	16
13	975	S. EDWARD II. *Edgar*'s Son killed by his Mother in Law.	3
14	978	ETHELRED, natural Son of *Edgar*.	38
15	1016	EDMOND II. *Ethelred*'s Son.	1
16	1017	CANUTE, King of *Denmark*, called to the Throne at *Edmond*'s Death.	19
17	1036	HAROLD, natural Son of *Canute*.	4
18	1041	CANUTE II. after whose Death the *Danes* were expelled from *England*.	2
19	1043	S. EDWARD III. Son of *Ethelred*, and *Edmond*'s Brother.	23
20	1066	HAROLD, Bastard-Nephew of *Canute* II. by his Sister, intruded against *William* Duke of *Normandy*, instituted Heir by St. *Edward*.	21
21	1088	WILLIAM II. Son of *William* I.	13
22	1101	HENRY I. Son of *William Rufus*, who having vanquished his other Brother *Robert*, united *Normandy* to the Kingdom of *England*. He left for Heiress *Mathild* his Daughter, Wife of *Geoffroy* Son of *Foulques*, Earl of *Anjou*.	25
23	1136	STEPHEN Earl of *Champagne*, Son of *Odo* II. Earl of *Blois*, *Henry*'s Nephew, Intruf.	19
24	1155	HENRY II. Son of *Geoffroy*, and of *Mathild*, Daughter of *Henry* I.	34
25	1189	RICHARD, called *Cœur de Lion*, Son of *Henry* II.	12
26	1201	JOHN, Brother of *Richard*, intruded to expel *Arthur*, Nephew of *Richard* and of *Louis* Son of *Philip* K. of *France*.	16
27	1217	HENRY III. Son of *John*, called to expel *Louis*.	56
28	1273	EDWARD IV. called the *Saint*, Son of *Henry*.	34
29	1307	EDWARD V. Son of *Edward* IV. killed by a red-hot Iron being thrust up his Fundament.	20
30	1327	EDWARD VI. Son of *Edward* V.	50
31	1377	RICHARD II. Grandson of *Edward* VI. killed in Prison.	23
32	1399	HENRY IV. Cousin of *Richard* II. by his Uncle *John*.	14
33	1414	HENRY V. Son of *Henry* IV.	9
34	1429	HENRY VI. Son of *Henry* V.	38
35	1461	EDWARD VII. Son of *Richard* Duke of *York*, called against *Henry* VI. they reigned alternately.	22
36	1483	EDWARD VIII. Son of *Edward* VII. killed by the Duke of *Glocester*.	1M
37	1483	RICHARD III. Brother of *Edward* VII. killed in a Battle by *Henry* Earl of *Richmond*.	3
38	1486	HENRY VII. Earl of *Richmond*, married *Elizabeth* Sister of *Edward* VIII.	23
39	1509	HENRY VIII. Son of *Henry* VII. who declared himself Chief of the Church of *England*.	38
40	1547	EDWARD IX. Son of *Henry* VIII. and of *Jane Seymour*, his third Wife, died young, under the Tuition of *Thomas Seymour*.	6
41	1553	MARY, Daughter of *Henry* VIII. married to *Philip* II. King of *Spain*.	5
42	1558	ELIZABETH, Daughter of *Henry* VIII. and of *Anne* of *Bullen*.	44
43	1602	JAMES VI. King of *Scotland*, Grand-Nephew of *James* IV. and of *Margaret* Daughter of *Henry* VII. King of *England*, and Ist of the Name, King of *Great-Britain*.	23
44	1625	CHARLES I. Son of *James* I.	24
45	1649	CHARLES II. Son of *Charles* I.	36
46	1685	JAMES II. Brother of *Charles* II.	4
		Note, That the *Order* was as extinct under the Reigns of *William* III. Q. *Anne*, and *George* I.	
47	1727	GEORGE II. Sovereign; and his Royal Highness *William* Duke of *Cumberland* Grand Master.	

The *Order of the* GARTER was instituted (according to the most common Opinion) by *Edward* III. King of *England*, in the Palace of *Windsor*, in the Year 1350; though *Polydore Virgil* put its Origin six Years sooner. But Authors do not at all agree among themselves on the Subject of that Institution.

Edward Chamberlain relates, that the King, after a great Feast, where assisted the Queen, and a great Number of Lords and Ladies, gave a Ball, and that in Dancing, the Garter of the Queen, others say, of the Countess *Jane* of *Salisbury* (which is the most common Opinion) fell, and was taken up by the King, who loved that Lady; at which some of the Lords present appearing surprized, as thinking it an Action beneath the Majesty of that great Monarch, that Prince penetrating their Thought said, *Honi soit qui mal y pense*; *Honi*, in the Language of those Days, signifying *cursed*; and declared, at the same Time, that those who had made a Jest of that *Garter*, would think themselves happy to wear such a one.

John Hooker pretends, that the Cause of that Institution was the Restoration of Don *Pedro* to the Throne of *Castille*, by the auxiliary Forces of *England*, under the Prince of *Wales*; though it be certain that that Restoration did not happen but sixteen Years after the Institution of the *Order of the Garter*; but he says, likewise, that it was the Garter of the Queen; that the King gaming her about it, she answered, *Honi soit qui mal y pense*, on which the King caused those Words to be put on a Garter, to preserve the Memory thereof.

It seems that *Ashmole*, Herald of *Windsor*, in the Description he gives of the *Order*, had better discovered the Truth of that Fact, and has pretty well reconciled the different Opinions of Authors. He rejects absolutely the History of the Garter, lost, and taken up, and instead of a Reason of Love, gives some more noble and more heroical. He says, that he has found in the Letters Patent of the Institution of this Order, which are kept at *Windsor*, that *Edward* III. and the Prince of *Wales* his Son, in Days of Magnificence, adorned themselves with that Mark of Honour; and that in the Year 1344, there being Courses of the Ring and Launces at the Court of *England*, at which assisted some of the most eminent Persons of *Europe*; the King designed to renew, at that Feast, the Order of the round Table; that, notwithstanding, because of the great Expences he would be obliged to make, and of the Impossibility of furnishing the Order with what was necessary for its Subsistence, he resolved at last, the fourteenth Year of his Reign, to establish this, and that in the Year 1350, he made the first Ceremony thereof at *Windsor*. He had caused the Letters relating to it to be dispatched ever since the 6th of *August*, whereby he exempted from the secular Jurisdiction, the Knights, Canons, and Suppots of the Order.

By the same Letters Patent he gave them the Church of

of *Wyradſbury*, in the Territory of *Lincoln*, that of *Uttoxhatre* at *Coventry*, and that of *Southampton* at *Exeter*. Pope *Clement* VI. ſetting then at *Avignon*, had granted Bulls to the Biſhops of *Canterbury* and *Wincheſter*, to repreſent him in the Ceremony; he even exempted the Knights and Eccleſiaſticks of this *Order* from all eccleſiaſtical Juriſdiction; and granted them to releive immediately from the holy See.

The King then having built at *Windſor* a magnificent Church, and a Houſe of Commonalty for the Knights, under the Invocation of St. *George* the Protector of the Kingdom, he created twenty-five Knights, declaring himſelf their Chief. He eſtabliſhed likewiſe fourteen Canons to ſerve the Church, thirteen Vicars, thirteen Eccleſiaſticks, and fourteen Singers in the Choirs, and gave them ſo conſiderable Revenues, that they could beſides maintain twelve poor Knights of noble Extraction, whoſe Number is increaſed to twenty-ſix.

The Ornaments which the King gave the Knights was a red Croſs applied on White, the Extremities thereof are all even. The Habit was a Doublet of white Silk, with the Stockings of the ſame Colour, which reached up to the Middle of the Thigh; the *Garter*, which has given the Name to the *Order*, was tied under the Left Knee, and they were obliged to wear it always; the Colour was blue, and it was embroider'd with Gold, Pearls, and precious Stones; in the Middle were ſeen theſe Words, *Honi ſoit qui mal y penſe*, embroider'd likewiſe. With the white Doublet, they had beſides a Girdle with Points, the Tags white, and a Crimſon upper Coat lined with white Silk, which reached down to half the Leg. The Belt was Crimſon likewiſe; beſides which they wore a large and full Mantle of blue Velvet, faſtened at the Neck with two long Strings of blue Silk, worked with Gold, which hung down to the Ground. Behind the Mantle they had a long Crimſon Capuche, which hung at the Back.

The royal Collar was faſtened on both Shoulders. This Collar was Gold, and was to weigh 30 Ounces and no more; it is made in the Form of ſeveral Garters, in the Middle whereof are Roſes, which are alternately white and red, the White having red Leaves, and the Red white Leaves. Between each Roſe are two Gold Knots. At the Collar hangs the Image of St. *George*, mounted on a white Horſe and killing the Dragon; and that ſmall Picture is alſo enriched with Diamonds, and other precious Stones. On the Left Side of their Cloak they have for Mark the *Garter* with the *red Croſs*, already mentioned, applied on White, and on their Head they wear at preſent a pretty high Cap of black Velvet, round which is a Circle of Gold ſet with precious Stones, with two Feathers, one white and the other black. Beſides which the King had under his Mantle and over his Coat a long red String, which reached from the Right Shoulder down to the Left Side, which was peculiar to him, as Chief of the *Order* of the *Bath*.

According to the Statutes, they were on Feſtivals to wear round their Neck the Image of St. *George*, faſtened to a Circle of Gold; but in War, and on a Journey, it was only to be faſtened with a Ribband. But in Time they have found an eaſier Manner of wearing that Mark of their Dignity. For at preſent, according to the Regulation of the Year 1626, they wear only on the Left Side of their Cloak and Coat a red Croſs in the Middle of a *Garter*, environed with Rays, called the Star, or, according to others, the Sun in his Glory.

To be admitted into this *Order*, one was to make Proof of Nobility of three Races, and bring Certificates of an irreproachable Life. The Inſtitutor eſtabliſhed five Officers of this *Order*, viz. the *Prelate*, who was the Biſhop of *Wincheſter*; the *Chancellor*, who was antiently the Biſhop of *Saliſbury*, but at preſent that Dignity is annexed to that of the *Prelate*; this wore a Mantle of purple Velvet, and on the Breaſt a round Medal, in the Form of a white Roſe environed with a *Garter*, to which hung an Eſcutcheon Part with the Arms of the King, and with thoſe of the *Order*. The third Officer was the *Regiſterer*, who was the Dean of *Windſor*; the *King at Arms*, who wore a Mantle of Satin; the *Black Rod*, who had a pale-red Mantle, and wore in his Hand a black Rod, with Gildings, and at his Neck a Medal with a Knot like thoſe ſeen at the great Collar.—Laſtly, the *Herald*, whoſe Coat was adorned with the Arms of *Great Britain* embroidered.

The Eve of the Feaſt of St. *George* the Knights were obliged to come to the Chapel of that Saint in their Habit of Ceremony, and to remain there till the next Day; and each was obliged, if he was out of the Houſe of the Commonalty, to have brought thither a Chair of State with the Arms of St. *George*, and another Chair with his own Arms. In the Sittings and Proceſſions, where the Chief aſſiſted in Perſon, each Knight was obliged to range himſelf near one of his Brethren, and take his Place, according to the Time of his Reception, except the Sons and Brothers of the King, and foreign Princes, who were placed according to their Quality. They were likewiſe to aſſiſt at the Maſſes ſaid for the deceaſed Knights, and other Chriſtians, unleſs they could alledge ſome valid Excuſe to the contrary. If a Knight wanted to travel out of the Kingdom, he was to leave his Arms hung over his Seat.

When the King deſigned to confer the Order on ſome foreign Lord, he informed him of it by a Letter, and if the Lord accepted it in four Months Time, the King ſent him the Habits, the Garter, and the Collar, and he was to inform the King within ſix Months by his Deputy, that he had received them; which Deputy was obliged to bring at the ſame Time the blue Velvet Cloak, the Banner, the Sword, the Helmet, and the Buckler, to repreſent his Maſter all his Life-time. The other Knights did alſo the ſame Thing while they were abroad, each leaving his Mantle in the Wardrobe of the College, to be always ready at the King's Pleaſure. The Knights were not allowed to appear without their Mantle in the Chapel, where they were introduced by the Canons to hear Maſs, after they had alighted off their Horſe, and kneeled before the Door of the Church, in Honour of St. *George* their Protector, and this under a very conſiderable pecuniary Penalty.

If a Knight happened to die, the King had all the other Knights informed of it, and they aſſembled ſix Weeks afterwards. Their Aſſembly was to be of ſix at leaſt, with the Chief; each had a Right to name ſix Subjects, from among the moſt worthy and the moſt noble Lords, who were not in any Party againſt the King; and in the Aſſembly there were to be three Dukes, three Marquiſſes, and three Earls of the firſt Rank; three Baronets and three Knights of a leſſer Rank. The Prelate, or in his Abſence, the Dean, made a Liſt of the Names, and the King choſe him that had moſt Votes, whereof he that was thus elected had immediately Notice given him; and at the Day appointed he went in Company with two Knights and ſeveral Gentlemen, to preſent himſelf to the Director; afterwards the King at Arms offered him the Mantle, and then he ſate down. Soon afterwards he aroſe, and went with the ſame Company to the Chapter, where he received the Collar from the King's Hands; then he was preſently admitted into the *Order*, after he had took the Oath of *defending all his Life-time, the holy Church, the Honour, Government, and Inſtitutes of the Prince; of working with all his Power, to the Increaſe of the Order; and of oppoſing all Quarrels and Diſſentions which could cauſe it any Prejudice.* And then for his Confirmation he was permitted to kiſs the King's Hand, who ſaid to him, *The Society of the Order of the Garter has received you for a Friend, a Brother, and a Companion, in Witneſs whereof I give you this Collar, which I pray God you may receive and keep, to refer it to his Glory, and to magnify his Name, as likewiſe for the Honour of this moſt noble Order.*

If a Duke, Marquis, Earl, or a Baron happened to die, he that was elected in his Place was to take his Seat; and over each of thoſe Seats every Knight was to put his Arms engraven on Braſs. Every one was obliged to contribute ſomething towards the Maintenance of the poor Knights.

Thoſe were the Laws and Inſtitutes of the *Order of the Garter*, at its firſt Inſtitution; but they have been changed ſince by the Kings, according to the Exigency of the Times.

Henry V. renewed them, with ſome Alterations; but *Henry* VIII. made conſiderable ones in it, according to thoſe he brought into the eccleſiaſtical Affairs of *England*. At firſt it was ordered by the Statutes, that for each de-

ceased Knight the King should cause to be said a thousand Masses, a foreign King eight hundred, a Marquis four hundred and fifty, a Baron two hundred, and an Esquire a hundred. But after the Changes *Henry* VIII. introduced into Religion, he changed likewise that Article of the Statutes, and ordered that when a Knight should die, all the other Knights should give Money to be employ'd in charitable Uses: *viz.*

	l.	*s.*	*d.*
The King of *England*	8	6	8
A foreign King	6	13	4
A Duke	5	0	0
A Marquis	3	15	0
An Earl	2	10	0
A Viscount	2	1	8
A Baron	1	13	4
And an Esquire	0	16	8

It is also seen that the Garter, which at first was all Gold, is at present enriched with Pearls and precious Stones. The *Garters* which *Charles* II. distributed were adorned with his Picture, together with the Image of St. *George*.

With regard to the Habits of the *Order*, it must be observed, that the Mantle which the Institutor gave to the Knights was of superfine *English* Cloth, with this Distinction, that the principal among them were permitted to wear it, either of Silk or of Velvet, at their Discretion. We find likewise that *Henry* VI. was the first who gave the Mantle of Velvet to all the Knights; which has been practised ever since. They used besides to line their Mantle with Furs, according to their Quality: The King had his lined with Ermin, and the others with Furs which suited best their Quality; but Queen *Elizabeth* ordered that all the Linings should be of white Damask. The Cap they wear at present appears to be very different from the antient; for in the Statutes of *Hen.* VIII. it is called *Humerale*, which would make one believe that it covered the Shoulders as well as the Head. We find that that same Covering of the Head is called *Caputium*, in French *Chaperon*.

That Cap has also suffered different Alterations at different Times. Under *Henry* VIII. it was very low, under *Elizabeth* it was much higher, and *James* I. regulated the Form thereof, such as we see it at present.

Among the Ornaments which the Knights wear every Day, is a Medal, called the *Little St. George*, whose Antiquity goes no further back than *Henry* VIII. who ordered them by a Patent to wear it hanging at a Gold Chain, or a black Ribband, they were to have round their Necks at all Times, even out of the common Functions of the *Order*; but in publick Ceremonies they must always wear the Collar. The Day of the Feast of St. *George*, they were obliged to assist at the divine Service, with all the Habits and Ornaments of their Dignity, as likewise at all the great Festivals; and as often besides as they appeared before the King in the Chapel of *Windsor*.

At their Death they left their Habits to the College, and to the King the Jewels he had given them. As for the great Collar they were not obliged to wear it, except at the Feast of *Easter*, of *Pentecost*, and of the Apostles, and at the King's Birth-day, and on that of his Coronation; but they were always to wear the Garter, except when on Horseback, for then they only wore a blue Ribband on their Leg.

At present the Knights wear every Day besides the *Garter*, a blue Ribband a-cross their Body from the Left Shoulder down to the Right Hip; and at the lower End of that Ribband is fastened a Gold Medal, on one Side whereof is the Image of St. *George* within a Gold Circle set with Diamonds; and on the other some Ornaments in a Gold Circle set with Diamonds likewise; this is called the *George*. This Medal is notwithstanding like a little Box which opens, and where some Knights keep sometimes the Picture of their Mistress.

The Knights on the Days of Ceremony, wear besides at the Right Shoulder a Scarlet *Chaperon*, like the Presidents and Counsellors of the Parliament of *France*: This is perhaps what is understood in the Statutes, by the Word *Humeral*.

When the Kings of *England* give this *Order* to some foreign Prince, they send him all the Ornaments, according to the Statutes, and as it appears by the following Letter of *Charles* II. to the Elector of *Brandebourg* when he sent him the *Order* of the *Garter*, in 1654.

'My Brother, the Assurance I have of your Friendship 'by several Testimonies you have given me of it, oblige 'me to seek all Means which will be capable to cultivate 'and preserve it. Therefore I have found proper, as Sovereign of the most antient, and most noble *Order of the Garter*, to chuse you one of the Knights, Peers, and 'Companions of the said *Order*, hoping thereby to 'contract a stricter Friendship with you, and to increase 'the Good and Prosperity of that most noble Society; 'which for several Centuries has had not only the Kings 'of *England*, our Predecessors, for Sovereigns, but likewise several Emperors, foreign Kings and Princes, for 'Companions; as likewise to give you an evident Mark 'of our Affection, and of the high Esteem I have for 'your Merit and Person; and for Confirmation of your 'Election I send you by Mr. *Waller*, Knight, Garter 'King at Arms, the Medal called *George*, the *Garter*, 'and the *Star*, to wear them in the usual Manner, that's 'to say, the Medal round your Body, the *Garter* on 'the Left Leg, and the *Star* on the Left Side of your 'Coat or Mantle. The said Mr. *Waller* will assure you 'from me, that I desire passionately to persuade you that 'I am, my Brother, your affectionate Brother and Cousin, *C. R.*—This Letter was wrote from *Paris* in the Year 1654.

Every foreign Prince, after he has received these Marks and Ornaments of the *Order*, is obliged to send a Deputy to the Castle of *Windsor*, to be received with the usual Solemnities, and must give a Mantle of the *Order*, his Helmet, Crest and Sword to remain always in the Church of *Windsor*. When that Deputy or Proxy is installed, the Sovereign of the *Order*, or he whom he has appointed, ties the Mantle on the Right Arm, and after that Installation, he is to wear it no more for the Person who has sent him.

Henry IV. King of *France*, having received likewise the *Order of the Garter*, in 1596, from Queen *Elizabeth*, sent in the Year 1600 to *Windsor*, M. *de Chastres*, Knight of the *Order* of St. *John* of *Jerusalem*, Governor of *Dieppe*, and one of his Lieutenant-Generals in *Normandy*, as his Proxy, to be installed in his Place; which was done after the Chevalier *de Chastres* had promised in the Name of the King of *France* to observe the Statutes of the *Order* according to the Form and Tenure, his Majesty had already swore it, in the Year 1596, when he received the *Order*, in these Terms: 'We, by the 'Grace of God, King of *France* and *Navarre*, swear, 'vow, and promise solemnly, on our Honour and 'Word of a King, that we'll observe and maintain the 'Statutes and Ordinances of the most noble *Order of Monsieur St. George*, called the *Garter*, in what they'll 'not be found contrary to our Catholick Religion, our 'Royal Grandeur and Majesty, nor to the Statutes and 'Ordinances of our two *Orders* of the *Benoit Holy Ghost*, 'and *Monsieur St. Michael*. In Witness whereof we 'have signed these Presents with our own Hand, and 'have caused our Privy Seal to be affixed to it.' At *Rouen* the 2d of *October*, 1596.

Francis I. *Henry* II. *Charles* IX. and *Henry* III. also Kings of *France*, received likewise the same Order, which has also been given to five Emperors, to several Kings of *Spain*, of *Portugal*, *Poland*, *Naples*, *Denmark*, and *Sweden*; to the Dukes of *Burgundy*, of *Savoy*, *Milan*, *Ferrara*, *Urbino*, and to several sovereign Princes of *Germany*; which has engaged me to give here in the *Chronology* of the *Grand Masters*, and *Sovereigns* of that *Order*, the List of the Knights who have been aggregated under each Chief, that it may be seen by so many illustrious Names, how much that *Order* is still famous throughout all *Europe*. The first Column contains the Years of Christ; the second, the Names of the Grand Masters, *&c.* and the third, the Years of their Mastership: Therefore,

CHRONOLOGICAL SUCCESSION *of the* Grand Masters, *and* Knights *of the* Order *of the* GARTER, *in* England.

1350 EDWARD III. *King, Institutor, and first Chief of the* Order. 27

KNIGHTS.

EDWARD *of* England, *Prince of* Wales.
HENRY *of* England, *Duke of* Lancaster.
Thomas *of* Beauchamp, *Earl of* Warwick.
Peter de Foix, *Captal of* Buch.
Raoul *Earl of* Stafford.
William Montagu, *Earl of* Salisbury.
Roger Mortimer, *Earl of* March.
John *Baron of* l'Isle.
Bartholomew de Burghest.
John *of* Beauchamp.
John Mohun.
Hugh *of* Courtenay.
Thomas Holland.
John Grey.
Richard Fitz Simon.
Miles Stapleton.
Thomas Wall.
Hugh Wrotesley.
Noël Loringe.
John, Sir, *of* Chandois.
James Audeley.
Otho Holland.
Henry Eam.
Sanches d'Abrichcourt.
Walter Paveley.
RICHARD *of* England, *Prince of* Wales, *afterwards King.*
LIONEL *of* England, *Duke of* Clarence.
JOHN *of* England, *Duke of* Lancaster.
EDMOND *of* England, *Duke of* York.
JOHN *of* Montfort, *Duke of* Britanny.
Humphrey Bohun, *Earl of* Hereford.
William Bohun, *Earl of* Northampton.
John Hastings, *Earl of* Pembroke.
Thomas Beauchamp, *Earl of* Berwick.
Richard Fitz Allen, *Earl of* Arundel *and* Surrey.
Robert Ufford *Earl of* Suffolk.
Hugues *Earl of* Stafford.
Enguerran *of* Courcy, *Earl of* Bedford.
Guichard *of* Angouleme, *Earl of* Huntingdon.
Edward Spencer.
William Latimer.
Renault *of* Cobham.
John Nevil, *Baron of* Ruby.
Raphael Basset, *Baron of* Drayton.
Walter Manny.
William Fitz Warren.
Thomas Ufford.
Thomas Felton.
Francis Van Hall.
Fougues Fitz Warren.
Alan Boxhull.
Richard Pemburge.
Thomas Utreight.
Thomas Banester.
Richard de la Vache.
Guy Brian.

1377 RICHARD II. *King* Edward's *Grandson, second Chief of the* Order. 23

KNIGHTS.

THOMAS *of* England, *Duke of* Glocester.
HENRY *of* England, *Earl of* Derby, *afterwards King*, IVth *of the Name.*
WILLIAM *Duke of* Guelderland.
WILLIAM *of* Bavaria, *Earl of* Holland *and* Haynault.
Thomas Holland, *Duke of* Surrey.
John Holland, *Duke of* Exeter.
Thomas Mowbray, *Duke of* Norfolk.
EDWARD *of* England, *Earl of* Rutland, *and Duke of* Albermarle.
Michael de la Pool, *Earl of* Suffolk.
William Scrope, *Earl of* Wiltshire.
William Beauchamp, Sir, *of* Abergavenny.
John de Beaumont.
William Willoughby.
Richard Grey.
Nicholas Sanesfield.
Philip de la Vache.
Robert Knoles.
Simon Burley.
John d'Evereux.
Briant Stapleton.
Richard Burley.
Peter de Courtenay.
John Burlay.
John Bourchier.
Thomas Granston.
Louis Clifford.
Robert de Namur.

1400 HENRY IV. *King of* England, *third Chief of the* Order. 14

KNIGHTS.

HENRY *of* England, *Prince of* Wales.
THOMAS *of* England, *Duke of* Clarence.
JOHN *of* England, *Duke of* Bedford.
HUMPHREY *of* England, *Duke of* Glocester.
THOMAS *of* England-Lancaster, *called of* Beaufort, *Earl of* Dorset, *Duke of* Exeter.
ROBERT *Earl-Palatine of the* Rhine, *Duke of* Bavaria.
JOHN *of* England-Lancaster, *called of* Beaufort, *Earl of* Somerset, *Marquiss of* Dorset.
Thomas Fitz Alan, *Earl of* Arundel.
Edmund *Earl of* Stafford.
Edmund Holland, *Earl of* Kent.
Raoul Nevil, *Earl of* Westmoreland.
Gilbert *Baron of* Roos.
Gilbert *Baron of* Talbot.
John *Baron of* Lovel.
Hugh *Baron of* Burnell.
Thomas *Baron of* Morley.
Edward Charleton, *Baron of* Powis.
John Cornwall, *Baron* Fanhope.
William Arundel.
John Stanley.
Robert de Umfreville.
Thomas Rampstow.
Thomas Erpingham.
John Sabbie.
Sanches de Trane.

HENRY V. *King of* England, *fourth Chief of the* Order. 9

KNIGHTS.

John d'Abricourt.
Richard Vere, *Earl of* Oxford.
Thomas *Baron of* Camoys.
Simon Felbrige.
William Harrington.
John Holland, *Earl of* Huntingdon.
SIGISMOND, *Archduke of* Austria, Emperor.
N. *Duke of* Brige.
John Blunt.
John Robessart.
William Philip, *Baron of* Bardolph.
JOHN I. *King of* Portugal.
HENRY *King of* Denmark.
Richard Beauchamp, *Earl of* Warwick.
Thomas Montagu, *Earl of* Salisbury.
Robert Willoughby.
Henry Fitz Hugh.
John Grey, *Earl of* Tankerville.
Hugh Stafford, *Baron of* Bourchier.
Henry Tank-Clux.
Walter, Sir, d'Hungerford.
PHILIP *Duke of* Burgundy.

HENRY VI. *King of* England, *fifth Chief of the* Order. 38

KNIGHTS.

John Talbot, *E. of* Shrewsbury.
Thomas *Baron of* Scales.
John Falstaff.

PETER *of* Portugal, *Duke of* Coimbre.
Humphrey Stafford, *Duke of* Buckingham.
John Ratcliff.
John Fitz Alan, *Earl of* Arundel.
RICHARD *of* England, *Duke of* York.
EDWARD *King of* Portugal.
EDMUND *of* England, *called of* Beaufort, *Duke of* Somerset.
John Grey.
Richard Nevil, *Earl of* Salisbury.
William Nevil, *Earl of* Kent.
ALBERT, *Archduke of* Austria, Emperor.
JOHN *of* England, *called* Beaufort, *Duke of* Somerset.
Raoul Butler, *Baron of* Sudley.
HENRY *of* Portugal, *Duke of* Visco.
John *Viscount* Beaumont.
Gaston de Foix, *Captal of* Buch.
John de Foix, *Earl of* Candall.
John Beauchamp, *Baron of* Powis.
ALPHONSE *King of* Portugal.
Alvarez Vasquez d'Almeida, *Earl of* Averanche.
Thomas *Baron of* Hoo.
Francis Surien.
ALPHONSE *King of* Arragon.
CASIMIR *King of* Poland.
WILLIAM *D. of* Brunswick.
Richard Widvil, *Earl of* Rivers.
John Mawbrey, *Duke of* Norfolk.
Henry Bourchier, *Earl of* Essex.
Philip Wentworth.
Edward Hall.
FREDERICK, *Archduke of* Austria, Emp.
John Talbot, *Earl of* Shrewsbury.
Lionel *Baron of* Wells.
Thomas *Baron of* Stanley.
EDWARD *of* England, *Prince of* Wales.
GASPARD *of* England, *Earl of* Pembroke, *Duke of* Bedford.
James Butler, *Earl of* Wiltshire.
John Sutton, *Earl of* Dudley.
John Bourchier, *Earl of* Berners.
Richard Nevil, *Earl of* Warwick.
William, *Baron of* Bonvill.
John *Baron of* Wenlock.
Thomas *Lord of* Kyriell.
1461 EDWARD IV. *King of* England, *sixth Chief of the* Order. 22
GEORGE *of* England, *Duke of* Clarence.
William *Lord* Chamberlane.
John Zynoft, *Earl of* Worcester.
John Nevil, *Marquis of* Montague.
William Hubert, *Earl of* Pembroke.
William *Baron of* Hastings.
John *Baron* Scrope.
John *Lord* Astley.
FERDINAND *King of* Naples.
FRANCIS SFORÇE, *Duke of* Milan.
James *Duke of* Douglas.
Galard *Lord of* Duras.
Robert *Lord* Harcourt.
Anthony Woodvile, *Earl of* Rivers.
RICHARD *of* England, *Duke of* Glocester, *afterwards King*.
——— *Lord* Mountgryson.
John Mowbrey, *Duke of* Norfolk.
John de la Pool, *Duke of* Suffolk.
William Fitz Alan, *Earl of* Arundel.
John Stafford, *Earl of* Wiltshire.
John Howard, *Duke of* Norfolk.
Walter Ferras, *Baron* Chartley.
Walter Blount, *Baron* Mountjoy.
CHARLES *Duke of* Burgundy.
Henry Stafford, *Duke of* Buckingham.
Thomas Fitz Alan, *Earl of* Arundel.
William Parr.
FREDERICK DE LA ROUERE, *Duke of* Urbino.
Henry Percy, *Earl of* Northumberland.
EDWARD *of* England, *Prince of* Wales.
RICHARD *of* England, *Duke of* York.
Thomas Grey, *Marquiss of* Dorset.
Thomas *Lord of* Montgomery.
FERDINAND *King of* Castille.
HERCULES D'EST, *Duke of* Ferrara.
John *King of* Portugal.
1483 RICHARD III. *King of* England, *seventh Chief of the* Order; *and unworthy of both*. 3

KNIGHTS.

John Coniers.
Thomas Howard, *Duke of* Norfolk.
Francis *Viscount* Lovel.
Richard Ratcliff.
Thomas *Baron of* Burgh.
Thomas Stanley, *Earl of* Derby.
Richard Trunstall.
1486 HENRY VII. *King of* England, *eighth Chief of the* Order. 13

KNIGHTS.

John de Vere, *Earl of* Oxford.
Giles *Baron of* Aubeny.
Thomas Fitz Alan, *Earl of* Arundel.
George Talbot, *Earl of* Shrewsbury.
John *Viscount of* Wells.
John Stanley, *Baron* Strange.
Edward Wydeville.
John *Baron* Dinham.
MAXIMILIAN, *Archduke of* Austria, Emperor.
John Savage.
William Stanley.
John Cheney.
ALPHONSE *of* Arragon, *Duke of* Calabria.
ARTHUR *of* England, *Prince of* Wales.
Thomas Grey, *Marquiss of* Dorset.
Henry Piercy, *Earl of* Northumberland.
Henry Bourchier, *Earl of* Essex.
Charles Somerset, *Earl of* Worcester.
Robert Willoughby, *Baron of* Brook.
Edward Poynings.
Gilbert Talbot.
Richard Poole.
Edward Stafford, *Duke of* Buckingham.
HENRY *of* England, *Duke of* York, *afterwards King of* England.
Edward *of* Courtenay, *Earl of* Devonshire.
Richard Guilford.
Edmund de la Poole, *Earl of* Suffolk.
Thomas Douel.
Renault Bray.
JOHN *King of* Denmark.
GUI-UBALD DE LA ROUERE, *Duke of* Urbin.
Herald Fitz Gerald, *Earl of* Kildare.
Henry Stafford, *Earl of* Wiltshire.
Richard Grey, *Earl of* Kent.
Richard Ap-Thomas.
PHILIP *King of* Castille.
Thomas Brandon.
CHARLES V. *Emperor, and King of* Spain.
1510 HENRY VIII. *King of* England, *ninth Chief the* Order. 38

KNIGHTS.

Thomas *Baron* d'Arcy.
Edward Sutton, *Baron* Dudley.
EMANUEL *King of* Portugal.
Thomas Howard, *Duke of* Norfolk.
Thomas West, *Baron* Delawar.
Henry *Baron* Marney.
George Nevil, *Baron* Abergavenny.
Edward Howard, *Duke of* Norfolk.
Charles Brandon, *Duke of* Suffolk.
Julian de Medicis, *an* Italian.
Edward Stanley, *Baron* Mounteagle.
Thomas Dacres, *Baron* Gylletland.
William *Baron* Sandes.
Henry *of* Courtenay, *Marquiss of* Exeter.
FERDINAND, *Emperor*.
Richard Wingfield.
Thomas Boullen, *Earl of* Ormond.
Walter d'Evereux, *Earl of* Hereford.
ARTHUR *of* England, *Bastard of King* Edward IV. Viscount Lisle.
Robert Radcliff, *Earl of* Sussex.
William Fitz-Alan, *Earl of* Arundel.

Thomas Manners, *Earl of* Rutland.
Henry Fitz-Roy, *Duke of* Richmond *and* Somerset.
Ralph Nevil, *Earl of* Westmoreland.
William Blount, *Baron* Mountjoy.
William Fitz-William, *Earl of* Southampton.
Henry Guildford.
FRANCIS I. *King of* France.
John Vere, *Earl of* Oxford.
Henry Percy, *Earl of* Northumberland.
Anne, *Duke of* Montmorency, *a* Frenchman.
Philip Chabot, *Earl of* Charny, *a* Frenchman.
JAMES, *King of* Scotland.
Henry Clifford, *Earl of* Cumberland.
Thomas Cromwell, *Earl of* Essex.
John Russel, *Earl of* Bedford.
Thomas Cheney.
William Kingston.
Thomas Audeley, *Baron of* Walden, *Chancellor of* England.
Anthony Brown.
Edward Seymour, *Duke of* Somerset.
Henry Howard, *Earl of* Surrey.
John Gage.
Anthony Wingfield.
John Sutton, *Duke of* Northumberland.
William Paulet, *Marquis of* Winchester.
William Parr, *Marquis of* Northampton.
John Wallop.
Henry Fitz-Alan, *Earl of* Arundel.
Anthony de S. Leger.
Francis Talbot, *Earl of* Shrewsbury.
Thomas Wriothesley, *Earl of* Southampton.
1547 EDWARD VI. *King of* England, *tenth Chief of the Order.* 6

KNIGHTS.

Henry Grey, *Duke of* Suffolk.
Edward Stanley, *Earl of* Derby.
Thomas *Baron* Seymour.
William Paget, *Baron of* Beaudesart.
Francis Hastings, *Earl of* Huntingdon.
George Brook, *Baron of* Cobham.
Thomas West, *Baron* Delaware.
William Herbert, *Earl of* Pembroke.
HENRY II. *King of* France.
Edward Finet, *Earl of* Lincoln.
Thomas Darcy, *Baron* Chiche.
Henry Nevil, *Earl of* Westmoreland.
Andrew Dudley.
1553 MARY, *Queen of* England, *eleventh Chief of the Order.* 5

KNIGHTS.

PHILIP II. *King of* Spain.
Henry Ratcliff, *Earl of* Sussex.
EMANUEL PHILIBERT, *Duke of* Savoy.
William *Baron* Howard.
Anthony Brown, *Viscount* Montacute.
Edward, *Baron* Hastings.
Thomas Ratcliff, *Earl of* Sussex.
William Grey, *Baron* Wilton.
Robert, *Lord of* Rochester.
1558 ELIZABETH, *Queen of* England, *twelfth Chief of the Order.* 44

KNIGHTS.

Thomas Howard, *Duke of* Norfolk.
Henry Manners, *Earl of* Rutland.
Robert Dudley, *Earl of* Leicester.
Adolphus, *Duke of* Holstein.
George Talbot, *Earl of* Shrewsbury.
Henry Carey, *Baron* Hunsdon.
Henry Percy, *Earl of* Northumberland.
Ambrose Dudley, *Earl of* Warwick.
CHARLES IX. *King of* France.
Francis Russel, *Earl of* Bedford.
Henry Sidney.
MAXIMILIAN II. *Emperor.*
Henry Hastings, *Earl of* Huntingdon.
William Somerset, *Earl of* Worcester.
Francis, *D. of* Montmorency, *a* Frenchman.
Walter Devereux, *Earl of* Essex.
William Cecil, *Baron of* Wilton.
Edmond Bridges, *Baron of* Chandos.
Henry Stanley, *Earl of* Derby.
Henry Herbert, *Earl of* Pembroke.
HENRY III. *King of* France.
Charles Howard, *Earl of* Nottingham.
RODOLPHUS, *Emperor.*
FREDERICK II. *King of* Denmark.
JOHN CASIMIR, *Count* Palatine *of the* Rhine, *Duke of* Bavaria.
Edward Manners, *Earl of* Rutland.
William Brook, *Baron of* Cobham.
Henry Scroop, *Baron of* Bolton.
Robert Devereux, *Earl of* Essex.
Thomas Butler, *Earl of* Ormond.
Christopher Hatton, *Chancellor of* England.
Henry Ratcliff, *Earl of* Sussex.
Thomas Sackville, *Earl of* Dorset.
HENRY IV. *King of* France.
JAMES VI. *King of* Scotland.
Gilbert Talbot, *Earl of* Shrewsbury.
George Clifford, *Earl of* Cumberland.
Henry Percy, *Earl of* Northumberland.
Edward Somerset, *Earl of* Worcester.
Thomas, *Baron of* Burgh.
Edward Sheffield, *Earl of* Mulgrave.
Francis Knolles.
FREDERICK, *Duke of* Wittemberg.
Thomas Howard, *Earl of* Suffolk.
George Carey, *Baron of* Hunsdon.
Charles Blount, *Earl of* Devonshire.
Henry Lea.
Robert Ratcliff, *Earl of* Sussex.
Henry Brook, *Baron of* Cobham.
Thomas Scroop, *Baron of* Bolton.
William Stanley, *Earl of* Derby.
Thomas Cecil, *Baron* Burleigh.
1602 JAMES I. *King of* Great Britain, *thirteenth Chief of the* Order. 23

KNIGHTS.

HENRY *of* England, *Prince of* Wales.
CHRISTIAN IV. *King of* Denmark.
Louis Stuart, *Duke of* Richmond.
Henry Wriothesley, *Earl of* Southampton.
John Erskin, *Earl of* Mar.
William Herbert, *Earl of* Pembroke.
ULRIC, *Duke of* Holstein.
Henry Howard, *Earl of* Northampton.
Robert Cecil, *Earl of* Salisbury.
Thomas Howard, *Viscount* Bindon.
George Hume, *Earl of* Dunbar.
Philip Herbert, *Earl of* Montgomery.
Charles *of* England, *Prince of* Wales, *afterwards King.*
Thomas Howard, *Earl of* Norfolk.
Robert Carr, *Earl of* Somerset.
FREDERICK CASIMIR, *Count Palatine of the* Rhine, *Elector, and King of* Bohemia.
MAURICE *of* NASSAU, *Prince of* Orange.
Thomas Ereskin, *Viscount* Fenton.
William Knolles, *Earl of* Banbury.
George Villiers, *Duke of* Buckingham.
Robert Sidney, *Earl of* Leicester.
George Hamilton, *Earl of* Cambridge.
Edme Stuart, *Duke of* Lenox.
Christian, *Duke of* Brunswick.
William Cecil, *Earl of* Salisbury.
James Hay, *Earl of* Carlisle.
Edward Sackville, *Earl of* Dorset.
Henry Rich, *Earl of* Holland.
Thomas Howard, *Earl of* Berkshire.
1625 CHARLES I. *King of* Great Britain, *fourteenth Chief of the* Order. 24

KNIGHTS.

CLAUDIUS *of* LORRAIN, *Duke of* Chevreuse, *a* Frenchman.
GUSTAVUS ADOLPHUS, *called the* GREAT, *King of* Sweden.
HENRY FREDERICK *of* Nassau, *Prince of* Orange.

Theophilus Howard, *Earl of* Suffolk.
William Compton, *Earl of* Northampton.
Richard Weston, *Earl of* Portland.
Robert Berty, *Earl of* Lindsey.
William Cecil, *Earl of* Exeter.
John *Marquiss of* Hamilton, *Earl of* Cambridge.
CHARLES LOUIS, *Count Palatine of the* Rhine, *Elector.*
James Stuart, *Duke of* Lenox.
Henry Danvers, *Earl of* Danby.
William Douglas, *Earl of* Morton.
Algernon Piercy, *Earl of* Northumberland.
CHARLES *of* England, *Prince of* Wales, *afterwards King.*
Thomas Wentworth, *Earl of* Strafford.
JAMES *of* England, *Duke of* York, *afterwards King.*
RUPERT, *Count Palatine of the* Rhine, *Duke of* Bavaria.
WILLIAM *of* Nassau, *Prince of* Orange.
BERNARD DE FOIX DE LA VALETTE, *Duke of* Epernon, *a* Frenchman.
1649 CHARLES II. *King of* Great Britain, *fifteenth Chief of the* Order. 36

KNIGHTS.

MAURICE, *Count Palatine of the* Rhine, *Duke of* Bavaria.
James Butler, *Duke of* Ormond.
EDWARD, *Count Palatine of the* Rhine, *Duke of* Bavaria.
George Villiers, *Duke of* Buckingham.
William *Duke of* Hamilton.
Thomas Wriothesly, *Earl of* Southampton.
William Cavendish, *Duke of* Newcastle.
James Graham, *Marquiss of* Montrose.
James Stanley, *Earl of* Derby.
George Digby, *Earl of* Bristol.
HENRY *of* England, *Duke of* Glocester.
HENRY CHARLES de la Trimouille, *Prince of* Tarent, *a* Frenchman.
WILLIAM HENRY *of* Nassau, *Prince of* Orange, *afterwards King of* England.
FREDERICK WILLIAM, *Elector of* Brandebourg.
John Gaspard Ferdinand, *Earl of* Marsin, *a* Frenchman.
GEORGE MONK, *Duke of* Albemarle.
Edward Montague, *Earl of* Sandwich.
William Seymour, *Duke of* Somerset.
Aubrey de Vere, *Earl of* Oxford.
Charles Stuart, *Duke of* Richmond *and* Lenox.
Montague Berty, *Earl of* Lindsey.
Edward Montague, *Earl of* Manchester.
William Wentworth, *Earl of* Strafford.
CHRISTIAN, *Prince of* Denmark.
James Scot, *Duke of* Monmouth.
JAMES *of* England, *Duke of* Cambridge.
CHARLES XI. *King of* Sweden.
JOHN GEORGE, *Duke of* Saxony, *Elector.*
Christopher Monk, *Duke of* Albemarle.
John Maitland, *Duke of* Lauderdale.
Henry Somerset, *Marquiss of* Worcester.
Henry Jermin, *Earl of* St. Alban.
William Russel, *Earl of* Bedford.
Henry Bennet, *Earl of* Arlington.
Thomas Butler, *Earl of* Ossory.
Charles Fitz Roy, *Duke of* Southampton.
John Sheffield, *Earl* Mulgrave.
Henry Cavendish, *Duke of* Newcastle.
Thomas Osborn, *Earl of* Danby.
Henry Fitz Roy, *Duke of* Grafton.
James Cecil, *Earl of* Salisbury.
CHARLES, *Count Palatine of the* Rhine, *Elector.*
Charles Lenox Fitz Roy, *Duke of* Richmond.
——— *Duke of* Hamilton.
——— *Duke of* Richmond.
GEORGE *Prince of* Denmark.
Charles Seymour, *Duke of* Somerset.
George Fitz Roy, *Duke of* Northumberland.
1685 JAMES II. *King of* England, *sixteenth Chief of the* Order. 3

KNIGHTS.

Henry Howard, *Duke of* Norfolk.
Henry Mordaunt, *Earl of* Peterborough.
Henry Hyde, *Earl of* Rochester.
Louis de Duras, *Earl of* Feversham, *a* Frenchman.
Robert Spencer, *Earl of* Sunderland.
James Butler, *Duke of* Ormond.
James Fitz James, *Duke of* Berwick, *Marshal of* France, *also Knight of the* Holy Ghost, *in* France, *and of the* Golden Fleece *in* Spain.
Antonin Numpar de Caumont, *Duke of* Lauzun, *a* Frenchman.
James ———
William Herbert, *Duke of* Powis.
Drumont *Earl of* Melfort.
1688 WILLIAM III. *King of* Great-Britain, *seventeenth Chief of the* Order.

KNIGHTS.

Frederick *Duke of* Schomberg.
William Cavendish, *Duke of* Devonshire.
FREDERICK, *Marquis of* Brandebourg, *Elector.*
GEORGE WILLIAM, *Duke of* Brunswick Zell.
JOHN GEORGE, *Duke of* Saxony, *Elector.*
Charles Sackville, *Earl of* Dorset, *and* Middlesex.
Charles Talbot, *Duke of* Shrewsbury.
WILLIAM *of* Denmark, *Duke of* Glocester.
William Bentink, *Earl of* Portland.
John Cavendish, *Duke of* Newcastle.
Thomas Herbert, *Earl of* Pembroke, *and* Montgomery.
Arnold Joost Van Keppel, *Earl of* Albemarle.
James Douglas, *Duke of* Queensbury.
GEORGE LOUIS, *Duke of* Brunswick-Hanover, *Elector, and afterwards King.*
1702 ANNE, *Queen of* Great-Britain, *eighteenth Chief of the* Order. 12

KNIGHTS.

N. *Duke of* Bedford.
JOHN CHURCHILL, *Duke of* Marlborough, *Prince of the Empire.*
N. Maynard, *Duke of* Schomberg.
F. ——— Godolphin.
GEORGE AUGUSTUS *of* Brunswick, *Prince Electoral of* Hanover.
The *Duke of* Kent.
——— *of* Beaufort.
The *Earl of* Peterborough.
——— *of* Strafford.
——— *of* Oxford.
——— *of* Paulet.
1714 GEORGE LOUIS, *King of* Great-Britain, *nineteenth Chief of the* Order.

KNIGHTS.

The *Prince of* Wales.
The *Duke of* York.
The *Prince* Frederick, *at present Prince of* Wales.
The *Duke of* Cleves *and* Southampton.
——— *of* Bucks *and* Normanby.
——— *of* Richmond.
——— *of* Somerset.
——— *of* Shrewsbury.
The *Earl of* Pembroke *and* Montgomery.
——— *of* Albemarle.
The *Duke of* Marlborough.
——— *of* Schomberg *and* Leominster.
——— *of* Argyle.
——— *of* Kent.
The *Earl of* Powlet.
——— *of* Oxford.
——— *of* Strafford.
——— *of* Peterborough *and* Monmouth.

The

The *Duke of* Bolton.
——— *of* Rutland.
The *Earl of* Dorset *and* Middlesex, *&c.*
1727 GEORGE AUGUSTUS II. *King of* Great-Britain, *twentieth Chief of the* Order.

KNIGHTS.

FREDERICK *Prince of* Wales.
WILLIAM *Duke of* Cumberland.
The *Prince of* Orange.
The *Prince of* Hesse.
The *Duke of* SAXE-GOTHA.
——— *of* Somerset.
——— *of* Argyle.
——— *of* Montague.
——— *of* Newcastle.
——— *of* Bolton.
——— *of* Grafton.
——— *of* Rutland.
——— *of* Dorset.
——— *of* Richmond.
——— *of* Devonshire.
——— *of* St. Alban.
——— *of* Marlborough.
——— *of* Portland.
——— *of* Kingston.
The *Earl of* Chesterfield.
——— *of* Orford, *late Sir* Rt. Walpole.
——— *of* Burlington.
——— *of* Essex, *&c.*

Note, That as we have already observed, there are five Officers of this noble *Order*; and who are at present,

Dr. *Benjamin Hoadley*, Bishop of *Winchester*, Prelate.
Dr. *Thomas Sherlock*, Bishop of *Salisbury*, Chancellor.
The Dean of *Windsor*, Register.
John Anstis, Esq; Garter Principal King at Arms.
Sir *Charles Dalton*, Knt. Usher of the Black Rod, Deputy.

Note also, That the Number of *Knights of the Garter* has not been augmented ever since its first Institution; having been always fixed to twenty-six, the Sovereign and Chief of the *Order* included. Queen *Elizabeth* made, in her Reign, twenty-three Knights, among whom were three Kings of *France*, two Emperors, and a King of *Denmark*. Mr. *Ashmole* had the Order of the March of a Procession of those Knights engrav'd, which was made on St. *George*'s Day, at the Beginning of the last Century, where that Princess is represented with the Habit, and the great Collar of the *Order*.

Note besides, That antiently there were two other *Orders* in *England*, which have been long since extinct, *viz.* the *Orders* of the *Round Table* and of the St. *Sepulchre*.

The *Order of the* ROUND TABLE was instituted, as pretended, in 516; by *Arthur* King of *England*. It is said, that that Prince having entirely defeated the *Saxons* in several Battles, reduced under his Empire, *Scotland*, *Ireland*, and the neighbouring Islands, ravaged the greatest Part of the Principality of *Wales*, instituted at his Return from those Expeditions, an *Order* of Knighthood. It is what I find in the first Histories of the Kings of *England*, though they be full of Fables, and some Authors have attributed those Exploits to a *Roman* Captain, called *Lucius*.

That *English* Prince wanting to reward the signal Services of twenty-five of his most valiant Warriors, honoured them with this *Order*; and to shew that he had the same Esteem for them all, he caused to be made in the Year 516, a *Round Table*, at which there was no Distinction of upper and lower End, pretending thereby to prevent all Occasion of Dispute between them, about the Rank. They met every Holy Day, and eat at that Table with their Shield on their Back; and it was the Figure of the Table, and the Use they made of it, which made them be called *Knights of the Round Table*. — It is pretended, that this Table is seen yet, in the Castle of *Winchester*, with the Names of the first Knights engraved upon it; though *William Camden* does not believe this *Order* so antient. He says likewise, that the Custom of eating at a *Round Table*, which was long before among the *French*, came from the great Lords and Generals of Armies, who thereby wanted to avoid all Disputes with Regard to Rank and Precedency, when they eat together in the Field. He pretends, that it is hence that the *Knights of the Round Table* have by Degrees drawn their Origin. But neither *Camden*, nor any other Authors, mention that those Knights had either a particular Habit, or any other Mark of Distinction. It is only said, that they were engaged by their Vow to maintain the Catholick Religion, and defend it against its Enemies. But by the Institution of the *Order of the Garter*, and the Changes happened in the Religion of the Kingdom of *England*, that *Order* of Knighthood falling by Degrees, was at last entirely extinct.

Father *Honoré*, of St. *Mary*, pretended, that there has never been such an *Order* of Knighthood; and that the *Round Table* was only a Kind of Rejoicing, and Feast of Arms, very much like the Justs or Tournaments, at the End whereof, the Knights who had fought came to sup with him, who gave the Feast, where they all sate at a *Round Table*. He confirms his Sentiment by what *Matthew Paris* says in his History of *England*, under the Year 1252, where he not only mentions the Exercises of the *Round Table*, so famous in those Days, but distinguishes, likewise, those military Feasts from Justs and Tournaments; for these, says he, were made in Troops; and those were singular Combats, the proper Arm whereof was the Launce. This Historian speaks of a solemn Feast of the *Round Table*, which was celebrated in 1252, near the Abbey of *Walden*, during the Octave of the Feast of the Nativity of the blessed Virgin. Therefore there is a great Likelihood, that the Authors who speak of the *Round Table*, have made an *Order* of a simple military Exercise.

The *Order of the* St. SEPULCHRE, in *England*, was instituted in 1174 or 1177, by *Henry* II. That Prince being arrived in the *Holy Land*, saw with Admiration, the Watch which the Christians made round the St. *Sepulchre*, and all the other Customs observed there. At his Return into *England*, full of Zeal, he formed the Resolution of instituting an *Order* of Knights for the Guard of that holy Place.

Therefore in the Year 1174, or 1177, he made that Institution, and gave to the Knights of that *Order* a Cross for their Badge. Some believe that it was a Patriarchal Cross, fleuron'd at the Extremities. Among the Habits of the Ceremony of the *English*, is found a Knight of the St. *Sepulchre*, represented with a black Mantle, and a white Cassock with a Cross, which grows big at the End, and is, notwithstanding, terminated a little into a Point.

All those who wanted to be admitted into this *Order*, were obliged to pass into the *Holy Land*, and spend two Years there, in the Guard of the St. *Sepulchre*; being obliged to live afterwards according to the Institutes observed there. *Henry* took Care they should be provided with considerable Revenues, and with Commanderies. Pope *Alexander* III. confirmed their *Order* under the Rule of St. *Basil*.

In their Banners, they had on one Side, the Cross of the *Order*, and on the other, the Arms of *France* and *England*. But the Change of Religion which happened in the Kingdom, having abolish'd this *Order*, it was re-united to that of *Malta*.

Note, That the Kingdom of *Scotland* being contiguous to that of *England*, and both making at present but one and the same Kingdom, under the same Sovereign, I'll give an Account in this Place of the *Orders* established in *Scotland*, and pass afterwards into *Spain*.

The *Order of the* THISTLE, and of the RUE, in *Scotland*, was instituted, according to some Authors, in the Year of Christ 810, by *Hungus* King of *Scotland*.

Menneus relates, that *Hungus* King of *Scotland*, or Marshal of the Armies of *Achaius*, being ready to engage against *Athelstan*, King of the *Anglo-Saxons*, in a pitch'd Battle, he saw a luminous Cross, in the Form of that on

on which St. *Andrew* had suffer'd Martyrdom. That Vision seeming to promise him good Success, he went couragiously to attack his Enemy, defeated his Army, and gained a compleat Victory, so that *Athelstan* was killed in the Field, which has retained his Name to this Day. *Hungus* had that red Cross put in his Standards, and bore by his Officers on their Breast; which has been followed ever since by the other Kings of *Scotland*.

The Histories of *Edinburgh* say, that it was two Kings opposed to one another, about the Year 1452; during the Minority of *James* II. but without having any Certainty of it.

Most Authors believe, that the Origin of this *Order*, which consists but of 12 Knights, comes from the Design the Institutor thereof had to do Honour to the 12 Apostles.

The Badge given by *Achaius*, was a Gold Collar of Flowers of Thistle, and because the Branches and Leaves thereof are armed with Points, which prick instead of bending, and wound those who touch them, this Legend was added to it, *Nemo me impuné lacessit*. There was another Legend, besides, which was, *Pour ma defense*. At the Collar hung a Gold Medal, on which was seen St. *Andrew* holding a Cross. There were also Rules and Laws prescribed to the Knights for the Defence of the Catholick Religion.

The Arms of the Kingdom, as well as those of the Knights, are Or, with a Lion Gules, dented Azure, environ'd with a double Orle Flower-de-lised, and Counter-Flower-de-lised of the same; which shews the antient Alliance of *Charlemagne* with *Hungus* King of *Scotland*, when they joined their Forces together. And *Charles* gave him, besides, a Crown of four Flowers-de-luce, with two Crosses between.

Other Authors attribute this to *Charles* VII. King of *France*, because of the Succours the King of *Scotland* gave him in his Necessity, as wanting to acknowledge thereby the good Will of the *Scotch*.

This Badge which the Knights wore every Day, was a Gold Medal hanging at a green Ribband, on which was a Thistle, with the same Legend, *Nemo me impuné lacessit*.

The *Order*, as well as the following, was abolished by Degrees in *Scotland*, under Queen *Mary*, and by the Change of Religion; but *James* II. King of *Great-Britain*, restored it the 29th of *May* 1687, as being a Title of Honour for the Kingdom of *Scotland*; and created Knights in the Castle of *Windsor*, eight of the principal Lords of his Court, intending in the general Assembly of the *Order*, to compleat the whole Number of twelve.

There was another *Order* of Knightood, which was particular to the Kings of *Scotland*, as well as the preceding one, and this was called of the *Rue*. Their Collar, in which were interwoven the Arms of their Kings, was of two Branches of *Rue*, with a Quantity of Leaves; and the Image of St. *Andrew* hanging underneath.

The Time of the Institution of this *Order* is very uncertain, though some Authors attribute it likewise, to *Achaius*; but we find no Proofs thereof more antient than a Picture of *James* V. King of *Scotland*, which has a Collar of *Rue*, with the Image of St. *Andrew* hanging to it; and the Histories mention, that he honoured the great Men of his Kingdom with a Mark of the Dignity of Knighthood, where hung the same Image; which Mark could not be other than *Rue*, since his own Picture is found enriched with it.

The King had the Feasts of this *Order* celebrated with much Magnificence, and appointed particular Days for it, where he took Pleasure to be present, with the Ornaments of the *Order*, and to appear there above the rest; which make some Authors think that he was the Institutor, notwithstanding which there is much Appearance, that he was only the Restorator thereof; it even appears, that it was in View to preserve the Memory of this *Order*, that the Arms and Collar thereof were engraven on the Gate of the Palace of *Litchwen*, where they are seen yet.

There was on one Side of their Standard a St. *Andrew*'s Cross, and on the other the Arms of *Scotland*. Their Habits of Ceremonies were magnificent, such as the Lords wear in the Parliament-House. They had on their left Shoulder a Gold Circle, in which was a Gold Cross, and in the Middle a Gold Crown, with Flowers-de-luce, on a Field Azure, the whole border'd with Gold.

Note, That here follows the *Chronological Succession* of the Grand Masters of the two preceding *Orders*. The first Column contains the Number of Grand Masters, the second the Years of Christ, the third their respective Names, *&c.* the fourth their Years of Mastership.

CHRONOLOGICAL SUCCESSION *of the* Grand Masters *of the Orders of the* Thistle, *and of the* Rue, *in* Scotland.

1	809	ACHAIUS Son of *Ethfin*, or according to others *Ersin*, King of *Scotland*, Founder, and first Grand Master of the royal *Order* of the *Thistle*.	10
2	819	CONGALLE III. Nephew of *Eugenius* VIII.	5
3	824	DUNGALLE, Son of *Solvasius*.	6
4	830	ALPIN, Son of *Achaius*.	4
5	834	CLENETTE II. Son of *Alpin*.	25
6	855	DONALDUS V. *Clenette*'s Brother.	5
7	860	CONSTANTINE II. *Clenette*'s Son.	14
8	874	ETHORLPIEDE, Brother of *Constantine* II.	12
9	876	DONALDUS VI. Son of *Constantine* II.	27
10	903	CONSTANTINE III. Son of *Ethorlapiede*.	40
11	943	MALCOLM, Son of *Donaldus* VI.	16
12	959	INDULPHUS, Son of *Constantine* III.	9
13	968	DULPHUS, Son of *Malcolm*.	5
14	973	CULLENUS, Son of *Indulphus*.	5
15	978	CLENETTE III. Son of *Malcolm*.	22
16	1000	CONSTANTINE IV. called the *Bald*, Son of *Cullene*.	2
17	1002	GREINE, Nephew of *Malcolm*.	8
18		MALCOLM II. Son of *Clenette* III.	30
19	1040	DONALDUS VII. Nephew of *Malcolm*, by his Daughter *Beatrix*.	16
20	1046	MACCHABEUS, a Tyrant, another Nephew of *Malcolm*, by his Daughter *Egoase*.	15
21	1061	MALCOLM III. Son of *Donaldus* VII.	36
22	1097	DONALDUS VIII. Son of *Macchabeus*.	1
23	1098	DONCHAN, natural Son of *Malcolm* III.	9M
24	1098	DONALDUS IX.	3
25	1101	EDGAR, Son of *Malcolm* III.	8
26	1109	ALEXANDER, another Son of *Malcolm* III.	16
27	1125	DAVID IV. another Son of *Malcolm* III.	28
28	1153	MALCOLM IV. *David*'s Nephew, by his Son *Henry*, who died before his Father.	12
29	1165	WILLIAM, Brother of *Malcolm* IV.	69
30	1214	ALEXANDER II. Son of *William*.	35
31	1249	ALEXANDER III. Son of *Alexander* II. who dying without Issue, *Scotland* was governed by elective Kings, till St. *Edward* was chosen.	36
32	1285	JOHN BALIOL, a Descendant, by his Mother, from King *David*.	23
33	1309	ROBERT, a Descendant from the same *David* by the Males.	23
34	1332	DAVID II. Son of *Robert*, yet a Child, who died without Heir.	41
35	1373	ROBERT II. Nephew of *Alan Stuart*.	19
36	1392	JOHN ROBERT, Son of *Robert* II.	14
37	1406	JAMES I. Son of *John Robert*, killed in a Conspiracy.	31
38	1458	JAMES II. Son of *James* I. killed by Accident.	25
39	1462	JAMES III. Son of *James* II. killed in a Conspiracy.	26
40	1488	JAMES IV. Son of *James* III. killed in War.	45
41	1532	JAMES V. Son of *James* IV.	10

42	1543	MARY STUART, Daughter of *James* V. who was yet but eight Years of Age, under the Tuition of *James*, natural Brother of *James* V. she was imprisoned in *Scotland* and *England*, and afterwards beheaded by Q. *Elizabeth*'s Order.	
43	1587	JAMES VI. Son of *Mary Stuart*, and of *Henry Stuart*, Earl of *Levinie*, and Duke of *Rothsay*, who was ten Years Viceroy of *Scotland*, under Queen *Elizabeth*, whom he succeeded in the Kingdom of *England*, and under whom was made the Union of the three Kingdoms of *England*, *Scotland* and *Ireland*, under the Name of *Great Britain*.	
44		CHARLES I. Son of *James* VI. beheaded.	48
45	1661	CHARLES II. Son of *Charles* I. restored to the Throne.	24
46	1686	JAMES II. Brother of *Charles* II.	3

Note, That it was *James* II. King of *Great Britain*, who restored the *Order* of the *Thistle*, abolished by the Change of Religion in *Scotland*. That Prince in 1687 made in the Castle of *Windsor*, some Knights of this *Order*, viz. the Earl of *Murray*, the Earl of *Melfort*, Secretary of State, the Earl of *Senafort*, the Earl of *Dumbarton*, the Earl of *Belk*, Great Chancellor of *Scotland*, the Duke of *Gordon*, and the Earl of *Arran*. The first four received the Badge of the *Order* from the King's Hand, who exempted them from the antient Ceremonies, practised at the Reception of the Knights. The others were only named to be received afterwards with Solemnity. And the King reserved to himself the Nomination of the others at another Time, to make up the whole Number of twelve. As the Church of St. *Andrew* at *Edinburgh*, where the Knights assembled antiently, had been destroy'd, during the Troubles of Religion, he appointed for the Place of their Assemblies, the royal Chapel of Holy-Rood-House in *Scotland*. But the Changes happening in that Kingdom after that Prince had retreated into *France*, abolished again the *Order* of the *Thistle*. Which under *William* III. Reign, subsisted only in the Persons whom King *James* had made Knights, and who followed him to St. *Germain en Laye*; where King *Louis* XIV. through that Greatness of Soul, so peculiar to him, and that noble and generous Compassion he has always had for unfortunate Princes, gave him a royal Sanctuary. But the late King *George* I. and his Son, and Successor, his present Majesty *George* II. have again revived this noble *Order*, by making several Knights thereof; but with no other Ceremony than that of giving them the Badge. There were lately eleven of those Knights, *viz.*

1. The Duke of *Hamilton*.
2. The Duke of *Buccleugh*.
3. The Marquis of *Lothian*.
4. The Earl of *Stair*.
5. The Duke of *Athol*.
6. The Earl of *Portmore*.
7. The Earl of *Berkley*.
8. The Earl of *Murray*.
9. The Earl of *Tankerville*.
10. The Earl of *Morton*.
11. The Earl of *Bute*.

Note, That from *Scotland* I'll pass into *Spain*, where I'll find the *Orders* of *St. Jago de la Spada*, or *St. James*, of *Calatrava*, already mentioned, of *Alcantara*, of the *Golden Fleece*, &c.

The *Order of* ST. JAMES, or *St. Jago de la Spada*, is not one of the least considerable in *Spain*; but Authors disagree among themselves on the Institution thereof. Some attribute it to *Ramire* King of *Leon*, who ascended the Throne in the Year 843, and believe that the Cause of that Institution was the Battle fought in 844, by that King, against *Abderam* King of *Cordoua*; over whom he gained a compleat Victory. They even assure, that *Ramire* saw St. *James* before the Battle, mounted on a white Horse, carrying a Flag with a red Cross, who promised him the Victory over that incredible Multitude of Infidels. That afterwards to celebrate and eternise the Memory of that miraculous Succour, he ordered his Warriors to wear that same Cross, and instituted that *Order*, engaging at the same Time his Subjects to oblige themselves by Vow, to pay annually for each Acre of
44 their arable Land, or of Vineyard, a Measure of Wheat, or a Bottle of Wine, as an Offering to the Church of *Compostella*, where the Body of that Apostle repose.

Other Chronologists make *Ferdinand* I. King of *Castille*, Institutor of that Society.

Most of the *Spanish* Authors, and among them those of the Chronicle of that *Order*, attribute the Reformation and Institution thereof to *Alphonsus* IX. who reigned in *Castille* from the Year 1158 to the Year 1214, or to *Ferdinand* II. who reigned in the Kingdom of *Leon* from the Year 1157, to the Year 1188.

But this is, according to the best Authors, the Occasion of the Institution of this *Order*.—The Monks of St. *Eloy*, in the Kingdom of *Gallicia*, to relieve the Pilgrims who went to visit the Relicts of St. *James* at *Compostella*, built several Hospitals for their Reception. Thirteen Gentlemen excited by the Zeal and Charity of the Monks of St. *Eloy*, did build a new Hospital, and offered to guard the Passes, and to defend the Pilgrims against the Insults of the *Moors*. Those Monks and those Gentlemen united into a Body about the Year 1170; the Prior of those preserved the Jurisdiction over all that concerned the Spiritual of the *Order*; and these had a Grand Master to command them. The Knights and the Monks lived in common, and made Vows of Obedience, Chastity and Poverty; but afterwards *Alexander* III. permitted the Knights to marry.

Peter Ferdinand of *Fuente Encalato*, their first Grand Master, obtained a Bull from the same Pope, in which was prescribed the Manner of Life of those Knights, and which contained several other Institutions, Laws, and Directions of the *Order*. It obliged them likewise to guard the common Passes of that Hospital, to defend the Empire against the Invasions of the *Moors*, and to live with Purity in Marriage.

But as Religion is of a great Succour to unite a Society, the Grand Master was of Opinion to prescribe to his Knights the Rule of St. *Augustin*, and to unite them with the Monks of the Convent of St. *Eloy*. There with a common Consent, the Knights took for Badge a Cross of red Cloth, in Form of a Sabre, sewed on the fore Part of their Habit, which was of white Cloth. The Image of St. *James* was joined to the Sabre, and was accompanied with a Shell.

The most considerable Dignity among those Knights, is that of the thirteen, called *las Trezes*, who chuse their Grand Masters, and give their Advice in all the Affairs concerning the *Order*. They precede all the other Commanders, and in the general Assemblies wear a black Mantle, and a presbiteral Cap.

After them comes the *Prior*, who is intrusted with the Conduct of the *Order* when the Grand Master dies, and takes Care to convoke the Thirteen for a new Election.

The third Dignity of the *Order* is that of *Grand Commander*, which has been divided into two Branches, *viz.* the *Grand Commander* of *Castille*, and the *Grand Commander* of *Leon*; and as the *Order* had a Lieutenant in the Kingdom of *Arragon*, that Dignity was changed afterwards into that of Grand Commander of *Montauban*.

The two principal Houses are, *Ucles* in *Castille*, and the Hospital of St. *Mark* of *Leon*.

The Knights wear in their Banners, a red Cross with five Shells, whereby they are distinguished from the *Order* of *Calatrava*. At present on one Side of their Standard is the Cross of the Order in the Form of a Sword; and on the other the Arms of the Kingdom of *Gallicia*, surmounted with a Cross; the Hilt of their Sword is also adorned with Shells.

With regard to the Commanderies, they are to the Number of 84, three whereof are the grand Commanderies of *Castille*, of *Leon*, and of *Montauban* in the Kingdom of *Arragon*. Those 84 Commanderies have 230,000 Ducats of Revenue, besides 200 Priories, Cures, and other simple Benefices, which can be given, with the

the Pope's Dispensation, to Persons who are not of the *Order*.

This *Order* is divided into four Provinces, which are, *Castille*, *Leon*, *Old Castille*, and *Arragon*; where the King, as Administrator, and the general Chapter send Visitors. These Visitors are always Knights, and are accompanied with some Chaplains: Their Power extends not only over the Knights, but likewise over those who possess Benefices in Places which belong to the *Order*.

To be received as a Knight, one must make Proof of Nobility of four Races, both on the Father and Mother's Side: He must also prove, that his Ancestors were neither *Jews*, *Saracens*, nor Hereticks; and that they have not been punished as such by the Tribunal of the Inquisition.

The King appoints some body to give the Habit to him who is to be received. The Novices are obliged to serve on the Galleys during six Months, and to remain a Month in a Monastery to learn the Rule, of which they are notwithstanding easily exempted for a Sum of Money; which Exemptions are granted by the King and the *Order*.

The Knights make at present but only the Vows of Poverty, Obedience, and conjugal Chastity; to which they add a fourth, *viz.* of defending the immaculate Conception of the blessed Virgin *Mary*.

In 1522, the Emperor *Charles* V. as King of *Castille* and *Leon*, obtained from the Popes *Leo* X. and *Adrian* VI. the Direction of the whole *Order* for him, and for his Successors Kings of *Spain*; so that the Dignity of Grand Master was annexed to the Crown. Ever since that Time the *Order* of St. *James*, as well as all the other *Orders* of Knighthood in *Spain*, have been governed by the King as Grand Master General.

The Habits of Ceremony of the Knights consists, as already observed, in a white Mantle, with a red Cross on the Breast, with this Difference, that the Knights of *Spain* wear it in form of a Sword flowerdelized at the Hilt, and that of the *Portuguese* is not in form of a Sword; but is likewise flowerdelized at Bottom. They had formerly a Commandery in the City of *Etampes* in *France*.

When a Knight dies, the Commander of the nearest Commandery is obliged, besides the usual Prayers, to feed the Poor for forty Days.

The *Order of* St. Julian del Peyrero, afterwards of *Alcantara*, was instituted (as pretended) in the Year of Christ 1117, by two Brothers, called *Suarez* and *Gomez*, who, by the Advice of a Hermite, built a Fortress on the Frontiers of *Castille*, in the Diocess of *Ciudad Rodrigo*, to oppose the *Moors*, and gave it the Name of *St. Julian del Peyrero*. *Manriques* says, that they put Knights in it to guard it; and that in the Year 1158 *Odo*, Archbishop of *Salamanca*, who was of the *Order* of *Citeaux*, prescribed them a Rule of Life. But *Francis Radesio*, or of *Radez*, says, that the Origin of this *Order* is unknown; and that what's certain in it is, that in the Year 1176 there were Brothers at *St. Julian del Peyrero*, as it appears by a Privilege granted them the same Year by King *Ferdinand*.

But however, this *Order* was confirmed as a military Religion by Pope *Alexander* III. in 1177, at the Request of *Gomez*, who had only the Title of Prior; and he permitted him to receive Chaplains, forbidding all those who entered this *Order* from going out of it, without the Prior's Leave.

There is no Mention made, that those Knights had any other Marks of Distinction but a red Girdle. But afterwards *Gomez* began to take upon him the Title of *Grand Master del Peyrero*, and is thus stiled in the Bull of Pope *Lucius* III. of the Year 1183, whereby that Pope gives the Knights the Rule of St. *Benedict*, who after they had obtained those Privileges, went to make War against the *Moors*.

In 1411, in a general Chapter, and with the Pope's Consent, the Habit of the *Order* was changed into a great Mantle of white Cloth, and the Girdle into a green Cross flowerdelized at the End, and applied on the Left Side of the Mantle. A Gold Cross enamelled, which they wore on the Breast; and they were put on the same Footing they are seen at this Day. They have with their secular Habit a Capuche, a Sword, and a small Cross enamelled at their Breast; and another such of Silk on the Left Side of their Mantle.

At last the Direction of this *Order*, as well as of the others which are in *Spain*, was put, as already observed, by some political Views into the King's Hands. *Ferdinand* and *Isabella* his Spouse, having earnestly sollicited at the Court of *Rome* for that Effect, obtained from *Innocent* VIII. that after the Grand Master's Death, they should govern it: Which was confirmed besides by *Alexander* VI. Afterwards the King negotiated with *Zuniga*, then Grand Master, to oblige him to resign his Post; and *Zuniga*, who thought he could not refuse his Sovereign, resigned it in fact into the Hands of the Bishop of *Palenza*, in the Year 1454, reserving notwithstanding the Revenues to himself.

That *Order* possesses 44 Commanderies, which together bring yearly 48114 Ducats of Revenue.

The *Order of the* Golden Fleece, was instituted by *Philip* the good Duke of *Burgundy*, at *Bruges*, the Day he married *Elizabeth* Daughter of *John* I. King of *Portugal*, which was the 10th of *January* 1429, making himself the Chief and Grand Master thereof, and giving his Knights a Gold Collar, composed of some Figures of Steel to strike Fire withal, whence sallied out some Sparkles of Fire; the whole environed with rich Jewels, the *Golden Fleece* hanging underneath the Collar.

Some have imagined, that in instituting this *Order*, that Prince had made Allusion to *Gideon*'s Fleece, the History whereof is represented in the antient Tapestries of *Philip*. Others, that he had in View the History of *Jason*, because the *Golden Fleece* has a greater Report to this than to that of *Gideon*, and represents very well the Fertility of the Country *Philip* was Master of.

Others pretend, that he instituted this *Order* in Imitation of that of the Garter, in Consideration of a Lady he loved passionately. But it is more likely, what *Schoonebeck* says, that he instituted it in View of going to make War against the *Turks* in *Syria*, and for the Propagation of the Catholick Faith, his having that Enterprize much at Heart, as well as all the Nobility of the Country. Which the Vow he made at *Lille* during a great Solemnity, where the Adventures of *Jason* were represented Witnesses.

The first Chapter of the *Order* of the *Golden Fleece*, was assembled at *Lille* in 1430, where were created the first Knights to the Number of 24. And in 1431, where *Philip* had the Statutes of the Order digested into 66 Articles, in which his Successors have made afterwards several Alterations.

Charles the Institutor's Son, and last Duke of *Burgundy*, in the Chapter he held at *Valenciennes* in 1473, ordered that the Mantles and Chaperons of the Knights should be henceforward of Crimson Velvet, lined with white Satin; and under those Mantles they should wear likewise Robes of the same Stuff and Colour. He ordered besides, that the Officers of the *Order*, viz. the Chancellor, Treasurer, Register, and the King at Arms, should wear likewise Mantles, Robes, and Chaperons of Crimson Velvet; and that the Difference between that Vestment and that of the Knights, should be that the Mantle of the Knights was to be embroider'd round with Gold Steels, Flints, and Fleeces; and that of the Officers all plain. He obliged them also to wear the third Day of the Solemnity of the Chapter, when they were to assist at the Office of the blessed Virgin, a Robe of white Damask, with a Chaperon of Crimson Velvet. He engaged the Sovereigns of the *Order* to furnish them only with the Mantles of Crimson Velvet, and ordered that the Knights should buy the black Robes and Chaperons for the second Day, and white Robes for the third.

They must be all of a noble Extraction, and not engaged in any other *Order*, except Emperors, Kings, and other sovereign Princes. They were obliged to wear every Day the Collar in publick, except when on a Journey; for then they could wear the *Golden Fleece* fastened at a Ribband; they could neither make it bigger, nor adorn it with Jewels, much less sell it. The Grand Master could undertake nothing of Importance without the unanimous Consent of all the Knights. If some of them had received an Injury, it reflected on the whole Body, and they look'd upon it as done to every one of them in particular; they were even obliged to join together,

gether to be revenged of it; and when any of the Brethren had the Misfortune of being made Prisoner of War, they were obliged to ransom him: All those who were infected with Heresy, or committed some bad Action, or were justly reproached with Cowardice, were expelled from the Society.

The most antient of the *Order* has the Precedency, the Prince excepted, who is always the first in Rank. A Cloister was built in the ducal Church of *Dijon*, to keep there Knights who should chance to be reduced to Poverty.—When a Knight dies, they meet either in the House of the Deceased, or in a general Chapter, and there the Chancellor makes them swear that they'll proceed with Equity, and in Conscience, to a new Election. Afterwards the Registerer gathers all the small Notes, where are written the Names of those to whom the Votes are given, and he that has a Majority of them is made Knight. If he be a Foreigner the *Golden Fleece* is sent him; but if he be of the Country, he must come himself to receive that Honour from the Prince's Hands; and the Knights at their Death, give Order that the Collar should be return'd to the Prince.

This *Order* has obtained several great Privileges from the Popes and the Kings of *Spain*. *Charles the Bold*, *Maximilian* I. and *Philip* II. granted them the Precedency before all Sorts of Persons, except the Princes of the Blood of crowned Heads. They are free from all Tributes, and *Philip* IV. permitted them to be covered, like the Grandees of the Kingdom, and to have Entrance into all the Apartments of the Palace, even in the King's own Chamber.

Charles Duke of *Burgundy* having been killed before *Nancy* in *Lorrain*, while he besieged that Town, left but one only Daughter called *Mary*, who inherited his Dominions; she had married *Maximilian* of *Austria*, afterwards Emperor; and of that Marriage was born *Philip* of *Austria*, who having married *Jane*, Daughter of the Catholick King and Queen, *Ferdinand* and *Isabella*, united thereby the Dominions of the Dukes of *Burgundy* to the House of *Spain*; and ever since the Kings of *Spain* have always conferred the *Order* of the *Golden Fleece*.

Philip I. King of *Spain*, held in 1500, at *Bruxelles*, a Chapter of the *Order*, where he exempted the Knights from paying at their Reception 40 Gold Crowns, as order'd by the Article 62 of the Statutes. *Charles* I. his Son, afterwards Emperor, under the Name of *Charles* V. made, likewise, several Changes and Declarations on the Statutes, in the Chapter held at *Ghent* in the Year 1516. Among others he increased the Number of the Knights from 24 and 30, as far as to 51, the Chief and Sovereign included; and as they were obliged to wear always the Grand Collar of the *Order*, and it should appear, which was troublesome, he order'd that it should be wore for the future, on *Christmass*, *Easter*, the Feast of the *Pentecost*, at the Feast of St. *Andrew*, Patron of the *Order*, at the Obsequies of Knights, in the ordinary and extraordinary Assemblies, and in the other Ceremonies, marked by his Ordinance, and that at other Days, the Knights should only wear a *Golden Fleece*, fasten'd to a Gold Tape, or a Silk Ribband.

Fortune having not favour'd that Emperor, towards the latter End of his Reign, as it had done at first, made him think of retiring from the World; therefore, being at *Bruxelles*, in 1557; he resigned his Dominions in *Germany* to his Brother *Ferdinand*, and the *Spanish* Monarchy to *Philip* II. his Son. But as the Grand Mastership of the *Order* of the *Golden Fleece*, belonged to *Spain*, he made, likewise, his Son Grand Master of that *Order*.

This new King of *Spain* made likewise some Changes in the Statutes, in the Chapter held at *Ghent*, in the Year 1559; he order'd that the black Mantles and Chaperons, which till then had been but of Cloth, should be henceforwards of black Velvet, and given to the Knights and Officers by the Sovereign. And as the *Order* had been instituted for the Propagation of the Faith; he order'd, according to the Statutes, that no body suspected of Heresy should be received in it; and obliged the Knights before they proceeded to the Election of a new one, to swear that they should elect no Heretick, or suspected of Heresy.

The Knights were antiently elected by the Plurality of the Votes, in the Chapters, and their Number was fixed to fifty-one, by the Emperor *Charles* V. But *Philip* II. wanting that the Creation of those Knights should depend entirely on him, and on the Sovereigns of the *Order*, he obtained in the Year 1572, from Pope *Gregory* XIII. a Brief, which granted him the Power to confer that *Order* when he should think fit, and to whom he pleased, without the Consent of the Knights.

Pope *Clement* VIII. granted the same Thing to *Philip* III. in the Year 1596, and at present the Number of the Knights is not limited.

The Kings of *Spain* have sent the Collar of the *Order of the Golden Fleece* to a great Number of Sovereigns; for without mentioning all the Emperors who have succeeded *Charles* V. till now, *Francis* I. *Francis* II. and *Charles* IX. Kings of *France*; *Ed.* IV. *Hen.* VII. and *Hen.* VIII. Kings of *England*, of *Scotland*, of *Bohemia*, of *Hungary*, of *Poland*, of *Naples*, of *Sicily*, of *Portugal*, of *Denmark*, of *Sweden*, and a great Number of other sovereign Princes of *Germany* and *Italy*, have took it as an Honour to be of that *Order*; which engages me to give here, besides the *Chronology of the Succession of the Grand Masters and sovereign Chiefs thereof*, that of all the *Knights*, who are come to our Knowledge to this present Time: The first Column contains the Years of Christ, the second the Names of the Grand Masters, *&c.* and the third the Years of their Mastership. Therefore,

CHRONOLOGICAL SUCCESSION *of the* Grand Masters *and* Sovereign Chiefs *of the* Order *of the* Golden Fleece, *in* Spain.

1429	PHILIP, called the *Good*, Duke of *Burgundy*, &c. Institutor, first Chief, and Sovereign of the *Order*.	38
	KNIGHTS.	
	William de Vienne.	
	Regnier Pot.	
	John de Boulais.	
	Roland de Utkercke.	
	Anthony de Vergy.	
	David de Brimeu.	
	Hugh de Lannoy.	
	John de la Clyte.	
	Anthony de Thoulonjon.	
	Peter de Luxembourg.	
	John de la Trimouille, a *Frenchman.*	
	Guillebert de Lannoy.	
	John de Luxembourg.	
	John de Villers.	
	Anthony de Croy.	
	Florimond de Brimeu.	
	Robert de Mamines.	
	James de Brimeu.	
	Baudouin de Lannoy, *called the Stoterer.*	
	Peter de Beaufroimont.	
	Philip de Ternant.	
	John de Croy.	
	John de Crequy.	
	John de Neufchatel.	
	Frederick, *called* Valeran, *Earl of* Meurs.	
	Simon de la Leign.	
	Andrew de Thoulonjon.	
	John de Meleun.	
	James de Crevecœur.	
	John de Vergy.	
	Guy de Pontailler.	
	Baudot de Noyelles.	
	John *Bastard of* Luxembourg.	
	Charles *of* Burgundy.	
	Roprecht *of* Vernenbourg.	
	Thibaut *Lord of* Neufchatel, *&c.*	
	Charles *Duke of* Orleans.	
	John *Duke of* Britanny.	
	John *Duke of* Alençon.	
	Matthew de Foix.	
	ALPHONSUS V. *King of* Arragon.	
	Francis de Borsele.	

Renaud de Brederode.
Henry de Borſele.
John *Lord of* Fontaine, *on the River* Somme.
Drieu de Humier.
JOHN I. *Duke of* Cleves.
John de Guevara.
Pedro de Cordoua.
John de Lannoy.
James de Lalain.
John de Neufchatel.
John *of* Burgundy.
Anthony *Baſtard of* Burgundy, *Count of* Roche, *in the* Ardennes, *&c.*
Adolphus *of* Cleves.
John *of* Coymbre.
JOHN II. *King of* Arragon.
Adolphus *the Younger*, *Duke of* Guelderland, *&c.*
Thibaut *of* Neufchatel.
Philip Pot.
Louis *of* Bruges.
Guy *of* Roye, *&c.*
1468 CHARLES, *called the* Bold, *Duke of* Burgundy, *&c. ſecond Chief, and Sovereign of the* Order. 10

KNIGHTS.

EDWARD IV. *King of* England.
Louis *of* Chalon.
John *of* Damas.
James *of* Bourbon.
James *of* Luxembourg.
PHILIP *Duke of* Savoy, *&c.*
Philip *of* Crevecœur.
Claude *of* Montaigu.
FERNANDEZ, *King of* Arragon, *&c.*
FERDINAND, *King of* Naples, *&c.*
John *of* Rubempré.
Philip de Croy.
John *of* Luxembourg.
Guy de Brimeau.
Engelbert, *Earl of* Naſſau.
1478 MAXIMILIAN, *Duke of* Auſtria, *&c. third Chief and Sovereign of the* Order. 42

KNIGHTS.

William d'Egmont.
Wolfart de Borſele.
Joſſe de Lalain.
James de Luxembourg,
Philip *of* Burgundy.
Peter *of* Luxembourg.
James *of* Savoy.
Bertremy *of* Licktenſtein.
Claude *of* Thouloujon.
John de Ligne.
Peter de Hennin.
Baudouin de Lannoy.
William de la Baume.
John de Berges.
Martin de Polheim.
Philip *of* Auſtria, *&c.*
1519 PHILIP I. *King of* Caſtille, *&c. fourth Chief and Sovereign of the* Order. 1

KNIGHTS.

FREDERICK *of* Auſtria.
HENRY VII. *King of* England.
ALBERT *Duke of* Saxony.
Henry *of* Wittehem.
Peter de Lannoy.
Everard *of* Wirtemberg.
Claude *of* Neufchatel.
John I. *Count of* Egmont.
Chriſtopher Prince.
John *of* Cruninghe.
Charles de Croy.
William de Croy.
Charles de Meleun.
James *of* Luxembourg.
Wolfang de Polheim.
Iſtel Frederick *of* Zollern.
Cornelius de Berghes.
Philip *of* Burgundy.
Michael de Croy.
John *of* Luxembourg.
Charles *of* Auſtria.
HENRY VIII. *King of* England.
Paul *of* Liecktenſtein.
Charles *Count of* Lalain.
Wolfgang *of* Furſtemberg.
John Manuel *of* Belmonté, *&c.*
Floris d'Egmont.
James de Leornes.
Henry *of* Naſſau.
Ferri de Croy.
Philibert de Vere.
1520 CHARLES, *King of* Caſtille, *afterwards Emperor, Vth of the Name, fifth Chief and Sovereign of the* Order. 36

KNIGHTS.

FRANCIS I. *King of* France.
FERDINAND I. *Emperor of the* Romans.
FREDERICK, *Count Palatine*, &c.
JOHN *of* Brandebourg, *Vth of the Name.*
Guy de la Baume.
Hoier *of* Mansfeldt.
Laurentius de Gorevod.
Philip de Croy.
James de Gavre.
Anthony de Croy.
Anthony de Lalain.
Charles de Lannoy.
Adolphus *of* Burgundy.
Philibert *of* Chalon.
Felix *of* Werdenbergh.
EMANUEL, *King of* Portugal.
LOUIS, *King of* Hungary.
Michael *of* Wolkenſtein.
Maximilian *of* Hornes.
William *of* Ribaupierre.
James II. *Baron of* Trazegnies, *&c.*
John de Waſſenaer.
Maximilian *of* Berghes.
Francis de Miluen.
John *Earl of* Egmont, *&c.*
Fradriquez *of* Toledo.
Diego Lopez de Pacheco.
Diego Hurtado de Mendoca.
Inigo de Velaſco.
Alvaro de Zuniga.
Antonio Manriques de Lara.
Fernandez Remontfolck.
Peter Anthony Sanſeverino.
Fadriques Henriquez de Cabrera.
Alvaro Perez Oſorio.
CHRISTIAN II. *King of* Denmark.
SIGISMOND I. *King of* Poland.
James *of* Luxembourg.
Adrian de Croy.
JAMES III. *King of* Portugal.
JAMES V. *King of* Scotland.
Fernandez d'Arragon.
Pedro Hernandez de Velaſco.
PHILIP, *Duke of* Bavaria, *called the* Warrior.
GEORGE, *Duke of* Saxony.
Bertrand de la Cueva.
Andrew Doria.
Philip *of* Auſtria.
Renaud de Brederode.
Ferrante Gonzaga.
Nicholas *Count of* Salms.
Claudius de la Baume.
Anthony de Berghes.
John de Hennin.
Charles *ſecond*, *Earl of* Lalain.
Louis *of* Flanders.
George Schenck.
Philip de Lannoy.
Philip de Lannoy, *Lord of* Molembais, *&c.*
Alphonſo d'Avalos Aquino.
Franciſco de Zuniga.
Maximilian d'Egmont.
Renatus de Châlon.
MAXIMILIAN, *Emperor of the* Romans.
Inigo Lopez de Mendoça, *&c.*

Fernandez Alvares *of* Toledo.
Cosme *of* Medicis.
ALBERT, *Duke of* Bavaria.
EMANUEL PHILIBERT, *Duke of* Savoy, *&c.*
OCTAVIO FARNESE.
Manrique de Lara.
Frederick, *Count of* Furstemberg.
Philip de Lannoy.
Joachim de Rye.
Pontus de Lalain.
Lamoral, *Count of* Egmont.
Claudius de Vergy.
James de Ligne.
Philip de Lalain.
Maximilian *of* Burgundy.
Peter Ernest, *Count of* Mansfelt.
John de Ligne.
Peter de Verchin.
John de Lannoy.
Pedro Fernandez de Cordoua, *&c.*
1556 PHILIP II. *King of* Castille, *&c. sixth Chief, and Sovereign of the* Order.

KNIGHTS. 42

HENRY *the Younger, Duke of* Brunswick, *&c.*
FERDINAND, *Archduke of* Austria.
Philip de Croy.
Gonçale Fernandez de Cordoua.
Charles *of* Austria.
Louis Henriquez de Cabrera.
Alonso *of* Arragon.
Charles *of* Berlaymont.
Philip de Stavele.
Charles de Brimeu.
Philip de Montmorency, *a* Frenchman.
John de Berges.
William *of* Nassau.
John *of* Montmorency, *a* Frenchman.
John *Count of* Oostfriseland, *&c.*
Vladislas, *Baron of* Bernseyn.
Ferdinand Francis d'Avalos d'Aquino.
Anthony Maria Doria.
Sforça, *Count of* Santa Fiora, *&c.*
FRANCIS II. *King of* France.
Guido Baldo de Montfeltro de la Rouere.
Mark Anthony Colonna.
Philip *of* Montmorency, *a* Frenchman.
Baudouin de Lannoy.
William de Croy.
Florent de Montmorency, *a* Frenchman.
Philip, *Count of* Ligne.
Charles *of* Lannoy.
Anthony de Lalain.
Joachim *Baron of* Neuhaus.
CHARLES IX. *King of* France.
John *of* Austria.
Erich *Duke of* Brunswick.
RODOLPHUS II. *Emperor of the* Romans.
JOHN *Duke of* Bragança.
Anthony Perez de Gusman, *and* Bueno.
Philip *of* Austria.
CHARLES EMANUEL, *Duke of* Savoy.
Louis Henriquez de Cabrera.
Louis de la Cerda.
CHARLES, *Archduke of* Austria.
WILLIAM, *Count Palatine of the* Rhine.
Francisco de Medicis.
Alexander Farnese.
Francisco Maria Feltrio de la Roüere.
Vespasian Gonzaga Colonna.
Don Carlos d'Arragon.
Diego Fernandez de Cordoua.
Horatio Caëtano.
Vincent Gonzaga.
Inigo Lopez de Mendoça.
John Fernandez Pacheco de Acugna.
MATTHIAS, *Emperor of the* Romans.
FERDINAND, *Emperor of the* Romans.
Sigismond Batori.
Pedro de Medicis.
William Ursin de Rosemberg.
Leonard de Harrach.
Horatio de Lannoy.
Marcus de Rye.
Maximilian, *Count of* Oostfriseland, *&c.*
Charles *of* Ligne.
Florent de Berlaymont.
Philip d'Egmont.
Emanuel Philibert de Lalain.
Robert de Melun, *a* Frenchman.
Alonso Felice d'Avalos.
Francis de Vergy.
Francisco Santapau.
John d'Aysburg.
1598 PHILIP III. *King of* Castille, *&c. seventh Chief, and Sovereign of the* Order.

KNIGHTS. 23

ALBERT, *Archduke of* Austria.
Louis Henriquez de Cabrera.
Ferrante Gonzaga.
John de la Cerda.
Anthony Alvarez de Toledo.
Charles Philip de Croy.
Charles Philip de Croy, *Marquis* d'Havré.
Philip de Croy.
Philip William *of* Nassau.
Lamoral, *Count and Prince of* Ligne.
Charles d'Egmont.
Charles de Vergy.
Pedro Caëtano.
SIGISMOND III. *King of* Poland.
Ranucio Farnese.
Diego Henriquez de Gusman.
MAXIMILIAN, *Count Palatine of the* Rhine.
Hermand Count de Berg, *&c.*
Don Carlos d'Arragon.
Ambrose Spinola.
CÆSAR D'ESTE.
ALEXANDER PICO.
Camillo Caracciolo.
Matheo de Capaca.
Marçio Colonna.
Inigo d'Avalos d'Aquino.
Virgino Ursini.
Louis Caraffa de Marra.
Andrea Mattheo Aquaviva.
Fabricio *of* Braciforte.
Anthony *of* Moncada *and* Arragon.
John Andrew Doria.
Pedro Telles Giron.
John *of* Arragon.
Alonzo Diego Lopez *of* Zuniga, *and* Sotomayor.
Francisco Colonna.
Rodrigo Ponce *of* Leon.
Francisco Gonzaga.
Frederico Landi.
GEORGE LOUIS, *Landgrave of* Leuchtembergh.
Paul Sixtus Trauthson.
Philip *of* Austria.
Charles *of* Longueval, *a* Frenchman.
Frederick, *Count of* Bergh.
Charles Emanuel *of* Gorrevod.
Anthony de Lalain.
John de Croy.
Manuel Alonzo Perez de Gusmand.
Claudis de Vergy.
WOLFGANG WILLIAM, *Count Palatine of the* Rhine.
WLADISLUS SIGISMOND, *King of* Poland *and* Sweden.
PHILIBERT d'Este.
Paulo Sangro.
Philip d'Arschot.
Charles Alexander de Croy.
Cristopher de Ryez, de la Palu.
Wratislas, *Count of* Furstemberg, *&c.*
John *of* Oostfriseland, *&c.*
John Orderick, *Prince of* Eggemberg.
Sdenco Adalberto Poppel.
John George, *Prince of* Hohenzollern.
1621 PHILIP IV. *King of* Castille, *eighth Chief, and Sovereign Chief of the* Order. 46

KNIGHTS.

KNIGHTS.

Francisco Diego Lopez de Zenuga, *and* Sotomayor.
Charles *of* Lalain.
Francis Thomas Doyselay.
Louis *of* Velasco.
William *of* Melun.
Charles, *Duke of* Troppan, *&c.*
Leonard Elfrid, *Count of* Meggaw.
Charles *of* Austria.
Francis Christopher Kevenhuller.
Philip *of* Rubempré.
Alexander *of* Bournonville.
Alexander, *Prince of* Chimay.
HONORATO GRIMALDI II. *Prince of* Monaco.
Paul Savello.
Fabricio Carafa.
Francisco Marino Caracciolo.
FERDINAND ERNEST, *Emperor of the* Romans.
LEOPOLD, *Archduke of* Austria.
Albert Wenceslas Eusebe.
John, *Count of* Nassau.
Alonzo Fernandez de Cordoua, *&c.*
George Louis, *Count of* Schwartzemberg.
Tiberio Vincenzo.
Maximilian, *Count of* St. Aldegonde.
John *of* Montmorency, *a* Frenchman.
Maximilian II. *of* Hennin, *Count of* Bossu.
Tiberio Carafa.
Rambauld, *Count of* Collalto.
John James, *Count of* Bronkhast.
Ernest, *Count of* Isemberg.
Octavio Visconti.
Louis *of* Arragon.
Albert de Ligne.
Otho Henry Fuger.
Charles *of* Harath.
Nicolas, *Count of* Hesterhazi.
Philip Spinola.
Godfrey-Henry, *Count of* Papenheim.
Adam, *Count of* Waldstein.
John Baptista de Capoua.
Paul de Sangro.
Hector Ravachier.
Claude de Lannoy.
BALTHASAR CHARLES, DOMINICK *of* Austria, *Prince of* Spain.
FRANCIS D'ESTE.
JOHN CASIMIR, *King of* Poland.
Sifrid Christopher, *Baron of* Preuner.
WILLIAM, *Marquis of* Baden.
Francis Maria Caraffa.
Charles Tuco.
Balthasar Philip, *of* Gand.
William, *Count of* Salviati.
Wenceslas Eusebe Poppel.
Antony Udalrick, *Prince of* Eggemberg.
Henry Schlich.
Octavio Picolomini.
Francisco, *Marquis of* Alcaretto.
FERDINAND CHARLES, *Archduke of* Austria.
Philip Francis, *Duke of* Aremberg.
Sigismond Louis Elfred.
Eugenius *of* Hennin.
Philip Francis Charles, *of* Croy.
Claudius Lamoral.
Philip de Croy.
Eustachius de Croy.
George Adam Borzita.
John Louis, *Count of* Nassau.
John Alphonsus Pimentel.
Nicolas Maria de Gusman.
Diego Lopez Pacheco.
FERDINAND, *King of* Hungary.
Paul Palsi.
John Wichard.
Sigismond Sfondrati.
Charles Albert.
John Adolphus, *Count of* Schwartzemberg.
Diego *of* Arragon.
Louis William, *of* Moncada.
PHILIP WILLIAM, *Count Palatin of the* Rhine.
John Francis Thrautson.
Marc-Antony Colonna.
Francisco Filomarino.
John Maximilian, *Count of* Lamberg.
LEOPOLD IGNATIUS, *Emperor of the* Romans.
Louis Ignatius Fernandez de Cordoua.
Manuel Lopez de Zuniga.
Bernard Ignatius Barzita.
Maximilian, *Count of* Waldvein.
John Christopher, *Count of* Puechaim.
Hannibal, *Marquis of* Gonzagua.
CHARLES D'ESTE.
Nicolas Ludovisio.
John Ferdinand, *Count of* Pozzia.
Philip Emanuel de Croy.
Julius Savelli.
Fabricio Pignatello.
Francis Caëtano.
Francis Desiratus, *Prince of* Nassau.
John Baptist Borghese.
Francis, *Count of* Vesseleny.
Francis Eusebius, *Count of* Pettin.
George Louis, *Count of* Sinzendorff.
John *of* Rothal.
SIGISMOND FRANCIS, *Archduke of* Austria.
Nicolas Esdrin.
Walter *of* Leslie.

1667 CHARLES II. *King of* Castille, *ninth Chief and Sovereign of the Order.* 33

KNIGHTS.

Francis Albert, *Count of* Harrach.
Philip Hippolite Charles Spinola.
Bruay, *Baron* D'Andle.
Philip Caëtano.
Theodore Trivulce.
Charles, *Baron of* Batteville.
Raymond, *Count of* Montecuculi.
Manuel Zarmento.
MICHAEL KARIBUT WIESNOWISKI, *King of* Poland.
Charles *of* Baufremont.
John Francis de la Cerda.
Pedro *of* Portugal.
Diego *of* Arragon.
David Ungnard.
John Hartwich.
Philip, *Count of* Egmont.
Ferdinand Joseph de Croy.
Laurentius Onuphre Colonna.
Fabricio Caraffa.
Matheo Barberini.
John Baptist Ludovisio.
Theobaldo, *Marquis of* Visconti.
Alphonsus d'Avalos.
The Count of Diedrichtein.
Alexander, *Prince of* Bournonville.
John *of* Velasco.
Albert, *Count of* Zinzendorf.
Charles *of* Lorrain.
John Hubert.
Leopold Ignatius, *Count of* Konigseg.
Charles Ferdinand, *Count of* Walstein.
ALEXANDER, *Prince of* Parma.
Ernest Ferdinand de Croy.
Antonio *of* Toledo.
Pedro Nunez.
Fabricius d'Arragon.
Antonio, *Count of* Trotto.
Eugene, *of* Montmorency, *a* Frenchman.
John Charles de Batteville.
Otho Henry d'Alcaretto.
CHARLES II. *Duke of* Lorrain *and* Bar.
Charles, *Count of* Boromeo.
Cesar, *Marquis of* Visconti.
Charles *of* Arragon.
Charles Eugene *of* Aremberg.
JOACHIM ERNEST, *Duke of* Holstein.

Fabricio *of* Arragon.
Conrad Balthasard, *Count of* Starenbergh.
——— Caraffa, *Duke of* Matalone.
Sigismond, *Count of* Diedrichtein.
Paul, *Count of* Hesterhazi.
Octave de Legne.
——— *Prince* de Pietra Persia.
Ernest Rutger, *Count of* Starenbergh.
Henry de Melun.
——— Carafa, *Prince of* Belveder.
Henry Louis, *Prince of* Ligne.
Philip Charles Francis d'Arscot.
Henry, *Count of* Mansfelt.
JOSEPH, *Archduke of* Austria, *King of* Hungary.
Francis Lopez Pacheco d'Acuna.
James Gomez Sarmiento.
——— *of* Guevara.
——— *of* Cordoua.
——— *of* Barberini.
Eugene Louis *of* Bergh.
Louis, *Count of* Egmont.
Eugene Alexander, *Prince* de la Tour Taxis.
Ferdinand Gaston Lamoral de Croy.
Philip de Hennin.
FRANCIS EUGENE, *Prince of* Savoy.
Gothlieo, *Count of* Windisgratz.
——— *Count of* Weisenwolf.
Henry, *Count of* Staremberg.
——— *Count of* Rosenberg.
Frederick, *Prince of* Schwartzenbergh.
——— *Count* Colobrat.
Francis Ulderick, *Count of* Kinsky.
——— *Count of* Sorgor.
——— *Count of* Kaunitz.
Antonio, *Count* Carafa.
1700 PHILIP *of* France, *Vth of the Name, the present King of* Spain, *tenth Chief, and Sovereign of the* Order.

KNIGHTS.

Louis, *Duke of* Burgundy.
Charles, *Duke of* Berry.
Philip, *Duke of* Orleans.
ALBERT, *Prince Electoral of* Bavaria.
Louis Al. *of* Bourbon, *Count of* Toulouze.
Adr. Maur. *Duke of* Noailles.
Andrew d'Avalos, *Prince of* Montesarchio.
John Jer. Aquaviva, *of* Arragon.
Louis Joseph, *Duke of* Vendome.
D. Hel. Tserclaes, *Count of* Tilly.
Louis Fr. d'Harcourt.
N. *Marquis* de Lede.
Louis Fr. *Duke of* Bouflers.
N. *Count* d'Autel.
N. de la Cueva, *Duke* d'Albuquerk.
James, *Duke of* Berwick.
N. *Marquis* de Bay.
N. *Prince* Pio.
N. *Marquis* de Crevecœur.
N. *Marquis* de Ceva Grimaldi.
N. *Marquis* de Listenois.
N. *Duke* d'Astri.
Marquis de Beaufremont.
N. *Count* d'Estare.

Note, That there were several other *Orders* in *Spain*, which are, at present, either extinct, or entirely disregarded, as those of the *Lys*, and of *St. Saviour*, in *Arragon*, &c.

The *Order of* ST. SAVIOUR, in *Arragon*, was instituted by *Alphonsus* I. in the Year 1118. That Prince wanting to reward the Merit and Courage of the *French* and *Spanish* Lords, who had helped him to expel the *Moors* from *Sarragossa*, he instituted at *Montreal* a Society of Knights chosen from among them, whom he loaded with Presents; and for a Mark of their Dignity, ordered they should wear, on a white Habit, an Image, or Representation as of God the Father, in a Papal Dress, with a triple Crown.

Afterwards the *Order* having increased, and been strengthened by the large Revenues given to it, the Knights, after they had fought nineteen Battles against the *Moors*, pursued them so warmly, that they expelled them at last entirely from the whole Kingdom of *Arragon*.—In process of Time the *Order* was reformed; and instead of the Badge they did wear before, a red Cross was given them.

The Knights made Vows of Chastity, of Obedience to their Superiors, of defending the holy Catholick Church, and to observe the Statutes of the *Order*. I cannot find any History which mentions their Increase, or their Declension; whence one may easily infer, that in process of Time they were not much regarded, and that the *Order* was extinct by Degrees; notwithstanding which, the Abbot *Giustiniani* gives us the Chronology of their Grand Masters, as far as *Charles* III. inclusive.

The *Order of the* LYS, or LILLY, was instituted in the City of *Medina del Campo*, in the Year 1410, by *Henry* III. of *Castile*, elected King of *Arragon* in the same Year. It is pretended, that the Collar of that *Order* was composed of Vases full of Lillies, interwoven with Griffins; at the End whereof hung a Medal, where was the Image of the blessed Virgin.—This *Order* was commonly called, in *Spain*, *de la Yarra*.

The Engagement of those Knights was much like that of all the others, *viz.* to defend the Catholick Faith, to protect the Widows and Orphans, and to obey their Superiors.

We find no Traces of the Habit of Ceremony of this *Order*, nor of the Pope's Approbation; and it has been abolished, like a great Number of others, through the Vicissitude of Time.

Note, That from *Spain* I'll pass into *Portugal*, where I find several *Orders* still subsisting in their full Lustre; *viz.* those of *Avis*, of *St. James*, of *Montese*, of *Christ*, &c.

The *Order of* AVIS, was instituted in 1147, by *Alphonsus Henriquez*, King of *Portugal*, in Gratitude for the seasonable Succours, which Don *Ferdinand Monteyro* brought then to him, at the famous Siege of *Lisbon*.

This military *Order* was instituted under the Protection of the Virgin *Mary*, and *Monteyro* was made Grand Master thereof by the King; who gave the Knights the Castle of *Mafra*, which was under the City, and of which they had render'd themselves Masters during the Siege, because that Expedition caused the Surrender of the Place, and the Defeat of more than 200,000 *Moors*. In the following Expeditions, they always accompanied the King, and acted always their Part in the most perilous Enterprizes. A Knight of this *Order* called *Gerard*, with the Soldiers under his Command, surprised in the Night-time the Centry of the Gate of *Evora*, cut the Throats of the whole Corps de Guard, and put the whole Garrison to the Sword. The King gave him the Government of that City, and commanded that the *Order* should be called the *Knights of Evora*. He also presented *Gonsales de Vegas*, second Grand Master, with the royal Palace of the City, the old Tower, the Farms and Vineyards which were under the Place; together with the royal Palace he had in the City or Fort of *Santare*; of the Borough of *Syrigio*, and of the Fortress of *Kulucke*, with the Domains depending thereon.

In this City the Knights established their Residence, in the Royal Palace near the Church of St. *Michael the Archangel*, and lived under the Rule of St. *Benedict*, and very laudable Institutes; according to which they made Vows of Chastity, Obedience, and to defend the Catholick Religion against the *Moors*. *Antony Brandon*, in his Description of *Portugal*, pretends that in the Year 1164, they obtained a Confirmation of the Apostolical See.

Mean while the Christians extending their Limits more and more, and confining the *Moors* within narrower ones, it was proposed to the Court of *Portugal*, to build a good Fortress in a Place twelve Miles distant from the Frontiers of the Enemy, called the *Castle of Bid*, which had been erected by a *Moor*, and whose natural Situation was very advantageous.—That Castle was given, in the Year 1180, by King *Alphonsus* to the Knights of *Evora*. *Roderic Mendez de Silva* has wrote, that the Grand Master and Knights went to visit the Place, and that having perceived there two Eagles on an Oak, they took it for a good Omen, and therefore called the Place *Avis*,

Avis, which signifies Bird. They built a Castle upon it, very well fortified, which serv'd them for their own common Habitation, and had other Houses built for the Inhabitants. All those Edifices being perfected in 1184, and the Fortress esteem'd impregnable, the Grand Master and the Knights went to live in it. The Liberality of the Kings, which they had well deserved, did not stop there. *Sancho* I. added, besides, to that Gift, the Tower of *Alcanden*, and the Castles of *Algedrin* and *Girumin*, which was confirmed by *Alphonsus* II. third King of *Portugal*. Pope *Innocent* III. confirmed likewise the Statutes of the *Order* in 1204, and took it under the Protection of the holy See.

It is certain, that at that Time the military *Orders* in *Spain* did not wear Crosses on their Habits as did those of the *Holy Land*, but were only cloathed in white; of which *Joseph* of *Michaelis* has given us a Representation, which is much like the antient Habits of the *Romans*, and where the Knight holds in his Hand a Flag charged with a Cross gules. They have been a long while cloathed in that Manner, in the Armies, without being distinguished from other Soldiers, but by a Sack; till, at last, they took a Cloth Cloak, where there was on the left Side a green Cross flowerdelised at the four Extremities, and bordered with a gold Thread. They were also permitted to wear at their Neck a gold Cross of the same Figure, even with black Cloaths out of their Assemblies: They used to join the Knights of *Calatrava*.—*Joseph* of *Michaelis* was of Opinión, that when Don *Pedro* of *Portugal* gained the memorable Victory of *Alcabaretta*, to which the Knights contributed much, he separated them from the *Order* of *Calatrava*, as a Kind of Reward; and gave them for Arms a Cross gules, with two Eagles, one before the other. Father *Mendo* relates, that that Cross was given them by Don *Juan* King of *Portugal*, who separated them afterwards from the *Order* of *Calatrava*; and that they received it from Pope *Boniface* IX. which is the more likely, because that King and Pope were Contemporaries.

In 1580, this *Order* was submitted to the *Spanish* Domination, together with the whole Kingdom of *Portugal*; but in 1649 they re-entered together, under that of the Kings of *Portugal*.

With regard to the Grand Masters, all we know of them is, that they were Elective as far as the twentieth, and at the Nomination of the general Chapters. We do not know precisely the Time. Afterwards six Princes of the Blood were risen to that eminent Post by apostolical Authority, till King *John* III. appropriated it to himself; whence it has been since inseparably annexed to the Crown.

The *Order of* ST. JAMES, in *Portugal*, is nothing else but a Branch of the same *Order* in *Spain*: For the Kings of *Castille* and *Portugal* having each their particular Interests, which divided them, the *Portuguese* Knights of St. *James*, were obliged likewise to separate themselves from the *Spanish*.

That Separation was made under *Dennis* of *Portugal*, who carried his Knights along with him against the *Moors*; and because they were grown very rich, and very powerful in his Kingdom, he judged proper to substract them from the Obedience of the Grand Masters of *Castille*, and gave them *John Fernandez* for their Grand Master in *Portugal*; after he had obtained Leave so to do, from the Popes *Nicholas* IV. and *Martin* V.

They are cloathed like the *Spanish* Knights of St. *James*, viz. in white; all the Difference is, that they wear a gold Thread along their red Cross: They live, likewise, in the same Manner, and follow the same Institutes.

Ever since their Separation they have always elected their Grand Masters, who first resided at *Alcazar*; but they removed afterwards to *Palmela*, into the Convent of the Religious: They possess sixty Commanderies, which together bring a yearly Revenue of a hundred and twenty thousand Ducats.

At last the Dignity of Grand Master was annexed to the Crown by King *John* II. and in the Year 1580, it passed to the Kings of *Castille*; but in the Year 1640, the Crown of *Portugal* being restored to its Rights, the Knights returned likewise to the Obedience of their Kings, who ever since have always had the Direction of the *Order*.

The *Order of* CHRIST, was instituted in 1317, by *Denis* King of *Portugal*, who sent at that Time Don *Juan Lorenzo* in Embassy to *Rome*, for the Approbation of Pope *John* XX. which he obtained by a Bull of the 14th of *March* 1319.

The Badge of the *Order* is a patriarchal Cross, Gules bordered Or, in the Middle whereof is another white Cross, which they wear round their Neck, and on the Left Side of their Mantle.

The Foundations of that *Order* were established on the Revenues of the unhappy Templars. The King marked at first their Residence at *Castro Marino*, in the Algarves, and afterwards at the Castle of *Thamar* near *Santaren*. In Process of Time they obtained *Castel-Blanco*, *Longrona*, *Almoriul*, and several other Places and Fortresses.

Their first Grand Master was *Gilles Martinez*. They made the three solemn Vows of the Rule of *Citeaux*, and could possess nothing in proper. But *Alexander* VI. exempted them of that Rule, and permitted them to marry, and to dispose of their Estates by Testament, on Condition to give a Third of their Revenues to the House of *Thamar*.

In the Year 1432, Don *Edward* obtained from the Pope the Direction of the *Order*, and the Tithes from all their Revenues. In 1449, Fr. Don *Henry* reformed the *Order* with the Consent of Pope *Eugenius* IV. *Alphonse* V. gave them the ecclesiastical Revenues which were in his Dominions beyond Sea; and Pope *Callixt* III. confirmed that Donation.

The Grand Master *Emanuel*, who succeeded *John* II. to the Throne of *Portugal*, under the Name of *Emanuel* I. increased much this *Order*; for after he had conquered several Provinces in the East, with the Assistance of his Knights, he gave them several Commanderies, thirty whereof were for those who lived in *Africa*, for the Defence of the Places they had conquered. The same Prince assembled several general Chapters, to reform divers Abuses which had crept into the *Order*.

This *Order* possesses more than 450 Commanderies, which bring above 100,000 *l.* Sterling of Revenue: To which no Body can pretend, unless he has fought three Years against the Infidels. There are among these Knights Commanders, Grand Crosses, Simple Knights, and Priests, who reside in the House of *Thamar*.

There have been twelve Grand Masters of the *Order of Christ*, till the Time of King *John* III. to whom Pope *Adrian* VI. granted the Administration thereof, in the Year 1522; and *Julius* III. in 1550, united for ever the Grand Mastership, and that of the *Order* of *Avis* to the Crown of *Portugal*.

The Habit of Ceremony of these Knights consists in a large Gown of white Stuff, fastened round the Neck with two white Strings, hanging down to the Ground; and they wear on their Breast the Cross of the *Order*.

Note, That here follows a *Chronological Succession* of the *Grand Masters of the Order of Christ*. The first Column contains the Number of Grand Masters, the second the Years of Christ, the third their respective Names, *&c.* the fourth their Years of Mastership.

CHRONOLOGICAL SUCCESSION *of the* Grand Masters *of the* Order *of* CHRIST, *in* Portugal.

1	1318	D. GILLES MARTINEZ, buried at our Lady of *Thamar*.	3
2	1321	D. JOHN LORENZO, Embassador at *Rome* for the Confirmation of the Order.	5
3	1326	D. MARTIN GONZALEZ LEITANO.	8
4	1334	D. STEPHEN GONZALEZ LEITANO, Don *Martin*'s Brother.	9
5	1344	D. RODERIC ANEZ, abdicated.	14
6	1356	D. NUNNO RODRIQUEZ, under whom the *Order* was transferred from *Castro Marino* to *Thamar* in 1366.	15
7	1373	D. LOPEZ DIAZ, Nephew of Queen *Eleonar*, Wife of King D. *Ferdinand*.	46
8	1419	The Infant Don HENRY, Son of King	Don

		Don *Juan*, a great Benefactor to the *Order*.
9	1460	The Infant DON FERDINAND, Son of King Don *Edward*.
10	1470	D. DIEGUE, Duke of *Visco*, the Infant's Son.
11	1485	D. EMANUEL, Son of the Infant Don *Ferdinand*, Duke, afterwards King, a great Benefactor to the *Order*.
12	1522	D. JOHN III. perpetual Administrator, with his Successors, by a Bull of the Pope.
13	1557	D. SEBASTIAN, King.
14	1578	D. HENRY, Son of King *Emanuel*, a Cardinal.
15	1580	D. PHILIP II. King of *Spain* and *Portugal*.
16	1598	D. PHILIP III. King of *Spain* and *Portugal*.
17	1621	D. PHILIP IV. King of *Spain* and *Portugal*.
18	1640	D. JOHN IV. Duke of *Bragança*, King of *Portugal*.
19	1656	D. ALPHONSE IV. Son of D. *John* deposed.
20	1667	D. PETER, *Alphonse*'s Brother.
21	1707	D. JOHN V. the present King of *Portugal*, one of the most judicious, and most excellent Princes of the Age.

Note, That there was another *Order* in *Portugal*, called the *Order of the Wing of St.* Michael, instituted by King *Alphonse*, in the Year 1171, in Memory of a signal Victory he gained over *Abbarat* a Moorish King of *Seville*, in the Plain of *Santarene*. He gave the Knights for Badge of their *Order* a red Cross, in Form of a Sabre, and red Lillies on a white Habit, with this Motto, *Quis ut Deus? Who is like God.* — The Mark they wore on their white Mantle, was a Wing Purple, within a Circle of Gold Rays. These Knights followed the Rule of *Citeaux*, and vowed to defend the Widows and Orphans, and to defend the Catholick Church. We do not find that their *Order* had been confirmed by any Pope; but no Body could be admitted into it, without Proofs of Nobility. At last, Time which destroys all Things, has also extinguished this *Order*.

Note also, That from *Portugal* I'll pass into *Savoy*, where I'll find the *Orders* of St. *Maurice*, and St. *Lazare*, and of the *Annunciade*.

The *Order* of the ANNUNCIADE was instituted in *Savoy*, in 1355 or 1362, by *Amadeus*, called the *green Earl*. *Favin* says, that the Occasion of that Institution was a Bracelet woved in Form of Love-Knots, which a Lady, whom *Amadeus* loved, presented to him; and that, by Reason thereof, the *Order* was first called the *Order of Love-Knots*; the Collar being composed of *Love-Knots*, on which were these four Letters, F. E. R. T. which signified *Frapez, Entrez, Rompez, Tout.*

But *Guichenon*, who has wrote the History of *Savoy*, says, that *Favin* was mistaken; that the *Order* was called at first, the *Order of the Collar*, because the Collar was made like that of a Greyhound. That far from *Amadeus* having the Thought of making an *Order* on so slight a Cause, as the Bracelet of a Lady, and of putting a Device upon it, subject to so burlesque an Interpretation; he only did it thro' a Motive of a particular Piety and Devotion he had for the blessed Virgin, and to the *Order* of the *Carthusians*; of which he wants no other Proof but the Foundation of the *Charter-House*, of *Pierre-Chatel* in *Bugey*; whereby it is enacted, that there shall be in that House fifteen *Carthusians*, to say Mass every Day in honour of the blessed Virgin, and for the Salvation of fifteen Knights of his *Order*.

Others pretend, that the same *Amadeus* VI. wanting to eternize the Memory of his Grandfather *Amadeus* IV. who by his Courage and Conduct saved the Island of *Rhodes*, instituted in 1360, soon after his Marriage, the *Military Order of the Annunciade*. That the Collar he gave his Knights was composed of *Love-Knots*, in which were interwoven these four Letters, F. E. R. T. *Fortitudo Ejus Rhodium Tenuit*. But this Opinion is also contradicted by the Proofs we have, that the *Order* was not at first consecrated to the blessed Virgin, since there are found Representations of the Collar without Knots, where the four Letters F. E. R. T. are written in *Gothick* Characters, and that the Knights having took afterwards the blessed Virgin for their Protectress, those four Letters were wrote in *Latin* Characters.

But however it is certain, that *Amadeus* VIII. the green Earl's Grandson, first Duke of *Savoy*, who was elected Pope under the Name of *Felix* V. at the Council of *Basil*, consecrated this *Order* in 1434; and called it *The Order of the Annunciade*. He caused to be put at the End of the Collar an Image of the blessed Virgin, instead of that of St. *Maurice*, and changed the Love-Knots into *Cordeliers*. He gave the Collar to *Louis* of *Savoy*, Prince of the *Morea*; and to *Odo* of *Villars*, Lord of *Beau*; to *John de la Beaume*, Lord of *Valle-Fin* and *Montrevel*; to *Humbart*, Lord of *Villars-Sexil*; to *Boniface* of *Chalant*, Marshal of *Savoy*; and to *Anthony* of *Grolée*, his Counsellors in ordinary, who all swore to observe the Statutes of the *Order* digested by that Prince.

Those Statutes order'd, among other Things, that no Body noted of Infamy should be received in the *Order*. That if a Knight should happen to do something unworthy of an honest Man, the Collar should be taken from him. The Knights were not permitted to enter another *Order*. They were obliged to serve the Dukes of *Savoy*, with their Persons and Counsels, to defend the Honour of those who were oppressed; to refer the Decision of all their Differences to him. Each Knight, at his Death, was to leave 100 Livres in the Hands of the Prior, to be employ'd in the Reparations of the Cathedral Church of the *Order*. While he lived, he was to present the Church with a Chalice, and all the sacerdotal Ornaments, on which he caused his Arms to be embroider'd. When a Knight was dead, all the others were immediately informed of it, and invited to assist at the Service said for him: Each was to bring along with him four Tapers of 10 Pounds Weight, and two Servants. They wore, on that Occasion, a white Habit, like the *Carthusians*. The Service over, they gave to the Fathers of the Church, as a Present, what they had brought. But afterwards their white Habit was changed into black; and, at the same Time, the Knights were ordered to be nine Days without wearing their Collar, after one of them had been buried. The Standard, Arms, and the whole Armour of the Deceased, is also hung in the Church. Afterwards the Knights assemble for the Election of a new Brother to fill the vacant Place.

In the Year 1518, *Charles* III. being at *Chambery*, actuated by a Motive of Zeal and Devotion, consecrated anew the *Order* of the blessed Virgin, and reformed the Collar; which he composed of two Gold Branches, environed with Love-Knots and fifteen Roses; five enamell'd white, five red, and five white and red, mixed together. The Image of the Annunciation of the blessed Virgin hangs at the Collar by two Knots, called *The Knots of the Love of God* All this Ornament together is worth 200 Gold Crowns.

The Mantle of Ceremony was of Crimson Silk, reaching to the Ground, and border'd with Gold Love-Knots and Roses, lined with white Armoisin, according to the Statutes; which notwithstanding it seems that that Mantle was only for the Chief of the *Order*. *Emanuel Philibert* changed it blue, lined with white Taffetas; and lastly, under *Charles Emanuel* it was changed into an Amarante Colour, lined with blue, striped with Silver.

The Blazon of the *Order* is Gules with a Cross Argent, such as *Amadeus* wore at the Siege of *Rhodes*.

The new Statutes were sworn by the Duke of *Savoy*, who declared himself Chief and Sovereign of the *Order*, and by several other Princes of his House.

Note, That here follows the *Chronology* of the Grand Masters and Knights of the *Order of the Annunciade*, according to the Catalogue of *Capré*. The first Column contains the Years of Christ, the second the Names of the Grand Masters, *&c.* and the third their Years of Mastership.

CHRONO-

CHRONOLOGICAL SUCCESSION *of the* Grand Masters, *and* Knights *of the Order of the* Annunciade.

1362 AMADEUS VI. *Earl of* Savoy, *called the green Earl, Institutor, first Chief, and Sovereign of the Order.* 21

KNIGHTS.

Amadeus, *or* Amé, *Earl of* Geneva.
Anthony *Earl of* Beaujeu *and* Dombes.
Hugh *of* Chalons, *Baron and Sire of* Arlay.
Aymon *of* Geneva, *Lord of* Authon *and* Varey.
John *of* Vienne, *Earl of* Roland, *and Admiral of* France.
William Grandson, *Lord of* S. Croix.
William Chalamont, *Lord of* Meximieux.
Roland *of* Veissy.
Stephen, *Bastard of* La Beaume, *Lord of* S. Denis *in* Bugey.
Gaspard *of* Montmayeur, *&c.*
Barle *of* Forax.
Thennard *of* Menthon.
Amé *of* Bonivard.
Richard Musard, *an* Englishman.

1383 AMADEUS VII. *called the* Red, *second Chief, and Sovereign of the Order.* 27

KNIGHTS.

Aymon *of* Chalant, *Lord of* Fenis, *&c.*
Eudes *of* Villars, *Lord of* Montillier.
Hyblet *of* Chalant, *Lord of* Chastillon.
John de Vernay, *Lord of* Rochette.
Humbert *of* Layrieux.
Thomas *of* Geneva, *Lord of* Lullin.

1410 AMADEUS VIII. *first Duke of* Savoy, *elected Pope, in the Council of* Basil, *under the Name of* Felix V. *third Chief and Sovereign of the Order.* 30

KNIGHTS.

Louis *of* Savoy, *Prince of the* Moræa, *Uncle of Duke* Amadeus VIII.
Odo *of* Villars, *Lord of* Baux, *&c.*
John de la Beaume, *Count of* Montrevel.
Humbert de Villars-Sexel.
Boniface de Chalaut, *Lord of* Fenis.
Anthony de Grolæe.
Girard Ternier.
John de la Chambre.
John de Lugny.
Thomas, *Marquis of* Saluce.
Amé *of* Savoy, *Prince of* Piedmont.
John Panserot de Serraval.
Geoffroy de Charny.
Louis *of* Montjoy.
James de Villette.
Gaspard *of* Montmayeur.
Humbart *of* Villars.
James *of* Miolens.
Louis de Savoy, *Earl of* Geneva.
Louis, *Marquis of* Saluces.
Humbert, *Bastard of* Savoy.
Richard *of* Montchenu.
John *of* Montluel.
Manfroy *of* Saluces.
PHILIP *of* Savoy, *Earl of* Geneva.

1440 LOUIS, *Duke of* Savoy, *fourth Chief, and Sovereign of the Order.* 25

KNIGHTS.

AME *of* Savoy, *Prince of* Piedmont.
James *of* Savoy, *Earl of* Geneva.
Philip *of* Levis, *first Earl of* Villars.
Francis de Chalant, *first Earl of that Name.*
William *of* Menthon.
John *of* Seyssel.
William *of* Geneva, *Lord of* Lullin.
Francis de la Palu.
William *of* Luyrieux.
James de la Beaume.
James de la Chalant.
James *of* Montmayeur.
Peter de Grolæe.

1466 AMADEUS IX. *called the* Saint, *fifth Chief and Sovereign of the Order.* 7

KNIGHTS.

Claudius de Seyssel, *Lord of* Aix.
Louis de Chalant.
Claudius Bourgeois.
Janus *of* Geneva, *Lord of* Lullin.

1472 PHILBERT I. *Duke of* Savoy, *sixth Chief, and Sovereign of the Order.* 10

1482 CHARLES I. *called the* Warrior, *Duke of* Savoy, *seventh Chief, and Sovereign of the Order.* 9

KNIGHTS.

Hugh de la Palu.
Philibert de la Chalant.

1491 CHARLES JOHN AME, *Duke of* Savoy, *eighth Chief, and Sovereign of the Order.* 6

1497 PHILIP I. *Duke of* Savoy, *ninth Chief, and Sovereign of the Order.* 1

1498 PHILIBERT II. *called the* Fair, *Duke of* Savoy, *tenth Chief, and Sovereign of the Order.* 20

1518 CHARLES III. *Duke of* Savoy, *eleventh Chief, and Sovereign of the Order.* 50

KNIGHTS.

PHILIP *of* Savoy, *Earl of* Geneva.
Francis *of* Luxembourg, *Viscount of* Martigues.
John *of* Grueres.
Thomas *of* Valpergue.
Claudius *of* Savoy, *Lord of* Raconis.
James *of* Miolans.
Renatus *of* Chalant.
Honorat Beumaldii, *Baron de* Beuil.
John Philbert de la Palu.
William de Vergy.
Claudius de Stavaye, *Bishop of* Belley.
Francis de la Beaume.
Bartholin de Montbel.
Charles de la Chambre.
Amatus *of* Geneva, *Lord of* Lullin.
John de la Chambre, *first Marquiss of that Name.*
John de la Palu.

1568 EMANUEL PHILIBERT, *Duke of* Savoy, *twelfth Chief, and Sovereign of the Order.* 13

KNIGHTS.

CHARLES EMANUEL, *Prince of* Piedmont.
PHILIP *of* Savoy, *Earl of* Raconis.
Claudius *of* Savoy, *Earl of* Pancallier.
Andrew Provana, *Lord of* Leiny, *&c.*
John Francis Coste, *Earl of* Avignon.
John Thomas *of* Valperque.
Laurent de Gorrevod.
Peter de Maillard.
Gaspard Capois, *Bishop of* Alt.
CHARLES EMANUEL *of* Savoy, *Prince of* Geneva.
BERNARDIN *of* Savoy.
Prosper *of* Geneva.
John Frederick Madruzze.
Philip d'Este *Marquiss of* St. Martin.
Jerom de la Roüere, *Archbishop of* Turin.
DON AME *of* Savoy.
Frederick Ferrero.
Louis de la Beaume, *Prince of* Stienbusc.
Robert Rover Sainseverin.
Thomas Isnard de Castello.
Besse Ferrero Fiesque.
HONORAT II. GRIMALDY.
Francis Martinenque.
Enæas Pius *of* Savoy.

1581 CHARLES EMANUEL I. *Duke of* Savoy, *thirteenth Chief, and Sovereign of the Order.*

KNIGHTS.

CLAUDIUS de Chalant, *Grand Master of* Savoy.
JOHN BAPTIST *of* Savoy, *Grand Chamberlain.*
John Louis de la Chambre, *Viscount of* Maurienne.
Octavian *of* St. Vital.
Charles Palavicini.

Ascanio

Ascanio Bobba, *Grand Chamberlain.*
Michael Bonelli.
HENRY *of* Savoy, *Marquiss of* S. Sorlin.
Gaspard *of* Geneva, *Marquiss of* Lullin.
PHILIP EMANUEL *of* Savoy, *Prince of* Piedmont.
Victor Amé *of* Savoy.
Charles *of* Simiane, *Marquiss of* Roat.
Michael Antony *of* Saluces.
Charles Francis Manfroy de Lucerne.
Guiron de Valperque.
Francis Ville.
Hannibal Grimaldii.
Claudius de Rie.
Charles Philibert d'Este, *Marquiss of* St. Martin.
Nicholas *of* Vattoville, *Marquiss of* Versoye.
Charles Emanuel de la Chambre.
Ernest de Molard.
James Antony de la Tour.
Peter de la Chambre.
Louis Grimaldii, *Bishop of* Vence.
Francis Philibert Ferrero Fiesque.
Nicholas S. Martin d'Aglié.
Philibert Scaglia, *Earl of* Verruë, *&c.*
Francis Arconus, *a* Milanese.
Guido de S. George.
Philibert Milliet.
Sigismond d'Este, *Marquiss of* S. Martin.
Francis Spinola, *High Steward.*
William Francis Chabo.
John, *Count of* Nassau, *Ambassador of* Savoy, *near the States General of the United Provinces.*
Anthony de Valperque.
FRANCIS THOMAS *of* Savoy, *Prince of* Carignan.
James Paillard d'Urfé de Lascaris.
Philibert Mercurin Arborio.
Bernardin Barpaille, *Count* de la Bastie.
Peter de Duyn.
Emanuel Sola, *Ambassador at* Mantua, *and afterwards in* France.
Coureno Rover, *Lord of the Bed-Chamber.*
Cleriade *of* Geneva.
Francis Damas, *Baron of* S. Reran.
Guido Ville, *Marquiss of* Cillan.
Francis de Brichanteau-Nangis, *Marshal de Camp General.*
Charles Francis de Valpergue.
Francis René de Saluces.
Honorat d'Urfé, *Marquiss of* Châteaumorant.
Louis de la Chambre.
Albert Bobbe, *Marquiss of* Graglie.
Bertrand *of* Seyssel.
Augustus Manfroy Scaglia.
Gaspard Parpurat, *Governor of* Turin.
John Michael Asinar de Ville, *Governor of* Turin.

1630 VICTOR AMÉ, *Duke of* Savoy, *fourteenth Chief, and Sovereign of the Order.*

KNIGHTS.

John Aureille Arborio.
Paul Besse Ferrez, Fiesque, *Prince of* Messerum.
Philibert Carret.
JOHN FRANCIS DE SALES, *Bishop and Prince of* Geneva, *Canoniz'd.*
Louis *of* S. Martin d'Aglié.
Claudius Hieronism de Chabo.
Paul Emile S. Martin de Parelle.
Anthony Ponte.

1638 FRANCIS HYACINTHE, *Duke of* Savoy, *fifteenth Chief of the Order.*

KNIGHTS.

Jafre Bens, *Lord of* Santena.
Amé du Puy, *Marquiss of* Vaguere.
Ascagne Boba, *Marquiss of* Gray.
Jules Rangon, *Marquiss of* Maison Blanche.
Alezame Blandrate.
Michael Anthony de Saluces.
Arduin Valperque *of* Rivare.
Francis Provane *of* Leiny.
Hieronism *of* Rossilon.
John Dominick Doria.
Albert, *Bishop of* Geneva, *Marquis of* Lullin.

1639 CHARLES EMANUEL II. *Duke of* Savoy, *sixteenth Chief, and Sovereign of the Order.* 36

KNIGHTS.

John Louis du Mas, de Castellane.
Paul Millet, *Bishop and Prince of* Maurienne.
MAURICE *of* Savoy.
EMANUEL PHILIBERT AME *of* Savoy.
Octavian *of* S. Martin.
Philip de S. Martin.
John de Ville-Conde.
Charles Emanuel Palavicini.
Charles Ubertin Solar.
Charles Victor Scaglia.
Frederick Tane, *Marquiss of* Entrague.
Francis Provane.
Gettule *of* Piossasque.
Guiron Francis Ville, *Marquiss of* Ciglian.
Francis Ponte.
Francis Coste.
Charles Thomas Isnard *of* Castello.
Alexis St. Martin *of* Parelle.
Frederick Blandrate.
Francis Doria.

1675 VICTOR AMADEUS II. *Duke of* Savoy, *King of* Sicily, *afterwards of* Sardinia, *seventeenth Chief, and Sovereign of the Order.*

KNIGHTS.

Thomas Felix Ferrero.
Charles Francis Morozzo.
Charles Maurice, Isnard de Castello.
Thomas, *Marquiss of* Corail.
Louis Solar, *Marquiss of* Dogliani.
Charles Jerom, *Marquiss* du Bourg.
John Philip Solar.
Augustus Philibert Scaglia, *Chancellor of the Order.*
Augustus Manfroy Scaglia.
Charles Victor Scaglia.
Augustus Philibert, *Abbot of* Verrüe.
Charles Joseph Victor Caron, *Marquiss of* S. Thomas, *Secretary of the Order.*
Joseph de Lescheraine, *Treasurer of the Order.*

The *Order of* St. LAZARE *and* St. MAURICE, was instituted in *Savoy*, according to *Barbosa*, in 1572, by Duke *Emanuel Philibert*, i. e. that of St. *Maurice*, was instituted then, according to a Bull he had obtained from Pope *Gregory* XIII. for that Purpose, dated the 16th of *September*, 1572. and by another Bull of the same Pope, dated the 6th of *November* of the same Year; the two *Orders* of St. *Maurice* and St. *Lazare* were then united.

In the Bull for the Institution of the *Order* of St. *Maurice*, the Pope declared, that what engaged the Prince to institute that *Order* was to oppose the Heresy, which
8 was introducing itself, at that Time, into several Provinces, the Frontiers of *Savoy* being menaced therewith, because of the Neighbourhood of *Geneva*, which was the Center of the Heresy of *Calvin*, whence it had spread itself into the Neighbourhood; and by the Bull of Union which that Pope made of the *Order* of St. *Lazare*, with that of St. *Maurice*, the 13th of *November* of the same Year, he repeats the Institution which had been made lately of that of St. *Maurice*, under the Rule of *Citeaux*, by the Duke *Emanuel Philibert*; and says, that he made that Union after having consider'd that it would be a great Advantage to unite the antient *Order* of St. *Lazare*, which had no more a Grand Master, and had lost much
1 of its antient Lustre, to that of St. *Maurice*, which was but lately instituted.

The Knights of St. *Lazare* and St. *Maurice*, make Vow of Poverty, Obedience, and conjugal Chastity. They follow the Rule of *Citeaux*, must fight for the Defence of the Catholick Faith; can marry once only, but none but a Virgin. And Pope *Clement* VIII. granted them in 1596, leave to possess Benefices or Pensions on

on Benefices, to the Sum of 400 Crowns.

The *Order* has a great Number of Commanderies, and two principal Houses, one at *Turin*, and the other at *Nice*, where the Knights live in common.

In the Year 1619, the Duke *Charles Emanuel* ordered that the Cross should be white, and pometted at the Ends, with grand Bands at the four Angles, to signify the *Order* of St. *Lazare*. But the Knights having took no Notice of that Prince's Order, the Dutchess *Christine* of *France*, *Victor Amadeus*'s Widow, and Tutoress of her Son Duke *Charles Emanuel* II. caused the Ordinance of the Duke *Charles Emanuel* I. to be executed, and prescribed the Bigness of the Cross, forbidding the Clerks, and the religious Chaplains, to wear any enamelled white at their Breast, but order'd they should wear a woollen one sewed on their Cloak, except the Prelates of the *Order*, who should be Knights of Justice, and make Proofs of Nobility.

When the Knights are admitted to Profession, they promise to be faithful to the Duke of *Savoy* and his Successors, to wear the Habit and Cross of the *Order*, to come to the Chapter, to recite daily the abridged Psaltery, in honour of *Jesus Christ*, of the blessed Virgin, and of the Saints *Lazare* and *Maurice*, to fast *Friday* or *Saturday*, to keep the conjugal Chastity, Charity, and Hospitality towards the Leprous, to observe the Statutes of the *Order*, not to alienate the Estates belonging to the Commanderies, *&c.*

Note, That from *Savoy* I'll pass to *Mantua*, where I'll find the *Order of the Redeemer*, or of the *precious Blood of Jesus Christ*.

The *Order of the Redeemer*, or of the *precious Blood of Christ*, was instituted in 1608, by *Vincent* of *Gonzagua*, Duke of *Mantua*. That Prince chose the Feast of the *Pentecost*, for the Ceremony of the Institution of that *Order*, wanting to make it with much Pomp and Magnificence. He received first in the Chapel of his Palace, from the Hands of the Cardinal *Ferdinand Gonzaga* his Son, the Habit and Collar of that new *Order*, and thus cloathed, went with a grand Retinue, to the Church of St. *Andrew*, where met those he had chosen to be made Knights, who, each in particular, had drawn a Writing, whereby they promised to observe exactly the Statutes of the *Order* which they had heard read, to be faithful to the Duke and his Successors, who should be Grand Masters of the *Order*, to wear always the Collar and Medal, on the Days prescribed by the Statutes, *&c.*

The Duke being arrived at Church, all the Candidates were called, each according to his Rank and Quality. They were received by the Master of the Ceremonies, and conducted by the Herald, and kneeling before the Prince, the first presenting himself to receive the *Order*, the Chancellor said to him: *The Duke our Master having regard to your Merit, and to the Zeal you have for the Preservation of his Person, is resolved to admit you into the most noble* Order *of the* Redeemer; *but before he gives you the Collar, he asks, if you will engage yourself by Oath to observe the Statutes of the* Order? The Knight having answered that he would take the Oath, the Secretary presented the Book of the Gospel to the Duke of *Mantua*, and the Knight having put his Hands upon it, the Chancellor said to him: *Do you swear, that you will defend with all your Power the Catholick Religion, the Pope's Dignity, and his Highness as Chief of the* Order, *as well as all the other Knights your Brethren? That you'll give them Notice, in Case you discover any Thing to their Prejudice? That you'll defend the Honour of the Ladies, particularly the Widows, Orphans, and Pupils? That you'll assist at the Chapter, and at the Solemnities at the Day appointed*, &c. The Knight having answered, *I swear it*; the Chancellor gave a Sword naked to the Duke, who struck the Knight gently with it on the Shoulders, in Form of a Cross; saying, *May God our Redeemer, make you a good Knight*; and after he had made him kiss the Hilt of the Sword, the Knight answer'd, *Amen*. The King at Arms presented afterwards the Collar to the Duke, who put it round the Neck of the Knight, saying to him; *May our Redeemer grant you the Grace to wear this Collar for his Service, the Exaltation of the holy Church, and the Honour of the* Order, *&c. in the Name of the Father, of the Son, and of the Holy Ghost.* Then the Knight rising, kissed the Duke's Hand, and returned to his Place. The other Knights were received in the same Manner.

Donnemondi, in his History of *Mantua*, says, that the Duke obtained from the Pope *Paul* V. leave to make twenty Knights, besides the Grand Master, whose Dignity was annexed to his Person, and to that of his Successors; but that he made but fourteen in that first Promotion.

The Collar of the *Order* is composed of several Gold Cartouches, in some of which there are Gold Rods in Crucibles, placed over the Fire; and in others these Words, *Domine probasti me, Lord, thou hast tried me*; at the End of the Collar hangs an Oval, where there is an Ostensory, supported by two Angels kneeling, and three Drops of Blood in the Ostensory, with these Words round it, *Nihil hoc triste recepto, Nothing is sorrowful when one has received this.* The Knights wear this Collar at the Day appointed, over the Habit of Ceremony, which consists in a Robe of Crimson Silk, strewed all over with Crucibles, embroider'd with Gold; that Robe is open before, and trailing on the Ground, having large Sleeves embroider'd round with several Cartouches, like those of the Collar, and fastened at the Neck with two Gold Strings. Under that Robe they have a Doublet and Breeches of Silver Cloth embroider'd with Bands of Gold, and their Stockings are likewise of Crimson Silk.

The Dukes of *Mantua* of the House of *Gonzaga*, have always been Grand Masters of that *Order*, till the Year 1708, when *Ferdinand Charles* of *Gonzaga*, dying without Issue, the Emperor *Joseph* took Possession of that Dutchy, which has remained ever since in their Hands.

Note, That from *Mantua* I'll proceed to *Tuscany*, where I'll find the *Order of St.* Stephen.

The *Order* of St. STEPHEN was instituted in 1561, by *Cosmus* of *Medicis*, first Grand Duke of *Tuscany*, in Memory of the Victory gained near *Marciano*, the second of *August*, (which is the Feast of St. *Stephen*, Pope, and Martyr) 1554. by the Marshal *Strozzi*, who commanded the Forces of *France*. That Prince, to preserve the Memory of that Victory, which secured to him the Sovereignty of *Tuscany*, obtained from Pope *Pius* IV. in 1561, a Bull, which permitted him to establish a military *Order* under the Rule of St. *Benedict*, the principal End whereof should be to defend the Catholick Faith, and wage War against the *Corsairs* of *Barbary*, who, by their Piracies obstructed the Commerce of the *Mediterranean*.

Cosmus of *Medicis* having instituted this *Order*, and digested the Statutes thereof, which the Knights were to observe, the same Pontiff approved it by another Bull of the Year 1562, and declared the Duke of *Tuscany* and his Successors Grand Masters, and Chiefs of the *Order*, to which he granted several Privileges, and among the rest permitted the Knights to marry, and to possess, notwithstanding, Pensions on Benefices, to the Sum of two hundred Crowns, which was increased afterwards by the Popes *Sixtus* V. and *Paul* V. to that of four hundred Gold Crowns.

The two principal conventual Houses of the *Order* of St. *Stephen* are at *Pisa*, which are always full of Knights, with Chaplains for the divine Service; who all live in common under a Grand Prior, who is also Grand Cross of the *Order*, and officiates *in Pontificalibus*.

So soon as this *Order* was established, the Knights put to Sea in the Year 1563, and continued, during more than a whole Century, to give Proofs of an uncommon Valour. That same Year 1563, they took with their Galleys some *Turkish* Ships, and gave Chace to the Galleys of *Rhodes*. In 1564, they joined the *Spanish* Galleys, and helped to take the Fortress of *Pegnen*. They gave Succours, in 1565, to the Knights of *Malta*, when the *Turks* besieged their Island. In 1571, they armed twelve Galleys, wherewith they joined the Fleet of the *Christians*, which gained the famous Victory of *Lepanto*.

Under *Ferdinand* II. Grand Duke of *Tuscany*, they took in 1624, twenty-five *Turkish* Galleys, and a great Number of small Vessels, the Spoil whereof I have seen in the Convents of the *Order* at *Pisa*, and at *Leghorn*.

Authors reckon more than five thousand six hundred *Christians*, which the Knights of St. *Stephen* have deliver'd from

from Slavery; and fourteen thousand eight hundred and seventy two Slaves they had made till 1678.

There are, in this *Order*, Knights of Justice, Chaplains, and Brothers Servants. Among the Knights of Justice who are obliged to make Proof of Nobility of four Descents, there are likewise Ecclesiasticks obliged to the same Proofs; and the one and the other wear the red Cross with right Angles, orled Or, as well on the left Side of their Habit, as on their Mantle. The Chaplains, or Priests of Obedience, are Religious, and wear, on the left Side, the red Cross, orled with yellow Silk only; and the Brothers Servant wear it on the left Side. There are, likewise, half Crosses, as in the *Order* of *Malta*.

The Habit of Ceremony of the Knights consists in a large Mantle of white Camblet lined with Scarlet Silk, with Strings of the same Colour reaching to the Ground. That of the Chaplains consists in a white Cassock, lined with red, a Camail of Camblet, on which is the Cross of the *Order*, and a Rochet. Their common Habit for the Choir consists in a black Cassock, a Surplice, and a black *Amess* on the Arm; on which is the Cross of the *Order*. And the Habit of the Brother's Servant is but of white Serge, with narrow Sleeves, lined with red Taffeta's, and the Cross of the *Order* on the right Side.

The Council of the *Order* is composed of twelve Knights, who assemble at *Pisa*, in one of the two Palaces, where are the Chancery and the Archives of the *Order*, to treat of all the Affairs relating to the *Order*, as well for the spiritual as for the temporal. The Knights Grand Crosses, and those obliged to serve on the Galleys to make their Caravans, must reside in one of those two Palaces, where they are kept and maintain'd at the Expence of the *Order*, and the Novices instructed in all the Exercises becoming a Nobleman.

The principal Dignities of the *Order*, are the Grand Commanders, whose Office lasts during the Life of the Grand Master, the grand Constable, the Admiral, the Grand Prior of the Convent, the Grand Chancellor, the Treasurer General, the Conservator-General, the Prior of the Church, who are elected every three Years in the General Chapter, where the Grand Duke, as Grand Master, is present, and where are elected, likewise, the Knights Grand Crosses, and the Twelve who are to compose the Council. That Chapter is held on the *Sunday in Albis*, or the first *Sunday* after *Easter*; all the Knights who are in *Tuscany* are obliged to be there; and there are always more than three hundred of them. The Expences of their Journey are paid them, and they are boarded and lodged with their Servants, while the Chapter lasts.

The *Order* possesses twenty-four Priories, thirty-five Balliwicks, and a great Number of Commanderies. — When the Knights are admitted to Profession, they make Vow of Poverty, Charity, and Obedience; and the Chaplains, as Religious, of Poverty, Chastity, and Obedience. The Grand Master gives the Habit to the Knights, and admits them to Profession. And the Chaplains are admitted by the Grand Prior, who gives them the Habit likewise.

Note, That after *Cosme* I. Duke of *Tuscany*, had instituted the military *Order* of St. *Stephen*, for the Knights Chaplains, and Brothers Servant; he would, likewise, join Nuns to it, the more to imitate the *Order* of *Malta*. Therefore the *Benedictine* Nuns of the Abbey of St. *Benedict* at *Pisa*, which had been given to the *Order* of St. *Stephen*, by Pope *Pius* IV. in the Year 1565, were united to that *Order*, and took the Habit thereof, which is a white woollen Robe, with a Scapulary of the same Stuff, and a red Cross, like that of the Knights, on the left Side. Their Habit of Ceremony is a white Cowl, with large Sleeves, lined with Scarlet Taffeta's. The Abbesses wear their Cross bigger, of Crimson Velvet. The Sisters Servant wear it of red Serge, but smaller than that of the Ladies of the Choir. These Nuns make also Proofs of their Nobility; and have the second Monastery of their *Order* at *Florence*, which was founded in the Year 1588.

Note also, That from *Tuscany* I'll pass to *Rome*, where I find the *Orders of St. George*, of *St. Peter* and *St. Paul*, of the *Spur*, &c.

The *Order of* St. GEORGE, was instituted at *Rome* (according to Father *Honoré de Sainte Marie*) by Pope *Alexander* VI. in 1498; and the same Authors say, that the Knights wore for a Badge a Crown of Gold; and that the *Order* ended with the Life of that Pontiff. But Father *Heliot* is of Opinion, that Pope *Alexander* VI. instituted no military *Order*; and that the *Order* which those Historians attribute to him, is the same with the Society which the Emperor *Maximilian* joined to the *Order* of St. *George* in *Carinthy*.

The *Order of* St. PETER, was instituted by Pope *Leo* X. of the House of *Medicis*, in the Year 1520, the Knights of this *Order* were to wage War against the Infidels, and to protect and defend the maritime Coasts of the ecclesiastical State against the frequent Courses of the *Turks*. Their Badge was the Image of St. *Peter* in an Oval of Gold.

Paul III. of the House of *Farnese*, instituted in the Year 1554, the *Order* of the Knights of St. PAUL. This same Pope re-united it with that of St. *Peter*, and of the two *Orders* made but one, under the Name of St. *Peter* and St. *Paul*.

The *Order of the* GOLDEN SPUR, was instituted, as pretended, by Pope *Pius* IV. in 1559, but it does not appear, says F. *Heliot*, that that Pontiff gave the *Order* he instituted the Name of the *Golden Spur*; on the contrary, he gave it his own Name *Pii*. It is true, that *De Belloi*, in his Treatise *Of the Origin of Knighthood*, says, that the Knights *Pii*, are made by the same Means, Knights of the *Golden Spur*. *Favin* says, likewise, that they are called *Equites Aureati*, because of the Spurs they are permitted to wear; and in the Letters given to the Knights of the *Golden Spur*, they are called *gilt Knights*, and *Counts of the sacred Palace of* Lateran. But that Cross and that Spur they wear for Badge of their *Order*, is not the Badge which Pope *Pius* IV. gave the Knights he made, since it was a Gold Medal, on one Side whereof was the Image of St. *Ambrose*, and on the other his Arms, which they could change under every Pontificate, to wear those of the Pope who govern'd, then, the Church. Therefore there is Appearance, continues the same Author already quoted, that Pope *Pius* IV. was not the Institutor of the *Knights of the Spur*.

The Abbot *Giustiniani* says, that that Pontiff granted a great Number of Privileges to those Knights, and among others, that all those aggregated to that *Order* should be reputed Nobles, and their Descendants. He gave them the Title of Counts of *Lateran*, &c. He order'd besides, that the Knights Clerks should be apostolical Notaries, the Laicks *Equites Aureati*, &c. granting them likewise the Precedency over all other Knights.

But whether those Privileges are to be attributed to the Knights *Pii*, or to those of the *Spur*, the Knights *Pii* enjoy them no more, having been suppressed, and all the Knights of the *Spur* have preserved of them, are the Titles of Counts of the sacred Palace of *Lateran*, and of Knights Aureate, given them in their Letters of Reception. That *Order* is even grown so despicable, at present, that one may be admitted to it for a Pistole.

The *Order of* LORETTO was instituted by the Pope *Sixtus* V. in 1587, who assigned it Revenues, accompanied with great Privileges, the principal of which were, that their eldest Sons should be Nobles, and Counts of *Lateran*; that they should be capable to possess all Sorts of ecclesiastical Employments, should be exempted from Impositions, &c. They were obliged to wear at their Breast a Gold Medal, having on one Side the Image of *Our Lady of* Loretto, and on the other the Arms of the Pope.

These Knights were instituted for the Defence of the March of *Ancona*, and of *Loretto*; they applied themselves to all Sorts of military Exercises, as to give Chace to Thieves in the *Romagna*, &c. notwithstanding which they could not prevent their Extinction; occasioned in Part by the frequent Changes of Popes.

Note, That it is pretended by some Authors, that there were besides in *Italy*, the *Order* of St. *George*, at *Ravenna*, and at *Genoa*, and of *Jesus Christ*, of *Jesus* and *Mary*; which if they have ever subsisted, are, at present entirely extinct; therefore I'll take no Notice of them, and pass from those Parts of *Italy*, to *Venice*, where

where I find the *Orders* of St. *Mark*, of the *Calza*, and of the *Golden Stole*.

The *Order of the* CALZA, was instituted, according to the Chevalier *Leònard Fioranti*, in the Year 1368, which is also the Sentiment of *Menneus*, who adds, on that Subject, that the *Order* was restored in 1562, and obtained several great Privileges to maintain the Splendor thereof.

The Reason why those Knights were called *Knights della Calza*, or of the *Stocking*, is, that they wore from the Top of the Thigh down to the Foot, a Stocking of divers Colours, embroidered Gold and Silver, with Cyphers of Eagle, and other Embroideries Arabick Fashion, applied Band-wise. The Abbot *Guistiniani*, has published a Copper Plate taken from the Library of Signor *Girolamo Duodo* of *Venice*, with this Inscription, *Compagnia del Fiorida*, and on the Side, *La Divita della Calza*. That of the Right-Leg was Scarlet inwards, and Part of the Outside was Purple, and the other Grey. That of the Left-Leg was Green. On the other Side of the Plate is seen the Embroidery on the Stocking or Hose, and underneath MDXXXIX. besides which are engraven the Names of 29 Knights, all of the best Families of the Senators of *Venice*. It appears hence, that the right Stocking was of three different Colours, taking it from Top to Bottom; and that the inside Band was Red, and those outwards Violet and Grey; but that the whole left Stocking was entirely Green. Their Doublet was all embroidered with Gold, fastened with a little Girdle, the Ends whereof were likewise garnished with Gold. They had over it another Habit of a very fine Stuff, with large open Sleeves reaching to the Ground, which was sometimes of Violet or Crimson Taffetas, sometimes of Damask, and even sometimes of Gold Cloth, in certain particular Ceremonies. They wore likewise a Stole on their Left-Shoulder. This *Order* is extinct.

The *Order of the* STOLE, was also an *Order* instituted by the Republick of *Venice*, thus denominated from the Ornament they wore on their Left Arm, hanging forwards and backwards down to the Knee, very richly embroidered with Flowers of Gold.

The Council never used to rise to that Dignity but those of a *Patrician* Family, or who had rendered themselves worthy of it, by some considerable Services either in War, or in some Embassy, or on some other important Occasion.

Those Knights commonly appeared in publick with an Habit called Ducal, either of red Taffetas or Damask, with large Sleeves reaching almost down to the Ground. The Colour of the other Cloaths they put under this, and which in Winter were lined with rich white Furs, was Crimson. But these Habits are only for the Days of Ceremony; for at other Times they wore their common Habit, and over it a Kind of black Robe, lined with Armoisin, for the Summer, and with Furs for Winter, fastened with a Sash of Velvet, with a Gold Fringe at the Ends.

The *Order of* ST. MARK, at *Venice*, is conferred only by the Senate, to those who have done some signal Service to the Republick, without being obliged to make Proofs of Nobility.

The Badge of this *Order* consists only in a Medal, on which is the Lion of St. *Mark*, holding in his Paws a Book open, where these Words are read; *Pax tibi, Marce, Evangelista meus*; *Peace to thee, Mark, my Evangelist*. Which Medal hangs at a Gold Chain which they have round the Neck.

When some body is to be honoured with that Dignity, the Doge, as Chief of the Republick, is desired by the Senate to make the Ceremony, and the new Knight kneeling before him, humbly prays him to do him the Favour to admit him to that high Rank. The Doge exhorts him to continue to serve well the State, *&c.* which done, a Knight who is near at hand, gives the Doge the Sword designed for the Ceremony, wherewith he strikes the Shoulders of the new Knight, saying, *Esto miles fidelis, Be a faithful Soldier*. Afterwards the Knight rises, gilt Spurs are fastened to his Heels, and a Sword to his Side, then he kneels again, and the Doge fastens on his Neck the Gold Chain and Medal, which is the Conclusion of the Ceremony.

Note, That from *Venice* I'll proceed to *Poland*, where I find only the *Order* of the *white Eagle*.

The *Order of the* WHITE EAGLE, was instituted in *Poland* by *Uladislaus* III. in 1325, at the Celebration of the Nuptials of his Son *Casimir the Great*, with *Anne* Daughter of the Duke of *Lithuania*. He gave the Knights for Badge a white Eagle hanging at a Gold Chain, and a blue Mantle, on which was seen a white Eagle likewise. Though several Authors pretend, that the *Order* was instituted by the first Princes of the House of *Austria*; but they mention neither the Name of the Institutor, nor the Year in which the Thing happened. They say likewise, that the Knights were obliged to defend the Catholick Religion, to obey their Institutor, and his Successors, under the Rule of St. *Basil*, and that they were called Knights of the Discipline. They pretend likewise, that that *Order* had its Origin in *Austria* and *Bohemia*, and not in *Poland*; but the first Sentiment is the most likely.

Note, That from *Poland* I'll pass into *Muscovy*, where I find the two *Orders* of St. *Andrew*, and of St. *Catherine*.

The *Order of* ST. ANDREW, was instituted by *Peter Alexiowitz*, the great Emperor of all *Russia*, in 1698, to reward his Officers who had distinguished themselves in the War against the *Turks*.

The Badge of this *Order* is a Gold Medal, where is seen on one Side St. *Andrew*'s Cross, and on the other these Words are read, CZAR PETER, MONARCH OF ALL RUSSIA. This Medal is fastened to a blue Ribband; wore from Right to Left.

That Monarch conferred this *Order* afterwards on those of his Generals who had the most signalized themselves in the War against *Sweden*, and likewise on some foreign Ministers.

The *Order of* ST. CATHERINE, was instituted in 1715, by the same Prince *Peter the Great*, where the Lords of his Court as well as the Ladies were admitted. That Prince conferred it first on the *Czarina*, with Power to give it to Ladies whom she would think worthy that Honour.

The Badge of this *Order* is a large white Ribband, wore from Right to Left, and at the End thereof hangs a Medal enriched with Diamonds, charg'd on one Side with the Image of St. *Katherine*, and on the other a Cross; and on the left Side of the Breast a Star embroidered, in the Middle whereof is a Cross, with this Device, *for Love and Fidelity*. This we see in a Picture of the *Czarina*, where she is represented with the Collar in that Manner.

Note, That from *Muscovy* I'll proceed to *Denmark*, where there never was but the *Order of the Elephant*.

The *Order of the* ELEPHANT, was instituted (according to the most common Opinion, its Origin being very uncertain) in 1478, according to some, or in 1474, according to others. *Elias Ashmole* says, that he had seen a Letter written in the Year 1537, by *Avoleide* Bishop of *Arthusen*, Chancellor of *John*, King of *Denmark*, to *John Tris*, also Chancellor of *Christiern* III. in which that Prelate says, that *Christiern* I. being at *Rome*, asked Pope *Sixtus* IV. Leave to institute this *Order* in honour of the Passion of our Lord *Jesus Christ*, and that the Kings of *Denmark* should always be Chiefs thereof. He adds, that that Prince founded a magnificent Chapel in the great Church of *Roschild*, the Place of the Sepulture of the Kings of *Denmark*, and four Leagues distant from *Copenhagen*, where all the Knights are to meet.

The same Author, describing the Collar of the *Order*, says, that it was at first but a Gold Chain, at the End whereof hung an *Elephant*, which had on his Head a Crown of Thorns, with three bloody Nails in memory of the Passion of our Lord: That afterwards that Collar was composed of Crosses interwoven with Elephants; and that at the Bottom of that Collar there was another Elephant, holding under his Feet an Image of the blessed Virgin, in whose Honour, some Authors pretend, that *Order* was instituted. *Favin* and Father *Anselm*, who are of the Number of those Authors, say, that the

Knights

Knights of the Elephant wear a Gold Chain round their Neck, at the End whereof hangs on the Breast an Elephant of Gold enamelled white, his Back loaded with an Elephant Argent, masoned Sable, and the Elephant carried on a Terrass of Sinople, enamelled with Flowers. F. *Heliot* says to have seen an antient Print, where the Collar of that *Order* is thus represented, except that the Collar is of three Gold Chains.

There are, besides, other antient Prints, where that Collar is but of a single gold Chain, composed of several Bones which appear to be Vertebræ, at the End whereof hangs an Elephant, having a Tower on its Back, and over the Tower an J, which could signify King *John*; as well as the C, which the Knights made by *Christian* IV. joined to that Collar, signified the Name of that Prince.

It is easy to infer, from all this, that most of the Authors who have spoke of this *Order*, have given it a different Collar.—That which the Knights wear at present, is composed of several Elephants interwoven with Towers, each Elephant having on his Back a blue Housing; and at the Bottom of the Collar is an Elephant of Gold, charged on his Back with five large Diamonds, in Memory of the five Wounds of our Lord. That Elephant is enamelled white, and has on his Back a little Man sitting.

As to the Habit of the Knights, they wear on the Days of Ceremony a large Mantle of Crimson Velvet, lined with white Sattin, the Train whereof is two Yards long, with a Chaperon behind, fastened to the Mantle. The Strings which fasten the Mantle are of Silver and red Silk, the Breeches and Doublet of white Satin, and the Stockings pearl Colour. They wear on the left Side of their Mantle an embroidered Cross, environed with Rays. The Hat is of black Velvet, with a Tuft of white and red Feathers. What distinguishes the King is, that the Feathers of his Hat are white, and his Mantle is lined with Ermines.—Ever since the Kingdom of *Denmark* has embraced *Lutheranism*, they have taken off the Collar the Image of the Blessed Virgin, and the Patriarchal Crosses, and retained only the Elephant.

Favin, who has been followed by others, is mistaken, when he says, that the Kings of *Denmark* never confer that *Order* but on the Day of their Coronation: For without speaking of the Kings who have reigned ever since the Institution of the *Order*, *Christian* V. who at his Accession to the Crown had made Knights of the Elephant, made besides, in 1672, a Knight of the same *Order* the Embassador of *England*: There was a Promotion of several other Knights in the Year 1679.—The Marquis of *Baden Dourlach*, and *Christian* Prince of *East Frizeland*, were also made Knights of the Elephant in 1682. The Year following *Frederick Charles de Roy* of *Rochefaucault*, Count of *Roy*, a *Frenchman*, was likewise made Knight of the Elephant. There was another Promotion of them the 15th of *July* 1694. And the Collar of that *Order* was given to *Everard Louis* Prince of *Wirtemberg*, to *Stutgard George* Landgrave of *Hesse-Darmstadt*, to *Philip* Landgrave of *Hesse-Cassel*, to *Albert* Duke of *Saxe-Gotha*, to *Leopold Everard* Duke of *Wirtemberg Montbelliard*, and to others; and in the Year 1697, the Duke of *Saxe-Weissenfels* received it likewise.

Note, That it is pretended there was, besides the *Order* of the Elephant, another under the Name of *Dannebroch*; the Origin whereof some Authors, Admirers of Fables and Romances, derive from *Dan*, one of the Sons of the Patriarch *Jacob*; who, according to those Authors, was the first King of *Denmark*, and gave his Name to that Kingdom. They say, that that pretended King being on the Point to give Battle, in the Year of the World 2898, saw coming down from Heaven a white Cross, which was the Sign of the Victory he gained; and the Occasion of his Instituting an *Order*, to which he gave his Name; and that of *Broge*, which in *Danish* signifies Picture.—Others, more reasonable, attribute the Institution of that *Order* to *Waldemar* II. in the Year 1219. *Bartholin* is of that Sentiment; and adds, that that Prince gave the Knights a white Cross. What can be said, with regard to it, is, that if it be true that *Waldemar* instituted that *Order*, it was not known, in *Denmark*, when *Christian* IV. restored it in 1672. But it is more likely, that he was rather the Institutor than the Restorer thereof, and that on Occasion of the Birth of the Prince Royal of *Denmark*, *Christian-William* his Son, which he celebrated with much Magnificence.—The Knights of that *Order* wore then a white Ribband bordered with Green, from Left to Right, to which hung a Cross of Diamonds, and on their Mantles these two Words embroidered, *Pietate & Justitiâ*, within a Crown of Laurels. That Prince retrenched those Words afterwards, and having reformed the *Order*, would that the Knights should wear henceforward a Mantle of Gold Colour, lined with white Satin. That Mantle is much like that of the Knights of the Elephant, but the Breeches are wider, like those of the *Switzers*. They must appear before the King with that Habit of Ceremony three Times a Year, *viz.* on his Birth-day, on that of his Coronation, and on his Marriage. They are but nineteen in Number, having the King for their Chief; who confers that *Order* but on the Officers of the Army.

Note, also, That in *Sweden* I find the *Orders* of the *Seraphins*, of St. *Bridget*, of the *Lamb of God*, of the *Amarante*, &c.

The *Order of the* SERAPHINS, was instituted, according to several Authors, by *Magnus* III. King of *Sweden*, in 1334, in memory of the Siege of *Upsal*, and that in View to establish thereby Defenders of the Catholick Religion, and extend the Frontiers of his Kingdom of *Poland*. Some Writers attribute that Institution to *Eric the Great*, and others to *Gustavus* I. but they are mistaken. Others attribute it to *Erick* IV. but with as little Foundation; since that Prince did nothing but change the Badge and the Collar. That Badge was a Collar adorned with Heads of *Seraphins*, interwoven with patriarchal Crosses Gules and Or, to which hung a Medal, where was the Name of *Jesus* in Gold Letters on a Field of Azure, with four Nails of the Passion enamelled White and Black. This *Order* was entirely abolished by the Change of Religion which happened in that Kingdom under *Charles* IX.

The pretended *Order of* ST. BRIDGET, is supposed by *Schoonebeck* and Mr. *Hermant*, to have been instituted by St. *Bridget* herself, Queen of *Sweden*, in the Year 1366, that that Princess gave the Knights for Badge a blue Cross, much like that of the Knights of *Malta*, with Flames underneath, which signified her Zeal for the Faith, and her extensive Charity for her Neighbours. But I am of Opinion that this *Order* is fictitious, and has never subsisted. For how could St. *Bridget* have instituted that *Order* in *Sweden* in 1366, when she had abdicated the Kingdom in 1345, or 1346, to retire to *Rome* where she remained ever since? How could she assign Revenues to that *Order*, since after the Death of the King her Husband, which happened in 1343, or 1345, she divided all she possessed between her Children, disposed of all that could divert her from the Service of God, and to make herself poor for the Love of *Jesus Christ*, had put herself under the Direction of a Person, to whom she abandoned the little she had left?

The *Order of the* SAVIOUR OF THE WORLD, was instituted, according to *Schoonebeck*, by *Eric* XIII. King of *Sweden*, at *Upsal* in 1561, the Day of his Coronation; which is confirmed, says he, by Pieces of Money coined at that Time: But he does not quote the Authors who have spoke of that *Order*; and only mentions *Elias Bremer*, who had the Collar thereof engraven in 1691, that Collar was composed of Cherubims interwoven with Gold Columns, and underneath was an Oval, with the Image of the *Saviour of the World*. It is very likely it was abolished at the Time of the Reformation.

The *Order of the* LAMB OF GOD, is supposed to have been instituted in *Sweden* by King *John*, called *the Great*, in 1564, who wanting to reward several Lords of his Court, honoured them, as it is said, with the Collar of that *Order* at *Upsal* the 10th of *July*, 1564, his Coronation-Day. Those made Knights then were, according to *Schoenebeck*, *Eric Gustavus*, *Gustavus Banur*, *Pontus de la Gardie*, a *Frenchman*, the Count *Passa*, *Stephen Banur*, *John Slyke*, and *Andrew Fordal*. He adds, that on

on the Medal, the King caused to be engraved on that Occasion, is seen the Figure of that Collar with these Words, *Deus protector noster*, (God is our Protector.)

That Collar, according to the Draught, engraven by *Elias Bremer*'s Direction, was composed of Crowns of Laurel, surmounted with royal Crowns, supported by Lions and Lizards, and interwoven with Columns on which were Seraphims: Underneath the Collar was a Medal, representing the Image of our Saviour; on the Sides thereof were two Angels kneeling, and underneath hung a Paschal Lamb.

The *Order of the* AMARANTE, was instituted in *Sweden* by *Christina*, Daughter of *Gustavus the Great*, in 1653; but *Elias Ashmole* is mistaken, when he says, that that Princess abdicated the Crown in 1645, in favour of her Cousin *Charles Gustavus* Count Palatin of *Deux Ponts*, because she professed the *Roman* Religion; since she resigned her Dominions to that Prince but in the Year 1654, professing still the *Lutheranism*, which she did not abjure but in her Journey to *Rome* in 1556, and it was a Year before her Abdication she instituted the *Order* of the *Amarante*.

The same Author informs us of the Ceremonies of that Institution. The Queen, says he, sitting on her Throne, the Knights chosen to receive that *Order* approached it with their Proxies. Being near the Throne and kneeling, she took their Hands by Turns, and made them swear that they should be faithful to her, and maintain her Interests. Afterwards she gave each of them a Mantle of Armoisin, with the Badge of the *Order* enriched with Gold and Jewels; which was a Crown of Laurel environed with a Ribband, on which were read these Words, *Dolce nella Speranza:* Inside of the Garland were two A, one within another, worked in Gold, and enriched with Diamonds; besides which she gave each a Jewel of Gold and Diamonds, which they were to wear fastened at their Neck, with a Crimson Ribband, or blue; and afterwards the Knights took their Leave and retired. But in the Picture of *James Lampridius*, Envoy to the Princes *Frederick* and *Christian Louis* of *Brunswick Luneburg*, at the Peace of *Munster*, is seen a Chain round the Neck, made of several A's interwoven with Escutcheons, with another small Chain fastened to the right Side of that first, where hung a little Horse.

The Queen granted the Mark of Honour to foreign Lords, and sent them a Patent whereby they were incorporated in the *Order*. The same Author relates, that there were reckoned among the first Knights, *Uladislas* King of *Poland*, *Charles Gustavus*, the Queen's Cousin, and afterwards King of *Sweden*; his Brother *Adolphus John*, *George* Duke of *Saxony*, the Landgrave of *Hesse*, and several others, as the Count of *Montecuculi*, Don *Antonio Pimentel*, and *Balstod Whitelock*, an *English* Earl. Some other Names are added to those mentioned by *Ashmole*, viz. the Count of *Dohna*, the Count *Tot*, the Counts *Caprara*, *Stunbergen*, and *Strazzi*, the Sr. *Marozini*, Envoy from *Venice*, and other principal Lords of the Empire. The Queen had also chosen some Ladies; and the whole Society had the Privilege to eat every *Sunday* at her Majesty's Table, in one of the Suburbs of *Stockholm*, where whole Nights were spent in Diversions, with much Familiarity, and without the least Constraint.

The *Order of the* PORTE-GLAIVES, or *Sword-Bearers* in *Livonia*, in 1197, was instituted by some Christian Warriors, who united into a Society, to oppose the Efforts which the *Pagans* made, not only to hinder the Christian Religion making further Progress in that Province, but likewise to extirpate it entirely; or rather perhaps built a Convent, to live in common, and which they dedicated to the blessed Virgin.

Mannens, and *Joseph Michaelis* believe, that the first Superior of that Convent was one *Maindert* of *Segeberg*, who became afterwards Bishop of *Livonia*; that to *Maindert* succeeded *Berthold*, an Ecclesiastick of the *Order* of St. *Paul*, who was martyrised by the *Pagans* in 1197. *Albert*, Member of the University of *Bremen*, took his Place. Some Authors believe, that he advised to build the City of *Riga*, and procured the Forwardness of the Work. He took *Engelbert* and *Theodorick* for Coadjutors, and all three together formed of their Society a military *Order*, to which they gave for Badge two red Swords put Cross-wise on the left Side of their Habit which was white.

Historians assure, that the first Grand Master of that military *Order* was *Vinno*, who resided at *Riga*. It is said likewise, that Pope *Celestinus* III. or *Innocent* III. confirmed the *Order*, and gave it the Rule of St. *Basil*. At the Beginning of its Institution the Teutonick Knights being arrived in *Prussia*, and having performed a great Number of glorious Exploits against the *Pagans*, in favour of the Christian Religion, the Knights of *Livonia* joined with them, as having the same Intentions, and tending to the same End; which increased much their Reputation and Power. After they had surmounted the greatest Difficulties with regard to the Infidels, they began to take political Views, and to interfere in the Affairs of the neighbouring Princes; exciting thereby their Jealousy, particularly of the Court of *Poland*. And at last their *Order* was abolished in 1550 under King *Sigismond*.

Note, That from *Livonia* I'll pass into *Prussia*, where I find the *Order of the Black Eagle*.

The *Order of the* BLACK EAGLE, was instituted the 17th of *January* 1701, by *Frederick* III. Marquis and Elector of *Brandebourg*, afterwards King of *Prussia*; who gave the Knights for Badge of that *Order*, a Gold Cross enamelled blue, having in the Middle the Cypher of that Prince, *F. R.* and at the Angles the Eagle of *Prussia* enamelled black. That Cross is fastened to a Ribband of Orange Colour, which they wear from Left to Right over their Coat. These Knights wear besides, on the left Side of their Coat a Cross embroidered with Silver in form of Stairs, in the Middle whereof is an Eagle embroidered with Gold, the Eagle holding in one of his Talons a Crown of Laurel, and in the other a Thunder-bolt, with this Inscription, *suum cuique*, embroidered with Silver.

This *Order* is only given to those of the royal House, and to the most considerable Persons of the State.

The first who receiv'd it, were the Prince Royal, afterwards King, the three Margraves the King's Brothers, the Margrave of *Anspach*, the Dukes of *Courland*, and of *Holstein*, the Counts of *Wartemberg*, *Barfons*, *Dohna*, and *Lottum*, the four Counsellors Regent of *Prussia*, Mess. *Berbant*, *Brausche*, *Creutz*, and *Vallenrod*, the Master of the Artillery, and the Major-General, the Commissary-General, the Count *d'Onhoff*, the Chamberlain Count of *Donha*, and M. *Ballace*, Grand Master of the Queen's Houshold.

The *Order of the* DRAGON CONQUERED, was instituted in *Germany* in 1397, by the Emperor *Sigismond*; though all Historians do not agree about the Time of that Institution; for some of them place it after *Michaelis*, in the Year 1400, and others, after *Favin*, in the Year 1418. *Michaelis* adds, that the Motive which actuated that Prince to institute that *Order*, was, that the Knights who were to receive it could oppose the Heresies, which infected *Bohemia* and *Hungary*; and that for that Effect he sollicited the Convocation of the Councils of *Constance*, and of *Basil*, where those Heresies were condemned. On that Foundation there is no doubt, says Father *Elliot*, that *Michaelis* has been mistaken in placing the Institution of that *Order* in 1414, and *Favin* in 1431, since *John Huss* did not begin to dogmatise in *Bohemia*, but in 1407.

With regard to those who believe that this *Order* was instituted in the Year 1418, after the holding of the Council of *Constance*, the Abbot *Guistiniani* shews that they are likewise mistaken, pretending that it had been established before the Year 1397, which he proves by the Testament of *Francis del Pozo* of *Verona*, of the same Year, where it is spoke of his Son *Vitorio del Pozo*, Knight of the *Order* of the Dragon, who was then near the Emperor *Venceslas*, where *Galleas Viscomti*, Prince of *Verona*, had sent him for some Affairs. Which makes the Abbot *Guistiniani* believe, that the Emperor *Sigismond* had founded that *Order* when he married in 1385, *Mary* Queen of *Hungary*; or the Day he was crowned King of *Hungary* in 1387, because that Day he made Knight *Pantaleon Barbo*, Embassador from *Venice*.

Favin has given the Representation of the Collar of that

that *Order* compoſed of two Gold Chains, on which are Croſſes with double Traverſes, with an inverted Dragon at the End thereof.

Note, That *Britanny*, while under the Government of its own natural Princes, was not without a military *Order*, which was called the *Order* of the *Hermin*, and of the *Ear of Corn*.

The *Order of the* HERMIN, and of the EAR OF CORN, was inſtituted in 1381, by *John* IV. Duke of *Britanny*, called the *Valiant* or Conqueror. The Collar was compoſed of two Chains, faſtened to two ducal Crowns, each whereof contain'd an *Hermin paſſant*. One of the Crowns hung on the Breaſt, and the other at the Neck. The Chains were compoſed each of four Lockets, and were but an *Hermin*, with a Roll wrapped round the Body of the *Hermin*, on which was wrote this Device, *a ma Vie*. The Rolls were alternately enamelled white with black Letters, and black with white Letters. Round the Neck of each of the ten *Hermins*, was a Collar on which hung a Chain of four or five Rings: The Collar, according to the Quality of thoſe who were honoured therewith, was of Gold, or of Silver gilt, or of Silver only.

The *Order* of the *Hermin* had this in particular, that Women were admitted into it, who took the Title of *Chevaliereſſes*. F. *Lobineau*, in his Hiſtory of *Britanny*, gives us a Liſt of thoſe Knights, among whom are found a Dutcheſs of *Britanny*, who received the Collar in 1441, one *Petronille de Maillé*, two Ladies of *Penhoüet*, and of *Pleſſis-Augier*, in 1453, and one *Jane de Laval*, in 1455.

As to the Reaſons which engaged the Duke of *Britanny* to inſtitute this *Order*, and to chuſe the Device, *a ma Vie*, is a Thing, ſays Father *Lobineau*, on which every Body can give a full Career to his Imagination, the Authors of thoſe Times taking no Notice of it.

The ſame Father adds, that the Dukes of *Britanny* added afterwards to the Collar of the *Hermin*, another Collar of a leſſer Price; which they called of the Ear of Corn, and terminated by an *Hermin* hanging at the Collar, by Means of two Chains; this Collar was moſt commonly of Silver. Thoſe who have treated of the military *Orders*, attribute the Inſtitution of this, to the Duke *Francis* I. who inſtituted it about the Year 1450, according to ſome, or the Year 1448, according to others.

Note, That there has been, likewiſe, in ſeveral different Ages, a Knighthood inſtituted for Ladies; that they have been honoured with the Quality of Chevaliereſſes in ſeveral Manners; that Kings, Princes, and Lords of the higheſt Rank, have took it for an Honour to be made Knights by Ladies; and that ſeveral honorary, and regular *Orders* of Knighthood have been inſtituted to reward the Merit of Ladies, and to diſtinguiſh them from the reſt of their Sex.

1. If Knighthood in Men is a perſonal Quality, which does not paſs from Father to Children, much leſs to diſtant Relations; if it be granted to Nobility, and not to Birth, it may be ſaid that Women have ſome Advantages over Men in that Reſpect; for they have the Privilege to raiſe themſelves to Knighthood by the ſame Degrees they acquire the Nobility, *i. e.* by Birth, Marriage, or the Favour of the Prince. Antiently Women took the Quality of *Equitiſſa*, and *Militiſſa*, when ſome of their near Relations took the Quality of Knight. Thus *Elizabeth*, Siſter of *Henry de Hormes*, Lord of *Pernes*, is called *Equitiſſa*, in the Contract of Marriage between *Damoiſeau*, *John de Mereode*, and *Alix de Hornes*, Siſter of *Henry*. And in Letters of 1451, mention is made of *Mary* and *Isabella* of *Hornes*, Chevaliereſſes, the ſame *Henry*'s Siſters.

Hemericourt, c. 10. of the Nobles of the Country of *Liege*, ſpeaks of a Lord of *Horeux*, called *Breton the Elder*, who had ſix Sons all Knights, and two Daughters Chevaliereſſes. *Humbert* of *Lexi*, ſecond Son of that Lord of *Horeux*, had alſo two Daughters Chevaliereſſes.

Alliances gave likewiſe to Women the Title of Chevaliereſſes, when the Huſband was a Knight. *Militiſſa*, *Miles uxor*. Wherefore, in a Charter of the Year 1379, *Jane* of *Bethune* is called *Chevaliereſſe*, becauſe her Huſband had been honour'd with Knighthood, *Militiſſa uxor Domini de Roye Militis*. We read likewiſe, in the Regiſters of *Malines* of the Year 1441, that *Catherine Baw* is called *Militiſſa*, that *John Van*, her Huſband, is called *Miles*, Knight.

There are even Examples, that Huſbands, by a ſpecial Favour of the Prince, have received Knighthood by Means of their Wives. The Emperor *Charles* V. made Knight *Lucas de Broyart*, Eſq; Lord of *Grimeni*, Son of *Peter Broyart*, Lord *du Ruiſſeau*, and of *Henrietta* of *Naſſau*, Daughter of *John* Earl of *Naſſau*, deſcended from the Earls of *Guedin* and *Strigona*, in the Kingdom of *Hungary*, with his Children and Succeſſors, and the Huſband, of his Daughters for ever, *in infinitum*, to be Knights of the St. *Empire*, by Letters Patent, given at *Bruxelles*, the 24th of *September* 1540, on which the Author of the Book entitled *Juriſprudentia politica*, makes this Remark, quoted by M. *de la Roque*, in his Treatiſe of the Nobility, 'that it is to be obſerved, that 'by thoſe Letters Patent, not only the Children, Heirs, 'and Succeſſors of *Lucas de Broyant*, are created 'Knights for ever, but likewiſe the Huſbands of his 'Daughters.

We ſee thereby, that that Privilege is not underſtood of Knighthood of Race only, ſince Wives cannot confer it on their Huſbands; whence it can be inferred, that the Emperor wanted to honour that Family with another Knighthood, which was only honorary.

But if it could even be ſuppoſed, that that Knighthood of Women, was but a Knighthood by Birth, or hereditary, as it is ſtill for antient noble Families, which are accounted of the Body of Knighthood, that would not be an Objection againſt Women, having received the Title of Chevaliereſſes. To be convinced of it we are only to remember, that all the Fiefs were maſculine at firſt, as there are ſtill ſeveral ſuch in *Germany*, *Hungary*, and *Italy*; which Fiefs were to be poſſeſſed by Knights only, who had themſelves armed to hold them.

Afterwards when ſome of thoſe Fiefs were by Privileges granted to Women, they took the Quality of Chevaliereſſes. Therefore, ſays *Hemericourt*, thoſe Women who were not married to Men, are called Chevaliereſſes, becauſe thoſe Women, either married or ſingle, had themſelves made Knights, to be capable of holding the Fiefs of Knighthood. Such was *Elizabeth* Queen of *England*, who cauſed herſelf to be arm'd Chevaliereſs, to be Chief of the *Orders* of Knighthood of that Kingdom. And it is perhaps for the ſame Reaſon, that Tombs are ſeen in the Country of *Liege*, and in the *Low-Countries*, where the Title of Chevaliereſſes is given to Maidens, and to Women whoſe Huſbands were not Knights.

2. That Women have ſometimes a Right to create Knights, is what cannot be called in Doubt; ſince it can be proved ſufficiently by Hiſtory, that ſeveral Nobles, Princes, and even Kings and Emperors, have took it for an Honour, to receive Knighthood from Ladies. In fact, if the Right of creating Knights is annexed to the ſovereign Power, why ſhould it be leſs allowed to Queens and Princeſſes, to make Knights, to maintain the Glory of the State by Arms, than to chuſe Magiſtrates, to adminiſter Juſtice, and govern Provinces?

That Right of Princeſſes is authorized by Cuſtom or Uſe. — We read that *Cecilia* Daughter of *Philip* I. King of *France*, and Widow, then, of the famous *Tancred*, Prince of *Antioch*, did not only confer the *Order* of Knighthood on *Gervaſe*, a Lord of *Britanny*, Son of *Simon* Earl of *Dol*, but likewiſe to ſeveral Eſquires; which happened about the Year 1115, as related by *Ordericus* and *La Roque*. Likewiſe Queen *Blanche*, Mother of St. *Louis*, a little before her Death, which happened in the Year 1115, made, as pretended, the Lord St. *Le* a Knight. The 24th of *March*, 1343, *Jane* Queen of *Naples*, cauſed the *Order* of Knighthood to be given to *James Lapano*, by King *Andrew* her Huſband. In 1675, in the Month of *February*, Madame Royal of *Savoy*, conferred the *Order* of the *Annunciade*, and gave the Collar to ſeveral Lords. Laſtly, Queen *Anne*, who govern'd the Kingdom of *England* for ſeveral Years ſucceſſively, and was, as obſerved in its Place, the eighteenth Cauſe of

of the *Order* of the Garter, gave the Collar of that *Order* to a great Number of the most illustrious Persons of her Dominions.

If we wanted besides, Examples of Queens, who have conferred the *Order* of Knighthood on Emperors, we could find several. *Mary* Queen of *England*, Daughter of *Henry* VIII. by *Catherine* of *Spain*, created Knight *Philip* II. King of *Spain*, her Husband, in the forty-eighth Chapter of the *Order* of the Garter, whereof Q. *Mary* was the eleventh Chief. In several Chapters of the same *Order*, held under the Government of Queen *Elizabeth*, that Princess created more than fifty Knights, among whom were crown'd Heads, as *Maximilian* II. Emperor, *Charles* IX. *Henry* III. and *Henry* IV. Kings of *France*, *Frederick* III. King of *Denmark*, *James* VI. King of *Scotland*, and several Electors.

3. Though the *Orders* of Knighthood be commonly founded to excite Courage, and reward the Services of Soldiers, we find, notwithstanding, *Orders* of Knighthood erected to reward the Valour of Women. *Raymond Berenger*, last Earl of *Barcelona*, in Memory of the Victory he gain'd over his Enemies by the Bravery of Women, erected the *Order* of the *Hatchet*, on the following Occasion. The City of *Tortosa* being besieged and reduced to Extremity, the Women mounted on the Wall, and defended so courageously that City with Blows of Hatchets, that they obliged the Besiegers to retreat. As Women, on that Occasion, shew'd more Bravery than Men, the Count *Raymond* not only founded a new *Order* of Knighthood for those *Catalan Amazons*, but granted them several great Privileges.

Likewise the City of *Placentia* being besieged by the *English*, while the Nobility of the Country was in the Service of the King of *Castille*, the Women resolved to defend the Place, after a vigorous Resistance of several Days, they sallied out with so much Resolution, that they forced the *English* to raise the Siege, and to retreat in Disorder. That Bravery procured the Occasion to *John* I. if not to institute a new *Order* to reward the Valour of those Ladies, at least to order that they be aggregated to the *Order* of the *Bande*, founded by *Alphonse* his Grandfather.

The Ladies of *Bauvois* in *France*, have acquired no less Reputation by their Valour, than those above-mentioned. It was in the Year 1472, while that City was besieged by *Charles the Bold*, Duke of *Burgundy*; its being on the Point of being stormed by the Enemy, a Lady called *Hachette* put herself at the Head of the Women, conducted them on the Walls, and animated them so well by her Exhortations, and her Example, that with Stones and Fireworks they forced the Enemy to raise the Siege. That *Heroine* distinguished herself much on that Occasion, for an Officer of the Duke of *Burgundy* having fixed his Standard on the Wall, she tore it from his Hand, and precipitated him into the Ditch.

It is true, that a particular *Order* of Knighthood was not erected at *Bauvois* to reward the military Virtue of those Ladies, but the Magistrate of that City, to leave to Posterity some Marks of their great Actions, established in Memory of that glorious Day, several Things which have a great Report to an Establishment of Knighthood. Every Year a general Procession is made, the 10th of *July*, which is that of the raising of that famous Siege. The Privilege was granted the Women to walk before the Men, during that Ceremony. *Jane Hachette* marched at the Head of the Women, carrying the Standard she had taken from the Officer of the Duke of *Burgundy*.

After her Death, that Standard was deposited in the Church of the *Dominicans*. The Picture of that Woman is seen in the Town-House of *Bauvois*, where she is represented with a Sword in her Hand; and her Descendants are free from all Sorts of Impositions.

4. There are several Examples in History of honorary Knighthoods, instituted by Ladies for Persons of their Sex, *viz. Anne* of *Britain*, or *Britanny*, Daughter of *Francis* II. Duke of *Britanny*, instituted in 1498, the *Order* of the *Cordelier*, or *String*, after she became a Widow of *Charles* VIII. King of *France*. That *Order* was invented for Widows, who were to make Proofs of Nobility before their Admission. Their Badge was a Cordelier of Silver, wherewith they environ'd their Arms. The Queen gave the *Order* to several Ladies of Virtue and Quality of her Court.

The *Order of the* SLAVES OF VIRTUE, was instituted at *Vienna* in *Austria*, in 1662, by the Empress *Leonora* of *Gonzaga*, Widow of *Ferdinand* III. It was to be composed of thirty Ladies only of an illustrious Birth; besides Princesses, whose Number were not limited. The Empress gave them for Badge of their Order a Gold Medal, representing a Sun within a Crown of Laurel, with this Legend round it, *Sola ubique Triumphat*, *It alone triumphs every where*. That Medal was fastened to a Gold Chain in Form of a Bracelet, which they wore at their Arm above their Elbow. They were to have that Medal with the Chain, on the Days of Ceremony. And on other Days they only wore a smaller one fastened to a black Ribband. They promised to observe the Rules and Statutes of that Order, which were digested by the Empress who was the Chief thereof. And in Case of the Death of one of those Chevaliereresses, her Heirs were to return the great Medal to that Princess, and could keep the smaller, in Memory of the Honour done to the Family.

F. *Honore* of St. *Mary*, seems to make but one Order of this and the following one but as F. *Heliot* makes two of them, and their Institution is different, we will also make two of them.

The *Order of the* TRUE CROSS, was instituted by the same Empress in 1668. — The Obligations of the Ladies admitted into it, were to honour in a particular Manner the Cross on which *Jesus Christ* had been crucified for our Sins; to procure his Glory and Service, *&c.* Their Badge was a Cross of Gold, in the Middle whereof were Lines, which run lengthwise and cross wise, of a Wood Colour, to signify the true Cross. At the Extremities of that Cross there were four Stars, and at the four Angles four black Eagles, each holding a Roll, on which were written these Words, *Salus & gloria*. They were to wear it on the left Side of their Breast, fastened to a black Ribband. The blessed Virgin and St. *Joseph* were chosen for Patrons and Protectors of that Order, which was approved by Pope *Clement* IX. that Pontiff granted them a great Number of Indulgences; and the Rules and Statutes were digested by F. *John Baptist Mani*, a Jesuit.

The Abbot *Gustiniani* adds, that to be received into that *Order*, the Ladies should have three Qualities. — 1. They were to be Persons of Quality, and of an illustrious Birth, on the Father, Mother, and Husband's Side. 2. Accounted to have much Greatness of Soul. 3. And of an irreproachable Life. The Person who is to be received into the *Order*, presents herself to the chief Lady, and desires that she may be aggregated to the *Order*. Afterwards in the Presence of all the Ladies Chevaliereresses, she receives the Medal, and Collar of the *Order*; and promises to observe exactly the Rule, *&c.* the Day of the Ceremony she must come to the Palace with the whole Habit of the *Order*: At another Time, when she comes to it, she wears always the Cross, especially on Holy-Days. When the Ladies travel, it suffices they should have the Cross fastened to the left Arm. On the great Holy-Days, whether they be at *Vienna*, or elsewhere, they must wear the whole *Order*. If those Ladies should leave off the Cross through Forgetfulness or Negligence, they are taxed to pay a hundred Dollars for the Benefit of virtuous Poor.

The Empress *Eleonora Magdelaine*, *Theresa* of *Neuhourg*, Widow of the Emperor *Leopold*, as Chief of the *Order*, gave it in 1709, the 3d of *May*, Feast of the Invention of the holy Cross, to the Archdutchess *Mary Joseph*, eldest Daughter of the Emperor *Joseph*, and to thirty-two Ladies, in the Church of the Jesuits at *Vienna*. In the Month of *September* 1717, was made a famous Creation of Ladies Chevaliereresses of that *Order*. The Empress Mother held in the Morning and in the Afternoon, Chapel, in the same Church of the Jesuits, with the Archdutchesses, and the other Ladies of the Cross; where M. *Spinola*, the Pope's Nuncio, officiated pontifically, and the Empress gave the Cross of the *Order* to twenty-seven Ladies.

Note, That it is pretended, that there is also a military *Order* instituted in *Turky*, called the *Order of the*

the CRESCENT, which Father *Bonani* says, was instituted by *Soliman* II. and the Abbot *Giustiniani* carries back as far as to *Mahomet* II. towards the Middle of the fifteenth Century. The Obligation of those Knights, say they, was to guard the Empire, to devote themselves to its Defence, and to guard the Tomb of their false Prophet *Mahomet*. Those newly received were to go in Pilgrimage to *Mecca*, to visit the Tomb of *Mahomet*. Their Badge was a Collar of Gold, where hung a Crescent, or Half-Moon, which was always the Standard of the Empire of the *Ottomans*. *Mennens* pretends, that *Bellini* a Painter of *Venice*, received the Collar of that *Order*, and that his Picture is seen at *Venice* with that Ornament; on which *Sansovin* asked, if a Christian can receive such an *Order* from the Infidels and be esteemed a Christian? To which the Abbot *Guistiniani* answers, that a Christian must refuse it, if an Oath of Fidelity be required to an Infidel Prince; but that if it be only a Mark of Honour or a Reward, he is permitted to receive it. But I am of Opinion, that *Mennens* is mistaken, and that *Bellini* never received the *Order* of the Crescent, but only a Gold Chain, with the Picture of the Grand Seignor hanging to it, as a Mark of the particular Esteem that Prince had for that Painter, who had work'd for the Seraglio with a great deal of Applause, and whom his sublime Highness sent back to *Venice*, with Letters of Recommendation for him to the Senate.

Note, also, That from what I have said in this Treatise of the Institution, Rules, *&c.* of the military *Orders*, it is easily inferred, that they were calculated at first to reward Merit, and inspire Men with Courage, Piety and Virtue. That the first who were honoured with that publick Mark of Distinction were so many Christian Heroes, who had either signalized themselves by fighting valiantly under the Standard of the Cross of *Jesus Christ*, or enlisted in the holy Militia's raised for the Recovery of those Countries he had sanctified with his sacred Presence, and where he had operated the great Mysteries of our Redemption. That the Crosses they wore for Badge, were to put them in Mind of the Tortures and Agonies he had suffered, to establish among us that Faith, without which there is no Salvation, and which the Fear of the same Torments should not deter them from maintaining, notwithstanding the strongest Opposition they could meet with from the most obstinate Infidelity; that it was by them that sumptuous Edifice the Church, which had been almost entirely destroyed by the common Enemy of Mankind, or his Agents, in those Places where it had been first erected by that divine Architect who had cemented it with his Blood, was to be rebuilt by their own Hands; that their Blood was to render those Fields once more fertile in Christian Heroes, which had been fecundated by that of Christ. In those fortunate Days Knighthood and Merit were synonimous, and by that Title alone were understood Christianity, Piety, Courage, Honour, Probity, Disinterestedness, a becoming Humility, and all that could render a Person acceptable to God and Man. No body then would ever have suspected, that it was to be villified in future Ages, and rendered contemptible by so many unworthy and despicable Subjects being advanced to it; that the Habit of Ceremony of military *Orders* was to become a Cloak to Knavery and Unworthiness; the Collar an Emblem of Stupidity and Ignorance; the String to which the Badge was fastened, a Kind of leading one, to guide modern Knights in the dirty Paces of a criminal Ambition, Self-Interest, a scandalous Complaisance, Perfidy, *&c.* That the gilt Spurs would be but too often fastened to a Coward's Heels, to communicate that Agility which a Poltroon wants when pursued by the Enemy; that they would even tremble at the Sight of the Sword which was to be the Instrument of their Knighthood, and wait with Impatience its being sheathed, never to see the Light any more. That those Oaths taken at their Admission, would be but a Farce, the better to jest with Heaven, to deceive their Sovereign, and impose on the Publick. That a Time would be when Men of Honour and Courage will despise Knighthood, and be asham'd to wear a Badge which was become a Collar for all Kinds of Beasts. In a Word, that in Time Knighthood would become a spurious Commodity, either despised or laugh'd at by the most sensible Part of Mankind; by the Nobles, because it would render Men of the most spurious Birth their Equals; by the Brave, because thereby they would be confounded with Cowards, and by the Virtuous, because it would oblige them to frequent sometimes those who are declared Enemies to Virtue. For it is an Heresy in a Point of Honour, that a blue, red, white, black, or yellow Ribband, supply either our Want of Merit, or hide it; on the contrary, it serves only to render it more conspicuous; and a Coward had perhaps never been known for such, if he had not been honoured with a Mark of Distinction, which is a publick Testimony, both to himself and to others, that he should be brave; for when a Man is made a Knight he contracts from that very Moment an indispensible Obligation to expose himself to the most imminent Dangers for the Service of his Prince and Country; and it is reasonable to suppose that all those who have the least Notion of Knighthood should expect that from him; for we do not find in this Treatise, nor in any other Authors who have wrote on the same Subject, that former Knights postulated Knighthood, with no other View than to acquire thereby a Right of adding the *Sir* to their Christian Name, and the Title of *Lady* for their Wives, or to be more at Liberty to spend their Lives in Luxury and Indolence. A true Knight should never be found any where else, in Time of War, but in the Fields; and in Time of Peace, in those Places where they are persuaded they can find more Occasions to practise all the Moral and Christian Virtues. How laudable it would be at present, for Example, if all the Knights were to take the Field at their own Expence (I mean those who are in a Condition to do it) and engage to it, by a noble Liberality, those of their Brethren, who have nothing but their Courage and Sword, rather than be loitering about a Court, or cringing at a Minister's Levee; while those who have not contracted the same Obligations, are forced to put themselves to very great Inconveniences to provide for the publick Security. Oh! was I but in the same good Circumstances, and had I something else to recommend myself but my Courage and Sword, how soon would they see me reduce into Practice, the noble and just Lessons I give them here; which they are obliged to follow in Gratitude to their Prince, who was pleased to bestow that Honour on them; and in Justice to their Country; who could reasonably expect more from them, than from those poor Wretches who are led to the Field against their own Will.

PAINTING.

PAINTING, is the Art of representing on a flat Superficy, by the Duct of Draught, and the Degrees of Colours, all Sorts of visible Objects.

This Definition contains three Things, *viz.* the *Draught*, the *Colours*, and the *Composition*; and though this last Part does not appear expressed in a very clear Manner in my Definition, it can, notwithstanding, be understood by these last Words, *visible Objects*, which contains the Matter of the Subjects which the Painter proposes to represent. A Painter must know and prac-

tise those three Parts in the greatest Perfection possible; which three Parts I'll explain in the following clear, and concise Manner.

The *Composition* contains two Things, *viz.* the *Invention* and the *Disposition*. By the *Invention*, a Painter must find and introduce into his Subject, the Objects which he judges most proper to express and adorn it. And by the *Disposition*, he must place them in a Manner, the most advantageous to draw a grand Effect from them, and to please the Eye, in shewing beautiful Parts: That Subject must be well contrasted, well diversified, well bound with *Groups*.

For the *Draught*. — A Painter must do it correctly, with a good Taste, well diversified, sometimes heroick, and sometimes rural, according to the Character of the Figures he wants to introduce; since the Elegance of the Contours which becomes the Divinities, for Example, does not at all become common People; the Heroes and Soldiers, the Weak and Strong, the Young and Old, must have each their different Forms; without reckoning that Nature, which is found different in all its Productions, requires from a Painter a becoming Variety. But he should be conscious that of all the Manners of Designing, none is good but that which is mixed with a natural Beauty and the Antick.

The *Attitudes* are to be natural, expressive, varied in their Actions, and contrasted in their Members: They ought to be simple or noble, animated or moderated according to the Subject of the Picture, and the Discretion of the Painter.

Note, That *Attitude*, in *Painting*, is the Posture or Gesture of a Figure, or the Disposition of its Parts, by which we discover the Action it is engaged in, and the very Sentiment supposed to be in the Mind of the Person represented.

The *Expressions* must be just to the Subject; the principal Figures having noble and sublime ones; and keeping a Medium between the exaggerated and insipid.

Note, That *Expression* in *Painting* denotes a natural and lively Representation of the Subject, or of the several Objects intended to be shewn. The Term *Expression* is ordinarily confounded with that of *Passion*; but they differ in this, that *Expression* is a general Term, implying a Representation of an Object, agreeable to its Nature, and Character, and the Use, or Office it is to have in the Work; whereas *Passion* in *Painting*, denotes a Motion of the Body, accompanied with certain Dispositions, or Airs of the Face, which mark an Agitation in the Soul; so that every *Passion* is an *Expression*, but not every *Expression* a *Passion*.

The Extremities, I mean the Head, Feet, and Hands, must be worked wirh more Precision and Exactness than all the rest, and must concur together, to render the Action of the Figures more expressive.

The *Draperies* must be well order'd, the Folds or Plaits thereof large, in small Number as much as possible, and well contrasted; the Stuffs thick or light, according to the Quality and Conveniency of the Figures; they should be sometimes worked, and of different Kinds; and sometimes simple, according to the Conveniency of the Subjects, and of the Places which require more or less Eclat, for the Ornament of a Picture, and the Œconomy of the *Tout-ensemble*.

Note, That *Drapery* in *Painting*, is the Representation of the Garments, or Cloathing of human Figures. — In the general Sense, *Drapery* includes not only the Garments, but also the Tapestry, Linen, and most other Things that are not Carnations or Landskips.

Animals must be principally characterized by an ingenious and special Touch.

A *Landskip* ought not to be too much cut by too many Objects, they should be few, but well chosen; and in case a great Quantity of Objects be introduced in it, they must be ingeniously grouped with Lights and Shadows, the Sight well bound and free, the Trees different in Form, Colour, and Touch, as much as Prudence, and the Variety of Nature require it: That Touch should be always light; the Foreparts of the Landskip rich, either by the Objects, or by a greater Exactness of Work, which render the Things true and palpable: The Sky is to be light, and no Object on the Ground ought to dispute with it its æthereal Character, except smooth Waters, and polished Bodies, which are susceptible of all Colours opposed to them; of celestial, as well as terrestrial ones: The Clouds must be well chosen, well touched, and well placed.

Note, That *Group*, or *Groupe*, in *Painting*, is an Assemblage or Knot of two or more Figures of Men, Beasts, Fruits, or the like, which have some apparent Relation to each other. In a good *Painting*, it is necessary that all the Figures be divided into two or three *Groups*, or separate Collections. Such and such a Thing make a *Group*, with such and such other of different Nature and Kind. The antique *Laomedon* is a fine *Group* of three beautiful Figures. A *Group* has something in it of the Nature of a Symphony or Concert of Voices: As in the one the Voices must sustain each other, in order to fill the Ear with an agreeable Harmony from the whole; whence if any Part were to cease, something would necessarily be missed: So, in the *Group*, if the Parts of Figures be not well ballanced, something will be found disagreeable. There are two Sorts of *Groups*, or two Manners of considering *Groups*; with Regard to the Design, and to the clair-obscure. The first is common both to Works of *Painting*, and those of Sculpture; the latter peculiar to *Painting*. *Groups*, with Regard to the Design, are Combinations of divers Figures, which have Relation to each other, either on Account of the Action, or of their Proximity, or of the Effect they have. These we conceive, in some Measure, as representing so many different Subjects, or at least so many distinct Parts or Members of one greater Subject. *Groups*, with Regard to the clair-obscure, are Bodies of Figures, wherein the Lights and Shadows are diffused in such Manner, that they strike the Eye together, and naturally lead it to consider them in one View.

The *Perspective* must be regular, and not of simple Practice, very little exact.

In the *Coloris*, which includes two Things, the local Colour, and the clair-obscure; a Painter must be careful to learn both well; since that distinguishes him from Artificers, who have the Measures and Proportions in common with him. And that, besides, renders him a truer and more perfect Imitator of Nature.

The *local Colour* is nothing else but that which is natural to each Object, in what Place soever it be found, which distinguishes it from others, and marks perfectly the Character thereof.

The *Clair-obscure*, is the Art of distributing advantageously the Lights and Shadows, as well on the particular Objects, and in the whole of the Picture: On the particular Objects, to give them a convenient Relievo and Roundness: And in the whole of the Picture, that the Objects may be seen in it with Pleasure; by giving Occasion to the Sight to rest itself from Space to Space, by an ingenious Distribution of grand *Clairs*, and large Shadows, which afford one another mutual Succours, by their Oppositions; so that the great *Clairs* are Rests for the great Shadows; as the great Shadows will be Rests for the great *Clairs*. But though the *Clair-obscure* contains, as already observed, the Science of placing well all the *Clairs*, and all the Shadows, it is understood, notwithstanding, in a more particular Manner, of the great Shadows, and of the great Lights. Their Distribution, in this last Sense, can be made in four Manners. 1. By the natural Shadows of the Bodies. 2. By the *Groups*, in disposing the Objects in a Manner, that the Lights are found bound together, and the Shadows, likewise, together, as it is seen coarsely in a Bunch of Grapes, where the Grains on the Side of the Light, make a Mass of Light, and those on the opposite Side a Mass of Shadows; and the whole forms but one Group, and as a single Object; so that, notwithstanding, no Affectation appears in that Artifice; but the Objects be found thus naturally situated, and as by Chance. 3. By the Accidents of a supposed Light. And, 4. By the Nature

ture and the Body of Colours, which the Painter can give to the Objects without altering the Character.—That Part of *Painting* is the greatest Means a Painter can make Use of, to give Strength to his Work, and to render his Objects sensible, as well in general as in particular.

I do not see that the Artifice of the *Clair-obscure* was known in the *Roman* School before *Polydore Caravagio*, who found it, and established it for one of the Principles of his Art: And I am surprized that the Painters who have followed him, have not perceived that the great Effect of his Work proceeds from the Repose he has observed from Space to Space, by grouping his Lights on one Side, and his Shadows on the other, which cannot be done but by the Intelligence of the *Clair-obscure*. I am surprized that they have let so necessary a Part escape without perceiving it: Notwithstanding which, there are some Works among those of the *Roman* Painters, where we find some *Clair-obscure*; but that must be considered as a good Interval of the Genius, or as the Effect of a pure Hazard, rather than of a well established Principle.

Andrew Boscoli, a Painter of *Florence*, has had very strong Foresights of the *Clair-obscure*, as is seen by his Works; but we are indebted to the *Georgion* for the Restoration of that Principle, which having been observed by *Titian*, his Competitor, he took the Advantage thereof in all he painted since.

In *Flanders*, *Otho Venius* established solid Principles for the *Clair-obscure*, which he communicated to *Rubens* his Pupil. This render'd it still more sensible, and did shew them so well the Advantages and Necessity thereof, that the best *Flemish* Painters, who have followed him, have render'd themselves commendable by that Part; for without it, all the Care they have taken to imitate ever so faithfully the particular Objects of Nature, would be of no Consideration.

In the *Description of Colours*, there must be an Accord which may produce the same Effect for the Eyes, as Musick does for the Ears.

If there be several Groups of *Clair-obscure* in a Picture, one of them must be more sensible than the rest, so that there may be Unity of Object, as in the Composition there is Unity of Subject.

As to *the Pencil*, it must be bold, and light, if possible; but whether it appears smooth, like that of *Corregio*, or uneven and rough, like that of *Rembrant*, it should be always soft.

As to *Licences*; if one is forced to take any, they must be imperceptible, judicious, advantageous, and authorised; the three first are for the Art of the Painter, and the last regards History.

A Painter that possesses his Art in all the Details aforementioned, may, it is true, flatter himself with being a good Painter, and hope to do very fine Things; but his Pictures cannot be perfect, if the Beauty found in it be not accompanied with *Grace*.

Grace must season all the Parts abovementioned; it must follow the Genius: It is *Grace* that supports and perfects it; but it can neither be acquired perfectly, nor demonstrated.

A Painter holds it from Nature only, and not even knows if it be in him, nor to what Degree he possesses it, nor how it communicates it to his Works: It surprizes the Spectator, who feels the Effect thereof, without penetrating its true Cause; but that *Grace* does touch his Heart, no otherwise than by the Disposition he finds in it.—*Grace* may be defined, what pleases and gains the Heart, without passing through the Mind.

Grace, and *Beauty*, are two different Things: *Beauty* pleases no otherwise than by the Rule, and *Grace* pleases without Rules.—What is beautiful is not always gracious; and what is gracious is not always beautiful; but *Grace* joined to Beauty is the Height of Perfection.

Note, That I have given, in this Place, this Idea of a perfect Painter, in as concise a Manner as possible, not to appear too tedious to those who have not the least Doubt on the Things it contains. But for those that want Proofs of what I have touched thus superficially, I'll endeavour to gratify them in the following Observations, which will answer Article by Article, to the different Parts which I have admitted necessary to make a perfect Painter, beginning with the Genius.

As to *the Genius*.—Whatever Pains Men take to conquer the Obstacles which hinder them from attaining to Perfection, if they are not born with a particular Talent for the Arts they design to profess, they will be always dubious of ever gaining the End they have proposed to themselves. The Rules of the Art, and the Example of others, can, no doubt, shew them the Means of attaining to it; but it is not enough that those Means be sure, they must likewise be easy and agreeable.

But that Facility is found no where but in those, who before they study the Rules and see the Works of others, have consulted their Inclination, and examined if they are attracted by an inward Light to the Profession they would follow. For that Light of the Mind is nothing else but the Genius, shewing us always the shortest and easiest Way, and renders us infallibly happy, as well in the Means as in the End.

The Genius is a Present that Nature gives to Men in the very Moment of their Birth; and though it gives it most commonly but for one Thing in particular, she is sometimes liberal enough to render it general in one Man. We have seen several Instances of that Kind, and those who have been happy enough to receive that Plenitude of Influences, find little or no Difficulty in all they undertake; for it is enough they will apply themselves, to succeed. It is true, that a particular Genius does not extend thus its Power over all Kinds of Knowledge; but it ordinarily penetrates beyond that which is within its Sphere.

Therefore a *Genius* is wanted; but a *Genius* exercised by Rules, by Reflections, and by Assiduousness to Work. We must have seen much, read much, studied much, to direct that *Genius*, and to render it capable to produce Things worthy of Posterity.

But as a Painter can neither see nor study all the Things he should for the Perfection of his Art, it is very proper he should make use, without scruple, of the Studies of others; for it is impossible to represent well the Objects which we have neither seen nor designed. If a Painter has not seen a Lion he cannot paint a Lion; and if he has seen one, he cannot represent but imperfectly that Animal, unless he has designed or painted it, either after Nature, or after the Work of another.

Therefore a Painter is not to blame, who having never seen nor studied the Object he is to represent, makes Use of the Studies of another, rather than make, of his own Head, something false; He should have his Studies either in his Memory or his Pocket-Book, *i. e.* his own, or those of others.

After a Painter has filled his Mind with the Sight of beautiful Things, he adds to, or diminishes from them, according to his Taste, and his Capacity; and that Change is made by comparing the Ideas of what we have seen, and chusing of what we find good. *Raphael*, for Example, who, while with his Master *Perugin*, had but the Ideas of the Works of that Painter, having compared them afterwards with those of *Michel Angelo*, and with the Antique, chose what he thought best, and made to himself a refined Taste, such as we see it in his Works.

Therefore the Genius make Use of Memory as of a Vessel where he keeps the Ideas which offer; he chooses them with the Help of the Understanding, and makes a Magazine of them, to use them as Occasion serves. He draws out of it what he has put in it, and cannot draw any Thing else. Thus *Raphael* took from his Magazine the sublime Ideas, he had took from the Antique.

A Man of Genius can invent a Subject in general; but if he has not studied particular Objects, he will be embarassed in the Execution of his Work, unless he has Recourse to the Studies of others.

It is even very likely he has neither the Time nor the Conveniency of seeing Nature, but if he has a fine Genius, he'll be capable to study after the Pictures, Draughts, and Prints of Masters, who knew how to chuse the best Parts, and work them with Judgment. Such, for Example, who wants to make a Landscape, and has never seen,

ſeen, or never obſerved the Countries proper to be painted for their Variety, or their Agreement, will do very well to have Recourſe to thoſe who have ſtudied thoſe Countries, or have repreſented in their Landſkips the extraordinary Effects of Nature, and make them ſerve, afterwards, towards inventing ſomething of himſelf.

He'll ever find two Advantages in ſtudying, after the Works of the beſt Maſters. The firſt is, that he'll find Nature free from ſeveral Things, which muſt be rejected when it is copied. — The ſecond, that he'll learn thereby how to make a good Choice of Nature, to take from it but what's beautiful, and to rectify its Imperfections. Thus a Genius well regulated, and ſupported by the Theory, ſerves to put advantageouſly in Uſe, not only one's own Studies, but likewiſe thoſe of others.

Leonardo de Vinci has wrote, that the Spots found on an old Wall, forming confuſe Ideas of different Objects, can excite a Genius, and help it towards its Productions. Some have imagined, that that Propoſition leſſens the Genius, without giving good Reaſons for it. Though it is certain, that on ſuch a Wall, or on ſuch a Thing maculated, there is Room, not only to conceive Ideas in general; but every one conceives different ones therefrom, according to the Diverſity of Genius's, and what is ſeen then but confuſedly, clears up, and is formed in the Mind, according to the Taſte of him in particular who looks at it. So that one ſees a beautiful and rich Compoſition, and Objects conformable to his Taſte, because *his* Genius is fertil, and his Taſte good; and the other, on the contrary, ſees nothing in it but poor, and of a bad Taſte, becauſe his Genius is cold, and his Taſte bad.

But let the Characters be what they will, each can find on that Object ſomething to excite his Imagination, and produce ſomething which belongs to it. The Imagination ſeated thus by Degrees, will render itſelf capable, at the Sight of ſome Figures, to conceive a greater Number of them, and enrich the Scene of his Subject, by ſome undecided Object, which will give Occaſion to it.

As to *the Actions of Nature, and thoſe of Habit and Education.* — Nature is not only diverted by the Accidents to be met with in the actual Productions, but, likewiſe, by the Habits contracted by the Things produced. Therefore the Actions of Nature can be conſider'd in two Manners, either when it acts itſelf freely, or when it acts by an Habit directed by others.

The Actions purely of Nature, are thoſe Men would do, if from their Infancy they were ſuffer'd to work, according to their natural Penchant; and the Action of Habitude and Education, are thoſe done in Conſequence of the Inſtructions and Examples they have received. Of thoſe there are as many as there are different Nations, and they are ſo mixed among the Actions purely natural, that, in my Opinion, it is very difficult to know the Difference thereof. It is, notwithſtanding, what Painters muſt endeavour to do; for they have often Subjects to treat where they muſt follow the pure Nature, either in the whole, or in Part. They ſhould not be Strangers to the different Actions moſt Nations have inveſted Nature withal; but as their Difference proceeds from ſome Affectation, which is a Veil which diſguiſes the Truth; the principal Study of a Painter muſt be to unfold, and diſcover in what conſiſts the true, the beautiful, and the ſimple of that ſame Nature, which draws all its Beauties and all its Graces, from its Purity and Simplicity.

It is viſible, that the antient Sculptors have ſearched that natural Simplicity, and that *Raphael* has found it in their Works, with the good Taſte, that we admire in his Figures. But though Nature be the Source of Beauty, it is pretended that Art ſurpaſſes it; it is even the Opinion of ſeveral celebrated Authors; therefore it is a Problem, which it is proper to reſolve.

Nature ſhould be conſider'd in two Manners, either in the particular Objects, or in the Objects in general, or in itſelf. Nature is ordinarily defectuous in the particular Objects, in the Formation whereof, it is, as already obſerved, diverted by ſome Accidents from what ſhe intended, which is always to form a perfect Work. But if it be conſider'd in itſelf, in its Intention, and in the general of its Productions, it will be found perfect.

It is in that general, that the antient Sculptors have found the Perfection of their Works; and whence *Polyclete* took the fine Proportions of the Statue he made for Poſterity, and which was called the Rule. The ſame may be ſaid of Painters. The advantageous Effects of Nature have inſpired them with the Deſire of imitating them; and a happy Experience has reduced, by Degrees, thoſe ſame Effects into Precepts. Therefore it is not from a ſingle Object, but from ſeveral that the Rules have been eſtabliſhed.

If we compare the Art of a Painter, which has been founded on Nature in general, with a particular Production of that ſame Nature, we may truly ſay, that Art is above Nature: But if we compare it with Nature itſelf, which is its Model, that Propoſition will be falſe.

In fact, to conſider Things well, whatever Care Painters have took yet to imitate that Miſtreſs of Arts, we find that they are ſtill at a very great Diſtance from it, and that it contains a Source of Beauties, which will never be exhauſted. Wherefore it is ſaid, that in the Arts we learn every Day ſtill ſomething new, becauſe Experience, and our Reflections, diſcover continually ſomething new in the Effects of Nature, which are without Number, and always different one from the other.

Note, That as the antient Sculptors and Painters have been the greateſt Imitators of Nature, it is not improper to ſpeak in this Place of their Works, known under the general Name of *Antique*; ſince, at the ſame Time, it will much contribute towards the Inſtruction of our Pupil Painter.

We call *Antique* all the Works of *Painting*, Sculpture, and Architecture, either in *Egypt*, *Greece*, or *Italy* from the Time of *Alexander the Great*, to the Invaſion of the *Goths*, who by their Fury and Ignorance made all the Arts periſh. The Word *Antique*, notwithſtanding, is more particularly in Uſe to ſignify the Sculptures of thoſe Times, as well Statues and Baſs-Relievo's, as Medals, and engraved Stones. All thoſe Works are not equally good, but even in thoſe which are but indifferent, there is a certain Character of Beauty, which makes the Connoiſſeurs diſtinguiſh them from modern Works.

Therefore it is not of thoſe modern Sculptures I intend to ſpeak here, but of thoſe perfect antique ones, which are ſeen with Admiration, and the antient Authors have placed them above Nature itſelf; and never praiſed Man's Beauty, but according to the Conformity it had with the fine Statues.

It is certain, that few Perſons are capable to diſcover all the Elegance which is in the antique Sculptures, becauſe we ſhould want for it a Mind proportioned to that of the Sculptors who made them, and thoſe Men had a ſublime Taſte, a quick Conception, and the Execution exact and ingenious. They have given to their Figures Proportions conformable to their Character, and have deſigned the Divinities by Contours more elegant, and of a greater Taſte than thoſe of common Men. They have made a nice Choice of the beautiful Nature, and have remedied, in an excellent Manner, to the Impoſſibility they were reduced to by the Matter they employ'd of imitating all.

Therefore a Painter cannot do better than to endeavour to penetrate the Excellence of thoſe Works, the better to diſcover the Purity of Nature, and to deſign more learnedly, and more elegantly. But, however, as there are in Sculpture ſeveral Things which do not become *Painting*, and a Painter has, beſides, other Means to imitate Nature more perfectly, he muſt conſider the Antique as a Book, tranſlated into another Language, in which it ſuffices to give well the Senſe of the Author, without pretending to tranſlate Word for Word.

As to what we call, in *Painting*, the *grand Gout*, or *Taſte*, it is indiſpenſably required in that Art, where there muſt be ſomething great and extraordinary, capable to ſurprize, pleaſe, and inſtruct. Since it is thereby that the moſt common Things become beautiful; and the beautiful, ſublime and marvellous.

I may be aſked, perhaps, in this Place, if to be a faithful Hiſtorian be of the Eſſence of *Painting*? To which I anſwer, that though a Painter is obliged to be faithful

faithful in the History he represents, and that by the curious Research of the Circumstances it is accompanied with, he heightens the Beauty and the Price of his Picture, that Obligation is not entirely of the Essence of *Painting*, but only an indispensible Decency, as Virtue and Learning are in Man, and as a Man is no less a Man, though he be ignorant and vicious; a Painter is no less a Painter though he be ignorant in History. And if it be true, that Virtue and Learning are the Ornaments of Men; it is equally as true, that the Works of a Painter are the more valuable, the greater is the Fidelity he shews in the historical Subjects he represents.

Therefore a Painter may be a very great Master of his Art, and very ignorant in History. We see almost as many Examples of it, as there are Pictures of the *Titian*, of *Paul Veronese*, of the *Tintorete*, of the *Bassans*, and of several others, who minded scarce any Thing else besides the Essence of their Art, *i. e.* the Imitation of Nature; and have less applied themselves to Things accessary, which can be, or not be, without causing the least Alteration in the Essence. It seems that it is in that Sense, the Curious consider the Works of the Painters above-mentioned, since they buy them so dear.

It is certain, that if that Essence in the Works of the *Venetian* Painters, had been accompanied with Ornaments capable to raise the Price thereof, *viz.* a Fidelity in History and Chronology, they would be much more valuable; but it is certain, likewise, that it is by Means of that Essence, Painters are to instruct us; and that we should search in their Paintings, the Imitation of Nature preferably to all Things. If they instruct us, well and good; if not, we have always the Pleasure to see in their Works a Kind of Creation, which diverts us, and awakes our Passions.

If I want to learn the History, I will not consult a Painter, who is no otherwise an Historian but by Accident. I'll read Books wrote on that Subject, and whose essential Obligation is not only to relate Facts, but to relate them faithfully.

But however, I'll not pretend here to excuse a Painter for his being a bad Historian, for one is always blameable for doing ill what he undertakes. If a Painter wanting to treat of an historical Subject, is ignorant of the Objects which must enter his Composition to render it faithful, he must take great Care to learn it; and if he neglects it he is inexcusable.

The Invention, which is an essential Part of the Art, consists only in finding the Objects which must enter the Picture, according to the Imagination of the Painter, false or true, fabulous or historical. And if a Painter was to imagine, that *Alexander* was dressed as we are at present, and should represent that Conqueror with a Hat and Wig, he would certainly represent a very ridiculous Thing, and commit a very great Fault; but that Fault would be against History, not against Painting; supposed, besides, the Things were represented according to all the Rules of the Art.

But though the Painter represents Nature by Essence, and History by Accident; that Accident should not be of less Consideration to him, than the Essence, if he will please every Body, and especially Men of Letters, and those who consider a Picture, rather with the Mind than with the Eyes, who make the Perfection thereof to consist principally in representing faithfully History, and expressing the Passions.

As to *the imperfect Ideas of Painting.*—Few Persons have a very clear Idea of *Painting*, Painters themselves not excepted; several of them placing the whole Essence of their Art in the Design, and others in the Colours. Most of those who have to maintain in the World a Character of Witticism, and especially Men of Letters, do not commonly conceive Painting otherwise than by the Invention, and as a pure Effect of the Imagination of the Painter. They examine that Invention, make the Anatomy thereof, and as it appears more or less ingenious, they praise the Picture more or less, without considering the Effect thereof, nor to what Degree the Painter has carried the Imitation of Nature.

It is in vain, for these Sorts of Persons to say, that the *Titian*, the *Georgion*, and *Paul Veronese* have exhausted themselves, and have took so much Pains to carry so far the Imitation of Nature, and that the best Painters value their Works, and propose them as the most perfect Originals. In vain these Paintings are shewn to them, since correct Prints could suffice to exercise their Judgment, and fill the Extent of their Knowledge.

If I be asked, how the Remains of the imperfect Idea of *Painting*, have been preserved, since the Restoration thereof, in the Mind of several? I'll answer, that *Painting*, like the other Arts, has been no otherwise known than by the Progresses it has made in the human Mind. Those who began to renew it in *Italy*, and therefore could have but very weak Principles of that Art, gained, notwithstanding, the publick Admiration, by the Novelty of their Works; and in Proportion as the Number of their Paintings increased, and Emulation gave them Lights, the Pictures increased in Price and Beauty, whence arose Lovers of Painting, and Connoisseurs; and Things being arrived to a certain Point, People began to imagine, that it was as impossible to do any Thing more perfect, than was admired at that Time.

The Great visited the Painters, the Poets celebrated their Praises, and even in the Year 1300, *Charles* I. King of *Naples*, passing through *Florence*, visited *Cimabue*, who was in Reputation then, and *Cosme* of *Medicis* was so charmed with the Works of *Philip Lippi*, that he neglected nothing to conquer the fantastical Humour and Idleness of that Painter.

But however, it is easy to judge by what we have left of those first Works, that *Painting* in those Times was not of much Value, when compared with those we have at present of the best Masters. For not only the Parts which depended on the Composition, and on the Design, were not yet season'd with the good Taste which has appeared since; but that of the *Coloris* was absolutely unknown, as well in the Colour of the Objects in particular, called local Colour, as in the Intelligence of the *Clair-obscure*, and in the Harmony of the *Tout-ensemble*. It is true, that they employed Colours, but the Road they followed in it was trivial, and served rather to make us remember it, than to represent the Truth of the Objects.

In that Ignorance of the *Coloris* where Painters had been educated, they did not know the Power of that enchanting Part, nor to what Degree it was capable to carry their Work. They contented themselves with practising what they had learned from their Masters, and were occupied in nothing else but how to render the Road they had been shewn easy and practicable; therefore the Invention and the Design made their whole Study.

At last, the good Genius of *Painting* succeeded: several Years afterwards, very great Men in *Tuscany*, and the Dutchy of *Urbino*, who, by the Solidity of their Wit, the Goodness of their Genius, and the Assiduousness of their Studies, raised the Ideas of the Knowledge they had received from their Masters, and carried them to a Degree of Perfection which caused the Admiration of Posterity.

Those to whom we are particularly indebted for that Perfection, are *Leonardo de Vinci*, *Michel Angelo*, and *Raphael*; but this last, who raised himself above the others, acquired so many Parts in his Art, and has carried them to so high a Degree, that the great Praises given him, have made believe, that he wanted nothing, and have fixed in his Person all the Perfection of *Painting*.

As it is necessary in the Practice of this Art, to begin by the Design, and it is certain, that the Source of the good Taste and Correction, is found in the antique Sculptures, and in the Works of *Raphael*, most of the young Painters go to *Rome* to study, and to bring from thence at least a general Esteem of the Works admired there, and communicate it to all those that hear them. Thus a great Number of Curious and Lovers of *Painting*, have preserved on the Faith of others, or on the Authority of Authors, that first Idea they have received, *viz.* that the Perfection of *Painting* was found in the Works of *Raphael*.

Most of the *Roman* Painters were likewise of that Opinion, have insinuated it to Foreigners, either by Reason of their Love for their own Country, or by Negligence for the *Coloris*, which they have never well known, or by the Preference they gave to the other Parts of *Painting*, which being in great Number, occupied them the rest of their Life.

Till then, therefore, nothing else had been minded, but

but what depended on the Invention and Design; and though *Raphael* has invented very ingeniously, has designed with a perfect Correctness and Elegance; has expressed the Passions of the Soul with an infinite Energy and Grace, has treated the Subjects with all possible Conveniency and Grandeur, and no Painter has disputed with him the Preference, in the great Number of Parts he possessed; it is certain, notwithstanding, that he has not penetrated far enough into the *Coloris* to render the Objects very true and sensible, nor to give the Idea of a perfect Imitation; though that perfect Imitation is properly the Essence of *Painting*, it proceeds from the Design and the *Coloris*; and if *Raphael* and the best Painters of his Time had this last Part but imperfectly, the Idea of the Essence of *Painting* which proceeds from the Effect of their Works must be imperfect, as well as that, which has successively introduc'd itself into the Mind of of some Persons, otherwise very learned.

The Works of the *Titian*, and the other Painters, who have published their Thoughts by Means of a faithful Imitation, should it seems have destroyed the bad Rests I mention, and have reformed the Ideas according as Nature and Reason require it from a just Mind. But as Youth brings nothing from *Rome* to *Venice* but a prejudiced Mind and Eye, and they commonly sojourn but very little in that last City, they see in it, but as *en passant*, the beautiful Works which could give them a just Idea, far from contracting there an Habit of good *Coloris*, which would perfect the Studies they have made at *Rome*, and render them irreproachable in all the Parts of their Profession.

But what's surprizing is, that certain Curious, who have some Remains of that false Idea, and being themselves charmed with the Beauty of the *Venetian* Paintings, purchase them at a great Price, though those *Paintings* have scarce any other Merit than by the Idea I have established of the Essence of *Painting*.

As to the *Composition*; which, in my Opinion, is the first Part of *Painting*. — Some have confounded the first Part of *Painting* with the Genius, others with a Fertility of Thoughts; and others with the Disposition of Objects; but all those Things are different from one another. I thought that to give a clear Idea of the first Part of *Painting*, I should call it Composition, and divide it into two, *viz.* Invention and Disposition. The Invention finds only the Objects of the *Painting*; and the Disposition places them. These two Parts are different, it is true, but they are so well connected together, that they may be understood under the same Name.

The Invention is formed by reading in the Subjects extracted from History or the Fable. It is a pure Effect of the Imagination in *metaphorical Subjects*; it contributes to the Fidelity of the History, as to the Clearness of the Allegories; and in what Manner soever it is used, it must never keep the Mind of the Spectator in Suspense by any Obscurity. But let the Objects introduced into the Picture be ever so faithfully and ingeniously chosen, they'll never produce a good Effect, if they be not advantageously disposed, according as the Œconomy, and the Rules of the Art require it: And it is the just Assemblage of those two Parts, which I call Composition.

As to the *Design*, which I consider as the second Part of *Painting*. — The good Taste and Correctness of the *Design*, are so necessary in *Painting*, that a Painter destitute of it, is obliged to do Miracles to gain some Reputation; and as the Design is the Base and Foundation of all the other Parts, that it terminates the Colours, and unfolds the Objects, its Elegance and Correctness is no less necessary in *Painting*, than the Purity of Language in Eloquence.

Painters who reduce by Habitude all their Figures under the same Air, and the same Proportions, have never well conceived that Nature is no less marvellous in the Variety, than in the Nature of its Productions, and that by a judicious Mixture of both, they could arrive to a perfect Imitation.

Therefore the Qualities or Conditions required in a Design are Correctness, good Taste, Elegance, Character, Diversity, Expression, and Perspective.

Correctness depends principally on the Justness of the Proportions, and a Knowledge of Anatomy. Taste is an Idea or Manner of Designing, which arises either from the Complexion and natural Disposition, or from Education, one's Master, Studies, *&c.* Elegance gives the Figures a Kind of Delicacy, which strikes People of Judgment, and a certain Agreeableness which pleases every Body. The Character is what is peculiar to each Thing; in which there must be a Diversity; in as much as every Thing has its particular Character to distinguish it. The Expression is, as already observed, the Representation of an Object according to its Character, and the several Circumstances it is supposed to be in. The Perspective is the Representation of the Parts of a *Painting* or Figure, according to the Situation they are in with Respect to the Point of Sight.

The principal Rules that regard the Design are; that Novices accustom themselves to copy good Originals at first Sight; not to use Squares in Drawing; for fear of stinting and confining their Judgment; to stay till they can design well after the Life, before they begin the Practice of Perspective Rules; in Designing after the Life, to learn to adjust the Bigness of their Figures to the visual Angle, and the Distance of the Eye from the Model or Object; to mark it at all the Parts of their Design, before they begin to shadow; to make their Contours in great Pieces, without taking Notice of the little Muscles, and other Breaks; to make themselves Masters of the Rules of Perspective; to observe every Stroke as to its Perpendicular, Parallel, and Distance; and particularly so to compare, and oppose the Parts that meet upon, and traverse the Perpendicular, as to form a Kind of Square in the Mind; which is the great and almost the only Rule of Designing justly; to have a Regard not only to the Model, but also to the Part already designed; there being no such a Thing as Designing with strict Justness, but by comparing and proportioning every Part to the first, *&c.*

As to Attitudes. — In them the Ponderation and Contrast are founded in Nature. It performs no Action without shewing those two Parts; and was it to fail in it, it would be either deprived of Motion, or constrained in its Action.

As to Expressions. — They are the Touch-stone of the Judgment of the Painter: He shews by the Justness wherewith he distributes them, his Penetration and Discernment: But the Spectator wants the same Judgment to perceive them well, a Painter does to execute them well.

A *Painting* must be consider'd as a Scene, where each Figure acts its Part. Figures well designed and well coloured are marvellous, 'tis true; but most ingenious People, who have not yet a very just Idea of *Painting*, are no otherwise sensible to those Parts than they are accompanied with the Vivacity, Justness, and Delicacy of the Expressions. They are one of the rarest Talents of *Painting*, and he that is happy enough to treat them well, interesses in it, not only the Parts of the Face, but likewise all those of the Body, and make even the most inanimated Objects to concur to the general Expression of the Subject, by the Manner he exposes them.

As to the Extremities, *viz.* the Head, Feet, and Hands, are more known and more observed, that they speak to us in the *Painting*, they must be more finished than any other Things, suppose the Action they'll be in, disposes and places them in a Manner to be well seen.

As to Draperies. — It is said in *Painting*, to *throw a Drapery*, or *give a Drapery*, instead of cloathing a Figure. That Word *throwing* seems to me the more expressive, that Draperies are not to be set in Form, as our Cloaths are; but in following the Character of pure Nature, which is far from all Affectation, the Plaits must be found as by Chance round the Members, that they may make them appear such as they are; and by an industrious Artifice, contrast them in shewing them, and caress them, as it were, by their tender Sinuosities, and Softness.

The antient Sculptors, who had not the Use of different Colours, because they worked the same Piece on the same Matter, have avoided the great Extent of the Plaits, lest that by being round the Members, they should attract the Eyes, and hinder the naked of their Figures from being seen at Leisure. They have often used wet Linen for Drapery, or have multiplied the same Folds, that that Repetition should make a Kind of

Hetching, which by its Obſcurity ſhould render more ſenſible the Members they cover. They have obſerved this laſt Method, moſt commonly, in Baſs-Relievo's. But in whatever Manner they have treated their Draperies, they have obſerved a marvellous Order in placing the Plaits.

A Painter, who by the Diverſity of his Colours and Lights, muſt take off the Equivocation of the Members with the Draperies, can very well regulate on a good Order, the Plaits of the Antique, without imitating their Number, and can vary the Stuffs according to the Characters of his Figures.

The Painters who knew nothing of that Liberty they had, have as much wronged themſelves in following the antique Sculptures, as the Sculptors in wanting to follow the Painters.

The Reaſon why the Plaits muſt mark the Naked, is, that *Painting* is a flat Superficy, which muſt be annihilated in deceiving the Eye, and leaving no Equivocation. A Painter is then obliged to obſerve that Order in all his Draperies, either fine or coarſe, worked or plain; but he ought to prefer, above all Things, the Majeſty of the Plaits to the Richneſs of the Stuffs, which is not proper but in Hiſtories, in which it has, or could be employed according to the Times and Cuſtoms.

As a Painter muſt avoid a Hardneſs and Stiffneſs in the Plaits, he muſt likewiſe uſe with Prudence of flying Draperies. For they cannot be agitated but by the Wind, in a Place where it may be reaſonably ſuppoſed to blow; or by the Compreſſion of the Air when the Figure is ſuppoſed in Motion. Theſe Sorts of Draperies are advantageous, becauſe they contribute towards giving Life to the Figures by the Contraſt; but great Care muſt be taken, that the Cauſe thereof be natural, and likely; and not to give in the ſame Picture Draperies flying on different Sides, when they cannot be agitated but by the Wind, and the Figure is at reſt; a Fault whereof ſeveral good Painters have been guilty.

As to the Landſkip. — If *Painting* be a Kind of Creation, it ſhews it ſtill more in Landſkips than in any other Sort of *Paintings*. In them Nature is moſt generally ſeen out of its Chaos, and the Elements more unfolded. In them the Earth is adorned with its different Productions, and the Heavens with their Meteors. And as this Kind of *Painting* contains an Abridgement of all the others, the Painter who practiſes it, muſt have an univerſal Knowledge of the Parts of his Art, if not in ſo great a Detail as thoſe who commonly paint Hiſtory, at leaſt ſpeculatively, and in general. And if he does not finiſh all the Objects in particular, which compoſe his Piece, or accompany his Landſkip, he is obliged at leaſt, to expreſs in a lively Manner, the Taſte and Character thereof; and to give the much more Spirit to his Works, that it is leſs finiſhed.

I do not pretend, notwithſtanding, to exclude from that Talent the Exactneſs of the Work, on the contrary, the more finiſhed, the more valuable it will be. But let a Landſkip be ever ſo well finiſhed, if the Compariſon of the Objects does not render them valuable, and preſerve their Characters, if the *Sites* be not well choſen, or are not ſupplied by a fine Intelligence of the *Clair-obſcure*, if the Touches be not judicious, if the Places be not animated by Figures, Animals, or other Objects, which are moſt commonly in Motion, and if the Truth and Variety of Nature be not joined to the good Taſte of the Colour, and to the extraordinary Senſations, the *Painting* will never gain a Reputation among Connoiſſeurs.

Note, That *Site*, or *Scite*, denotes the Situation of a Houſe, *&c.* And ſometimes the Ground-Plot, or Spot of Ground it ſtands upon.

As to the Perſpective. — Some Authors have imagined that Perſpective and *Painting* were the ſame Thing, becauſe there was no *Painting* without Perſpective. Tho' the Propoſition is falſe, abſolutely ſpeaking, ſince the Body, which cannot be without Shadow, is not, notwithſtanding, the ſame Thing with the Shadow; but however it is true, in that Senſe, that a Painter cannot do without Perſpective, and that he does not draw alike, nor give a Stroke of his Pencil, without Perſpective having ſome Part in it, at leaſt habitually. It regulates the Meaſures of the Forms and the Degradation of the Colours, in any Part of *Painting* it is to be met with. A Painter is obliged to know the Neceſſity thereof; and though he has contracted, as he ought, a perfect Habit thereof, he'll expoſe himſelf often to commit very great Faults againſt that Science, if he neglects to conſult it anew, at leaſt in the viſible Places, and to take the Rule and Compaſs, to hazard nothing, and not expoſe himſelf to Cenſure.

Michel Angelo was blamed for having neglected the Perſpective, and the greateſt Painters of *Italy* were ſo well perſuaded, that without it a Compoſition could not be render'd regular, that they were reſolved to know it perfectly. *Raphael* was ſo regular on that Point, that we even ſee in ſome of his Draughts a Scale of Degradation.

As to the Colouring; which I eſtabliſh for the third Part of *Painting*. — Colouring in *Painting*, is the Manner of applying and conducting the Colours of a Picture, or the Mixture of Lights and Shadows, formed by the various Colours employ'd in a *Painting*.

Piles obſerves, that the Word Colouring, in its confined Senſe, is chiefly applicable to a Hiſtory-Piece; ſcarce at all to a Landſkip. He adds, that the Term Colouring, relates more immediately to the Carnations than any Thing elſe.

The Colouring, in its general Senſe, takes in whatever relates to the Nature and Union of Colours; their Agreement, or Antipathy; how to uſe them to Advantage in Light and Shadow, ſo as to ſhew a Relievo in the Figures, and a Sinking of the Ground; what relates to the aerial Perſpective, *i. e.* the Diminution of Colours by Means of the Interpoſition of Air; the various Accidents and Circumſtances of the Luminary and the Medium; the different Lights, both of the Bodies illuminating and illuminated; their Reflections, Shadows, different Views, with Regard either to the Poſition of the Eye, or the Object; what produces Strength, Boldneſs, Sweetneſs, *&c.* in *Paintings* well coloured; the various Manners of Colouring both in Figures, Landſkips, *&c.*

As to the Accord of Colours. — There is an Harmony and Diſſonance in the different Kinds of Colours, as there is in Tunes in Muſick, it is not only neceſſary that the Notes be juſt, but likewiſe that in the Execution, the Inſtruments be all in Tune: And as the Inſtruments of Muſick, do not always agree together, for Inſtance, the Lute with the Hautboy, *&c.* Likewiſe there are Colours which cannot be left together without ſhocking the Sight; as the Vermillion with the Greens, the Blues, and the Yellows. But likewiſe as the more acute Inſtruments ſave themſelves among a great Quantity of others, and have ſometimes a very good Effect; thus the moſt oppoſite Colours being placed *a propos*, and with Judgment, between ſeveral others which are in Union, render certain Places more ſenſible, which muſt be predominant, and attract the Sight.

Titian has followed this Method in his Picture of the Triumph of *Bacchus*, where having placed *Ariadne* on one Side of the Picture, and therefore judging it impracticable to render her as remarkable as he would have her, by the great Light he has preſerved in the Middle of his Piece, gave her a red Scarf on a blue Drapery, as well to looſen her from the Bottom of the Picture, which is a blue Sea already, as becauſe it is one of the principal Figures of the Subject, on which he would have the Eye fixed. *Paul Veroneſe*, in his Wedding of *Cana*, becauſe Chriſt, who is the principal Figure of the Subject, is a little ſunk in the Picture, and he could not make him be remarked by the Brilliant of the *Clair obſcure*, has dreſſed him in blue and red, to attract the Eye on that Figure.

As to the *Pincel*. — The Term *Pincel* is taken ſometimes for the Source of all the Parts of *Painting*, as when the Picture of the Tranſfiguration of *Raphael*, is the fineſt Piece which came out of his *Pincel*; and ſometimes it is underſtood of the Work itſelf, *v. gr.* when it is ſaid, that of all the Painters of Antiquity, the moſt learned *Pincel* is that of *Apelles*. But here the Word *Pincel* ſignifies only the Manner of uſing it in the Application of Colours; and when thoſe ſame Colours have not been too much agitated, and as it is ſaid too much tormented by the Motion of a heavy Hand, but, on

on the contrary, the Motion appears free, quick and light, it is said that the Work is of a good Pencil. But that free Pencil is of but little Signification, unless it be guided by the Head, and shew that the Painter is Master of his Art. In a Word, a fine Pencil is to *Painting* what Musick is to a fine Voice; since both are esteemed in Proportion of the grand Effect, and Harmony which accompany them.

As to *Licences*.—They are so indispensibly necessary, that there are some in all Arts. To take Things in a strict Sense, Licences are against the Rules, but to take them according to our Judgment, they serve as Rules, when taken very *a-propos*. And every judicious Mind will find them *a-propos*, when the Work in which they are employ'd has a greater Effect, and that by means thereof a Painter arrives more effectually to his End, which is to impose on the Sight. But all Painters have not a particular Talent to imploy them to Advantage; that belongs only to great Genius's who are above the Rules, and know how to use ingeniously Licences; whether they employ them for the Essence of their Art, or they regard History only; these last deserve more Attention, and lead me to enquire, *with what Authority Painters have represented the divine Things, and those which are spiritual or unanimated under human Figures?*

The sacred Scripture speak in several Places of the Apparitions of God to Men, either really by the Ministry of Angels, or in Visions by Dreams and Extasies. There is a beautiful Description of God under the Form of an old Man, in the seventh Chapter of *Daniel*, v. 9. the same Scripture speaks likewise of several Apparitions of Angels under human Forms: Therefore the Church in the Council of *Nice* has made no Difficulty to permit Painters to represent God the Father under the Form of an august old Man, and the Angels under human Forms.

It appears likewise that a Painter has a Right to represent living unanimated Things, when he follows only in that the Idea which the Scripture gives of it: And the Spectator ought not to be easily scandalized when he sees in Pictures holy Subjects mixed with poetick Fictions, as if Fictions and Poetry were indispensably something prophane. The Book of *Job*, the Psalms of *David*, the *Revelations*, are all poetical, and full of figurated Expressions, without reckoning all the Parables which are in the rest of the Scripture. Therefore it is according to the Text of the Scripture, that *Raphael*, in the Passage of the River *Jordan*, has painted under a human Figure that River which pushes back its Water towards their Source.

Poussin, who in his Picture of *Moses* found, has followed *Raphael*'s Example, to represent the River *Nile*, has been blamed for it by some Criticks, and these are the Reasons they give for it.

They say, that false Divinities are not to be mixed with that of our Religion; that these Rivers are false Divinities which were adored by the *Pagans*, which ought not to be introduced in sacred Histories: That a Painter besides, should be satisfied with representing only a River, and not a Figure.

To which one may easily answer, that as the Scripture, in introducing Rivers under human Figures, had no Design to speak of those which were adored by the *Pagans*; and though it could express itself naturally and simply, it has notwithstanding used a figured Stile without Fear of seducing the Faithful; likewise a Christian Painter, who should follow the Scripture, is very far from adulterating the Truth of the History, but on the contrary wants, in conforming himself to his Original, to give it to understand more pathetically and more elegantly not to an Infidel, but to a Christian like himself, who being cautioned against the false Divinities, ought not to search another Sense but that of the Scripture.

But with regard to the *Pagan* Divinities which are introduced as such, and with the Characters that distinguish them, there is more Difficulty to introduce them in the Compositions. Learned Men have pleaded that Cause with regard to Poetry, and the Suit is yet undecided. But a Painter who has no other Language to express himself but those Sorts of Figures, far from being blamed for using them, he will be always applauded by the Learned, who shall see them employ'd with Judgment and Prudence.

For the false Divinities can be considered in two Manners, either as Gods, or as symbolical Figures. As Gods, a Painter cannot represent them, but in Subjects purely prophane; and as symbolical Figures, he may use them with Discretion on all Occasions where he'll judge them necessary.

Rubens, who, of all Painters has more ingeniously and more learnedly made Use of those Symbols, as it can be seen by the Book of the Entry of the Cardinal Infant in the City of *Antwerp*, and by the Pictures of the Gallery of the *Luxembourg* at *Paris*, has been censured by some for having introduced in his Compositions those allegorical Figures, having mixed thereby, say they, the Sacred with the Prophane.

To which it may be answered, that by the Use *Rubens* has made of them, he has not confounded the Fable with the Truth, but has rather, to express that same Truth, made Use of the Symbols of the Fable. In fact in the Picture of the Birth of *Louis* XIII. he has represented at the Top of the Picture on Clouds a little remote *Castor* on his winged Horse, and on the Side *Apollo* in his Chariot that ascends upwards; to shew that that Prince was born in the Morning, and that the Delivery was happy.

Whence it can be inferred, that the Painter had not the Thought of representing Gods as Gods, but only to paint *Castor* as a Constellation which renders Events fortunate, and the Chariot of *Apollo* ascending to signify the Morning.

And if the Painter, in view of expressing himself, has judged proper to represent the Divinities of the Fable among historical Figures, these by Symbols ought to be considered as invisible, and as being there but by their Signification.

It is in that Sense that the second Council of *Nice*, authorized in it by the Scripture, has permitted to represent to the Eyes of the Faithful God the Father, and the Angels under human Figures. For there would be still more Inconveniency to paint the Persons of the blessed Trinity and the Angels, than there is to introduce in the Scene of a Picture Pagan Divinities. And the Christians being sufficiently cautioned against those Appearances which are but for their Instruction, must, to render them beneficial, enter into the Mind of the Painter, and consider them as if they were not there.

The Authority of painting Wings to Angels can be taken from the Ark of the Covenant, and from the ninth Chapter of *Daniel*, v. 21. but these Passages do not oblige indispensably to give Wings to Angels, since it is certain they have always appeared without Wings. A Painter notwithstanding can make Use of it at Discretion, according as the Art, the good Sense, and the Instruction of the Faithful require it.

But however, all that's allowed is not always expedient; a Painter must use with Moderation of the Authority he borrows from the Scripture, and takes Care that in wanting to make Use of the Advantages of his Art, he may not disguise the Truth, and the Holiness of the Subject he is to treat.

As to *naked Figures, and when they can be used*.—Painters and Sculptors who are very learned in the Design, search commonly the Occasions of introducing naked Figures into their Paintings, to gain thereby Applauses, and to be distinguished from others; and in that they are to be valued, provided they remain within the Bounds of Truth and History, of Likelihood, and Modesty. There are some Subjects which are far more favourable for the Representation of the Naked than others; and it may be used, for Example, in Fables, in the Supposition of hot Climates from which we have no Relations concerning Modes or Fashions, and among Artificers of the antient Times. *Cato* the Censor, according to *Plutarch*, worked quite naked among his Workmen, when he was returned from the Senate; and St. *Peter* was naked when our Lord appeared to him after his Resurrection, and found him fishing with the other Apostles.

The Naked can also be used in the Representation of allegorical Subjects, in that of the Gods and Heroes of the *Pagan* Antiquity; and lastly, in the other Occasions where the simple Nature can be supposed. For Habits have been invented for no other Reason than to defend Men against the Cold, and to hide their Shame.

There are besides, at this present Time, many People who go quite naked, because they inhabit hot Climates, where Use has excus'd them of Indecency and Shame. Lastly, the general Rule which must be follow'd in this is, as already observed, that there should be nothing against Likelihood and Modesty, which condemn the criminal Practice of those debauched Painters, who paint obscene Figures, and expose them to publick View, even in Christian Countries, which had been condemned to the Fire, in the flourishing State of the *Roman* Republick, as serving to nothing else but to debauch Man's Morals, and render him vicious.

Painters represent most of their Figures with the Head and Feet naked, which should always be, according to the Laws of simple Nature; which, with regard to those Parts, accustoms itself easily to Nudity. We see Examples of it, not only in hot Climates, but likewise in the midst of the coldest Mountains of the *Alps*, where even Children go bare-footed in Summer among Stones and Flints, and in Winter among Ice and Snow.

But if we have Regard to the Truth of History, we shall find that the Naked is a Licence which Painters have usurped, and of which they make Use for the Advantage of their Art; but of which they likewise very often abuse, without even excepting from it, either *Raphael* or *Poussin*. They have represented the Apostles bare-footed, against what is formally said in the Gospel, where our Lord forbids them using any Precaution for their Cloaths, telling them positively to be contented with the Shoes they had, without wearing any others. And in the *Acts of the Apostles*, when the Angel delivered St. *Peter*, he bids him to put on his Girdle and to tie his Shoes; whence we must infer that they were not bare footed.

The same may be said of *Moses*, who, when he approached the burning Bush, was ordered to quit his Shoes; and is notwithstanding represented by *Raphael* bare-footed in the other Actions of his Life, as if *Moses* had wore Shoes but while he kept the Flocks of his Father-in law. I could give here several other Examples, where *Raphael* and several other Painters after him have represented Figures bare-footed, against the Truth of History and Likelihood.

It is observed, that the *Greek* Sculptors have made oftener naked Figures than the *Romans*; I know no other Reason for it, than that the *Greeks* have made choice of Subjects more agreeable to the Desire they had to make People admire the Depth of their Science in the Construction and Assemblage of the Parts of the human Body. They represented in their Statues rather Gods than Men; and in their Relievo's rather Bachanalia and Sacrifices, than Histories. The *Romans*, on the contrary, who wanted by their Statues and Bas-relievo's to transmit to the Posterity the Memory of their Emperors, have found themselves indispensably obliged to do nothing against the History, and to dress their Figures in the Fashion of their Time.

As to *Grace*.—The Necessity of *Grace* in *Painting* is a Thing generally speaking which wants no Proofs. There occurs only a Difficulty on that Point, *viz.* if *Grace* be necessary in all Sorts of Subjects, in Combats as in Feasts, in Soldiers as in Women.

I conclude in the Affirmative; and the Reason I give for it is, that though Grace is first perceived on the Face, it is not, notwithstanding, in that single Part that it seems to reside, but consists principally in the Turn which the Painter knows to give to his Objects, to render them agreeable, even those which are inanimated: Whence it follows, that there can be a Sort of Grace in the Loftiness of a Soldier, by the Turn which has been given to his Air and Attitude, but that there can be some likewise in a Drapery or some other Thing, by the Manner it will be disposed.

Note, That after this Idea I have given of a perfect Painter, and the Proofs I have brought of each of his Parts, I must endeavour to reduce all that Speculation into Practice; beginning by searching first a proper Place to work in, where there should be no Sun to dazzle the Eyes of the Painter, and hinder him from seeing what he does; and no false Lights which could occasion very great Faults in his Work; neither too hot nor too cold; for if too hot it would chance to cause some Confusion in the Application of his Colours; and if too cold it would render his Pencil too heavy. It must likewise be entirely free from Dust.

The next Thing our Pupil Painter is to provide himself with is all Sorts of Colours, the principal thereof are *Red*, and *White Lead* or *Ceruse*, *Yellow Okers*, several Kinds of Earth, as Umber, *&c.* besides *Orpiment*, *Black Lead*, *Cinnabar*, *Gumbooch*, *Lake*, *Bice*, *Verditer*, *Indigo*, *Vermillion*, *Verdigrease*, *Ivory Black*, *Lampblack*, *Smalt*, *Ultramarine*, *Prussian Blue*, and *Carmine*.

Note, That *Ceruse* makes a beautiful white Colour, and is much used both in Oil and Water-Colours. The best *Ceruse* is that of *Venice*; but this is rare, that chiefly used is either *English* or *Dutch*, both of which have more Marl in them than White Lead; the latter however is the better of the two.—*Orpiment* must be chosen of a golden yellow Hue, easy to scale, and the Scales very thin, small and shining like Gold.—The *Umber* or *Umbre*, is a dry dusky coloured Earth, which diluted with Water, serves to make a dark brown Colour, usually called with us a Hair-Colour. It is called *Umber* from *umbra*, Shadow; as serving chiefly for the shadowing of Objects; or rather from *Umbria*, a Province of *Italy*, whence it is used to be brought. The best *Oker* is that of *Berry* in *France*.—*Verditer* is used for a Blue, but must usually is mixed with Yellow for a green Colour.—The *Vermillion* is a bright beautiful red Colour. We have two Kinds of it from *Holland*; the one of a deep Red, the other pale: But it is of the same Matter at Bottom, the Difference of Colour only proceeding from the Cinnabar's being more or less ground; when fine ground the Vermillion is pale, and this is preferred to the coarser and redder.—The *Verdigrease*, to be good, must be very dry, of a deep Green, and pretty clear of white Spots.—The *Ultramarine*, is a beautiful blue Colour prepared from *Lapis Lazuli*. This Blue is one of the richest and most valuable Colours used in *Painting*.—The Preparation consists in first calcining the *Lapis* in an Iron Pot or Crucible, then grinding it very fine on Porphery Stone, then mixing it up with a Paste made of Wax, Pitch, Mastick, Turpentine, and Oil; and at last washing the Paste well in clear Water, to separate the colouring Part from the rest, which precipitates to the Bottom in form of a subtile, beautiful blue Powder. The Water is then poured off, and the Powder at Bottom dried in the Sun; which is the true *Ultramarine*. Those who prepare this Colour have usually four Kinds, which they procure by so many different Lotions: The first is still the best, and the rest worse and worse to the last; there is *Ultramarine* of the first Kind sold for 11*l.* Sterling *per* Ounce; and of the last for about 12 or 15*s.*—*Ultramarine* must be chosen of a high Colour, and well ground, which is known by putting it between the Teeth, where, if it feels gritty, it is a Sign the Triture is not sufficient. To know whether it be pure or unmixed, put a little of it in a Crucible, and heating it red-hot, if the Powder has not changed its Colour after this Trial, it is certainly pure: On the contrary if you perceive any Change, or any black Specks in it, it is falsified. Besides this, there is another called *common* or *Dutch Ultramarine*; which is only *Lapis* or Smalt well ground and pulverized, the Colour whereof when used by the Painters is much like that of true *Ultramarine*, though much less valued. This is also called *Prussian Blue*.—*Carmine*, is a bright Red or Crimson Colour, bordering somewhat on Purple, used by Painters in Miniature, and sometimes by Painters in Oil, though rarely, by reason of its excessive Price. To be good, it must be almost an impalpable Powder. Those that sell it mix it with a small Quantity of red Lead, in Proportion to the Quantity of *Carmine*, to make it weigh heavy, which is a very great Piece of Knavery. I have the Secret of this Colour, which is a valuable one at this present Time of a War with *France*, since none can be brought over easily from those Parts.

Painters reduce all these Colours above-mentioned, and

and the other they use under two Classes, *viz. dark* and *light Colours*. Under *light Colours* are comprehended white, and all those which approach nearest it.—And under *dark Colours*, black, and all those which are obscure and earthy, as Umber, Bistre, *&c.*

Simple and *Mineral Colours*, is another Division among them. Under *Simple Colours* they range all those used by Limners, Illuminers, *&c.* extracted from Vegetables; and which will not bear the Fire: As the yellow made of Saffron, of *French* Berries, *&c.* Laccor, and other Tinctures extracted from Flowers. The rest are *Mineral*, drawn from Metals, *&c.* and are to bear the Fire.

Note, That having thus provided ourselves with Colours, and learn'd how to chuse them, our next Care is to find a *Porphyry*, to grind and mix them, and *Pencils*, *Brushes*, &c. to apply them.

There are *Pencils* of various Kinds, and more of various Matters; the most usual are made of Badgers and Squirrels Hair, those of Swans Down, and those of Boars Bristles; which last are bound on to a Stick, bigger or less, according to the Uses they are destined for; and when large are called *Brushes*. The others are inclosed in the Barrel of a Quill.

The Antients, M. *Felibien* observes, had *Pencils* made of little Pieces of Spunge; whence doubtless the Story of the Painter, who not able to express the Foam of a Dog, succeeded by throwing his Spunge at the Picture.

Besides *Pencils*, we must have a *Pallet*, which is a little oval Table, or Piece of Wood or Ivory, very thin and smooth; on and round which the Painters place the several Colours they have Occasion for, ready for the Pencil. The Middle serves to mix the Colours on, and to make the Teints required in the Work. It has no Handle, but in lieu thereof, a Hole at one End, to put the Thumb through to hold it.

Note, From this we'll return to our Colours, in order to prepare them.

Colours are prepared in three different Manners, either with Size, Whites of Eggs, *&c.* or with Water, or with Oil.

The Working of *Colours* with Size or White of Eggs, is said done in *Distemper*, which was the usual Manner of mixing *Colours*, before the beautiful Secret was found of mixing them with Oil.

Colours diluted with Water, are called *Water-Colours*; which is done by melting a proper Quantity of Gum-Arabick, in Water, and diluting the *Colours* in that Water.—*Colours* thus prepared are most commonly used in *Painting* in Miniature, and Limning. They are found thus ready prepared in some Colour-Shops.

Oil Colours are ground on the Porphyry or Marble, by Means of a Moler or Muller. In this Preparation, Care must be taken, that they be ground fine; that in putting them on the Pallet, those which will not dry of themselves, be mixed with Oil, or other Dryers; and that the tingid Colours be mixed in as small Quantities as possible.

Our *Colours* thus prepared, I'll return to *Painting*, which, with Regard to the Materials, the Matter whereon they are applied, and the Manner of applying them, is of various Kinds, hence came *Painting* in fresco; *Painting* in Oil; *Painting* in Water-Colours, or Limning; *Painting* in Miniature; *Painting* in Enamel; and *Painting* on Glass.

Fresco is a Kind of *Painting* performed on a fresh Plaister, or on a Wall laid with Mortar, not yet dry, and with Water-Colours.

The Colours used, are white made of Lime flaked long ago, and white Marble Dust; Oker, both red and yellow; violet Red; Verditer; Lapis Lazuli; Smalt; black Earth, *&c.* all which are only ground and worked up with Water; and most of them grow brighter and brighter, as the *Fresco* dries.

This Sort of *Painting* is chiefly performed on Walls and Vaults, newly plaister'd with Lime and Sand: But the Plaister is only to be laid, in Proportion as the *Painting* goes on; no more being to be done at once than the Painter can dispatch in a Day, while it is dry. Before he begins to paint, a Cartoon or Design is usually made on Paper, to be calked and transferred to the Wall, about half an Hour after the Plaister is applied.

For the Work to come out in all its Beauty; the Colours must be laid on quick, while the Plaister is yet moist: Nor must they ever be retouched dry, with Colours mixed up with the White of an Egg, or Size, or Gum, as some Workmen do; by Reason such Colours grow blackish; nor do any preserve themselves, but such as were laid hastily at first.

This Sort of *Painting* has a great Advantage: By its incorporating with the Mortar, and drying along with it, it is render'd extremely durable; and never fails or falls but along with it.

Painting in fresco is very antient; having been practised in the earliest Ages of *Greece* and *Rome*. The Antients painted on Stucco; and we may remark in *Vitruvius*, what infinite Care they took in making the Incrustation or plaistering of their Buildings to render them beautiful and lasting. Tho' the modern Painters find a Plaister made of Lime and Sand, preferable thereto; both as it does not dry so hastily; and as being a little brownish, it is fitter to lay Colours on, than a Ground so white as Stucco.

Painting in Oil, is to grind the Colours with Nut-Oil, or Linseed-Oil; but it must be owned the Manner of working is very different from that *in fresco*, or in Water; by Reason the Oil does not dry near so fast; which gives the Painter an Opportunity of touching and retouching all the Parts of his Figures, as often as he pleases: Which in the other Kinds is a Thing impracticable.

The Figures too are here capable of more Force and Boldness; in as much as the black becomes blacker, when ground with Oil than with Water; besides that, all the Colours mixing better together, make the Colouring sweeter, more delicate and agreeable, and give an Union and Tenderness to the whole Work, inimitable in any of the other Manners.

Painting in Oil, is performed on Walls, on Wood, Canvas, Stones, and all Sorts of Metals.

To paint on a Wall.—When well dry, you must give it two or three Washes with boiling Oil, till the Plaister remains quite greasy and will imbibe no more. Over this are applied deficcative or drying Colours, *viz.* white Chalk, red Oker, or other Chalks beaten pretty stiff. This Layer being well dryed, you'll sketch and design your Subject; and at last paint it over; mixing a little Varnish with your Colours, to save the Varnishing afterwards.

Others to fortify their Wall better against Moisture, cover it with a Plaister of Lime, Marble Dust, or a Cement made of beaten Tiles soaked with Linseed-Oil; and at last prepare a Composition of *Greek* Pitch, Mastich, and thick Varnish, boiled together, which they apply hot over the former Plaister; when dry, the Colours are applied as before.

To paint on Wood.—They usually give their Ground a Layer of White, temper'd with Size; or they apply the Oil above-mentioned. The rest as in *Painting* on Walls.

To paint on Cloth or Canvas.—The Canvas being stretched on a Frame, you must give it a Layer of Size, or Paste-Water. When dry you shall go over with a Pumice-Stone, to smooth off the Knots. By Means of the Size, the little Threads and Hairs are all laid close on the Cloth, and the little Holes stopped up, so as no Colour can pass through.

When the Cloth is dry, a Lay of Oker must be laid on, which is a natural Earth, and bears a Body; sometimes mixing with it a little white Lead to make it dry the sooner. When dry you'll go again over it with the Pumice Stone, to make it smooth.

After this, a second Layer, composed of white Lead, and a little Charcoal black is sometimes added, to render the Ground of an Ash-Colour; observing in each Manner to lay on as little Colour as possible, that the Cloth may not break, and that the Colours when they come to be painted over, may preserve the better.

In some *Paintings* of *Titian*, and *Paolo Veronese*, we find they made their Ground with Water, and painted it over with Oil; which contributed much to the Vivacity and Freshness of their Works: For the Water ground by imbibing the Oil of the Colours, leaves them the

the more beautiful; the Oil itself taking away a deal of their Vivacity.

As little Oil therefore is to be used as possible, if it be desired to have the Colours keep fresh: For this Reason, some mix them with Oil of Aspick, which evaporates immediately, yet serves to make them manageable with the Pencil.

Note, That as to Oils, the best are those of Walnuts, Linseed, Aspick, and Turpentine. The Deficcative or drying Oils, are a Nut Oil boiled with Litharge, and Sandarach, others with Spirit of Wine, Mastic, and Gum-lacca.

The next Operation is to draw the Design on the Canvas; and afterwards to prime the Work, which is done by laying a Lay of White all over it, except on the Lines of the Draught, which must be kept visible. Then if the Picture be a History-Piece, or a Portrait, the Painter begins by the Face or Faces; which together with all the other naked Parts to be pronounced in the Picture, are called *Carnations*. The *Carnations* are made with White and Carmine; and Brown, Blue, and Yellow for the Shadows; according to the Complexion the Painter designs to give to the Figure or Figures he is to represent; which entirely depends on his Imagination, if he has not an Original before him.

The Application of Colours, in *Painting*, is consider'd either with Regard to the Kinds of *Painting*, in Works of various Colours, or in those of one single Colour.

First, in the larger Pieces, the Colours are rather laid on full, so as they may be impasted or incorporated together, which make them hold the more firmly.

Or else the more agreeable ones, which dry too hard and too hastily, are mixed with a little Colour, and the clearest of the Oil. But in both Cases, the Colours are to be laid on strong at first; it being easy to weaken those which are to be thrust back, and to heighten the others: The Touches to be bold, by the Conduct of a free and steady Pencil; that the Work may appear the most finished at a proper Distance, and the Figures animated with Life and Spirit.

For *glazed Colours*, Care must be taken, that the Under-Colour be painted strong, and that it be a Body-Colour, and laid smooth.

In finished Works, which are to be viewed near at Hand, the Process is either by applying each Colour in its Place; preserving their Purity, without fretting or tormenting them, but sweetly softening off their Extremities; or by filling up all the great Parts with one single Colour; and laying the other Colours which are to form the little Things, upon it. Which is the more expeditious Way, but more apt to decay.

For the second; the Kinds of Pictures in one Colour are two, *viz. Camieux*, where the Degradations of Colours of Objects afar off, are usually managed by Lights, or with Crayons, and Bass Relievo, which is an Imitation of Sculpture, of whatsoever Matter and Colour: In both these the Colours are wrought dry.

For the *Œconomy*, and dispensing of Colours in *Paintings*, Regard is either had, first, to the Qualities of the Colours, to appropriate them according to their Value and Agreement: Or, secondly, to their Effect, in the Union and Œconomy of the Work.

For the *Qualities*, it must be observed, that White represents Light, and gives the Briskness and Heightening; Black, on the contrary, like Darkness, obscures and effaces the Objects: Again, Black sets off the light Parts, and by that they serve each other to loosen the Objects. A proper Choice to be made of Colours; and the too much charged Manner to be avoided; both in Carnations, where red Colours are not to be affected, or rather resembling the Flesh when flead than the Skin; and all bright glowing Colours: The Skin, how delicate soever, being always of a Bloom Colour. In the Drapery, where the Painter has his whole Stock of Colours to chuse out of to procure a good Effect; and in the Landskip, to dispose those Colours near one another, which mutually assist and raise each other's Force and Briskness; as Red and Green, Yellow and Blue.

To manage them so, as that they be accommodated to the Effects of the great Parts of Light and Colours; that the strong Colours lead to the soft ones, and make them more look'd at, bringing them forwards, or keeping them back, according to the Situation and the Degree of Force required.

For the *Effects of Colours*, they either regard the Union, or the Œconomy; with respect to the first, Care must be taken that they be laid so as to be sweetly united, under the Briskness of some principal one; that they participate of the prevailing Light of the Piece, and that they partake of each other by the Communication of Light, and the Help of Reflection.

For the *Œconomy in managing their Degrees*, Regard is to be had to the Contrast, or the Opposition intervening in the Union of the Colours, that by a sweet Interruption the Briskness which otherwise fades and palls, may be raised: To the Harmony, which makes the Variety of Colours agree, supplying and sustaining the Weakness of some by the Strength of others, neglecting some Places on purpose to serve as a Basis or Repose to the Sight, and to inhance those which are to prevail through the Piece: To the Degradation, where the better to proportion the Colours that fall behind, some of the same Kind are to be preserved in their Purity, as a Standard, for those carried afar off to be compared by, in order to justify the Diminution: Regard being always had to the Quality of the Air, which, when loaded with Vapours, weakens the Colours more than when clear: To the Situation of the Colours, where Care must be taken, that the purest and the strongest be placed before, or in the Front of the Piece; and that by their Force, the compound ones, which are to appear at a Distance, be kept back, particularly the glazed Colours to be used in the first Rank. Lastly, to the Expression of the Subject, and the Nature of the Matters, or Stuffs, whether shining or dull, opake or transparent, polished or rough.

Note, That the different Colours which you are to employ in your Picture are to be mixed as follows. For a Violet Colour, take Indigo, white Lead and Lake; mix them all well together; and the more or less of each Quantity will make it deeper or lighter. A Lead Colour is made of White and Indigo, well mixed together. A Scarlet of Lake, red Lead, and a little Vermilion. Though, in fine *Paintings*, I would prefer Carmine, with a very small Quantity of Ultramain, and a still smaller one of fine *Ceruse*. A light Green of Pink and Smalt. A middle and light Green, of Verdigrease and Pink; a deep and sad green, Indigo and Pink. A purple Colour of *Spanish* Brown, Indigo and White, well mixed. A Murrey Colour of White and Lake. A Flame Colour, of red Lead and Masticot, heightened with White. But these general Rules are not to captivate the Imagination of a Painter, no more than the following ones; for a good Painter, who has a good natural Genius for his Art, and takes Pleasure in the Practice thereof, makes often new Discoveries, to render his Draperies more beautiful; as for Carnations they are always made of the same Mixture of Colours; the whole Secret consisting in the judicious Application thereof.

After a Painter has transferred his Draught on his Canvas, and has primed it, he begging his Piece, first, by drawing the Eyes (having while he works, his right Hand supported with a Moll-Stick or Stay, made of heavy Wood, not subject to bend, about a Yard long, having at the End, which leans against the Picture, a Ball of ravell'd Cotton, with a Leather over it, the other End held with the left Hand) making the White thereof with white Lead, with a little Charcoal black. This finished, he leaves from the other Eye (in a Face full front) the Distance of an Eye, then draws the Proportion of the Nose; afterwards makes the Mouth, Ears, &c. This done, he lays his Carnation or Flesh Colour over the Face, calling in, here and there some Shadows, which he works in by Degrees with the Flesh-Colour: Which Flesh-Colour is commonly compounded of white Lead, Lake, and Vermillion or Carmine, this last being best. There is no fixed Rule for heightening or deepening this Colour; for it is left to the Discretion and Judgment of the Painter; who must consult in this his own Imagination, with Regard to the Age, Country, &c. of the Person, whose Face he endeavours to represent.

ſent. Then he ſhadows the Face over as he ſees Cauſe, and finiſhes the Noſe, compaſſing the Tip of it, with ſome dark, or light reddiſh Shadow; which Shadows, for the Face, are commonly compounded of Ivory Black, White-Lead, Vermilion, Lake, Seacoal black, &c. The Cheeks and Lips are ſhadowed with Vermilion or Carmine, and Lake mixed together; and the Mouth Stroke is made with Lake only. As to the Circles of the Eyes; for grey Eyes they are made of Charcoal-black and White-Lead, heighten'd and deepen'd at Pleaſure: The black Circle of the Eye is made of Umber, Seacoal black, and a little White mixed together: The round Ball in the Eye of Lamp-Black and Verdigreaſe, ſince the Lamp-Black will hardly dry without it. The ſame Colours uſed in *Painting* and Shadowing the Face, are uſed in *Painting* the Hands, and Shadowing them between the Fingers. When a Painter wants to make a Fleſh-Colour of a ſwarthy Complection, he mixes White-Lead, Lake, and yellow Oker together, and ſhadows it with a Mixture of Umber and Seacoal black.

For black Hairs he uſes Lamp-Black only, and when he will have them brighter, mixes it with a little Umber, White and Red-Lead. For flaxen Hairs he takes Umber and White-Lead; putting in more Umber if he wants them browner, and more White-Lead, if whiter; but if quite dark, he adds a little Seacoal black. Yellow Hairs are made of a Mixture of Maſticot, Umber, yellow Oker, and a little Red-Lead; increaſing the Quantity of Umber and Red-Lead, if they be wanted redder. For white Hairs he takes an equal Quantity of Ivory-Black, and of Umber, *viz.* half of each, and tempers them well upon his Pallet with white Lead, taking more or leſs of thoſe three Colours, according as the Hairs are to be heighten'd or deepen'd.

The Teeth are made of White-Lead, and ſhadowed with Charcoal-Black.

As to the different Stuffs the Figures are to be cloath-with, it muſt be left entirely to the Imagination and Judgment of the Painter.

Note, That though the beſt Maſters of all Ages, have left us ſeveral excellent Originals, and an infinite Number of very learned Inſtructions, relating to the Repreſentation of different Figures, and how to clothe them, whether they be *Heathen Gods*, or *Goddeſſes*, *Emperors*, *Kings*, or *Queens*, *Philoſophers*, or *Sybils*, the *Muſes*, *Powers*, *Nymphs*, *Months* of the Year, &c. how to expreſs the *Winds*, *Rivers*, &c. I'll give here, notwithſtanding, ſeveral particular Rules, with Regard to *Painting* thoſe different Things; beginning by the *Heathen Gods*.

As to *Heathen Gods.*—*Jupiter* is painted with long black curled Hair, in a Purple Robe, trimmed with Gold, and ſitting on a Throne of the ſame Metal, or an Eagle's Back, with a Thunder-bolt in his Hand, and bright yellow Clouds around him.

Apollo, with long curled yellow Hair, crowned with Laurel, cloathed in a purple Robe, a Silver Bow in his Hand, &c.

Mercury, with what Hair the Painter judges moſt proper, in a Coat of Flame-Colour, with a white Mantle, a white Beaver, with white Feathers, or Wings at his Head and Feet, in his Hand a Caduceus or Rod of Silver, twiſted round with Serpents.

Neptune, with hoary Hair, in a Blue or Sea-green Mantle, riding in a blue Chariot, drawn by Dolphins, or on the Back of a Dolphin, with a Trident in his Hand.

Pluto with long curled black Hairs, or what the Painter pleaſes, in a Robe of Flame, or Cloth of Gold.

Bacchus with ſhort brown curled Hair, and cover'd with the Skin of a Leopard, or with a green Mantle, a red flushing full Face, and a Wreath of Vine Branches. He is alſo often repreſented riding in a Chariot drawn by Tygers.

Hymen with long yellow Hairs, in a Purple or Saffron-colour'd Mantle, and a Torch in his Hand.

Vulcan is painted in a Scarlet Robe, lame, and having an Anvil by him.

Triton (*Neptune*'s Trumpeter) with a blue Skin, and in a Purple Mantle, having a Horn in his Hand, and the Tail of a Mermaid.

Cupid, was painted by *Zeuxis*, in a green Robe: Tho' he is generally painted naked like a Youth, having a looſe playing Garment, Wings on his Back, commonly his Eyes bound over, a Bow in his Hands, and a Quiver of Arrows on his Back.

Minos (one of the Judges of Hell) with long brown curled Hairs, crowned with a Gold Crown, his Robe dark Blue, and his Buſkins of Gold.

Momus, with a darkiſh Robe, his Beard and Hair party-coloured.

As to the *Goddeſſes.*—*Juno*, their Queen, is painted with black-Hairs and bright Eyes, adorned with a Sky-colour'd Mantle, or pyed, wrought with Gold and Peacock's Eyes, like the orient Circles in a Peacock's Train.

Diana, with yellow Hairs, a Graſs-green Mantle, trimmed with Silver, Buſkins Silver, a Bow and Quiver, and a Creſcent or Half-Moon on her Forehead. She is ſometimes drawn Hunting a Stag, at other Times ſitting croſs-legg'd, to ſignify Chaſtity.

Pallas, in a blue Mantle.

Venus, with Gold Hairs, a beautiful Look, with a Black, Scarlet, or dun-colour'd Robe, and *Cupid* her Son by her: Sometimes alſo amidſt Cypreſs-Trees, or Doves.

Ceres, with yellow Hair, ſometimes with a Garland made with Ears of Corn.

Tellus, or the *Earth*, in a green Mantle.

Proſerpine, in white Robes cover'd with Flames.

Aſtrea, with a Crimſon Mantle.

Flora, with a Mantle of ſeveral Colours, and a Garland of Flowers.

The *Three Graces* in Silver Robes.

The *Night*, in a black Mantle ſtrewed over with Stars of Gold.

As to *Emperors*, *Kings*, and *Queens.*—*Moſes* with bright Hair, a beautiful Face, repreſenting him in Years; on his Head two radiant Horns, and a Glory round his Head.

David, with brown Hair, a ruddy Complexion, and a Harp.

Alexander the Great, with brown Hair, and ruddy Complexion.

Numa Pompilius, with white Hair, crowned with a Diadem, a Crimſon Robe, or yellow Mantle, &c.

Æneas, with a beautiful bloomy Face, in a Purple Mantle.

Mahomet, in green Robes, with a Turban on his Head.

Guſtavus Adolphus, King of *Sweden*, with yellow Hairs, and a Cuiraſs.

Louis XIV. King of *France*, with a blue Curaſs ſtrewed over with Gold Flower-de luces, and a white Feather on his Head.

Dido, in a Purple or Scarlet Mantle; under her Robes a Quiver, her Hair yellow, tied up with Strings and Knots of Gold, a Ponyard in her Breaſt, or in her Hand, and a ſmall Wound in her Boſom.

Cleopatra, with an Aſp at her Arm.

King *Charles* I. of *England*, with black Hair, a peeked Beard and Whiſkers.

As to *Philoſophers* and *Sybils.*—*Pythagoras* is painted in white Robes, with a Crown of Gold.

Empedocles, in Violet, Murrey, or Purple, and thus of all the other *Greek* Philoſophers.

Heraclitus Weeping; and *Democritus* Laughing.

As to *the Muſes.*—*Clio* is painted with a Coronet of Bays, in her Right-Hand a Trumpet, in her Left a Book.

Euterpe, with a Garland of Flowers, holding in her Hand ſeveral Wind Inſtruments.

Thalia, with a ſmiling Look, crowned with Ivy, and in her Left-Hand a Maſk.

Calliope, crowned with Gold, under her Left-Arm a Bundle of Garlands of Bays, and in her Right-Hand three Books.

Melpomene, like a Virago, with a majeſtick and grave Countenance, her Head adorned with Pearls and precious Stones, in her Right-Hand a naked Poniard, and at her Feet Sceptres and Crowns.

Polyhymnia, all in White, her Hair hanging looſe about her Shoulders, her Head crowned with Jewels intermixed with Flowers, and in her Left-Hand a Book.

Erato,

Erato, crowned with Myrtle and Roſes, *Cupid* by her Side.

Terpſichore, crowned with Feathers of divers Colours, and playing on ſome Inſtrument.

Urania, Crowned with Stars, in her Right-Hand the celeſtial Globe, and in the Left the terreſtrial.

As to *Powers.*—*Eternity* is repreſented like a fair Lady, with three Heads, ſignifying Time paſt, preſent, and to come; in her Left-Hand a Circle, ſignifying ſhe hath neither Beginning, Middle, nor End, pointing with the fore-Finger of her Right-Hand to Heaven. In the Medals of *Trajan*, ſhe is repreſented ſitting on a Sphere, the Sun in one Hand the Moon in the other. In the Medals of *Fauſtina* with a Veil, and in her Right-Hand a Mound.

Time, ſtanding on an old Ruin winged, and with Iron Teeth; or an old Man bald winged, with a Scythe, and an Hour-Glaſs.

Fortune, with Wings, ſtanding on a Globe or Ball, ſounding a Trumpet.

Equality, a Woman lighting two Torches at once.

Victory, a Woman clad in Gold, in one Hand a Helmet, in the other a Pomegranate. *Auguſtus* drew her with Wings ready to fly; in the Medals of *Octavius* ſhe is repreſented with Wings ſtanding on a Baſe, in one Hand a Palm, in the other a Crown of Gold.

Peace, holding in one Hand a Wand or Rod, over a hideous Serpent, the other covering her Face. On the Medals of *Trajan* it is repreſented with an Olive Branch in his Right-Hand, and in the Left a *Cornucopia*. On thoſe of *Titus*, in one Hand an Olive Branch, the other leading a Lamb and a Wolf yoked together.

Providence, lifting up both Hands to Heaven; or a Woman with a Sceptre in her Right-Hand, a *Cornucopia* in her Left, and a Globe at her Feet.

Concord, a Woman ſitting with a Charger in her Right-Hand for Sacrifice, or holding in one Hand a Pomegranate, in the other a Myrtle-Buſh.

Fame, a Woman or Angel, with large Wings, and ſounding a Trumpet; a thin light Garment open to the middle Thigh.

Virtue, is repreſented by *Hercules* covered with a Lion's Skin, a knotted Club in his Hand, and performing ſome of his Labours.

Piety, with a ſober Countenance, in her Right-Hand a Sword ſtretched over an Altar, in her Left a Stork, and by her Side an Elephant and a Child.

Hope, a beautiful Child in a long Robe hanging looſe, a Trefoil in his Right-Hand, and in his Left an Anchor.

Mercy, a Woman ſitting upon a Lion, holding in one Hand a Spear, and in the other an Arrow, which ſhe ſeems to caſt away. In the Medals of *Vitellius* ſhe ſits with a Branch of Bays in her Hand, and a Staff laying by her.

Felicity, a Woman ſitting on a Throne, in one Hand a Caduceus, in the other a *Cornucopia*.

Fertility, a Woman ſitting on a Bed, and two little Infants hanging about her Neck.

Diſſimulation, a Woman wearing a Maſk with two Faces, in a long Robe of a changeable Colour, and a Magpye in her Right-Hand.

Security, a Woman leaning againſt a Pillar, before an Altar, with a Sceptre in her Hand.

As to *Nymphs.*—*Napæe*, the Nymphs of the Mountains, are painted with a ſweet and gracious Aſpect, in green Mantles, girded about in the Middle, and at their Heads Garlands of Honey-ſuckles, wild Roſes, Thyme, *&c.* their Actions, dancing in a Ring, or gathering Flowers.

The *Dryades*, Nymphs of the Woods, of a brown or tawny Complexion, their Hair thick like Moſs, and their Attire of dark Green.

The *Naiades*, Nymphs of the Floods, of a beautiful Aſpect, their Arms and Legs naked, their Hair clear as Chryſtal; on their Heads Garlands of Water Creſſes, their Actions pouring out Water.

Nereis, a Woman of a brown Complexion, her Hair ſcattered about her Shoulders, crowned with a Coronet made of Periwinkles and Etcalop-ſhells, in a Mantle of Sea-Green, with Chains and Bracelets of Amber, and a Branch of red Coral in her Hand.

Galatea, a beautiful young Woman, with her Hair careſlefly falling about her Shoulders, and a Pearl at each Ear, viewing in her Hand a Spunge made of Sea-Froth.

Iris, a Nymph with large Wings, extended like a Semi-circle, the Plumes ſet in Rows of divers Colours, her Hair hanging before her Eyes, her Breaſts like Clouds, Drops of Water falling from her Body, and in her Hand the Rainbow, or a Flower-de-luce.

Nymphæ Dianæ, cloathed in white Linnen, and their Garments girt about them, their Arms and Shoulders naked, Bows in their Hands and Arrows by their Sides.

Aurora, the *Morning*, or a young Woman with Carnation Wings and a yellow Mantle, in her Forehead a Star, and golden Sun-beams from the Crown of her Head, riding on *Pegaſus*, with a Phiol of Dew in one Hand, and various Flowers in the other, which ſhe ſcatters upon the Earth.

As to *Arts*, *Virtues* and *Paſſions.*—Arithmetick is painted in Cloth of Gold.

Geometry, Swallow-faced, a green Mantle fringed with Silver, and a Silver Wand in her Hand.

Aſtronomy, with a Silver Creſcent on her Forehead, an Azure Mantle, and a Watchet Scarf with Gold Stars.

Faith, in white Garments with a Cup of Gold.

Hope, in Blue with a Silver Anchor.

Charity, in yellow Robes, on her Head a Tyre of Gold, with precious Stones, her Chair Ivory.

Religion, in a white Veil and Mantle.

Innocence, wholly in White.

Wiſdom, in white Robes, a blue Mantle ſeeded with Stars.

Law, in purple Robes ſeeded with Stars, and a Mantle of Carnation.

Government, all in Armour.

Confidence, in a party-coloured Garment.

Modeſty, in Blue.

Felicity, in Purple trimmed with Silver.

The *Soul*, in white Garments, branched with Gold and Pearls, and crowned with a Garland of Roſes.

Laughter, in ſeveral Colours.

Envy, in a diſcoloured green Garment full of Eyes.

As to *the Months of the Year.*—*January*, is painted all in White like Snow, blowing his Fingers; under his Left-Arm a Billet, and the Sign *Aquarius* ſtanding by his Side.

February, in a dark Sky-Colour, carrying the Sign *Piſces* in his Right-Hand.

March, tawny, with a fierce Look, a Helmet on his Head, leaning upon a Spade; in his Right-Hand *Aries*, in his Left Almond-Bloſſoms and Scions, and on his Arm a Baſket of Garden Seeds.

April, like a young Man in Green, with a Garland of Myrtle, and Haw-thorn Buds winged, in one Hand Primroſes and Violets, in the other *Taurus*.

May, with a lovely Aſpect, in a white and green Robe, embroidered with Daffadels, Haw thorn, and Blue-bottles, on his Head a Garland of white and red damaſk Roſes; in one Hand a Lute, upon the fore Finger of the other a Nightingale.

June, in a Mantle of dark Graſs-Green, upon his Head a Coronet of Bents, King-Cobs, and Maiden-Hair; in his Left-Hand an Angle, in his Right *Cancer*, and on his Arm a Baſket of Summer-Fruits.

July, in a Jacket of light Yellow, eating Cherries; his Face and Boſom Sun-burnt, on his Head a Garland of Centory and Thyme, and on his Shoulder a Scythe, with a Bottle at his Girdle, and by him a Lion.

Auguſt, like a young Man of a fierce Look in a Flame coloured Robe; upon his Head a Garland of Wheat, on his Arm a Baſket of Summer-Fruits, at his Belt a Sickle bearing a Virgin.

September, with a cheerful Look in a purple Robe; on his Head a Coronet of white and red Grapes, in his Left Hand a Cornucopia of Pomegranates and other Summer-Fruits, in his Right-Hand a Balance.

October, in an Habit of the Colour of decayed Flowers and Leaves; on his Head a Garland of Oak-Leaves with the Acorns; in his Right-Hand a Scorpion, in his Left a Baſket of Services, Medlars, Cheſnuts, *&c.*

November, in a Robe of changeable Green and Black, on his Head a Garland of Olives with the Fruit, in his Right

Right-Hand *Sagittarius*, and in his Left Bunches of Turnips and Parsnips.

December, with a horrid Aspect, clad in an *Irish* Rug, upon his Head three or four Night-caps, and over them a *Turkish* Turban, his Nose red, and his Beard hung with Isicles, at his Back a Bundle of Holly and Ivy, holding in furred Mittins a Goat.

As to *the four Winds.*—*Eurus*, the East Wind, is painted a Youth with puffed and blown Cheeks, Wings upon his Shoulders, his Body like a Tawny-moor, upon his Head a red Sun.

Zephyrus, the West-Wind, a Youth with a merry Look, holding in his Hand a Swan with Wings displayed, on his Head a Garland of all Sorts of Flowers.

Boreas, the North-Wind, an old Man with a horrid Look, his Hair and Beard covered with the Feet and Tail of a Serpent.

Auster, the South-Wind, with a Head and Wings seemingly wet, a Pot or Urn pouring forth Water, with which descend Frogs, and such Creatures as are bred by Moisture.

As to *Rivers.*—The *Tyber*, as it stands represented in the Vatican at *Rome*, like a beautiful Statue of Marble, laying along (as all Rivers are) and holding under his Right-Arm a She Wolf, with two little Infants sucking at her Teats, leaning upon her Urn or Pitcher, out of which issueth its Stream; in his Left a Cornucopia of delicate Fruits, with a grave Countenance, and long Beard, a Garland of Flowers on his Head, and resting his Right-Leg upon an Oar.

Nilus, in the Vatican, is represented with a Garland of several Fruits and Flowers, leaning with his Left-Arm upon a Sphynx, from under his Body issueth a Stream, in his Left-Arm a Cornucopia full of Fruits and Flowers on one Side, and a Crocodile on the other Side with sixteen little Children smiling and pointing to the Flood.

Tygris, like an old Man, and by his Side a Tyger.

Ganges, in the Shape of a rude and barbarous Savage, with binding Brows of a fierce and cruel Countenance, crowned with Palm, having as other Floods his Pitcher, and by his Side a Rhinoceros.

Indus, with a grave and jovial Aspect, with a Garland of the Flowers of its Country, by its Side a Camel.

Thomisis, has sometimes been painted like a Captain or Soldier laying along, holding a Sword in his Right-Hand, and under his Arm the august Tower, in the other a Cornucopia of all Fragrancies, with a Gold Chain which holds four Crowns, and with this he encompassed the Streams from under which, bending on his left Arm, they seemed to flow; his Temples were adorned with Bays; the River empaled on one Side with Anchors, and on the other *Cæsar's Augusta:* Also Swans besides him.

Note, That the several Colours used in *Painting*, are also called *Teints*, and *Semi-Teints*; considering the Colours as more or less high, or bright, or deep, or thin, or weakened and diminished, *&c.* to give the proper Relievo, or Softness, or Distance, *&c.* to the several Objects.

Note, also, That the lessening and rendering dim and confused the Appearance of different Objects in a Landskip, so as they shall appear there as they would do to an Eye placed at that Distance from them, is called, in Painting, *Degradation.*

As to *Painting in* WATER COLOURS, called *Limming*, in Contradistinction of *Painting* properly so called, which is done in Oil Colours, the usual Colours are proper enough, excepting the white, made of Lime, which is only used in Fresco. But the azure, or ultra-marine, must always be mixed up with Size, or with Gum, in regard the Yolks of Eggs give blue Colours a greenish Tincture; but there are always applied two Lays of hot Size, ere the Colours mixed even with Size, are laid on: The Composition made with Eggs, and the Juice of the Fig-tree, being only used for Touching up, and Finishing, and to prevent the Necessity of having the Fire always at hand to keep the Size hot; yet it is certain, that the Size Colours hold the best, and are accordingly always used in Cartoons, *&c.*—This Size is made of Shreds of thin Leather, or of Parchment.

To limn on Linen, the best is that which is old, half worn and close.—This is stanped with White Lead, or a fine Plaister beaten up with Size; which once dry, we must go over it with a Layer of the same Size.

The Colours are all ground in Water, each by itself; and in Proportion as they are required in working, are diluted with their Size-Water.—If the Yolks of Eggs are desired, they must be diluted with Water made of equal Quantity of common Water and Vinegar, with the Yolk, White, and Shell of an Egg, and the End of the little Branches of a Fig-tree cut small, all well beaten together in an earthen Pan.

If it be desired to varnish the Piece when finished, we must go over it with the White of an Egg well beaten, and then with Varnish.—This, however, is only to preserve it from the Rot; for the great Advantage of Limning consists in its being without Gloss; in regard all its Colours, thus void of Lustre, may be seen in all Kinds of Lights; which Colours in Oil, or covered with Varnish, cannot.

Note, That when Limners make use of Boards, they usually glue a fine Linen Cloth over them, to prevent their Opening; then laid on a Ground of White: Lastly, they mix up their Colours with Water and Size, or with Water and Yolks of Eggs, well beaten with the Branches of a Fig-tree, the Juice whereof is thus mixed with the Eggs; and with this Mixture they paint their Pieces.

Painting in MINIATURE, is a delicate Kind of *Painting*, consisting of little Points or Dots instead of Lines, usually done on Velum, with very thin simple Water-Colours.

The Colours for *Miniature* may be mixed up with Water of Gum-Arabick, or Gum Tragant; which Colours are commonly found in Colour-Shops already prepared, each of them put a-part in a Shell of Ivory, or in Tablets, divided into several Partitions, where all the Colours are ranged in order, that a Painter may easily carry them in his Pocket.

The Operation is usually made on Velum, on which the Design is drawn, with Carmine, or some other Colour, which may render the Lines discernable. That Draught is filled afterwards, with a very thin and smooth Lay of White, though some chuse to paint on the naked Velum without any Lay; though in my Opinion it contributes much towards incorporating well the Colours, that the Dots may not appear so visible, and so coarse, as they do without it. When the Lay is dry, the Painter searches with his Pencil all the Lines of the Draught, lest some of them should be either much weakened, or entirely obliterated by the Lay of White; then he begins, as in all other Paintings, by the Face, dipping first the Point of his Pencil in Water, and rubbing it afterwards, on the Colour he designs to employ; when thus rubbed, he makes the Point thereof with the Tip of his Lips, and then apply it on the Velum, repeating the same Process every Time he wants Colours, and having different Pencils for the different Colours. He has also before him a Shell with Gum-Water, in case he wants to dip his Pencil in it, as it often happens.

Those who have no Notion of the Design, and want to paint in *Miniature*, must chuse a good Print, which they'll pin straight and tight, at the four Corners, over their Vellum; then with a blunted Needle, they'll run over all the principal Lines of the Print, leaning pretty hard on the Needle, so as not to pierce the Print, that those Strokes or Lines may be found delineated on the Velum, when the Print is taken off; after which, he'll search all these Strokes, thus delineated, with his Pencil dipped in Carmine. While he works he must have his Print before him, the better to imitate the Age, Complexion, the Draperies, *&c.* of the Figure he is to copy. This Operation is called Calking.

Those Colours which have the least Body are the best, and more commodious for *Painting* in *Miniature*; as Carmine, Ultramarine, fine Lakes, and Green made of the Juices of several Kinds of Herbs and Flowers.

Painting in *Miniature*, is the nicest and most tedious of all others; being performed wholly with the Point of the Pencil. It is distinguished from all other Kinds of *Painting* by the Smallness and Delicacy of its Figures, the

the Weakneſs of their Colours and Faintneſs of the Colouring; and in that it requires to be viewed very near. One of the beſt Painters in *Miniature*, we have at preſent is a *Frenchman*, called *du Vigeon*.

Painting in *Moſaick*, is an Aſſemblage of little Pieces of Glaſs, Marble, Shells, precious Stones, Woods, or the like of various Colours cut ſquare, and cemented on a Ground of Stucco, imitating the natural Colours and Degradations of *Painting*.

The *Moſaick* ſeems to have taken its Origin from Paving. The fine Effects and Uſe of Pavements, compoſed of Pieces of Marble of different Colours, ſo well joined together, as that, when dried, they might be poliſhed, and the whole make a very beautiful and ſolid Body, which continually trodden upon, and waſhed with Water, was not at all damaged; gave the Painter the Hint; who ſoon carried the Art to a much greater Perfection: So as to repreſent Foliages, Maſques, and other groteſque Pieces of various Colours, on a Ground of black or white Marble. In fine, obſerving the good Effect which this Kind of Work had on Pavements, and finding that it reſiſted Water, they proceeded to line Walls therewith, and to make various Figures for the Ornament of their Temples and publick Buildings.

But Nature not producing Variety of Colours enough for them in Marbles, to paint all Kinds of Objects, they bethought of counterfeiting them with Glaſs and Metal Colours; which ſucceeded ſo well with them, that having given all Manner of Teints to an infinite Number of little Pieces of theſe two Matters, to counterfeit Stones of various Colours, in order to get more Colours; the Workmen arranged them with ſo much Art, that their *Moſaick* ſeemed almoſt to diſpute with *Paintings*. This Way of repreſenting Objects having this Advantage, that it reſiſts the Injuries of the Air, as well as Marble itſelf; and even grows more beautiful in Time, which effaces all the other Kinds of *Painting*.

But the Moderns have gone further, and ſetting aſide Glaſs and Metals, as too mean Materials, have introduced, along with the fineſt Marbles, the richeſt of precious Stones, as Lapis, Agat, Cornelians, Emeralds, Turquoiſes, *&c.*

Of theſe three Kinds of *Moſaick Work*, that of coloured Glaſs and Metals, is now little in Uſe, though of a ſurpriſing Luſtre and Durableneſs: Of the other two, that of Marbles alone is in common Uſe; the *Moſaick* of precious Stones being ſo very dear, that the few Workmen who apply themſelves to it, make little elſe but petty Works; as Ornaments for Altar-Pieces, Tables for rich Cabinets, *&c.* Though out of theſe muſt be excepted that ſumptuous Chapel of the Dukes of *Tuſcany*, which has been ſo long in Hand, and which, if ever it be finiſhed, will be a noble Monument of the Magnificence and Piety of thoſe Princes, as well as of the Patience and Addreſs of the Workmen employ'd therein.

We ſhall however enter into ſome Detail of the Manner of working in thoſe three Kinds of *Moſaick*; to which we ſhall add a fourth much newer, yet equally ingenious with any of the reſt, made with a Kind of Gypſum or Talc, found in Stone-Quarries about *Paris*: beginning by the *Moſaick Work of Glaſs*.

The *Moſaick Work of Glaſs*, is began with little Pieces of Glaſs, which they provide with as many different Colours as poſſible. To this End the Glaſs-houſe Furnaces being diſpoſed, and their Pots or Crucibles full of the Matter of which Glaſſes are made, or rather of Glaſs already made, they put what Colour or Dye they think fit in each Crucible, always beginning with the weakeſt, and augmenting the Strength of the Colours from Crucible to Crucible, till they come to the deepeſt Dye, as in mixing of Colours on a Palette to paint in Oil. When the Glaſs has had ſufficient Coition, and all the Colours are in their Perfection, they take out the Glaſs hot as it is, and lay it on a ſmooth Marble, and then cutting it into Slices of equal Bigneſs, and about the Thickneſs of an Inch and half; they then, with an Inſtrument, which the *Italians* call *bocca di cane*, make other Pieces ſquare, and others of different Figures and Sizes, as Occaſion requires; theſe they diſpoſe orderly in Caſes, as in painting in *Freſco*, 'tis uſual to range all the different Teints in Shells, according to their Colour.

If it be deſired to have Gold, either in the Ground of the *Painting*, or in the Ornaments, or the Draperies, they take ſome of the Pieces of Glaſs, formed and cut in the Manner juſt mentioned. Theſe they moiſten on one Side with Gum-Water, and afterwards lay them over with Gold Leaf. They then put this Piece, or ſeveral Pieces at a Time on a Fire-ſhovel, which they place in the Mouth of the Furnace, after having firſt covered them with another hollow Piece of Glaſs. Here they continue till ſuch Time as they become red-hot; after which the Shovel is drawn out all at once, and the Gold becomes ſo firmly bound to the Glaſs, that it will never afterwards leave it.

Now to apply theſe ſeveral Pieces, and out of them to form a Picture, they firſt make a Cartoon, or Deſign; this they transfer on the Ground or Plaiſter, by calcquing, as in painting *in Freſco*.

As this Plaiſter is to be laid thick on the Wall, it will continue freſh and ſoft a conſiderable Time, ſo that there may be enough prepared at once to ſerve three or four Days. It is compoſed of Lime made of hard Stone, with Brick-duſt very fine, Gum-Tragacanth, and Whites of Eggs; when it is thus prepared and laid on the Wall, and the Deſign finiſhed of what is to be repreſented, with Plyers they take out the little Pieces of Glaſs ranging them one after another, and ſtill keeping ſtrictly to the light Shadow, different Times and Colours repreſented in the Deſign; preſſing or flatting them down with a Ruler, which ſerves both to ſink them within the Ground and to render the Surface even.

Thus, in a long Time, and with an infinite deal of Trouble, they finiſh the Work, which is ſtill the more beautiful, as the Pieces of Glaſs are more uniform, and ranged at more equal Heights. Some of theſe are executed with ſo much Juſtneſs, that they appear as ſmooth as a Table of Marble, and as finiſhed and maſterly as a Painting *in Freſco*; with this Advantage, that they have a fine Luſtre, and will hold almoſt for ever.

The fineſt Works of this Kind which have deſcended to us, and thoſe whereon the Moderns have retrieved the Work almoſt loſt, are thoſe of the Church of St. *Agnes*, formerly the Temple of *Bacchus* at *Rome*; beſides ſome at *Piſa*, *Florence*, and other Cities of *Italy*. The moſt eſteemed among the Works of the Moderns are thoſe of *Joſeph Pine*, and the Chevalier *Lanfranc*, in the Church of St. *Peter* at *Rome*; there are very good ones likewiſe at *Venice*.

The *Moſaick Works* of Marble, and of precious Stones bear ſo near a Relation to each other, as to the Manner of working, that to avoid Repetition, we ſhall give them both under one, obſerving by the Way wherein the one differs from the other, either in the ſawing or the ranging of the Stones.

Moſaick of Marble, is uſed in large Works, as in Pavements of Churches, Baſilicks, and Palaces; and in the Incruſtation, and Vaneering of the Walls of the ſame Edifices. As to that of Stones, eſpecially precious Stones, 'tis only uſed in ſmall Works, as before obſerved.

The Ground of *Moſaick Works* wholly Marble, is ordinarily a Maſſive of Marble, either white or black. On this Ground the Deſign is cut with a Chiſſel, having been firſt calqued. When 'tis dug of a ſufficient Depth, *i. e.* an Inch or more, 'tis filled up with Marble of a proper Colour, firſt contourned or faſhioned to the Deſign, and reduced to the Thickneſs of the Cavities, with various Inſtruments. To make the Pieces thus inſerted into the Cavities, hold, whoſe ſeveral Colours are to imitate thoſe of the Deſign, they uſe a Stucco, compoſed of Lime and Marble Duſt; or a Maſtich, which each Workman prepares differently. After which the Work is half poliſhed with a ſoft Kind of Stone.

The Figures thus marked out, the Painter or Sculptor himſelf draws with a Pencil the Colours of the Figures not determined by the Ground, and in the ſame Manner makes Strokes or Hatchings in the Places where Shadows are to be; and when he has engraved with the Chiſſel all the Strokes thus drawn, he fills them up with a black Maſtich, compoſed partly of *Burgundy* Pitch, poured on hot; taking off afterwards what is ſuperfluous, with a Piece of ſoft Stone or Brick, which with Water and

and beaten Cement, takes away the Mastich, polishes the Marble, and renders the whole so even, one would imagine it only consisted of a single Piece: 'Tis this Kind of *Mosaick* we see in the *pompous Church* of the *Invalids* at *Paris*, and the fine Chapel at *Versailles*; and wherewith some entire Apartments of that sumptuous Palace are incrustated.

For *Mosaick Works of precious Stones*; there are required other and more delicate Instruments than those used in Marble; as Wheels, Drills, Tin-Plates, *&c.* used by Lapidaries and Carvers in Stone. As none but the richest Marbles and Stones enter this Work, to make them go the further, they are sawn into the thinnest Leaves imaginable, scarce exceeding half a Line in Thickness; the Block to be sawed, is fastened firmly with Cords on the Bench, only raised a little on a Piece of Wood, one or two Inches high. Two Iron Pins, which are on one Side the Block, and which serve to fasten it, serve also to direct the Saw: The Pieces to be sawed are put into a Vice contrived for the Purpose; in which State, with a Kind of Saw or Bow made of fine Brass Wire, bent on a Piece of springy Wood, together with Emery steeped in Water, the Leaf is gradually fashioned, by following the Strokes of the Design made on Paper, and glued on the Piece.

When there are Pieces enough fashioned to form an entire Flower, or some other Part of the Design, they are applied. The Ground that sustains the *Mosaick* is usually of Free-Stone. The Matter wherewith the Stones are joined together, is a Mastick or Stucco, laid very thin on the Leaves as they are fashioned; and the Leaves in this State, applied with Plyers. If any Contour, or Side of a Leaf, be not either rounded enough or squared enough, to fit the Place where it is to be used, when it is too large, it is brought down with a Brass File or Rasp, and when too small, is managed with a Drill, and other Lapidary Instruments.

The Gypsum, employed also in *Mosaick Work*, is a Kind of coarse Talc, or shining transparent Stone, found in the Quarries of *Montmartre*, near *Paris*, among the Stones thence dug to make the Plaister of *Paris*. It is different from the Plaister, but retains the Name which the *Romans* gave the Plaister, *viz. Gypsum*.

Of this Stone, calcined in a Kiln, beaten in a Mortar, and passed through a Sieve, they make a Kind of artificial Marble, imitating precious Stones, and of this compose a Kind of *Mosaick Work*, which comes little short, either of the Durableness or Vivacity of the natural Stones; and which has this Advantage, that it admits of continued Pieces or *Paintings* of entire Compartiments, without any Joining visible.

Some make the Ground of Plaister of *Paris*, others of Free-Stone; if the former, it is spread in a wooden Frame, of the Length and Breadth of the intended Work, and about an Inch and a half thick. This Frame is so contrived, as the Tenons being only joined to the Mortices by single Pins, they may be taken asunder, and the Frame be dismounted when the Plaister is dry. This Frame they cover on one Side with a strong Linen Cloth nailed all round; and being placed horizontally, with the Linen at Bottom, it is filled with Plaister passed through a wide Sieve. The Plaister being half dry, the Frame is set perpendicular, and left till it be quite dry; then taken out by dismounting the Frame. In this *Mosaick* the Ground is the most important Part.

Now to prepare the sifted *Gypsum*, to be applied on this Ground, they dissolve and boil it in the best *English* Glue, and after mixing with it the Colour it is to bear, the Whole is worked up together into the ordinary Consistence of Plaister; and then taken and spread on the Ground, five or six Inches thick. It must be observed, that if the Work be such, as that Mouldings are requir'd, they are formed with Gauges and other Instruments.

'Tis on this Plaister, thus colour'd like Marble or precious Stones, and which is to serve as a Ground to a Work either of *Lapis*, Agat, Alabaster, or the like, that the Design to be represented is drawn; having been first pounced or calqued. To hollow or impress the Design, they use the same Instruments with the Sculptors; the Ground whereon they are to work, not being much less hard than Marble itself. The Cavities thus made in the Ground are filled up with the same *Gypsum* boiled in Glue, only differently colour'd; and thus are the several Colours of the Original represented. To have the necessary Colours and Teints at Hand, they temper Quantities of the *Gypsum* with the several Colours, in little Pots. When the Design is thus filled, and render'd visible, by half polishing it with Brick or soft Stone; they go over it again, cutting such Places as are rather to be weaker, or more shadowed, and filling them with *Gypsum*; which is repeated till all the Colours, added one after another, represent the Original to the Life. The Work being finished, is scower'd with soft Stone, Sand and Water; then with the Pumice Stone, and lastly, polished with a wooden Rubber and Emery. Lastly a Lustre is given it, by smearing it over with Oil, and rubbing it a long Time with the Palm of the Hand; which gives it a Gloss nothing inferior to natural Marble.

If it be only required to make a variegated Table, or other Work of several Colours, without *Mosaick* Figures; the Process is somewhat different. To this End they only prepare separately, in large Bowls, as many different Colours as Nature shews in the Marble to be imitated, and after incorporating them with the *Gypsum* and Glue-Water, they take a Trowel-full of each, and dispose them in a Trough, without any Order; then without mingling them, and only by cutting or crossing the *Gypsum* of each Trowel once or twice with each of the rest, they give them that beautiful Confusion, for which natural Marbles are so much valued: Of these they then make their Tables, or lay a Mold according to the Work to be done.

As to *Mosaick Work of Wood*, more properly called *Marquetry*, or *inlaid Work*, the Antients were well acquainted with it, and used it for the adorning of their Beds, Tables, and other Moveables; employing for this Purpose Ivory and the richest Wood. But Friar *John* of *Verona*, seems to have contributed the most to its Perfection, by discovering the Secret of dying Woods of all Colours and Degrees, by which Means he was enabled to imitate Painting, and even to represent Architecture in Perspective.

They begin by sawing their Woods into Leaves of the Thickness of one or two Tenths of an Inch; then take Pieces of the Design they are to follow, and fasten them to those Leaves; and with a little Steel Saw fashion these to the Contour of the Design. All that is necessary being taken off with the Saw, they give the Shadow to those Places that require it, by placing the Piece in a hot Sand or otherwise, with the Direction necessary to shadow it more or less. This done they lay each Piece in its Place, on a Ground of another Wood, as dry Oak, and there fasten them with strong Glue.

There is another Sort of *Mosaick*, called *Shell-Work*, consisting of artificial Congellations, Petrifications, *&c.* used in *Grotto's*.

Note, That being thus far instructed in all the different Sorts of *Paintings*, and in all the other Things which have the least Report to it; we shall learn next how to judge pertinently of *Paintings*, which consists in three different Sorts of Knowledge. 1. In discovering what's good and what's bad in the same Picture. 2. How to know the Name of the Painter. And, 3. How to make the Difference between an Original and a Copy.

1. *As to what is good or what is bad in a Picture.* — This Knowledge, which is without doubt, the most difficult in the Acquisition, supposes a Penetration and a Quickness of Wit, with an Intelligence of the Principles of *Painting*; and on the Measure of those Things depends that of the Knowledge of that Art. The Penetration and Delicacy of the Wit, serve to judge of the Invention, and of the general Expressions of the Subject, of the Passions of the Soul in particular; and of what depends of Custom, *i. e.* Modes, Times, and Places; and of poetical: And the Intelligence of the Principles makes us find the Cause of the Effects we admire, whether they proceed from the good Taste, or from the Correctness and Elegancy of the Design; whether the Objects appear in it disposed advantageously, or the Colours, Lights, and Shadows, be well contriv'd, or order'd.

Those who have not cultivated their Mind by the Knowledge

Knowledge of the Principles, at least speculatively, may, perhaps, be sensible to the Effect of a fine Picture, but they'll never be capable to give any Reason of the Judgment they have formed of it. The Practice, and some acquired Ideas of *Painting*, must come to the Succours of the natural Lights of the Lovers of *Painting*. That alone can put them in the Way of acquiring a Knowledge, capable to discover, at least in general, what's good and what's bad in a Picture.

Which, notwithstanding, the Admirers and Lovers of *Painting*, who have Genius enough, can enter as it were, into the Sanctuary, and acquire the Knowledge of all those Details, by the Lights, which their curious Reflections procure them insensibly.

The Taste of the Arts was so much in Fashion in *Alexander*'s Time, that to acquire a tolerable Knowledge thereof, all young Gentlemen learned the Design, so that those who had a Talent, cultivated it by Practice, and in the Occasion took Advantage of it, and distinguished themselves by the Superiority of their Knowledge.

The *Knowledge of the Name of a Painter*, is acquired by a great Practice, and by having seen with a great Application a great Number of Pictures of all the Schools, and of the principal Masters that composed them. We reckon six of those Schools, *viz* the *Roman*, the *Venetian*, that of *Lombardy*, the *German*, the *Flemish*, and the *French*; and after we have acquired by a long Practice, a distinct Idea of each of those Schools, if it be Question, to find the Name of a Painter by a Picture, that Picture must be referred to that School, to which it is thought to have the greatest Report; and when the School is found, the Picture must be given to the Painter of that School, whose Manner of *Painting* has the most Conformity with that Work. But to know well the Manner of the Painter, is, in my Opinion, where the greatest Difficulty consists.

There are Curious who form to themselves an Idea of a Master, on three or four of his Pictures, and believe, afterwards, that they have a sufficient Title to decide on his Manner, without reflecting on the Care, more or less great, he might have taken to paint them, nor on the Age he has painted them in.

It is not on the particular Pictures of a Painter, but on the Generality of his Works one must judge of his Merit. For all Painters have done some good and some bad Pictures, according to the Care they have taken, and the Motion of their Genius; and they have all had, likewise, their Beginning, Progress, and End, *i. e.* three Manners: The first, which partakes of that of their Master; the second which they have formed according to their own Taste; and in which resides the Measure of their Talents and Genius; and the third, which most commonly degenerates into what's called *Manner*; because a Painter having a long while studied after Nature, will enjoy, without consulting it any longer, the Habit he has contracted.

Therefore when a Curious shall have very well consider'd the different Pieces of a Master, and formed to himself an Idea thereof, in the Manner above-mention'd, then he'll be allowed to judge of the Author of a Piece of *Painting*, without being suspected of Temerity. For though a good Connoisseur, able by his Talents, Reflections, and long Experience, may sometimes be mistaken in the Name of a Painter, he cannot be mistaken in the Justness and Solidity of his Sentiments.

In fact, there are Pictures painted by Pupils, who have very closely followed their Masters, as well in the Knowledge, as in the Manner. Several Painters have been seen to follow the Taste of another Country, rather than their own; as some of them, even in their own Country, have passed from one Manner to another, and who, in their Passage have made several Pictures very equivocal with Regard to the Name of the Author.

That Inconvenience, notwithstanding, is not without Remedy for those, who not contented with minding the Hand of the Master, have Penetration enough to discover that of his Mind. A learned Man can easily communicate his Manner of executing his Designs; but not the Beauty of his Thoughts. Therefore it is not enough to discover the Author of a Picture, to know the Motion of his Pencil, if one does not penetrate that of his Mind. And though it be a great deal to have a just Idea of the Taste the Painter has in his Design, one must, besides, enter into the Character his Genius is capable to give to his Conceptions.

I do not pretend, notwithstanding, to silence on that Matter a Lover of *Painting*, who has neither seen nor examined that great Number of Pictures; it is good, on the contrary, to speak to acquire and increase our Knowledge; I would only that every one should speak according to his own Experience: Modesty, which becomes so well the Beginners, becomes, likewise, those who have much Experience, especially in difficult Things.

As *to know if a Picture be an Original or Copy.*—My Intention is not to speak here of indifferent Copies, which are presently known by all Connoisseurs, much less of the bad ones, which pass for such in every Body's Eyes. I suppose a Copy made by a good Painter, which deserves a serious Reflection, and keeps in Suspence, at least for some Time, the Decision of the best Connoisseurs. And of these Copies I find three Kinds:

The first is made faithfully, but servilely.

The second is slight, easy, and not faithful.

And the third is faithful and easy.

The first, which is servile and faithful, represents, it is true, the Design, the Colour, and the Touches of the Original; but the Fear of going beyond the Limits of Precision, and altering the Truth, renders the Hand of the Copist heavy, and makes it appear such as it is.

The second would be more capable to impose on our Judgment, because of the Lightness of the Pencil, if the Infidelity of the Contours was not to rectify our Sight.

And the third, which is faithful and easy, and made by a learned and light Hand, and especially at the Time of the Original, embarasses more the best Connoisseurs, and exposes them sometimes to pronounce against the Truth, though according to Likelihood.

If there are Things which seem to favour the Originality of a Work, there are, likewise, some which appear to destroy it; as the Repetition of the same Picture, it having been buried in Oblivion for a long Time, and the low Price it has cost. But though these Considerations can be of some Weight, they are often very frivolous, for Want of having been well examined.

A Picture having been long forgotten, proceeds often, either from the Hands it fell into at first, or from the Place where it is, or from the Eyes that see it, or from the little Love he that is in Possession of it, has for *Painting*.

The low Price proceeds commonly from the Want, or Ignorance of the Person that sells it.

And the Repetition of a Picture, which is the most specious Cause, is not always a very solid Reason. For there are but very few Painters that have not repeated some of their Works, either because it pleased, or because he was asked for one like it.

Two Virgins of *Raphael*, having been placed near one another, have persuaded the Connoisseurs, that they were both Originals.

Titian has repeated seven or eight Times the same Pictures, as a Comedy which succeeds is play'd several Times; and we see several Pictures of the best Masters of *Italy*, repeated, to dispute yet for Goodness and Precedency. But how many others do we see which have deceived the best Masters themselves? And among several Examples which I could give of it, I'll only relate here, that of *Jules Roman*, extracted from *Lagiri*.

Frederick II. Duke of *Mantua*, passing through *Florence*, in his Way to *Rome*, to pay his Compliments to *Clement* VII. saw in the Palace of *Medicis*, over a Door, the Picture of *Leo* X. between the Cardinal *Jules* of *Medicis*, and the Cardinal *Rossi*. The Heads were of *Raphael*, and the Draperies of *Jules Roman*, and the Whole was marvellous. In effect, the Duke of *Mantua* fell so much in Love with it, after he had consider'd it, that he could not help, while he was at *Rome*, to ask the Pope that Picture of *Leo* X. who very graciously granted it to him. His Holiness wrote immediately to *Octavian* of *Medicis*, to have that Picture packed up, and sent to *Mantua*. *Octavian*, who himself was a great Lover of *Painting*, and was not willing to deprive *Florence* of so beautiful a Piece, found Means to delay the sending of it, under Pretence of having a richer Frame

made

made to the Picture. That Delay gave *Octavian* Time to have that Picture copied by *Andrew del Sarte*, who did it so perfectly, that he even imitated the very small Spots which were upon it. That Copy, in fact, was so conformable to its Original, that *Octavian* himself could scarce distinguish them; and for fear of being mistaken, he had a Mark put behind the Copy, and sent it to *Mantua* a few Days afterwards. The Duke receiving it with all the Satisfaction possible, not at all questioning that it was *Raphael*'s Work, no more than *Jules Roman*, who was then near that Prince, and had remained all his Life in that Opinion, if *Vasari*, who had seen *Del Sarte* painting that Copy, had not undeceiv'd him. For *Vasari* being arrived at *Mantua*, was very well received of *Jules Roman*, who after he had shewed him all the Curiosities of the Duke, said to him, that he had not seen yet the finest Thing that was in the Palace, *viz.* the Picture of *Leo* X. of *Raphael*'s own Hand; and having shewed it him, *Vasari* told him, *that it was in fact very fine, but that it was not of* Raphael. *Jules Roman* having consider'd it with more Attention, *What*, replied he, *it is not of* Raphael? *Don't I know my own Work? Don't I see the Strokes of the Pencil I have given to it myself? You do not examine it well*, replied *Vasari*, *for I can assure you, that I have seen it painted by* Andrew del Sarte, *and to convince you of it, you'll find behind the Cloth, a Mark put there on Purpose not to mistake it for the Original. Jules Roman* having then turned the Picture, and found the Mark, said, surprised with Admiration; *I value it as much as if it was of* Raphael, *and even more: For it is not natural to imitate so excellent a Man, so far as to deceive.*

Since *Jules Roman*, though an extremely learned Man in his Profession, after he had been informed, and examined the Picture, persisted still to deceive himself in the Judgment he made of his own Work; how could we find it strange, that other Painters, less learned than he was, suffer themselves to be deceived on the Works of others? Thus Truth can, sometimes, be hid to the most profound Learning; and to be mistaken on Facts, is not always to be mistaken in the Justness of our Judgments.

But however, let a Picture be ever so equivocal on the Originality, it bears, notwithstanding, enough exterior Marks, to give a Connoisseur Room to say, without Temerity, what he really thinks of it, not as a last Decision, but as a Sentiment founded on a solid Knowledge.

It remains yet to say something of Pictures, which are neither Original, nor Copies, and which are called *Pastiches*, from the *Italian Pastichi*, which signify *Pye*; for as the different Things which season a Pye, are all reduced to one single Taste, likewise, the different Falsities which compose a *Pastiche*, tend all towards making one single Truth.

A Painter that wants to deceive in that Manner, must have in his Mind the Manner and Principles of the Painter of whom he designs to give an Idea, to reduce his Work to it, whether he introduces into it some Place of a Picture, that Master has painted already, or the Invention being his, he imitates slightly, not only the Touches, but likewise the Taste of the Design, and that of Colouring. It often happens, that a Painter who proposes to himself to counterfeit the Works of another, having always in View to imitate those who are more learned than him, makes better Pictures in that Manner than if he was to do it of his own Bottom.

Among those who have thus took Pleasure in counterfeiting the Works of other Painters, I'll mention none here but *David Taniers*, who has deceived, and deceives still every Day, the Curious, who are not cautious of the Dexterity he had to transform himself into *Bassan* and *Paolo Veronese*. Some of these Pastiches are made with so much Dexterity, that the most clear-sighted are deceived at first Sight. But after they have examined the Thing nearer, they find presently the Difference between Colouring and Colouring, and Pencil from Pencil.

David Taniers, for Example, had a very particular Talent to counterfeit the *Basans*: But his smooth and light Pencil he has employed in that Artifice, is the very Source of the Evidence of his Deceit. For his Pencil, which is easy and smooth, is neither so spiritual, nor so proper to characterise the Objects, as that of the *Bassans*, especially in Animals.

It is true, that there is an Union in the Colours of *Taniers*; but there was a certain Grey predominant in it, to which he had accustomed himself, and his Colouring has neither the Strength nor the Sweetness of that of *James Bassan*. The same may be said of all *Pastiches*; and not to be mistaken in it, one must examine, by Comparison to their Model, the Taste of the Design, that of the Colouring, and the Character of the Pencil.

As to the Origin of Painting.—Though all the Authors who have spoke of it, have been of different Sentiments, they all agree, notwithstanding, that Shadow gave Birth to that Art. *Pliny* relates, on that Subject, the History of a Maid of *Sicyona*, called *Corinthia*, and says that a young Man she loved being fell asleep, at the Light of a Lamp, the Shadow of his Face, which appear'd on the Wall, seemed to her so much like him, that she traced the Extremities thereof, and thereby drew the Picture of her Lover. If it be true, as there is much Appearance, that Shadow has occasion'd the Invention of *Painting*, Imitation is so very natural to Man, that he would not have waited till the Time of *Corinthia*, to trace Figures on his Shadow, which is as antient as himself.

But without enlarging on that Thought, and searching a Source, so uncertain as is that of *Painting*, we may very well say on a good Foundation, that that Art has took its Birth at the same Time with the Sculpture, both having the Design for their Principle; that Sculpture being already in Use, in *Abraham*'s Time; *Painting*, consequently, was equally known then, and equally practised. It may have disappear'd, and appear'd again according to the Revolution of Times. War is an Art which destroys all others, and *Painting* has been the much more exposed to it, that it was only invented for Pleasure. But Arts are like the Phœnix, they revive from their Ashes. Therefore it is very likely, that *Painting* was extinct and renewed several Times, even in former Ages; though in a very weak Degree; and that those to whom the Invention thereof has been attributed, have only renewed it.

But to follow the Sentiment of Authors, after they have been compared together; we'll find that *Giges*, a *Lydian*, has invented *Painting* in *Egypt*, *Euchir* in *Lydia*, and *Bularcus* brought it from *Lydia* into *Italy*, under the Reign of *Romulus*. That Painter painted a Piece, where he represented the Battle of the *Magnesians*, which was found so fine by *Candaul* King of *Lydia*, that to pay for it he cover'd it with Gold; whence we may infer, that *Painting* was then already much respected.

It is needless to relate here what Authors say of those first Painters who have preceded the Decay of the Empire; as we see nothing left of their Works, we have very little Curiosity to know what has any Relation to them, and to charge our Memory with their Names. Though some Painters may be excepted from this general Rule, whom Fame has render'd so famous, that it would be shameful to know nothing of them. I found six of them, *viz. Zeuxis*, *Parrasius*, *Pamphil*, *Timanthe*, *Apelles*, and *Protogenes*. They lived in the Century of *Alexander the Great*, when the Arts were in their Vigour: And though we have none of their Works, one may, notwithstanding, judge of the Degree of their Perfection, by those of Sculpture of the same Century, which have been handed to us, and by the great Price they were rated at. For *Timanthe*, and after him *Apelles*, were paid a hundred Talents for one single Picture, which is about 10,000 *l.* Sterling.

We have, it is true, some Pieces of antique *Painting*, but we know neither the Time they were painted in, nor the Name of the Authors who painted them. The most considerable is at *Rome*, which I have seen in the *Aldbrandine* Vineyard, and represents a Wedding. That Work is of a great Taste of Design, and partakes much of the *Greek* Sculpture, and Bass-Relievo's. It is dry, and without Intelligence of *Groups*, nor of the Clair-obscure; but we may reasonably believe, that all the Works of *Painting* done at that Time, were not of the same Sort; since what we read of *Zeuxis* and *Parrasius*, that they have deceived by their Pencil, not Animals only, but Painters themselves, must persuade us, that

that they had penetrated farther into the Principles of *Painting*, than the Author of that Work. It is true, that they had not the Use of Oil, which gives so much Strength to the Colours; but they could have some Secrets unknown to us; *Pliny* says, that *Apelles* used a Varnish, which gave Vigour to his Colours, and preserved them.

But however, let it be how it will, we cannot go against the universal Testimony of the antient Authors, who have mentioned the Painters of those Times, and from whose Writings, one must infer, that *Painting* was then in a high Degree of Perfection, and that the Number of learned Painters was very great; though I'll confine myself to mention only in this Place, the most considerable among them, beginning by *Zeuxis*.

ZEUXIS, born at *Heraclea*, in *Macedonia*, learned the first Elements of *Painting*, in the 84th Olympiad, four hundred Years before *Jesus Christ*. He applied himself to it entirely, and the Success answering to his Studies, made him undertake very bold Things, which gained him a great Reputation. He was very well versed in the Design; but he has penetrated into the Colouring more than any other Painter of his Time. And *Pliny* says, that *Apollodorus*, who first found the Principles of the Clair-obscure, and of the Colouring, opened to *Zeuxis* the Gates of *Painting*, and that the same *Apollodorus* complained afterwards, that *Zeuxis* had entered them so far, that he had carried the Art along with him.

The *Agrigentans*, having asked of him the Picture of an *Helena* naked, to place in their Temple, they sent him, at the same Time, at his Request, several of the most beautiful Maids of their Country. He retained five of them, and having well considered them, he formed to himself an Idea of their most beautiful Parts, for the Composition of the Body he was to represent, which he painted afterwards so perfect, that he used to say to the Painters who came to admire it, that they could very well praise it, but not imitate it.

Parrasius, notwithstanding, disputed the Precedency with him. And they agreed to make each a Picture in Concurrence. *Zeuxis* painted Grapes, and *Parrasius* a Curtain. The Work of the first being exposed to publick View, enticed Birds to come and pick the Grapes he had painted, and which they mistook for true ones. *Zeuxis* proud of the Suffrages of those Animals, desired *Parrasius* to shew his Picture, and to draw that Curtain which cover'd it; but finding himself deceived by that Curtain, which was *Parrasius*'s Picture, he confessed ingenuously, that he was vanquished, and that his having deceived but Birds, *Parrasius* had deceived him himself, though a Painter.

Zeuxis painted afterwards a young Man, carrying on his Head a Basket full of Grapes, and seeing that Birds came again to peck them, confessed as ingenuously, that if the Grapes were well painted, the Figure was very ill done, since the Birds were not afraid of it.

Festus says, that the last Piece of that Painter, was the Picture of an old Woman, and that it made him laugh to such an Excess, that he died of it.

Zeuxis's Competitors were *Timanthe*, *Androcide*, *Eupompe*, and *Parrasius*.

PARRASIUS, born at *Ephesus*, Son and Disciple of *Avenor*, excelled particularly in the Expression of the Passions of the Soul; in dressing the Heads, in the Distribution of the Hair, and in the Charms of the Mouth. He had much Genius and Elevation of Mind; but was extreamly proud, speaking of others with Scorn, and of himself, as if he had carried the Art to its last Degree of Perfection.

PAMPHILE, born in *Macedonia*, under the Reign of *Philip*, *Alexander the Great*'s Father, had *Eupompe* for his Master, and the famous *Apelles* for his Disciple. He had a very great Idea of his Art, in which he thought it was impossible to succeed without the Study of the *Belles Lettres*, and of Geometry, being himself very well versed in those Things; and his Reputation gained him very considerable Disciples.

TIMANTHE was *Pamphile*'s Cotemporary, and was one of the best, and most judicious Painters of his Time. Among his Works, the most famous, and of which several Authors speak with Praises, is the Sacrifice of *Iphigeny*. That young Maid appeared in it of a surprising Beauty; and seemed freely devoted to her Country. The Painter who had represented in it *Calchas*, *Ulysses*, *Ajax*, *Menelaus*, Friends and Relations of *Iphigeny*, having exhausted himself in giving each of them a different Character of Sorrow, becoming the Persons, painted *Agamemnon*, *Iphigeny*'s Father, his Face hid in his Drapery, not being capable to express in another Manner, as it should be, the Sentiment of his Grief; so that one could judge by the Expression which appear'd on the Face of the Brother and of the Uncle of that Victim, of the Affliction of the Father.

APELLES, whom Fame has placed above all other Painters, was born in the Island *Co* in *Greece*; Son of *Pithius*, and *Pamphile*'s Disciple. He brought along with him into the World so much Disposition and Inclination for *Painting*, that he was never a Day without Designing something.

The Strength of his Genius, and the Assiduity of his Studies did not give him that good Opinion learned Men are but too apt to conceive of themselves; and would never judge of his Capacity, but by comparing it with that of those Painters he visited.

Apelles was circumspect, but easy in his Productions. The Elegance and Grace he spread in his Works, never alter'd the Truth which a Painter owes to Nature. He was so faithful in his Pictures, that some Astrologers made no Difficulty to make Use of them, to draw the Horoscope of the Persons he had painted.

Alexander, who often visited *Apelles*, for the Pleasure he found in his Conversation and Manners, allowed him to speak to him without Complaisance, though that Prince had much for him as he shewed it, on the Occasion of the Picture of *Compaspe*, he had order'd him to paint. *Compaspe* was a beautiful Woman, and that of all *Alexander*'s Concubines he loved best; and that great Monarch perceiving, that she had also wounded the Heart of *Apelles*, generously gave her to him.

Apelles made often the Picture of *Alexander*, and as that Prince did not think proper his Image should be profaned by the Hand of the Ignorants, he issued out an Edict, forbidding all Painters to make his Picture, *Apelles* only excepted.

Though *Apelles* was very exact in his Works, he knew how far he was to work without fatiguing his Mind. He said, one Day, speaking of *Protogenes*, that he was a very good Painter, but that he often spoiled the fine Things he did, by wanting to render them more perfect, not knowing when to leave off Work.

To have the Opinion of the Publick without Affectation and Complaisance, he exposed his Works to publick View, and hid himself behind to hear what was said of them, in order to make a good Use of it. So that a Shoemaker passing one Day before the House of *Apelles*, and finding a Picture thus exposed, censured with Freedom some Imperfection he perceived in a Sandal, which was changed immediately after; but passing again the next Day through the same Place, proud that his Criticism had been minded, he censured, likewise, a Thigh, where there was no Fault, which obliged *Apelles* to come out from behind his Cloth, and to say to the Shoemaker, that his Judgment went no farther than the Sandal.

PROTOGENES was of *Caume*, a City of *Caria*, subject to the *Rhodians*, but we know nothing of his Parents, nor of his Master; though it is likely enough, that he had no other than the publick Works, and that his Parents were poor; for he was himself so very little favour'd by Fortune, that he was obliged at first to paint Ships for a Livelihood. His greatest Ambition was not to be rich, but to be learned; wherefore he lived retired from the Commerce of the World, to be more at Liberty to render himself more perfect in his Art, by his uninterrupted Studies.

Protogenes finished extremely his Works. He wanted that the Works he painted should appear true, not likely only. The finest Piece he ever painted was the Picture of *Jalisus*. Several Authors speak of it without giving us the Description thereof, and without even telling us who was that *Jalisus*, whom some imagine to have been a famous Hunter.

During

During the seven Years *Protogenes* employed in *Painting*, he eat nothing but certain Roots of that Country, which served him both for Meat and Drink; that so light an Aliment should leave his Imagination at full Liberty.

Apelles having seen that Work, was so struck with Admiration, that he remained dumb, having no Terms to express the Idea of Beauty that Picture had formed in his Mind. It was that same Picture which saved *Rhodes* while besieged by King *Demetrius*; because as he could not take it but on that Side where *Protogenes* was at Work, and whereby that Prince designed to set it on Fire, he rather chose to lose his Conquest than to destroy so beautiful a Piece.

Quintillian says, of six famous Painters of those Times, *That* Protogenes *excelled for Exactness*, Pamphil *and* Melanthius *for the Ordinance*, Antiphilus *for the Facility*, Theon, *the* Samian, *for the Fecundity of the Ideas, and* Apelles *for Grace, and ingenious Conceptions.*

Pliny pretends, that the most famous antient Painters, used but four principal Colours, of which they composed all the others. I will not reason, here, on this Subject, no more than on the Comparison of the antique *Painting* with the modern; we can only say, that if *Painting* with Oil has a great Advantage over the Distemper, for the Facility of *Painting*, and for the Union of the Colours; the Antients had Varnishes which gave a great Strength to their brown Colours; and that their White was brighter and more shining than ours; so that having thereby a greater Extent of the Degrees of the Clair-obscure, they could imitate certain Objects with more Strength and Truth, than it is done by Means of the Oil. *Titian* knew that Advantage, and would make use of it in some Pictures, where he has employed White in Distemper, but the Diversity of those Manners of employing Colours, is a Subgession, which could disgust *Titian* from that Practice.

I'll say, besides, of the Painters and Sculptors of those Times, that knowing that there was no Work, let it be ever so accomplished, but what could be made still more perfect, they observed it by putting their Name to express that the Work was not perfected, though they had done all they could towards it.

But to come nearer our own Times, and to acquire a greater Knowledge of *Painting*, from the Painters who have flourished in *Europe*, ever since the Restoration of the Art of *Painting* in *Italy*; beginning at *Cimabué*; I'll say, that the Senate of *Florence* send into *Greece*, for Painters to restore *Painting* in *Tuscany*, and that *Cimabué*, was their first Disciple.

The Roman School.

Cimabue, may very well be consider'd as the Restorer of *Painting* in *Italy*, and, as it were, the Father of all the *Roman* and *Florentine* Painters. He was born at *Florence* of noble Parents, who finding in him a natural Disposition for the Sciences, gave him an Education accordingly; but the Arrival of those *Greek* Painters determined him entirely on the Side of *Painting*. The considerable Progresses he made in it, acquired him so much Reputation, that *Charles* I. King of *Naples*, passing through *Florence*, went to see *Cimabué*, and thought himself very well regaled by the Sight of the Works of that Painter; of which I have seen some Remains at *Florence*. He painted, as they used to do in those Times, *in fresco*, and in Distemper; *Painting* in Oil being not yet discover'd. *Cimabué* understood also the Sculpture, and died in 1300, aged 70; and had *Giotto* for his Disciple.

Andrew Tatti, of *Florence*, made himself known by a new Kind of *Painting*. He quitted *Florence* to go to *Venice*, where they had called likewise some *Greeks*, who worked in *Mosaick*, in the Church of St. *Mark*. *Andrew* contracted an Intimacy with them, and in particular, with one of them called *Apollonius*, whom he brought along with him to *Florence*, where he learned of him the Secrets of that Kind of *Painting*, which had the Grace of Novelty, and was curious because of its Duration. They together painted several Histories of the Bible in the Church of St. *John*, and those Works gained him a Reputation. But he painted another, which acquired him much more Glory, and a great Reward from the Publick. This was a *Christ* seven Cubits high, which he had worked with a great deal of Care. His Works encouraged much *Gaddo Gaddi* and *Giotto*, and were as a Seed which produced several Painters in *Italy*. He died aged 81, in 1294.

Gaddo Gaddi, of *Florence*, applied himself to the *Mosaick*, which he designed better than any other Painter, and for which he was much esteemed at *Rome*, and in *Tuscany*. After he had painted divers great Pieces in several Places he retired to *Florence*, where he painted small ones to repose himself. He used for that Purpose Eggs-Shells, which he dyed of different Colours, and employed with a great deal of Patience. He died in 1312, aged 73.

Margaritone, born at *Arezzo*, in *Tuscany*, was both Painter and Sculptor. Pope *Urban* IV. employed him to paint some Pictures in the Church of St. *Peter*, and *Gregory* X. dying in the City of *Arezzo*, the Inhabitants employed him to make the Monument of that Pope. *Margaritone* gave on that Occasion very sensible Marks of his Capacity in the two Arts he professed, for he enriched with Pictures of his own Pencil, the Chapel, where he had erected the Marble Statue of the deceased Pope. He died aged 77.

Giotto, born in a Village near *Florence*, contributed much to the Progresses of *Painting*. His Memory is preserved not only by that great Piece of *Mosaick*, which is over the Gate of the Church of St. *Peter* at *Rome*, painted by the Orders of *Benedict* IX. and by the Praises of the Poets of his Time; but likewise by the Statue of Marble which the *Florentines* erected on his Tomb. This Piece represents St. *Peter*'s Boat agitated by the Tempest, and is known by all the Painters under the Name of *La Nave del Giotto*. He worked in several Places, *viz.* at *Florence*, *Pisa*, *Rome*, *Avignon*, *Naples*, and other Places of *Italy*. He died in 1336, aged 60, and had several Disciples.

Bonamico Bufamalco, of *Florence*, was ingenious in his Compositions, and gay in his Conversation.

One of his Friends, called *Bruno*, consulting him on the Means of giving more Expression to his Subject, *Bufamalco* told him, that he had nothing else to do but to make Words come out of the Mouth of his Figures, by writing them on Labels. *Bruno* followed that Advice, which was only given him in Jest, and made Use of it afterwards, which was ridiculously followed by other Painters after, who to outvy *Bruno*, added Answers to the Questions. *Bufamalco* died in 1340.

Stefano of *Florence*, and Pietro Laurati, Disciples of *Giotto*, were the first who made the Naked appear under the Draperies, and observed more regularly the Perspective. *Stefano* worked at *Florence*, *Pisa*, and *Assisium*; and *Laurati* at *Sienna*, and *Arezzo*. *Stefano* died in 1350, aged 49.

Ambrogio Lorenzetti of *Sienna*, and Pietro Cavallini of *Rome*, were Disciples of *Giotto*. *Lorenzetti* joined to *Painting* the Study of the *Belles Lettres*, and of Philosophy, and was the first who painted Rain, Tempests, and the Effects of the Winds. He died aged 83.

Cavallini, who was both Painter and Sculptor, has painted, besides other Works, the Crucifix which is in the Church of St. *Paul* at *Rome*, and which, as pretended, spoke to St. *Bridget*. This Painter was thought a Saint, for his Humility and Piety. He is buried in the same Church of St. *Paul*, having lived 85 Years.

Simon Memmi of *Sienna*, increased considerably the Progress of the Design, and was a very good Potrait-Painter: And as he was a great Friend of *Petrarke*, he painted the beautiful *Laura*. He died in 1345, aged 60.

Tadeo di Gaddo Gaddi, and *Angelo Gaddi* his Son, have both painted in the Manner of *Giotto*, having been his Disciple. *Angelo* had applied himself to express the Passions of the Soul, and was ingenious in his Inventions. He was a very good Architect; he built the Tower of *Sancta Maria del Fiore*, and the Bridge on the *Arno* at *Florence*. He died in 1350, aged 50.

Thomas Gettino, Son and Disciple of *Stefano* above mentioned, was more learned than his Masters. But the too great Vivacity of his Mind did not suffer him to pursue the Flight he had took. He painted at *Florence*, and died in 1356, aged 32.

Andrew Orgagna, of *Florence*, was Painter, Sculptor,

tor, Poet and Architect. His Genius was fertile, and his Manner very near like that of the other Painters of his Time. Most of his Works are at *Pisa*; and in the universal Judgment he painted, he represented his Friends in Heaven, and his Enemies in Hell. He died in 1389, aged 60.

LIPPO, of *Florence*, applied himself very late to Painting, and was the first who shewed some Intelligence in colouring. He was killed by a Person against whom he had a Suit of Law, who run his Sword through his Body, in 1415.

JOHN ANGELIC, of *Fiesolo*, a Religious of the Order of St. *Dominick*, rendered himself famous by his *Paintings*; but much more by his Piety, and profound Humility, which made him refuse the Archbishoprick of *Florence*, which Pope *Nicolas* V. offered him. That Pope employ'd him in the *Paintings* of his Chapel, and in several Works of Miniature in Church-Books. In his best Works he left always some Faults to moderate the Praises he could expect for them; which in my Opinion was a still greater Fault, and an Humility much out of Season. He painted at *Rome* and *Florence*, and his Subjects were always theological. When he happened to paint a Crucifix he never did it without shedding a Flood of Tears. His great Capacity and Meekness gained him a great Number of Disciples. He died in 1455, aged 68, and was buried at St. *Mary* of the *Minerva*, where I have seen his Tomb and his Picture.

PHILIP LIPPI, of *Florence*, made a Use of the monastick State, quite different from that of *John Angelic* above-mentioned; for after he had been educated in a Convent of Carmelites, ever since he was eight Years of Age, and took the Habit at Sixteen, it happened that *Mesaccio* painting a Chapel in that same Convent, and *Lippi* having seen him work several Times, he conceived a great Passion for *Painting*, applied himself to the Design, and the great Facility he found in it revived the Talent he had for that Art, and made him neglect the Study of the Letters, and the Exercises of his Monastery. The Praises of *Masaccio*, who was surprized at the Progresses of the Novice, strengthned in such a Manner the Temptation he had to quit his Habit, that he deserted at last his Monastery, and went into the March of *Ancona*, where he found some Friends, with whom having embarked in a Pleasure-Boat, he was taken by Pyrates, who carried him into *Barbary*. He suffered extremely during eighteen Months, till amusing himself one Day to draw on a Wall with Charcoal the Picture of his Patron, of whom he had his Idea full, he gained Applauses for the great Likeness which was found in it. This softned the Heart of his Patron, who after he had made him paint some other Pictures, set him at Liberty. From thence *Lippi* passed to *Naples*, where he was employ'd by King *Alphonsus*; but the Love of his Country made him return to *Florence*; where he worked for the Duke *Cosmo* of *Medicis*, who honoured him with his Affection. As the Love for Women disturbed him from his Work, and made him lose a great deal of Time, that Duke who was impatient to see a Picture finished which he had ordered him, had him confined in a Room to oblige him to work, and where he had him provided with Profusion, of all he could want or wish for. *Lippi* at the End of two Days cut the Sheets of his Bed into Bands, by which Means he went out at the Window, and recovered his Liberty.

A Citizen of *Florence* having desired him afterwards to paint the Picture of the blessed Virgin, for a Monastery where he had a very beautiful Daughter, the Father and the Nuns agreed, that the beautiful Boarder should serve him for a Model. *Lippi* finding himself alone with her debauched her by his Discourses, and the Work finished carried her off with her Consent. He had by her a Son called *Philip*, like him, and who was also a Painter.

Some Time afterwards, painting in a Church of *Spoletto*, he fell in Love with a Woman, and following her close, against the Advice of his Friends, the Relations of that Woman poisoned him in 1488, in the 57th Year of his Age. The Great Duke of *Tuscany* had a Monument of Marble erected to him, and *Angelus Positianus* made his Epitaph in *Latin* Verses.

Note, That all the preceding Painters had not the Secret to paint in Oil, they only painted *in Fresco* or *in Distemper*; and for this last Sort of *Painting* they mixed their Colours sometimes with Eggs, and sometimes with Gum-Water or Size.

ANTONY OF MESSINA, thus called because born at *Messina*, was the first *Italian* who painted in Oil. Some Affairs having called him to *Naples*, he saw a Picture which had been sent lately to King *Alphonsus* from *Flanders*: He was surprized at the Vivacity, Strength, and Softness of the Colours of that Picture, and seeing besides that they could be cleansed with Water without being defaced; he quitted all his other Affairs to go to *Bruges* near *John Van-Eik*, who, he was told, was the Author of that Work. He presented *Van-Eik* with a great Quantity of *Italian* Designs, and gained so well his Confidence by his complaisant Manners, that he communicated to him the Secret of painting in Oil. *Antony* was so sensibly obliged by it, and proved so grateful, that he staid at *Bruges* while *John Van Eik* lived. But after that Painter's Death he returned into his Country, from whence he went to settle at *Venice*, where he died, and where I have seen his Epitaph which contains his Praises.

Note, That *Antony Margarittone* had among his other Disciples one *Dominick*, to whom he communicated his Secret. That *Dominick* was called to *Florence* for some Works, where he found *Andrew da Castagno*, who from a Plowman was become a Painter, and who having seen how much that new Manner of *Painting* was valued, employ'd all his low Cunning, and artificious Complaisance to gain the Friendship of *Dominick*, and become thereby Master of his Secret. In fact he succeeded in it; *Dominick* loved him, discovered to him all he knew, and besides gave him Part of his Employments. But *Andrew*'s Avarice could not be satisfied with all those Advantages; he imagined that if he was alone all *Dominick*'s Profit would come to him, and without considering that he had not besides the same Capacity, he took the Resolution to dispatch his Benefactor. He went for that Purpose one Evening to wait for him at the Corner of a Street, and having assassinated him, he returned quickly to his Chamber, as if he had not been out. He perpetrated that enormous Crime so secretly, that *Dominick* not knowing his Murderer, had himself carried to his Chamber, to receive from him the Succours he wanted, and died in his Arms. That Murder had been buried with *Andrew*, if himself had not discover'd it on his Death-bed. It was that same *Andrew*, who for having painted against the Palace of the Podesta, the Execution of the Conspirators against the House of *Medicis*, was called afterwards *Andrea de Gl'impiccati*.

Note, also, That at the same Time worked in *Italy* *Vittore Pizano*, who was a very good Workman for the Coins of Medals. *Gentile di Fabriano*, whom Pope *Martin* V. employ'd at St. *John* of *Lateran*, and died aged 80 Years. *Laurenzo Costa*, who painted at *Bologna* and *Ferrara*, and had *Dosse* and *Hercules* of *Ferrara* for Disciples. *Cosiur Rosselli*, who painted in the Vatican for *Sixtus* IV. and died aged 68 Years, in 1484.

DOMINICK GHIRLANDAI, a *Florentine*, was a very good Painter; but his principal Reputation does not proceed so much from his Work, as for his having been Master of the great *Michel Angelo*. He died in 1493, aged 44 Years.

ANDREW VERROCHIO, painted in a rough Manner, and his Colours were not very well disposed; but he was very learned in the Design, and gracious in the Air of the Heads, especially of Women. He had designed a great Quantity of them with his Pen, which he used very well. He found Means to mould with Plaister the Faces of dead Bodies and living Persons, in order to draw their Picture. He was not satisfied with the Likeness of Things, he wanted besides to sathom them, and made sometimes for that Purpose mathematical Experiments. As he understood Horses very well, and knew the Art of melting and casting Metals, the *Venetians* would make use of him to erect a Brass Equestrian Statue to *Bartholomew* of *Bergama*, to whom they owed the good Success of

of their Arms: He made the Model thereof in Wax; but another having been preferred to him for casting the Work, he was so provoked at it, that he broke the Head and Legs of his Model and fled. The Senate of *Venice* had him pursued in vain; and it having been rumoured abroad, that if he was catch'd he would lose his Head; he answered to that Menace, that if they were to cut off his Head it would be impossible to make him another; whereas he could very well make to the Model of his Horse a new Head finer still than the first. That witty Answer made his Peace, but he had not the Pleasure to put his Horse in Place; for having overheated himself in melting it, he catched a Pleurisy of which he died in 1488, aged 56. *Leonardo da Vinci* and *Pietro Perugino* were his Disciples.

BERNARDINO PINTURICHIO, wanting to distinguish himself by a new Manner of *Painting*, made of Relievo the Architecture, and Ornaments which entered the Composition of his Pictures; which is a Thing contrary to the Art of *Painting*, which supposes a flat Superficy; therefore was followed by no body in that new Method. They shew at *Sienna* in the Library of the Dome, as a fine Thing, the Life of Pope *Pius* II. which he has painted. *Raphael*, at his coming out of his Time helped him in that Work. *Pinturichio* painted in the Vatican several Things for *Innocent* VIII. and *Alexander* VI.—The Cause of his Death is curious enough to be known. Being at *Sienna*, the Religious of St. *Francis*, who wanted to have a Piece of *Painting* of his Hand, gave him a Room to work more commodiously, and that the Place should not be embarassed with any Thing useless to his Art, they took out all the Goods, except an old Press, which seemed too heavy to be removed. *Pinturichio*, who was naturally quick and impatient, would have the Press removed immediately; but in removing it, a Piece of it fell off, in which there were five hundred Ducats of Gold hid. This surprized so much *Pinturichio*, and he conceived so sensible a Displeasure that he could not have that Treasure, that he died soon afterwards of it, in the Year 1513, and in the 59th of his Age.

ANDREW MANTEIGNE, born in a Village near *Padua*, was in his Infancy a Shepherd, but it having been perceived that instead of taking Care of them, he amused himself to design them; he was given to a Painter called *James Squarcioné*, who found him so deserving and so tractable, that he adopted him for his Son and instituted him his Heir. The Progress he made in a short Time in the Art of *Painting*, acquired him a great Reputation and much Work. He was but seventeen Years of Age when he painted the Altar-piece of St. *Sophy* of *Padua*, and the four Evangelists. *James Bellin* was so charm'd with that Piece, that he gave *Manteigne* his Daughter in Marriage. *Squarcioné* who had always been jealous of *Bellin*, sorry besides that his adoptive Son had contracted that Alliance without having consulted him, far from continuing his Praises, and his Protection to the Works of *Manteigne*, discredited them for their Dryness, and for his being too much wedded to the antique Statues, instead, said he, of making use of the natural. That Reproach proved advantageous to *Manteigne*, who reformed his Practice, without ever leaving notwithstanding, the laudable Inclination he had for the Antiques, saying, that it was to those fine Things he owed his Advancement, and that they had taken him all at once from the Poverty of the natural. It is true, that instead of adding to the Taste of the Antique the Truth and Softness of the Natural, he contented himself with mixing some Portraits among his Figures. He painted for the Duke of *Mantua* that beautiful Piece of the Triumph of *Julius Cesar*, engraven in Clare-obscure in nine Sheets, and which for its Beauty is also the Triumph of *Manteigne*. Pope *Innocent* VIII. having sent for him to give him Work, that Duke would not let him go before he had made him Knight of his own Order. *Manteigne* engraved himself on Tin Plates several Things after his Designs, and the *Italians* make him the Inventor of engraving Prints with the Graver. He died at *Mantua* in 1517, aged 66.

FRANCISCO FRANCIA, of *Bolognia*, was born with so many fine Qualities of the Mind and of the Body, that he gained the Esteem and Love of all the Great. He became one of the most learned of his Time in the Art of *Painting*. He painted several Pieces for divers Places of *Italy*, particularly for the Duke of *Urbino*. The great Reputation of *Raphael* made him wish passionately to see some of his Works; but as he was too old to undertake a Journey to *Rome*, he contented himself with explaining himself by Letters on that Subject, to his Friends, who informed *Raphael* of it. This occasion'd a civil Correspondence between those two Painters; for *Raphael* had heard of the Merit and Capacity of *Francia*. *Raphael* was painting then that famous Piece of St. *Cecilia* for a Church of *Bologna*; when it was done he addressed it to *Francia*, and desired him, by a Letter, to place it, and to be pleased to correct before, the Faults he could find in it. *Francia*, at the opening of the Letter, was transported with Joy, and took the Picture out of the Box; he admired it, and was sensibly touch'd at it; but at the same Time so much dispirited to see that Work so far above his, that he fell into a Melancholy, and thence into a languishing State of which he died some Time afterwards, *viz.* in the Year 1518, aged 68 Years.

LUCA SEIGNORELLI, of *Cortone*, was Disciple of *Pietro della Francesca*, and imitated so well his Manner of Painting, that it was very difficult to find the Difference between the Works of both. This *Luca* was an excellent Draughtsman; and *Michel Angelo* valued him so much, that he made no Difficulty to borrow for his Piece of the Judgment, something which *Luca* had painted in his, with much Imagination and Capacity. He painted at *Orvietto*, *Loretto*, *Cortona*, and *Rome*.

His Son who was a handsome young Man, and of whom he had great Expectations, was unfortunately killed at *Cortona*: He was sensibly afflicted at the News; but calling his Constancy to his Succour, he had him brought into his Laboratory, and without shedding a Tear, he painted him to preserve his Memory, finding no Consolation but in his Art, which restored what Death had ravished from him. He went afterwards to *Rome*, where Pope *Sixtus* IV. had called him; and after he had painted several Subjects of the *Genesis* he returned to his Country, where he died in 1521, aged 82.

PIETRO COSIMO, thus called of *Cosimo Pesselli*, whose Pupil he was, had a very great Capacity for *Painting*, which gained him a great Number of Disciples, and among others *Andrew del Sarte* and *Francis* of *Sangalle*. He loved Solitude, and lived in a very extraordinary Manner; the great Inclination he had for his Art making him forget eating and drinking. He was so frighted at the Thunder, that a long while after it was over, he was found in some Corner wrapped up in his Cloak. He died in the Year 1521, the 80th Year of his Age.

LEONARDO DA VINCI, was of a noble Family of *Tuscany*, a very honest Man, and very handsome, both of Body and Mind. He had so much Talent for all the Arts, that he knew them all perfectly, and practised them with much Exactness. That great Variety of Knowledge instead of weakening that he had for *Painting*, strengthned it to such a Degree, that no Painter before him approached his Capacity; and all those after him will always find in his Works an inexhaustible Source of a profound Knowledge. He was Disciple with *Pietro Perugin* of *Andrew Verrochio*, which could give him Occasion to awaken his Talents, for the Master and the Disciple were born with the same Talents, except that of *Leonardo*, was of greater Extent. He painted at *Florence*, *Rome* and *Milan*, and a great Number of his Pictures has been spread throughout all *Europe*. He painted among other Things, in the Refectory of the Dominicans at *Milan*, a Representation of our Lord's Supper of an exquisite Beauty; but he left the Christ imperfect, because he was searching a Model proper for the Character, when the Wars obliged him to quit *Milan*. He would have done the same Thing of *Judas*, but the Prior of that Convent, in the Impatience of seeing that Work finished, teazed *Leonardo* so much, that he painted the Head of that Friar for that of *Judas*. He was continually occupied with Reflections on his Art, and he had neglected neither Study nor Care to arrive at that Degree of Perfection he possessed it. He applied himself especially to express the Passions of the Soul, as one of the Things he thought most necessary to his Profession, and to gain the Approbation of Men of Wit. The Duke of *Milan*,

Milan gave him the Direction of an Academy of *Painting* that Prince had eſtabliſhed in his Capital. There he wrote the Book of *Painting*, which was printed at *Paris* in 1651, and the Figures thereof were made by the Pouſſin. He wrote alſo ſeveral other Things which were loſt, when *Milan* was taken by *Francis* I. King of *France*. *Leonardo* retired to *Florence*, where he painted the Council-Chamber, and where he found the Reputation of *Michel Angelo* ſo well eſtabliſhed, that it occaſion'd a great Emulation between them. *Leonardo* being gone to *Rome* at the Election of *Leo* X. he met again *Michel Angelo* there, where their Jealouſy increaſing to Exceſs, *Leonardo* paſſed into *France*, where he was extremely well received. He maintain'd by his Preſence and his Works the Reputation he had already acquired in that Kingdom; and King *Francis* I. gave him all poſſible Marks of his Love and Eſteem. That Prince went to viſit him in his laſt Malady, and *Leonardo* ſitting up in his Bed to thank his Majeſty, and the King embracing him to make him lay down, that Painter expired in his Arms, in 1520, aged 75 Years.

Note, That the Pictures of *Leonardo da Vinci*, which are ſeen in the Cabinets of Princes, and of the Curious, contain but few Figures, and a great Painter ſays, that he has not ſeen clear enough in what we have left of his grand Compoſitions to judge of the Extent of his Genius. But what Hiſtorians have wrote of his Works, which are at preſent almoſt entirely ruinated, muſt perſuade us that he had a fruitful Vein, that his Motions were quick, his Mind ſolid, and adorned with much Knowledge; therefore that his Inventions muſt have been of a great Beauty. We can even form that Judgment of it on the Deſigns we have yet of his Hand. Laſtly, what remains of his Productions ſuffices to perſuade us that he was a great Painter.

His Deſigns are of a great Correctneſs, and of a great Taſte, tho' it appears to have been formed on the Natural rather than on the Antique. But on the Natural in the ſame Manner the Antients extracted it from it, *i. e.* by learned Reſearches, and in attributing to Nature, not ſo much its ordinary Productions, as the Perfections it is capable of.

The Expreſſions of *Leonardo* of *Vinci* are very lively and ſpiritual. I have ſeen a Deſign of his Hand of that famous *Cène* he painted at *Milan*, and of which there is ſcarce any Veſtige left. That Deſign alone is a ſufficient Proof, to ſhew how deeply he penetrated into the human Heart; and with what Vivacity, Variety, and Exactneſs he knew to repreſent all its Motions. But rather than ſpeak of it in my own Judgment, it is more *a propos* to relate here that of *Rubens* on the Merit of ſo great a Man.

Leonardo da Vinci, ſays he, *would always begin by examining all Things according to the Rules of an exact Theory, and made afterwards the Application thereof on the Natural he wanted to make uſe of. He always obſerved a becoming Decency, and avoided all Affectation. He knew how to give to each Object the moſt lively, the moſt ſignificative, and the moſt agreeable Character poſſible; and carried that of Majeſty ſo far as to render it divine. The Order and Meaſure he obſerved in the Expreſſions was to quicken the Imagination, and to raiſe it by eſſential Parts, rather than to fill it with Trifles, and avoided in that, being either prodigal or avaricious. He took ſo much Care to avoid the Confuſion of Objects, that he rather choſe to leave ſomething to wiſh for in his Works, than to ſatiate the Eyes by a ſcrupulous Exactneſs: But in what he excelled moſt was, as already obſerved, to give to the Things each their proper Character, and which diſtinguiſhed them from one another.*

He begun by conſulting ſeveral Sorts of Books: He had extracted from them an Infinity of common Places, of which he had made a Collection. Nothing eſcaped him which could contribute to the Expreſſion of his Subject, and by the Fire of his Imagination, as well as by the Solidity of his Judgment, he raiſed the Things divine by the human, and knew how to give Men the different Degrees which carried them to the Character of Heroes.

The firſt of the Examples he has left us of this is, the Piece he painted at Milan, *of our Lord's Supper, where he has repreſented the Apoſtles in the Places which became them, and our Lord in the moſt honourable in the Middle of them, none of them crowding his Neighbour, or being placed too near him. His Attitude is grave, and his Arms are in a free and eaſy Situation, to ſhew more Grandeur, while the Apoſtles appear agitated by the Vehemency of their Inquietude; in which notwithſtanding, there appears no Weakneſs, nor any unbecoming Action. Laſtly, by an Effect of his Speculations he arrived to ſuch a Degree of Perfection, that it is almoſt impoſſible to ſpeak of him as he deſerves, much more to imitate him.*

Rubens enlarges afterwards on the Degree to which *Leonardo da Vinci*, poſſeſſed the Anatomy, he makes an Enumeration of all the Studies and Deſigns he had made, and which *Rubens* had ſeen among the Curioſities of *Pompe Leoni* of *Arezzo*. He continues by the Anatomy of Horſes, and by the Obſervations *Leonard* had made on the Phiſiognomy, of which *Rubens* had likewiſe ſeen the Deſigns; and ends by the Method that Painter uſed in meaſuring the humane Body.

If I may be permitted to add ſomething to *Rubens*'s Words, I ſay that he has not ſpoke of the colouring of *Leonardo da Vinci*; becauſe his having only made his Remarks on the Things which could be uſeful to him, and having found nothing good in the colouring of *Leonardo* he paſſed over that Part; for in fact the Carnations of *Leonardo* are moſt of them of the Colour of Lees, the Union found in his Paintings partakes much of the Violet, and that Colour is even predominant in them; which proceeds, in my Opinion, from that in *Leonardo*'s Time, the Uſe of *Painting* in Oil, was not yet very well known, and that the *Florentines* have commonly neglected that Part.

Pietro Perugin, born at *Perouſe*, of poor Parents, he was firſt Pupil of a Painter of the ſame City, where he learned little or nothing, and who uſed him very ill. His Poverty made him ſuffer with Patience, and the Deſire of getting ſomething to extricate himſelf from his Difficulties, engaged him to work Night and Day, to render himſelf Maſter of the Deſign. As ſoon as he thought he was capable to work for his Subſiſtence, he went to *Florence* in queſt of another Maſter, where he found *Andrew Verrochio*, and whom he choſe. He ſoon became a good Painter, and took that gracious Manner for the Airs of the Head, which was practiſed by *Verrochio*, eſpecially for the Heads of Women. He has painted a great Number of Pictures, and almoſt all for Churches and Convents.

Perugin was very avaricious, and as he was likewiſe very laborious, he became very rich at *Florence* and at *Rome*, where he painted for *Sixtus* IV. He retired to *Perouſe*, where he painted beſides a great Number of Pictures, aſſiſted therein by *Raphael*, and his other Diſciples. He had married a very beautiful Woman, who ſerved him for Model for his Virgins. He loved her paſſionately, but loved as well his Money; for every Time he went to the Country Seat he had bought near *Perouſe*, he always carried his ſtrong Box along with him, till a Sharper having took Notice of it, he eaſed him on the Road of that Trouble; that Loſs broke the Heart of *Perugin*, who died ſoon after, *viz.* in 1524, aged 78.

Raphael Senzio, born at *Urbino* on *Good Friday*, in the Year 1483, his Father was but a very indifferent Painter; and his Maſter was *Pietro Perugin*. His principal Works are at *Freſco*, in the Halls of the Vatican, and his Pictures of *Eaſel*, are diſperſed in divers Places of *Europe*. As he had an excellent Genius, he knew that the Perfection of *Painting* was not limited to the Capacity of *Perugin*, and to ſearch elſewhere the Means of advancing himſelf, he went firſt to *Sienna*, where his Friend *Pinturichio*, employ'd him to make the Cartoons for the Paintings of the Library. But he had ſcarce made ſome of them, but on the Report of the Works which *Leonardo da Vinci*, and *Michel Angelo* were painting at *Florence*, he went thither, to render himſelf more perfect. In fact, as ſoon as he had conſidered the Manner of thoſe two great Men, he formed the Reſolution to change that he had contracted at his Maſter's. He returned to *Perouſe*, where he found a great many Occaſions of exerciſing his Pencil; but at the Remem-

Remembrance of the Works of *Leonardo da Vinci*, he went a second Time to *Florence*; where having work'd for some Time, to strengthen his Manner, he proceeded to *Rome*, where *Bramante* his Kinsman, who had prepared the Mind of the Pope on the Merit of *Raphael*, procured him the Work which was to be done in the Vatican. *Raphael* began with the Piece called the *School of Athens*; then he proceeded to the Dispute of the Blessed Sacrament; and afterwards to the others which are in the Chamber of the Signature. The Care he took in them are incredible; therefore they did not prove unfruitful, for the Reputation of those Works carried *Raphael*'s Name throughout the whole World. He formed the Delicacy of his Taste on the antique Statues and Basso-Relievo's, which he designed a long Time, with an extreme Application, and joined to that Delicacy a Greatness of Manner, which the Sight of the Chapel of *Michel Angelo* inspired him with all at once.

Besides the Pains *Raphael* took of Designing after the Sculptures, he kept Painters in *Italy*, and in *Greece* to design all the antique Works they could discover, of which he made Use as Occasion served. It is observed, that he has left but very few Works imperfect, and that he finished extremely his Pictures, though very quickly. He took all the Care possible to reduce them to such a State of Perfection, that he should have nothing to reproach himself with. It is the Reason why we see of him a Sketch of small Parts, *viz.* Hands, Feet, and Pieces of Drapery, which he designed three or four Times for the same Subject; and then chose among them those he thought the best.

Though he was very laborious, we see very few *Paintings* of his own Hand. His whole Occupation was to Design, not to leave idle the great Number of Pupils who have executed his Designs in several Places, particularly in the Lodges, and Apartments of the Vatican, in the Church of *Our Lady* of the Peace; and in the Palace *Ghigi*; except the *Galatæa*, and a single Angle where are the three Goddesses, which he has painted himself.

His Passion for Women killed him in the Flower of his Age, for one Day having excessively abandoned himself to it, he was surprized with a violent Fever; and the Physicians, from whom having concealed the Cause of his Illness, having treated him for a Pleurisy, extinguished entirely what was left of the native Warmth in a Body already exhausted. He died on the same Day he was born, *viz. Good-Friday*, of the Year 1526, in the 37th Year of his Age. Cardinal *Bembo* wrote his Epitaph, which I have read in the Church of the *Rotunda*, where he is buried. I'll relate here of it but these two Verses, which are marvellous.

Ille hic est Raphael *timuit quo sospite vinci*
Rerum magna Parens, & moriente mori.

His Disciples were *Jules the Roman*, *John Francis*, *Penni*, called *Il Fattore*, *Peregrino* of *Modena*, *Perrin del Vagua*, *Polidore* of *Caravage*, *Mathurin*, *Bartholomeo d'a Bagna Cavallo*, *Timothy d'a Urbino*, *Vincent d'a San Geminiano*, *John d'Udiné*, and others. Some *Germans* have also been his Disciples: As *Bernard Van-Orlay* of *Bruxelles*, *Michel Coxis* of *Malines*, and others, who being returned into their Country, took Care of the Execution of his Designs for Tapestries. Besides his Pupils, he had a great Number of young Students and Lovers of *Painting*, who frequented his House, and accompanied him abroad. *Michel Angelo* having met him one Day thus accompanied, told him, in passing by him, that he walked, followed like a School-Master; and *Raphael* answer'd, that for him he walked alone like the Hangman. There had been always a great deal of Jealousy between those two great Painters, as it happens, most commonly, between Persons of the same Profession, Authors not excepted, when their Sentiments are not regulated by a noble and becoming Modesty.

Note, That ever since the Restoration of *Painting* in *Italy*, no Painter has acquir'd so much Reputation as *Raphael*; he had a very sublime Genius, and his Thoughts were excellent. His Vein was fertile, and had appeared much more such if it had not been moderated by the great Exactness wherewith he finished all Things. He was rich in his Inventions. It appears that he had very nice Principles to dispose all the Things he had invented; and if his Figures were not grouped of Lights and Shadows, they were by their Action disposed, in so ingenious a Manner, that the Groups thereof have always been seen with Pleasure. His Attitudes are noble, according to their Conveniencies, contrasted without Affectation, expressive, natural, and shew very fine Parts.

His Design is very correct, and he has joined in it the Correctness, Elevation, and Elegance of the Antique, to the Simplicity of Nature, without affecting any Manner. He has shewn a great deal of Variety in his Figures, and much more in his Airs of the Head, which he borrowed from Nature, as from the Mother of Variety, adding always to it a grand Character in the Design.

His Expressions are just, fine, sublime, and sharp; they are moderated without Insipidity, and lively without Exaggeration.

His Draperies were, in his Beginnings, of a little Manner, but of a grand Taste, at the End, and throughout a fine Artifice. The Plaits thereof are in a good Order, and shew always the Naked in Flattering it, as it were, with Delicacy, and particularly above the Joints.

He may, notwithstanding, be reproached with having dressed his Figures almost always with the same *Stuff*, in Subjects which could admit a Variety of them, and receive more Ornament from it: I speak in the historical Subjects, for in the fabulous and allegorick, where Divinities are introduced, a greater Regard must be had to the Majesty of the Plaits, than to the Richness of the Stuffs.

As *Raphael* took an extreme Care to design correctly, and was jealous, as it were, of his Contours, he has marked them a little too hard; and his Pencil is dry, though light and smooth. His Landskip is neither of a grand Taste, nor of a *Beau-faire*.

His local Colours are neither brilliant, nor choaking, they are neither very true, nor very false, but the Shadows are a little too black. He had never a very clean Intelligence of the Clair-obscure, though he seems, by his last Work, that he had searched it, and endeavour'd to acquire it; as it may be seen in the Tapestries of the Acts of the Apostles, and in his Picture of the Transfiguration.

But what *Raphael* wanted on the Side of the Colouring, is supplied in an ample Manner by a Quantity of other excellent Parts he was Master of. He has even painted several Pieces where the Colours and Lights are so well placed, that they could be compared with those of the *Titian*.

The *Poussin* said of *Raphael*, that he was an Angel, compared with the modern Painters, and an Ass compared with the Antique. That Judgment cannot be of the Thoughts, the Taste, the Correctness of the Design, and the Expressions. The Thoughts of the Antique are simple, sublime, and natural; those of *Raphael* are so likewise. The Design of the Antique is correct, diversified according to the Conveniencies, and of a grand Taste; that of *Raphael* is so likewise: The Antique are learned and precise in the Collocation of the Muscles, and nice in their Offices; *Raphael* was not ignorant of that Part. We must confess, notwithstanding, that those who have studied carefully the Anatomy, with Regard to *Painting*, can observe in the Antique a greater Precision, and a still greater Delicacy in the Actions of the Muscles, than is seen, I do not say in *Raphael* only, but in any other Painter whatever.

I agree, that that great Regularity and Delicacy in the Action of the Muscles, regulate the Precision of the Contours; but I do not see that *Raphael* has enough deviated from it to repute him an Ass in Comparison of the Antique. It is true, that *Raphael* has formed the Sublimity of his Taste on the fine Statues; that they shewed him the right Way, and he followed them blindly at first; but perceiving afterwards, that the Road of *Painting* was different from that of the Sculpture, he retains of the Lessons of this but what was necessary for his Art, and deviated from it in Proportion

tion as he advanced in Age and in Knowledge. That Difference is ſenſible in the Pictures he has painted at different Times, the laſt of them approaching nearer the Character of Nature.

The *Pouſſin*, on the contrary, as well as *Hannibal Carrache*, quitted what they had of that Character, in Proportion as they applied themſelves more to the Antique. They could follow the Example of *Raphael*, do the one, and not omit the other; for that excellent Man did not only retain the good Taſte, the Sublimity, and Beauty of the Antique, but has ſeen a Thing in it, which neither the *Pouſſin*, nor the *Carache* could perceive, *viz.* the Grace. He had received that Gift from Nature in ſo great a Plenitude, that it is ſpread over all that is come out of his Pencil; and no Body can diſpute it with him, except it be *Corregio*; and if the Grace has repaired in this what he wanted on the Side of the Regularity of the Deſign, *Raphael* has made a Uſe of it, which has put in a fine Light, the profound Knowledge he had not only in that Part, but likewiſe in all the other which have gained him the Reputation of the greateſt Painter in the World.

Jules *the Roman*, was the beloved Diſciple of *Raphael*, as well for his great Capacity in *Painting*, as for the Conformity of Manners. He had took entirely the Taſte of his Maſter, not only in the Execution of the Deſigns he received from him, but likewiſe in what he did himſelf. *Raphael* treated him as if he had been his Son, and inſtituted him his Heir, together with *John Francis Penni*, called *Il fatore*. After *Raphael*'s Death, thoſe two Painters finiſhed ſeveral Works, which their Maſter had left imperfect. *Jules*, was not only an excellent Painter, but underſtood, beſides, perfectly well the Architecture. The Cardinal of *Medicis*, afterwards *Clement* VII. employed him to build the Palace, called at preſent the *Vigne Madame*; and after he had directed the Architecture thereof, he made the *Paintings* and the Ornaments.

The Death of *Leo* X. diſconcerted a little *Jules* the *Roman*, by the Election of *Adrian* VI. whoſe Pontificate, which laſted but one Year, had expelled the Arts from *Rome*, and reduced the Learned to die of Miſery, as they do at preſent in moſt Parts of *Europe*, if it had laſted longer; but *Clement* VII. who ſucceeded him, was no ſooner elected, but he employ'd *Jules* in the Hall of *Conſtantine*, where the Hiſtory of that Emperor had been began by *Raphael*, who had made all the Deſigns thereof. That Work ended, *Jules* the *Roman* applied himſelf to ſeveral Pictures for Churches, and for private Perſons. He began then to change his Manner, and to give into the Red, and Black for Colouring, and in the Severe for the Deſign.

Frederick Gonzagua, Marquiſs of *Mantua*, informed of the Capacity of *Jules*, called him near his Perſon; his good Fortune conducted him thither; for having made the Deſigns of twenty-five very obſcene Prints, which had been engraved by *Mark Antony*, and to which the *Aretin* had made ſo many Sonnets, he had been ſeverely puniſhed, if he had been found in *Rome* at that Time. The Severity wherewith *Mark Antony* was treated, is a Proof thereof. The Engraver was impriſoned, where he ſuffer'd a great deal, and had certainly loſt his Life, if the Credit of the Cardinal of *Medicis*, and of *Baccio Bandinelli*, had not ſaved him.

Mean while *Jules* worked at *Mantua*, where he gave eternal Marks of his moſt profound Knowledge in Architecture and *Painting*. He built there the Palace of the T, and render'd the City of *Mantua* more beautiful, ſtrong, and wholeſome; and with Regard to his Works of *Painting*, it may be ſaid, that it is at *Mantua*, he gave a greater Flight to his Genius, and where he ſhewed himſelf ſuch as he was. He died at *Mantua* in 1546, aged 50, to the great Regret of the Marquiſs, who loved him as his Brother. He left a Son called *Raphael*, and a Daughter married to *Hercules Malateſta*.

Among his Diſciples, the beſt were the Primatice, who came to *France*, and a *Mantuan* called *Rinaldi*, who died young.

Note, That *Jules Roman*, was the firſt and beſt Diſciple of *Raphael*. His Imagination, which was buried as it were in the Execution of the Deſigns of his Maſter, while he remain'd under his Diſcipline, took all at once its Flight, when he found himſelf at Liberty; for after he had produced ſeveral Pictures on the *Eaſel*, and painted very great Works in the Vatican on the Deſigns of *Raphael*, as well before, as after the Death of that illuſtrious Maſter, he changed preſently his Manner, and abandon'd himſelf to the Impetuoſity of his Genius in the Works he painted at *Mantua*. It was no longer that gracious Vein, nor that ſoft Fire of Imagination, which though borrowed, made one doubt if ſome Pictures, which were the Productions of his Pencil, were his or his Maſter's. Being then entirely his own Maſter, he animated his Works by much more extraordinary Ideas, and ſtill more expreſſive, but leſs natural than thoſe of *Raphael*. His Inventions were adorned with poetical Productions, and his Diſpoſitions little common, but of a good Taſte.

The great Progreſſes he had made in the *Belles Lettres*, proved very beneficial to him in his Studies of *Painting*; for in deſigning the antique Sculptures, he extracted from them thoſe Marks of Erudition we ſee in his *Paintings*.

It ſeems, that he was occupied of nothing, but of the Sublimity of his poetical Thoughts, and that to execute them with the ſame Vivacity he had conceiv'd them, he was contented with a Practice of Deſign he had choſen, without changing either his Airs of the Heads, or his Draperies. It is even viſible enough, that his Colouring, which was never very good, became thereby ſtill more neglected. For his local Colours, which give into the Brick and Black, are not ſupported by any Intelligence of the Clair-obſcure. His lofty Manner of Deſigning, and his terrible Expreſſions are ſo much turn'd into an Habit, that his Works are eaſily known. That Manner is very great, it is true, becauſe he had formed it on the antique Baſs-Relievo's, which he had ſtudied with great Application; but thoſe fine Things, which ſuffice alone to make a good Sculptor, want to be accompanied with the Truths of Nature, to form a great Painter. The Draperies, which moſt commonly contribute to the Majeſty of the Figures, are the Shame of his; for they are poor, and of a bad Taſte.

Very little Variety is ſeen in his Airs of the Head; that found in his Works conſiſts only in the different Sorts of Objects he has filled his Compoſitions with, and in the Dreſſes which render them rich: It proceeds from the Univerſality of his Genius for all Kinds of *Painting*; for he has painted equally well the Figures, the Landſkips, and the Animals; ſo that his Works will be always, in what they contain, the Admiration of all the Learned.

John Francis Penni, called *Il fattore*, becauſe he was conſider'd as *Raphael*'s Steward, was very learned, particularly in the Deſign; he painted ſeveral Things on the Thoughts of *Raphael*, which paſs for the Productions of the Pencil of that excellent Maſter, eſpecially in the Palace *Chigi*; as a Connoiſſeur may very well ſee, when he examines them with Attention. He had a particular Inclination for the Landſkip which he painted very well, and adorned with beautiful Buildings.

After his Maſter's Death, he aſſociated himſelf with *Jules Roman*, and *Perrin del Vagua*, and all three together finiſhed what *Raphael* had left imperfect, as well of the Hiſtory of *Conſtantine*, as ſeveral other Works of the Palace of *Belvedera*. But they parted on the Occaſion of a Copy which the Pope wanted of the Picture of the Tranſfiguration, becauſe that Original was to be ſent to *France*. *Il fattore* went to *Naples* in View of working for the Marquiſs *del Vaſte*, but his puny Conſtitution would not permit him to live long there; and he died in 1528, being then only 40 Years of Age.

Andrew del Sarte of *Florence*, learned the firſt Principles of the Art of *Painting*, from *Pietro Coſimo*. He uſed to employ, while he lived with that Painter, all *Sundays* and Holydays in Deſigning after the beſt Maſters, but eſpecially after *Leonardo da Vinci*, and *Michel Angelo*, whereby he became in a few Years a very good Painter. He found his Maſter too tedious in the Execution of his Works and left him. He has painted a great Number of

of *Madona's*. The Reputation of *Andrew* increasing he painted for several Places; but the Piece which gained him most Praises, and which is one of the best he has done, is a St. *Sebastian*, for the Church of St. *Gal*.

He came into *France* at the Instances of *Francis* I. where he made some Pictures; and though he had begun that of St. *Jerome* for the Queen, and obtain'd the King's Leave to go to *Florence*, under Pretence of fetching his Wife, from whom, said he, he had lately received a Letter; instead of returning at the Time appointed, he spent his own Money, and that the King had given him to buy Pictures. At last he died of the Plague at *Florence*, in 1530; and in the 40th Year of his Age, abandoned by his Wife and Friends. He left several Pupils, among whom were *Giacomo de Ponturmo*, *Andrea Squazellas* who worked in *France*, *Giacamo Sandro*, *Francisco Salviati*, and *George Vasari*.

Giacomo de Ponturmo, born in *Tuscany*, had several Masters in the Art of *Painting*, for he was first Disciple of *Leonardo de Vinci*, afterwards of *Mariotto Albertinelli*, then of *Pietro Cosimo*, and lastly of *Andrew del Sarte*. He acquired a great Reputation by his *Paintings* at *Florence*. But having undertook to paint the Chapel of St. *Laurence* of the Duke of *Florence*, and wanting, in that Work, which lasted twelve Years, to appear superior to all others, he shewed, on the contrary, that he was become inferior to himself. He was a very honest Man and very humble. But what was still more worthy of Admiration in him is, that among all his other good Qualities, he could never bear to hear ill spoke of the Absent, whose Part he always took. All his Works were done at *Florence*, where he died of Hydropsy, in 1556, aged 63.

Polidoro *of Caravagio*, born in the Village of *Caravagio*, in the *Milanese*, came to *Rome*, while *Leo* X. was adding some new Edifices to the Vatican, and as he did not know what Occupation to follow to get a Livelihood, he turn'd Labourer, and carried the Mortar to the Masons who worked at those Buildings. He followed that laborious Employment till he was eighteen Years of Age (for he was very young when he came to *Rome*.) *Raphael* employ'd then at the same Place several young Painters to execute his Designs. *Polydore*, who carried often the Mortar for Plaistering their Fresco, was moved at the Sight of the *Paintings*, and sollicited by his Genius to become a Painter. He took at first for Model the Works of *John* of *Udine*, and the Pleasure he had to see that Painter work, began to unfold the Talent he had for *Painting*; he became so civil and complaisant near the young Painters, that he contracted a Friendship with them, and having acquainted them with his Design, they gave him Lessons which increased his Courage. He soon made so prodigious a Progress in the Design, that *Raphael* himself was surprized at it, and employed him sometimes afterwards among the others. But he soon distinguished himself so much from the rest, that as he had the greatest Share in the Execution of the Lodges of *Raphael*, he had likewise the principal Glory thereof. The Care he knew his Master had taken to design after the Antique made him follow the same Road.

He has painted but few Pictures on the *Easel*, and almost all his Works are in Fresco, and of the same Colour, in Imitation of the Bass-Relievo's.

Polidore contracted at first a strict Friendship with *Mathurin* of *Florence*, and the Conformity of their Genius, made them Companions of Study and Employments; which lasted till *Mathurin*'s Death, which happened in 1526, after he and *Mathurin* had filled *Rome* with their Works, and he thought of enjoying peaceably the Fruit of his Labours, *Rome* was besieged by the *Spaniards*, in 1527, and the Learned forced to sink under the Misfortunes of the War, or to fly. *Polidore* went to *Naples*, where he was obliged to work with indifferent Painters, without finding any Occasion to make himself known, because the Nobility of the Country were then more curious of fine Horses, than of *Painting*. Therefore finding himself without Employment, and obliged to spend what he had got at *Rome*; he passed into *Sicily*; and as he was as good an Architect, as a Painter, those of *Messina* gave him the Direction of the triumphal Arches, which they erected to the Emperor *Charles* V. at his Return from his Expedition of *Tunis*. That Work finished, *Polidore* finding no more Employment at *Messina*, proportioned to the Sublimity of his Genius, and being only detained there by the Caresses of a Woman he loved, he took the Resolution to return to *Rome*, but as he was at the Eve of his Departure, his Footman, who had watched a long Time for an Opportunity to rob him, having associated himself with other Ruffians, surprized him in his Bed, strangled him, and stabbed him several Times with Ponyards. After they had committed that horrible Murder, they carried *Polidore*'s Body to the Door of his Mistress, to make People believe, that some Rival had killed him in that House; but God permitted that the Crime was discover'd. The Assassins being fled, no Body thought of any Thing else but of pitying the unhappy Fate of *Polidore*, when his Servant affecting to lament it, likewise, in the Presence of a Count, his deceased Master's Friend, did it in so aukward a Manner, that the Count perceiving it, had him arrested. The Servant defended himself so very ill, that he was applyed to the Question, where having confessed all, he was condemn'd to be drawn and quarter'd. *Polidore* was extremely regretted by the Inhabitants of *Messina*, who buried him in a very handsome Manner in the Cathedral Church in 1543.

Note, That in the Avidity *Polidore* had to learn, he thought he could do no better than to follow the Steps of his Master; and knowing that *Raphael* had formed his Taste of Design on the antique Sculptures, he made it his principal Study, and the chief Occupation of his Life was to imitate them. We see yet some very beautiful Remains of it, on the Fascade of several Houses at *Rome*, on which he has painted Bass-Relievo's of his own Invention.

His Genius, which was extremely quick and fertile, and the Studies he had made on the Bass-Relievo's, prompted him to represent Battles, Sacrifices, antique Vases, Trophies, and Ornaments, composed of what Antiquity has left us the most remarkable in that Matter.

But what's more surprising is, that notwithstanding his extreme Application to the antique Sculptures, he had known the Necessity of the Clair-obscure in *Painting*, and was the only one of the *Roman* School, who has formed Principles thereof, and practised them. In fact, the great Masses of Light and Shadow, he has observed, shew very well that he was persuaded, that the Eyes wanted that Repose to enjoy Pictures more at Ease. It is in View of that Principle, that in the Friezes he has painted black and white, he has gathered the Objects whereof he has composed his Groups with so much Intelligence, that it is not possible to see finer any where else.

The Love he had for the Antique, has not hinder'd him from studying the Natural, and his Taste of Design, which is very great and very correct, is a Mixture of both. He had an easy and excellent Practice thereof, and his Airs of the Head are lofty, noble, and expressive. His Thoughts are sublime; his Dispositions full of Attitudes very well chosen, his Draperies well thrown, and he painted the Landskip of a good Taste. His Pencil is light and soft. After *Raphael*'s Death, who employ'd him in the great Works of the Vatican, he has seldom colour'd, applying himself wholly to paint in Fresco of Clair-obscure.

The Genius of *Polidore* has a great Report to that of *Jules Roman*; their Conceptions were quick, and formed on the Taste of the Antique; their Design great and severe, and the Way they followed new and extraordinary: The Difference between them is, that *Jules Roman*, animated his poetical Conceptions by the single Impetuosity of his Vein; and that *Polidore* made a particular Use of the Contraste, as the most powerful Means to give a Soul and Motion to his Works. It appears, besides, that the Genius of *Polidore*, was more natural, pure, and better regulated than that of *Jules Roman*.

Master Roux, born at *Florence*, had no Master in *Painting*, he applied himself to the Works of *Michel Angelo*, and wanted to invent a Manner peculiar to himself; his Genius was fertile, and his Manner of designing a little savage, though learned. He worked much at

Rome, and at *Perouse* in *Raphael*'s Time. The Misfortunes which agitated his Life, gave him Occasion to come into *France*. Where *Francis* I. gave him a Pension, and the Direction of the Works carrying on then at *Fontainbleau*; his Majesty gave him likewise a Prebend of the St. *Chapel*: So that the King's Affection and his own Merit acquired him a great Reputation. One may judge of his Capacity by the great Gallery of *Fontainbleau*, which is of his Hand.

Master Roux was a handsome Man, and had cultivated his Mind by several Knowledges: But he tarnished all his good Qualities by the shameful Death he procured to himself; for having caus'd *Francisco Pellegrino* his intimate Friend to be arrested, under Suspicion that he had robbed him of a considerable Sum, he sued him; and the Judges, after he had been applied to the Question, declared him innocent. *Pellegrino* thus set at Liberty, published a Libel against *Master Roux*, who thinking that he could never appear with Honour afterwards, sent to *Melun* for Poison, under Pretence that it was to make Varnish, and took it at *Fontainbleau*, of which he died, in 1541.

Francisco Mazzoli, called the Parmesan, born at *Parma* in 1504; learned painting of his two Cousins, and made very great Progresses therein, by the Facility and Vivacity of his natural Genius. He was invited to *Rome* by the Reputation of *Raphael*, and *Michel Angelo*, while he was yet but twenty Years of Age; where he studied after the good Things, and particularly after *Raphael*. He painted several Pieces, which gained him a Reputation, and the Affection of Pope *Clement* VIII. He worked with so much Application, that the same Day the *Spaniards* entered *Rome*, and plundered it, the Soldiers found the *Parmesan* at work with the same Tranquility *Protogenes* did while *Rhodes* was besieged. That Security surprized the first *Spaniards* who enter'd his House; and the Beauty of his Paintings touched them in such a Manner, that they retired without doing him any Harm: But others came who took all he had. He returned to his Country, and passing through *Bologna*, found a great deal of Work, which stopped him there for a considerable Time. Afterwards he proceeded to *Parma*. He plaid very well on the Lute, and gave it often more Time than to his *Painting*. What he can be reasonably reproached with is, of having abandoned himself in such a Manner to Chymistry, that he neglected not only *Painting*, but likewise the Care of his own Person, and became almost wild. He has engraved on Wood of Clair-obscure some of his Designs, and several in Aqua-fortis, having been the first who used that Kind of Engraving, at least in *Italy*. He kept in his House an Engraver, called *Antonio Frentano*, who robbed him at *Bologna* of all his Plates and Designs; and though he recovered the greatest Part of them, that Thing reduced the *Parmesan* almost to Despair. At last having obstinately pursued his Chymistry, he lost his Time, Money, and his Health, and died in a miserable Condition of a Diarrhæa, accompanied with a Fever, in 1540, being yet but 36 Years of Age.

Note, That the Genius of the *Parmesan* was entirely turned on the Side of the Gentle and Graceful; and though he imagined with Facility, he minded not so much to fill his Composition with becoming Objects, as to design his Figures with a graceful Air, and to give them Attitudes which could shew fine Parts and give them Life and Action. But as his Genius was not of a great Extent, the Attention he gave to his Figures in particular diminished much that he owed to the Expression of his Figures in general. His Thoughts besides were pretty common, and we don't see that he has penetrated very far into Man's Heart, nor enter'd the Passions of the Soul; but though the Gracefulness which is in his Works, be, as it were, but superficial, he has notwithstanding found the Secret to flatter the Eyes with many Charms. He invented easily, and gave much Grace to his Attitudes, as well as to his Heads; and one can judge by his Works, that he rather chose to please, than he was occupied with the true Expression of his Subject. He seldom consulted Nature which is the Mother of the Diversity, or he reduced it to the Habit he had contracted, graceful it is true, but which fell into what's called Manner. A Painter that considers Nature as an Object, must consider it in the Variety as in the Number of its Effects; and if a Painter be forgiven a Reiteration in the same Work, it must be only with Regard to his Designs, for which he is not obliged to consult Nature so exactly, nor take the same Cares which are expected for the Pictures. I know besides, that whatever Studies Painters make after Nature, their particular Taste determines them always to certain Choices which call them back, and into which they insensibly fall. The Parmesan has certainly often reiterated the same Airs, and the same Proportions: But his Choice is so fine, that what has pleased once in his Works, pleases besides every where it is found.

His Taste of Design is sweet, and learned, but ideal and Manner-wise. He affected to make the Extremities of the Members delicate and lean. His Attitudes are noble, lively, and agreeably contrasted. His Airs of the Head graceful, rather than of a grand Taste; his Expressions general, and without Character, his Draperies light and well contrasted; they are, 'tis true, of the same Stuff, and the Pleats thereof much undecided: But as they are in small Number, they give a Taste of Greatness to the Parts they cover. He has often made some flying, which give a great deal of Motion to his Figures, but the Cause thereof is not always very just.

Notwithstanding the Vivacity of his Genius, and the Facility of his Pencil, he has made but few Pictures, having employ'd most of his Time in designing, and in engraving Plates. The little I have seen of his *Painting* gives me an Idea of a pretty good Clair-obscure; but his local Colours are very common, and very little researched. It is the *Parmesan*, who first found the Secret, by means of two Copper Plates to print on a Paper of half-teint the White and Black, and give thereby a greater Roundness to the Prints; but he did not continue the Use of that Invention, which wants too much Care.

Perin del Vaga, born in *Tuscany*, where he was brought up in great Poverty, was but two Months old when his Mother died. His Father was a Soldier, and a Goat his Nurse. Being come young to *Florence*, he was put to a Grocer, where he was employ'd to carry to Painters the Colours and Pencils they wanted. He took Occasion from thence to apply himself to the Design, and in a short Time became the most learned of all the young Painters of *Florence*. An indifferent Painter called *Vaga*, going to *Rome*, carried him along with him, whence he was always called *del Vaga*, for his Name was *Buonacasi*. At *Rome* he worked half the Week for Painters, and employ'd the other half with the *Sundays* and Holidays in designing for his own Study. He made a Mixture of all the good Things; sometimes he was found among Ruins, in quest of antique Ornaments, or designing Basso-Relievo's. Sometimes in the Chapel of *Michel Angelo*, and sometimes in the Apartments of the Vatican; applying himself at the same Time to the Anatomy, and other Studies necessary to form a great Painter. The Fruits of that Conduct made him soon acquainted with the Learned, so that *Raphael* took him with *John* of *Udiné* to help him in the Execution of his Designs.

Of all those that worked in his Time, none has so well understood the Ornaments, nor gave into *Raphael*'s Taste, with more Security, Grace, and Boldness; as one may judge among other Things, by the Paintings of the Lodges he has executed, *viz.* the Passage of the River *Jordan*, the Battle where *Joshua* stopt the Sun, the Nativity, the Baptism, and the last Supper of our Lord. The Affection *Raphael* had for him procured him other considerable Works in the Vatican. But the Plague made him quit *Rome* and go to *Florence*, where after he had painted some Pieces, the Plague being ceased he returned to *Rome*. *Raphael* being dead he associated himself with *Jules Roman*, and *Francisco del Fatore*, for the Works which remained unfinished in the Vatican, and to cement their Friendship he married at the same Time *Francisco*'s Sister, in 1525, but in 1527 the Siege of *Rome*, by the *Spaniards*, parted them. *Perrin* was taken

taken and ranſomed at a high Rate. He went to *Genoa*, where he painted the Palace which the Prince *Doria* had lately built. From thence he paſſed to *Piſa*, to ſettle there at his Wife's Intreaties; but after he had made ſome Works there he returned to *Genoa*, where he worked again for the ſame Prince *Doria*. Afterwards he went again to *Piſa*, and from thence to *Rome*, where Pope *Paul* III. and the Cardinal *Farnéſe* gave him ſo much Work, that he was obliged to intruſt others with the Execution thereof, contenting himſelf with making the Deſigns.

At the ſame Time the Pope ſent for *Titian* to *Rome*, of which *Perrin* conceived ſo much Jealouſy, that he put all in Uſe to make him return ſoon to *Venice*, in which he ſucceeded; the great Number of *Perrin*'s Works, and the Vivacity wherewith he worked them exhauſted his Spirits in the Flower of his Age, ſo that at forty-two Years he ſpent moſt of his Time in viſiting his Friends, when an Apoplexy carried him off, in 1547, the 47th Year of his Age.

Note, That of all *Raphael*'s Diſciples none has preſerved longer the Character of his Maſter than *Perrin del Vaga*, I mean the outward Character, and, as it is ſaid, the Manner of deſigning. For he was very far from thinking with the ſame Delicacy; he had a particular Genius for the Decoration of Places according to their Uſe. His Inventions in that Kind of *Painting* are very ingenious; there is every where Order and Grace; and the Diſpoſitions which are but indifferent in his Pictures, are marvellous in his Ornaments. He has compoſed them of great, little, and middle Parts, placed with ſo much Intelligence, that they ſet off one another by the Compariſon and Contraſte: The Figures he has introduced into them are diſpoſed and deſigned in the Taſte of *Raphael*; and if *Raphael* gave him in his Beginnings as he did to *John* of *Udiné*, ſlight Sketches of Ornaments, he has executed them in a marvellous Detail; and by the Habit he has contracted, and the Vivacity of his Genius, has acquired in that Kind an univerſal Reputation. The Tapeſtries of the ſeven Planets in ſeven Pieces, of which *Perrin* made the Deſigns for *Diana* of *Poitiers*, is a ſufficient Proof of what I have ſaid of him.

John of Udine, thus called from the City *Udiné*, in *Friuli*, where he was born, in 1494; went very young to *Venice*, and having an Inclination for *Painting*, he put himſelf under the Diſcipline of *Giorgion*, where he paſſed ſome Years. From thence he went to *Rome*, where *Balthazar Caſtilioni*, Secretary of the Duke of *Mantua*, gave him to *Raphael*. *John of Udiné* painted very well the Figures; but as he had applied himſelf more particularly to the Study of Animals, and eſpecially of Birds, that he had ſtudied beſides, with Care, the antique Ornaments, and delighted in painting after Nature unanimated Objects, which ſerves for the Dreſſes and Decorations of the Works; all thoſe Things were more eaſy to him, and more advantageous to acquire a Reputation: Wherefore *Raphael* employed him in the Execution of the Ornaments which entered the Compoſition of his Pictures, or accompanied them. He made alſo the Ornaments of Stucco, which he underſtood very well, the whole on the Deſigns of *Raphael*, or at leaſt on his Sketches. The Inſtruments of Muſick, in the Picture of St. *Cæcilia*, at *Bologna*, are of *John of Udiné*'s as well as all the Ornaments of the Lodges, and thoſe of the *Vigne Madame*. To him we are indebted for the Reſtoration of the Stucco, and of the Manner of employing it: He found the true Materials the Antients uſed in that Kind of Work, which is Lime and Powder of Marble. *John of Udiné* had always expected ſome Reward from Pope *Leo* X. but finding himſelf fruſtrated by that Pontiff's Death, he took a Diſlike for *Painting*, and retired to *Udiné*. Sometimes after he had quitted his Profeſſion, which was in 1450, he returned to *Rome* by a Motive of Devotion; and though he had diſguiſed himſelf in the Habit of a Pilgrim, and mixed among the Mob, *Vaſari* having diſcovered him by Accident, at the Gate *Pauline*, engaged him to work for Pope *Pius* IV. for whom *John of Udiné* made afterwards ſeveral Works of Ornaments. He was ſo much addicted to the Pleaſure of Hunting, that he is thought the Inventor of the artificial Cow, uſed to approach wild Birds. He died in 1564, aged 70, and was buried in the Church of the *Rotunda* near his Maſter *Raphael*, as he had deſired it.

Michel Angelo Bonurotti, Son of *Louis Bonurotti Simoni*, of the antient Houſes of the Counts of *Canoſſes*, was born in 1474, in the Caſtle of *Chiciſi*, in the Territory of *Arezzo* in *Tuſcany*, where his Father and Mother lived then. They put him to Nurſe in a Village called *Sataniano*, where there were ſeveral Sculptors, his Nurſe's Huſband being one of them. The violent Inclination he had for the Deſign, obliged his Parents to put him under the Diſcipline of *Dominick Ghirlandai*. The Progreſs he made excited ſo much the Envy of his Companions, that one of them called *Torrogiano*, ſtruck him on the Noſe, of which he carried the Mark all his Life-time. He thought that the beſt Means to be revenged of it was to conquer by his Studies and Works as he did, the Jealouſy of his Competitors, and to gain the Eſteem of the Great.

He made uſe of the Love which *Laurence* of *Medicis* had for the Arts, to erect at *Florence* an Academy of *Painting* and Sculpture. He took Care of it with Application and Succeſs, when the Troubles of the Houſe of *Medicis* called him to *Bologna* and *Venice*, whence he return'd ſoon to *Florence*. It was at that Time that having made the Figure of a *Cupid* he carried it into *Rome*, and having broke one of its Arms he kept it, and buried the reſt in a Place, which he knew was to be digged, and that Figure having been found, it was ſold for Antique to the Cardinal of St. *Gregory*, to whom *Michel Angelo* diſcovered the Thing, ſhewing him the Arm he had kept.

The Works he made at *Rome*, but much more the Advices of *Bramante*, at the Inſtigation of *Raphael*, determined the Pope to make him paint his Chapel; *Michel Angelo*, to be aſſiſted in the Work ſent for ſeveral *Florentines*, and among the reſt *Grannacci Bugiardino*, and *Juliano di San Gallo*; this laſt underſtanding very well the Freſco, in which *Michel Angelo* had no Practice. That Work being finiſhed deceived the Expectation of ſeveral, and eſpecially of *Raphael*, who in view of making it miſcarry, had procured it to him by means of *Bramante*.

After the Death of *Jules* II. *Michel Angelo* went to *Florence*, where he made that marvellous Work of the Sepultures of the Dukes of *Tuſcany*. He was interrupted by the Wars, and *Michel Angelo* obliged to work at the Fortifications of that City; and foreſeeing that the Precautions he had took too late would be needleſs, he left *Florence* to go to *Ferrara*, and thence to *Venice*. The Duke *Gretti* endeavoured to keep him there; but all he could draw from him was a Deſign for the Bridge of *Rialto*, for *Michel Angelo* was alſo an excellent Architect, as it appears from the Palace *Farneſe*, his own Houſe, and the Capitol, which is a Work of a grand Taſte.

Being returned to *Florence*, he painted the Fable of *Leda* with *Jupiter* changed into a Swan, for the Duke of *Ferrara*; but as he thought that Work was not eſteemed as it deſerved, *Michel Angelo* ſent it into *France* by *Minio* his Diſciple with two Boxes full of Deſigns, which were the beſt Part of his Thoughts. King *Francis* I. bought the *Leda*, which he had put at *Fontainbleau*, and the reſt was diſſipated by the unexpected Death of *Minio*. That *Leda* was repreſented in a Paſſion of Love ſo laſcivious, that M. *des Noyers* Secretary of State under *Louis* XIII. ordered it to be burnt by a Principle of Conſcience.

Michel Angelo, painted by Pope *Paul* III's Order, the Univerſal Judgment; which is an inexhauſtible Source for thoſe who ſearch to fathom the Art of *Painting* *Michel Angelo* took incredible Pains for the Perfection of his Art. He loved Solitude, and uſed to ſay, that *Painting* was jealous, and loved a whole Man to itſelf, and alone. When aſked why he would not marry, he anſwered, that *Painting* was his Wife, and his Works his Children.

Michel Angelo had very grand Ideas, for which he was not indebted to his Maſters, the Sight of the Antiques, and the Elevation of his Genius had inſpired him with them. He was learned and correct in his Deſign, and the Taſte thereof is terrible, if I may uſe that Expreſſion.

preſſion. Thoſe who do not find in it all the Elegance of the Antique, will always be obliged to confeſs, that it is a ſpecifick Remedy againſt the common Poverty of Nature. Several notwithſtanding who grant the Sublimity of *Michel Angelo*'s Thoughts, find them very little natural, and ſometimes extravagant. They ſay likewiſe that his Deſign is loaded, though learned; that he has took too many Licences againſt the Rules of Perſpective, and has not underſtood the Part of Colouring. I'll ſpeak of it in the Reflections on his Works. It ſuffices to ſay, that that great Man was not only beloved and eſteemed of all the Sovereigns of his Time, but that beſides he will be the Admiration of all Poſterity. He died at *Rome* in 1564, aged 90. The Duke *Coſmo* of *Medicis*, had him dug out, in the Night, and carried to *Florence*, where he was buried anew in the Church of the *Holy Croſs*, in which very magnificent Obſequies, were celebrated, and where his Sepulture is ſeen in Marble, conſiſting of three marvellous Figures, *viz. Painting*, *Sculpture*, and *Architecture*, all three of his own Hand.

Note, That *Michel Angelo* was one of the firſt who has baniſhed from *Italy*, the poor Manner, and the Remains of the *Gothick*. His Genius was of a vaſt Extent, and his Conſtitution had determined his Taſte to Severity and Bizzarery; ſo that, notwithſtanding, among his Bizzare Imaginations, there were ſome extravagant Things; there were alſo others of a ſingular Taſte; but of what Kind ſoever his Thoughts were, there was always ſome Sublimity in them. As the Learned of thoſe Times made the whole Merit of *Painting* to conſiſt in the Excellence of the Deſign, *Michel Angelo* ſtudied that Part with an incredible Application, and became a very great Maſter in it, as is plainly ſeen in his Works of *Painting* and Sculpture; but he could never join to his grand Taſte the Purity nor the Elegance of the Contours; becauſe having conſider'd the human Body in its greateſt Strength; and having, perhaps, carried too far his Imagination on that Subject, he has made the Member of his Figures too large, and loaded his Deſign; not that he has neglected the Antique, but as he wanted to be indebted to himſelf alone for the Knowledge of his Art; he has ſtill more examined Nature, which he conſider'd as his Object, than the antient Statues, unwilling to be the Copiſt thereof. He underſtood perfectly the Articulation of the Members, the Origin, Inſertion, and Office of the Muſcles; but it appears, that he was afraid one ſhould not perceive how well he underſtood that Science, for he has pronounced ſo much the Parts of the Body, that it ſeems he was ignorant, that over the Muſcles there is a Skin which ſoftens them. He was, notwithſtanding, more circumſpect on that in his Sculpture, than in his *Painting*. Moſt of his Attitudes are diſagreeable, his Airs of the Head lofty, his Draperies too adhering, and his Expreſſions very little natural. But amidſt the Savage of his Productions, we find very often a Sublimity in his Thoughts, and ſomething noble in the Figures: Laſtly, the Greatneſs of his Taſte is properly a Remedy againſt the Lowneſs of the Flemiſh.

Michel Angelo was entirely ignorant of what depends on Colouring, and his Carnations give entirely into the Brick for the Clears, and into the Black for the Shadows; whether he has painted himſelf his Pictures, or had them painted by the *Florentines* he had called near him to help him in his Works. The ſame can't be ſaid of the Pictures which *Fra-Baſtian del Piombo* has painted after the Deſigns of *Michel Angelo*, the Colours whereof are better, and partake much of the *Venetian* Taſte. But to return to the Deſign of *Michel Angelo*, which is the greateſt Merit of his Productions; if that Painter has not render'd it perfect in all Points; he has ſhewn, however, ſo great a Capacity in it, that his Works can contribute much towards rendering young Students learned in their Art, who have Diſcernment enough to make a good Uſe of it. Which, notwithſtanding, we might be ſurprized that *Michel Angelo*'s Reputation, ſubſiſts ſtill with ſo much Luſtre, if he had not been ſtill more famous for his perfect Knowledge of Sculpture and Architecture; both civil and military, than of *Painting*.

Fra-Bastian del Piombo (thus called fro man Office of *Fratel del Piombo*, which Pope *Clement* VII. gave him) was born at *Venice*. His firſt Maſter was *John Belini*, whom he quitted becauſe of the great Age of that Painter, for the *Georgion*, where he took a good Taſte of the Colouring, which he never quitted afterwards. He was already in Reputation at *Venice*, when *Auguſtin Ghiſi* carried him to *Rome*, where he choſe *Michel Angelo* for Maſter. This was ſo well pleaſed, that he had preferred him to *Raphael*, his Competitor, that he took a particular Care to advance him in the Deſign. For then the Painters of *Rome* were divided, the one for *Raphael*, and the others for *Michael Angelo*. *Fra. Baſtian*, far from chuſing *Raphael* for his Maſter, even wanted to be his Rival in *Painting*; it is in that View he made a Picture in Concurrence of that of the Transfiguration which *Raphael* was painting then for *Francis* I. and in that Picture *Fra. Baſtian* repreſented the Reſurrection of *Lazarus*. That Picture is at *Narbonne* in *France*; but in my Taſte falls ſhort of that of the Transfiguration of *Raphael*; for I have ſeen them both.

After *Raphael*'s Death, *Fra-Baſtian*, by his own Merit, and the powerful Protection of *Michel Angelo*, ſaw himſelf at the Head of the *Roman* Painters, if *Jules Roman* had not ballanced his Credit. It is true, that he painted in a grand Manner, and it ſuffices to ſay, that his Works were much like thoſe of *Michel Angelo* for the Deſign, and of the *Georgion* for the Colouring; but he was very tedious in his Productions, wherefore he has left ſeveral Works imperfect. There is a very good one of his Hand in the King's Chapel at *Fontainbleau*, which repreſents the Viſitation of the bleſſed Virgin.

Fra-Baſtian quarrelled, notwithſtanding, with *Michel Angelo*, on that he undertook to paint in Oil againſt his Sentiment; that Maſter telling him, that that Sort of *Painting* was proper for a Woman, and the Freſco for a Man. As his Office *del Piombo* procured him an honeſt Subſiſtence, and his Conſtitution, beſides, would not admit of much Fatigue, he neglected *Painting*; applying himſelf ſometimes to Poetry, and ſometimes to Muſick, for he played very well on the Lute. He found the Secret to paint in Oil on Walls, without the Colours being alterated thereby: It was by Means of Plaiſtering compoſed of Pitch, Maſtich, and Quick-Lime. He died in 1547, aged 62.

Daniel Ricciarelli, of *Volterra*, was born at *Volterre*, a City of *Tuſcany*, in 1509. He was Diſciple, firſt of *Antony* of *Veruille*, and afterwards of *Balthazar* of *Sienna*; but afterwards he followed entirely the Manner of *Michel Angelo*, who protected him in ſeveral Occaſions. His beſt Works are at *Rome*, at the Trinity of the Mount. He quitted *Painting* for the Sculpture; and it is of him we have the Horſe of Braſs, which is at the Place Royal at *Paris*: That Horſe was to carry the Statue of *Henry* II. but *Daniel* being ſurprized by Death, could not finiſh that Work. He died in 1566, and in the 57th of his Age.

Francis Primatice, born at *Bologna*, of noble Parents, who perceiving in him a great Inclination for the Deſign, ſuffer'd him to go to *Mantua*, where he was ſix Years, under the Diſcipline of *Jules Roman*; he became ſo learned in that Space of Time, that on the Deſign of *Jules Roman*, he made Battles of Stucco in Baſs-Relievo, and ſurpaſſed in that, and in *Painting*, the other Pupils who were at *Mantua*.

He was thus helping *Jules Roman* in the Execution of his Deſigns, when King *Francis* I. having aſked a young Man that underſtood well the Works of Stucco, the *Primatice* was ſent him. The Confidence the King had in the Capacity of that Painter, engaged his Majeſty to ſend him to *Rome* in 1540, to buy Antiques. He brought from thence 184 Statues, with a great Quantity of Buſto's; and had the Column of *Trajan*, the Statues of *Venus*, of *Laocoon*, of *Commodus*, of the *Tiber*, of the *Nile*, and of the *Cleopatra* of *Belvedera*, moulded by *James Baroche* of *Vignola*, the Whole to be caſt in Braſs.

After *Maſter Roux*'s Death, the *Primatice* was promoted to the Intendency of the Buildings, and finiſhed in a ſhort Time the Gallery that Painter had begun. He cauſed to be carried to *Fontainbleau* ſo many Statues, either of Marble or of Braſs, that that Place appear'd like another *Rome*, in the Works he made there of *Parmi*

ings and Stucco; he employed *Roger* of *Bologna*, *Prospero Fontana*, *John Baptist Bugnacavallo*, and especially *Nicolas* of *Modena*, called *Messer Nicolo*, whose Capacity and Diligence surpassed that of all the others.

The Esteem which the whole Kingdom of *France* had for the *Primatice*, went so far, that nothing was undertaken without consulting him. The King gave him the Abbey of St. *Martin* of *Troyes* in *Champaigne*; and living in a liberal and elegant Manner, he was not only consider'd as a great Painter, but likewise as one of the Nobles of the Court. The *Primatice* and *Master Roux* brought the good Taste into *France*; for till then all that had been done in *Painting* and Sculpture, was very little considerable, and tasted of the *Gothick*. The *Primatice* died very old.

Pellegrino Tibaldi, called Pell de Bologna, became one of the most learned of his Time in *Painting* and Architecture, both civil and military. He gave the first Proofs of his Capacity at *Rome*, but the Success of his Works did not render the Workman happier; either because he had not the Talent of setting them off to the best Advantage, or was not to be easily satisfied. So that one Day that Pope *Gregory* XIII. was gone out thro' the angelick Gate to take the Air; and following a By-Path, he heard a pitiful Voice coming out from behind a Bush; he followed it, and saw a Man stretched on the Ground; the Pope approached him, and knowing *Pellegrino*, he asked him what Reason he had to complain? *You see*, answer'd *Pellegrino*, *a Man in Despair. I love my Profession; I have took all the Pains imaginable to render myself perfect in it; I work with Application, and endeavour to perfect my Work, so as to be almost impossible for me to leave it or please myself; and all my Cares are so little rewarded, that I cannot live by it. Therefore as I cannot bear that unhappy State, I came here, resolved to starve myself to Death, to be deliver'd from the Miseries of this World.*

The Pope reprimanded him severely on that strange Resolution, and having afterwards calmed his Mind, and inspired him with Courage, he promised him all Sorts of Succours; and as *Painting* had been till then very ungrateful to *Pellegrino*, his Holiness advised him to follow Architecture, in which he had shewn much Capacity, and assured him he would employ him in his Buildings. *Pellegrino* took his Advice, became a very great Architect and Engineer, and built very magnificent Edifices.

Being returned into his Country, he built for Cardinal *Borromeo* the Palace of *Sapienza*, at *Pavia*, and was chosen by the *Milanese*, to have the Direction of their Cathedral Church, which was then building, which, in my Opinion, is a very good Piece of Architecture, tho' it could have been done better. From thence he was called to *Spain* by *Philip* II. to work at *Painting* and Architecture in the Palace of the Escurial. That King was so well satisfied with his Works, that he gave him an hundred thousand Crowns, and honoured him with the Title of Marquiss. *Pellegrino* loaded with Honours and Riches returned to *Milan*, where he died at the Beginning of the Pontificate of *Clement* VIII. aged about 70.

George Savari, born at *Arezzo* in *Tuscany*, was first a Disciple of *William* of *Marseille*, a Painter on Glass; afterwards of *Andrew del Sarte*, and lastly, of *Michel Angelo*. He accounted for little the Part of the Colouring, because he had not a just Notion of it; wherefore he was mistaken in his Calculation; for though he designed very well, his Works have not gained him all the Reputation he expected, because he knew nothing of the Intelligence of the Colours, or at least because he neglected the Softness of the Pencil. However, the great Practice he had in the Design, gave him a marvellous Facility, and made him produce a great Quantity of Works. He was a good Architect, and understood very well the Ornaments, either of Architecture or *Painting*, which gained him the Esteem of the House of *Medicis*. He died at *Florence*, in 1556, aged 64.

Frederick Zeuere, born in a Village of the Dutchy of *Urbino*, called *Agnolo in vado*, is famous for the Academy of *Painting* he established at *Rome*, of which he was elected Prince. He died at *Ancona*, on a Journey to *Loretto*, in 1602, aged 66.

Frederick Baroche, born at *Urbino*, is one of the most gracious most judicious Painters of the World. His Genius was particularly for Subjects of Devotion. We discover in his Works a very great Penchant for the Manner of the *Corregio*; and though he designed more correctly than that Painter; his Contours were neither of so grand a Taste, nor so natural. He pronounced too much the Parts of the Body, and designed the Feet of a Child of the same Character he would have done those of a Man. He made his Studies in *Pastel*, and reduced them most commonly to his own Manner. He died at *Urbino*, in 1612, aged 84. *Vanius* was his Disciple, who like his Master, to whom he was inferior in nothing, had also a very extraordinary Talent for the Subjects of Devotion. He died in 1615, aged 47.

Josepin, born in the Kingdom of *Naples*, in 1570; painted the Battles, which are seen in the Capitol; which are his best Performance. He died in 1640, aged 80. Most of the Painters of his Time followed his Manner; which partakes neither from the Antique, nor much from Nature.

Pietro Beretini, of *Cortona* in *Tuscany*, was one of the most agreeable Painters which was ever seen. His Genius was fruitful, his Thoughts fine, and his Execution easy. As his Talent was for the great Works, and his Imagination quick, he could never constrain himself to finish entirely a Picture.

He was very little correct in the Design, very little expressive in the Passions, very little regular in the Plaits of his Draperies, and Manner every where; but every where, likewise, there was Majesty, Sublimity, and Grace; not that particular Grace, which *Raphael* and *Corregio* had for their Share, and touches sensibly the Heart of Men of Wit; but a general Grace, which pleases every Body, and which consisted rather in the Habit he had contracted of giving every where an agreeable Air to his Heads, than in a singular Choice of Expressions peculiar to each Object. He searched nothing else but a beautiful *Tout-ensemble*; and the Platfonds of Churches, the Galleries and Palaces of the Great, far from discouraging him, served rather to feed his Genius; whereof we have several authentick Proofs at *Rome*; in the new Church of the Fathers of the Oratory, in the Palace *Barberini*, in that of *Pamphil*, and in several other Places at *Rome* and *Florence*.

His Colouring had nothing bad, especially in the Carnations, which had been still better, if more diversified. For his local Colours, he has no otherwise deviated from the *Roman* School, than in giving them that Agreement which the *Italians* call *Vagezza*. The Ornaments which accompanied his Works were of a great Idea: He painted the Landskip of a good Taste, and understood better *Painting* in Fresco, than all the Painters who practised it before him. This excellent Man died in 1669, aged 60.

Venetian School.

James Bellini, had for his Master *Gentile di Fubriano*, and was Concurrent of that *Dominick* assassinated by *Andrew del Castagno*. He is not so well known by his Works, as by the Education he gave to his Sons *Gentile* and *John*, who have been the Sources of the *Venetian* School. He died about the Year 1470.

Gentile Bellini, of *Venice*, eldest Son of *James* above-mention'd, being the best of the *Venetian* Painters of his Time, was employed, with his Brother *John*, by the Senate, to paint the Chamber of the grand Council, and painted several other Things at *Venice*, most of them in Distemper, because *Painting* in Oil was not yet much in Use. *Mahomet* II. Emperor of the *Turks*, having seen one of his best Pictures, admired it, and desired to have the Author of it to make him Work. He wrote to the Republick on that Subject, who sent *Bellini* to him. He was very well received of the Grand Seignor, and painted several Pieces, which pleased his sublime Highness, particularly Portraits; and as the *Turks* have a great Veneration for St. *John Baptist*, he painted his Decollation, and shewed it to *Mahomet* for his Approbation: But the Grand Seignor found Fault, in that the Skin of the Neck from which the Head had been so lately separated, was too high; and to confirm his Criticism, he sent immediately for a Slave, whose Head he caused to be cut off in *Bellini*'s Presence; to convince him that immediately after the Separation of the Head, the

the Skin ſhrinks downwards. The Painter was ſo frighted at that cruel Demonſtration, that he thought he could ſtay no longer in Safety at *Conſtantinople*; he aſked his Leave, under ſome Pretence, and obtained it. The Grand Seignor made him ſeveral Preſents, put a Gold Chain round his Neck, and wrote to the Republick in his Favour; which was the Cauſe that the Republick aſſigned him a conſiderable Penſion for his Life, and made him Knight of St. *Mark*. He died in 1501, aged 80.

JOHN BELLINI, Brother and Diſciple of *Gentile Bellini*, eſtabliſhed the Foundations of the *Venetian* School, by the Practice of the Oil, and by the Care he took to paint all Things after Nature. Several of his Works are ſeen at *Venice*; the laſt of his *Paintings* is a *Bacchanale* he made for *Alphonſus* I. Duke of *Ferrara*; and happening to die while he was *Painting* it, *Titian* finiſhed it, and introduced into it a beautiful Landſkip. That learned and grateful Diſciple, to leave the Glory of that Piece to his Maſter, wrote theſe Words (JOANNES BELLINUS, M.CCCCCXIV.) *Georgian* was his Diſciple with the *Titian*. *Bellini* died in 1512, aged 90. His Picture, and that of his Brother, are in the King of *France*'s Cabinet.

Note, That *James* and *Gentile Bellini*, have deſigned of a bad Taſte, and have painted in a dry Manner: But *John Bellini* having got the Secret of *Painting* in Oil, has handled his Pencil with more Softneſs, tho' there appears ſtill much Dryneſs in his Works; which notwithſtanding he deſerves to be diſtinguiſhed from thoſe who preceded him, not only becauſe he has tranſmitted liberally to the Painters that have followed him in the Practice of *Painting* in Oil, which he had got by Craft from *Antony* of *Meſſina*; but beſides, becauſe he endeavoured to join the Union to the Vivacity of the Colours, which before him made the greateſt Merit of the *Venetian* Painters; therefore we ſee together in the *Paintings* of *John Bellini*, a great Neatneſs in his Colours, and a Beginning of Harmony which might have awaken'd the Talent of *Georgion*.

The ſurpriſing Progreſſes of that Diſciple, and thoſe of the *Titian*, have even opened the Eye of their Maſter; for the *Paintings* of the firſt Manner of *John Bellini*, are very dry; and thoſe of the laſt are ſufficiently ſupported of Deſign and Colouring, to find a Place in the Cabinets of the Curious, and there are ſome ſeen in the Palace at *Vienna*, which partake of the *Georgion*, for the Loftineſs of the Colour and Light.

The Taſte of his Deſign is a little *Gothick*, and his Attitudes are not well choſen, but his Airs of the Head are noble.

We ſee no lively Expreſſions in his Pictures, and the Subjects he has treated gave no Room to it, for moſt of them are *Madona's*. He has, notwithſtanding, endeavoured to copy Nature, and has more ſervilely finiſhed his Works, than he has uſefully applied himſelf to give them a good Character.

The GEORGION, thus called for his Courage and advantageous Height, was born in the Borough of *Caſtel-Franco*, in the *Marche Treviſane*, in 1478. He exerciſed himſelf at firſt to deſign carefully after the Works of *Leonardo de Vinci*; and put himſelf afterwards under the Diſcipline of *John Bellini*, to learn *Painting*; but his Genius having formed him a Talent ſuperior to that of this laſt Maſter, he cultivated it by the Light and Conſideration of the natural; which afterwards ſerved him always of faithful Witneſs in all his Works. His Taſte loſty and terrible, pleaſed extremely *Titian*, who in View of gaining ſome Advantage from it, was often at his Houſe, and cultivated carefully the Friendſhip they had contracted at *John Bellini*, their common Maſter: But the *Georgion*, who was jealous of his new Manner, found Means to forbid, in a gentle Manner, *Titian* his Houſe; ſo that afterwards this became his Concurrent, by the Care he took to copy Nature, and by his Reflections, he even ſurpaſſed the *Georgion*, in his Reſearches of the Delicacies of the natural. But the *Georgion* has maintained himſelf in the Poſſeſſion of a Taſte which no Body elſe could ever gain yet. Moſt of the Works of the *Georgion* are at *Venice*; and as he painted much in Freſco, and has not lived long, his Pictures of the Cabinet are extreamly rare. He died in 1511, aged 32.

Note, That as the *Georgion* lived but 32 Years, and has made but few great Works, we cannot well judge of the Sublimity of his Genius. The greateſt Compoſition he has made is at *Venice*, on the Facade of the Houſe where the *German* Merchants meet, on the Side of the Canal. He painted that Piece in Concurrence with *Titian*, who painted another Side of the Building, but theſe two Pieces having been almoſt entirely defaced by the Injuries of Time, it is difficult to draw any very good Conjecture from it; therefore we muſt confine ourſelves within a ſmall Number of Pictures on the *Eaſel* he has painted; and as a Painter always paints himſelf in his Works of any Kind, we ſee by thoſe *Georgion* has left us, that he had a great Facility in the Mind, and a great Vivacity of Imagination.

His Taſte of Deſign is delicate, and has ſomething of the *Roman* School, though it be not ſo much pronounced as it ſhould for the Perfection of his Art; for *Georgion* took more Care to give a certain Roundneſs to his Deſign, than to render it correct. He had a grand Taſte, and his Work was eaſy. He was the firſt who employed loſty Colours, and one may conſider as a Thing ſurprizing, his paſſing all at once from the Manner of *John Bellini*, to the ſupreme Degree he carried Colouring to, in joining to an extream Force, an extream Sweetneſs. He underſtood very well the Clair-obſcure, and the Harmony of the *Tout-enſemble*. He uſed for his Carnations but four capital Colours, the judicious Mixture whereof, made the whole Difference of Age and Sex. But in thoſe four Colours, we muſt not include the White, nor the Black. It appears, that the Principles he had found were ſimple, that he poſſeſſed them perfectly, and that his greateſt Artifice was to ſet off Things by Compariſon.

His Landſkips are of an exquiſite Taſte for the Colours and for the Oppoſitions; and he had joined to his Art the Secret of raiſing the Strength of his Colours, and of preſerving the Beauty thereof, eſpecially in Greens. *Titian* having diſcover'd the Degree to which *Georgion* had carried his Art, imagined that that Painter had exceeded the Limits of the Truth. He wanted, as it were, to tame the Loftineſs of the Colouring he found too ſavage; he moderated it by a Variety of Teints, in order to render Objects more natural, and more palpable; but what Efforts ſoever he has made to ſurpaſs his Rival, it is true to ſay, that the *Georgion* has always maintained himſelf in his Poſt, whence no Body has been capable yet to diſpoſſeſs him; and it is certain, that if *Titian* has made ſome Painters run into the Carier of the good Colouring, it is *Georgion* that has opened it to them.

TITIAN VECELLI, of a noble Extraction, was born at *Cador*, in the *Friulli*, in the Year 1477. He ſtudied only on the natural, which he uſed to copy ſervilely; without any Addition or Diminution; but in 1507, having found the grand Effect of the Works of *Georgion*, he followed his Manner, ſo that making Lines, he imitated the Truths of Nature, which he conſider'd in another Light than he did before, and which he ſtudied with an extream Application; which did not hinder him from exerciſing himſelf, beſides, in Deſigning with Care and Attention.

Georgion perceiving the Progreſs which the *Titian* had made for having conſider'd his Manner, broke all Commerce with him, and they lived henceforward in Jealouſy, till Death carrying off *Georgion* at the Age of 32 Years, left the Field to *Titian*. At 28 Years of Age, he publiſhed the Print in Wood, of the Triumph of the Faith, where the Patriarchs, Prophets, Evangeliſts, and Martyrs are repreſented; and that Work gave a very advantageous Opinion of his future great Capacity and Knowledge.

He painted in Freſco at *Vicenza*, a Portico, where he has repreſented the Hiſtory of *Solomon*; at *Venice*, the Palace *Primani*; at *Padua*, ſome Hiſtories of St. *Anthony*. The three *Bacchanalia's* which fell into the Poſſeſſion of the Cardinal *Aldrobandini*, were painted at *Ferrara* for the Duke *Alphonſus*: That of thoſe *Bacchanalia's*, where there is a naked Woman ſleeping on the fore-Part of

of the Picture, was begun by *John Bellini*. *Titian*, in *Painting* those three *Bacchanalia's*, chose for Model, his Mistress, called *Violente*. He painted, likewise, the Portrait of the Duke and of the Dutchess, which have been engraved by *G. Sadeler*.

In 1546, he was called to *Rome* by the Cardinal *Farnese*, to paint the Portrait of the Pope. He painted also others, and some Pictures of little Work, which were admired by *Michel Angelo* and *Vasari*, who could not help, notwithstanding, blaming the *Venetian* Painters for minding so little the Design. *Titian* has made a great Quantity of publick and particular Works, either in Fresco, or in Oil, without reckoning an Infinity of Portraits. He painted three Times that of *Charles* V. and whenever that Emperor mentioned it, he said that he had received three Times the Immortality from the Hands of *Titian*, wherefore he made him Knight and Count *Palatine*, assigning him, at the same Time, a very large Pension. *Henry* III. King of *France* and *Poland*, passing through *Venice*, at his Return from *Poland*, visited *Titian*; and all the Poets of his Time have celebrated his Praises. His Pictures on the *Easel* have been spread throughout all *Europe*, the best are at *Venice*, in *France*, and in *Spain*.

No Painter has lived so long as *Titian*, nor led a Life so easy and so happy, for he was esteemed and beloved by every Body, and loaded with Honours and Riches. He died of the Plague in 1576, aged 99.

He had a great many Disciples; the principal were *Francis Vecelli* his Brother, *Horatio Vecelli* his Son, the *Tintoretto*, and other *Venetians*.

But besides those *Italians* he had three *Flemish*, whom he valued much, *viz. John Calcar*, *Deterick Barent*, and *Lambert Zustrus*, who all three died young.

Note, That though *Titian* had not a very brilliant and sublime Genius, he had it notwithstanding fertile enough to treat all Sorts of great Subjects; no Painter has had a more universal one, nor known better how to imprint on each Subject he would represent, its true Character. His first Education, under *John Bellini* his Master, the Frequentation he had with *Georgion*, the obstinate Application of ten Years in copying the natural with the last Exactness, but above all the Solidity of his Genius and of his Reflections, have discover'd to him the Mysteries of his Art, and made him penetrate into the Essence of *Painting*, further than any other Painter.

But if *Titian* was faithful in the Imitation of Nature, he very much deviated from the Truth in the History, for there is scarce any of his *Paintings* where he is not reprehensible in that.

Though we do not perceive a great Fire in his Dispositions, they are, notwithstanding, very well filled, and very well order'd; and he was very regular in giving to his Figures, Attitudes which should shew beautiful Parts.

The Care he took to concert judiciously the *Tout-ensemble* of his Works, made him repeat several Times the same Compositions, to avoid new Troubles: And there are seen of his Hand several Pictures of the *Magdalen*, of *Venus*, and of *Adonis*, where he has only changed the Ground, that they might all be taken for Originals. Though we may reasonably presume, that he availed himself of the Succours of his Pupils, especially of the three *Flemish* above-mention'd, who were excellent Painters, among whom *Deterick Barent* was the favourite Disciple of *Titian*. After such Pupils had exhausted their Industry to render their Copies equivocal, and their Master with fresh Eyes has retouched them, who can doubt that they may be esteemed of his own Hand, as well as the first Original?

Titian formed his Taste of Design on Nature; he did like *Policlete*, he has searched the Beauty thereof, and has very well succeeded in Women and Children, he has designed those of a delicate Taste, has given them a noble Air, and accompanied them with certain particular Dresses, as well for the Head as for the rest of the Body, which do not please less by their Simplicity and Negligence, as by the good Turn he has given them; he has not been quite so happy in the Figures of Men, which are not always very correct, nor designed with Elegance: He has done in that like *Michel Angelo*, and proposed to himself, in his Taste of Design, to follow Nature in its greatest Vigour; he has kept the Muscles big, giving thereby a grand Character to his Figures: The Difference between him and *Michel Angelo*, is that this was more profound in the Design, and has mixed with the Taste of the Antique a sensible Pronunciation of the Muscles; whereas *Titian* has neglected the Antique, and was contented with charging his Figures, in increasing rather than diminishing the Softness of the natural; to which he entirely applied himself.

We see no Exaggeration in his Attitudes, they are simple and natural, and it appears, that in his Heads he minded much more a faithful Imitation of the external Nature, than a lively Expression of the Passions of the Soul.

Titian has not always painted fine Draperies, and if he has perfectly imitated the Stuffs, he has often ill disposed them, and their Folds seem rather indebted to Hazard, than to a good Principle.

All Painters agree, that he did the Landskip better than any other of his Profession. His *Sites* are composed of a few Objects, but well chosen; the Forms of his Trees very well diversified, their Touches light, soft, and without a Manner, but what he has observed regularly enough, is to shew in his Landskips some extraordinary Effect of Nature, which makes a sharp Sensation, and moves the Heart by its Singularity and Truth.

All that depends of the Colouring is marvellous in the *Titian*, and if he was not so lofty as the *Georgion* in that Part; he was more exact and more delicate. His local Colours are chosen with a learned Fidelity, and always placed in a Manner to set off an Object by the Comparison of another, so that he supplies, as much as possible, by the Strength of his Art, to the Weakness of the Colours, which of themselves cannot attain to all the Effects of Nature. The Truth found in his same local Colours is so great, that they leave no Idea of the Colours which are on the Palet, and it seems, that it cannot be said, that the Carnations of *Titian*, for Example, are made of such and such Colours, but that they are a real Flesh, and the Draperies real Stuffs: Therefore each Thing preserves in its Character, without any of the Colours it is composed of being distinguished in it.

We must confess, that *Titian* has understood the Clair-obscure, and when he has not made it appear by the Groups of Lights and Shadows, he has made it sufficiently known by the Nature of the Colours he knew to give to the Draperies, and by the Distribution of the Objects, the natural Colour thereof became the Place he gave them, either to come forward, or to remain backward, or, in a Word, to produce the Effect he wanted.

His Oppositions are lofty and savage together, and he has drawn the Harmony of his Colours from the Knowledge he had of their Nature, rather than from the Participation of the Light and Browns, as *Paolo Veronese* has done. He has extremely terminated his Works, and had no very sensible Manner in the Handling of his Pencil; because the Exactness of his Researches, and the Care he took to moderate one Colour by another, has defaced the Appearance of a free Hand, though these were one in fact. It is true, that the sensible Marks of that Freedom are not without Merit, they recreate, as it were, the Work, and please the Eyes, when they proceed from a depurated Habit, and from the Fire of the Imagination; but there are in the Works of *Titian*, Touches so ingenious, and so conformable to the Character of the Objects, that they sharpen the Taste of the true Connoisseurs much more than the very sensible Strokes of a bold Hand.

Titian had four Manners, that of *John Bellini* his Master, that of the *Georgion* his Competitor, a third which was much studied, but which was peculiar to himself; and a fourth which had degenerated into an Habit, but always solid: The first was a little dry; the

the ſecond of an extreme Loftineſs, as it may be ſeen by the Picture of St. *Mark*, which is at *Venice* in the Veſtry of the Salute, by that of the five Saints which is in the little Church of St. *Nicolas*; the third conſiſted in a juſt and fine Imitation of Nature; it was worked by the exact Reſearches he uſed to make in touching over again here and there, ſometimes with Virgin Teints in the Clear, and ſometimes with Glacis in the Shadows, and though thoſe Trifles appear leſs free, they are notwithſtanding ſtronger and more finiſhed.

The fourth is a free Manner, which he uſed towards the latter End of his Life, being not capable then to undergo ſo much Fatigue, or thinking that he had found the Means to ſurmount them; in this laſt Manner were painted the Pictures of the Annunciation and Transfiguration which are at St. *Salvador*, St. *James* of *Sanſio*, St. *Laurence* of the *Jeſuits*, St. *Jerom* of *Sancta Maria Nova*, the Pentecoſte of the Salute, and ſeveral others of that Kind. Therefore fifty Pictures can be ſeen in publick at *Venice*, where the *Titian* has ſhewn all the four Manners abovemention'd.

Therefore if the Painters of the *Roman* School have ſurpaſſed the *Titian* in the Vivacity of the Genius, in the great Compoſitions, and in the Taſte of the Deſign, no body can diſpute with him the Vivacity of the Colouring, and he will be always in the Compaſs of the true Painters.

FRANCIS VECELLI, followed at firſt the military Profeſſion; but Peace being made in *Italy*, he came to his Brother at *Venice*, where he applied himſelf to *Painting*. He took ſo great a Flight in it, that the *Titian* alarmed at his excellent Taſte, and afraid that he ſhould become a better Painter than himſelf, engaged him to embrace another Profeſſion, and he choſe that of making Cabinets of Ebony, adorned with Sculpture and Architecture; which notwithſtanding did not hinder him from painting for his Friends. The Pieces he painted firſt, and which excited the Jealouſy of *Titian*, are more in the Taſte of *Georgion*, and paſs among ſeveral for the Productions of that Painter.

HORATIO VECELLI, painted Portraits in the Manner of his Father. He did but few other Works, for he was more addicted to Chymiſtry than to *Painting*. He died of the Plague in the Flower of his Age, in 1576.

JAMES ROBUSTI, called *Tintoretto*, becauſe he was Son of a Dyer. He took *Michel Angelo* for his Guide in the Deſign, and put himſelf under the Diſcipline of the *Titian* for the Colouring; but penetrating ſo far in the Principles of his Maſter as to excite his Jealouſy; and he perceiving it, left him. He contracted by an aſſiduous Practice, a particular Manner, which notwithſtanding had always much of *Michel Angelo* and of the *Titian*. *Tintoretto* continuing thus to exerciſe himſelf with much Application, became as a Prodigy of *Painting*, as well for the Abundance of his extraordinary Thoughts, as for his good Taſte, and his Quickneſs in the Execution, whereby he has filled *Venice* with his Productions; and if among that great Number of Pictures there are ſeveral very indifferent ones; we are obliged to confeſs, that there are alſo a great Number of them very excellent. He painted an infinite Number of Portraits, which he finiſhed according as he was paid. As there was yet a Place to fill in the ſame Chamber of the School of St. *Roch*, where he has painted that beautiful Crucifixion, ſeveral Painters offered themſelves, and preſented each a Deſign, that he which ſhould be found beſt ſhould be preferred. The Concurrents were *Joſeph Salviati*, *Frederic Zuccre*, *Paolo Veroneſe*, and *Tintoretto*. The Brethren of the Society of St. *Roch* accepted the Propoſition, and fixed a Day for receiving the Deſigns. But *Tintoretto* inſtead of a Deſign, brought the Picture quite finiſhed, and without any more Ceremony fixed it in its Place; which Picture is yet in the ſame Place, where I have ſeen it, and which, in my Opinion, is not the worſt he has painted. It is ſurprizing that *Tintoretto* having worked ſo much with an extreme Vivacity, could live 82 Years, which was his Age when he died of a Pain in his Stomach, cauſed by a too great Application. He was buried in the Church of the *Madona del Horto*, in the Year 1594.

Note, That of all the *Venetian* Painters I find none whoſe Genius has been ſo fertile and ſo eaſy as was that of *Tintoretto*. That Painter had Penetration enough to conceive well all the Principles of the *Titian*, to which he had applied himſelf; but he had too much Fire to execute them exactly; and from the Inequality of his Mind proceeded the Inequality of his Works; which made *Annibal Carrache*, who came to *Venice*, write to *Louis Carrache* his Couſin, that he found *Tintoretto* ſometimes equal to the *Titian*, and ſometimes much beneath *Tintoretto*.

The Love he had for his Profeſſion, made him notwithſtanding ſeek after all that could render him learned. The Cares he took to deſign after the good Things, and eſpecially after *Michel Angelo*, gave him a good Taſte of Deſign: But the Vivacity of his Imagination has often hindered him from being correct. His Attitudes are almoſt all contraſted to Exceſs, and ſometimes extravagant, Women excepted which he has painted very gracious.

He has diſpoſed his Figures rather with regard to the Motion he wanted to give every where, than to Nature and true Likelihood, which notwithſtanding has ſucceeded him in ſome Occaſions. He has well enough characteriſed moſt of his Subjects: His Heads are deſigned of a grand Taſte, but it is rare to ſee any of them whoſe Expreſſions are ſmooth and lively.

He has conceived the Neceſſity of the Clair-obſcure, and has executed it moſt commonly by long Trains of Light and Shadow, which unfold themſelves in puſhing one another by their Oppoſition, and the Cauſe thereof is ſuppoſed out of the Picture, which is of great Help in the great Compoſitions, provided the Paſſage of the Oppoſite be managed with Ingenuity.

His local Colours are good, and his Carnations in his beſt Works approach very near thoſe of the *Titian*, and are in my Opinion, of a better Character than thoſe of *Paolo Veroneſe*.

He did a great Quantity of Portraits of different Merits, according to the Time he employ'd in painting them, and the Money he received for them; the beſt are much like thoſe of the *Titian*. His Pencil is firm and vigorous, his Labour eaſy, and his Touches ingenious. Laſtly, *Tintoretto* is the Model the moſt capable to ſpirit up a young Man who wants to paint with a good Taſte of Colour, and expeditive Manner.

PAOLO CALLIARI VERONESE, was born at *Verona* in 1577, his Maſter was one of his Uncles, called *Badile*, whoſe Manner was not bad. The firſt Works of *Paolo* were painted at *Mantua*, and in ſome other Cities of *Italy*; but having found much Employment at *Venice* he ſettled there.

He applied himſelf much to Nature, and endeavoured to ſee it with the Eyes of the *Titian*.

As he knew where to take his Models when he wanted them for his Carnations, he had likewiſe Stuffs of different Kinds, of which he made uſe in the Occaſion. His publick Works have been almoſt all done in Concurrence of *Tintoretto*, who worked at the ſame Time; and when they were done, the Sentiments of the Connoiſſeurs were divided; which notwithſtanding they have always found more Strength in the Works of *Tintoretto*, and more Grace and Magnificence in thoſe of *Paolo Veroneſe*. We ſee of his Paintings throughout all *Europe*, becauſe he made a prodigious Quantity of them.

There is ſcarce any Church at *Venice* without ſome Work of his Hand; but the principal Marks of his great Capacity are in the Palace of St. *Mark*, at St. *George*, and at St. *Sebaſtian*. He accompanied *Jerom Grimani* Procurator of St. *Mark* which the Republick had ſent to *Rome*, but *Paolo* did not ſtay long in that Capital, becauſe he had left ſeveral Works unfiniſhed at *Venice*.

Paolo Veroneſe, was a very honeſt Man, pious, civil, officious, religious in his Promiſes, careful in the Education of his Children, magnificent in his Actions, as well as in his Cloaths: And though he was become very rich, he had no other Ambition than to render himſelf perfect in his Profeſſion. The *Titian* loved and valued him much. The King of *Spain*, *Philip* II. wanted to have him to paint the Eſcurial; but *Paolo* excuſed himſelf, becauſe

because he was employ'd in painting the Palace of St. *Mark*, and *Frederic Zuccre* was sent in his Place.

He had a great Idea of his Profession, and used to say, that *Painting* was a Gift from Heaven, that a very great Knowlege was wanted to judge pertinently of it, that a Painter without the Succours of Nature present, could never do any Thing perfect; that no other Paintings should be placed in Churches but those of a good Painter, because Admiration excited Devotion; and lastly, that the Part which crowned all the others of *Painting*, consisted in the Probity and Integrity of Manners. He died of a Fever in 1588, aged 58, and was buried in the Church of St. *Sebastian*, where I have seen his Effigy in Brass.

Note, That though the Genius of a Painter be ever so beautiful, his Vein fertile, the Execution of his Thoughts easy, if he does not reflect seriously on the Subject he is to treat, and does not warm his Imagination by reading good Authors, he'll often produce nothing else but very common Things, and even fall sometimes into Inepty. *Paolo Veronese* is a very sensible Example of it; his Talent was marvellous, he worked with Facility, and his Genius had made him produce very beautiful Things if it had always been seconded by his Care. He did an Infinity of Pictures, and according to the Places or Persons for which he worked, he meditated more or less his Compositions. The Palace of St. *Mark* at *Venice*, the Altar-Pieces of the principal Churches, and some private Houses of Noblemen, preserve still to this Day his best Works. But for the different Altars of the common Churches, and for private Persons who on the Reputation of that great Painter wanted to have some Pieces of his Hand, it seems, that instead of taking the Pains necessary to support his Reputation, he worked only with Practice, more possessed with the Thoughts of dispatching soon his Work than of the Care of doing it well; so that his Inventions are sometimes flat and sometimes ingenious.

His Talent was for great Compositions, which he filled in an agreeable Manner. He introduced into it a great deal of Wit, of Truth and Motion; but the Choice of the Objects was not judicious. He introduced into his Composition all that his Imagination could furnish him of great, surprizing, new and extraordinary; and lastly, thought rather of adorning the Scene of his Piece, than to render it agreeable to the Times, Customs and Places: He often introduced into it Architecture, most commonly painted by his Brother *Benedetto*, and the Magnificence of those Buildings gave a certain Greatness to his Works.

His Dispositions are not the best understood with regard to the Clair-obscure, he had no Principles of it, and succeeded in it sometimes well and sometimes ill, according to the different Motions of his Genius. The same may be said of his Attitudes, most of them being without Choice.

Which notwithstanding there is much Fire, and a great Hurly-burly in his great Works, but to examine them near, one finds no Ingenuity in his Expressions, either for the Subject in general, or for the Passions in particular, and it is rare to find any of them which are very moving. He had that in common with all the *Venetians*, who consumed all their Application in imitating the Outside of Nature.

His Draperies are all modern according to the Time he lived in, and his meeting with *Levantine* Foreigners, who are always in great Numbers at *Venice*, and of whom he made use for the Airs of the Head, as well as for the Dress. As most of his Draperies are of Stuffs of different Sorts, and that the Pleats thereof are large and well disposed, they make a great Part of the Beauties found in the Works of *Paolo Veronese*.

The Care he often took to imitate the Stuffs after the Natural, have acquired him such an Habit in that, that he did several rich Draperies of Practice, which could be thought done after the Truth.

Though he had an Inclination for the Design of the *Parmesan*, his was notwithstanding of a bad Taste, except the Faces, which have something great, noble, and sometimes graceful. His Figures are notwithstanding well together under their Habits; but the Contours of the Naked have but little Taste and Correctness, especially the Feet. It appears however, that he took Care to design Women with some Elegance, according to the Idea he had formed to himself of a fine Natural: As for the Antique he knew nothing of it.

I have never seen any considerable Landskips of *Paolo Veronese*: He has made Skies in some of his great Compositions which are marvellous; but his Distances and Terrasses smell of Distemper.

He has never conceived the Artifice of the Clair-obscure, and what I find of it in some of his Works is but the Effect of a good Motion of his Genius, independently of the Principles: But for the local Colours he understood them very well, making use to set them off of the Principle of the Comparison.

Though he was naturally inclined to an unconfined and luminous Manner, that he has sometimes employ'd strong and obscure Colours, and his Carnations are true, and touched over with Virgin Teints, they are not, notwithstanding, either so fresh as those of the *Titian*, or so strong and sanguine as those of *Tintoretto*, it even appears to me that some of them partake much of a leaden Colour, which notwithstanding there is in the Generality of his Colours a marvellous Accord, particularly in his Draperies, to which he has given a Brillant, a Variety, and a Magnificence peculiar to him. The Harmony found in them proceeds most commonly from the Glacis and broken Colours he has employ'd, which partaking from one another, have infallibly an Union; but however, there are Pictures attributed to him, where the Colours are sour and discordant: But I would not warrant that all the Pieces attributed to *Paolo Veronese* are of his Hand; for he had a Brother and a Son who followed his Manner.

We see in his Works a *grand faire* every where; his Execution is firm, his Pencil light, and his Reputation supported with Parts enough, to procure him a Place among Painters of the first Order.

I'll not omit here the Wedding of *Cana*, which he has painted at St. *George Major* of *Venice*, much superior to his other Works, and is not only the Triumph of *Paolo Veronese*, but it wants but little of its being the Triumph of *Painting*.

JOHN ANTONY REGILLO, called *Pordenon*, was born at *Pordenon*, a Borough in the *Friulli*, of the antient House of *Sacchi*, and the true Name of his Branch was *Licinio*; but the Emperor having knighted him, he took Occasion hence to change his Name in Hatred for one of his Brothers, who had attempted to assassinate him, and took that of *Regillo*. He had no other Master in *Painting* but the great Love he had for *Giorgion* his Friend and Rival; and after he had penetrated his Principles, he applied himself, like him, to imitate the beautiful Effects of Nature; that joined to the Strength of his Genius, and to the Ambition of becoming a learned Man, has rendered him one of the most celebrated Painters in the World. He equalled the *Titian* in that Art, and there was between them so great a Jealousy, that *Pordenon* fearing some Insult from his Competitor, was always on his Guard, and while he painted the Cloister of St. *Stephen* at *Venice*, he always worked with his Sword by his Side, with a Shield near him, according to the Use of the Bravo's of those Days. He had a fertil Vein, designed of a good Taste, and was very little inferior to the *Titian* for the Colouring. He has worked a great deal in Fresco, which he did with Facility, and gave it a great Strength. His principal publick Works are at *Venice*, *Udine*, *Mantua*, *Vicenza*, *Genoa* and in *Friulli*.—He went to *Ferrara* by Order of the Duke *Hercules* II. to finish some Designs of Tapestry which he had begun at *Venice*; but he was scarce arrived there, that he fell sick and died, in the Year 1540, and the 56th of his Age.

JEROM MUTIANO, born at *Brescia* in *Lombardy*, studied sometimes under *Romanini*, whom he left to apply himself to the Manner of the *Titian*; but wanting to strengthen himself in the Design, he went to *Rome*, where

where he worked with *Tadeo Zeucre*. He design'd a great deal after the Antiques, and after the best *Paintings*, and did a great Quantity of Portraits. He finished the Designs of the Bass-Relievo's of the *Trojan* Column, which *Jules Roman* had began. Pope *Gregory* XIII. employed *Mutian*, and it was in his Consideration that that Pontiff founded at *Rome*, the Academy of St. *Luke*, by a Brief which *Sixtus* V. confirmed.

Though *Mutiano* was learned in History, he notwithstanding minded more the Landskips, which he understood very well; his Manner had something of the *Flemish* in the Touches of Trees, and accompanied the Trunks of his Trees of all he thought capable to render them agreeable, and to procure them a Variety. *Cornelius Cort* has engraved after him seven great Landskips which are very fine. *Mutiano* died in 1590, aged 62, and left by his Will two Houses to the Academy of St. *Luke* at *Rome*; and order'd, that if his Heirs should die without Issue, all his Estate should come to the same Academy, to build an Auspice, where the young Students who should come to *Rome*, could retire if they should want that Succour.

James Palma, called *Palma Vecchio*, born in the Territory of *Bergama*, in 1578, has painted with a great Strength of Colours supported with a pretty good Design. As he was Disciple of the *Titian*, I thought it was more proper to place him in the *Venetian* School than in that of *Lombardy*, where he was born. His Manner was so conformable to that of his Master, that this having begun a Descent from the Cross, which Death hinder'd him from finishing, *Palma* was chosen to do it.

Among his Works seen at *Venice*, the *Sancta Barbara*, which is in the Church of St. *Mary Formasa*, is his best. He died in 1596, aged 48, which shews, that he was called *Vecco* for no other Reason, than that he preceded him they called the young *Palma*, who was his Nephew and Disciple of the *Tintoretto*, who has painted in the Manner of his Master. He did a great Quantity of Works at *Venice*, where he died in 1623.

James del Ponte, called *Bassano*, from the Place of his Birth, went to *Venice*, where he studied under *Bonifaccio*, a *Venetian*, and after the *Paintings* of *Titian* and *Parmesan*. Being returned to *Bassano*, he followed the Propensity of his Genius, which inclined him to paint all Things after the natural, which he had always present ever after in the Execution of his Work. Though he designed very well the Figures, he applied himself in a particular Manner to the Imitation of Animals, and Landskips, because those Things were more common, and more advantageous in the Place where he lived, and in which he has perfectly succeeded, especially in rural Subjects. He died in 1592, aged 82, and left four Sons, *viz. Francis*, *Leander*, *John Baptist*, and *Jerom*.

Francis Bassano, the Eldest, retired to *Venice*, and surpassed his other Brothers in his Profession. He was very thoughtful, and his Melancholy throw him insensibly into so strange a Mania, that he often imagined that he was pursued by Bailiffs. One Day, hearing some Body knocking pretty hard at his Door, imagining that they were come to seize him, he jumped through the Window into the Street, and dashed his Brains against the Pavement, in the Year 1594, and the 44th of his Age.

The Chevalier Leander, his Brother, followed also the Manner of their Father *James*, but he gave not so much Strength to his *Paintings* as his Brother *Francis* did. He applied himself more particularly to Portraits. That he did of the Doge *Marin Grimani*, procured him the Collar of St. *Mark*. He died in 1623.

The two other Brothers did very little but copying the Works of their Father. *John Baptist* died in 1613, and *Jerom* in 1622.

Note, That *James Bassan* was really born for *Painting*; for I see no other Painter that has less followed the Manner of their Master. He applied himself entirely to study Nature, which having given him his Genius, gave him, likewise, in his Country, the most proper Productions to cultivate it. *Bassan* considered first that Mistress of the Arts by the Characters which render it more sensible, and after he had studied it, sometimes, with Application, in particular Objects, he composed of them Pictures of a singular Merit.

If his Talent was not for the heroical, nor historical Kind, he has very well treated the rural Subjects, and those proportioned to the Measure of his Genius. His Design was neither noble nor elegant, because most of his Subjects did not require it, but it was correct in its Kind. His Draperies were dull, and he introduced in the Execution thereof, as much Practice as Truth.

His local Colours preserved very well their Character; his Carnations were very fresh, and very true; his Colours had a marvellous Resemblance to the natural. His Landskips were of a very good Taste; his *Sites* well chosen, the Clair-obscure well disposed; the Touches ingenious, and the Colours always true in the Distances, but often too black in the Nears; tho' it seems that he wanted thereby to preserve the Character of the luminous Objects. He has painted several Night Subjects; and the Habit he had contracted of making strong Shadows, can also have contributed to those he has employed sometimes wrong, in Day-Subjects.

His Pencil, which is firm, is so even, and exactly guided, that no Body has touched the Animals with so much Art and Precision; and his Pictures have a Brilliant, which I have seen no where else.

Julio Licino, called *Pordenon the Younger*, of *Venice*, Disciple of the great *Pordenon* his Uncle, was a good Designator, and had a great Intelligence of the Fresco. The Conformity of the Names is the Cause that the Works of the Nephew have been confounded with those of the Uncle. But however, he worked in several Places. He painted in Fresco the Facade of a House at *Ausbourg*. That Work is still entire, and the Magistrates of the City had this Inscription put to it. Julius Licinus *Cives* Venetus & Augustanus, *hoc Ædificium his Picturis insignivit, hic æque ultimam manum posuit, in* 1561, i. e. *Julio Licinio*, a Citizen of *Venice* and *Ausbourg*, has render'd this House famous by this *Painting*, which he finished in 1561. We know nothing more of him than he was Co-temporary of the *Bassan*.

The School of Lombardy.

Antonio Corregio, thus called from the City *Corregio*, in the *Modeyese*, where he was born, in 1472. Ever since the Restoration of *Painting* in *Italy*, i. e. from *Cimabué* to *Raphael*'s Time, that Art, which had but weak Beginnings, arrived but slowly to so great a Degree of Perfection. The Disciples added always some Progresses to what they learned of their Masters; and there is nothing in that but what happens most commonly to all the Arts. But we must here admire and respect a Genius, which against the common Course, without having seen either *Rome* or the Antiques, or the Works of the Learned, without Master, Protection, and going out of his Country, amidst Poverty, and without any other Succours but the Study of Nature, and an Inclination to Work, has produced Pieces of a sublime Kind, as well for the Thoughts as for the Execution: His principal Works are at *Parma* and *Modena*, and his Pictures of the Cabinet are very rare.

The Reputation of *Raphael*, inspired the *Corregio* with the Desire to see *Rome*, where he consider'd attentively the *Paintings* of that great Man; and the long Silence he had kept in viewing them was interrupted by these Words *Anchio son Pittore*, still I am a Painter. Which notwithstanding all the beautiful Works he had done till then, had not been capable to take him out of the Misery he was in, because he had a large Family, and the Price he received for his Work was very small.

Being gone one Day to *Parma* to receive a Payment of 200 Livres, which was made to him all in a small Money of Copper, called *Quadrini*, the Joy he had to carry that Money to his Wife, hinder'd him from considering the great Weight he loaded himself with in a very hot Day, having twelve Miles to walk under it. So that having over-heated himself he got a Pluresy, of which he died in 1513, aged 40 Years.

Note, That we do not see that the *Corregio* has borrowed any Thing from others: All is new in his Work, his Conceptions, his Design, his Colours, his Pencil, and his

his Novelty, inclines to nothing but good. For his Thoughts are ſublime, his Colour delicate and natural, and his Pencil ſeems handled by the Hand of an Angel. His Contours are not very correct, it is true, but they are of a grand Taſte; his Airs of the Head gracious, and well choſen, particularly of Women and Children. And if we join to all this the Union which appears in his Works, and the Talent he had to move the Heart by the Sublimity of his Expreſſions, we'll have no Difficulty to believe, that he rather received the Knowledge of his Art from Heaven, than he acquir'd it by his Studies.

The CARACCI, who have acquired by their Works ſo much Glory and Reputation, were *Louis*, *Auguſtin*, and *Annibal*, all three of *Bologna*.

LOUIS, born in 1525, was firſt Couſin of *Auguſtin*, and *Annibal*, and as he was older than they, and made ſurely very great Progreſſes in his Profeſſion, he was alſo their Maſter; as was at firſt *Proſpero Fontana*, who not believing that he had Penetration enough, wanted to diſſuade him from being a Painter, ſo that *Louis* left his School. But his Talent raiſed his Courage, and made him form the Reſolution to have no other Maſter than the Works of the great Painters. He went firſt to *Venice*, where *Tintoretto* having ſeen his Work, told him, to encourage him, that he would be ſoon one of the firſt of his Profeſſion; which made him purſue the Deſign he had formed to become learned. He therefore ſtudied the *Titian*, *Tintoretto*, and *Paolo Veroneſe*, at *Venice*; the *Peſignano*, and *Andrew del Sarte*, at *Florence*; the *Parmejano* and *Corregio*, at *Parma*; *Julio Romano*, at *Mantua*; but of all thoſe great Maſters, he that touched moſt his Heart was the *Corregio*, whoſe Manner he always followed afterwards.

AUGUSTIN, born in 1557, applied himſelf to all that came into his Fancy, without Diſtinction, *viz.* to *Painting*, *Engraving*, the *Mathematicks*, *Muſick*, *Poetry*, *Dancing*, and other ſuch Exerciſes, which adorned, but divided his Mind.

ANNIBAL, on the contrary, minded nothing elſe but *Painting*. That Art, which joined him with his Brother, obliged them both to ſtudy it together. But the Difference of their Humour could not ſuffer that Union to laſt long; therefore their Father parted them, and ſent the eldeſt to *Louis Caracci*, who ſoon afterwards would have them both; and found by his Meekneſs and Prudence, Means to moderate that natural Antipathy which was between them. He made Uſe for that, of the Zeal he had for his Art, he inſpired them with the ſame Zeal, and promiſed to communicate to them all the Knowledge he had acquired in it. Afterwards, the Love they had for their Profeſſion, increaſing daily by the ſurprizing Progreſſes they made it, united them all three with a ſtill ſtricter Friendſhip, making them forget every Thing elſe but the Care of rendering themſelves perfect in their Art.

Auguſtin, notwithſtanding, interrupted often his Studies of *Painting* for thoſe of Engraving, which he learned of *Cornelius Cort*; but though he became learned in that Part, the Talent he had for *Painting* recalled him always to that Art, as to his Center.

Annibal, who never abandoned his Profeſſion, went to ſtrengthen himſelf in it into *Lombardy*, and to *Venice*. He was antauſiaſmed at *Parma*, at the Sight of the Works of the *Corregio*. He wrote to *Louis* about it, and deſired him to engage *Auguſtin* to come to him, telling him, at the ſame Time, that they could never find a better School, to become perfect, that neither *Tibaldi* nor *Nicolini*, nor *Raphael* himſelf in the St. *Cecilia*, had done any Thing comparable to the Prodigies he ſaw in the Works of the *Corregio*; that all was great and graceful in it; that *Auguſtin* and he would ſtudy thoſe fine Things with Pleaſure, and live in good Intelligence.

From *Lombardy*, *Annibal* went to *Venice*, where the new Charms he found in the Works of the *Titian*, of *Tintoretto*, and of *Paolo Veroneſe*, engaged him to copy with Care the *Paintings* of thoſe great Men.

At laſt, after each of the three had made all the Advantage they could of their Reflections on the Works of others, they enter'd into ſo perfect an Aſſociation, that they continued together ever after. *Louis* continued to communicate his new Diſcoveries to his Couſins, and theſe received them with all the Avidity and Gratitude poſſible. He propoſed to them, afterwards, to unite their Sentiments and Manners; and in the Difficulty they repreſented to him of being capable to penetrate all the Principles of ſo profound an Art, and to reſolve all the Difficulties thereof, he anſwer'd, that there was no Appearance that three Perſons who ſearched nothing but the Truth, and had well ſeen, and well examined the different Manners, could be miſtaken.

They therefore formed the Reſolution to purſue, and increaſe the Method they had begun: They did, in different Places, ſome Works, which, in Spite of the Obſtacles of their Enemies, acquired them a Reputation and Friends. Thus eſtabliſhed, they laid the Foundations of that famous Academy, which has been called ſince, *The Academy of the* Caracci.

There all the young Students, who had ſome Capacity, came to take Leſſons; and there the *Caracci* taught liberally, and with Goodneſs, the Things which were proportioned to the Genius of their Diſciples. There they eſtabliſhed Models, very well choſen, of Men and Women. *Louis* had the Care to procure antique Statues and Baſſo-Relievo's. They had Deſigns of the beſt Maſters, and very curious Books on all Subjects. *Antony de la Tour*, a certain famous Anatomiſt, taught there all the Rules of his Art, which had any Relation to *Painting*. The Count *Malvaſio* ſays, that what ſupported that Academy was the Principles of *Louis*, the Cares of *Auguſtin*, and the Zeal of *Annibal*.

The Reputation of the *Caracci* being ſpread as far as *Rome*, the Cardinal *Odoardo Farneſe*, who wanted to have the Gallery of his Palace painted, ſent for *Annibal*, for the Execution of his Deſign; and that Painter went to *Rome*, with ſo much more Pleaſure, that he wanted to ſee the Works of *Raphael*, and the antique Statues and Baſſo-Relievo's.

The Taſte he took for the antient Sculptures, made him change his *Bolonese* Manner, to follow a more learned Method, more ſtudied, and more pronounced, but dryer, and leſs natural in the Deſign, and in the Colour. He had Occaſion to put it in Uſe in ſeveral Works he did, and eſpecially in his Gallery of the Palace *Farneſe*. Where *Auguſtin*, who was come to him, helped him as well for the good Order, as for the Execution; but whether *Auguſtin* would govern too much in that Work, or *Annibal* wanted to have the whole Glory to himſelf, this laſt could not ſuffer his Brother to continue to work at it, whatever Submiſſions and Offers *Auguſtin* made to gain him.

The Cardinal *Farneſe* perceiving that Miſunderſtanding, ſent *Auguſtin* to *Parma*, where he deſigned he ſhould work for the Duke *Ranuccio* his Brother. There he painted a Room, but he met with ſo much Vexation while he was employ'd in that Work, that uncapable to bear it any longer, he retired into a Convent of *Capuchins*, to prepare himſelf for a Death which he felt near; and which happen'd in 1605, being only 45 Years old. — He left a natural Son called *Antony*, whom *Annibal* took, and inſtructed in his Art. That *Antony* has given ſo many Proofs of his Capacity, even in the few Works he has left at *Rome*, that we are of Opinion, that he had certainly ſurpaſſed his Uncle *Annibal*, if he had lived longer. He died at the Age of 35, in 1618.

Moreover, *Annibal* continued the Gallery of the Palace *Farneſe* with incredible Care, and though he was very learned in his Profeſſion, he did not the leaſt Thing in that Work, without conſulting Nature, nor painted the leaſt of his Figures, without bringing a Model on the Scaffold, and having deſigned exactly all the Attitudes.

While *Annibal* worked at *Rome*, *Louis* was employed every where in *Lombardy*, eſpecially for Church-Paintings; and we may judge of his Capacity by the Preference which was given him over all the other Painters.

The *Caracci* have had a great Quantity of Diſciples; but the moſt famous among them were *Guido*, the *Dominican*, *Lefranc*, *Siſte Badalocchi*, *L'Albane*, *Guerchin*, *Antony Caracci*, *Moſtelleta*, *Panico*, *Baptiſt*, *Bonconti*, *Cavedon*, *Taccone*, &c.

Note, That when *Michel Angelo* of *Caravage*, and the Chevalier

Chevalier *Joſepin* kept at *Rome* the Helm of *Painting*, the firſt who deſigned of a very bad Taſte, gained a great Number of Pupils, becauſe he was a great Colouriſt, and that *Joſepin* had acquired an expeditive Manner without Taſte and Accurateneſs; the good Genius of *Painting* ſupported the School of *Caracci*, to ſupport that beautiful Art, which was then in Danger of falling into Ruin, on the Side of the Compoſition and of the Deſign.

Nature, in providing the *Caracci* with a fine Genius, gave them an incredible Zeal for their Profeſſion: They have followed it by their Talent, and perfected it by the Aſſiduity of their Studies, the Obſtinacy of their Work, and the Docility of their Mind. The ſame Principles on which they eſtabliſhed their famous School, ſerved them for Guide in the Execution of their Works. Their Manners are much alike, and all the Difference found in it proceeds only from that of their Conſtitution. *Louis* had leſs Fire, more Greatneſs, more Grace, and more Unction.—*Auguſtin* a prettier Way:—And *Annibal* more Loftineſs and Singularity in his Thoughts, more Knowledge in the Deſign, more Vivacity in the Expreſſions, and more Solidity in the Execution.

The *Caracci*, have borrowed from the Antiques, and from the beſt Maſters, what they thought could form them a good Manner; but have not exhauſted the Sources; for if they have took a great many Things from the Antiques, from *Raphael*, from the *Titian*, and from the *Corregio*, they have left ſtill much more behind. Though the Character of *Annibal* was rather for prophane Subjects than for religious ones, he has notwithſtanding treated ſome of theſe laſt very pathetically, eſpecially the Hiſtory of St. *Francis*; but *Louis* had this more, in that Kind, than *Annibal*, that he gave his Madona's graceful Airs in the Manner of *Corregio*. The Genius of *Annibal* inclined him rather to Loftineſs than Delicacy, and to Gaiety than Modeſty. As for *Auguſtin*, he has often interrupted the Practice of his Profeſſion for Engraving, which he underſtood perfectly well, and for other Exerciſes. Therefore having done but few Pictures, moſt of them have been confounded with thoſe of his Brother.

As *Annibal* had had no liberal Education, and applied himſelf wholly to *Painting*; he made uſe often in his great Compoſitions, of the Succours of his Brother *Auguſtin*, and of that of Signior *Agucci*, in making their Ideas to paſs through his.—The *Caracci* have all three deſigned of a grand Taſte: That of *Annibal* increaſed ſtill more during his Stay at *Rome*, as can be ſeen by his Works in the Palace of *Farneſe*; that Work is loaded, it is true, but that Loading is ſo beautiful and learned, that it pleaſes even thoſe that cenſure it; for his Taſte of the Deſign is a Mixture of the Antique, of *Michel Angelo*, and of Nature. But as the Affection he had for the new Beauty made him forget the antient, the *Roman* Manner made him leave the *Bologneſe*, which was ſoft and pappy; and in proportion he render'd himſelf more perfect in the Taſte of the Deſign, he diminiſhed in that of the Colouring. Therefore his laſt Works are of a Deſign better pronounced, but of a Pencil leſs tender, leſs melted, and leſs agreeable; that Fault is common almoſt to all thoſe who have correctly deſigned. They thought they ſhould loſe the Fruit of their Labours, were they not to let the World know to what Point they poſſeſſed that Part, and that they ſhould be forgiven what they wanted beſides, provided their Deſign was regular. They were ſo afraid it ſhould eſcap: the Eyes, that they have made no Scruple to offend them by the Crudity of their Contours.

Annibal had an excellent Taſte for the Landſkip. His Trees are of an exquiſite Form, and of a very light Touch. The Deſigns he has done of them with the Pen, have a marvellous Character and Genius. His Touches are choſen, and expreſs a great deal; and what I ſay of his Landſkips becomes, beſides, all his other Deſigns. In all the viſible Objects of Nature, there is a Character which ſpecify them, and make them appear more ſenſibly what they are. *Annibal* knew how to take that Character, and has made uſe of it in his Deſigns with much Wit and Judgment.—Notwithſtanding the Eſteem he had for the Works of *Titian* and of *Corregio*, his Colouring is not much come out of the common Way; he has not penetrated into the Artifice of the Clair-obſcure, and his local Colours are not very precious. Therefore what is found good in his Pictures relating to the Colouring, is not ſo much the Effect of the Principles of the Art, as of the good Sallies of his Genius, and of the Reminiſcencies of *Titian* and of *Corregio*.—But however we ſee no Painter that has been more univerſal, more eaſy, or more ſecure in all he has done, and had a more general Approbation than *Annibal*.

Guido Reni, born at *Bologna* in 1574, ſtudied the Principles of his Art under *Denis Calvart*, a *Fleming*, who was then in Reputation, whom he left to work under the *Caracci*, in their Academy; he applied himſelf to it with ſo much Care, that his firſt Works were entirely in the Manner of thoſe new Maſters, among whom he had a Predilection for *Louis*, becauſe he found a great deal of Grace and Greatneſs in what he did. He ſearched afterwards a Manner, to which he could fix himſelf. He went to *Rome*, where he copied ſome of all Kinds. He was charmed with the Pictures of *Raphael* on one Side, and with the Strength of thoſe of *Caravage* on the other. He attempted all, and at laſt fixed to one, which could pleaſe every Body: In fact, what he had formed to himſelf was ſo great, ſo eaſy, and ſo graceful, that he acquired him a good Eſtate, with much Reputation.

Michel Angelo of *Caravage*, who found himſelf offended at the ſudden Change *Guido* made of a ſtrong and brown Manner, for another quite oppoſite to it, ſpoke of the Works of that Painter in an inſulting Manner; and which had been attended with fatal Conſequences, if *Guido*, by his Prudence, had not avoided diſputing with a Man of ſo impetuous an Humour.

Guido returned to *Bologna*, where he acquired much Glory by the great Care he took to work well his Pictures; he worked equally in Oil, and in Freſco. That of his Pictures which was moſt admired at *Rome*, was that he painted in Concurrence of the *Dominican* in the Church of St. *Gregory*: He died in 1642, aged 67.

Note, That there is not a great Vivacity in the Productions of *Guido*: We ſee, notwithſtanding, that if he has not done many great Compoſitions, it was rather for want of Occaſion, than of the Fertility of the Vein: One muſt confeſs, however, that his Genius was not equally proper to treat all Sorts of Subjects; pathetick Matters, and religious ones, were more agreeable to his Humour; Greatneſs, Sublimity, and Gracefulneſs were the Characters of his Mind; and he has ſo ſpread them in all his Works, that they are the principal Marks which diſtinguiſh him from other Painters.—His Thoughts were fine, and his Objects commonly well diſpoſed in general, and the Figures in particular.—As *Guido* was the firſt, and the moſt affectionate of all the Diſciples of the *Caracci*, he conformed himſelf at firſt to their Taſte of the Deſign, and to their Manner: He formed one afterwards to himſelf, which was neither ſo firm, ſo pronounced, nor ſo learned as was that of *Annibal*; but which approached nearer the Character of Nature, eſpecially in the Extremities, the Heads, Feet and Hands. He obſerved in it a certain Softneſs, and deſigned certain Parts of a particular Manner; as great Eyes, a little Mouth, ſtreight Noſtrils, the Hands and Feet rather plump, than ſenſibly articulated, eſpecially the Feet a little ſhort, and the Toes cloſe againſt one another: And laſtly, it is likely that if he has not pronounced ſo exactly the Articulation of the Members, it is not ſo much becauſe he had forgot what he knew of it, as to avoid a Kind of Affectation, there was, ſaid he, in making them appear too much: But the Excess to be avoided, does not exempt one from the Medium he is to obſerve.—For the Heads, they have the Merit of thoſe of *Raphael*, either in the Correctneſs of the Deſign, or in the Delicacy of the Expreſſions, eſpecially thoſe that look upwards. We muſt ſay, likewiſe, that he has treated few Subjects capable to furniſh him with a ſufficient Variety of Expreſſions, to be entirely

compared

compared in that Kind to *Raphael*. That moving Beauty, which makes the Merit of the Heads of *Guido*, consists, in my Opinion, not only in the Regularity of the Features, but in a precious Air besides, which he has given to the Mouths, which keep a delicate Medium, between the Laugh and the Melancholick; and in an Accord of those same Mouths, with a certain Modesty he has placed in the Eyes. —His Draperies are well thrown, and of a grand Taste; the Pleats are full, and sometimes broken; he made Use of them, with Ingenuity, to fill the Vacancies, and to group the Members and Lights of his Figures, particularly when they were alone. Lastly, no Body understood better how to place the Draperies, and no Body has dressed in a more noble Manner, without Affectation.—We see no Landskips of his Hand, and when he treated some Subject which required it, he borrowed another Hand.—His Colouring is semblable to that of the *Caracci*, in the *Paintings* of his first Manner; he even did some in the Manner of the *Caravage*, but finding in it too much Work, and the Means he searched of pleasing every Body, determined him to a clear Manner, which the *Italians* called *Vaga*. He did in that practise several very agreeable Pictures, and in a great Union of Colours, though weaker: But having accustomed himself, by Degrees, to that Weakness, he neglected his Carnations; or, perhaps, wanting to make them more delicate, he went into the grey; which even went sometimes so far as the livid.—For the Clair obscure he knew nothing of it, no more than the whole School of the *Caracci*; except, perhaps, that at the Imitation of *Louis Caracci*, his chief Master, he has sometimes practised it by the Greatness of his Taste, rather than by Principle, in retrenching from his Subjects the Trifles which divide the Sight. —The Pencil of *Guido* was light, smooth; and that Painter was so well persuaded that the Liberty of the Hand was necessary to please, that after he had sometimes toiled his Work, he gave over it bold Strokes, to take off the Idea of the great Time and Labour it had cost him.—The State which Gaming had reduced him towards the latter End of his Life, did not allow him to make use of this Artifice; he was obliged to work quick to get a Livelihood; and that Quickness left on his last Pictures, which were not much finished, a natural Freedom.

Dominico Zampieri, called the *Dominican*, born at *Bologna* in 1581, of an honest Family, was a long while a Disciple of the *Caracci*. He had a slow Wit, but excellent. What he designed for his Studies was done with so much Pain and so much Circumspection, that the other Disciples his Comrades considered him as a Man that lost his Time; they said, that his Works were done with the Plow, and they called him the Ox: But *Annibal*, who knew his Character, told them, that that Ox, with working, would render his Field so fertile, that one Day it would feed *Painting*; the Prophecy proved so true, that the Pictures of the *Dominican* are at present a Source, whence a great many excellent Things flow, and that the publick Works which that great Painter has done at *Rome*, *Naples*, and at *Grotta Ferrata*, are eternal Testimonies of his great Capacity. The Picture of the Communion of St. *Jerom* which he painted at *Rome* for the Church of that Saint, pleased so much *Poussin*, that that famous Painter reckoned the Transfiguration of *Raphael*, the Descent from the Cross of *Daniel del Volterra*, and the St. *Jerom* of the *Dominican*, for the three best Pictures of *Rome*. As he has worked much in Fresco, his *Painting* in Oil are a little dry.

The *Dominican* was a very good Architect, and Pope *Gregory* XV. gave him the Direction of the apostolical Palaces and Buildings.

Note, That I do not know what to say of the Genius of the *Dominican*, nor even if there was something in that Painter which deserved that Name, or if the Goodness of his Mind, and the Solidity of his Reflections have supplied in him the Place of Genius, and have made him produce Works worthy of Posterity. For he had brought into the World a Taciturnity opposite to that Activity which *Painting* requires; the Studies of his Youth were dark, his first Works despised, his Perseverance considered as lost Time, and his Silence as Stupidity. His single Obstinacy in his Works, contrary to the Advice of his Companions, amassed by Degrees a hidden Treasure of Science, which was to be discovered in Time. At last his Mind wrapped as a Silk-worm in its Shell, after it had worked a long while in a Kind of Solitude, finding itself at Liberty, and warmed by the Activity of its Thoughts, took its Flight, and was admired not only by the *Caracci*, who had supported him, but likewise by their Disciples who had laugh'd at him.—At the very Beginning his Thoughts were judicious, and they raised so much afterwards that they arrived very near to the Sublime; unless we rather choose to say, that some of his Works are arrived at it, as the Angles of the *Dôme* of St. *Andrew* at *Rome*, the Communion of St. *Jerom*, *David*, *Adam* and *Eve*, which are in the King of *France*'s Cabinet, and our Lord carrying his Cross, which is also in *France*.—He knew pretty well how to chuse his Attitudes, but he did not understand the Collocation of the Figures, and the Disposition of the *Tout ensemble*; but for the Taste and Correctness of the Design, for the Expression of the Subject in general, and of the Passions in particular; for the Variety and Simplicity of the Airs of the Head, he has been very little inferior to *Raphael*. He was always like him, very jealous of his Contours, and has marked them in a still dryer Manner; and though he had not so much Greatness and Gracefulness, he had notwithstanding some.—His Draperies are very bad, very ill thrown, and of an extreme Hardness. His Landskips are of the Taste of the *Caracci*, but executed with a heavy Hand. His Carnations give into the Grey, and have very little Truth in them: His Clair-obscure is still worse; his Pencil is heavy, and his Work dry.—As the Progresses he made in *Painting* did increase no otherwise than by working, and by Reflections, his Works have acquired with Age an Increase of Merit, and the last only have gained him a Reputation. Therefore it may be said, that the Parts of *Painting* which the *Dominican* possessed was a Reward for his Fatigues, rather than an Effect of his Genius. But whether Fatigues or Genius, his Productions are of a Nature to serve for Model to all Painters who are come after him.

John Lanfranc, born at *Parma* in 1581, of poor Parents, was at first Disciple of *Augustin Caracci*, and after his Death of *Annibal*. This made him work at St. *James* of the *Spaniards*; and found him capable enough to be intrusted with the Execution of his Designs in large Works, where he has left People in Suspence, if they be of the Master or of the Disciple.—His Genius was to paint in Fresco, in spacious Places, as appears by his great Works, and especially by the Cupola of St. *Andrew* of *Laval*, where he has much better succeeded than in his lesser *Paintings*. He designed in the Taste of *Annibal Caracci*, and while he remained under the Discipline of that illustrious Master, he was always correct; but after *Annibal*'s Death, he abandoned himself to the Impetuosity of his Genius, without any Regard to the Regularity of his Art. He engraved with Aquafortis the Lodges of *Raphael*, together with *Sisto Badalachi*, and they dedicated that Work to *Annibal* their Master. *Lanfranc* painted for *Urban* VIII. the History of St. *Peter*, which was engraved by *Pietro Santi*, and other Works in the Church of St. *Peter*; which pleased the Pope so much that he made him a Knight.—*Lanfranc* died in 1647, aged 66.

Note, That the Genius of *Lanfranc*, heated by the Studies he made after the Works of *Corregio*, and especially after the Cupola of *Parma*, threw him into an Enthusiasm of vast Thoughts. He searched with Avidity the Means of making such Productions; and those which are seen of him at *Rome* and *Naples*, persuade easily that he was capable of great Undertakings; and had a particular Talent to execute them. Nothing frighted him, and he has done Figures of more than 20 Feet in Height, in the Cupola of St. *Andrew* of *Laval*, which produce a very good Effect,

fect, and which from below appear but of a natural and just Proportion. We perceive in his large Works, that he wanted to join the Strength of the Design of *Annibal*, to the grand Taste and Suavity of *Corregio*. He endeavoured even to imitate all the Grace thereof, but he knew not that Nature, which is the Dispensatrice of those Gifts, had given him but a small Portion of it. His Ideas were capable, 'tis true, to embrace great Works, and his Genius had not Delicacy enough to return on itself, and apply itself to terminate them; therefore his Works on the *Easel* are not so valuable as those he has painted in Fresco, the Vivacity of his Genius, and the Freedom of his Hand being very proper for that Kind of *Painting*.—*Lanfranc* had a Taste of Design semblable to that of his Master, *i. e.* always grand and always firm; but he did not preserve the Correctness thereof to the End. His great Compositions make a great Hurly-burly, but if they be examined in a Detail, we shall find uninteresting Expressions in them.—His Colouring is not so nice as that of *Annibal*; the Teints of his Carnations are trivial, and the Shadows are a little blackish. Like his Master, he knew nothing of the Artifice of the Clair-obscure; though, like him, he has practised it sometimes rather by a good Motion of his Genius than by Principle.—The Works of *Lanfranc* proceed from a Vein quite different from that of the *Dominican*. This last made himself a Painter in spite of *Minerva*; and that was born with a happy Genius; the *Dominican* invented with Difficulty, and digested afterwards his Compositions with a solid Judgment, and *Lanfranc* left all to his Genius, whose Productions flowed from a Source: The *Dominican* studied how to express the particular Passions, and has surpassed his Master in the Regularity of the Contours; and *Lanfranc* was contented with a general Expression, and with following *Annibal* in the Taste of the Design; the *Dominican*, who in his Studies had always consulted his Reason, increased his Capacity to his Death; and *Lanfranc*, who was supported but by an outward Practice on the Manner of *Annibal*, diminished always after his Master's Death. The *Dominican* executed his Works with a heavy and slow Hand, and that of *Lanfranc* was quick and light. So that it is difficult to see two Pupils educated in the same School, and born under the same Planet, more opposite to one another, and of so different Humour; but that Opposition cannot hinder us from admiring them both on their good Sides.

Francis Albane, born at *Bologna* in 1578, chose first *Denis Calvart* for his Master, where he found *Guido*. He being already far advanced in his Profession, taught his Companion the Principle of the Design; and having quitted his Master for the *Caracci*, he engaged *Albane* likewise to follow his Example. After he had made a considerable Progress under the *Caracci* he went to *Rome*, where the Study of the fine Things he saw there strengthned him so much in his Art, that he has been one of the most learned and most agreeable Painters of *Italy*.

Being returned to *Bologna*, he married a second Wife, who brought him for her Portion a great Beauty, and much Complaisance; therefore he found in her the Peace of his House, and a perfect Model for the Women he was to paint. He had afterwards very fine Children, and *Albane* took as much Pleasure to paint them, as his Wife had to hold them either in her Hands, or hanging at her Neck, according to the Attitude which was wanted; which gave him the Occasion to paint so many Subjects, where *Venus*, *Cupid*, the Nymphs or the Goddesses had always much Part. He employ'd ingeniously the Lights he had received from the *Belles Lettres*, to enrich his Inventions with poetick Fictions; he is only reproached with having not varied enough his Figures, and with having given almost every where the same Airs, and the same Likeness, which proceeds from his using always the same Models, and having his Idea full of them. We see very few great Figures of his Hand; and as he has most commonly painted in Small, his Pictures have been dispersed like precious Stones throughout all *Europe*. They have been bought at a great Price, especially in these latter Times. They are become much in Fashion, and being learned and agreeable, they please every body. *Albane* died in 1660, aged 82, *Francisco Mola* and *John Baptist Mola* have been his Disciples.

Note, That as Mirth pleases almost every Body, *Albane's* Pictures which inspire that Passion, are much better received than they are supported by ingenious Thoughts. His Genius, enlivened by the Studies of the *Belles Lettres*, engaged him to enrich his Inventions with poetical Ornaments. His Vein was fertile and easy; and he has done a great Number of Compositions full of Figures. He was learned in the Design, and as he used always the same Models, he fell easily into a Repetition, particularly in that of the same Airs of the Heads, which he rendered very graceful: Therefore of all Manners there is none easier known than that of *Albane*.—His Attitudes and Draperies are of a pretty good Choice; he was universal; and his Landskips, which are more agreeable than learned, are, like his Heads, of one same Design and Touch.—His Colouring is fresh, and his Carnations are of sanguine Teints, but very little studied. He was very unequal in the Strength of his Colours, having done Subjects in open Fields, the one very strong of Colours, the other very weak. As to the Clair-obscure, and to the Union of the Colours, though he knew nothing of the Principle thereof, his good Sense or the Hazard, sometimes conducted him to it.—His Works appear extremely finished; and though his Pictures be painted with Facility, we see in them but very few free Touches.

Francis Barbieri, called the *Guerchin Dacento*, born at *Bologna* in 1597, learned the Principles of his Art from the Painters of *Bologna*, of an indifferent Capacity. He quitted them for the Academy of the *Caracci*, where he designed of a grand Manner and great Facility; but of a natural rather than ideal Taste. When he wanted to form to himself a Manner of designing, he examined those of the Painters of his Time. He thought those of *Guido* and *Albane* too weak, and without blaming them he determined himself to give his Pictures much more Strength, and approached very near the Manner of doing of the *Caravagio*, which pleased him well enough; being persuaded that it is impossible to imitate well the Relievo of Nature, without taking the Advantages which the Shadows and strong Colours give. He was notwithstanding *Guido*'s Friend. He always followed that Manner of painting strong, unless it be towards the latter End of his Life against his Sentiment, and only, said he, to get Money, and to please the Ignorant, whom the Reputation of *Guido* and of *Albane* had gained. The Truth is, that of all the Disciples of the *Caracci* none have been less agreeable. He invented easily; but he had done better if he had added to the Loftiness of his Manner, more Greatness in the Airs of the Head, and more Truth in the local Colours. His Carnations give a little into a leaden Colour, though in general they have Harmony enough, and that what is wanted in his Works is not an Obstacle to his being esteemed among Connoisseurs a great Painter.

As the *Guerchin* was very laborious, he amassed a great deal of Money, which he employ'd to serve every Body, being a very honest, and a very generous Man: He died in 1667, aged 70. He instituted two Nephews he had, his Heirs, having never been married.

Note, That tho' the *Guerchin* has studied under the *Caracci*, it does not appear that he has took their Character; and his Taste is singular: His Genius was easy, but not sublime, nor his Thoughts ingenious. We seldom see any Greatness in his Figures, and his Expressions are not much interesting.—His Taste of Design is grand, and natural, but not very elegant. He was always inclined to a strong colouring; wanting at first to follow *Guido* his Friend; but that Painter left his former Manner to take a clearer one, he followed that of the *Carravagio*, which he moderated according to his Choice.—He has given an Union to his Colours by the Uniformity of his reddish Shadows; but his Carnations are not very fresh: His Taste inclined him notwithstanding to imitate the Truth

Truth, and he has done it often with Succeſs, and ſometimes ſervilely, and without Choice. He drew his Lights from above to attract the Eyes, and give a great Force to his Works; which is ſtill more ſenſibly obſerved in his Deſigns than in his Pictures. Theſe laſt will always ſupport themſelves by the Strength of the Shadows, by the Accord of the Colours, by what is great in the Taſte of the Deſign, by the Softneſs of the Pencil, and by a certain Character of Truth.

MICHEL ANGELO MERIGI, commonly called *Michel Angelo Caravagio*, born in a Borough of the *Milaneſe*, called *Caravagio*, has render'd himſelf famous by a Manner extremely ſtrong, true, and of a great Effect, of which he was the Author. He painted every Thing after Nature, in a Room where the Light came from above. As he has exactly followed his Models, he has alſo imitated the Imperfections thereof. As Beauties have no other Idea than the Effect of the natural Preſent; he ſaid, that the Pictures which were not done after Nature, were nothing but Drugs, and that the Figures that compoſed them, were but painted Chart.—His Manner which was new, was followed by a great many Painters of his Time, and among the reſt by *Manfredo* and *Valentin*. We are obliged to confeſs, that that Manner is of a ſurpriſing Truth, and has much Power on the Eyes, even the moſt clear-ſighted; it has almoſt gain'd the School of the *Caracci*, for without mentioning the *Guerchin*, who has always followed it, the *Guido* and the *Dominican* have attempted it, but the Taſte of the Deſign inſeparable from it, and the Choice of his Light, always the ſame in all Sorts of Subjects, diſguſted them. His *Paintings* are diſperſed in the Cabinets of *Europe*; and there is one in the Church of the *Dominicans* at *Antwerp*, which *Rubens* called his Maſter. He painted at *Malta*, for the Church of St. *John*, the Decollation of St. *John Baptiſt*, and the Portrait of the Grand Maſter *de Vignacourt*; which is in the Cabinet of the King of *France*. He died at *Carravagio*, in 1609.

Note, That the Ideas of the *Carravagio*, are like his Temper, uneven, and never very ſublime. His Diſpoſitions were good, his Deſign of a bad Taſte, and he knew not enough of it to correct Nature. His whole Application was in the Colouring, and he has marvelloſly ſucceeded. His local Colours are extremely ſtudied, and by a fine Intelligence of the Light, join'd to an exact Variety of Teints melted within one another, without being corrupted or tormented by the Pencil, he found the Secret to give a ſurpriſing Truth to his Works.—His Attitudes appear without Choice; his Draperiés true, but ill thrown, and his Figures are not accompanied with becoming Dreſſes. He knew nothing of Grace, nor of Greatneſs; and if any be found in his Pictures, it is not by Choice, nor for having made the Natural obey his Idea; but becauſe that ſame Natural, to which he was a Slave, was found thus by Chance.—Which, notwithſtanding, he has done Pictures of a pretty grand Compoſition, which he has finiſhed with an extreme Exactneſs, and if ſome Parts of *Painting* are wanted in them, it may be ſaid, that the Portraits he has done are without Faults.—His Expreſſions are not very ſenſible. It ſeems, that making but little or no Attention to what could have contributed towards the Graceſulneſs of a Picture, he thought of nothing elſe but how to render his Objects palpable. He has done it by a good Clair obſcure, a good Taſte of Colour, a terrible Strength, an agreeable Sweetneſs, and the ſofteſt Pencil that ever was.

JOS. RIBERA, called the *Eſpagnolet*, born at *Valencia* in *Spain*, Diſciple of the *Carravagio*, painted like his Maſter, of a ſtrong Manner, and applied himſelf to the Natural; but his Pencil was not ſo ſoft as that of *Michel Angelo*. He delighted in *Painting* melancholick Subjects. His Works are diſperſed throughout all *Europe*. *Naples* preſerves a great Number of them, and very fine ones.

The FLEMISH SCHOOL.

HUBERT and JOHN VAN-EYK, Brothers, born at *Maſſeyk* on the *Meuſe*, have been the firſt who have done ſomething worthy of Attention in the *Low-Countries*: Therefore they are to be conſider'd as the Founders of the *Flemiſh* School. *Hubert* was the eldeſt, and *John* who was his Pupil, worked with ſo much Aſſiduity, that he became ſoon his Equal. They had both Wit and Genius; they worked in Concert, and became famous by their Works. They painted ſeveral Subjects for *Philip the Good*, Duke of *Burgundy*. The Picture they did for the Church of St. *John* at *Ghent*, gained them the Admiration of the Publick, and *Philip* I. King of *Spain*, ſeeing that he could not obtain the Original, had a Copy made of it, which he carried along with him into *Spain*. The Subject is taken from the *Revelations*, where the old Men adore the Lamb. This Piece is ſtill kept as a Prodigy in *Painting*, and is very freſh, becauſe Care is taken to preſerve it; it is cover'd, and is never ſeen but in Holy-Days, and at the Requeſt of ſome great Men.

After *Hubert*'s Death, which happened in 1426. *John* his Brother retired to *Bruges*, which gave him afterwards the Name of *John* of *Bruges*. It is he, who ſearching a Varniſh to give a greater Strength to his Works, found that Linſeed-Oil mixed with the Colours, produced an Effect grand enough, without any Varniſh. To him the Art of *Painting* is indebted for the Perfection it is arrived at ſince, by Means of that new Invention. Therefore the Works of *John* of *Bruges* having increaſed in Beauty, were ſpread in the Cabinets of the Great. *John* of *Bruges* was eſteemed not only for his *Painting*, but likewiſe for the Solidity of his Wit; ſo that the Duke of *Burgundy* gave him a Place in his Council. He died at *Bruges*, where he was buried in the Church of St. *Donatus*.

ALBERT DURER, has in common with *Raphael* of being born on *Good Friday*. It was at *Nuremberg*, in 1471. At 15 Years of Age, he was put under the Diſcipline of *Michel Wolgemut*, a good Painter, at *Nuremberg*. After he had been three Years at his Maſter; and travelled four other Years in *Flanders*, *Germany*, and *Venice*, he returned to his Country; and at his Return took a Wife, being then but 23 Years of Age. It was about that Time that he began to publiſh ſome Prints of his own. He engraved the three Graces, Death's-Heads, and other Bones; a Hell with diabolical Spectres, in the Manner of *Iſrael* of *Malines*: Over the three Women is a Globe, on which are ſeen theſe three Letters, O. G. H. which ſignify in *German*, *O Got Hüte! O God keep us from Enchantments!* Having thus put his Genius into Motion, he applied himſelf to the Study of the Deſign, and became ſo learned, that all thoſe of his Time took him for their Rule.

He took Care to put on all his Plates the Year they were engraven. In the great Paſſion of *Our Lord*, which he has engraved, he has diſpoſed the laſt Supper, according to the Opinion of *Œcolampadius*. The Melancholy is his fineſt Piece, and the Figures which enter into the Compoſition of that Subject, are a Proof of the Capacity of *Albert*.

Note, That the Works of *Albert Durer*, wanted nothing to be placed in a fine Light, but to be directed either by a good Education, or by the Sight of the Antiques. His Vein was fertile, his Compoſitions grand; and notwithſtanding the *Gothick* Taſte, which reigned in his Time, his Productions were a Source, whence not only the Painters of his own Country, but ſeveral among the *Italians*, took often ſomething.—He was firm in his Execution, where he has done what he wanted to do, and the Decency joined to the Exactneſs he employ'd in his Works, are a Proof that he poſſeſſed perfectly the Principles he had eſtabliſhed to himſelf, which did run wholly on the Deſign: But however it is ſurpriſing, that after he had took ſo much Care to know the Structure of the human Body, and after he had found a fine Proportion between all thoſe he has given to the Publick: He made ſo little Uſe of it in his Works; for except his *Madona's* and the Pictures which accompany the Triumph of the Emperor *Maximilian*, all he has done is of a Taſte of Deſign, quite poor; he applied himſelf wholly to Nature, according to the Idea he had of it; and far from heightening the Beauties thereof, he has ſeldom imitated the fine Places, which Chance furniſhed him with pretty often. He has been happier in the Choice of his Landſkips, where we find often agreeable and extraordinary *Sites*.—Therefore thoſe of his Works which

which have been in his Time, and in his Country, the most esteemed do not deserve at present being much minded.

George Pens of *Nuremberg*, studied with Application the Works of *Raphael*, and added the Art of engraving Copper-Plates, to that of *Painting*. *Mark Anthony* employ'd him in the Plates he published. At his Return into his Country, he painted and engraved several Things of his own Invention, which are so many Proofs of the Beauty of his Genius, and of his Capacity. He put his Name to his Works with these two Letters thus disposed P. G.

Peter Candito of *Munich*, was a very learned Man. He painted almost all the Palace of *Maximilian*, Duke of *Bavaria*, in whose Service he was. He did the Designs of the Hermits of *Bavaria*, engraved by *Raphael* and *John Sadeler*. We see, besides, four Doctors of the Church of his Hand, and engraved by *Gilles Sadeler*.

Cornelius Englebert of *Leyden*, lived at the same Time. There are very good Things of him at *Leyden*, and *Utrecht*. He had two Sons who have imitated his Manner, *viz. Cornelius Cornelii*, and *Lucas Cornelii*, this in he miserable State *Painting* was reduced to, became a Cook, but forced by his Genius, he returned to his former Profession, and became a learned Man. He passed into *England*, where *Henry* VIII. employed him, and honour'd him with his Affection.

Bernard Van Orlay of *Bruxelles*, was in the Service of *Margueritte*, Governess of the *Low-Countries*, for whom he did Abundance of Works, and several, likewise, for the Churches of his own Country. When he wanted to do some considerable Picture, he used to place Gold Leaves on his Impression, and painted upon it, which kept his Colours fresh, and gave them in certain Places a great deal of Lustre, particularly in a celestial Light he has painted in his Picture of the Universal Judgment, which is at *Antwerp*, in the Chapel of the Alms. He did a great Quantity of Designs of Tapestries for the Emperor *Charles* V. and had the principal Care committed to him, to see those of the Pope executed, and of the other Sovereigns of those Times, on the Designs of *Raphael*, whose Disciple he had been.

Michel Coxis of *Malines* learn'd the Principles of his Art under *Bernard Van-Orlay*. Afterwards he went to *Italy*, where he became Disciple of *Raphael*, whose Ideas he followed in *Painting*; for he could scarce produce any Thing of himself. He designed and coloured in the Taste of *Raphael*. At his Return into *Flanders*, he had the Direction of the Tapestries which were making on the Designs of *Raphael*, and died at *Antwerp* in 1592, aged 95.

Lucas of *Leyden*, had his Father for Master; but he had received from Nature so many advantageous Dispositions, that he began to engrave at nine Years of Age, and at fourteen did very considerable Plates, for the Quantity and Beauty of the Work found in them; and his *Painting* was put on a Level with his Engraving. And both were done with a marvellous Care and Neatness. He studied with Zeal his Profession; and if the Time he has spent in the Research of the Effects of what Nature produced in his own Country, had been spent in studying the Antients, one could say of him what has been said of *Albert Durer*, that his Works had been admir'd by Posterity.

There was between *Lucas* and *Albert* a Commerce of a very sincere Friendship, and an Emulation without Jealousy; so that when *Albert* published a Plate, *Lucas* produced another; and while they left the Publick to judge of them, they complimented one another. He died in 1533, aged 39.

Quintin Messis, called the *Smith of Antwerp*, after he had followed for 20 Years the Profession of a Smith, fell sick of a Malady, which did not allow him to get a Livelihood, and therefore was obliged to have Recourse to his Mother for his Subsistence: But she was so old and so poor, that she could scarce keep herself. At that Time one of his Friends having visited him, shewed him an Image that a Religious had given him; he found himself at the Sight of that Print strongly inclined to copy it, which having done with some Success, he followed the Inclination he had to become a Painter; and finding himself in that Profession, as in his Element, he recovered soon. The Love he had for a Painter's Daughter who was very handsome, and was, at the same Time, courted by a Painter more learned than him, made him study with a still greater Application, and search carefully all that could contribute towards rendering him learned, in order to supplant his Rival. There are several of his Pictures at *Antwerp*, and among the rest a Descent from the Cross, in the Church of *Our Lady*. He did most commonly but half Figures and Portraits; therefore his Works have been easily exported and dispersed into all the Cabinets of *Europe*. His Manner, which was different from that of all the other Painters, was very much finished, and strong of Colours. He died in the Year 1529.

John Calcar, or Calker, born in the Town of *Calcar*, in the Dutchy of *Cleves*, has been an excellent Man; but a premature Death has not allowed him the Time to shew himself to the World. In 1536, he put himself under the Discipline of the *Titian*, where he made so extraordinary Progesses, that a great Number of *Paintings*, and Designs of the Hand of that Disciple, are thought to be of the *Titian* himself; in which the best Connoisseurs are every Day mistaken. From *Venice* he went to *Rome*, where having familiarised himself with the Manner of *Raphael*, he passed to *Naples*, where he died in 1546. He has designed the anatomick Figures of the Book of *Vesalius*, and the Portraits of the Painters, which are at the Head of their Lives, written by *Vasari*. That alone was sufficient to shew his great Capacity. He has done, among other beautiful Things, a Nativity, accompanied with Angels, where the Light comes from the little *Christ*: That Work is marvellous; the Emperor *Ferdinand* bought it of *Sandrat*.

Albert Aldegraf, was of the City of *Souft* in *Westphalia*, where he has painted in the Church of that Place several Things, and among others a Nativity worthy of Admiration. He has painted very little elsewhere; having almost entirely applied himself to Engraving, as may be seen by the great Number of his Prints, whereby one can judge that he was very correct in the Design, graceful in his Expressions, and born to be a great Painter, if he had seen *Italy*.

John of *Mabuse*, born in a Village of *Hungary*, called *Mabuse*, was Contemporary of *Lucas* of *Leyden*; after having worked much in *Italy* and elsewhere, he came into *Flanders*, where he was the first that shewed how to compose Histories, and how to introduce the Naked into it, which had never been practised before; his Works are seen in several Places of the *Low-Countries*. He was very sober and studious in his Youth, but afterwards he abandon'd himself to Drinking.

He was a long while in the Service of the Marquis of *Verens*: And that Marquis being informed that the Emperor *Charles* V. designed to lodge at his House, would, to receive him, that all his Servants should be dressed in white Damask, and *Mabuse* among the rest. *Mabuse*, instead of having his Measure taken for a Sort of Robe in which he was to make a Figure, according to the Project formed by the Marquis, asked for the Stuff, under Pretence of imagining some Bizare Dress; but it was in fact to sell it, and to spend the Money at the Tavern as he did; for knowing, that the Emperor was not to arrive before Night, he thought he could find an Expedient to extricate himself from that Embarass. The Day of the Arrival of his Imperial Majesty approaching, *Mabuse*, instead of Stuff, pasted white Paper together, painted upon it a Damask with large Flowers, made himself his Robe, and appear'd in the Cortege. He was placed between a Poet and a Musician, who were, likewise, Domesticks of the Marquis.

The Emperor found that Cortege so gallant, tho' he had seen it but by the Light of Flambeaux, that desired to see it again the next Morning; therefore he placed himself at a Window, the Marquis near him, and when *Mabuse* passed between his two Comrades, his Imperial Majesty took particular Notice of the Stuff of the Painter, and said, that it was the finest Damask he had ever seen. The Marquis had *Mabuse* called, and the Cheat being discover'd, made the Emperor laugh heartily, but the

the Marquiss irritated that *Mabuse* had given Occasion to believe, that to do Honour to the Emperor, he dressed his Servants in Paper, had the poor Painter thrown into Prison, where he staid a long while. He died in 1562.

JOHN SCHOREL was of a Village near *Alcmar* in *Holland*, called *Schorel*. He was Disciple of *Mabuse*, and worked likewise sometimes with *Albert Durer*. In travelling through *Germany*, he met with a Religious curious of *Painting*, who was going to *Jerusalem*, and inspired him with the Desire of undertaking that Journey. He designed at *Jerusalem*, and on the Banks of the River *Jordan*, and also in the other Places which had been sanctified by *Jesus Christ*'s Presence, all that Piety and Curiosity could suggest to him. He made a good Use of those Designs in the Pictures he painted afterwards. At his Return he went to *Venice*, where he worked sometimes; thence to *Rome*, where he designed after *Raphael* and *Michel Angelo*; and after the antique Sculptures, and the Ruins of antient Edifices. Pope *Adrian* VI. who ascended then St. *Peter*'s Chair, gave him the Direction of the Buildings of *Belvedera*; but after *Adrian*'s Death, he return'd into the *Low-Countries*, and stopp'd at *Utrecht*, where he did a great deal of Work. In that Journey he passed through *France*, where the Love he had for a peaceable Life, made him refuse the Offer of *Francis* I. to take him into his Service. He died in 1562, aged 67. Two Years before his Death, *Anthony Moore* his Disciple did his Portrait.

LAMBERT LOMBARD of *Liege*, searched all he thought could render him perfect in his Profession. He studied after the Antiques, and was the first that brought into his Country a Method different from the *Gothick* Taste, which reigned in it. He formed in his House a Kind of Academy where he had for Disciples, among others, *Hubert Goltius*, *Franc. Flore*, and *William Caye*. We see some Prints after his Works, which make one judge of his Taste.

JOHN HOLBEIN, born at *Basil* in *Switzerland*, in the Year 1498. He learned from his Father (who was also a pretty good Painter) with Avidity, all that had any Report to *Painting*; but the Elevation of his Genius, raised him soon above his Master, and made him do afterwards, Works of a great Strength, and of a great Character. He did at *Basil*, in the Town-House, a Picture of seven Compartments, where are as many Subjects of the Passion of *Christ*; and in the Fish-Market, he has painted a Dance of Peasants, and the Dances of Death; those two Pieces have been engraved on Wood.

Erasmus, whose Portrait he did several Times, and was his Friend, conscious that *Switzerland* was not a Country to do Justice to the Merit of *Holbein*, proposed him to pass into *England*, promising him at the same Time, to procure his being favourably received of the King, by Means of Sir *Thomas More*. *Holbein* did in *England* a great Number of excellent Portraits, and among the rest, that of *Henry* VIII. and those of his Children, *Mary* and *Elizabeth*. He has painted Pieces of History in several Places, and there are two above the rest, which are of a great Composition, one is the Triumph of the Rich, and the other the State of Poverty. *Holbein* painted equally well in all Kinds of *Painting*, in Fresco, Guarro, in Oil, and in Miniature.

An Affair happened to him in *England*, which, without the King's Protection, had proved his Ruin. On the Rumour of *Holbein*'s Reputation, an Earl of the first Quality, went to see him; but as he was very busy at that Time, painting some Figures after the Natural, he desired the Earl to defer to another Day, the Honour he intended him. The Earl not minding his Excuse, forced the Door, and went up Stairs, at the Top whereof he found *Holbein*, who pushed him from Top to Bottom, whereby the Nobleman's Head was broke in several Places. His Servants, and the Mob, which the Sight of that Spectacle had assembled, forced into *Holbein*'s House, and had infallibly tore him into Pieces, if after he had barricaded his Door, he had not fled over the Tops of the Houses: He went immediately to inform the King of what had happened, who promised him his Protection; soon after the Earl arrived to make also his Complaints; but the King forbad him to attempt any Thing against *Holbein*, who died of the Plague in *London*, in 1554, aged 56 Years. — He had a very good Disciple in the Person of *Christopher Amboyer* of *Ausbourg*, who did a great Quantity of Works in Fresco, in *Germany*.

JOHN CORNELIUS VERMEYEN, born in a Village near *Harlem*, followed the Emperor *Charles* V. in his Enterprises, especially in that of *Tunis*, the Expedition whereof he has painted in several Subjects, which were executed in the magnificent Tapestries *Philip* II. King of *Spain* left in *Portugal*, and which are seen there still. He has worked much at *Arras*, in the Monastery of St. *Gervasius*, at *Bruxelles*, and in several other Towns of the *Low Countries*. The Emperor *Charles* V. took Pleasure to see him, for besides his being a very handsome Man, he had a Beard, which though he stood upright, trailed on the Ground; he died at *Bruxelles* in 1559, aged 59, and was buried in the Church of St. *George*.

ANTHONY MOORE, born at *Utrecht*, and Disciple of *John Schorel*, has been a great Imitator of Nature, and in a strong and true Manner. He did in the Courts of *Spain*, *Portugal*, and of the Emperor *Charles* V. a great Quantity of Portraits, which he sold very dear, besides the Presents he received, so that he grew very rich. He has also travelled in *Italy*; though his chief Employment was to paint Portraits, he notwithstanding painted by Intervals History Pieces. There is one in the Cabinet of the Prince of *Condé*, where Christ is represented rising from the Dead between St. *Peter* and St. *Paul*; which is a Piece of great Energy and Truth. *Anthony Moore* died at *Antwerp* aged 56.

PETER BRUGLE, called the *Old Brugle*, borrowed his Name from the Village where he was born near *Brura*, and was Disciple of *Peter Zouc*, whose Daughter he married. He worked afterwards with *Jerom Zouc*, in whose Manner he has done several Things. He passed into *France*, and thence into *Italy*.

Though he has treated all Sorts of Subjects, those, notwithstanding, which pleased him most, were Games, Dances, Weddings, or other Assemblies of Peasants, among whom he often mixed himself, to observe more precisely their Actions on those Occasions; therefore no Body has done better in that Kind. He studied the Landskip in the Mountains of *Friuli*. He was an excellent Painter; there are several of his Pictures in the Palace at *Vienna*; and the rest of his Works are dispersed in several other Places, particularly in the *Low Countries*.

FRANC. FLORE, studied *Painting* under *Lambert Lombard*, at *Leige*, whence he went into *Italy*, where he applied himself to design after the Works of *Michel Angelo*. At his Return into his own Country, he acquired a great Reputation, and much Riches, by the Goodness, and the great Number of his Works. He was called, in his Time, the *Raphael* of *Flanders*. He died in 1570, aged 50.

CHRISTOPHER SCHOUARTZ, born at *Ingolstadt*, was Painter to the Duke of *Bavaria*; and died in 1594.

WILLIAM KAY of *Breda*, had studied at *Liege* with *Franc. Flore*, under *Lambert Lombard*. He has done a great Quantity of Portraits little inferior to those of *Anthony Moore*.

One Day as he was *Painting* the Portrait of the Duke of *Alva*, and had pretended, that he did not understand *Spanish*, an Officer came to ask the Duke's Orders with Regard to the Count of *Egmont*; the Duke answer'd, that he should be executed without Delay. That Order made so great an Impression on the Mind of the Painter, who loved the Nobility of his Country, that at his Return to his House, he fell sick and died in 1568.

PETER and FRANCIS POURBUS, Father and Son, the first born at *Goude*, and the other at *Bruges*. Each has left in his native Place, very large Pieces for Churches, which are so many convincing Proofs of their Capacity. *Francis* was a better Painter than his Father; and we see still in the Town-House of *Paris*, very fine Portraits of his Hand. The Father died in 1585, and the Son in 1622.

DITERICK BARENT of *Amsterdam*, was the favourite Disciple of the *Titian*, with whom he lived a considerable Time, and whose Picture he did. He has done very fine Things at *Amsterdam*, where he died in 1582, aged 48.

JOHN BOL of *Malines*, was a very learned Man, and has almost always worked in small, either in Oil, in Miniature, and

and in Distemper. He died at *Amsterdam*, in 1593, aged 59. *James* and *Rowland Savary* have been his Disciples.

MARTIN HEMSKIRK, Disciple of *Schorel*, was a correct and easy Painter, and abundant in Inventions. Most of his Works are seen in Print, and *Vasari*, who makes a Detail of them, does it with Praises, and says, that *Michel Angelo* colour'd one, which he found of his Taste. It appears, notwithstanding, by those Prints, that *Hemskirk* had no Intelligence of the Clair-obscure, and that his Manner of Designing is dry. He died in 1647, aged 76.

CHARLES VERMANDER, was at first Disciple of *Lucas Heer*, a very famous Painter of that Time, and afterwards of *Peter Udulrick*, where he did several Pieces of the sacred History. At 26 Years he went to *Rome*, where having worked three Years, he passed into *Germany*, and made at *Vienna* several Arches of Triumph for the Entry of the Emperor *Rodolphus*; afterwards he return'd to *Meurebrack* his Country. At *Harlem* he did the History of the Passion, which one *Gyen* has engraved. He established in the same City with *Goltius* and the *Cornelii*, an Academy for Designing after Nature, and for exercising young Painters. The Ignorance of a Physician killed him in 1607, aged 58. He was buried at *Amsterdam* in the old Church.

He had a Son called *Charles*, who inherited his Father's Wit, Humour, and Science. The King of *Denmark* sent for him to *Copenhagen*, where he lived with the Reputation of a learned Man.

MARTIN DE VOS, was correct in his Design, and easy in his Inventions; but we find nothing very moving in his Works. They are notwithstanding in great Number; and most of them have been engraved, and are seen in Prints. It is after his Designs the *Sadelers* have engraved the Hermits. He did also the Designs of the Life of *Jesus Christ*, which *Vierx* has engraved for the Evangiles of *Natalis*. He died in 1604.

JOHN STRADAN, born at *Bruges* in 1527, of a noble Family, went into *Italy*, and stopp'd at *Florence*, where he painted in Fresco, and in Oil for the Grand Duke. He designed very well Horses, and his Genius inclined him to paint Chases. He died in 1604, aged 74. *Tempesta* was his Disciple.

BARTHOLOMEW SPRANGER, born at *Antwerp*, in 1546, learned the Principles of his Art of several Masters, and went to *Rome*, where he was Domestick of the Cardinal *Farnese*; and that Cardinal gave him to Pope *Pius* V. who employ'd him at *Belvedera*, where he painted the last Judgment. It is surprising, that *Spranger*, who has formed his Manner in *Italy*, has done it so contrary to the fine Things he saw there, and has abandoned himself to the Fire of an irregular Imagination: Which I say without pretending to diminish the Merit of his Works; for they pleased several Persons, and particularly the Pope.

Spranger, after he had done a great Quantity of Pictures in several Places of *Rome*, was chosen by *John* of *Bologna*, to be sent to the Emperor *Maximilian* II. who had asked him for a good Painter. *Spranger* did for that Emperor, and for *Rodolphus* who succeeded him, a great Quantity of Works, both at *Vienna* and at *Prague*. He died at *Prague*.

JOHN DAC, was born at *Cologne*, in 1556, after he had been sometime under the Discipline of *Spranger*, he went to study his Profession in the principal Cities of *Italy*, whence he repassed into *Germany*, where the Emperor *Rodolphus* took him in Affection, and sent him to *Rome* to design the Antiques. *John Dac*, at his Return did a great deal of Work for the Emperor, which are very worthy of Praise, and which gained him the Reputation of the best Painter of his Time. He died at the Imperial Court, loaded with Honours and Riches.

MATTHEW and PAUL BRIL, of *Antwerp*, excelled in *Painting* Landskips, and were very good Topographers. *Matthew* was already settled in the Works of the Vatican, when *Paul* his Brother came to him: They have worked a great deal in Fresco. *Matthew* died in 1584; and his younger Brother who died but in 1622, did a great Quantity of Pictures, which are at present dispersed in the Cabinets of the Curious, and much esteemed.

CORNELIUS CORNELII of *Harlem*, was born in 1562, and though he never went into *Italy*, he notwithstanding did several very good Things, and made several very good Disciples. He established with *Charles Van Mander*, an Academy of *Painting* at *Harlem*, about the Year 1595.

ADAM VAN ORT, painted large Pieces and had some Reputation in his Time. He was the first Master of *Rubens*, and died at *Antwerp*, in 1641, aged 84.

OTHO VENIUS, born at *Leyden*, in 1556, made a great Progress in the Design under the Discipline of *Frederick Zeuccre*, and after the good Things, to which he joined a good Intelligence of the Clair-obscure; so that he was consider'd in *Italy* as one of the most ingenious, and most universal Men of his Time. *Venius* studied seven Years at *Rome*, during which he painted several very fine Things; from thence he passed into *Germany*; where he was received in the Emperor's Service; and afterwards in that of the Duke of *Bavaria*, and of the Elector of *Cologne*. But all the Advantages proposed to him in those foreign Courts, could not engage him to stay there long, therefore he came to offer his Services to the Prince of *Parma*, who govern'd then the *Low-Countries*, and did his Portrait armed Cap-a-pee, of a Manner which confirmed the good Opinion which the Publick had of his Capacity. After that Prince's Death, *Venius* retired to *Antwerp*, where he did a great Quantity of excellent Pieces of *Painting*, which are seen yet in the principal Churches. Sometime afterwards the Archduke *Albert*, who had succeeded the Prince of *Parma*, sent him to *Bruxelles*, and gave him the Direction of the Mint. He did the Portraits of the Archduke, and of the Infanta *Isabella*, at full length, which were sent to *James* I. King of *Great Britain*. He was the first, who after *Polidoro Carravagio*, reduced the Clair-obscure into a Principle, which *Rubens* has render'd more perfect. He died at *Bruxelles*, in 1634, aged 78; with the Glory of having instructed in the Art of *Painting*, the famous *Rubens*.

JOHN ROTENMAR, born at *Munich*, in 1564, had been Disciple of *Tintoretto*. He painted in Fresco and in Oil, and invented easily, and in an agreeable Manner.

PETER PAUL RUBENS, born at *Cologne*, in 1577, of a noble Family, learn'd the first Principles of his Art of *Adam Van Ort*, who was then a Painter of Reputation, whom he quitted for *Otho Venius*. This was not only a good Painter, but one of a fine Genius, who knew his Art by Principles, and was learn'd in the *Belles Lettres*.

The Facility *Rubens* had to learn, and his assiduous Application to it, having render'd him in a short Time equal to his Master, he went to *Venice*, where he formed to himself in the School of the *Titian*, solid Principles for the Colouring. From *Venice* he went to *Mantua*, where having studied with Application the Works of *Jules Roman*, he proceeded to *Rome*, where he did Altar-Pieces in the Church of the *Holy Cross*, and in the new Church of the Fathers of the Oratory.

After *Rubens* had staid seven Years in *Italy*, he returned to *Antwerp*. His Reputation being spread throughout all *Europe*, all the Painters wanted to have a Piece of his Hand; and being sollicited from all Parts, he caused a great Number of Pictures to be done on his Designs by his best Disciples, which he touched over afterwards with fresh Eyes, a quick Intelligence, and a Lightness of Hand which spread his Genius in them, whereby he acquired a handsome Fortune in a very short Time. But the Difference between those Pictures, and them he had painted himself, wronged his Reputation, for most of them were ill designed, and slightly painted.

Queen *Mary* of *Medicis*, wanting that *Rubens* should paint the two Galleries of her Palace of the *Luxembourg*, he came to *Paris* to see the Places, and make the Designs. One of those Galleries was designed for the History of the Life of that Queen, and the other for that of *Henry* IV. her Husband. *Rubens* begun by the History of the Queen, and finished it: But the Death of the King happening soon after, did not allow him to finish that of that Prince, which he had begun. The Queen who loved *Painting*, would that *Rubens* should do two Pictures of her History in her Presence, to have the Pleasure to see him paint.

While

While *Rubens* was at *Paris*, the Duke of *Buckingham* had Occasion to be acquainted with him. He tasted his Genius, and having found in him a great deal of Penetration and Solidity; he spoke of him to the Infanta *Isabella*, who had him named Embassador by her Nephew *Philip* IV. King of *Spain*, to go into *England*, to treat of the Peace which was concluded afterwards between *Philip* IV. King of *Spain*, and *Charles* I. King of *Great Britain*. *Charles*, in Gratitude for that happy Success, presented him with a Hat-band, and a Sword both set with Diamonds, of the Value of 1500 *l.* Sterling; and at his Return into *Spain*, he received likewise very considerable Presents of *Philip* IV. He did there the Portraits of the Royal Family, and copied others for himself after *Titian*.

While he staid in *Spain*, Don *Juan* of *Braganca* (who was afterwards King of *Portugal*) and loved *Painting*, wrote to some Lords his Friends, who were at the Court of *Madrid*, to desire them to engage *Rubens* to come to see him at *Villa-Vizosa*, which was then the Place of his Residence. *Rubens* undertook the Journey with Pleasure; but as the Duke's Friends had informed him that *Rubens* was set out with a magnificent Retinue, that frightned him so much, that he sent a Gentleman to meet him, and tell him, that the Duke his Master having been obliged to depart for an Affair of Consequence, he desired him to proceed no further, and to accept a Present of fifty Pistoles, to defray the Expences he had been at on the Road. *Rubens* refused the fifty Pistoles, and answered, that he did not want that small Succour, since he had brought two thousand Pistoles to spend at the Court of that Duke, in fifteen Days he designed to have staid there.

Rubens, at his Return into *Flanders*, exercis'd the Employment of Secretary of State, the King of *Spain* had honoured him with, without leaving off *Painting*, the vast Extent of his Genius sufficing to both. At last full of Honours and Riches, he died of a Revolution of the Gout in 1640, aged 63.

This famous Painter knew six Languages, and made use of the *Latin* to write to the Learned, and to make his Observations on *Painting*.

Never a Painter did so great a Number, nor so great Works as *Rubens*; the Palaces of the Great, and the Churches of *Flanders* are Witnesses of it. It is difficult to say where his finest Pictures are; all *Europe* preserve Pledges of his Capacity; it seems notwithstanding that the Cities of *Antwerp* and of *Paris* are Depositaries of his most precious Pieces: The good Connoisseurs and learned Painters who shall examine them carefully will be easily persuaded, that *Rubens* has carried not only *Painting* to the highest Degree, but that he has opened a Road which leads easily to the Perfection of that Art.

He has had a great Number of very good Disciples, viz. *David Teniers*, *Vandiek*, *Jordans*, *Juste*, *Soutmant*, *Diepembeck*, *Van-Tulden*, *Van-Mol*, *Van Hack*, *Erasmus Quintinus*, and several others. But among all those who have been under his Discipline, he who did him most Honour, and distinguished himself most was *Vandiek*.

Rubens had proposed to himself at first to follow the Manner, in *Painting*, of *Michel Angelo Carravagio*, but finding it too full of Work, he formed to himself a more expeditious one, and more agreeable to his Genius.

An excellent Painter of *Antwerp*, but lazy, and debauched, called *Janson*, complaining of his Fortune, and jealous of that of *Rubens*, challenged him, and proposed to him to do each a Picture in Concurrence, of which certain Connoisseurs should be Judges. *Rubens*, without accepting the Challenge, answered him that he yielded to him freely, that he was but to continue to do well, and that, for his Part, he would do the best he could, and the Publick would do them Justice.

Note, That *Rubens*'s Works are more than sufficient Proofs that that Painter had a superior Genius; and as he had cultivated it by a profound Erudition in all kind of Literature, by a very exact Research of all the Things which had any Report to his Profession, and by an assiduous Labour, his Inventions are ingenious, and accompanied with all the Circumstances which can fill a Subject in a handsome Manner: He has painted Subjects of all Sorts, and several Times the same, but very differently. No Painter has treated so learnedly and so clearly allegorical Subjects as *Rubens* has done; and as the Allegory is a Kind of Language, and consequently must be authorized by Use, and understood of several, he has introduced into it only the Symbols which the Models and other Monuments of Antiquity have rendered familiar, at least among the Learned.

If that Painter knew how to invent ingeniously the Subjects he introduced into his Compositions, he had besides the Art of disposing them so advantageously, that not only each Object in particular pleased the Eye, but contributed besides to the Effect of the *tout ensemble*.—Though *Rubens* had spent seven Years in *Italy*, where he made a Collection of Medals, Statues, and engraved Stones; that he has examined, known, and praised the Beauty of the Antique, his first Education, and the Nature of his Country which he followed have made him fall, in spite of himself, into a Flemish Character, and have made him sometimes make a bad Choice, which is not very agreeable to the Regularity of the Design. If we blame, as it is just, that Weakness wherever it is found, as well as certain Articulations over-done, it is just besides that the Clear-sighted should know, that, far from having been ignorant of that Part of the Design, he has shewn in the general of his Works, that he had penetrated very far into it. There is seen in the City of *Ghent* a Picture of his Hand, representing the Fall of the Reprobates, where there are very near two hundred Figures designed of a good Taste, and of a great Correctness; which shews, that the Faults *Rubens* has committed against the Design proceed only from the Rapidity of his Productions.—We have at *Paris* a great Number of Pictures done by *Rubens*, and particularly in the Galleries of the Palace of *Luxembourg*, where we find, at least in the Divinities and principal Figures, enough to satisfy us in that Matter.—He has expressed his Subjects with much Energy and Neatness. His particular Expressions are just to the Subject, they all interess the Spectator, and several of them reach even the Sublime.—His Attitudes are simple and natural, without Coldness; contrasted, and animated without Exaggeration, and diversified with Prudence.—The Dresses of his Figures are of a good Taste, and his Draperies thrown with Art, they are diversified, and agreeable to the Sex, Age, and Dignity of the Persons; the Folds are large, well placed, and mark the Naked without Affectation.—His Landskips are made with the same Intelligence as his Figures; and when he wanted to represent Sites, naturally sterile and insipid, as are those of *Flanders*, he has rendered them entertaining by the Artifice of the Clair-obscure, and by the Accidents he has introduced in them: The Form of his Trees is very elegant, it follows that of his Country, and the Touches thereof are not so precious as those of *Titian*.—Its Architecture is heavy and partakes of the *Gothic* Taste; he has often took Licences, but they are judicious, advantageous, and imperceptible.—All that depends on the Colouring is marvellous in *Rubens*; he has carried the Science of the Clair-obscure further than any Painter, and has rendered the Necessity thereof sensible.—He has reduced into Precept, by his Example, the Means of pleasing the Eyes. He gathered ingeniously together his Objects in the Manner of a Bunch of Grapes, the Grains thereof when lighted make up together but one Mass of Light, and whereof those which are in the Shadow make but one Mass of Obscurity, because all those Grains making up but one single Object, are embraced by the Eyes without Distraction, and can be at the same Time distinguished without Confusion. It is that Assemblage of Objects and Light, which is called Groups; and how great soever was the Number of the Figures which entered into the Composition of his Picture, there were never more than three Groups seen in it: Lest the Sight should be dissipated by a Multiplicity of separate and sensible Objects. But he had always in that Artifice the Industry of hiding it, and none but those who are instructed in his Principles, can perceive it.—His Carnations are very fresh, each in its Character. His

Teints

Teints juſt, and employ'd with a free Hand, without agitating them too much by the Mixture, leſt that happening to be corrupted, they ſhould loſe too much of their Brightneſs, and of the Truth they ſhew in the firſt Day of the Work. *Rubens* obſerved much more that Maxim, that moſt of his Works being large, and conſequently ſeen at a pretty remote Diſtance, he wanted to preſerve in it the Character of the Objects, and the Freſhneſs of the Carnations.—It is then in that View that not only he has managed the Virginity of his Teints, but has employ'd the moſt lively Colours to draw from it the Effects of his Intention, in which he has ſucceeded; and is the only one that knew how to join to that Brightneſs a great Character of Truth, and preſerve, among ſo much Brightneſs, an Harmony, and a ſurprizing Strength; ſo that ſupreme Degree to which *Rubens* has raiſed his Colours, may be conſider'd as one of the moſt eſtimable Talents of that Painter.—He was univerſal, and did equally well the Hiſtory, Portraits, Landſkips, and Animals, and all that could enter into the Compoſition of a Picture.—His Labour is light, his Pencil ſoft, and his Pictures finiſhed without being loaded with Work. As he had ſeveral Diſciples who executed his Deſigns, ſeveral Things have often been attributed to him which he has never done; but what *Rubens* has painted himſelf has a Character which leaves very little to be deſired. The happy Facility in the Execution, and the marvellous Effect obſerved in it, does not proceed ſo much from his conſummate Experience, as from the Certainty of his Principles.

ADAM ELSEIMER, born at *Francfort*, in 1574, was Diſciple of *Philip Uffenback*; where having ſtrengthned himſelf in his Profeſſion by Practice, and the Leſſons of his Maſter, he went to *Rome*, where he paſſed the reſt of his Life. He was very ſtudious, and though he has painted in very ſmall, in Oil, he has extremely finiſhed every Thing, with a good Intelligence of Colouring and an ingenious Compoſition. The Count *Gaude* of *Utrech* has engraved after him ſeven Pieces of a great Politeneſs and Strength; we ſee beſides, ſeveral Prints engraven after his Works, in Part by himſelf, and in Part by *Magdelaine du Pas*, and others. He had a Diſciple called *James Erneſtus Thoman* of *Landau*, who has done Pictures ſo much like his, that Connoiſſeurs are often miſtaken in them.

ABRAHAM BLOMART, born at *Gorcum* in 1567, formed to himſelf a Manner on Nature, and on the Motion of his Genius: He was eaſy, abundant, graceful, and univerſal; he underſtood very well the Clair-obſcure, and did his Draperies with large Pleats, which had a good Effect, but his Taſte of the Deſign retained ſtill ſomething of his own Country. We ſee a great Quantity of Prints done after him by very good Engravers. He died in 1647, aged 80. He had three Sons, of whom *Cornelius Blomart*, that excellent Engraver, was the youngeſt.

HENRY STENVIK, was Diſciple of *John Uries*: He was inclined to paint, in ſmall, Perſpectives of the Inſide of Churches, and has done in that Kind all that can be done. He died at *Francfort* in 1603; he left a Son, who followed the ſame Kind of *Painting*, and worked a great deal in *England* for King *Charles* I. where he lived honourably.

ABRAHAM JANSON, of *Antwerp*, was born with a marvellous Genius for *Painting*, and did in his Youth Things which put him much above all the young Painters of his Time; but Love taking Poſſeſſion of his Heart, made him ſacrifice his Profeſſion, to the ridiculous Attention he had to pleaſe a young Girl of *Antwerp*, whom he married at laſt, thinking of nothing afterwards but of ſpending his Fortune in Diverſions and good Cheer. Some of *Janſon*'s Works are ſeen in ſeveral of the Churches of *Antwerp*. There is among the reſt a Deſcent from the Croſs, done for the great Church of *Boſleduc*, which has been taken for one of *Rubens*'s Performances, and which in fact is not inferior to the Works of that great Painter.

GERARD SEGRE of *Antwerp*, went to *Rome*, where having ſtudied for ſome Time the Principles of his Art, he followed entirely the Manner of *Manfredi*; and afterwards enriched, as it were, on the Strength and Union of the Colours of that Painter, as may be ſeen in the Works he has done at *Antwerp*; but the Manner of *Rubens* and of *Vandyk* having gained an univerſal Approbation, *Segre* was obliged to change his to ſell his Works, in which he ſucceeded very well, having a good and flexible Genius, and being beſides very well founded in the Rules of his Art. He died at *Antwerp* in 1651.

MICHEL JANSON MIREVELT, born at *Delft* in 1568, was Diſciple of *Antony* of *Montfort* of *Bocland*, and learned *Painting* with much Facility. Though he did ſeveral Hiſtory Pieces with great Succeſs, the Occaſion engaged him by Degrees to determine himſelf to Portraits, which he did very well, and with Facility. The great Reputation he acquired in it procured him abundance of Work in that Kind, and at the ſame Time a handſome Fortune; for he had fixed the Price of each Portrait to 150 Florins. *William James Delft* has engraved a great Number of them, and of a great Beauty.

CORNELIUS SCHUT, of *Antwerp*, had brought along with him into the World a quick Imagination, and a great Talent for *Painting*, as we ſee by his Works, which he ſeaſoned by poetical Ideas.

GERARD HONTORST, of *Utrecht*, born in 1592, was conſidered as one of the firſt Painters of his Time. He was Diſciple of *Blomart*; and went afterwards to *Rome*, where, after his Studies of the Deſign, he exerciſed himſelf in painting Night-Pieces, with ſo much Application and Succeſs, that no Body did ever repreſent them better. Being returned to *Utrecht* he did ſeveral Hiſtory-Pieces.

Charles I. King of *England*, ſent for *Hontorſt*, and that Painter did ſeveral great Works for his *Britannick* Majeſty. At his Return into *Holland* he painted in the Country Palaces of the Prince of *Orange* a great Quantity of very large poetical Subjects, both in Freſco and in Oil, eſpecially in the Palace, called the Houſe in the Wood, half a League diſtant from the *Hague*.

ANTONY VANDYK, born at *Antwerp* in 1599, had the moſt happy Pencil that had ever been ſeen yet, that of *Corregio* excepted, which alone can diſpute it with him. *Vandyk* was Diſciple of *Rubens*, whom he helped in his moſt conſiderable Works; he went to *Italy*, and was but a very ſhort Time at *Rome*, but ſtaid longer at *Venice*, where he quinteſſancied, as it were, *Titian*, and his School, to ſtrengthen his Manner. He gave Proofs thereof at *Genoa*, where he did ſeveral beautiful Portraits. At his Return into *Flanders* he did ſeveral Hiſtory Pieces; which rendered his Name famous every where. But as he foreſaw that he ſhould be much employ'd in the Courts of Princes to do Portraits, and that Kind of *Painting* was more proper to procure him a handſome Fortune; he would likewiſe make himſelf known by that Talent Nature had favoured him with. In that View he did the Portraits of the moſt famous Painters of his Time, and worked them with a great deal of Application and Care. The Cardinal *Richelieu* engaged him to come to *France*, but not being ſatisfied with the Reception he met there, he paſſed into *England* where *Charles* I. wanted him, and where he was much careſſed. The continual Occaſions he had to paint the Royal Family, and the Lords of the Court, left him no Time to apply himſelf much to Hiſtory Pieces. He did a great Quantity of Portraits, which he painted with a great deal of Attention at firſt, but afterwards with ſo much Precipitation, that he did them very ſlight of Works. Some of his Friends taſking him with it, he anſwered, that having worked a long while for his Reputation, it was Time he ſhould work for his Kitchin. Thus he amaſſed a large Fortune, and having married a Lady of the firſt Rank, he lived in a very magnificent Manner. He died at *London* in 1641, aged 42, *Honneman* and *Remy* were his beſt Diſciples.

Note, That there has been no Painter who has more minded the Leſſons of his Maſter, than *Vandyk* did thoſe of *Rubens*, but though that illuſtrious Diſciple was born with a beautiful Genius, had a ſolid Judgment, had a quick Imagination and eaſy Conception, and has practiſed very ſoon the Principles of *Rubens*, he had not, notwithſtanding, a Genius of ſo vaſt an Extent,

Extent as was that of *Rubens*; for though his Compositions are well filled, and conducted by the same Maxims, his Inventions are not so learned nor so ingenious. Though he was very little correct, and little founded in the Part of the Design, he has done, notwithstanding, in that Kind, Things worthy of Admiration, when he would observe Nature with the Delicacy of his Choice.—He has done Portraits of a sublime Kind, and disposed them in a Manner which gives them a surprising Livelinesſ, and an infinite Gracefulneſs. He has always dressed them according to the Mode of the Times; and has taken of that Mode all he thought could be advantageous to its *Painting*. Shewing thereby, that when a Painter joins a fine Genius to his Art, he conquers all Difficulties, and finds Means to spread Beauties on the most ungrateful Things.

Vandyke has designed the Heads and Hands in the last Perfection; and has given to these a Delicacy and beautiful Proportion of which he had contracted an Habit. He knew how to chuse Attitudes agreeable to the Persons he painted, and the most advantageous Motions of Faces. He observed *all the Beauties* thereof, preserved them in his Memory, and thus imitated, not only what he saw in his Model, but likewise what he thought possible, and capable to maintain a good Character thereof, without altering the Likeness or Resemblance; so that among the Truth of the Portraits of *Vandyke*, is seen an Art, which the Painters who preceded him, have seldom put in Use. It is so difficult to keep in that a very just Measure, that one must have the Eyes of *Vandyke* to see all that can be seen on that Matter, and not to exceed the Limits prescribed by Nature. I do not know, if even *Vandyke* himself, has not abated of that Artifice towards the latter End of his Life; but I know very well, that his last Portraits are far from being of the Goodness of those he painted at first.

That Painter had his Genius formed very soon; for his best Productions have been done in his Youth, and at the Time he wanted to establish his Reputation. This he did by the Portraits of the most learned Painters of his Friends, and by those he painted at *Genoa*, and in the first Years of his Residence in *England*. We see a great Number of his last Portraits, which are light of Works, weak of Colour, and which give into a leaden Colour. His Pencil, notwithstanding, is happy every where, light, soft, and contributes much to the Life, which *Vandyke* gave to all his *Paintings*; and if the Works of that Painter are not all in the last Degree of Perfection, they all bear, notwithstanding, a great Character of Wit, Greatness, Gracefulness, and Truth; so that we may very well say, that the *Titian* excepted, *Vandyke* has surpassed all those who have done Portraits; and that his History-Pieces can be ranked among those of the Painters of the first Class.

ADRIAN BAUR of *Oudenarde*, born in 1608, painted in small, and took Pleasure to represent what passed between the Peasants of his Nation. His Subjects were most commonly low; but there was in his Works so lively an Expression, and great Intelligence of Colours, that his Pictures were paid at the Weight of Gold. But as he loved Debauchery, and had no Care of his Person, nor of his Family, he was extremely poor, whereof he was the first to make a Jest; being very gay and merry; but his Debauchery did not permit him to shew long his good Humour; for he died at 30 Years of Age; and as he had not left behind him to defray the Expences of his Burial, he was buried at first in a common Church-Yard. But the Reputation of his Works increasing daily, the Curious and the Magistrates of *Antwerp*, would preserve his Memory by an honourable Sepulture. His Body was dug up and buried anew with a great Concourse of People in the Church of the *Carmelites*. The magnificent Monument erected to him, is to this Day a Mark of the Veneration which the Citizens of *Antwerp* had always for Merit.

CORNELIUS POLEMBOURG, of *Utrecht*, born in 1586, was Disciple of *Blort*. He went to *Rome*, and designed sometimes after *Raphael*, he applied himself afterwards to the Landskip, proposing *Adam Elsheimer* for his Model. Lastly, after he had studied Nature, he formed to himself a particular Manner, which is true and agreeable, following in that his Genius, which inclined him to work always in small. He returned into his Country, where he worked with Application to make himself known by his Productions. The King of *England* having seen some of them, sent for him, and gave him a Pension. He returned to *Utrecht*, whence his Pictures, easily exported by Reason of their Smallness, spread soon his Fame in the *Low-Countries*; and at present his Works are known and esteemed throughout all *Europe*. He died in 1660, aged 74.

ROLAND SAVARY, a *Fleming*, applied himself, at first, to imitate after Nature, Animals of all Kinds; and became so learned therein, that the Emperor *Rodolphus* made him work sometimes, and sent him afterwards into *Friuli*, to study Landskips after the Truth, which he did with Care. His Designs are commonly done with the Pen, accompanied with Wash of different Colours, and approaching the Nature he designed. He made a Book of all his Studies, which he consulted as Occasion served; and that Book was left in the Hands of the Emperor. *Giles Sadeler*, and his Disciple, have engraved several of his Landskips. The most beautiful of all is that where St. *Jerom* is represented, engraved by *Isaac*. He died at *Utrecht* very old.

JOHN TORRENTIUS, of *Amsterdam*, painted commonly in small, and though he never went out of his Country, he did Things of a great Strength and Truth. He loved to paint obscene Nudities, and his Friends reprimanded him for it several Times; but instead of following their Advice, he had the Misfortune, to excuse his vicious Inclination, to fall into an horrible Heresy, which he published himself. He was called to Account for it by the Legislature, but refusing obstinately to answer the Depositions exhibited against him, he died in the Torments of the Torture, and his obscene Pictures were publickly burnt by the common Executioner, in 1640.

WILLIAM BAUR, of *Strasbourg*, was a Painter of a great Genius, but the Rapidity of his Imagination hindered him from rectifying the Taste of his Country by the Study of the Antiques, and of the fine natural; for while he stay'd at *Rome*, he only studied the Landskips and Architecture, which he has done of a grand Taste; as for the Naked he has very ill designed it. He painted only in small, at the Gum, on Vellum, and pretty slightly. His general Expressions, and his Compositions, are sometimes of a sublime Taste. He engraved with Aqua-fortis the Metamorphoses of *Ovid*, which are of his Invention, and make up a whole Volume: *Melchior Mussel* engraved after his Designs several Subjects of the sacred History, which make up another. One may judge by those two Books of the Extent of the Genius of *William Baur*. He died at *Vienna*, in 1640.

HENRY GAUD, *Count Palatine*, born at *Utrecht*, of an illustrious Family, took of himself to Designing with so much Affection, that no young Painter of his Time designed better than he did. He went to *Rome*, while *Adam Elsheimer* was there, with whom he contracted a strick Friendship. *Henry*, at his Return to *Utrecht*, engraved after the *Paintings* of *Adam*, the seven Pieces, which are admired by the Curious for their singular Beauty.

DAVID TENIERS, *the Elder*, of *Antwerp*, was Disciple of *Rubens* in his Country, and of *Adam Elsheimer* at *Rome*; so that at his Return into his own Country, and wanting to make a Mixture of *Rubens* and *Adam*, he applied himself to paint Pictures of very small Figures; which gained him a great Reputation. He died in 1649.

JAMES FOUQUIER, a *Fleming*, of a good Family, was one of the most famous and most learned Landskip-Painters that ever was. There is no other Difference between his Pictures, and those of the *Titian*, but in the Diversity of the Countries they represent; since they have both the same Principles, and their Colours are equally good, and well disposed. He painted sometimes for *Rubens*, where he learned the most essential Principles of his Art, then in *Germany*, for the Elector *Palatine*, and lastly in *France*, where he died.

PETER DE LAER, called *Bamboche* of *Harlem*, had a marvel-

marvellous Genius for *Painting*, though he has never cultivated it, but in *Painting* in ſmall. He was univerſal, and very ſtudious in all Things relating to his Profeſſion, He ſtay'd a long while at *Rome*, where he gained the Love and Eſteem of the beſt Painters. His Manner is very ſweet and true. The Name of *Bambozo*, was given him by the *Italians* becauſe of his extraordinary Figure; having very long Legs, ſhort Body, and his Head ſunk in his Shoulders. He was drowned in a Ditch at *Harlem*, aged 60.

JOHN BOTH, and his Brother HENRY of *Utrecht*, Diſciples of *Blomoort*, both very ſtudious and very great Lovers of their Profeſſion. Being at *Rome*, *Henry* applied himſelf to paint Landſkips, after the Manner of *Claudius* the *Lorrain*, and the other painted Figures and Animals, and followed the Manner of *Bamboche*. They agreed to work in the ſame Picture, one *Painting* the Landſkips thereof, and the other the Figures, and Animals, ſo that, notwithſtanding, one would have thought that the whole Work had been painted by the ſame Hand.

DANIEL SEGREY, a Jeſuit, of *Antwerp*, applied himſelf to paint Flowers, and acquired a great Reputation in that Kind of *Painting*. The Diſpoſition he gave them was commonly to ſerve for Border to ſome ſmall Picture.

BALTHAZZAR GERBIER, of *Antwerp*, born in 1592, painted at the Gum in ſmall, and his Works pleaſed ſo much *Charles* I. King of *England*, that he invited him to his Court. The Duke of *Buckingham* having found a great Penetration in *Gerbier*, recommended him to the King, as a Perſon fit for Buſineſs, and accordingly the King made him a Knight, and ſent him to *Bruxelles*, where he was a long Time Agent of the Affairs of his *Britannick* Majeſty.

HERMAN SUANCFELD, called at *Rome* the *Hermit*, becauſe he was always found alone, in the Ruins of the Neighbourhood of *Rome*, at *Tivoli*, *Freſcati*, and other Places; has render'd himſelf very learned in painting Landſkips, without neglecting the Study of Figures, which he deſigned of a good Taſte.

OLIVER of *London* painted at the Gum all Sorts of Subjects, but he applied himſelf in a particular Manner to Portraits, and did a great Number of them, at the Courts of *James* I. and his Son *Charles* I. and no Body has done better in that Kind of *Painting*. He had a Diſciple called *Couper*, who enter'd into the Service of *Chriſtine* Queen of *Sweden*.

SIR PETER LELY, of *Weſtphalia*, but who worked no where elſe but in *England*, was an excellent Painter of Portraits, in the Manner of *Vandyke*; as well as the late Sir *Godfrey Kneller*.

CORNELIUS VAN HEEM, of *Antwerp*, has painted in a high Degree of Perfection, Fruits, Flowers, and other unanimated Things.

ABRAHAM DYPEMBECK, of *Boſleduck*, was one of the beſt Diſciples of *Rubens*. And invented eaſily and ingeniouſly.

DAVID TENIERS, *the Younger*, painted moſt commonly in ſmall. He deſigned well, and his Manner is firm, and his Pencil light. He was a *Protheus* for Copies, and has transformed himſelf into as many Pictures as he wanted to counterfeit; ſo that we are ſtill every Day deceived by them. It was by his Care, that the Gallery of the Archduke *Leopold* was engraved, having then the Direction of the Originals.

RAMBRANT VAN REIN, was the Son of a Miller of the Village of *Rein*, ſituated on an Arm of the *Rhine*, which paſſes at *Leyden*; and Diſciple of *Ledan*, a pretty good Painter of *Amſterdam*. But we muſt not ſearch in his Works, either the Correctneſs of the Deſign, or the Taſte of the Antiques. He ſaid himſelf, that he had no other End but the Imitation of a living Nature; making that Nature to conſiſt only in the created Things, ſuch as they are ſeen. He had old Armours, old Inſtruments, old Head-Dreſſes, and a great Quantity of old worked Stuffs, which he called his Antiques. Which notwithſtanding he was curious of beautiful Deſigns of *Italy*, of which he had a great Number, as well as of fine Prints, though he made no Uſe of them. But however, he has done a great Quantity of Portraits, of a ſurpriſing Strength, Sweetneſs, and Truth.

His Engraving with Aqua-fortis, partakes much of his Manner of *Painting*, for it is expreſſive and ingenious, particularly his Portraits, the Touches whereof expreſs both the Fleſh and Life. The Prints of his Hand are about 108 in Number. It appears that white Paper was not always of his Taſte, for the Expreſſions; for he had ſeveral of his Proofs drawn on a half Teint's Paper, eſpecially on *China* Paper, which is of a reddiſh Teint. He touched over ſeveral of his Prints forty or fifty Times; to change the Clair-obſcure thereof, and make them produce a good Effect. When he was reproached with the Singularity of the Manner of employing his Colours, which render'd his Works very rough, he anſwer'd that he was a Painter, not a Dyer. He died at *Amſterdam* in 1668.

Note, That *Rambrant* was born with a fine Genius, and a ſolid Judgment, his Vein was fertile, his Thoughts fine and ſingular, his Compoſitions expreſſive, and the Motions of his Mind very quick; but becauſe he had ſucked with his Milk the Taſte of his Country, that he had been been educated in the continual Sight of a heavy Natural, and had known too late a more perfect Truth, than that he had always practiſed; his Productions followed his Habit, notwithſtanding the good Seeds ſowed in his Mind; therefore we muſt not expect to find in *Rombrant*, either the Taſte of *Raphael*, or that of the Antique, or poetick Thoughts, or the Elegance of the Deſign. We'll find only all that the Natural of his Country, conceived by a quick Imagination, is capable to produce. He has, ſometimes rais'd the Lowneſs thereof by a good Motion of his Genius; but as he had no Practice of a good Proportion, he fell eaſily again into the bad Taſte to which he was uſed. Wherefore *Rambrant* has not painted many hiſtorical Subjects, though he has deſigned an Infinity of Thoughts, which have no leſs of attick Salt, than the Productions of the beſt Painters; whereof the great Number of his Deſigns is a convincing Proof; and though his Prints are not invented with the ſame Genius of the Deſigns I mention, we ſee notwithſtanding in them a Clair-obſcure, and Expreſſions of a very great Beauty.

It is true, that the Talent of *Rambrant* was not to make a good Choice of the Natural, but he had a marvellous Artifice for the Imitation of Objects preſent, as we may judge by the different Portraits he has done, ſome of which are preferable to thoſe painted by the greateſt Maſters.—If his Contours are not very correct, the Strokes of his Deſign are full of Wit, and we ſee in the Portraits he has engraved, that each Stroke or Point, as in his *Painting*, each Touch of his Pencil, gives to the Parts of the Face, a Character of Life and Truth, which excite the Admiration of the Beholder.—He had a ſupreme Intelligence of the Clair-obſcure, and his local Colours lend one another mutual Succours, and make themſelves to be valued by the Compariſon. His Carnations are no leſs true, no leſs freſh, no leſs reſearched in the Subjects he has repreſented than thoſe of the *Titian*. Thoſe two Painters were convinced, that there were Colours which deſtroyed one another by the Exceſs of the Mixture, and which therefore were to be but very little agitated by the Motion of the Pencil. They prepared by Colours, which agreed well together, a firſt Couch, which could approach the Natural as near as poſſible; they gave on that freſh Paſte, by light Strokes, and Virgin Teints, the Strength and Freſhneſs of Nature, and thus finiſhed the Work they obſerved in their Model. The Difference between thoſe two Painters on that Subject, is, that the *Titian* render'd his Reſearches more imperceptible, and melted them more, and they are eaſily diſtinguiſhed in *Rambrant*, if they be ſeen near; but at a reaſonable Diſtance they appear very well joined together, and very even, by the Juſtneſs of the Touches, and the Accord of the Colours. That Practice is ſingular to *Rambrant*, and is a convincing Proof, that the Capacity of that Painter is ſhelter'd againſt all Sorts of Accidents, that he was abſolute Maſter of his Colours, and of diſpoſing of them.

GIRARD DAU, of *Leyden*, was Diſciple of *Rambrant*, and

and though his Manner of operating be very different from that of his Master, he was, notwithstanding, indebted to him for the Intelligence, and principal Rules of his Art with Regard to Colouring. He painted in small, in Oil, and his Figures, which commonly do not exceed a Foot in Height, are as much terminated as if they were as great as the Natural. He did nothing but after Truth, which he consider'd as a convex Mirrour. He has done a few Portraits of Lords and Ladies, because those Sorts of Persons have not commonly the Patience of sitting so long as that Painter required it. The Wife of a Resident of *Denmark*, who wanted her Portrait done by *Girard Dau*, set five Days successively for a Hand only. But we must confess, that his Works are terminated as Nature itself, without losing any Thing of the Freshness, Union, and Strength of the Colours, no more than of the Intelligence of the Clair-obscure.

His Pictures seldom exceeded a Foot, and their Price was sometimes 600, sometimes 800, and sometimes 1000 Livres. For to regulate his Price, he reckoned each Hour at 20 *d*. His Cabinet had a Sky-light, to have advantageous Shadows, and on a Canal, to avoid Dust. He had his Colours ground on a Piece of Crystal. His Palet and Pencils were carefully kept in a Box; and before he began to work, he remained sometimes tranquile, while the Dust settled.

There are many Reflections to be made on that Manner of *Painting*; but I do not know, if it is as imitable, as it is marvellous; for the Fire required in *Painting*, does not agree very well with so much Circumspection. It seems, that the fine Intelligence of that Art, consists in doing, with little Work, that the Pictures should appear finished in their Distance: But *Girard Dau*, on the contrary, was persuaded, that a great Work being compatible with a fine Intelligence, one was obliged to do, all he discover'd on the Model, in a reasonable Distance.

What can be said to that is, that the Pictures of *Girard Dau*, being composed of few Figures, fatiguelefs the Imagination, and that he was born with a particular Talent for his Works.

Francis Miris, of *Leyden*, Disciple of *Girard Dau*, has followed entirely the Manner of his Master, except that he had a better Taste of Design, a more pretty Way in his Compositions, and more Sweetness still in his Colours. Like him, he made Use of a convex Mirrour. As he died young, he has done but few Pictures. Among the rest, there is one of the Bigness of 15 Inches, where he represents a Mercer's Shop, the Merchant, and the Buyer; several Pieces of Stuffs appear open in it near one another, and the Diversity thereof is sensibly distinguished. The Figures and all that enter the Composition of that Picture, are marvellous. He sold that Piece for 2000 Livres. *Miris* lived without Care, without Rule, and without Œconomy. He died in the Flower of his Age, in 1613.

Hanneman of the *Hague*, was Disciple of *Vandyke*, and has always followed the Manner of his Master with Success. He has done a great Quantity of Portraits, which are dispersed throughout *Holland*, and those he has copied after *Vandyke*, pass often for Originals.

James Jordans of *Antwerp*, born in 1594, learn'd the Principles of his Art of *Adam Van Ort*, which did not hinder him from frequenting the other Painters of *Antwerp*, whose Works he examined; and studying, besides, Nature itself, he became thereby Author of his own Manner, and one of the best Painters of the *Low-Countries*.

It is said, that *Rubens*, of whom he had learn'd his best Principles, and who employ'd him, for fear he should surpass him in the Intelligence of the Colouring, made him work in Distemper large Patterns for Tapestries for the King of *Spain*, after his own Sketches; weakening thus by a contrary Habit that strong Manner wherewith *Jordans* represented so sensibly the Truth. He has done a great Quantity of Works for the City of *Antwerp*, and for all *Flanders*; and very considerable ones for the Kings of *Sweden* and *Denmark*. He was indefatigable, and repaired his Spirits by the Conversation of his Friends, whom he visited in the Evening, and by a gay Humour, Nature had endowed him with. He died in 1678, aged 84.

Erasmus Quillinus, of *Antwerp*, in 1607, became under the Discipline of *Rubens*, a very good Painter. He has painted in his Country, and in several neighbouring Places, several great Works for Churches and Palaces; and left after him a very great Esteem of his Merit, and a marvellous Reputation; though for his own Part, he never searched any Thing else, but the Pleasure he found in *Painting*.

Joachim Sandrat, born at *Francfort* the 12th of *May* 1606. He was Disciple of *Gerard Hontorst*, who carried him into *England*. Among the fine Things he saw there, Mention is made in his Life of twelve Emperors of the *Titian*, which have been engraved by *G. Sadeler*.

From *England*, *Sandrat* went to *Venice*, where he copied the finest Pictures of the *Titian* and of *Paolo Veronese*; from hence he passed to *Rome*, with the *Blond* an Engraver, his first Cousin, where he became soon a very great Painter; so that the King of *Spain* having desired twelve Pictures of the twelve best Painters then at *Rome*, they sent to his Catholick Majesty of *Guido*, of *Guerchin*, of *Josephin*, of *Massimi*, of *Gastileschi*, of *Pietro* of *Cortone*, of the *Valentine*, of *Andrew Sacchi*, of *Landfranc*, of the *Dominican*, of *Poussin*, and of *Sandrat*. The Marquiss *Justiniani*, took him in his House, and gave him the Direction of the Engraving of the Statues of his Galleries.

Sandrat, after he had stay'd a long while at *Rome*, went to *Naples*, to *Sicily*, and to *Malta*; and returning to *Francfort*, passed through *Lombardy*. He settled at *Ausbourg*, where he undertook several Works, and among the rest, that of the twelve Months of the Year, in Great, which were engraved in *Holland*, with *Latin* Verses, which make the Description thereof.

From *Ausbourg* he went to *Nuremberg*, where he erected an Academy of *Painting*, and where he published several Volumes relating to his Profession. Of all his Books, the most considerable is that of the Life of the Painters, in which he has abridged *Savary*, and *Ridolti*, in what Regards the *Italian* Painters; *Charles Ver-Mander* for the *Flemish*.

The Life of *Sandrat* is written at the End of the Book above-mention'd, the Author whereof takes no Notice of the Day of the Death of that Painter; mentioning only a great Number of Pictures very large, and much loaded with Work; and of a Quantity of Portraits, all of *Sandrat*'s Hand. To judge of his *Painting* by the Prints of the Book, published under his Name, his *Painting* was not extraordinary. What we can speak in Praise of him, is the great Love he had for the Perfection of his Art, and the laudable Design he had to prove serviceable to the young Painters of his Nation, by putting before their Eyes the beautiful Statues and magnificent Edifices of *Rome*.

Henry Verscure, a *Dutch* Painter, born at *Gorcum*, in 1627, was put at eight Years of Age under the Discipline of a Painter of *Gorcum*, who did nothing but Portraits, and where *Henry* applied himself to the Design till he was thirteen Years old, when he quitted that Master to go to *Utrecht*, to study his Profession under *John Bot*, who was then a Painter of Reputation; where he stay'd six Years, and then set out for *Italy*, going first to *Rome*, where, in the first Years he applied himself to design Figures, and to frequent the Academies; but as his Genius inclined him to paint Animals, Chases, and Battles, he studied in a particular Manner, all that could be useful to it in that Talent. He designed the Fabricks which are not only in the Neighbourhood of *Rome*, but likewise in all the rest of *Italy*. That Exercise gave him a Taste for Architecture, in which he became very learned, and we see in his *Paintings* the Inclination he had for that Art, and the good Taste he had contracted in it. At last, after he had stay'd ten Years in *Italy*, he set out to return into his own Country thro' *Switzerland* and *France*; and while he stay'd at *Paris*, he met the Son of the Burgo-Master *Marsevin*, who was a going to *Italy*, and made him resolve, without much Difficulty to accompany him thither, where he stay'd three Years more, and then returned to *Gorcum*, in 1662.

It was then, his Talent for Battle-Pieces sollicited him powerfully to apply himself to them. He abandon'd himself entirely to his Genius, and to exercise it with Success, he studied with Application all that passes in the Armies. He followed that of the State in 1672, where he examined in a particular Manner Horses of all Sorts,

and their different Use; he designed the different Encampments, what passes in Combats, Routs, and Retreats; what happens after a Victory in a Field of Battle among the Dead and Dying, together with the Horses, and Arms which are abandoned. His Genius was fine, and fertile, and though there was much Fire in his Thoughts and Labour, as he had much studied after Nature, he had formed to himself a particular Taste, which did not degenerate into what is called Manner, but which included a great Variety in the Objects. The Scenes of his Pictures are most commonly very beautiful, and the Figures he introduces into them are always full of Spirit. His best Works are at the *Hague*, at *Amsterdam*, and at *Utrecht*. At last he was drowned near *Dort*, the 26th of *April* 1690, aged 62.

Gaspard Netcher, born at *Prague* in *Bohemia*, learn'd the first Rudiments of the Design from a Glazier, and went afterwards to *Deventer*, where he studied *Painting* under *Terburg*, a good Painter of that City, who had so particular a Talent to paint well Satins, that in all his Compositions he searched the Occasion of introducing that Stuff, and to dispose it in such a Manner as to receive the principal Light. *Netcher* has retained much of that Inclination, and if he has not followed it in all his Subjects, as his Master did, he has made use of it in several of his Pictures, but always with Prudence.

After he had acquired under his Master *Terburg* a great Practice of the Pencil, he returned to *Holland*, where he worked a long while for Merchants of Pictures, who taking Advantage of his easy Temper, bought his Works very cheap, and sold them very dear. That Hardship disgusted him, and made him take the Resolution to go to *Rome*; and therefore he embarked on board a Ship bound for *Bourdeaux* in *France*, where he married the Kinswoman of a Merchant where he lodged. Thus a stronger Love than that he had for *Painting*, interrupted his Journey to *Italy*, and made him return to *Holland*. He stop'd at the *Hague*, where the good Success of his Works procured him an Establishment; and Experience convinced him, that the best Party he could take to maintain his Family was to apply himself entirely to paint Portraits. He acquired in that Kind of *Painting* so much Capacity and Reputation, that all the considerable Families in *Holland* wanted a Portrait of his Hand, and all the foreign Ministers would not leave *Holland* without carrying along with them a Portrait done by *Netcher*.

Charles II. King of *England* charmed with the Works of *Netcher*, did all he could to engage him to enter into his Service; but that Painter, who was rich enough to live happy, preferred the Tranquillity he enjoy'd to the tumultuous Life of a great Court. He died at the *Hague* in 1684, aged 48.

Note, That *Netcher* was one of the best Painters of the *Low-Countries*, at least of those who have only worked in small: His Design was pretty correct, but he retained always the bad Taste of his Country. He understood very well the Clair obscure; and among his local Colours, all very good, he had a particular Talent to do well Linen. His Manner of painting was very soft, his Touches apparent, though finished in an easy Manner. When he wanted to finish the Works, he passed a Varnish over it, which before it was dry, allowed him the Time to work at it two or three Days successively, procuring him the Means to handle as he pleased, his Colours, which being neither too hard nor too liquid, could mix easily with those he applied anew, without losing any Thing of their Brightness nor of their former Quality.

The French School.

Note, That it is difficult to mark the Time when *Painting* began in *France*. For when *Francis* I. sent for Master *Roux*, and the Primitice from *Italy*, *France* had then Painters who were in a Condition to work under those two Masters, with a great many other *Italians* who passed then into *France*. Those *French* Painters were *Simon le Roy*, *Charles* and *Thomas Dorigny*, *Louis Francois*, and *John Lerambert*; *Charles Charmoy*, *John* and *William Rondelet*, *Germain Meunier*, *John du Breüil*, *William Hoey*, *Eustache du Bois*, *Antony Fantose*, *Michel Rochetet*, *John Samson*, *Girard Michel*, *Jannet*, *Corneille de Lion*, *du Moutier*, and *John Cousin*. Though among all those Painters some were more learned than the others. Their Works notwithstanding have not any Thing worthy the Attention of the Curious of this Age, unless we will except those of *Jannet*, *Moutier* and *John Cousin*. Of these the three first have done a prodigious Quantity of Portraits, among which there are some very good ones.

John Cousin, of *Soucy* near *Sense*, deserves a particular Notice having been pretty correct in the Design; the best of his Works and the most esteemed, is that of the universal Judgment, which is in the Vestry of the Minims of the Wood of *Vincennes*; that Picture shews the Fertility of the Genius of its Author, by the Quantity of Figures it is composed of; but it wants a little more Elegance in the Taste of the Design.

As *Cousin* was likewise a very good Sculptor, he did the Monument of the Admiral *Chabot*, which is at the Celestines of *Paris*, in the Chapel of *Orleans*.

Du Breuil and Brunel, these two Painters had the Direction of the most considerable Works of *Painting* after the Death of the Primatice. The first painted at *Fontainbleau*, fourteen Pictures in Fresco, in one of the Rooms called *des Poeles*, and did with *Bunel* the little Gallery of the *Louvre*, which was burnt in 1660. They died under the Reign of *Henry* IV.

Martin Friminet of *Paris*, had his Father for Master, who was a bad Painter; but the Emulation, the other young Painters of his Time gave him, engaged him to go to *Italy*; he staid seven Years at *Rome*, and his principal Studies were after *Michel Angelo*; so that all he did since had much of the Manner of that great Painter. One may judge of it by the Chapel of *Fontainbleau* painted by him. He begun that Work under the Reign of *Henry* IV. who gave him sensible Marks of his Esteem, and continued it under *Louis* XIII. who honoured him with the Order of St. *Michel*; but before that Work was entirely finished he fell sick, and died in 1619, aged 52.

Note, That a great many Painters succeeded *Friminet*, but who, far from perfecting his Manner, left once more *Painting* fall into its former insipid Taste, which lasted till *Blanchard* and *Vouet* arrived from *Italy*. Those Painters were *Du Pérac*, *Jerom Baultery*, *Henry Lerambert*, *Pasquier Tetelin*, *John de Brie*, *Gabriel Hoanoit*, *Ambrose du Bois*, and *William du Mée*.

Varin, born at *Amiens*, painted at *Paris* with a pretty good Success; and it is of his Hand we have the Altar-piece of the discalceate *Carmelites* near the Palace of *Luxembourg* at *Paris*.

James Blanchart, born at *Paris* in 1600, learnt the first Rudiments of his Art of his Uncle *Nicolas Bollery*; whence he went to *Italy*. He staid a Year and a half at *Rome*, and from thence passed to *Venice*, where he was so much charmed with the Colouring of *Titian*, and the *Venetian* School, that he applied himself entirely to that Study. From *Venice* he returned to *France*, where the Novelty, Beauty, and Strength of his Pencil attracted the Eyes of all *Paris*. And he became so much in Vogue, that all the Curious wanted a Piece from his Hand; and thus his Pictures on the Easel have been spread every where.

He painted two Galleries at *Paris*; the first in the House of the President *Perrault*, and the other where he represented the twelve Months of the Year belonging to M. *Bullion*, Super-intendant of the Finances. But of all his Works that which has more supported his Reputation, is the Picture he did for the Church of our Lady, for the first Day of *May*; it represents the Descent of the Holy Ghost, and that Church preserves it as the most beautiful of all the Pictures seen there. *Blanchart* died of a Fluxion on his Lungs, at thirty eight Years of Age.

Note, That it is easy to judge that of all the *French* Painters, none understood so well colouring as *Blanchart* did. We do not see that he has done many great Compositions; but what we see of him in the Galleries above mentioned, and his Picture which is at our Lady, shew well enough the Strength of his Genius, and

and that if he has not done great Compositions, it is because he was chiefly employ'd in Madona's, which deprived him of the Occasion of treating other Subjects of a greater Extent.

Simon Vouet, born at *Paris* in 1582, was Son and Disciple of *Laurence Voüet*, a very indifferent Painter; he became so learned in a very short Time by his Studies, that M. *de Saucy*, who was going Embassador to *Constantinople*, chose him for his Painter, at the Age of twenty. He painted there the Portrait of the Grand Seignor; and though it was impossible for him to paint his sublime Highness, otherwise than of Memory, having seen him but once at the Audience that Prince gave the Embassador, he made him, notwithstanding, very resemblant; and after he had painted some other Portraits at *Constantinople*, he departed for *Italy*; where he staid fourteen Years and was chosen Prince of the Academy of St. *Luke* at *Rome*; and *Louis* XIII. who, in consideration of his great Capacity had allowed him a Pension while he staid in *Italy*, called him back in 1627, to work in the royal Palaces, especially at *Luxembourg*.

The great Facility that Painter had to do Portraits with leaden Pencils, and at the Pastel, was admired by the King, who used to take Pleasure to see him work; and did learn to design of him; in which his Majesty made great Progresses in a very short Time.

The Reputation of *Voüet* increasing daily, procured him a great deal of Work; and he did a great Number of Pictures for Churches, and for private Persons.

He had followed at *Rome* the Manner of the *Carraccio*, and of the *Valentin*; but finding himself overloaded with Works of all Kinds, he formed to himself a much more expeditious Manner by large Shadows and general Teints, in which he succeeded very well by reason of the great Lightness of his Pencil. One would be surprized at the prodigious Quantity of Works he has done, if it was not known that a great Number of pretty good Disciples he had instructed in his Manner, executed easily his Designs, though very little terminated.

France is indebted to him for having introduced a good Taste into it, together with *Blanchart* heretofore mentioned. The new Manner of *Voüet*, made him to be followed by the Painters of his Time, and procured him Disciples from all Parts; therefore all the Painters, that gave, afterwards, some publick Marks of their Capacity, had been Disciples of *Voüet*; as *le Brun*, *Perrier*, *P. Mignard*, *Chaperon*, *Person*, *le Sueur*, *Corneille*, *Dorigny*, *Tortebat*, *Belli*, *du Fresnoy*; and several others, whom he employ'd to do Ornaments, and Designs of Tapestries; as *Juste* of *Egmont*, *Vandrisse*, *Scalberge*, *Fatel*, *Bellin*, *Van-Boucle*, *Bellange*, *Cotelle*, &c. *Dorigny*, his Son-in-law, as well as his Disciple, engrav'd with Aqua fortis the greatest Part of his Works. *Voüet* quite exhausted by the prodigious Quantity of his Productions, died in 1641, aged 59.

Note, That the Works of *Voüet* were agreeable, when compared with those which, till then, had been done in *France*; but they all fell into what we call Manner, as well for the Design, as for the Colouring: This last, particularly, being every where pretty bad: We see, in his Figures, no Expressions of the Passions of the Soul; and he was contented with giving his Heads a certain general Gracefulness, which signified nothing. The greatest Merit of his Works proceed from his Cielings, which gave his Disciples the Idea of making finer than all the *French* had done till then. —*Voüet* had this Advantage above all the other Painters, that there was never any whose Manner was so adhering in the Heart and Hand of his Disciples; but it can be said, that if that Manner has quickened the insipid Taste, which reigned in *France* before *Voüet* came from *Italy*, that Manner was so little natural, so wild, and so easy besides, and received with so much Avidity, that it has infected the Idea of all his Disciples so far as to make them take an Habit, which they had afterwards all the Difficulty imaginable to leave off.

Nicolas Poussin, born at *Audely*, in *Normandy*, in 1594, learnt the first Principles of Painting of *Ferdinand* a Painter of Portraits, afterwards of *L'Allemant*; and lastly, applied himself to the Study of the Pictures of the best Masters.

He worked, for some Time, in Distemper; and exercised himself in it with so much Facility, that the Chevalier *Marini*, who was then at *Paris*, and became acquainted with the Genius of *Poussin*, endeavoured to engage him to go along with him to *Rome*; but whether *Poussin* had then some Work that detained him at *Paris*, or was tired of some vain Tentatives he had already made on that Side, he was contented to promise the Chevalier that he would soon follow him. In fact, after he had done some Pictures at *Paris*, and among the rest that which is at *Our Lady*, representing the Death of the blessed Virgin, he departed for *Italy*, being then 30 Years old.

He found at *Rome* the Chevalier *Marini*, who received him with all the Demonstrations of a true and sincere Friendship, and who, in view of doing him Service, spoke very advantageously of him to Cardinal *Barbarini*. As the Chevalier of whom *Poussin* expected much Succour and Protection, died some Time after the Arrival of that Painter, and the Cardinal *Barberini* who wanted to know him, had had no Time for it, the *Poussin* found himself at *Rome* without Succours, and without Acquaintances, and reduced to very great Difficulties; he was forced to sell his Works, the only Resource he had left, for little or nothing; and the Necessity he was reduced to was the Cause that he remained a long while retired without frequenting any body, and entirely applied to Study very seriously the fine Things he saw, and which he designed carefully.

Notwithstanding the Resolution he had taken to copy the Paintings of the best Masters, he exercised himself very little in it. He thought it was enough to examine them well, and make his Reflections upon them, and the rest was a Time lost; but he was of a contrary Opinion with regard to the antique Figures, which he modelised with Care, and of which he had conceived so great an Idea, that he made it his principal Object, and applied himself entirely to it. He was persuaded that the Source of all the Beauties and of all the Graces proceeded from those excellent Works; and that the antient Sculptors had exhausted those of Nature, to render their Figures the Admiration of Posterity. The great Intimacy he had contracted with two famous Sculptors the *Algarde*, and *Francis Flamant*, with whom he lived, may have contributed towards strengthning his Inclination that Way. But let it be how it will, it is certain that he never departed from it, and that that Inclination increased always with his Years, as is easily seen by his Works.

It is said, that he copied in his Beginnings some Pictures of *Titian*, the Colours whereof, and the Touch of the Landskips pleased him much, to accompany the good Taste of Design he had contracted on the Antique. In fact it is observed, that his first Pictures are painted of a better Taste of Colour than the others; but he made soon appear by the Sequel of his Works, and to consider them in general, that Colouring was, in his Opinion, but of very little Signification, for he thought he was enough Master of it, not to deprive his Pictures of the Perfection he wanted to give them.

It is true, that he had so well studied all the Perfections of the Antiques, the Elegance, grand Taste, Correctness, and Diversity of the Proportions, the Expressions, Order of the Draperies, the Dresses, Greatness, good Air, and Loftiness of the Heads; the Manners of acting, the Customs of the Times, and of the Places; and lastly, all the Beauties that can be seen in those Remains of the antique Sculpture, that one cannot enough admire the Exactness wherewith he has enriched his Pictures. He could have, like *Michel Angelo*, surprized the Judgment of the Publick. This had done a Statue of *Cupid*, and after he had broke an Arm, which he kept, buried the rest of the Figure in a Place which he knew was to be digged; and that Work having been found, all the World took it for an Antique: But *Michel Angelo* having presented the Arm to its Trunk, convinced of Prevention all those he had deceived. Likewise, if *Poussin* had painted in Fresco on a Piece of Wall, and had kept some Part thereof, he had easily made believe that his Picture was the Work of some

ſome famous Painter of the Antiquity; ſo much it was conform to thoſe which have been thus diſcovered, and are real Antiques.

He fed that Love he had for the antique Sculptures, by going often to examine them in the Vineyards which are in the Neighbourhood of *Rome*, where he retired alone to make his Reflections. In ſuch Retreats he conſidered likewiſe the extraordinary Effects of Nature with regard to the Landſkips, and deſigned Terraſſes, Diſtances, Trees, and all that had any Report to his Taſte which was excellent.

Beſides the exact Study *Pouſſin* has made after the Antique, he has conſulted carefully *Raphael* and the *Dominican*, as thoſe he thought had invented beſt, deſigned more correctly, and more lively expreſſed the Paſſions of the Soul; three Things which *Pouſſin* has always conſidered as the moſt eſſential to *Painting*.

Laſtly that great Man neglected nothing of all he thought could render him perfect in thoſe Parts, no more than for the Expreſſion of his Subjects in general, which he has enriched with all that could gain the Attention of the Learned.—We ſee no great Work of him, and the Reaſon is, that he had no Call for them; therefore we muſt attribute to a pure Hazard his having applied himſelf entirely to do Pictures on the Eaſel, of a Bigneſs proper to be placed in the Cabinets, and ſuch as the Curious wanted them.

Louis XIII. and M. *de Noyers* Miniſter of State, and Superintendant of the Buildings, wrote to him at *Rome*, to oblige him to come to *France*; he determin'd himſelf to it with much Reluctancy. He had a Penſion aſſigned him, and an Apartment ready furniſhed in the Palace of the *Tuilleries* at *Paris*. *Pouſſin* did for the Chapel of the Caſtle of St. *Germain* the Picture of the Laſt Supper, and that which is at *Paris* in the Novitiate of the Jeſuits: He began in the Gallery of the *Louvre* the Labours of *Hercules*, at the Time when the Brigue of *Voüet*'s School, vexed him much by their Mediſances, and ſpeaking ill of the Works above-mentioned; that joined to the tumultuous Life of *Paris*, which he hated, made him take the Reſolution to return to *Rome*, under Pretence of ſettling his Affairs, and to fetch his Wife. But being arrived there, whether he found himſelf in that City as in his Center, or the Death of Cardinal *Richelieu*, and that of the King, which happened then, determined him, he never after returned into *France*.

He continued then to do his Pictures on the Eaſel; for they have all been done at *Rome*, to be ſent to *Paris*; whence the *French* have even exported all thoſe which had been left in *Italy*, and which could be purchaſed for Money; having no leſs Value for thoſe excellent Works, than for thoſe of *Raphael*. *Felibien*, who has wrote very carefully the Life of this Painter, mentions all his Pictures; and gives the Deſcription of thoſe which are moſt valued.

Pouſſin, after he had furniſhed a happy Career, died half paralitick at the Age of 71. His Fortune did not exceed 60,000 Livres, which is a little above 3000 *l.* Sterling; but he reckon'd for much his Peace, and his Abode at *Rome*, where he lived without Ambition.

He never bargained for the Payment of his Pictures, but uſed to write on the Back the Price he wanted, which was ſent to him accordingly.

Pouſſin made no Diſciples; moſt Painters value him without imitating him, either becauſe they find his Manner inacceſſible; or becauſe being once entered into it, they cannot very well maintain the Character thereof.

Note, That *Pouſſin* was born with a fine and grand Genius for *Painting*. The Love he had for the antique Figures, made him ſtudy them with ſo much Care, that he knew all the Beauties and Differences thereof. He ſearched their Source in the Study of Anatomy, and acquired, at laſt, in that Taſte, a conſummate Habit of the Deſign. But even in that Part, inſtead of turning his Eyes on the Side of Nature, as on the Origin of the Beauties he was enamour'd with, he conſider'd that Miſtreſs of Arts much beneath the Sculpture, to which he had ſubjected it; ſo that in moſt of his Pictures, the Naked of his Figures partakes much of a painted Stone, and carries along with it rather the Hardneſs of Marble, than the Delicacy of a Fleſh full of Blood and Life.—His Inventions in the Hiſtories and Fables he has treated, are ingenious, as well as in his Allegories. He has well choſen his Subjects, and has treated them with all their Conveniencies, particularly the heroical; he has introduced into them all that can render them agreeable and inſtructive, and has expreſſed them according to their true Character, by joining the Paſſions of the Soul in particular, to the Expreſſion of the Subject in general.—His Landſkips are marvellous by the Sites; the Novelty of the Objects that compoſe them, the Truth of the Terraces, the Variety of the Trees, the Lightneſs of their Touches; and laſtly, by the Singularity of the Subjects he had introduced into them; ſo that he had render'd them perfect, if he had a little more ſtrengthen'd them with the real Colours, and the Artifice of the Clair-obſcure.—When Occaſion offer'd, he adorned his Pictures with Architecture; which he did of an excellent Taſte, and reduced it regularly into Perſpective, which he knew perfectly.—He has not been always happy in the Diſpoſition of his Figures; on the contrary, he may be reproached with having diſtributed them often, in moſt of his Compoſitions, too much in Baſſo-Relievo's, and on the ſame Line, and with having not enough diverſified and contraſted his Attitudes.—His Draperies are commonly of the ſame Stuff every where; and the Pleats, which are in great Number, take off a precious Simplicity, which had given much Greatneſs to his Works.—However great was his Genius, it could not ſuffice to all the Parts of *Painting*; for that Love he had for the Antique fix'd ſo much his Mind, that it hinder'd him from conſidering well his Art on all Sides, I mean that he neglected the Colouring; therefore to conſider his Work in general, one may eaſily perceive that he knew no thing of that Part, either in the local Colours, or in the Clair-obſcure: Whence it happens, that the greateſt Part of his Pictures give into the grey, and appear without Strength, and without Effect; except notwithſtanding the Works of his firſt Manner, and ſome of the ſecond. But if one fathoms the Things, he'll find that what was good on the Side of the Colour, proceeded rather from a Reminiſcence of the Pictures of the *Titian*, than from the Intelligence of the Principles of that *Venetian* Painter. Laſtly, it appears that *Pouſſin* accounted Colouring but for very little, and we ſee in his Life written by *Bellori*, and *Felibien*, a ſincere Confeſſion that he was not Maſter of it; which ſhews evidently that he never had the Theory thereof. In fact his Colours, ſuch as they are ſeen employ'd, are but general Teints, and not the Imitation of thoſe of the natural, which he ſaw but ſeldom. I ſpeak of his Figures, and not of his Landſkips, where it ſeems he has taken more Care to conſult Nature; and the Reaſon is, that not having found the Landſkip in the antique Marble, he has been obliged to ſearch it in the natural.—For the Clair-obſcure he has never had the Intelligence thereof, and if we find it ſometimes in his Pictures, it is a pure Effect of Chance, ſince if he had known that Artifice as one of the moſt eſſential to *Painting*, as well to reſt the Sight, as to give more Strength and Truth to the whole Compoſition of the Picture, he had always practiſed it, and had ſearched the Means to group advantageouſly his Objects, and his Lights, inſtead of their being diſperſed in ſuch a Manner, that the Eye is often at a Loſs where to fix itſelf; but its principal Attention was to pleaſe the Eyes of the Mind, though it be very certain, that all that's inſtructive in *Painting* ought not to be communicated to the Mind otherwiſe than by the Satisfaction of the Eye, *viz.* by a perfect Imitation of the Natural; which is the eſſential End of *Painting*.—The little Care *Pouſſin* took to imitate Nature, which is the Source of Variety, has made him fall often into very ſenſible Repetitions of Airs of the Head, and of Expreſſions.—His Genius inclined him towards a noble, male, and ſevere Character, rather than graceful; and it is particularly in the Works of that Painter we ſee, that Grace is not always where Beauty is found.—His Manner is new and ſingular, he is the Author thereof and

and we are obliged to confess, that in the Parts he possessed all is still great and heroical; and that to take all together, *Poussin* is not only the best Painter of his Nation, but must also be put upon the Level with the best *Italian* Painters; wherefore he is called the *Raphael of France.*

FRANCIS PERRIER, learn'd the first Rudiments of his Art at *Rome*, where he acquired in the Design an easy and agreeable Practice, and a good Taste.

He became acquainted with *Lanfranc*, whose Manner he endeavour'd to follow. Animated by the Quickness wherewith he handled his Colours, he set out on his Return to *Paris*, and being arrived at *Lions*, he stay'd there to paint the Cloister of the *Carthusians*; at last, being arrived at *Paris*, and having worked sometime for *Voüet*, who was then Master of all the considerable Works, he went a second Time to *Rome*, where he stay'd ten Years. He return'd to *Paris* in 1645; it was at that Time he painted the Gallery of the *Hotel* of *La Vrilliere*, and did several Pictures on the *Easel.* He died Professor of the Academy.

He engraved with Aqua-fortis, several Things full of Wit. And among the rest, the finest Bass-Relievo's of *Rome*, a hundred of the most celebrated Antiques, and several Things after *Raphael.*

JAMES STELLA, born in 1596, was Son of *Francis Stella*, a *Fleming* born, who at his Return from *Italy* settled at *Lions*, where *James* was born; who was but nine Years of Age when his Father died; and after he had exercis'd himself with Application in *Painting*, and render'd himself capable to profit of the fine Things which are seen in *Italy*, he went thither at the Age of twenty. His Passage through *Florence* procured him the Occasion to make himself known of the Grand Duke, who wanting to celebrate the Nuptials of his Son in a magnificent Manner, gave Means to *Stella* to exercise his Genius.

That Prince having soon discover'd the Capacity of *Stella*, gave him an Apartment, and a Pension like that he allowed to *Callot*, who was then at *Florence.* After *Stella* had stay'd seven Years in that City, and done several Works of *Painting*, Drawings and Engraving, he proceeded to *Rome*, where he spent eleven Years in making serious Studies on the antique Sculptures, and the *Paintings* of *Raphael*; and after he had acquired an Habit of the good Taste, done a great Quantity of Pictures, which have been engraven, and acquired a great Reputation at *Rome*, he formed the Resolution to return to *France*, with the Design, notwithstanding, to pass into the King of *Spain*'s Service, who had earnestly sollicited him to it.

He passed through *Milan*, where he refused the Direction of the Academy of *Painting*, which the Cardinal *Albornos* offer'd him. Being arrived at *Paris*, he thought of nothing but to prepare himself for his Journey to *Spain*; but Cardinal *Richelieu* being informed of it, stopped him, by the Hope he gave him, of a more glorious and more advantageous Establishment. In fine, he presented him to the King, who at first gave him a Pension of 1000 Livres, and an Apartment in the Galleries of the *Louvre.*

Stella had no sooner given Proofs of his Capacity, but the King made him Knight of the Order of St. *Michel*; and after he had received that Honour, he painted for the King a great Number of large Pictures, most of which were sent to *Madrid*; he worked likewise for several Churches, and for private Persons.

As he was very laborious, and the Winter Days are very short; he employ'd the Evenings in Designing some Subjects of the sacred History, rural, and Children's Games, which have all a Sequel of a great Number of Sheets, and have all been engraved. — *Stella* died in 1647, aged 61.

Note, That *Stella* had a fine Genius, was easy in his Productions, and proper to treat all Sorts of Subjects: But inclined to Mirth rather than to the grave and terrible; noble in his Inventions, moderate in his Expressions, easy and natural in his Attitudes, a little cold in his Dispositions, but agreeable every where.

His long Stay in *Italy*, gave him a good Taste of the Design; his Avidity to learn, render'd him correct in his Contours; and his Assiduity to Labour acquir'd him a happy Facility. His Colouring was a little Crude, his local Colours little characterised, and his Carnations of Practice, and a little alter'd of Vermillion. But as his Work degenerated into Manner, it is easy to judge, that he seldom consulted Nature; but considering all together, *Stella* was a Painter who had a great deal of Merit, and wanted but to study a little the *Venetian* Manners, to render his more estimable.

LAURENCE DE LA HIRE, was in his Time, in great Reputation, and was the only one of all the Painters his Compatriots, who did not follow the Manner of *Voüet.* His was not of a better Taste, but was more studied, more finished, and more natural, but always insipid. His Landskips are more valued than his Figures, he finished them very much, and painted them neatly. He was so much inclined to the æthereal Perspective, that he confounded always his Distances, in Exhalations, according to the Method he had learn'd of *Desargues.* He followed the same Method in his Figures, for except those which were on the first Lines, all the other were lost in a Fog, on Proportion to their Distance. His Son left *Painting* to follow the Rapidity of his Genius, which inclined him to the Mathematicks; in which he became one of the most learned Men of the Age

MICHAEL DORIGNY, born at St. *Quintin* in *Picardy*, *Voüet*'s Son-in-Law and Disciple, followed very near the Manner of his Father-in-Law, the greatest Part of whose Works he has engraved with Aqua-fortis, giving them the true Character of their Author. He died Professor of the Academy in 1665, aged 48.

CHARLES ALPHONSE DU FRESNOY, born at *Paris*, in 1611, learned the first Rudiments of his Art, of *Perrier* and *Voüet.* He departed for *Italy*, in 1634; and *Mignard* going to meet him there, in 1636, they contracted together a sincere and strict Friendship, which lasted to their Death.

As the Genius of *Du Fresnoy*, was not to be satisfied with an indifferent Knowledge, he studied with Application *Raphael*, and the Antiques, and designed, in the Evenings at the Academies, with an extraordinary Avidity; and on Proportion he penetrated his Art, he made Remarks upon it, which he wrote in *Latin* Verses. A Light gave him another, and his Mind having been filled by Degrees with all that was necessary for his Profession, he composed a Poem of it.

He was much enamour'd with the Works of the *Titian*, to whom he gave the Preference above all others, because, said he, the *Titian* was the greatest Imitator of Nature; he copied at *Rome* all the finest Pieces he could find of that Painter, with an incredible Care.

He understood very well the Allegories, and the Poets; and the Time he gave to Reading, and to speak of *Painting* to the Men of Letters, he found disposed to hear him, left him but very little of it to work. It appear'd, besides, that he painted but with Difficulty, whether his profound Theory stopped his Hand, or that having learned of no Body to handle the Pencil, he had contracted a very tedious Manner; for his Works are in a very small Number.

As he had studied the Elements of *Euclid*, and had an excellent Taste for Architecture, he begun by *Painting* the Remains of Architecture, which are in the Neighbourhood of *Rome*; which he used to sell for his Subsistance, and gave them almost for nothing. All his Works are reduced to 50 History-Pieces, and some Landskips; without reckoning all the Copies he did after the *Titian.* *Du Fresnoy* died in 1665, aged 54.

Note, That though *Du Fresnoy* had a very fine Imagination, it was not very quick, and the Fire it was filled with was but very moderate. This is so very true, that he was never pleased with his first Thoughts; but digested them in his Mind, with all the Application imaginable. He made Use to embellish them with the Conveniencies he thought necessary, and with the Lights drawn from his Erudition.

It was according to the Principles he had established in his Poem, that he endeavoured to execute his Thoughts. He was very tedious in his Operations, and he wanted that great Vivacity which some Authors have attributed to him, to give more Life to his Pencil, and to put his Ideas in a finer Light; which, not-

notwithstanding, he arrived at his End by the Theory; and we have Room to be surprised, that that same Theory, which should have convinced him of the Goodness of his Work, has not render'd his Hand bolder. What can be said to that, is, that a great Speculation wants a great Practice, and that *Du Fresnoy* had none but that he had acquir'd of himself, by the few Pictures he had done.

It is easily seen by his Works, that he searched the *Caravagio* in the Taste of the Design, and the *Titian* in Colouring. For we have had no *French* Painter, that has approached so near the *Titian* as *Du Fresnoy* has done; as may be seen by what he has done at *Rinci*, for M. *Bodin*, then Intendant of the Finances, that Piece being esteemed by Connoisseurs the finest of all his Works.

NICOLAS MIGNARD, born at *Troyes* in *Champagne*, learn'd the first Principles of his Art of the best Painter, who was then at *Troyes*; and to strengthen himself in his Profession, went to study at *Fontainbleau*, after the antique Figures which are there, and after the *Paintings* of *Primatice*. But seeing that the Source of the Beauties he studied was in *Italy*, he departed for that Country. The Occasion of some Works stopped him sometime at *Lions*; but much more at *Avignon*, where he fell in Love with a Girl, whom he married at his Return from *Italy* (whence he was called *Mignard of Avignon*) after he had stay'd two Years at *Avignon*, with his Father-in-Law, the King called him to his Court.

Mignard being arrived at *Paris*, he was employ'd by the Court, and by private Persons in divers Works, where he gave Proofs of his Capacity. He did a great Quantity of Portraits; but his Talent was rather for History-Pieces. He invented ingeniously, and took Pleasure in treating poetical Subjects. The Fire of his Imagination was, notwithstanding, very moderate; but he made a Compensation for it, by a great Exactness, and a great Neatness in his Work. *Mignard* died in 1668, being then Rector of the Academy, who assisted in Ceremony at his Funeral, which was celebrated in the Church of the *Millans* at *Paris*, where he is buried.

CLAUDIUS VIGNON, born at *Tours*, followed at first the Manner of *Michel Angelo*, *Carravagio*, and did in that Taste Pictures of a great Strength. His Quickness in working, procured him a great deal of Occupation, and to dispatch Business, he render'd his Manner still more expeditive, but much less strong than it used to be. He produced easily, and his Manner of employing his Teints, was to place them without the least Union, and to paint by adding always Colours, and not by mixing them together by the Motion of the Pencil. Therefore his Manner, which is but a pure manual Practice, is easily known. As he seldom consulted Nature, and the Antiques, and his Inventions and Expressions have nothing particular, nor extraordinary, his Pictures are not admired by the Curious. He died in 1670.

SEBASTIAN BOURDON, born at *Montpellier*, had a fiery Genius, which would not allow him to reflect much, nor to apply himself sufficiently to the most essential Parts of his Art. The Studies he made in *Italy* were even interrupted by a Quarrel, which obliged him to quit the Country. Which, notwithstanding, he had a very easy Genius, which made him produce, in his first Works, pretty good Things, enough to give Hopes of an extraordinary Capacity; and if he has not answer'd the Expectations which had been conceived of him, he has at least maintained his Reputation by his extraordinary Compositions, and lively Expressions. But as his Genius was not guided by a very great Solidity of Judgment, he evaporated himself often into extravagant Imaginations; and which, after they had pleased the Spectators by their Bizarrery, fell at last into the Wild, when examined nearer. It is not so of his Landskips, which he has done very well. There are several of them, which are very beautiful Effects of his Imagination; and which are render'd more agreeable still by the Bizzarery found in them: Because he has introduced into them certain extraordinary Effects, which he has studied after the Natural, and has executed with a quick and easy Hand. It is true that the Sites which are not very common, are not, likewise, very regular, and do not agree often in their Plan. He finished very little his Works, and even those which are more finished, are not always the best.

He laid once a Wager against one of his Friends, that he would paint in one Day twelve Heads after the Natural, and as big as the Natural, and did it. Those Heads are not the worst he has painted. He made use often of the Impression of the Cloth, when he had Hair to do, not in leaving the Impression bare, but in uncovering it with the Tail of his Pencil. The most esteemed of all his Pictures is the Martyrdom of St. *Peter*, which he did for the *May* of the Church of *Our Lady*, which is preserved there as one of the best they have. He died in 1662, aged about 60 Years.

SIMON FRANÇOIS, born at *Tours*, had no other Master in *Painting*, than the good Pictures he copied. He did at first a few Portraits, and M. *de Bethune* his Protector, being named Ambassador to the Court of *Rome*, carried *Simon* along with him, and engaged the King to give him a Pension. He stay'd in *Italy* till the Year 1638, and at his Return, passing thro' *Bologna*, he contracted a Friendship with *Guido* who did his Portrait.

At his Arrival in *France*, he had the good Fortune to be the first Painter who had the Honour to do the Portrait of the Dauphin, of whom the Queen had been lately deliver'd. That first Work succeeded him so well, that he had Room to hope, that the Court, who seemed satisfied with it, and promised him their Protection, would procure him a great deal of Work. But some Disgrace, which he had not deserved, happening, made him quit the Court, to lead a retired Life, and more conformable to his Design. He died in 1670.

PHILIP CHAMPAIGNE, born at *Bruxelles* in 1602, had an extraodinary Inclination for *Painting*. He changed often his Masters, who were all but very indifferent Painters, *Fouquiere* excepted, who taught him the Landskip. For the other Kinds of *Painting*, he is only indebted to his Application, and the Desire he had to advance himself.

At the Age of nineteen, he formed the Design to go to *Italy*, reckoning, at the same Time, to pass through *France*, and to stay there as long as the Occasion would serve. At his Arrival at *Paris*, he lodged with *L'Alleman*, a very bad Painter, but very much employ'd then. He left him soon, and went to lodge in the College of *Laon*, where the *Poussin* was at that Time, where they contracted a Kind of Friendship, and was the Occasion, that a Painter, called *Du Chesne*, who, though very ignorant, had undertook the *Paintings* of the Palace of *Luxembourg*, employ'd them both in that Palace; *Poussin* for some little Works in the Cielings, and *Champagne* to do some Pictures in the Queen's Apartments. Her Majesty appear'd so well pleased with it, that it excited the Jealousy of *Du Chesne*, whence *Champagne* who loved Peace, took Occasion to return to *Bruxelles*, to see his Brother, intending to go from thence through *Germany* into *Italy*. But he was scarce arrived at *Bruxelles*, but the Abbot of St. *Ambrose*, who was Super Intendant of the Buildings, informed him of *Du Chesne*'s Death, and made him return into *France*. At his Arrival he took Possession of the Direction of the Queen's Pictures, who gave him a Lodging in the *Luxembourg*, and a Pension of 1200 Livres. As he loved his Art, and was very laborious, he has done at *Paris*, and in the Kingdom, an Infinity of Works. We see several of his *Paintings* in the two Convents of the *Carmelite* Nuns, of the *Faubourg*, St. *Jacques*, and in the Street *Chapon*; at the Calvary of the *Faubourg*, St. *Germain*; at the Palace Royal, in the Chapter-House of *N. Dame* of *Paris*, and in several other Churches; without reckoning an Infinity of Portraits he has done of a great Likeness.

Champagne was so disinterested, that Cardinal *Richelieu* could never persuade him to quit the Service of the Queen, though he promised him to make his Fortune, and that of his Family. The first *Valet de Chambre* of the Cardinal, who made him that Proposal, added, that he had but to wish, and his Eminence would refuse him nothing. To which *Champagne* answer'd, that if the Cardinal could render him a better Painter than he was, it was the only Thing he could wish; but as such a Thing was impossible, he desired nothing of his Eminence, but the Honour of his Benevolency. But though he refused to give himself entirely to the Cardinal,

dinal, he would, notwithstanding, work for him; he did, among other Things, several Times, his Portrait, which is one of the best he painted in all his Life.

He had been a long while in great Reputation, when *Le Brun* arrived from *Italy*, who by his Capacity, and a powerful Protection, took the Helm of *Painting*, and was made soon after, first Painter to the King; without *Champagne* appearing the least jealous of it. He died in 1674, aged 72, esteemed by all those who knew him, as well for his *Painting*, as for his Conduct.

Note, That the strong Inclination *Champagne* had from his Infancy for *Painting*, was not accompanied with the least Elevation; for though he has done a great Quantity of Compositions, and invented easily, his Genius was cold, and his Taste savoured much of his Country. — He notwithstanding applied himself always to the Natural, and to imitate faithfully enough his Models; but he knew not how to dispose them, to give them Life, and Motion. He has not known what was to be retrenched from the true, to render it soft, light, and of a good Taste; nor how to add that little which makes it appear animated. It seems to me, therefore, that all his Knowledge was in his Model, of which he was a Slave, far from making it obey his Genius, or the Rules of his Art. I do not even see, that he has penetrated the good Principles of *Painting*, or that (the Design excepted, where he has shewn enough Regularity with a very little Taste) he has produced in his Pictures any Thing interesting. I must confess, notwithstanding, that we see several very good Things of him, for the local Colours; several good Heads well imitated and strong of Colours; but most of them are not entirely free of the Immobility and Indolence, which is even ordinary to living Models. — *Champagne* did the Landskip in a good Method, he understood very well the Perspective, he finished extremely all his Works, and was a long Time Rector of the Academy.

Nicolas Loir of *Paris*, wanted neither Genius to invent, nor Fire to execute. Though there was nothing in that above a common Painter. We find in it neither Sublimity of Thoughts, nor a particular Character, which had any Elevation. He had a good Taste of Design, Neatness, and Facility in all he did; but without taking Time to digest his Thoughts, he had scarce produced them, but he executed them, even often while he was speaking with some Body, by Means of the great Habit he had acquired, and the happy Memory of what he had seen in *Italy*. He fell short of nothing relating to his Profession, and did equally well Figures, Landskips, the Architecture, and Ornaments. We see in *Paris*, a great Quantity of his Works, publick and particular; several Galleries and Apartments, and among the rest for the King in the Palace of the *Tuilleries*. *Loir* died in 1679, aged 55; being then Professor of the Academy.

Charles le Brun of *Paris*, brought along with him into the World all the necessary Dispositions to form a great Painter; he employ'd his Talent, as soon as he could make Use of his Reason. He cultivated it by continual Studies, and render'd it valuable by Fortune, which favour'd his Merit, and never forsook him. He was the Son of an indifferent Sculptor who lived in the Place *Maubert*. That Sculptor being employ'd to work in the Garden of the *Hotel Sequier*, used to carry his Son along with him, and make him copy some Designs near him. The Chancellor *Sequier* walking one Day in that Garden, saw that young Man, who designed with so much Facility and Application for his Age, that he consider'd it immediately as the Effect of a Genius above the common. Sensible of his good Dispositions, he obliged him to bring him from Time to Time some of his Designs, and was pleased afterwards to take Care of his Education, and to help him with some Succours of Money to encourage him.

This young Man, animated with the Rewards, made such surprizing Progresses, that the Chancellor recommended him to *Voüet*, who was *painting* then the Library of the *Hotel Sequier*, and who was considered by all the *French* Painters, as another *Raphael*.

Le Brun did at the Age of fifteen, two Pieces, which surprised the Painters of those Times: The first was the Portrait of his Grandfather, and the other represented *Hercules* knocking down the Horses of *Diomedes*.

Sometime afterwards, the Chancellor *Sequier* found by the Progresses *Le Brun* had made, and the great Desire that young Painter had to learn, that it was Time to send him to *Italy*; which he did in 1639, he kept him there by a large Pension, for the Space of three Years, during which *Le Brun* cultivated his Genius by all the Knowledge which has carried him to the Degree of Perfection, he has rais'd himself. The young Painters who return from *Rome*, pass commonly through *Venice*, to take there at least some Tincture of the good Colouring, but *Le Brun* had not that Curiosity.

The first Picture he did at his Return from *Italy*, was the Brass-Serpent, which is in the Convent of the Religious of *Picpus*, and afterwards some others for the Chancellor his Protector.

He felt very well what he was worth, in Comparison to the Painters of his Time, and the Desire he had to make himself known, prompted him to sollicit earnestly the Works which were to be exposed in publick. In that View he did for the Church of *N. Dame*, two Years successively, the Picture for the first of *May*. He painted the first Year the Martyrdom of St. *Peter*; and the second that of St. *Stephen*; the *Sueur* was then the only Concurrent that could dispute with him; but whether *Le Brun* was found more learned, or more in the Fashion, or whether the Number of his Friends were greater, he always supplanted his Competitor in the Occasions of signalizing himself.

The Gallery of M. *Lambert* in the Isle of *Notre Dame*, and the Seminary of S. *Sulpice*, established so well his Reputation, that the famous M. *Fouquet*, then Super-Intendant of the Finances, would have him for the Works of *Painting*, which were to embellish his fine House of *Vaux-le-Vicomte*. *Le Brun* has left there very great Testimonies of the Depth of his Genius and Knowledge, especially in the Apartment, called the Room of the Muses; where is seen a Cieling, which seems one of the best Pieces he has done.

M. *Fouquet* to engage *Le Brun* entirely to his Service, gave him a Pension of 12000 Livres, which was above 600 *l.* Sterling, besides paying him for his Works. And after the Detention of M. *Fouquet*, the King, who wanted to render his Kingdom flourishing, as well by the Arts as by the Sciences; made *Le Brun* a Nobleman, honour'd him with the Order of St. *Michel*; and appointed him his first Painter.

In that Post he render'd his Merit still more conspicuous to the King; and M. *Colbert*, Minister of State, and Super-Intendant of the Buildings, consider'd him as the greatest Painter of the World. It was on his Projects that Minister proposed his Majesty to strengthen the Foundations of the Academy of *Painting*, and to render it the most famous which has ever been of that Kind. The Revenues were increased, new Statutes were established, and it was composed of a Protector, Vice-Protector, of a Director, Chancellor, four Rectors, fourteen Professors, one of them is for Anatomy, and the other for the Mathematicks; of several Adjuncts to the Rectors and Professors, of several Counsellors, of a Secretary, and of two Ushers.

It was also on the Memoirs of *Le Brun*, that the King established an Academy at *Rome*, to maintain a Director, who should take Care that the Pupils whom the King sent there, should render themselves capable to serve his Majesty well, in Works of Painting, Sculpture, and Architecture.

Le Brun had a very great Zeal to make the Arts flourish in *France*, he answer'd in that the good Intentions of the King; and M. *Colbert* being charged with seeing his Majesty's Orders executed, trusted entirely to *Le Brun*. That Painter took Care not only of Things in general, but he spared none for his *Paintings* in particular. He instructed himself perfectly in the Subject he was to treat, either in reading the best Authors, or in consulting the Learned.

He has done at *Seaux*, and in several Houses of *Paris*, Works which Fame has render'd famous. But the most

moſt conſiderable are at *Verſailles*, in ſeveral large Pieces of the Battles of *Alexander*, on the Cieling of the great Gallery, and in the great Stair-Caſe.

When the King made Choice of *Le Brun* for his firſt Painter, he gave him at the ſame Time the general Direction of the Manufactures of the *Goblins*, and he diſcharged that Office with ſo much Application, that all the Work done there was of his Deſign. *Le Brun* died in 1690, in his Apartments of the *Goblins*. His Sepulture is in a Chapel which he had bought at St. *Nicolas du Chardonnet*, where his Widow erected him a magnificent Mauſoleum.

Note, That the Facility wherewith *Le Brun* made his Studies at *Rome*, and the firſt Pieces he painted at his Arrival, occaſioned a great Opinion of his Capacity. He did not amuſe the Publick with laudable Beginnings, which could only make one preſume what he was to be; he did like the Fig-Tree, which produces his Fruits without making them be preceded by Flowers, which are the Hopes thereof. All that came from his Hand, has always been conſider'd as the Works of a great Maſter, ſo that we may ſay, in ſome Meaſure, that the Progreſſes he made in his Art, were not to render himſelf learned, ſince he was ſo already; but to become one of the firſt Painters of his Age. He had a fine Genius, a penetrating Mind, and a ſolid Judgment. He invented eaſily, but with Reflection. He introduced nothing in the Compoſition of his Pictures, without having well reflected upon it. He conſulted Books, and the Learned, to admit nothing of what could well fill his Subject; he expreſſed it ingeniouſly, and with a Vivacity which had nothing paſſionate. It was thought at firſt, at the Sight of his Works, which were almoſt all religious Subjects, that his Talent was particular for Softneſs and Tenderneſs; but he has well proved, by the Pictures he has done ſince, that his Genius was univerſal, and that he could equally well treat the merry as the ſerious, and the tender as the terrible. — He has treated his allegorical Subjects with a great deal of Imagination; but inſtead of drawing the Symbols thereof from ſome Source known, as from the Fable, and the Antiques, he has almoſt invented them all; therefore thoſe Sorts of Pictures become thereby Enigma's, which the Spectator will not take the Trouble to explain. — He has always eſteemed the *Roman* School for the Deſign, but he had a Penchant to follow that of *Bologna*, and particularly the Taſte of *Annibal Caraccio*, in which he had acquired a marvellous Facility; and if, in that Part, he was not quite ſo ingenious as that Painter, he was leſs over-loaded, more equal, more graceful, and always correct. — His Attitudes were well choſen, natural, expreſſive, judiciouſly contraſted: His Draperies very well thrown, flattering, and ſhewing the Naked with Diſcretion; without mixing in them, notwithſtanding, the agreeable Truth of particular Stuffs. His Expreſſions are beautiful in all he was willing to repreſent; and the curious Treatiſe he has compoſed of the Paſſions of the Soul, with demonſtrative Figures, ſhew the great Attention he had to them. It ſeems, however, that even in that he has too generally followed the Idea he had formed of them, ſo that it has degenerated into an Habit, and into what is called Manner. That Habit is fine, it is true, but for Want of examining Nature, and ſeeing that it can expreſs the ſame Paſſion in different Manners, and there are ſome particular ones which are lively and ſharp, he has deprived his Works of a Piece which had not only given them Entrance in the Cabinet of the Curious; but had procured them a conſiderable Place there.

Le Brun was conſcious enough at his Return from *Italy*, that he was obliged to leave off thoſe trivial Teints, his Maſter *Voüet* had uſed to diſpatch ſooner his Works; he did all he could to reform that ill Habit, he render'd them more moderate, and more approaching the Truth. But notwithſtanding all his Efforts to that Purpoſe, he retain'd always the Stile of uſing too general Teints in his Draperies, as in his Carnations, and of not having Regard enough to the Reflections which contribute much to the Strength and Roundneſs of the Objects as well as to the Union and to the Truth of the Imitation. — His local Colours are bad, and he has not been careful enough to give by that Part the true Character to each Object, which is the only Cauſe why his Pictures ſmell, always of the Palet, and do not produce that faithful Senſation of Nature. For Proof of what I ſay here, one has but to put one of the beſt Pictures of *Le Brun* near ſome of the beſt Maſters of the *Venetian* School, that Compariſon is excellent, not only in that Occaſion, but in all others where we are to judge of the Goodneſs of the local Colours. — This Practice of *Le Brun* joined to the little Care he took to employ brown Colours on the fore Part of his Pictures, and the Opinion he had that the grand Clears could not be placed backwards, have made him do ſeveral Works of little Effect. He did not follow the ſame Method for the Intelligence of the Clear-obſcure, and though he did not make a very formal Attention to it, in his firſt Times, he has known the abſolute Neceſſity thereof in a more advanced Age, and has practiſed it with Succeſs. The large Pieces he has done of the Hiſtory of *Alexander*, are ſenſible Proofs of it.

Theſe laſt Productions, the beſt he ever did, are more than ſufficient to ſhew the Extent of his Capacity, and of his Genius, and the Plates which have been engraved after them, will carry his Glory throughout the whole Earth.

Le Brun was univerſal for all Kinds of *Painting*, except the Landſkip. His Pencil was light and ſmooth, he joined an extreme Facility to an extreme Exactneſs; laſtly, whatever he may be reproached with on the Side of his Manner too ideal, and too little diverſified, he was, notwithſtanding, Maſter of enough Parts of *Painting*, to have a conſiderable Place among the greateſt Painters. And whatever the Spirit of Jealouſy could invent to eclipſe his Talents, his Memory ſhall never ſuffer, and Poſterity ſhall continue to do him that Juſtice, which his extraordinary Merit, and profound Capacity deſerves.

PETER MIGNARD, born at *Troyes* in *Champagne*, ſucceeded *Le Brun* in the Poſt of firſt Painter to the King of *France*, *Louis* XIV. and was one of the moſt celebrated Painters that have appear'd ever ſince the Reſtoration of *Painting* in *Europe*; for he poſſeſſed in an eminent Degree all the Parts of *Painting*, as it appears by the famous *Salon* of *S. Cloud*, a Palace belonging to his Royal Highneſs the Duke of *Orleans*, near *Paris*; and which is one of the moſt conſiderable Works, which has ever been done in that Kind.

CLAUDIUS GELEE, called the *Lorrain*. The Manner Fortune rais'd this Painter, tho' from a low Eſtate, to make of him a Man eſteemed throughout all *Europe*, is quite ſurpriſing. In his Youth his Parents ſent him to School, but as he could learn nothing, they put him Apprentice to a Paſtry-Cook, where he ſerved his Time. But as he had not made much Progreſs in the Profeſſion, not knowing what to do, he joined ſeveral young Men of the ſame Trade, who were a going to *Rome* to endeavour to get there a Livelihood; but as he was ignorant of the Language of the Country, and very ſtupid beſides, he enter'd by Chance into the Service of *Auguſtino Taſſo*, to grind his Colours, cleanſe his Palet, and Pencils, dreſs his Horſe, cook his Victuals, and do other neceſſary Houſhold Services, for *Taſſo* had no Body elſe in his Houſe.

That Maſter, to render his Servant ſtill more uſeful to him, taught him by Degrees ſome Rules of Perſpective. The *Lorrain*, at firſt, could ſcarce conceive the Principles of that Art; but when he had once began to receive ſome ſmall Retribution for his Work, he took Courage, his Mind begun to open, and he applied himſelf to Study with an obſtinate Fervency. *Sandrat* relates, that being in the Country with him to ſtudy together, the *Lorrain* uſed to make him obſerve, as a Phyſician had done, the Cauſes of the Diverſities of the ſame Proſpect or Viſto, *i. e.* which appears ſometimes of one Manner, and ſometimes of another with Regard to Colours, as it appears by the Morning and Evening-Dew. He had ſo happy a Memory, that he painted with much Truth, being return'd home, what he had only ſeen in the Country. He was ſo much abſorbed in his Work, that

that he visited no Body. His whole Diversion was the Study of his Profession, and by much cultivating his Talent, he has done Pictures which have acquir'd him throughout the whole World an immortal Reputation, in the Kind of *Painting* he has embraced. He died at *Rome* in 1678.

Note, That as there is a famous Academy of *Painting* still subsisting at *Paris*, as I suppose in the same Splendour, it was when *Le Brun* was the Director thereof; though the Arts have suffer'd as great an Eclipse in that Kingdom, as they have in other Countries, there are still no doubt some very famous Painters there; but as it is long since I have left my Country, I am entirely unacquainted with them, and therefore can give no Account of their particular Merit and Capacity.

Note also, That I would be glad to form here an *English* School of *Painting*; but though the *English* Nation in general has a very good Taste for *Painting*, few *Englishmen* (let it be said without Offence) have excelled in that Art, either because they would not apply themselves to it, or because their Princes have always been curious, either to employ the best Masters of all the most celebrated Schools, or to purchase their Works at any Rate; notwithstanding which I'll mention here the Name of the *English* Painters who have distinguished themselves in their Profession; as,

JOHN HOSKINS, who excelled for *painting* Portraits in Miniature.

SAMUEL COOPER, of *London*, born in 1609, Disciple of *John Askins*, his Uncle; who painted, likewise, Portraits in Miniature. He died in 1672.

WILLIAM DOBSON, of *London*, born in 1610, a Portrait-Painter. He died in 1647.

FRANCIS BARLOW, of *Lincolnshire*, born in 1630, who excelled in *painting* Animals. He died in 1702, aged 72.

ISAAC FULLER, Disciple of *Francis Perrier*, a *Frenchman*, was a pretty good History-Painter. The Resurrection in *All-Souls* Chapel at *Oxford*, is esteemed his best Piece. He died in 1670.

HENRY COOK, born in 1642, has painted several History Pieces in *London* and *Oxford*, &c. He died in 1700, aged 58.

JOHN RILEY, of *London*, born in 1646, Disciple of *Zoust* and *Fuller*, was a Portrait-Painter. He died in 1691, aged 45.

SIR GODFREY KNELLER, born in 1646, was a celebrated Portrait-Painter. His Carnations and Colouring, are excellent, and he did his Portraits of an extreme Likeness. He died in 1723, aged 77.

SIR JAMES THORNHILL, called the *English Raphael*, born in 1677, was an History-Painter; his best Pieces are the Cupola of St. *Paul*'s and *Greenwich* Hospital. He died in 1734, aged 57.

—— LUCY, who, to my certain Knowledge, studied his Art at *Bologna*. I have seen some of his Portraits, which are pretty strong of Colours.

HOGARTH, History and Portrait-Painter. His best Piece is the Stair-Case of St. *Bartholomew*'s Hospital, taken from the New-Testament, much admired by Connoisseurs for the Correctness of the Design, the Beauty of the Attitudes, the Carnations, and Colouring: But censured by some for not having dressed his Figures according to their Condition, which is rather a Want of Attention than of Knowledge.

JOHN SMITH, who though not extremely known, for Want of Friends and Protection, without which, *Raphael* himself (had he lived in our Age) had been perhaps neglected, is, I'm informed by Connoisseurs, a very good Portrait-Painter.

Note, That I'll conclude this Treatise by a few Observations on *Taste*; and on its *Variety*, with Regard to the different Nations.

I have spoke of the *Grand Taste* in its proper Place, and shewn that it must be found in an accomplished Work, as in its End; and in a perfect Painter as in its Source. But there is a *general Taste* in Men, which is susceptible of Purity and Corruption, and which becomes particular by the Use it makes of particular Things. I'll endeavour to explain the Manner it is determined and formed.

I am of Opinion, that we can reason of the *Taste* of the Mind, as of the *Taste* of the Body. There are four Things to be consider'd in the Taste of the Body, *viz.* 1. The Organ. 2. The Things eaten or tasted. 3. The Sensation they cause. 4. The Habit which that reiterated Sensation produces in the Organ.

There are likewise four Things to be consider'd in the Taste of the Mind, *viz.* 1. The Mind that tastes. 2. The Things tasted. 3. The Application of those Things to the Mind; or the Judgment which the Mind forms of them. 4. The Habit formed of several reiterated Judgments, whereof an Idea is formed, which fixes itself to the Mind.

Of those four Things we may infer,

1. That the Mind can be called Taste, inasmuch as it is consider'd as the Organ.

2. That Things can be called of a good or bad Taste, in Proportion as they approach, or deviate from the Beauties which the Art, the good Sense, and the Approbation which several Centuries have established.

3. That the Judgment which the Mind forms at first of its Object, is a first natural Taste, which afterwards can be perfected or corrupted according to the Condition of the Mind, and the Quality of the Object which offers.

And lastly, that that Judgment reiterated produces an Habit, and that Habit a fixed and determined Idea, which gives us a natural Penchant for the Things which have gained our Approbation, and are of our Choice.

Thus is formed, by Degrees, in the Mind of each particular Person, what we most commonly call *Taste* in *Painting*. Besides, though all the Tastes are not good, every one thinks his the best. Therefore *Taste* may be defined; *the habitual Idea of a Thing conceived as best in its Kind.*

There are three Sorts of *Tastes* in *Painting*, viz, the *natural*, the *artificial*, and the *Taste* of Nation.

The *natural Taste* is the Idea formed in our Imagination at the Sight of simple Nature. It appears, that the *German* and *Flemish* Painters are seldom come out of that Idea; and the common Opinion is, that *Corregio* had no other. What makes all the Difference between this and those, is, that the Ideas are like Liquors, which assume the Form of the Vessels that contain them. And therefore the *natural Taste* can be low or high, according to the Talents of the Persons, and the Choice they are capable to make of the Objects of Nature.

The *artificial Taste* is an Idea formed at the Sight of the Works of others, and by the Confidence we have in the Precepts of our Masters, in short by Education.

And the *national Taste* is an Idea which the Works done or seen in a Country form in the Mind of the Inhabitants. The *national Taste* can be reduced to six, *viz.* the *Roman*, *Venetian*, *Lombard*, *German*, *Flemish*, and *French Taste*.

The ROMAN TASTE is an Idea of the Works found in *Rome*; but it is certain, that the Works which are most esteemed in *Rome*, are those called Antiques, and the modern Works done in Imitation of them, either in Sculpture or *Painting*. All those Things consist chiefly in an inexhaustible Source of the Beauties of the Design, in a good Choice of Attitudes, in the Beauty of the Expressions, in a good Order of the Plaits, and in a sublime Stile, where the Antients have carried Nature, and after them the Modern, for above two hundred Years past. Therefore it is not surprising, if the *Roman Taste* being extremely occupied of all those Parts, the Colouring which comes last, finds no Place in it. Man's Mind is too narrowly confined, and Life is too short to fathom all the Parts of *Painting*, and possess them perfectly all at once. Not that I pretend to insinuate thereby, that the *Romans* despise Colouring, for they cannot despise a Thing of which they had never a very just Idea. But only that being prejudiced in Favour of other Parts, wherein they endeavour to render themselves perfect, and having no Time to apply themselves to the Knowledge of Colouring, they do not prize it according to its Value.

The VENETIAN TASTE is opposite to the *Roman*, in that this has a little too much neglected what depends of the Colouring, and that what depends of the Design.

As there are but very few Antiques at *Venice*, and but very few Works of the *Roman* Taste, the *Venetians* have applied themselves entirely to express the beautiful Natural of their Country. They have characterised the Objects by Comparison, not only in improving the true Colour of a Thing, by the true Colour of another: But in chusing that Opposition, an harmonious Vigour of Colours, and all that can render their Works more valuable, more true and more surprising.

The LOMBARD TASTE consists in a smooth, well fed, and soft Design, mixed with a little Antique, and a Natural well chosen, with melted Colours, very much approaching the Natural, and applied with a light Pencil. The *Corregio* is the best Example of that Taste, and the *Caracci*, who have endeavour'd to imitate him, have been more correct than he was in the Design, but inferior to him in the Taste of that same Design, in the Grace, in the Delicacy, and in the Union of the Colours. *Annibal*, while he stay'd at *Rome*, took so much of the *Roman* Taste, that I take none of his Works for *Lombard*, but those which have preceded that of the Gallery of *Farnese*; neither do I rank among the *Lombard* Painters, those, who though born in *Lombardy*, have followed either the *Roman* or the *Venetian* School: Because I have more Regard in that to the Manner which has been practised, than to the Place where the Painter is born. The Painters, and the Curious, who have placed, for Example, the old *Palme*, *Moretto*, *Lorenzo*, *Lotto*, *Moro*, and several other good *Lombard* Painters, in the School of *Lombardy*, have thrown us insensibly into Confusion, and have made several believe that the School of *Lombardy*, and that of *Venice*, was the same Thing, because the *Lombards* above-mentioned, have entirely followed the Manner of the *Georgion*, and of the *Titian*.

The GERMAN TASTE, is that commonly called the *Gothick Taste*. It is an Idea of Nature, as it is commonly seen with its Imperfections, and not as it appears to be in its Purity. The *Germans* have imitated it without Choice, and have only dressed their Figures in long Draperies, the Plaits whereof are dry and broken. They have minded more to finish their Objects, than to dispose them well; the Expressions of their Figures are commonly insipid, their Design dry, their Colour tolerable, and their Work laborious. Though there are some among the *German* Painters, who deserve to be distinguished from the rest, as having had certain Parts comparable to the best Painters of *Italy*.

The FLEMISH TASTE, differs no otherwise from the *German*, but by a greater Union of Colours well chosen, by an excellent Clair-obscure, and by a very soft Pencil. I except from the common *Flemings*, three or four Painters of that Nation, Disciples of *Raphael*, who brought over from *Italy*, the Manner of their Master, in the Design and Colouring. I except besides *Rubens* and *Vandyke*, who have consider'd Nature with penetrating Eyes, and carried its Effects to an uncommon Elevation; tho' they have retained something of the Natural of their Country in the Taste of the Design.

The FRENCH TASTE, has always been so divided, that it is very difficult to give a just Idea thereof; for it appears, that the Painters of that Nation have been in their Works, pretty distant from one another. Some of them have stay'd at *Rome*, and have been contented with the Taste they have taken there. Others have stay'd longer at *Venice*, and are returned from thence, with a particular Inclination for the Works of that Country; and others have put all in Use to imitate Nature, such as they thought they saw it. Among the best *French* Painters of the last, and of this Century, some have followed the Taste of the Antique; others, that of *Annibal Caracci* for the Design, and the one and the other have had but an indifferent Colouring; but they had, otherwise, so many beautiful Parts, and have treated their Subjects with so much Elevation; that their Works will always serve as Ornaments to *France*, and will be admired by Posterity.

PAPER-MAKING.

PAPER-MAKING, is the Art of preparing artificially of some vegetable Substance, as a thin flexible Leaf, usually white, to write upon with Ink.

Note, That various are the Materials on which Mankind in different Ages and Countries, have contrived to write their Sentiments; as on Stones, Bricks, the Leaves of Flowers, and Trees, and their Rind or Bark, also Tables of Wood, Wax, and Ivory; to which may be added, Plates of Lead, Linen Rolls, *&c.* at last the *Egyptian Papyrus* was invented; then Parchment, Cotton-Paper, and lastly, the common or Linen-Paper, the Manufacture whereof I design to mention first, as the most useful at present; reserving to speak of the others, at the latter End of this Treatise. The Method of making Linen-Paper is as follows:

The Process begins with preparing the Rags. These, when brought to the Paper-Mills, are first to be sorted into what they call the *Grobing fine*, *Grobing second*, and *Grobing tres*; for among the rest will be some Linsey-Wolsey, which the Dirt makes indiscoverable till they are once washed.

The Way of Washing, is by putting them in a Puncheon with many Holes in the Bottom, and Grates on the Sides made of strong Wires. Here are the Rags to be often stirred, that the Dirt may run from them.

When sufficiently washed, they are laid in square Heaps, and cover'd close with Pieces of clean Sacking, till they truly sweat and rot, which is called *fermenting*, and is usually performed in four or five Days; if they be not taken in due Time, they are apt to mildew, discolour, and take Fire. When duly fermented, they twist them in Handfuls, then cut them with a sharp Hook set fast in a Frame, with the Point upwards, and Edge from the Workman; still drawing them upwards, and cutting them Piece by Piece about half an Inch long, or as the Fingers will allow.

With the Rags thus prepared, they prime or feed the Mortars, which are made oval, about half a Yard deep, of Heart of Oak right seasoned. At the Bottom of each is an Iron Plate an Inch thick, eight Inches broad, and thirty long; shaped inward like a Mould for a Salmon, with Head and Tail rounded. In the Middle is a washing Block, grooved with five Holes in it, and a Piece of Hair-Sieve fastened on the Inside. This keeps the Hammers from touching it, and prevents any Thing going out except filthy Water.

The Mortars are supplied with Water, Night and Day, by little Troughs, from a Cistern fed by the Buckets fixed to the several Floats of a Wheel, so long as the Wheel goes.

In these Mortars, the Rags being beaten fit for a Remove to the Presses just by, they take them out with little Iron hooped Pails, out of any of the Mortars, whose Hammer they can stop, while the others work. This makes what they call the *first Stuff*.

From the Mortars, this first Stuff is lodged in Boxes of five Feet high, made like the Corn-Chandler's Bin, with the Bottom Board a-slant, and a little Separation on the Front for the Water to drain away. The Pulp of Rags being in, they take away as many of the Front-Boards as are needful, and press the Mass down hard with their Hands: The next Day they put on another Board and more Pulp, till the Box is full. And here it remains mellowing a Week, more or less, according to the Weather.

Note, That in the whole Process there must be no Iron-Work, where it may be liable to grow rusty, which would Iron-mould the Stuff; and spoil the Paper.

After this, the Stuff is again put into clean Mortars, beaten afresh, and removed into Boxes as before; in which State it is called the *second Stuff*.

Th:

The like underſtand of the third Time, which fits it for the Pit-Mortar, when it is again heated, ſtill ſome of it being mixed with fair Water, and brewed to and fro, appears like Flour and Water without any Lumps in it.

Thus prepared it is fit for the Pit-Mortar, which has flat Hammers without Nails. Into this, by a Trough, runs Water continually, while they work at the Fat; and here the Beating and Water diſſolves it perfectly; after which it is carried into the Fat, and more is brought from the Boxes. And thus they do ſucceſſively.

The Fat is primed according to Art, when the Liquor has ſuch a Proportion of the Pulp; as that the Mould dipped in it will take up as much as will make the Sheet of *Paper* of the Thickneſs deſired.

Note, That a *Mould* is a ſquare Sieve about an Inch deep, bottomed with Braſs Wire-Cloth, ſupported with Sticks to prevent the Wire from bagging down; and keep it perfectly horizontal: For that if it any ways bags, one Part of the Sheet of *Paper* will be thicker than the other.

This Mould the Maker dips, with a Deckle on, into the Fat, and takes it out again ſhaking, that the Water may run clear from the Pulp in the Sieve, and thus delivers it to the Coucher, who couches it upon a Felt laid on a Plank, and lays another Felt on it; and ſo ſucceſſively, a Sheet and a Felt, a Sheet and a Felt, till a Poſt, *i. e.* one preſſing, containing ſix Quire, be made. Of Poſt *Paper* they may make twenty Poſts or more per Day. The Coucher having done his Office, returns the Mould to the Maker, and the Maker to the Coucher ſucceſſively.

A Poſt being made, either the Maker, or Coucher whiſtles; upon which four or five Men advance, one whereof draws the Poſt under the Preſs with two little Hooks; and the reſt preſs it with great Force till no Water is left, which is quickly done with two or three Pulls.

This being done, the Poſt is pulled from the Preſs, and ſet on the right Side by the laying Stool; then the Layer takes off the firſt Felt, returns it to the Coucher, and lays the firſt Sheet on the laying Stool, over which he lays the ſecond, then the third, very regularly; and thus ſucceſſively till the whole Poſt be laid out.—Which done, it is ſet by till towards the End of the Day, and then the whole Day's Work is preſſed again, and ſet exactly on one another, ſo that it looks like one ſolid Paſteboard.

This, after two or three Pulls, as before, is taken out again by the dry Workman, and carried up into the Loft, and hangs ſix or ſeven Sheets together upon Lines faſtened to a Thing called a *Tribble*, each Tribble containing thirty Lines, ten or twelve Foot long.

When dried, it is taken down, laid on a three-footed Stool, and there rubbed ſmooth with the Hands; and afterwards placed in Heaps, ſeven or eight Foot high, in a very dry Place; where it ſtands till ſizing, which is the next Operation.

Chuſing a fine, dry, temperate Day, they put into a Copper two Barrels of Water; and into this, when juſt warm, ſixty Pounds weight of clean Parchment, or Vellum Shavings, which they boil till it be reduced to a perfect Size; then ſtrain it through a fine Cloth, on which is ſtrewed a due Proportion of white Vitriol and Roch-Allum finely powder'd, into a Tub a Foot deep.

Near to this Tub are brought four or five Reams of the *Paper*, and a full Gage, or ſo much as can be taken up with the Hands at a Time, is dipped into the Size, being as hot as the Hand can well bear it; and by a certain, gentle, quick Management, it is ſo ordered, that every Sheet ſhall be ſized: After which it is put regularly into the Preſs, preſſed, moved thence into the drying Loft, and hung uſually, Sheet by Sheet, till dry. —But Care is taken that the direct Rays of the Sun, come not nigh it till it be dry, which would otherwiſe endanger the Evaporation of the Size.

When thoroughly dry it is taken down, ſmoothed with the Hands as before, heaped, preſſed hard, and ſo it ſtands all Night. Next Morning it is taken out, and carried into the Store-houſe, where it is ſorted; what is fit for inſide Quires are laid by themſelves, and the outſide by themſelves; and then it is preſſed again, and ſo commonly ſtands all Night.

In the Morning it is carried into the Store-houſe again, where it is told into Quires of 24 or 25 Sheets each, folded, laid by in Heaps; and when there is a Preſs full, it is preſſed again, double for a while, and then made into Reams of twenty Quires each; and Bales, of ten Ream to a Bale.

The broken Sheets are commonly put together, and two of the worſt Quires placed on the Outſide of the Ream, called the *outſide Quires*; thus being tied up in Wrappers, made of the Settling of the Fat, it's fit for Sale.

Note, That with ſome of the aforeſaid Pulp, is alſo made *Paſte-board*, after the ſame Manner of Paper.—There is, alſo, a coarſe Kind of *Paſte board*, made of old Paper and old *Paſte-board*, beaten in a Mortar with Water, and reduced into a Kind of Pulp; to which is added a little Paſte, to give the Maſs a Conſiſtence; after which it is formed in a Mould; and to finiſh it, laid in a Preſs, to ſqueeze out all the Water, and reduce it to its proper Thickneſs.—Each Kind is diſtinguiſhed by Numero's, which expreſſes its Fineneſs and Value: The fineſt is covered on both Sides with a very white ſmooth Paper, others only on one Side; and others on both Sides with common Paper.

Paper is ſold by the Ream every where, we think, except in the Paper-Works of *Auvergne*, where it is ſold by Weight, at the Rate of fourteen Ounces to the Pound; each Ream, according to its Kind, being to weigh a certain Number of Pounds, preſcribed by Authority.

Papers are of various Kinds.—With regard to Colours they may be divided into *white*, *brown*, *blue*, &c.—with regard to Quality, into *fine*, *ſecond*, *baſtard*, *ſuperfine*, &c. with regard to Uſe, into *Writing*, *Printing*, *Preſſing*, *Cap*, *Cartridge*, *Copy*, *Chancery*, *Poſt*, &c.—with regard to Dimenſions, into *Demy*, *Medium*, *Crown*, *Fool's-cap*, *Pot*, *Royal*, *Super-royal*, *Imperial*, *Elephant*, *Atlas*, &c. —with regard to Countries, into *Germany*, *Lombard*, *Rochel*, *Genoa*, *Holland*, &c.

French Papers, are divided into *large*, *middle* and *ſmall*.—To the *ſmall* belong theſe called, *petit Romain*, *petit Raiſin*, or *Bâton Royal*, *petit nom de Jeſus*, and *petit a la main*, all thus nominated from the Works impreſſed on them in making. Alſo the *Cartier* for the Backs of playing Cards: *Pot*, for the Figure Side; *Couronne*, which has commonly the Arms of the Comptroller of the Finances; *Telliere*, with the Arms of the late Chancellor *Tellier*, with a double T; and *Champy*, or a *Chaſis la ſerpente*, ſo called from its Mark, the Serpent; which being extremely fine and thin, is uſed by Fan-makers.

To the middling Sort belong the *grand raiſin Simple*; *Carré Simple*, *Cavalier* and *Lombart*, the three laſt of which are for Printing; *L'Ecu*, or *compte Simple*, *Carré double*, *l'Ecu double*, *Grand raiſin double*, and *Couronne double*, which three laſt are denominated *double*, on account of their Strength and Thickneſs. Add to theſe the *Pantalon*, or *Paper* with the *Dutch* Arms; and *grand Comet*, ſo denominated from the Impreſſion on it.

To the *large* belong the *grand Jeſus*, *petite & grande Fleur de Lis*, *Chapelet*, *Colombier*, *grand Aigle*, *Dauphin*, *Soleil*, and *l'Etoile*, which are thus called from the Figures they bear, being all proper for Printing, either at the Letter-Preſs or Rolling-Preſs; alſo for Merchants Books, and for drawing on. The *grand Monde* is the largeſt of all.

The Manufacture of *Paper*, has got Footing in moſt Countries, though *France*, *Holland*, and *Genoa*, are the Places where it ſucceeds beſt. In general it depends much on the Quality of the Linen worn in the Country where it is made: Where that is fine, or coarſe, and brown, *&c.* the Rags, and conſequently the Paper made thereof muſt be ſo too; hence the Whiteneſs of the *Dutch*, *French* and *Flemiſh* Paper, beyond the *Italian*, and much more the *German* Papers. The *Engliſh* Manufacture hitherto has been of no great Reputation; but it is every Day improving, inſomuch that there is now very little of the ordinary Sort imported, which were formerly all brought from abroad. Yet Paper-Mills are of ſome Standing in *England*. One was erected at *Dartford* as early as the Year 1588, which is thought the firſt,

first, and which is celebrated by a noted Poet of that Age, *Tho. Churchyard*, in a Work in Verse, intitled, *A Description, and Discourse of Paper, and the Benefits it brings; with the setting forth of a Paper-Mill built near* Dartford, *by a* High-German, *called Mr.* Spilman, *Jeweller to the Queen*, Lond. 1588, 4*to*.

But the Deficiency of the *English* Paper Manufacture, does not seem so much owing to the Quality of the Rags of the Country, (since the *English* wearing as fine Linen as any other Nation in *Europe*, the Rags consequently must be as fine) as the Want of Skill and Attention in the Makers. The Deficiency in the Whiteness must proceed either from the Rags being not thoroughly washed before they are put in the first Mortars, or from a too long, or too excessive Fermentation of the Pulp. Its Sponginess must be attributed to the Coarseness of the Pulp, which is made into Paper, before it has acquired in the Pit-Mortars a due Degree of Fineness. Though, if this was rectified, which might be easily done, it would deserve the Encouragement given to it by the Legislature, in the high Duty laid on foreign Paper imported; how considerable this is, will appear from the following State.

	s.	d.
Genoa Royal fine *Paper*, pays *per* Ream	7	7½
Genoa Royal second	6	10½
Genoa Demy fine	3	10½
Genoa Demy second	3	1½
Genoa Crown fine	3	1½
Genoa Crown second	2	4½
Genoa Fool's-cap fine	3	1½
Genoa Fool's cap second	2	4½
Fine *Holland* Royal	7	7½
Fine *Holland* second	5	0
Ordinary Royal	2	6
Dutch printing Demy	3	4½
Dutch Crown fine	2	4½
Dutch Crown second	2	0
Dutch printing Fool's-cap	2	0
Atlas fine	28	10

When and by whom Linen Paper was invented is a Secret, which *Polidore Virgil* owns he could never trace. *Scaliger* will have it to have been found out by the *Germans*: *Malfei* affirms it certain, that the Invention is owing to the *Italians*; others ascribe it to some Refugee *Greeks* at *Basil*, who took the Hint from the Manner of making *Cotton Paper* in their own Country. *Conringius* takes the *Arabs* to have first brought it among us; perhaps the *Chinese* have the best Title to the Invention, who for many Ages have made Paper much after the same Manner, and even in some Provinces of the same Materials, *viz.* Hemp.

Linen Paper, appears to have been first introduced among us towards the Beginning of the 14th Century. The learned *Conringius* denies that there are any Manuscripts of this Paper above 400 Years old; with whom agrees the Count *Maffei*, who find no Mark of its Use before the Year 1300.

Some indeed go much further back, and take the *Libri Lintei* mentioned by *Livy* and other *Roman* Writers, to have been written on *Linen Paper*: But *Guilandinus*, and after him *Allatius* and others, have sufficiently refuted this Notion; and shewn that the *Libri Lintei* were written on actual Pieces of Linen Cloth, or Canvas, prepared for this Purpose, such as Painters still use; and not on *Paper* made of Linen Rags.

Others run into the contrary Extreme, and make *Paper* the Invention but of Yesterday. The Jesuit *Inchafer*, dates its Origin about 250 Years ago; with whom agrees *Milius* in his *Hortus Philosophicus*, who maintains that the Art of making *Paper* was not invented till about the Year 1470. Of the same Opinion seems *Rap*, who tells us the Art of making this Paper was not known in *Guernsey* till the Year 1470, and when two Persons, named *Anthony* and *Michael*, first brought it to *Basle*, out of *Gallicia* in *Spain*. In effect, if the Invention be owing to the Refugee *Greeks* at *Basil*, who fled thither after the taking of *Constantinople*, it must at least be posterior to the Year 1452, when that City was taken. Some add a farther Argument for the Novelty of *Paper*, drawn from the Novelty of Hempen Cloth, which *Rablais*, who died in 1553, mentions as first found out about 100 Years before him; and which was so scarce in the Time of *Charles* VII. of *France*, who died in 1461, that the Queen his Wife was the only Woman in *France* that had a Couple of Shifts of it.

But these Suggestions are refuted by *Mabillon*, from the Testimonies of Writers prior to the Time here spoken of, and from many Manuscripts above 400 Years old, which are written on *Linen Paper*. The Jesuit *Rabbinus* produces divers Instances of *Paper* Manuscripts written before the Year 1340. An ingenious *English* Writer assures us, he had a Piece of *Paper* which agreed well with a Charter dated in 1358, in the 32d Year of *Edward* III. He adds, that in the Archives of the Library belonging to the Dean and Chapter of *Canterbury*, is an Inventory of the Goods of *Henry*, Prior of *Christ-Church*, who died in 1340, written on *Paper*; and that in the *Cotton* Library there are several Writings on *Paper*, in the Times of most of the Kings and Queens of *England*, as high as the 15th of *Edward* III. which coincides with the Year 1335. Dr. *Prideaux* assures us, he has seen a Registration of some Acts of *John Cranden* Prior of *Ely*, made on *Paper*; which bears Date in the 14th Year of King *Edward* II. that is, *Ann. Dom.* 1320.

Add, that the Invention of *Paper* may appear more modern than it is, by reason Records were not used to be wrote on it, but it was a considerable Time confined to Letters, and other fugacious Compositions; which is so true, that to this Day, few Instruments of any Consequence are written on it, though it has been so long in use. It is even added, that *Peter*, the venerable Abbot of *Cluny*, who died in 1157, has a Passage in his Book against the *Jews*, which plainly indicates Paper Books to have been then known; on the Authority whereof *Velasius*, in his Notes on the Panegyrick of *Berengarius Augustus*, scruples not to make *Paper* upwards of 500 Years old.

Father *Hardouin* even assures us, he had seen Records or Diploma's on it prior to the 13th Century. But this will hardly be credited. Count *Maffei* assures us, that in all his Researches he could never meet with one more antient than the Year 1367. It is highly probable the learned Jesuit mistook a Cotton Manuscript for a Linen one: A Mistake easily made, as the chief Difference between the two consists in the greater Thinness of the *Linen Paper*. But it is known we have *Linen Paper* of very different Degrees of Thickness; and the like may be said of those of Cotton.

The Invention, according to *Prideaux*, seems to have been brought from the East; for that most of the old Manuscripts in *Arabick* and other oriental Languages are written on this Sort of *Paper*; some of which are certainly much older than of the Dates above-mentioned. This Author thinks it most probable, that the *Saracens* of *Spain* first brought it out of the East into that Country; from whence it was propagated through the rest of *Europe*.

As for Cotton Paper, *Charta Bombycina*, is a Sort which has been in Use upwards of 600 Years, as is shewn by *Montfaucon* from several Authorities: What is more, *Cotton Paper* appears to have been very common at that Time, and consequently must have been invented long before. In the King of *France*'s Library are Manuscripts on this *Paper*, which by the Character and other Circumstances appear to be of the 10th Century. Be this as it will, from the 12th Century, *Cotton* Manuscripts are more frequent than Parchment ones.

A Secret was found of late Years in *Europe*, of making a Kind of *incombustible Paper* of the *Lapis Asbestos*, or *linum vivum*, which will bear burning without being injured.

Dr. *Bruckmann*, Professor at *Brunswick*, has published a natural History of the *Asbestos*, or *incombustible Paper*, and what is more remarkable, has printed four Copies of his Books on this *Paper*, which are deposited in the Library of *Wolfembutel*.

The Manner of making this extraordinary *Paper* is described by Mr. *Lloyd* from an Assay made by himself. He pounded a Quantity of *Asbestos* in a Stone Mortar, till it became of a downy Substance; then sifted it thro' a fine Serce, and by this Means purged it indifferently well from its terrene Parts; for what Earth or Stones he could

could not pick out of it before, or at the Pounding, being reduced to a Powder, came through the Seirce, the Linum remaining. This done, he brought it to the Paper-Mill, and putting it in Water in a Vessel just big enough to make a Sheet with such a Quantity, he stirred it pretty much, and desired the Workmen to proceed with it in the usual Method, with their Writing-Paper Mould; only to stir it about always before they put their Mould in; considering it as a far more ponderous Substance than what they used, and that frequently, if not immediately taken up after it was agitated, it would subside.

The *Paper* made of it proved but coarse, and too apt to tear; but this being the first Trial, there is Reason to believe it might be much improved; nor did the Workmen doubt, but in Case it was pounded in one of their Mortars for twenty Hours Space, it would make good Writing-Paper.

The *Paper* principally used among the Antients, was the *Egyptian Paper*, made of a Rush, called *Papyrus*, or *Biblus*, growing chiefly in *Egypt*, about the Banks of the *Nile*; though it was also found in *India*; and *Gualandinus* assures us, he saw in *Chaldea*, at the Confluence of the *Tygris* and *Euphrates*, large Fens, wherein with his own Hands he plucked a *Papyrus*, differing in nothing from that of the *Nile*. *Strabo*, likewise, speaks of a Sort of *Papyrus*, growing in *Italy*; but we do not find it was ever used for making *Paper*.

To make the Egyptian Paper.—They began with lopping off the two Extremes of the *Papyrus*, viz. the Head and Root as of no Use in this Manufacture: The remaining Stem they slit length-wise into two equal Parts, and from each of these they streighten'd the thin scaly Coats or Pellicles whereof it was composed, with the Point of a Penknife. The Innermost of those Pellicles were looked on as the best; and those nearest the Rind or Bark, the worst. They were kept a-part accordingly, and constituted different Sorts of *Paper*.

As the Pellicles were taken off, they extended them on a Table: Then two or more of them were laid over each other, transversly, so as their Fibres made right Angles. In this State they were glued together by the muddy Water of the *Nile*; and in other Countries, where the Waters of the *Nile* were not to be had, the Pellicles were fastened together with a Paste, made of the finest Wheat-Flour, mixed with hot Water, and a sprinkling of Vinegar.

These being next pressed to get out the Water, then dried, and lastly flatted, and smoothed, by beating them with a Mallet, constituted *Paper*; which they, sometimes, polished further, by rubbing it with a Hemisphere of Glass, or the like.

There were *Paper* Manufactures in most Cities of *Egypt*; but the greatest and most celebrated was that at *Alexandria*, where, according to *Varro*'s Account, *Paper* was first made. It is certain, at least, it was from hence, that *Greece* and *Italy* were furnished, on Account of the convenient Situation of that Port: And it is more than probable, it was this gave the *Romans* occasion to conclude, the Art had been invented there. It was not, till late, when *Egypt* was reduced to a *Roman* Province, that they had much Intercourse or even Knowledge of the Inland Cities of *Egypt*, where *Paper* was also made. The Trade and Consumption of this Commodity, were in Reality incredible. *Vopiscus* relates, that the Tyrant *Firmus*, who rebelled in *Egypt*, publickly declared, he would maintain an Army only with *Paper* and Glue, *Papyro & Glutine*. This *Casaubon* understands as spoken of the Produce and Revenue of *Paper*; though *Salmasius* takes it to be meant of the *Papyrus* itself, which could supply most of the Necessaries of Life.

We find divers Species of *Egyptian Paper*, mentioned in antient Writers: Some denominated from the Places where they were manufactured, as, 1. The Amphitheatrica, supposed to have been made in some Buildings belonging to an Amphitheatre at *Alexandria*. Though *Guilandinus*, with more Probability, reads it *Athribitica*, from *Athribis*, a City in the Middle of the *Delta*, which was the Place of the Manufacture. What countenances the Correction, is, that we find mention of this *Paper*, before there was so much as an Amphitheatre at *Rome*, much less at *Alexandria*. 2. *Saitica*, made in the City *Sai*. 3. *Tæniotica*, or according to others, *Taitica*, whose Place Authors are not agreed on.

There were other Sorts denominated from the Makers, as, 1. The *Fanniana*, from the *Grammarican Rhem. Fannius Palæmon*, who kept a *Paper* Work: It was small, but finer than the amphitheatrical *Paper*; being first wrought at *Alexandria*, and afterwards finished at *Rome*. 2. *Claudia*, first made by Order of the Emperor *Claudius*; this was reputed the best of all, in that, besides the two Pellicles in common with the rest, it had a third.

Others were denominated upon the Uses they were intended, for, as, 1. *Hieratica*, the first, or oldest Sort, which was appropriated to religious Uses; this was afterwards denominated *Augusta*, and *Liviania*, in Complement to the Emperor of that Name, and his Wife; who, according to some, improved and made it whiter than before. 2. *Emporetica*, or *Emporica*, a small and coarse Sort, serving Shop-keepers to tie up Goods, *&c.*

The Qualities for which the antient *Papers* were prized, were Thinness, Closeness, Whiteness, and Smoothness: Though their Breadth also considerably enhanced their Value. That Sort called *Charta Claudia*, was thirteen Inches wide; the *Hieretica*, eleven; the *Fanniana*, ten; *Amphitheatrica*, nine; as for the *Saitica*, it exceeded not the Mallet it was beaten with.

The Origin of the Art of making *Paper* of the *Papyrus*, is very obscure; no doubt, as already observed, it was first discover'd in *Egypt*. *Isidore* fixes it more particularly to the City *Memphis*, in which he seems to be countenanced by *Lucan*, where he says,

Nondum flumineas Memphis contexere Biblos
Noverat ———— *Pharsal. l. 3. v. 222.*

The Æra of this Invention is warmly disputed: *Varro* the most learned of the *Romans*, fixed it to the Time of *Alexander the Great*, after the Building of the City of *Alexandria* by that Conqueror; but several Objections of no small Weight are brought against this Decision. *Pliny* recites a Passage out of a very antient Annalist, one *Cassius Hemina*, wherein mention is made of *Paper* Books found in *Numa*'s Tomb, 535 Years after his Death, which had been buried with him: Now *Numa* was prior to *Alexander*, by above 300 Years. *Guilandinus*, in effect, maintains with great Erudition, that the Name and Use of the *Papyrus* were known to the *Greeks*, long before *Alexander* conquer'd *Egypt*; and that the Word βιβλος, and βιβλιον, occur in their received Signification, in Authors prior to, or at least older than *Alexander*, particularly *Anacreon*, *Alcæas*, *Plato* the Comedian, *Aristomenes*, *Cratinus*, *Antiphanes*, *Plato* the Philosopher, *Æschylus*, and *Aristotle*. And whereas some speak of I know not what, *Pseudo-Biblus*, known before the Discovery of the true Sort, he argues on the contrary, that the *Biblus*, mentioned by those Authors, prior to the Conquest of *Alexander*, appears from *Herodotus*, *Theophrastus*, and others, to be the very same Plant with the *Biblus* and *Papyrus*, of which *Paper* was made. Even *Homer* and *Hesiod*, the most antient *Greek* Poets, and who, by *Herodotus*'s Testimony, lived about 400 Years before himself, appear to have been no Strangers to the *Papyrus*, since they make express Mention of it.

To this it may be answer'd, that supposing the Plant *Papyrus*, known in *Greece* long before *Alexander*'s Conquest of *Egypt*, it no more follows, that they had then the Use of *Paper*, than it follows that Men had Wine immediately on the Discovery of the Vine. This last, it is certain, was known among them long before they made Wine; and to this Day a Part of the new World called *Florida*, is said to abound with Vines (and in fact I have seen some wild ones, charged with Grapes of a prodigious Bigness, in some Woods of those Parts) tho' no Use have been made yet of them either by the Inhabitants or the *Spaniards*. As it was with the Vine, which must have been known before Wine could be made from it, so it is with *Papyrus*, which among the *Greeks* was long used for tying up Things, before it came to be wrote on. In Reality, *Guilandinus* produces Testimonies from *Anacreon* and *Alcæus*, in which the *Papyrus* is employ'd for Binding and not for *Paper*: Add, that he

ill

ill translates τυφρεα λυχνου, *Ellychnican*, since λυχνος, here is the Torch itself; nor does the Poet say it was made of *Papyrus*, but tied up with it.

Some have even doubted whether the Art of Manufacturing the *Papyrus* was so antient as *Alexander's* Time; chiefly on this Ground that 200 Years after *Alexander*, Men wrote on Skins, and Barks of Trees: But this is no wise conclusive. The Scarcity of the new Manufacture may account for it: Some Ages afterwards, even as low as *Tiberius*, we read of such a Scarcity of *Paper*, that its Use, even in Contracts, was dispensed with by a Decree of the Senate, and the Opinion of the Judges. The same Consideration may be carried further; *Paper* might have been known in *Egypt*, *Judea*, *Syria*, and *Asia*, on this Side *Taurus*, long before the Birth of *Alexander*, though not in common Use; but it was later ere the *Europeans* received it; and probably it was by Means of *Alexander*'s Conquest, that it first became publickly known there.

When the Manufacture of the *Egyptian* Paper ceased, is another Question, for at present *Papyrotechnia Ægyptiaca*, may be reckon'd among those Arts which are lost. *Eustathius*, the learned Commentator on *Homer*, testifies, that even in his Time, *viz.* in 1170, it was disused; *Mabillon* indeed maintains, that it continued till the 11th Century after *Christ*, and cites one *Fridegod*, a *Monkish* Poet of the 10th Century, as speaking of it as subsisting in the Age before his, that is in the 9th; but that it continued longer; the same *Mabillon* endeavours to evince from several papal Bulls wrote on it as low as the 11th Century.

Maffei, on the other Hand, maintains, with more Probability, that the *Papyrus* was generally disused before the 5th Century; for we find no authentick Records written on it, dated since that Time; those Bulls of Popes, cited by *Mabillon*, appearing rather to be written on Cotton *Paper*. But this, we may observe, relates only to the general and legal Use of the *Papyrus*. For that it should have continued to be made by particular Persons several hundred Years after it first began to give Way, is not to be wonder'd at.

In Reality, a more commodious Sort of *Paper*, made of Cotton, having been invented some Ages before in the East, and coming to be introduced into *Europe*, seems to have turn'd the *Papyrus* out of Doors. To which the continual Wars with the *Saracens*, by which the Traffick to *Alexandria* was render'd precarious, might possibly contribute.

Yet several Books written on Leaves of the *Papyrus* have even continued to our Days: *Mabillon* says, he had one of them, and adds, that there is another in the *Petavian* Library, being a Volume in small Folio, containing several Sermons of St. *Augustin*; he also mentions a third, containing the Father's Epistles, formerly belonging to the Church of *Narbone*, and now in the Custody of *Madame de Phimarcon*. Besides the Homilies of *Avitas* Bishop of *Vienna*, and divers Diploma's or Charters, all written on the *Papyrus*, which appear to be no less than 1100 Years old. But the Decisions of this learned Father concerning Manuscripts, are not always infallible; witness his taking the M S. of St. *Mark*'s Gospel at *Venice* to be written on *Egyptian Papyrus*, and that of *Josephus*, at *Milan*, not to be so. *Maffei* shews, on the contrary, that the former is Cotton *Paper*, and that the latter appears at first Sight to be *Egyptian*; not but the *Venetian* M S. is very old; but it has been so much used, that its Leaves are, as it were, transformed into the original Paste from whence they were made.

Bark Paper, if it may be so called, was only the *Liber*, or inner whitish Rind, inclosed between the Bark and Wood of divers Trees, as the Maple, Plane, Beech and Elm, but especially the *Tilia*, φιλυρα, or Linden-Tree, which was that mostly used for that Purpose. On this stripped off, flatted, and dried, the Antients wrote Books; several of which are said to be still extant.

Mabillon and *Montfaucon*, speak frequently of Manuscripts, and Diploma's on Bark, and are very express in distinguishing between the *Papyrus* used by the *Egyptians*, and the *Liber* or *Bark* in Use in other Countries. The two are alledged to differ in this, that the *Bark Paper* was more thick and brittle than the *Papyrus*, as well as more apt to cleave or shiver, by which the Writing was sometimes lost; as is the Case in a Bark Manuscript in the Abby of St. *Germain* at *Paris*, where the Bottom of the *Paper* remains, but the outer Surface, on which the Letters had been drawn, is in many Places peeled off.

But *Maffei*, it must not be forgot, combats the whole System of *Bark* Manuscripts and Charters as a popular Error; and maintains, that the Antients never wrote Diploma's on *Bark*; that the Distinction between the *Papers* made of the *Papyrus*, and of *Cortex*, is without Foundation; that the only Use of the *Tilia* or Linden, was for making thin Boards or Tablets for *Diptycha* or Pocket-Books, wherein they wrote on both Sides, as is done among us, an Advantage which they could not have on *Egyptian Paper*, by Reason of its Thinness.

A late *French* Writer on the Rules of Criticism, wanders further out of the Way, when he speaks of a Sort of *Paper* in *Egypt*, made of the Pith of the Cyprus. He describes the Manner of this Preparation, which was by reducing this Pith to a Pulp, and then spreading it out in Leaves. But this we suspect for a Chimera, hatched only in the Critick's Brain.

Not but there occur divers anomalous Sorts of *Paper*, which Antiquaries are not a little puzzled with, what Species to refer them to; such is that of two Bulls in the Archives of the Church of *Gironne* issued by the *Antipopes*, *Romanus* and *Formosus*, between the Years 891, and 895; they are two Ells long, and one broad, consists of two Leaves or Pellicles glued together transversly, and are still legible in most Places. The Conjectures of the *French* Scavans are numerous: The Abbot *Heraut de Belmont*, has a Discourse express on the Occasion. Some will have them made of the Leaves of the *Alga* or *Scanreck*. Others of the Leaves of a Rush, called *La Boga*, growing in the Marshes of *Roussillon*. Others of *Papyrus*. Others of *Cotton*. And others of *Bark*. So little Certainty there is in these Things, on which the Criticks nevertheless lay a great Stress.

In some Places and Ages they have even wrote on the Skin of Fishes; in others, on the Intestines of Serpents; and in others on the Back of Tortoises. Not to mention what *Epiphanius* relates, that *Moses* received the Law written on Tables of Sapphire; nor what the *Cabbalists* dream, that the same was written on a Globe of Fire; nor lastly, those military Testaments spoken of by Civilians, which were written on the Dust or Sand.

There are few Sorts of Plants, but have been used for *Paper* and Books; and hence the several Terms of *Biblos*, *Codex*, *Liber*, *Folium*, *Tabula*, *Tillura*, *Philura*, *Scheda*, &c. which express the several Parts on which they were written. And though in *Europe*, all these disappear'd upon the Introduction of *Papyrus*, and Parchment, yet in some other Countries the Use of divers of them obtain to this Day. In *Ceylon*, for Example, they write on the Leaves of the *Talipot*. The *Bramin* M S S. in the *Tulinga* Language, sent to *Oxford* from Fort St. *George*, are written on Leaves of the *Ampana*, or *Palma Malabarica*. *Hermannus* gives an Account of a monstrous Palm-Tree, called *Codda Pana*, or *Palma Montana*, *Malabarica*, which about the 35th Year of its Age, rises to be 60 or 70 Foot high, with plaited Leaves nearly rounded, 20 Foot broad; wherewith they commonly cover their Houses, and on which they also write; Part of one Leaf sufficing to make a moderate Book. They write between the Folds, making the Characters through the outer Cuticle.

In the *Maldive* Islands, the Natives are said to write on the Leaves of a Tree, called *Macaraquean*, which are a Fathom and a half long, and a Foot broad. And in divers Parts of the *East-Indies*, the Leaves of the *Musa Arbor*, or Plantane-Tree dried in the Sun, served the same Use, till of late, that the *French* have taught them the Use of *European Paper*. *Ray*, in fine, enumerates divers Kinds of *Indian* and *American* Trees, which bear *Paper*; particularly one called *Xagua*, which has something in it extraordinary; its Leaves are so large, and of so close a Texture, that they cover a Man from Top to Toe, and shelter him from the Rain, and other Inconveniencies of the Air, like a Cloak; from the innermost Substance of which Leaves, a *Paper* is taken; being a white and fine Membrane like the Skin of an Egg, as large as a Skin of our Vellum or Parchment, and nothing

thing inferior for Beauty and Goodness to the best of our *Papers*.

Besides our *modern Paper*, made of Linen Rags, we write likewise on Skins of Sheep or Goats, prepared after a particular Manner, and which we call PARCHMENT, or VELLUM.

PARCHMENT, is begun by the Skinner, and ended by the *Parchment-Maker*.

After the Skin has been stripped of its Wool, and passed the Lime-Pit, the Skinner stretches it on a Kind of Frame, consisting of four Pieces of Wood, morticed into each other at the four Angles, and perforated lengthwise from Distance to Distance, with Holes, furnished with wooden Pins, that may be turned at Pleasure like those of a Violin.

To stretch the Skin on this Frame, they make little Holes all around it, and through every two Holes draw a little Skewer; to this Skewer they tie a Piece of small Pack-Thread, and tie that over the Pins; so that coming to turn the Pins equally, the Skin is strained tight every Way, like that of a Drum.

The Skin being thus sufficiently stretched on the Frame, the Flesh is pared off with a sharp Instrument for that Purpose. This done, it is moisten'd with a Rag, and a Kind of white Stone or Chalk, reduced to a fine Dust, strew'd over it: Then with a large Pumice-Stone, flat at Bottom, much after the Manner of a Mullet for grinding Colours, they rub over the Skin, as if about to grind the Chalk; and thus scour off the Remains of the Flesh. They then go over it again with the Iron Instrument; again moisten it as before, and again rub it with the Pumice-Stone, without any Chalk underneath; this smoothens and softens the Flesh-Side very considerably. They drain it again, by passing over it the Iron-Instrument as before.

The Flesh-Side thus drained, they pass the Iron on the Wool or Hair-Side; then stretch it tight on the Frame by Means of the Pins, and go over the Flesh-Side again with the Iron; this finishes its Draining, and the more the Skin is drained, the whiter it ever becomes.

They now throw on more Chalk, sweeping it over with a Piece of Lamb-Skin, that has the Wool on; this smoothens it still farther, and gives it a white Down or Nap. It is now left to dry, and when dried, taken off the Frame by cutting it all round.

The Skin, thus far prepared by the Skinner, is taken out of his Hand by the *Parchment-maker*, who first scrapes or pares it dry on the Summer, with an Iron Instrument like that above-mentioned, only finer and sharper; with this, worked with the Arm from Top to Bottom of the Skin, he takes away about one half of its Thickness. The Skin thus equally pared on both Sides, they pass the Pumice-stone over both Sides to smooth it. This last Preparation is performed on a Kind of Form or Bench covered with a Sack stuffed with Flocks, and leaves the *Parchment* in a Condition for writing on.

The paring the Skin dry on the Summer, is the most difficult Operation in the Process of *Parchment-making*; for which Reason the Skinners seldom meddle with it, but usually leave it to those more experienced in it: The Summer whereon it is performed is a Calf-skin well stretched on a Frame, serving as a Support to the Skin, which is fastened a-top of it with a wooden Instrument that has a Notch cut in it. Lastly, that the Iron Knife may pass the easier between the Summer and the Skin to be pared, they put another Skin which they call the Counter-summer. The Parings thus taken off the Leather, are used in making Glue, Size, *&c.*

What we call *Vellum*, is only *Parchment* made of the Skin of abortive Calves, or at least of sucking Calves, 'tis finer, whiter, and smoother than the common *Parchment*, but it is prepared in the same Manner as that, abating that it is not passed through the Lime-pit.

Note, That the Word *Parchment* comes from the *Latin Pergamena*, the antient Name of this Manufacture; which it is said to have took from the City *Pergamos*, to *Eumenes*, King whereof, its Invention is usually ascribed. Though in Reality that Prince appears rather to have been the Improver than the Inventor of *Parchment*. For the *Persians* of old, according to *Diodorus*, wrote all their Records on Skins; and the antient *Ionians*, as we are told by *Herodotus*, made use of Sheep-skins and Goat-skins in writing many Ages before *Eumenes*'s Time. Nor need we doubt that such Skins were prepared and dressed for that Purpose, after a Manner not unlike that of our *Parchment*, though probably not so artificially.

Note, also, That *Parchment* constitutes a very considerable Article in the *French* Commerce: It is made in most of our Cities; and besides the Consumption at Home, we send vast Quantities abroad, particularly to *England*, *Flanders*, *Holland*, *Spain* and *Portugal*.— That called *Virgin Parchment*, and which superstitious People believe to be made of a Kind of Caul, wherein some Children are inclosed in the Womb, is nothing but somewhat thinner and finer than the rest, proper for certain Purposes, as Fans, *&c.* and made of the Skin of an abortive Lamb, or Kid.

The Liquor wherewith we write on Paper or Parchment, is called *Ink*.

The *Common* INK, is a Composition of Vitriol, Galls, Gum Arabic, and Water; to which some add Sugar-Candy, to make it more shining.

The *Printing* INK, is made of Nut-Oil or Linseed-Oil, Turpentine, and Lamp-black.

Indian or *Chinese* INK, is an admirable Composition, in vain attempted to be imitated in *Europe*: It is not fluid like our writing *Ink*, but solid like our mineral Colours, though much lighter. They make it of all Figures, but the most usual is rectangular, about a Quarter of an Inch thick. Some of the Sticks are gilt with Figures of Dragons, Birds, Flowers, *&c.* in order to this, they have little wooden Moulds, so curiously wrought, that we could hardly equal them in Metals.

To use this *Ink* there must be a little hollow Marble, or other Stone, with Water in it, on which the Stick of *Ink* must be ground, till the Water becomes of a sufficient Blackness. It makes a very black shining *Ink*; and though it be apt to sink when the Paper is thin, yet it never runs or spreads: So that the Letters are always smooth and even terminated, how big soever they be. It is of great Use in designing, because it may be weakened or diminished to any Degree one pleases; and there are abundance of Things which cannot be represented to Life without it.

The *Chinese* make it with Smoke-black of different Kinds, but the best is said to be made with the Smoke of fat Pork, burnt at a Lamp. They mix a Kind of Oil with it, to make it more smooth; and add other odorous Ingredients to take away the Rankness of the Smell. After they have mixed it into a Paste of a proper Consistence, they put it into Moulds to figure it.

We apply our *Ink*, with a little Instrument, usually formed of a Quill, which we call *Pen*.

The *Dutch Pens*, are those made of Quills, which have been passed through hot Ashes, to take off the grosser Fat and Moisture thereof.

Note, That Paper makes in all the Countries of *Europe*, a very considerable Branch of the Commerce, a vast Consumption thereof being made in all Parts; and those who follow that Sort of Trade being commonly pretty rich, especially here in *England*, where there is a famous Company of Merchants of Paper, called the Stationers Company, the Members thereof being most of them Persons in extraordinary good Circumstances; Paper being sold very dear in *England*, tho' bought pretty cheap by the Stationers: Though it is a Commerce where there can be but very little Fraud used; and most Stationers being reckoned very honest Men.

PERSPECTIVE.

PERSPECTIVE, is the Art of delineating visible Objects on a plain Surface, such as they appear at a given Distance or Height, upon a transparent Plane, placed perpendicular to the Horizon, between the Eye and the Object.

There are three Sorts of *Perspective*, viz. *linear*, *aerial*, and *specular Perspective*.

Linear PERSPECTIVE (to which most properly belongs our Definition, and which is a Branch of the Mathematicks) regards the Position, Magnitude, Form, *&c.* of the several Lines, or Contours of Objects, and express their Diminution.

Aerial PERSPECTIVE (which makes Part of the Art of Painting) regards the Colour, Lustre, Strength, Boldness, *&c.* of distant Objects, consider'd as seen through a Column of Air, and expresses the Diminutions thereof.

Specular PERSPECTIVE, represents the Objects in conical, spherical, or other Mirrours, erect and clear; whereas on Lawn, and other Planes, they appear confused and irregular.

Note, That these three Sorts of *Perspective* have each its particular Doctrine; but before we proceed on the Explanation of that Doctrine, we must teach our Pupils what's *Planes* in *Perspective*; of which there are five Sorts, viz. *perspective*, *geometrical*, *horizontal*, *vertical*, and *objective Plane*, since we'll have Occasion to mention them often in the Course of this Treatise; as likewise Lines, *&c.*

Perspective Plane, is a plain pellucid Surface, ordinarily perpendicular to the Horizon, and placed between the Spectator's Eye and the Object he views; through which the optick Rays, emitted from the several Points of the Objects, are supposed to pass to the Eye, and in their Passage to leave Marks that represent them on the said Plane. — Some call it a *Table* or *Picture*, because the Draught, or *Perspective* of the Object is supposed to be thereon; others the *Section*, from its cutting the visual Rays; and others the *Glass*, from its supposed Transparency.

There are four other Sorts of *Planes* in *Perspective*, viz. *geometrical*, *horizontal*, *vertical*, and *objective Plane*. — A *geometrical Plane*, is a *Plane* parallel to the Horizon, whereon the Object to be delineated is supposed to be placed: This *Plane* is usually at right Angles with the *perspective Plane*. — A *horizontal Plane*, is a Plane passing through the Spectator's Eye, parallel to the Horizon, cutting the *perspective Plane*, when that is perpendicular to the geometrical one, at right Angles. — A *vertical Plane*, is a Plane passing through the Spectator's Eye, perpendicular to the geometrical one; and usually parallel to the perspective Plane. — An *objective Plane*, is any Plane situate in the horizontal Plane, whose Representation is required in *Perspective*.

There are likewise several different *Lines* in *Perspective*, viz. *terrestrial Line*, *geometrical Line*, *Line of the Front*, *vertical Line*, *visual Line*, *Line of Station*, *objective Line*, and *Line of Distance*. — *Geometrical Line*, in *Perspective*, is a right Line drawn in any Manner on the geometrical Plane. — A *terrestrial Line*, or *fundamental Line*, is a right Line, wherein the geometrical Plane, and that of the Picture, or Draught, intersect one another. Such is the Line formed by the Intersection of the geometrical Plane, and the perspective Plane. — A *Line of the Front*, is any right *Line*, parallel to the terrestrial *Line*. — A *vertical Line*, is the common Section of the vertical, and of the Draught. — A *visual Line*, is the *Line*, or Ray, imagined to pass from the Object to the Eye. — An *objective Line*, is any *Line* drawn on the geometrical Plane, whose Representation is sought for in Draughts or Pictures. — A *Line of Station*, according to some Writers, is the common Section of the geometrical and vertical Planes. Others mean by it the perpendicular Height of the Eye above the geometrical Plane, whose Representation is sought for in Draughts or Pictures. — A *Line of Distance*, is a right Line drawn from the Eye to the principal Point: This, as it is perpendicular to the Perpendiculars of the Plane, or Table, can only be the *Distance* of the Eye from the Table. — The *Point of Distance*, in *Perspective*, is a Point in the horizontal Line, at such *Distance* from the principal Point, as is that of the Eye from the same.

There are other Points besides this Point of Distance in *Perspective*, viz. the *Point of Sight*, the *third Point*, the *objective Point*, the *accidental Point*, and the *visual Point*; which Term *Point*, is used for various Parts, or Places, with regard to the *perspective* Plane. — The *Point of Sight*, or *of the Eye*, is a Point on the Plane, marked out by a right Line drawn from the Eye, perpendicular to the Plane: This is also called the *principal Point*. This *Point* is in the Intersection of the *horizontal* and *vertical Planes*. Some Authors call it the *principal Point*; and give the Name *Point of Sight*, or *Vision*, to the Point wherein the Eye is actually placed, and where all the Rays terminate. — The *third Point*, is a *Point* taken at Discretion in the Line of Distance, wherein all the Diagonals drawn from the Divisions of the geometrical Plane, concur. — An *objective Point*, is a *Point* on a geometrical Plane, whose Representation is required on the *perspective* Plane. — An *accidental Point*, is a *Point* in the horizontal Lines, where Lines parallel to one another, though not perpendicular to the Picture, or Representation, meet. — A *visual Point*, is a *Point* in the horizontal Line, wherein all the ocular Rays unite. Thus, a Person standing in a streight long Gallery, and looking forwards, the Side, the Floor, and Ceiling seem to meet, and touch one another in a Point, or common Centre. These Things previously considered, I'll pass to the Explanation of the different Sorts of *Perspective*; beginning by that of the *rectilinear Perspective*, which is as follows.

Suppose a Glass Plane H I, (fig. 1.) raised perpendicular on an horizontal Plane; and the Spectator S, directing his Eye O, to the Triangle A B C: If now we conceive the Rays A O, O B, O C, *&c.* in their Passage through the Plane, to have their Traces, or Vestigia, in *a*, *b*, *c*; which, as it strikes the Eye *a* O, *b* O, *c* O, by which the Species of the Triangle A B C, is carried to the same; it will exhibit the true Appearance of the Triangle A B C, tho' the Object should be removed; the same Distance and Height of the Eye being preserved.

The Business of *Perspective* then, is to shew by what certain Rules the Points *a*, *b*, *c*, &c. may be found geometrically: And hence also, we have a mechanical Method of delineating any Object very accurately.

Perspective is either employed in representing the *Ichnographies*, and Ground-plots of Objects, as projected on *perspective* Planes; or in *Scenographies*, and Representations of the Bodies themselves.

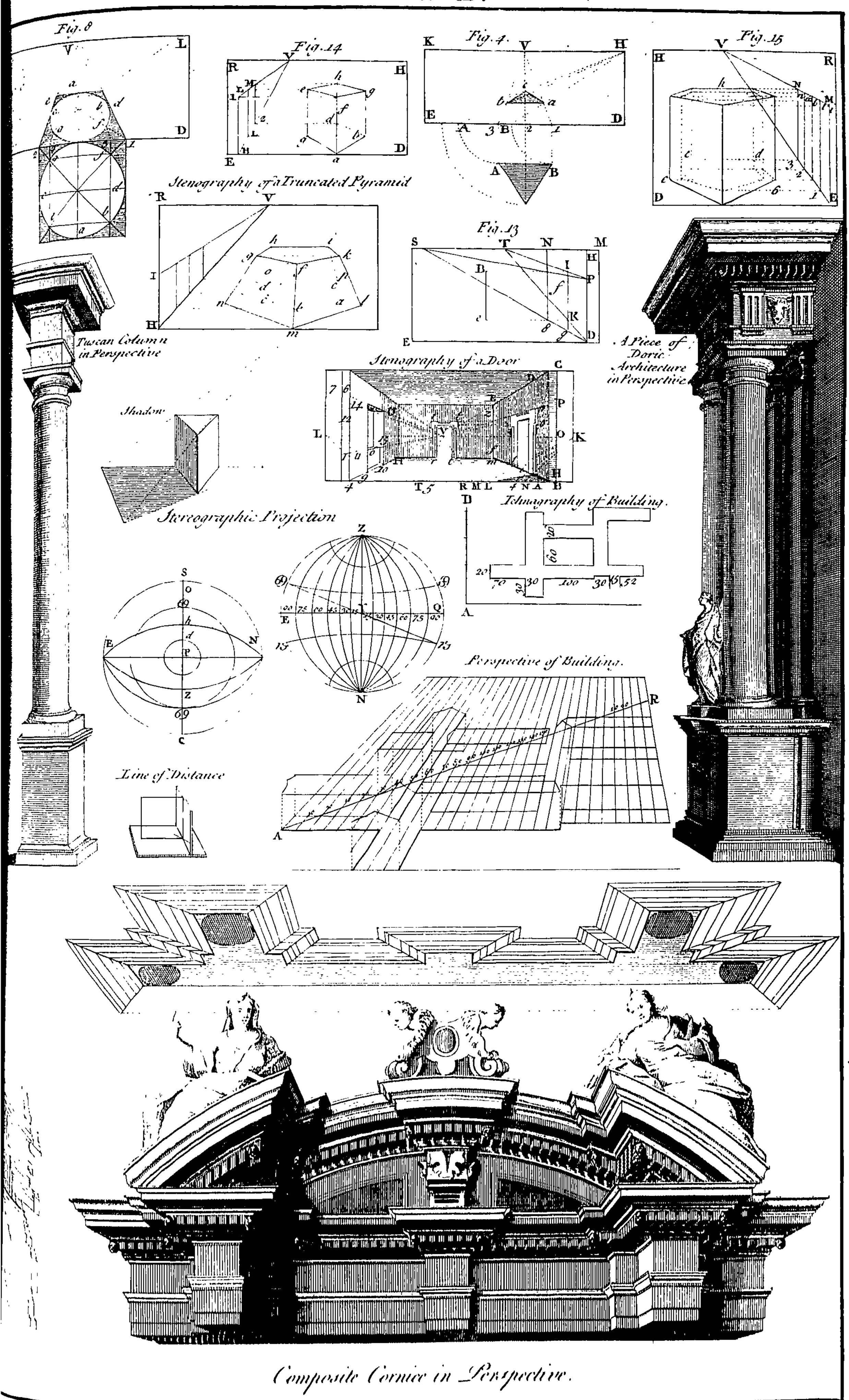
Note, That *Ichnography* in *Perspective*, is the View of any Thing cut off by a Plane parallel to the Horizon, just as the Base or Bottom of it; so that *Ichnography* is the same with what is otherwise called the *Plan*, *geometrical Plan*, or *Ground-plot* of any thing.

Scenography, in *Perspective*, is a Representation of a Body on a *perspective* Plane; or a Description thereof in all its Dimensions, such as it appears to the Eye. The *Ichnography* of a Building, *&c.* represents the Plan, or Ground-work of the Building. The *Orthography* the Front, or one of the Sides: And the *Scenography* the whole Building, Front, Sides, Height and all, raised on the geometrical Plan.

Note, also, That the following *Lemma's* are to be considered previously to the general Laws we are to establish, of both *Ichnographick* and *Scenographick Perspective*.

1. That the Appearance of a right Line is ever a right Line; whence the two Extremes being given, the whole Line is given. — 2. That if a Line be perpendicular to any

PERSPECTIVE.



any right Line drawn on a Plane, it will be perpendicular to every other right Line through the same Point drawn on the same Plane.—3. That the Height of the Point appearing on the Plane, is to the Height of the Eye, as the Distance of the objective Point from the Plane, to the Aggregate of that Distance and the Distance of the Eye.

Now for the *Laws of the Projection of plane Figures*, or *Ichnographick Perspective*, which are as follow.

The perspective Appearance, h, by an objective Point H, (fig. 2.) is exhibited, by drawing, from the given Point, H I, perpendicular to the fundamental Line D E; cutting from that fundamental Line I K = H I: Drawing through the Point of Sight F, a horizontal Line F P; and making F P, equal to the Distance of the Eye S L: Lastly, drawing from the Point I to the Point of Sight F, the Point F I; and from K to the Point of Distance P, the Line P K. The Intersection *h* is the Appearance of the objective Point. Hence,

1. Since the Appearance of the extreme Points or a right Line being given, the Appearance of the whole Line is given; the *Ichnographic* Projection of any rectilinear Figure may be had by this Method.

2. Since any Number of Points of a curve Line may by this Means be projected on the *perspective* Plane; the Projection of curve Lines may likewise be effected after the same Manner.

3. Therefore, this Method will suffice for rectilinear Figures; and is consequently universal. There are indeed other Methods delivered by other Authors, but this is the most usual; the *Force* and *Effect* whereof may be illustrated by the following Examples; *viz.*

If we want to *find the perspective Appearance of a Triangle*, A B C (fig. 4.) *whose Base A B, is parallel to the fundamental Line* D E; to that fundamental Line, we'll draw a Parallel at an Interval equal to the Altitude of the Eye. Taking a fundamental Point V, opposite to this either directly or obliquely, as the Case requires; transferring the Distance of the Eye from U to K, letting fall from the several Angles of the Triangles A C B, the Perpendiculars A 1, C 2, B 3; and setting off these Perpendiculars upon the fundamental Line D E, opposite to the Point of Distance K, drawing from 1, 2, 3, right Lines to the fundamental or principal Point U 1, U 2, U 3, and from the Points A, B and C of the fundamental Line D E, other right Lines A K, B K, C K, to the Point of Distance K.

Since *a*, *b* and *c* are the Appearances of the Points A B and C; the right Lines *c a*, *a b* and *b c*, being drawn, *a c b* will be the Appearance of the triangular A C B.

After the same Manner is a Triangle projected on a Plane, where the Vertex C is opposed to the Eye: All here required is, that its Situation on the geometrical Plane be changed, and the Vertex C turned towards the fundamental Line D E.

When we want to *exhibit the perspective Appearance of a Square* A B D C (fig. 5.) *seen obliquely, and having one of its Sides* A B *in the fundamental Line*. The Square being viewed obliquely, we assume the principal Point U in the horizontal Line K R, is such a Manner as a Perpendicular to the fundamental Line falling without the Side of the Square A B, at least, may not bisect it; making U K the Distance of the Eye. Then we'll transfer the Perpendiculars A C and B D to the fundamental Line D E, drawing the right Lines K B, K D, as also A U, U C. Then will A and B be their own Appearances, and *c* and *d* the Appearances of the Points C and D; consequently A *c d* B is the Appearance of the Square A B D C.

If the Square A C B D should be at a Distance from the fundamental Line D E; which yet rarely happens in Practice; the Distances of the Angles A and B must likewise be transferred to the fundamental Line; as is evident from the preceding Problem. And since even the oblique View is not very common; in what follows we shall always suppose the Figure to be posited directly opposite to the Eye, unless where the contrary is expressly mentioned.

We exhibit the *Appearance of a Square* A B C D (fig. 6.) *whose Diagonal* A C, *is perpendicular to the fundamental Line*; by continuing the Sides D C and C B, till they meet the fundamental Line in 1 and 2, setting off from the principal Point U, the Distance of the Eye to K and L; drawing from K to A and 1, the right Lines K A and K 1; and from L to A and 2, the right Lines L A L 2. Then the Intersections of those Lines exhibit the Appearance of the Square A B C D viewed Angle-wise.

Note, That *Intersection* is the cutting of one Line or Plane by another; or the Point or Line wherein two Lines or two Planes cut each other. The mutual Intersection of two Planes is a right Line. The Center of a Circle is in the Intersection of two Diameters. The central Point of a regular or irregular Figure of four Sides, is the Point of Intersection of the two Diagonals.

When we want to exhibit the *Appearance of a Square* A B C D (fig. 7.) *wherein another Square* I M G H, *is inscribed, the Side of the greater* A B, *being in the fundamental Line; and the Diagonal of the less perpendicular to the fundamental:* From the principal Point U, we must set off each Way, on the horizontal Line H R, the Distances U L and U K, and by drawing U A and U B, and K A and L B; A *c d* B will be the Appearance of the Square A C D B. Then by producing the Side of the inscribed Square I H, till it meets the fundamental Line in 1; and drawing the right Lines K 1 and K M; *i h g* M will be the Representation of the inscribed Square I H G M. Hence is easily conceived the Projection of any Figures inscribed in others.

Note, That *Projection* in *Perspective* denotes the Appearance or Representation of an Object on the *perspective* Plane. The *Projection*, e. gr. of a Point, is a Point through which the optick Ray passes from the objective Point through the Plane to the Eye; or it is the Point wherein the Plane cuts the optick Ray. And hence is easily conceived what is meant by the *Projection* of a Line, a Plane, or a Solid.—The *Projection of the Sphere in plano*, is a Representation of several Points or Places of the Surface of the Sphere, and of the Circles described thereon, or of any assigned Parts thereof, such as they appear to the Eye situate at any given Distance, upon a transparent Plane placed between the Eye and the Sphere.—The principal Use of the *Projection of the Sphere* is in the Construction of Planispheres, and particularly Maps and Charts, which are said to be of this or that *Projection*, according to the several Situations of the Eye, and the *perspective* Plane with regard to the Meridians, Parallels, and other Points and Places to be represented.—The *Projection of the Sphere* is usually divided into *Orthographick* and *Stereographick*.

Orthographick Projection, is that wherein the Superficies of the Sphere is drawn on a Plane, cutting it in the Middle; the Eye being placed at an infinite Distance vertically to one of the Hemispheres.—The *Laws* of this Sort of *Projection*, are these: 1. The Rays by which the Eye at an infinite Distance perceives any Object, are parallel. 2. A right Line perpendicular to the Plane of the *Projection*, is projected into a Point, where that right Line cuts the Plane of the *Projection*. 3. A right Line not perpendicular, but either parallel or oblique to the Plane of the *Projection*, is projected into a right Line, and is always comprehended between the extreme Perpendiculars. 4. The *Projection* of the right Line is the greatest, when that Line is parallel to the Plane of the *Projection*. 5. Hence it is evident, that a Line parallel to the Plane of the *Projection*, is projected into a right Line equal to itself; but if it be oblique to the Plane of the *Projection*, it is projected into one which is less. 6. A plane Surface, at right Angles to the Plane of the *Projection*, is projected into that right Line, in which it cuts the Plane of the *Projection*. Hence it is evident, that a Circle standing at right Angles to the Plane of the *Projection* which passes through its Center, is projected into that Diameter, in which it cuts the Plane of the *Projection*. 7. A Circle parallel to the Plane of the *Projection*, is projected into a Circle equal to itself; and a Circle oblique to the Plane of the *Projection*, is projected into an Ellipsis.

Stereographick Projection, is that wherein the Surface and Circles of the Sphere are drawn upon the Plane of a great Circle, the Eye being in the Pole of that Circle. As to the *Properties of this Sort of Projection.* 1. In this *Projection* a right Circle is projected into a Line of half Tangents. 2. The Representation of a right Circle perpendicularly opposed to the Eye, will be a Circle in the Plane of the *Projection.* 3. The Representation of a Circle placed oblique to the Eye, will be a Circle in the Plane of *Projection.* 4. If a great Circle is to be projected on the Plane of another great Circle, its Center will lie in the Line of Measures, distant from the Center of the Primitive by the Tangent of its Elevation above the Plane of the Primitive. 5. If a lesser Circle, whose Poles lie in the Plane of the *Projection* were to be projected; the Centre of its Representation would lie in the Line of Measures, distant from the Center of the Primitive, by the Secant of the lesser Circles Distance from its Pole, and its Semidiameter or Radius be equal to the Tangent of that Distance. 6. If a lesser Circle were to be projected, whose Poles lie not in the Plane of the *Projection*, its Diameter in the *Projection*, if it falls on each Side of the Pole of the Primitive, will be equal to the Sum of the half Tangents of its greatest and nearest Distance from the Pole of the Primitive, set each Way from the Center of the Primitive in the Line of Measures. 7. If the lesser Circle to be projected, falls entirely on one Side of the Pole of *Projection*, and do not encompass it; then will its Diameter be equal to the Difference of the half Tangents of its greatest and nearest Distance from the Pole of the Primitive, set off from the Center of the primitive one, and the same Way in the Line of Measures. 8. In the *Stereographick Projection*, the Angles made by the Circles of the Surface of the Sphere, are equal to the Angles made by their Representations in the Plane of their *Projection.*

To *exhibit the Perspective of a Pavement*, consisting of square *Stones directly.* We must divide the Side A B (fig. 8.) transferred to the fundamental Line D E into as many equal Parts as there are square Stones in one Row, drawing from the several Points of Division, right Lines to the principal Point U; and from A to the Point of Distance K, a right Line A K; and from B to the other Point of Distance L, another L B. Drawing likewise through the Points of the Intersections of the corresponding Lines, right Lines on each Side to be produced to the right Lines A U, and B U; then will A *f g* B be the Appearance of the Pavement A F G B.

For the *Exhibition of the Perspective of a Circle.*—If the Circle be small, we'll circumscribe a Circle about it; draw the Diagonals and Diameters *b a* and *d e* (fig. 9.) intersecting each other at right Angles; and the right Lines *f g* and *b c* parallel to the Diameter *d e* through *b* and *f*; drawing also through *c* and *g* right Lines meeting the fundamental Line D E in the Points 3 and 4, to the principal Point V, we'll draw the right Lines V 1, V 3, V 4, V 2; and to the Points of the Distance L and K, the right Lines L 2 and K 1. Lastly, connecting the Points of Intersection *a*, *b*, *d*, *f*, *h*, *g*, *e*, *c*, with Arches *a b*, *b d*, *d f*, &c. thus will *a*, *b*, *d*, *f*, *h*, *g*, *e*, *c*, *a*, be the Appearance of the Circle.

If the Circle be large, on the Middle of the fundamental A B (fig. 10.) we'll describe a Semi-circle; and from the several Points of the Periphiry, C, F, G, H, I, &c. to the fundamental Line, we'll let fall Perpendiculars C 1, F 2, G 3, H 4, I 5, &c. drawing from the Points A, 1, 2, 3, 4, 5, &c. right Lines, to the principal Point V, as also a right Line from B, to the Point of Distance L; and another from A to the Point of Distance K, drawing also through the common Intersections, right Lines as in the preceding Problem: Thus shall we have the Points *c*, *f*, *g*, *h*, *i*, which are the Representation of those A, C, F, G, H, I, which being connected as before, give the Projection of the Circle.

Hence appears not only how any curvilinear Figure may be projected on a Plane, but also how any Pavement consisting of any Kind of Stones, may be delineated in *Perspective.*

Hence also appears, what Use the Square is of in *Perspective*, for even in the second we use a Square divided into certain *Areolæ*, and circumscribed about the Circle; though it be not delineated on the geometrical Plane in the *Diagram.*

Note, That *Diagram* is a Scheme for the Explanation or Demonstration of any Figure, or the Properties thereto belonging.

If *we want to exhibit the Perspective of a regular Pentagon, having a broad Limb terminated by Lines parallel thereto.*—1. From the several Angles of the exterior Pentagon A, B, C, D, E, (fig. 11.) to the fundamental Line T S, we'll let fall Perpendiculars A 0, B 1, C 2, D 3, E 4; which, as in the former, we'll transfer to the fundamental Line. Connecting the Points 1, 2, 3, 4, to the principal Point V; and the Points 1, 2, 3, 4, to the Point of Distance K. Thus will the common Intersections represent the Appearance of the exterior Pentagon. 2. If now from the inner Angles G H L I, the Perpendiculars G 0, H 5, K 6, I 7, L 8, be in the like Manner let fall; and the rest be done, as in the former; we shall have the Representation of the inner Pentagon. The Pentagon A B C D E, therefore, with its Limb, is represented in *Perspective.*

This Problem is added for the Sake of an Instance of the Projection of a Figure that has a broad Limb or Edge.

Note, Notwithstanding, that if the Magnitudes of the several Parts of an Object, be given in Numbers, together with the Height and Distance of the Eye; its Figure is to be first constructed by a geometrical Scale; and the fundamental Point with the Point of Distance, to be determined by the same. Nor is it always necessary, that the Object be delineated under the fundamental Point with the Point of Distance to be determined by the same.—Nor is it always necessary, that the Object be delineated under the fundamental Line; in the Projection of Squares and Pavements it is best alone. But where it is necessary, and Space is wanting, it must be drawn a-part; finding the Divisions in it, and transferring them to the fundamental Line in the Plane. Threads being hung in the principal Point, and the Point of Distance, and stretched to the Points of the Divisions of the fundamental Line; the common Intersection of the Threads will give the Projection of the several Points without Confusion; a Thing much to be feared from the Multiplicity of Lines to be drawn. Thus far for the *Ichnographick Perspective.*

As to the Doctrine of *Scenographick Perspective*, or the Projection of Bodies on a Plane it is as follows.

1. On a *given Point* C (fig. 13.) *to raise a Perspective Altitude*, answerable to the given objective Altitude, P Q; we must raise on the fundamental Line, a Perpendicular P Q, equal to the given objective Altitude: Drawing right Lines P T, and Q T, from P and Q to any Point, as T; and from the given Point C, a Line C K, parallel to the fundamental Line D E; and meeting the right Line Q T in K, where we'll erect a Perpendicular to K C, *viz.* I K; this I K is the *Scenographick* Altitude required.

2. If we want to exhibit the *Perspective* of a Solid. We must find the Projection of its Base in the Ichnographick *Perspective*, and in the several Points thereof erect the *Perspective* Altitude: Thus will the *Scenography* of the Solid be finished, except for what relates to the Shadow. For Example.

To *exhibit the Scenographick Perspective of a Cube, viewed Angle-wise.*—Since the Base of a Cube viewed Angle-wise, and standing on a geometrical Plane is a Square viewed Angle-wise; draw a Square on the *Perspective* Plane, after the Manner laid down above; raise the Side of the Square H I (fig. 15.) perpendicularly in some Point of the fundamental Line D E; and to any Point V, of the horizontal Line H R, draw right Lines V I and V H, from the Angles *d b* and *c*, draw *c* 1, *d* 2, parallel to the fundamental Line D E, from the Points 1 and 2, raise L 1 and M 2 perpendicular to the same. Lastly, since H I is the Altitude to be raised in *a*, L 1 in *c*, and *b* and M 2 in *d*; in *a* raise *f a*, perpendicular to *a* E; and in *b* and *c* raise *b g*, and *c e*, perpendicular

dicular to *b c* 1; and lastly *d h* perpendicular to *d* 2; and let *a f* be equal to H I, *b g* = *e c* = L 1, and *h d* to M 2; if then the Points *g*, *h*, *e*, *f*, be connected by right Lines, the *Scenography* will be finished.

Note, That this Method is general, but its Application is not equally obvious in every Case; therefore we must enter into a more particular Illustration thereof, by a few other Examples, *viz.*

To *exhibit the Scenography of a Cube, viewed by an Angle.*—1. As the Basis of a Cube viewed by an Angle, standing on a geometrical Plane, is a Square viewed by an Angle; draw a Square viewed angular-wise, on the *Perspective* Table, or Plane. 2. Raise the Side H I (fig. 14.) of the Square, perpendicularly on each Point of the terrestrial Line D E; and to any Point as V, of the horizontal Line H R, draw the right Line V I and V H. 3. From the Angles *d*, *b*, and *c*, draw *c* 1, *d* 2, &c. parallel to the terrestrial Line D E. 4. From the Points 1 and 2, raise L 1, and M 2, perpendicular to the same. Lastly, since H I is the Height to be raised in *a*, L I in *c* and *b*, and M 2 in *d*; in *a*, raise the Line *f a* perpendicular to *a* E; in *b* and *c*, raise *b g* and *c e* perpendicular to *b c* 1; and lastly, raise *d h* perpendicular to *d* 2; if then the Points *g*, *h*, *e*, *f*, be connected by right Lines, the *Scenography* will be compleat.

The *Scenography of a hollow quinquangular Prism*, is exhibited thus. 1. Since the Base of a hollow quinquangular Prism, standing on a geometrical Plane, is a Pentagon, with a Limb or Breadth of a certain Dimension, the Appearance of this Pentagon must be found on a Table or Plane. 2. On any Point, as H, of the terrestrial Line D E (fig. 15.) a perpendicular H I must be raised equal to the objective Altitude; and to any Point, *a v* of the horizontal Line H, the Lines H V, and I V, are to be drawn. 3. From the several Angles *a*, *b*, *d*, *e*, *c*, of the *Perspective* Ichnography, both the internal and external ones, must be drawn right Lines, as *b* 2, *d* 3, &c. parallel to the terrestrial Line; and from the Points 1, 2, 3, Perpendiculars raised to the same, as L 1, M 2, *m* 2, N 3, *n* 3. If these then be raised in the correspondent Points of the Ichnography, as in the preceding Article, the *Scenography* will be compleat.

As to the *Exhibition of the Scenography of a Cylinder.*—1. Since the Base of a Cylinder, standing on a geometrical Plane, is a Circle; seek the Appearance of a Circle. In the Points *a*, *b*, *d*, *f*, *g*, *h*, *e*, *c*, the *Scenography* of the Circle will be compleat.

It is evident, that those Lines are to be omitted, both in the Plan and in the Elevation, which are not exposed to the Eye; though they are not to be disregarded from the Beginning, as being necessary for the finding of other Lines. As for Example, in the *Scenography* of the Cube, viewed angle-wise, the Lines *b*, *d*, and *d c*, in the Base, and *d h* in the Elevation, are hid from the Eye, and are therefore omitted in the Description. But since the upper Point *h* is not to be found, unless the Point *d* be had in the Ichnography; nor can the Lines *g h* and *d e*, be drawn without the Height *d h*; the Appearance of the Point *d* is as necessary to be determined in the Operation, as the Height *h d*.

To *exhibit the Scenography of a Pyramid standing on its Base.*—Suppose, *e. gr.* it were required to delineate a quadrangular Pyramid, viewed by an Angle. 1. Since the Base of such Pyramid is a Square, seen by an Angle, we must draw such a Square. 2. To find the Vertex of the Pyramid, *i. e.* a Perpendicular let fall from the Vertex to the Base, we'll draw Diagonals mutually intersecting each other in *e*. 3. On any Point, as H, of the terrestrial Line D E, raise the Altitude of the Pyramid H I; and drawing the right Lines H V and I V, to each Point of the horizontal Line H R; we'll produce the Diagonal *a b*, till it meets the Line V H in *b*. Lastly, from *b* we'll draw *b i* parallel to H I; this being raised on the Point *e*, will give the Vertex of the Pyramid K; consequently the Lines *d k*, *k a*, and *k b*, will be determined at the same Time. After the like Manner is the *Scenography* of a Cone delineated.

If it be the *Scenography of a truncated Pyramid, it is exhibited thus.*—Suppose the truncated Pyramid quadrangular: 1. Then, if from the several Angles of the upper Base be conceived Perpendiculars let fall to the lower Base, we shall have a Pentagon, with another inscribed therein, whose Sides are parallel to those of the former. This coincides with a Pentagon, furnished with a Rim or Breadth, &c. and may, therefore, be delineated in the same Manner. Raising the Altitude of the truncated Pyramid I H, determines the *Scenographick* Altitudes, to be raised in the Points *a*, *b*, *c*, *d*, *e*. If now the Points higher, *f*, *g*, *h*, *i*, *k*, be connected by right Lines; and the Lines *l k*, *f m*, *g n*, *h o*, be drawn, the *Scenography* will be compleat. By drawing two concentrick Circles in a geometrical Plane, and doing every Thing else, as in this Problem, the *Scenography* of a truncated Cone will be drawn.

To *exhibit the Scenography of Walls, Columns*, &c. or *to raise them on the Pavement.* 1. Suppose a Pavement A F H I, represented in a Plan, together with the Bases of the Columns, &c. if there be any. 2. Upon the terrestrial Line set off the Thickness of the Wall B A and 1. 3. 3. Upon A and B, as also upon 3 and 1, raise Perpendiculars A D and B C, as also 3, 6, and 1, 7. 4. Connect the Points D and *b*, with the principal Point V, by the right Lines D V and *b* V. 5. Upon F and H raise Perpendiculars H G and E F: Thus will all the Walls be delineated.

How to raise the Pillars, &c. there needs nothing but from their several Bases (whether square or circular) projected on the perspective Plane, to raise indefinite Perpendiculars; and on the fundamental Line, where intersected by the Radius F A passing through the Base, raise the true Altitude A D; for D V being drawn as before, the *scenographical* Altitudes will be determined.

To *exhibit the Scenography of a Door in a Building.*—Suppose a Door required to be delineated in a Wall D E F A. 1. Upon the fundamental Line set off its Distance A N, from the Angle A, together with the Breadths of the Posts N I and L M, and the Breadth of the Gate itself L I. 2. To the Point of Distance K, from the several Points N, I, L, M, draw right Lines K N, K I, K L, K M, which will determine the Breadth of the Door *l i*, and the Breadth of the Posts *i n* and *m l*. 3. From A to O set off the Height of the Gate A O, and from A to P, the Height of the Posts A P. 4. Join O and P with the principal Point, by the right Lines P V and O V. 5. Then from *n*, *i*, *l*, *m*, raise Perpendiculars, the middle ones whereof are cut by the Line O V in *o*, and the Extremes, by the right Line V P in *p*. Thus will the Door be delineated with its Posts. If the Door were to have been exhibited in the Wall E F G H, the Method were nearly the same: For, 1. Upon the terrestrial Line, set off the Distance of the Door from the Angle, and thence also the Breadth of the Door R T. 2. From R and T, draw right Lines to the principal Point V, which give the Breadth *r t* in the perspective Plane. 3. From *r* and *t* raise indefinite Perpendiculars to F H. 4. From A to O set off the true Height A O. Lastly, from O, to the principal Point V, draw the right Line O V, intersecting E F in Z, and make *r r* and *t t* equal to F Z. Thus is the Door *r r*, *t t*, drawn; and the Posts are easily added as before.

When you know how to represent Doors, you will find no Difficulty in adding Windows; all that is here farther required, being to set off the Height of the Window from the Bottom of the Ground. The whole Operation is as follows: 1. From 1 to 2 set off the Thickness of the Wall at the Window; and from 3 to 4 its Distance from the Angle 3; and from 4 to 5 its Breadth. 2. From 4 to 5, to the Point of Distance L, draw the right Lines L 5 and L 4, which will give the perspective Breadth 10, 9 of the Window. 3. From 10 and 9 raise Lines perpendicular to the Pavement, *i. e.* draw indefinite Parallels to *b*, 3. 4. From 3 to 11 set off the Distance of the Window from the Pavement 3, 11; and from 11 to 12, its Height 11, 12. Lastly, from 11 and 12, to the principal Point V, draw Lines V 11, and V 12; which intersecting the Perpendiculars 10, 13, and 9, 14, in 13 and 14, as also in 15 and 16, will exhibit the Appearance of the Window.

Note, That from these Examples, which are all no more than the Application of the first general Rules, it will be easily perceived what Method to take to delineate any other Thing, and at any Height from the Pavement. Now we'll return to *Perspective*, properly speaking.

In *exhibiting the Perspective of a Building*, Regard is had to the Height of the horizontal Line, all above the horizontal being seen in the upper Part; and all below it in the under Part: Whence *Perspective* becomes divided into the *high* and *low Sight*, both which may be illustrated by what follows.

To *represent a Building* (*v. gr.* Palace, College, *&c.*) *in Perspective.* 1. Take the Ichnography or Ground-Plot of the Building; its Length, Breadth, and Depth, by actual measuring, and take its Altitude with a Quadrant.

2. Make a Scale divided into two or three hundred equal Parts, either actually, or so as that each Division signify ten Parts: By this Scale lay down the Ground-Plot.

This done, having a long Rule, and a Square, which by sliding on the Rule helps you to draw your Perpendiculars with more Facility, reduce it into *Perspective*, in its scenographick Appearance.

Then having drawn a Line towards the Bottom of the Paper for the Front or Base Line, divide it into as many equal Parts as you find the Building has in the Ichnography, or more if you please. This will serve for a Scale to determine the several Heights, *&c.* and to these Divisions, with a black Lead Pencil draw Lines from the Centre, when you have chosen it; which Choice requires Judgment on two Accounts.

For if the Centre be too nigh to the Front-Line, then the Depth of the whole Building will fore-shorten too much; if too far off, it will not fore-shorten enough. This may be illustrated thus: Set an open Tankard, or the like on a Stand, so that it be a little lower than your Eye; if you be at great Distance from it, you can see very little or nothing into it; if you come nearer to it by Degrees, you will perceive the further Edge seems to be raised a little higher than that next you, so that you may see a little Way into it; if you come very nigh it, you see too deep into it more than can be well expressed in Picture. We shall therefore find some one Place, which we must conclude the most convenient from the Draught, and which may be in general determined to be as far off the front Line as the front Line is long: This Rule, though it has just Grounds, yet we sometimes dispense with it *pro re natâ*; that we may express Things with the better Appearance.

4. Consider how to place this Centre with such Advantage, as that you may express those Things most, which are chiefly designed; for as to Bottom and Top Lines of the Sides of the Building that runs from us in or nigh the direct Line to the Centre, though you see the upper Part very well, yet the Sides that fall between the Ground-Line and Top, fall so very near one another, that it would be very difficult to express Particulars in them; so that the Centre must be well chosen in Reference to this.

Those Buildings, therefore, you would see most of, must be placed as far off as you think convenient from the direct Line that runs to the Centre; and the further they are, the plainer they will be.

Place then those Things you would see least of, nigh-est the direct Line; and see whether the others fall according to your Minds. But this must be done after you have drawn your Diagonal, which is the next Thing.

5. Having pitched on your Centre, and having from it drawn Lines to every Division of the front Line, you are to determine your Diagonal A R, thus: Having with a Pair of Compasses, measured the Length of the front Line, take your Compasses, and putting one Foot in the Centre, see where the other will reach in the Horizon, (on both Sides if you please) where it rests; from that Point draw a-thwart Line to the last Division of the Front; and this will be truly drawn, or pretty nigh to the Truth. That it is so you may consider how it falls in Respect of the two last Centre-Lines. For if where the next Line from the last is intersected by the Diagonal you draw a Parallel, the Front between them, you will have a Rhombus; if then all the Sides be pretty equal, you may be sure you are nigh the right; but if the Sides that run towards the Centre be too long, then Things will not fore-shorten enough; if the Sides be not long enough, they will fore-shorten too much.

6. After the front Line is thus divided, the Centre fixed, and the Diagonal placed, take the Breadth of the Chapel, A B, which in the Ichnography is shewn to be twenty Parts; because this Line is perpendicular, it must run towards the Centre, therefore reckon twenty in the Diagonal, and the Rule laid parallel to the Front in that Point, will give you a Point in the Centre-Line, which will give the Breadth of the Chapel; consequently a Line drawn from A to B, puts it into the ichnographick *Perspective.* The Length of the Chapel being seventy Divisions in the front Line, reckon seventy from B, parallel to the front Line, and there you will have a Point at C.

The Depth of the Building, from the Chapel Northward, being one hundred and fifteen from the Chapel, I reckon from D; (where it cuts the Diagonal at ten) onwards, in the Diagonal; and at one hundred and fifteen in the Diagonal, with my Rule as before parallel in this Place in the Front, I have the Point Z in the central Line. Its Breadth being thirty, I reckon three Divisions, and there is the just Breadth there; and so on in every particular Part.

Having placed the Ichnography into *Perspective*, you may then give every Thing its proper Height thus:

7. The Height of the Chapel being thirty, I reckon thirty on the front Line, and with this Length by a Square clapt to the front Line, I drop a Perpendicular to that Height; and so where the other Side of the Chapel is placed, having reckoned the Height upon a supposed Parallel, there I draw another Line in that Height; then joining these several Heights by several Lines, you have the Profiles of each Building.

Note, That *Profile* is the Figure or Draught of a Building, Fortification, or the like, wherein are expressed the several Heights, Widths, and Thicknesses, such as they would appear, were the Building cut down perpendicularly from the Roof to the Foundation. Whence the *Profile* is also called the *Section*, sometimes *orthographical Section*; and by *Vitruvius* also *Sciagraphy.* — *Profile*, in this Sense, amounts to the same with *Elevation*, and stands opposed to a *Plan* or *Ichnography*. *Profile* is also used for the Contour, or Out-Line of a Figure, Building, Member of Architecture, or the like; as a Base, a Cornish, *&c.* Hence *Profiling* is sometimes used for Designing, or describing the Members with Rule, Compass, *&c.* In Sculpture and Painting, a Head, a Portrait, *&c.* are said to be in *Profile*, when they are represented side-Ways, or in a side-View; as when in a Portrait there is but one Side of the Face, one Eye, one Cheek, *&c.* shewn, and nothing of the other. On almost all Medals, the Faces are represented in *Profiles.*

To diversify these several Lines, that they confound you not, make the Ichnography when you lay it into *Perspective*, in discontinued crooked Lines, the Heights in pricked Lines, and the Tops of each Building in continued Lines, as the Centre-Lines are in the Table. You will likewise find the Centre, though it is not here expressed, as likewise the Point of Distance, by continuing the Diagonal up to the supposed Horizon, where it and the Eye is placed.

Having done thus, your Art must be employed for the particular Expressions of Things, by Drawing and Shadowing, which is the Life of this half-form'd Figure, which we leave to the Painter.

It remains, that we speak of the low Sight: And here we suppose the horizontal Line just the Height of the Eye, about five Foot from the Basis; though it is generally placed higher, even to a third Part of the Height of the Building, that the Side-Building may be expressed more gracefully.

The Diagonal is best determined by dividing the last Division of the Base-Line into five Parts, taking four of these, sometimes the whole five, because we determined before, that the Length of the front Line was the Distance of the Eye in the Horizon, between the Eye and the Point of Distance. You may then either graduate the Plan at the several Intersections of the Diagonals with the Centre Lines, or else suppose it so, and then raise the Buildings, as you will find by *Perspectives* enough of this Sort every where to be met with.

Perspective, is also used for a Kind of Picture or Painting, frequently seen in Gardens, and at the Ends of Gal-

Galleries; design'd expresly to deceive the Sight by representing the Continuation of an Alley, a Building, Landskip, or the like. Thus much of *Linear Perspective*; now for the *Aerial*.

Aerial Perspective, is that, as already observed, which represents Bodies weaken'd and diminished, in Proportion to their Distance from the Eye.

Aerial Perspective has chiefly to do with the Colours of Objects, whose Force and Lustre it takes off more or less to make them appear as if more or less remote.

It is founded on this, that the longer Column of Air an Object is seen through; the Weaker do the visual Rays emitted from it affect the Eye; as proved in my Treatise of Opticks, where I have treated of Vision.

PHARMACY.

PHARMACY, of φαρμακον, *Remedy*, is an Art, or Science, which teaches how to chuse, prepare and mix Remedies.

Pharmacy is divided into *Galenical* and *Chymical*.

Galenical PHARMACY, called also simply *Pharmacy*, is that derived to us from the Antients; consisting in the Knowledge and Management of the several Parts of the *Materia Medica*, now in the Hands of the Apothecaries.

Chymical PHARMACY, called also *Spagyrical* and *Hermetical*, is that introduced by *Paracelsus*, who calls it *Ars Distillatoria*, consisting in the resolving of mixt Bodies, in order to separate from them the useless Substances, and make of them more exalted and essential Remedies.

Pharmacy, has for its Object all the natural Bodies, called Mixts; which are divided into three Classes, *viz. Animals*, *Minerals*, and *Vegetables*.

Under *Animals* is included not only their Flesh, but likewise their Bones, Nails, Milk, Blood, Hairs, and Excrements.

Under *Minerals*, the seven Metals, Mineral Matters, Stones, and Earths.

And under *Vegetables*, the Plants, Saps, Gums, Resines, Fruits, Excrescences, Seeds, Flowers, Mosses, Rinds, Roots, Juices, Tartars, Fæculæ, and all other Things which proceed from them.

Of all those Things here recapitulated, *Pharmacy* has found the Secret to prepare Remedies for the Cure of the different Maladies, the human Body is afflicted with. But what can be meant by that Term *Remedy*?

A REMEDY is all that being applied outwardly, or given inwardly, excites some Alteration in our Humours, and causes in them a salutary Changement.

Remedies are divided into *simple* and *compos'd*.

Simple Remedies are those employ'd as they grow naturally; such are all those which Botany supplies us with, and which are the most specifick.

Composed Remedies, are those made by the Mixture of several Ingredients.

Remedies are most commonly divided on Account of their Virtues, into *alterative*, *purgative*, and *strengthening*.

Alterative Remedies, are those which being applied outwardly or given inwardly, procure some Change in our Body, either by heating or cooling, humecting or drying, softening or condensing, rarifying or soporiferous, binding or opening, digesting or resolving, corroding or inspissating, deterging or stopping.

Purgative Remedies, are those, which by a certain Fermentation and Irritation they excite in the Body, loosen the superfluous Humours, liquify them and put them in a Condition of being evacuated. Which Remedies I divide into *Cathartick* or *Purgative*, *Emetick* or *Vomitive*, *Diaphoretick* or *Sudorifick*, *Diuretick* or *Aperitive*.

The *Catharticks* or *Purgatives*, are subdivided into *Phlegmagogues*, *Cholagogues*, *Melanagues*, *Hydragogues*, and *Panchymagogues*.

The *Phlegmagogues* are those, which being composed of volatile and penetrating Parts, are more disposed than others to be ushered to the Brain where they rarify and dissolve the *Pituita*, whence they are said to purge particularly the Brain; such are the *Agarick*, *Coloquintida*, the Seed of Carthamum, and the Flowers of Peach-Trees.

The *Chalogogues* are those which having not so much Action as the others, are only capable to stir the Humours which are easier loosen'd, whence they purge the Bile sooner than any other Humour; such are the *Cassia*, *Rhubarb*, *Manna*, and *Honey*.

The *Melanagogues* are those which being composed of fix'd and extremely purgative Parts, dissolve the tartarous and melancholick Humour, which is the most difficult to unloosen: Such are the *Scammony*, *Turbith*, *Senna*, *Hellebore*.

The *Hydragogues* are those which being composed of resinous and saline Parts, open the lymphatick Vessels, and make the Serosity to flow; such are the *Jalap*, *Mechoachan*, *Iris*, &c.

The *Panchymagogues* are Mixtures of all Kinds of Purgatives; and are said to purge all Humours: Such are the *Catholicon*, the *Confection Hamech*, the *Extract Panchymagogues*, &c.

Emeticks or *Vomitives*, are Purgatives full of saline Sulphurs, so much disposed to Motion, that they act so soon as they are in the Stomach, in which they differ from common Purgatives, which have Time to go down so far as the Intestines, before they excite their Fermentation: Such are the *Liver of Antimony*, *Emetick Tartar*, *Vitriol*, *Azarum*, *Verdigrease*, *Tincture of Tobacco*, the *Juice of Wormwood*, and of *Carduus Benedictus*, the *white* and *black Hellebore*, &c. Vomiting is excited by those Remedies, because they prick the Fibres of the Stomach, and cause a Kind of Convulsion therein.

Diaphoretick or *Sudorifick Remedies*, are those which being composed of volatile Parts, open the Pores of the Body, and expel the Humours by Perspiration; such are the *volatile Salts*, the *Schina-Root*, *Sarsaparella*, *Gayac*, &c.

The *Diuretick* or *Aperitive Remedies*, are those, which being composed of saline and penetrating Parts, rarify the Blood, and make the Serosity thereof to precipitate with more Rapidity than before: Such are the *Sal-prunellæ*, the *Spirit of Salt*, *white Wine*, *Parselly*, *Bruscus Asparagus*, *Parietary*, &c.

Strengthening Remedies, are those, which by the Conformity of their Parts, with the Spirits of our Body, rectify the Alterations which had happen'd in the Humours, or the Spirits themselves, by exciting in them the Motion which had been interrupted, either by moderating that which is too violent, or by expelling the Impurities.

Remedies heat or cool, either by themselves or by Accident. They heat of themselves when being composed of saline and sulphurous Parts, they increase the Agitation of the Humours in the Body of those who use them: Such are Wormwood, Ginger, Cinnamon, Pepper, Cloves, Nutmeg, *&c.* They heat by Accident, when in causing Obstructions in some Vessels, the Humours which were to run through are stopped and ferment in them, whence results a Heat in the whole Body, such are the Narcoticks, Acids, and several raw Fruits.

They cool of themselves, when being composed of aqueous and glutinous Parts, they temperate the Acrimony of the Humours, and moderate the Rapidity of their Course: Such are *Lettuces*, *Porcelain*, *Buglos*, the *Gums Adraganth* and *Arabic*, &c. They cool by Accident, when being hot and acrimonious, but in a small Quantity in a great deal of aqueous Liquor, they serve as a Vehicle to it to make it penetrate: Such are *Brandy*, *Spirit of Vitriol*, *Spirit of Sulphur*, &c. These acid Spirits cool, likewise, in fixing and precipitating the volatile Salts and Sulphurs of the Body, which by their too great Agitation caused the Heat: They cool, besides, in pushing by Urine, because they carry off, and expel the Humours, which by their sojourning, produce in the Vessels a foreign Heat.

Remedies are humecting, when being aqueous or phlegmatick they increase the aqueous Part of the Humours;

mours: Such as *Mallows*, *Porcelain*, *Lettuce*, and *Cucumbers*.

Remedies dry in four different Manners. 1. When by the Tenuity of their Parts, or their sulphurous Salts, they usher out thro' the Pores the superfluous Humidities: Such are the *Sarsaparella*, the *Schina-Root*, *Sassafras*, *Gayac*, &c. 2. When by their terrestrial and porous Parts, they absorb and blunt the acrimonious Humours: Such are the *Litharge*, *Terra Sigillata*, *Lapis Calaminaris*, *Crabs-Eye*, *Coral*, and other alkaline Matters. 3. When being caustick, they burn the Extremities of the small Vessels, which supply the Part with Humour, and form there a Trombus, which hinders the Wound from being drenched with that Humour as it was before: Such are the *Vitriol*, *burnt Allum*, *Lapis infernalis*, *red Precipitate*, and the *corrosive acid Spirits*. 4. When, being Detersives, they cleanse the Wounds of their *Sania*; for there being then no more Matter to excite a Fermentation, the Flesh grows, and the Cicatrice is formed: Such are the *Phagedenic Water*, *Water of Arquebusade*, the *Tincture of Aloes*, and of *Myrrh*, the *Aristoloches*, and other *Vulneraries*.

Remedies mollify or soften, when they are composed of mucillaginous or slimy Parts, and of some Salt, which serve for a Vehicle to make them penetrate: Such are *Mallows*, *Violets*, *Line Seeds*, and *Fenugrec-Seeds*.

Remedies condense in two Manners. 1. In drying the superfluous Humours: Such are the *Sudorificks*. 2. In congealing the Humour by the Cold they communicate to the Part, when they are applied upon it: Such are *Lead*, the *Sperm of Frogs*, the *White of Eggs*, *cold Water*, &c. or in congealing the Humour by Means of the Acid they contain: Such are *Sorrel*, *Barberries*, *Gooseberries*, *Strawberries*, *Oxicrat*, and the *acid Spirits* taken inwardly.

Remedies rarify or attenuate, when being composed of subtile and penetrating Parts, they divide the Humours and render them more fluid: Such are the *Spirit of Wine*, and the *volatile Salts*.

Remedies are soporous in two Manners. 1. By cooling the Blood a little, and moderating its too great Rapidity: Such are the *Emulsions*, *Lohochs*, and *Fomentations*. 2. In carrying a Narcotick or thickening Vapour to the Brain, which moderate the Motion of the Spirits, and hinders them from circulating with so much Impetuosity as they did before: Such are *Poppies* and *Opium*.

Remedies are astringent in several Manners: By their Stipticity, because being impregnated with a terrestrial and crude Acid, they coagulate easily the Humours, by the Approximation of the Fibres of the *Viscera*: Such are the *Sumach*, *Quinces*, *Medlars*, &c. especially before they are ripe.

They are astringent by their terrestrial and alkaline Parts, because they absorb the acrimonious Humour which caused the Loosenes and Vomiting: Such are my *Tincture*, *Terra Sigillata*, *Bol*, *Chalk*, &c.

They are astringent in exciting Sweat, because they usher out through the Pores the Cause of the Malady, such are the *Schina-Root*, *Sarsaparilla*, *Diaphoretick Antimony*, &c.

They are astringent in Purging, which they do in two Manners: The first is, when those Remedies, besides their purgative Quality, contain terrestrial or stiptick Parts, which, after the Evacuation, remain and produce their Effect: Such are the *Ipecacuanha*, *Rhubarb*, *Myrabolans*, *Tamarines*, &c. The second happens by Accident, when after the Evacuation, the Purgative has excited, one is hard bound for several Days afterwards, that Effect proceeding from that the Remedy having evacuated a great deal of Humidities, there is not enough left in the Intestines to humect the Matters.

They are astringent, besides, when being aperitive, they divert the Serosities which flow into the Intestines: Such are the Roots of *Gramen*, &c.

Remedies loosen the Abdomen or Belly, either by exciting in the Body some slight purgative Fermentation: Such are the *Violets*, *Pruins*, *Apples*, *Cherries*; or by softening and liquifying the Matters: Such are *Milk*, *Veal-Broth*, the Decoctions of *Bouroch* and *Buglos*; and the *Fomentations* and *Baths*.

Remedies are digestive, or excite Suppuration, by their saline and penetrating Parts, which rarifying the Humours stopped, give them Motion and Fermentation enough to break the Skin; and force its Way through; such are *Onions*, *Gums*, *Levana*, &c.

Remedies are resolutive in three Manners. 1. When being full of volatile and penetrating Parts, they open the Pores and give an Issue to the Humour which caused the Malady: Such are the *volatile Spirits*, and *Mercury*. 2. When being composed of mucillaginous and mollifying Parts, they mollify the Humour which had too much Consistence, and dispose it to be ushered out by the Circulation of the Blood, and of the other Humours: Such are *Poultices*, and the *Plaisters of Mellilot*, and of *Mucilago*. 3. When being composed of cold and condensing Substances, they appease the too great Motion of the Spirits, which caused the Malady; and hinder them from returning in so great a Quantity: Such are *Lead*, *Marcassites*, the *Solanum*, the *Hew-Bane*, the *Mendragora*, &c.

Remedies are corrosive when they are impregnated with very acrimonious, pricking, and burning Salts: Such are *Lapis infernalis*, *caustick Stones*, *red Precipitate*, *corrosive Sublimate*, and *Butter of Antimony*.

Remedies are inspissating, when being composed of glutinous Parts, they thicken the Humours: Such are the Roots of *Symphitum*, of *Althæa*, *Pearl-Barley*, the *Gums Adraganth* and *Arabick*, and the *Sarcocolla*.

Remedies are detersive, when being composed of saline or rarifying Parts, they dispose the Humour towards loosening itself: Such are the *Aloes*, *Myrrh*, *Phagedenick-Water*, *Allum*.

Remedies stop or hinder the Humours from flowing any more on a Part already afflicted, as on a Wound: Such are the common *Oxycrat*, the *Oxycrat of Saturn*, and the *Calybeat-Wine*.

Cordial or *Cardiack Remedies*, are those which strengthen the Heart, in repairing the exhausted Spirits, and giving the Body more Vigour than it had before.

There are two Sorts of those *Remedies*, viz. rarifying, and fixing.

The fixing by the Tenuity of their Substance, and their Volatility, increase the Motion and Circulation of the Humours: Such are the *Powder of Viper*, the *Confection of Alkermes*, *Musk*, *Ambergrease*, *Cinnamon*, &c.

The fixing, by their Acidity, or narcotick Quality, moderates or suspends the too impetuous Motion of the Spirits: Such are the *Spirit of Vitriol*, the *acid Juices* of Lemons, Oranges, Gooseberries, Barberries, and the *Narcoticks*.

Cephalick Remedies are those which being composed of sulphurous and saline volatile Parts, give an agreeable Vapour to the Brain, which, after it has attenuated and dissipated in Part the coarser *Pituita*, revive the animal Spirits, and excite the Circulations of the Humours: Such are *Tobacco*, *Betony*, *Stæchas*, *Sage*, *Marjoram*, *Cloves*, *Thyme*, *Rosemary*, *Lavender*.

Opthalmick Remedies are those which strengthen and cure the Maladies of the Eyes, whereof there are several Sorts. — Some of them strengthen in heating, when the Sight has been debilitated by Want of Spirits, or by a Fluxion of some pituitous or phlegmatick Humour: Such are *Brandy*, *Fennel Water*, *Hungary-Water*, &c. The others strengthen the Eyes in cooling them, when they are red and inflamed: Such are *Nurse's Milk*, *Plantain-Water*, the *White of Eggs*, &c. The others cure the Eyes in deterging and drying the little Ulcers formed in them: Such are the *Colyrium of Lanfranc*, *prepared Tutty*, *Salt of Saturn*, *Sugar-Candy*, *Iris of Florence*, *Vitriol*, and the *Troches of Rhasis*.

Dentrifick Remedies, are those which being detersive, and astringent, are proper to cleanse the Teeth, fasten them, and strengthen their Ligaments: Such are the *Calibeate Wine*, the *Wood of Lentisk*, *red Roses*, *Coral*, *Pumice-Stone*, *burnt Bread*, *Cream of Tartar*: Some rank among those Remedies, the *Spirits of Vitriol*, and of *Salt*, which cleanse and whiten the Teeth in a very short Time; but corrode and spoil them.

Pectoral or *Bechick Remedies*, are those which being composed of oily, soft, and temperate Substances, soften the acrimonious Humours which could fall into the Breast, and loosen the Phlegm adhering to it: Such are *Milk*, *Honey*, the *Tassilago*, the *Capillaries*, the *Pulmonary*, the *red Poppies*, the *Bouroch*, the *Buglos*, the *Liquorice*, the *Root of Althæa*, *Raisins*, *Almonds*, *Figs*, *Dates*,

Dates, *Pistashoe-Nuts*, and *Jujubes*. We use, likewise, detersive and rarifying *Remedies* in the Maladies of the Bestiles, where there is Obstruction; as in the Asthma, such are the Roots of *Enula Campana*, of *Iris*; the Preparations of *Sulphur*, and of the *Flowers of Benjoin*.

Stomachick Remedies, are those which being composed of saline, acrimonious, and attenuating Parts, excite Heat and Fermentation enough in the Stomach, to dissolve a viscous and phlegmatick Matter, which embarrasses its Fibres, obstructs the Motion of the Spirits, and hinders the Digestion: Such are *Cinnamon*, *Nutmeg*, *Coriander-Seed*, *Anniseed*, *Fenell*, *Wormwood*, *Mint*, *Lemon*, and *Orange-Peels*. Sometimes also, those Fibres of the Stomach being only relaxed, there want but astringent Remedies to strengthen them: As *Conserve of Roses*, *Confection of Alkermes*, my *Tincture*, &c.

Hepatick Remedies, thus called because they were supposed to strengthen the Liver, are proper to correct the Vices of the Blood: Such are the *Chicory*, *Lattuces*, *Hops*, *Agrimony*, *Polipody*, *Fumitary*, *Rhubarb*, *Aloes*.

Splenick Remedies, thus called because useful in the Maladies of the Spleen, abound with aperitive Salts which purge by Urine, and carry off the Obstructions of the Spleen, and of the other Viscera: Such are the *Ceterach*, the *Tamaris*, the *Caper-tree*, the *Chervil*, the *great Centaury*, and the *Mars*.

Hysteric REMEDIES, are those which are employ'd for the Maladies of the Womb, or *Matrice*, whereof there are several Sorts. Some of them being composed of subtile or spirituous saline Parts, help that Part towards the Expulsion of what is hurtful to it: Such are the *Troches of Myrrhe*, the *Oil of Succin*, *Cinnamon-Water*, *Castoreum*, *Aristoloche*, *Artemisia*, *Matricaria*, *Melissa*, *Rue*, *Savern*, *White Marrubium*, *Saffron*, *Acorns*, *Gum-Ammoniac*, *Galbanum*, *Assa fetida*, *Sagapenum*, *Opaponax*, *Camphir*. The others being composed of fixed or condensing Parts, appease and abate the Vapours which arise from the Matrice: Such are *Common Water*, *Spirit of Vitriol*, *Spirit of Nitre* dulcified, and the *Laudanum*.

Carminative REMEDIES, are those which being composed of spirituous and saline Parts, rarify and dissolve the coarse Matter which retained the Winds in the Body, and procure their Expulsion, such are *Anis-seeds*, *Fennel-Seeds*, *Camomile*, *Melilot*, *Cinnamon*, *Zedoaria*, *Coriander-Seeds*.

Note, That there are *Herbs*, *Roots*, *Flowers*, *Seeds*, *Farinæ*, *Fragments of precious Stones*, *Waters*, *Oils*, *Unguentums*, &c. to which are attributed the Qualities and Virtues above-mentioned in a particular Manner, *viz.*

The *Vulnerary* HERBS, are the *Agrimony*, *Bugle*, *Sanicle*, *Alchymilla*, *Pervinkle*, *Pulmonary*, *Veronica*, *Brunella*, the *Capillaries*, and several others.

The *five aperitive* ROOTS, are those of *Bruscus*, *Asparagus*, *Fennel*, *Parsly*, and *Smallage*.—Several other Roots are also *aperitive*, and as much in Use as those, *viz.* those of *Gramen*, of *Eringium*, of *Marsh-mallows*, &c. but it pleased the Antients to find thus the Number of *five aperitive Roots*.

The *five* CAPILLARIES, are the *common* or *black Adiantum*, the *white Adiantum*, called *Capillary of Montpelier*, the *Polytric*, the *Ceterach* or *Scolopander*, and the *Salvia vitæ*, or *Ruta muraria*.

The three *Cordial* FLOWERS, are those of *Buglose*, of *Bouroch*, and of *Violet*. Several other Flowers could be as justly called *Cordial*, as those of *Gelly-flowers*, or *Ros solis*, and of *Roses*.

The *four carminative* FLOWERS, are those of *Camomile*, of *Melilot*, of *Matricaria*, and of *Anethum*.

The common *Emollient* HERBS, are the *Mallow*, *Marsh-mallow*, *Branc-ursina*, *Wall-flowers*, *Mercurialis*, *Parietary*, *Heath*, *Atriplex*, the *Roots of white Lillies*, &c.

The *four large* COLD SEEDS, are those of *Gourd*, *Gourd*, *Melon*, and *Cucumber*.

The *four small* COLD SEEDS, are those of *Lattuce*, *Porcelain*, *Endive*, and *Chicory*.

The *four great* HOT SEEDS, are those of *Anis*, *Fennel*, *Cuminum*, and *Carvi*.

The *four small* HOT SEEDS, are those of *Smallage*, of *Parsly*, of *Ammi*, and of *Daucus*.

The *five precious* FRAGMENTS, are the *Hyacinthe*, *Emerald*, *Saphir*, *Grenat*, and *Cornelian*.

Note, That these five Fragments are not of much Use in Medicine, no more than most of the Compositions they used to enter into; as I'll prove by my Reflections on those Compositions.

The *four Cordial* WATERS, are those of *Endive*, of *Chicory*, of *Buglose*, and of *Scabiose*; to which might be added several other Waters of equal Virtue, as those of *Carduus Benedictus*, of *Ulmaria*, of *Scorsonnary*, of *Oxytriphyllum*, of *Sorrel*, of *Melissa*, of *Black Cherries*, and of *Bouroch*.

The *four antipleuritick* WATERS, are those of *Scabiose*, of *Carduus Benedictus*, of *Taraxacon*, and of *red Poppies*.

The *three stomachic* OILS, are those of *Wormwood*, of *Coinces*, and of *Mastich*. There are others which have still more Virtue, as those of *Nutmeg*, of *Mace*, of *Cloves*, and of *Bays*.

The *three hot* UNGUENTS, are the *Unguent of Agrippa*, the *Unguent of Althæa*, and the *Unguent nerval*.

The *four cold* UNGUENTS, are the *Album Rhasis*, the *Populeum*, the *Cerat of Galen*, and the *Unguent of Roses*.

The *four* FARINÆ, or *Flowers*, are those of *Barley*, of *Beans*, of *Broom-rape*, and of *Lupines*: To which are often added those of *Wheat*, of *Lentils*, of *Line* and *Fenagree Seeds*.

Note, That having thus far given a general Idea of the Qualities and Virtues of the different Remedies, and of their different Manner of operating, I'll proceed to the Preparation of those Remedies, according to the Rules prescribed by the *Galenical Pharmacy*; since I have prepared them already, according to the most modern Directions of the *Chymical Pharmacy*, in my Treatise of *Chymistry* under the Letter C; therefore,

The *Gallenical* PHARMACY, is reduced to three general Operations, which are the *Election*, *Preparation*, and *Mixture of the Remedies*.

The ELECTION, consists in the Choice of the simple Drugs the Remedies are composed of. To proceed with Exactness in that Choice, several Circumstances are to be observed, *viz.* the Places where those Drugs grow, the *Climate*, the *Neighbourhood*, the *Time*, the *Substance*, *Smell*, *Taste*, *Colour*, *Bigness*.

1. As to the *Places*, some Drugs require the Air of the Woods or Fields; others the Culture of Gardens; some aquatick or marshy, others dry and parched up Places; some Mountains and Hills, and others Vallies; some Walls and Rocks, others the Sides of Roads, Ditches, or Vineyards; some fat, and others sandy Earths.

2. As to the *Climate*, some excel in hot, and others in cold Countries; thus the Senna of the *Levant* is much more purgative than that which grows in other Countries: The Iris and Fennel of *Florence*, is much better than those of *England* and *France*. The Cochlearia is more abundant, and has more Virtue in *England* and *Holland* than in *France*.

3. As to the *Neighbourhood*, some acquire more Virtue from the neighbouring Plants, as the *Epithym* from the *Thyme*, the *Cascata* from the *Line*, the *Polypodium* and *Misseltoe* from the Oak. The others have more Strength when they are at a Distance from one another, as the *Coloquintida*.

4. As to the *Time*, some are in their greatest Vigour in the Spring, others in the Summer, and others in Autumn; though no very precise Time can be fixed in that Occasion; for according to the Difference of the Climates, the Mixt grow flower or quicker. The general Rule is, that Plants are to be gathered, if possible, in fair Weather, before they shoot forth their Seeds:—The *Fruits*, *Seeds*, *Fungus*, must be gathered when they are at their full Growth. The Animals must be killed young, vigorous, and before they have copulated with the Female. And the *Minerals* must be dug out of the Mines when they have the Bigness, Solidity, Weight and Colour required.

5. As to the *Substance*, the one must be compact, as the *Opium*; the other friable as *Scammony*, the others heavy as *Cassia ligna*, others light as *Agaric*. Some Liquids as common *Terebinthine*, others hard and dry as *Aloes*,

Aloes, others soft as the *Tamarinds*, and others hard as the *Myrabolans*.

6. As to the *Smell*, several Remedies are much better as they are more odorant, as the *Sanders*, *Sassafras*, and *Cinnamon*.

7. As to the *Taste*, some are sweet as the *Liquorice*, bitter as the *Aloes*, sour as the *Tamarinds*, hot as the *Ginger*, styptic as the *Acacia*.

8. As to the *Colour*, some must be white as the *Agaric*, black as the *Tamarins*, red as *Sanguis draconis*, green as the *Verdet*, blue as the *Curcuma*, grey as the *Jalap*.

9. As to the *Length* and *Bigness*, some must be long, and moderately big, as the *Cassia*, the *Vipers*, &c. others must be small as *Hart-horns*, which must be taken while young, and Puppies.

The PREPARATION of *Remedies*, consist in *washing*, *picking*, *drying*, *humecting*, *infusing*, *maturating*, or *boiling* them.

1. They must be washed either to cleanse them of the Dirt, as it is done to Roots as soon as they are taken out of the Ground, or to purify them of some acrimonious Part they contain, thus the *Litharge* and *Tutia* are washed in Water; or to increase their Virtue, as when *Pomatum* is washed in odorous Water.

2. They must be picked of their coarse and useless Parts, as *Senna* is picked of its Sticks and dead Leaves; a Sort of String is picked off certain Roots; the Stones are picked out of dried Raisins, those Stones being hard and astringent.

3. They must be dried, as the Vegetables and Animals which are exposed to the Sun, or dried from it, that the Humidity thereof being dissipated, they may be kept without Corruption. But as the Flowers in drying often lose their Colour and Smell, some of them must be wrapped up in grey Paper, in small Bundles, as those of *St. Johnwort*, and of *little Centaury*. For *red Roses* they must be dried quickly in the Sun, for if they were dried slowly they would lose their Colour; the large Roots can scarce be dried without rotting inside, and we often see large Pieces of Rhubarb spoiled in the Heart, therefore they must be chosen of a moderate Bigness. The Roots of *Jalap*, of *Mechoacam*, and of *Briony* are cut in Slices, that they may be easier dried. The *Fruits* which abound in superfluous Humidity, must be dried in an Oven otherwise they rot: *Vipers* must be fastened to a String and dried from the Sun.

Note, That those Drugs should not be dried too long lest they should lose the best of their Substance. When dried they must be kept in Boxes.

4. They must be humected, thus *Steel-Filings* and *Iron Rust* must be humected with Dew or Rain-Water, to open them and increase their Virtue.

5. They are infused in Liquors, either to dissolve them, as *Ceruse* in Vinegar, or to communicate their Virtue to the Liquor, as when *Rhubarb*, *Senna*, or *red Roses*, are maturated in Water; or to correct the too great Strength of their Action, as when the Root of *Ipsula* is steeped in Vinegar before it is used; or to open them and increase their Virtue, as when *Dates* are steeped in White Wine, or Hydromel, and when Antimony is maturated in an acid Liquor to render it Emetick; or to preserve them as when Fruits, Roots, or Animals are preserved in Brandy or Vinegar, or to rendder them britly, so that they may be easily pulverized as when red-hot Crystal and Flints are extinguished in Water.

6. They are *macerated* or *put in Digestion*, as when after red Roses have been pounded, they are put in a Pot, covered with Salt, and left thus for several Months, that the Salt and Oil being exalted by Fermentation, a greater Abundance of Spirits may be extracted from them when they are distilled. Honey is made to scum in Water, then is put in a warm Place for several Months, that by Digestion and Fermentation it may grow vinous.

7. They are boiled either to soften them, as when the Roots of *Enula* and *Althæa* are boiled to extract a Pulp from them, or that they may communicate their Quality to the Decoction, as when *Tizanes* are made; or to render them thick, as when the *Juices of Quinces* is boiled into *Sapa*; or to preserve them, or to correct them, as when the *Cassia* is boiled to hinder it from exciting Vapours; or to free them of their useless Parts, as when the *Litharge* and other Preparations of Lead are boiled with Oil or Grease; or to increase their Strength, as when *Rhubarb* is torrified to render it more astringent, the *Alum* calcined to render it escarotic.

8. They are sawed or cut, as the *Woods*; hatched as the *Herbs*, rasped as *Hart-horn*, filed as *Iron* and *Steel*, broken or bruised as *Roots* and *dried Fruits*.

9. They are reduced into Powder, either in a Mill as the *Farinæ*, or in a Mortar as the *Senna*, *Rhubarb*, or on a Porphyry with a Muller, as the *Coral*, and Pearls.

1. The *Mixture of Remedies*, consists in mixing and uniting them together, in order to form Compositions of them. For that *Mixture* we must first distinguish the Ingredients which unite naturally together, from those which cannot be united but by Art: Oil, for Example, unites very well with fat Substances, but it cannot mix but imperfectly with watry ones; therefore the Mixture thereof must be made in a Mortar, as in the Preparation of the *Unguentum Nutritum*, or *Butter of Saturn*: Spirit of Salt seems to mix easily with the Spirit of Wine, which notwithstanding, the Mixture is more intimate when they are made to circulate together in a circulatory Vessel, as in the Preparation of *Spirit of Salt dulcified*. Some *Oil of Cinnamon*, or other *Essence*, is mixed with Sugar-candy in Powder to make the *Oleo-saccharum*, that the Oil being thereby rarified in the Parts of the Sugar, may be dissolved with it in watery Liquors: *Turpentine* is mixed with Yolk of Eggs to render it dissoluble in Decoctions.

2. One must know the Means to be used for the Mixture of Drugs; for it suffices sometimes to agitate them together in a Mortar, as *Powders*; and when *Mercury* is to be extinguished in Turpentine: Sometimes they must be beaten a long Time, as when *Flowers* are mixed with Sugar for *Conserves*, when Masses for Pills, and Troches are to be made; sometimes they must be *dissolved in Aqua fortis*, as when some chymical Preparations are made on Metals: Sometimes it is necessary to *boil them together*, as Sugar and Honey, with Juices, Decoctions, and Infusions, to make *Syrups*, and several other Compositions: Sometimes there must be a Consumption of the Humidity at a slow Fire, after the Mixture, as in the Preparation of some Electuaries. Sometimes they must be mixed together with the Bistorter, as Pulps and Powders in Sugar and Honey: Sometimes they must be liquified together, as Wax, Resine, and Pitch with Oils: Sometimes they must be melted by a violent Fire, as Metals, and several Minerals which are put in Fusion together: Sometimes they are amalgamed, as *Mercury* with Gold and Silver.

3. An Order must be observed in the Mixture of the Drugs; for some must be mixed before the others; for Example, in the Compositions the Pulps must be mixed before the Powders, and the Powders before the Essences; odorous and volatile Ingredients must be commonly left for the End, lest their Virtue should be altered by Heat and Agitation; the Scammony, Aloes, and other Gums clotten in the Electuaries, if they be mixed while the Matter is yet too hot, therefore one must wait till it be almost cold: The Wax and Pitch are not to be mixed or melted in Plasters, till the Litharge or Minium, or Ceruse, if it enters into them, be done.

When *Tablettes* or *Lozenges* are made, where no Acid enters, the Liquor must be mixed at once with the Sugar to make them boil together; but if it be wanted to prepare *acid Lozenges*, as those of Berberies, of Lemon, of Pomegranates, the Juice ought not to be mixed but by Degrees with the Sugar over the Fire, and dried in Proportion; for if the Juice that is to be employ'd in it was put all at once, one could not give the Mixture by Coction, Consistence enough to form Lozenges of it; for when it is wanted to make the *Sal-polychrest*, the Sulphur is mixed with the Saltpetre before the Matter is thrown into the red-hot Crucible, and in the Preparation of Sal prunellæ, the Salpetre is put into Fusion, before the Sulphur be mixed with it.

4. The Composition must be of a good Consistence, kept in a dry Place; and if it be liquid, as Electuaries, must

must be stirred, from Time to Time, with a Spatula, to give Room for the Fermentation.

Note, That those theorical Reflections, on the Preparation of Remedies, are not the only ones which could be made on those important Subjects; but as all the others are interspersed throughout these Treatises, it would smell too much of Repetition, to make them also in this Place: Therefore I'll proceed to reduce those general Rules into Practice, in the Preparation of the different Remedies our *Pharmacopœa* is to contain; beginning with those which are attended with least Trouble and Difficulty, such as *Decoctions*.

A DECOCTION, of the Latin *decoquere, to boil*, is made to dissolve the active and useful Substances of a mixt into a proper Liquor; or to soften those Mixts, so that a Pulp may be extracted from them.

The *Matters* most commonly employ'd in *Decoctions*, are Animals and Vegetables; sometimes also Minerals, as Antimony and Quicksilver.—The *Liquors* used for *Decoctions*, are *Water*, *Wine*, *Vinegar*, *Milk* and *Whey*.

As the *Decoctions* must be different according to our different Intentions, it is difficult to establish Rules with regard to the Quantity of Water and Ingredients employ'd: What can be said in general is, that the more hard and compact the Drugs are, the more Liquor is wanted to boil them.

A *Decoction* must be sometimes preceded by Infusion, that the Liquor may have Time enough to extract the Substance of the Mixts; as in a Decoction of the Woods, viz. *Sarsaparilla*, *Schina*, *Sassafras*, *Gayac*, and *Box*.

One must avoid, as much as possible, boiling the Aromats, because their volatile Principles, which are the most essential, are dissipated in boiling: Therefore it is best to put them in the hot Liquor to infuse, in a Vessel well covered.

When we make a *Decoction* of several Ingredients, we must begin, for Example, by boiling the Barley, the Chips of Hartshorn and Ivory, the Roots of Gramen, for half an Hour at a moderate Fire; putting afterwards the other Roots newly gathered (well washed and picked of their Hearts or Strings, and cut in small Pieces) to boil for a Quarter of an Hour; proceeding to the Fruits after they have been pared and stoned, and cut in Pieces, if they be large; then the Herbs chopp'd, and the Seeds bruised; concluding by the Flowers and Liquorice, which must be boiled but very little: The whole is thrown afterwards into an earthen Pan, or pewter Bason, over the Cinnamon bruised, the Sanders, the Sassafras rasped, and the other Aromats; the Vessel then is cover'd; and when the *Decoction* is cool, it is strained, and afterwards left to settle, that it may be decanted clear.

If Animals, as Craw-fish, Frogs, or Vipers, are to be employ'd in the Decoction, they must be always put at the Beginning; but then the Decoction is to be made over a slow Fire, lest there should be a too great Dissipation of the essential and volatile Salts.

Note, That as the Disorders of the Head are most commonly the most dangerous, the Head being considered besides as the noblest Part of our Body, since it is supposed the chief Residence of the rational Soul, we'll begin all our Preparations by those which are accounted proper for the *Maladies* of the *Head*; descending from thence to the *Breast*, from the Breast to the *Stomach*, and thus progressively. Therefore our first Prescription will be for a *Cephalick Decoction*.

Cephalick Decoction.—Take Misseltoe and Cloves, of each six Drachms; of Juniper-Berries three Ounces; Flowers of Sage, of Betony, of Marjoram, of each a Handful; and let them be boiled, according to the above Directions, in three Quarts of common Water, *i. e.* River-Water, which is always best for all Sorts of Decoctions.

Note, That the Juniper-Berries must be bruised, and when together with the Flowers they have boiled two or three Gallops, the Decoction must be thrown into an earthen Pan, and well covered till it be cold.—It cannot be kept longer than two Days in hot, and four in cold Weather.

Virtues.—For the Epilepsy, Apoplexy, Lethargy. *Doses.*——From two Ounces to six.

A *Cordial Decoction.*—Take the Roots of Scorzonere, of Solomon Seal, of Gramen, of Tormentil, of each half an Ounce. *Flowers* of Boroch, Bugloss, Violets, Roses, of each as much as one can take with his Fingers Ends; of rasped Liquorice three Drachms. Let the whole boil in three Quarts of Spring Water, to the Diminution of a third Part.

Note, That the Roots, having been cut in Pieces and bruised, must boil half an Hour before the Flowers and Liquorice are put in the Decoction; and after they are put in, the Decoction must boil a Quarter of an Hour longer, and afterwards be taken off the Fire; and when half cold, it is strained through a Piece of Linnen Cloth or Flannel.

Virtues.—It fortifies the Heart, and resists to the Malignity of the Humours. *Dose.*——From two Ounces to six.

A *Pectoral Decoction.*—Take two Ounces of Jar-Raisins stoned, fifteen Dates, two Ounces of Jujubes, an Ounce of Pearl-Barley; let the whole boil in three Points of common Water to the Consumption of a third Part, and towards the End of the Coction add half an Ounce of Liquorice bruised, the Leaves of Maiden-Hair, Ground Ivy, and Tussilago, of each a Handful; let the whole macerate together for the Space of a Quarter of an Hour, and then strain the Decoction.

Note, That the Raisins and Dates must be stoned, and the Jujubes chosen very fresh; and in straining the Decoction it must be done with Expression.

Virtues.—It is proper to excite Expectoration, for an inveterate Cough, and to loosen the tenacious Matters, which obstructing the Bronchia of the Lungs stops the Respiration. *Dose.*——From two Ounces to six.

A *bitter Decoction.*—Take the Tops of little Centaury, the Leaves of Agrimony, Flowers of Camomile, of each half a Handful, two Drachms of Gentian-Root, of Seeds of Carduus Benedictus, and of Lemon, of each a Drachm and a half; White Wine and Spring Water, of each a Pint and a half; let it boil till it be reduced to half.

Note, That the Seeds must be bruised, the Gentian-root cut in small Pieces, and boiled together in the Water, then the Summits, the Leaves, Flowers, and White-Wine, shall be added to it, and left to boil to the Consumption of half the Humidity; afterwards it shall be strained with Expression. If it be wanted to render that Decoction purgative, six Drachms of Senna, one of Rhubarb, and four Scruples of Salt of little Centaury, must be put to infuse in it, warm, for a whole Day.

Virtues.—It is proper to expel intermittent Feavers, to kill the Worms and purify the Blood. *Dose.*——One Glass in the Morning fasting, and another at Night.

Note, also, That we often see that the bitter Remedies are febrifuge, because the saline and sulphurous Substance which compose the bitter, is proper to rarify and dissolve the Matter, which forms the Obstructions and causes the Feaver.

A *sudorifick Decoction.*—Take two Ounces of *Sarsaparilla*, *China* and *Contrayerva* Roots, of each an Ounce, of Crude-Antimony coarsely pounded and tied in a Piece of Linen-Cloth, four Ounces: Let them be infused, warm, for twelve Hours in four Quarts of common Water; and let them boil afterwards to the Consumption of a third Part, and towards the End add six Drachms of Liquorice scraped and bruised, and eight Drachms of Sassafras.

Note, That the Roots and Antimony must be put in an earthen Vessel and Water poured over them; then the Vessel is covered, and put in Digestion on hot Embers, or near a slow Fire for ten or twelve Hours; after which the Decoction is made to boil to the Diminution of a third Part, adding towards the End of the Operation the Sassafras and the Liquorice. When the Decoction is half cold it must be strained with Expression

Expreſſion, and left to ſettle, to be ſtrained once more through a Flannel to make it clear.

Virtues.—It is proper for the Rheumatiſm, to expel the bad Humours by Perſpiration, and to ſtop the Gonorrhæa.—— The *Doſe* is from two Ounces to ſix, or a Glaſs-full four times a Day.

A *deterſive Decoction for Clyſters.*—Take whole Barley, Bran, Leaves of Agrimony, of *Mercurialis*, of Plantain, of each a Handful, and two Drachms of Linſeed; let them boil in two Quarts of common Water, to the Conſumption of a third Part.—This Decoction is ſtrained with Expreſſion; and is proper to ſtop a Looſeneſs.

Note, That *deterſive Decoctions* are ſometimes made in Milk, or in Broth, of a Sheep's Head boiled with the Wool on; and ſometimes in Broth of Tripe.

A *common emollient Decoction.*—Take the Leaves of Mallows, Marſh-mallows, Parietary, Violets, Mercurial, of each a Handful; of Flowers of Camomile and Melilot, of each half a Handful. Put them to boil together in ſeven Pints of common Water, to the Conſumption of a third Part; then let it be ſtrained with Expreſſion.

Note, That this Decoction looſens the Humours, and diſpoſes them to Evacuation. To render the Decoction more cooling, there muſt be added to the Herbs abovementioned, Chicory, Cucumber, and Porcelain: It is made *Hyſterick*, by adding Leaves of Matricaria, Rue, and Elder-Flowers; Carminative by the Addition of Anis, Fennel, and Coriander-Seeds, Juniper-Berries, Mint, and Origanum.

Note alſo, That next to Decoction comes *Tizane.*

PTISANE, or TIZANE, vulgarly called, in *Engliſh*, Diet-Drink, comes from the *Greek* Verb, πτισσειν, which ſignifies to ſeparate the Rind or Huſk, becauſe the *Tizane* of the Antients was Pearl-Barley; but the *Tizane* of the Moderns is made of whole Barley.

The *Tizane* differs from Decoction only in that it is not ſo much loaded with Drugs; for as it is uſed for common Drink, it is render'd as little diſagreeable as poſſible. A good common *Tizane* is made as follows.

For a *common Tizane.*—Take a Handful of whole Barley, bearded and freed of its Impurities, let it boil in ten Quarts of common Water, to the Conſumption of a third Part; afterwards add to it half an Ounce of ſcraped and bruiſed Liquorice; and let a *Tizane* be done according to Art.

Note, That the Barley muſt be bearded, well cleanſed and waſhed in Water, and after it has boiled in Water to the Conſumption of a third Part, the Decoction muſt be poured boiling hot into an earthern Pan over the Liquorice, and when cold muſt be ſtrained.—This *Tizane* quenches the Thirſt, cools and ſoftens the Acrimony of the Humours, temperates a Fever, and moderates a Cough: It is given to the Sick for their common Drink. Some add to this *Tizane* ſome Slices of Lemon, others ſome Coriander-Seeds, or a little Piece of Cinnamon. To render it a little Aperitive, one may add to it the Roots of Gramen; and Jujubes, Raiſins, and Golden Pippins, to make it more pectoral.

An *aperitive Tizane.*—Take the Roots of Gramen, of Althæa, and of Strawberry Buſhes, of each an Ounce; and after they have boiled in two Quarts of common Water, to the Conſumption of a fourth Part of the Humidity, add to it half an Ounce of Liquorice.

Note, That this *Tizane* is diuretick, that it moderates the Heat of the Reins and of the Bladder, makes a Clap rue, and carries off the Inflammation. It is uſed for common Drink. One may add to it, if it be judged proper, a Drachm of Sal-prunellæ, or of other aperitive Salt, on each Point of *Tizane*, to render it more diuretick.

An *aſtringent Tizane.*—Take two Ounces of whole Barley; an Ounce of Chips of Hart's Horn; half an Ounce of Tormentil's Roots, and a Handful of Barberries, Let them boil in three Quarts of Water, to the Conſumption of a third Part.

Note, That the Barley, Hart's Horn, and the Tormentil's Roots, muſt boil half an Hour in Water; and then the Barberries are added to it, and after they have boiled together a Quarter of an Hour more, the Decoction is left to cool, to be ſtrained after it is quite cold. This *Tizane* is good to ſtop a Looſeneſs and Hemorrhages; and is uſed for common Drink. It can be render'd ſtill more aſtringent, by making it with calybeate Water.

Note alſo, That *Infuſions* are next in Order.

INFUSION, comes from the *Latin* Word *infundere*, to ſteep.

Drugs are *infuſed*, either to ſoften them, as when Dates are ſteeped in Hydromel; or to correct them, to temperate their Acrimony, as when the Root of *Eſula* is put to infuſe in Vinegar; or to extract their Subſtance and Virtue, as when Senna, Rhubarb, Myrabolans, or Agarick, are put to infuſe in common Water, or in Juices.

The Liquors commonly employed for *Infuſions*, called in Terms of Chymiſtry, *Menſtruum*, are common and diſtilled Waters, Whey, Juices of Plants, Rain-Water, Dew, Wines, Brandy, Spirit of Wine, diſtilled or not diſtilled Vinegar.

We cannot preſcribe certain Rules for the Proportions of dried Drugs and Liquors, becauſe Infuſions like Decoctions are differently made, according to the different Intentions of the Phyſicians; ſometimes weak and ſometimes ſtrong; but it muſt be obſerved, that as the Liquor cannot be impregnated but with the Quantity of Subſtance neceſſary to fills its Pores, it is needleſs to put to infuſe more than a certain Quantity of Drugs; it is notwithſtanding what ſeveral Authors have not minded, who ſtuff ſo much their Decoctions and Infuſions with Drugs, that there is ſometimes four times more than the Quantity of Liquor can contain.

To make *Infuſions* with Prudence and Utility, one muſt know the Nature of the Subſtance of the Drugs, which are to be infuſed, in order to give them a convenient Diſſolvent. All Sorts of Liquor is not capable to extract the Virtues of all Sorts of Mixts. Water, for Example, is ſufficient to extract the Subſtances of the Senna, Rhubarb, Tamarinds, *&c.* but it is not proper to receive thoſe of the Jalap, Tar, Turbith; there are wanted for thoſe reſinous Mixts, ſulphurous Liquors, as Brandy, Spirit of Wine, or others, which ſhould be of a Nature to diſſolve the Reſines: Water looſens, it is true, ſome ſmall Quantity of a diaphoretick Sulphur from Antimony, when it is put to infuſe, or to boil in it; but if it be wanted to extract the vomitive Quality of that Mineral, which conſiſts in a ſaline Sulphur, it muſt be put to infuſe in an acid Liquor, and thus of others, which is much better learn'd in Chymiſtry, than in the *Galenical* Pharmacy.

The Time to be employ'd in *Infuſions* is not limited; for as the Mixts are more or leſs hard; and their Principles more or leſs difficult to be looſen'd; there is likewiſe more or leſs Time required for it. But to proceed, I'll begin by a ſimple and common *Cathartick Infuſion.*

For a *common Cathartick*, or *purgative Infuſion.*—Take three Drachms of Senna, a Scruple of Salt of Tartar, let them be infuſed warm for a whole Night, in half a Pint of common Water; then let the Infuſion be ſtrained, with Expreſſion for one Doſe.

Note, That the Senna, and the Salt of Tartar, muſt be put together in a glazed earthern Pot, and the Water having been poured hot over it, the Pot is placed for a whole Night on hot Embers. The next Morning the Infuſion muſt be made to ſimmer over the Fire, and afterwards ſtrained through the Flannel with Expreſſion. This Infuſion is purgative, and it is believed, that the Senna purges more melancholy than other Humours.

Three Drachms of Senna are ſufficient to impregnate ſix Ounces of Water, for if there was more put in, the Water could not extract more Tincture, becauſe a certain Quantity of Liquor cannot receive but a certain Quantity of Subſtance. If inſtead of Water a Decoction be uſed, the Diſſolution of the Subſtance of the

the Senna will be less, because the Water of the Decoction is already impregnated with some Substance. But as the principal End proposed in giving the Infusion of Senna is to purge, it is better to use common Water than a Decoction. The Dose of Senna, in the Infusion, is not always the same; for sometimes there are only two Drachms prescribed, sometimes but a Drachm and a half, and sometimes a Drachm, according to the Intention one has, that the Purgative should be more or less strong. It is proper to make the Infusion simmer, or to boil slightly, before it is strained, to facilitate the Separation of the Substance of the Senna. The Salt of Tartar is added here, to serve as a Vehicle, and Corrective, for it not only renders the Water more penetrating to extract the Tincture of the Senna; but it likewise rarifies and dissolves the viscous Substance, which is separated from that Leaf, and hinders it, consequently, from fastening itself as Glue to the inward Membranes of the Intestines, and cause there certain Prickings and Irritations, called Gripes. Sometimes Rhubarb, Agarick, Myrabolans, or Tamarinds, are infused with Senna. If Senna purges rather melancholy than any other Humour, it is because its being composed of fixed Parts, it has a greater Disposition to fasten itself to that terrestrial and fixed Humour.

Note, That next come *Apozems*.

The Apozems, are strong Decoctions, of several Sorts of Roots, Herbs, Fruits, Seeds, and other Parts of Plants, appropriated in Virtues to the Maladies for which they are given: Those *Apozems* can be render'd Purgatives, by making to infuse in them purgative Drugs: As we'll see hereafter.

For an *alterating* and *aperitive Apozem*. — Take the Roots of Gramen, of Parsley, of Asparagus, and white Tartar, of each half an Ounce; wild Cherries, *Kentish* Cherries, and dried *French*-Beans, of each three Drachms; the Leaves of Chicory, of Parietary, of Sellery, of Chervil, of each a Handful: Let them boil together in three Quarts of common Water to the Consumption of a third Part; and strain it afterwards with Expression.

Virtues. — It is proper to raise the Obstructions of the Liver, of the Spleen, of the Mesentery, and of the Matrice; and for the Stone and Gravel. —— The *Dose* is a Glass full twice a Day.

Note, That the Tartar must be coarsely pulverized, the Roots well cleansed, bruised, and cut in small Pieces, and put together to boil for about half an Hour in the Water; adding, afterwards, the Fruits opened, and the *French* Beans bruised; and when the Decoction shall have boiled for a Quarter of an Hour longer, the Herbs hatched must be thrown into it; and then it shall be left to boil to the Consumption of a third Part; and afterwards taken off the Fire, and when half cold, strained through a Cloth with Expression. This is the *Apozem*. One might add to this *Apozem*, the Craw fish, the Rinds of Tamarisc, of Caper-Tree, and several other Ingredients of the same Virtue. But this Description is but a Model, it is to a Physician to judge in the Occasions what is to be added or diminished. I do not employ so great a Quantity of Ingredients for the Quantity of Water, as it is usual in the Descriptions of *Apozems*, but I am sure that the two Quarts of Decoction remaining, will be as much impregnated of the Substance of the Drugs as they can be. One may make on this Model, *Pectoral Apozems*, with Pectoral Drugs; *Cephalick*, with Cephalick Drugs; and *Hysterick*, with Hysterick Drugs.

For a *bitter Apozem*. — Take two Ounces of Chicory, an Ounce of Gentian-Root, half an Ounce of *Peruvian* Bark; a Handful of Fumitery, Flowers of little Centaury, and of St. John-Wort, of each half a Handful: Let them boil in two Quarts of common Water, to the Consumption of a fourth Part, then strain it with Expression; and in the Colature, put to infuse two Drachms of Rhubarb cut in small Pieces, and tied hard in a Piece of Linen-Cloth; dissolving in it, afterwards, three Drachms of Syrup of Wormwood, and two Drachms of solutive Tartar of *Mars*: Then the *Apozem* is made.

Note, That the Roots must be cut in small Pieces, the Quincquina bruised, and the Herbs hatched.

Virtues. — This *Apozem* is very good to strengthen a Stomach too much relaxed, or full of Glairs: It rises the Obstructions, cures the intermittent Fevers, and excites the Appetite. —— The *Dose* is a small Glass, warm, Morning and Evening; which is continued for several Days successively.

Note also, That a bitter Broth can be made, in Balneo Mariæ, in the following Manner. — Take two Pounds of a Fillet of Veal, without Fat and Skin, and cut in small Slices; Leaves and Roots of Chicory, and of Chervil, of each six Handfuls; Water-Cresses, and Fumatery, of each three Handfuls; an Ounce of Gentian-Root, three Drachms of Rhubarb, a Handful of Flowers of little Centaury, two Ounces of Juniper-Berries; half an Ounce of soluble Tartar of *Mars*. The Roots should be cleansed and cut in small Pieces, the Rhubarb tied in a Piece of Cloth, the Herbs and Flowers hatched, the Berries bruised, and the whole mixed together in an earthern Pot, with the Tartar of *Mars*; and having added to it five or six Ounces of Water, the Pot must be cover'd, well stopped with Plaister, and put to boil in Balneo Mariæ for six or seven Hours; and afterwards all it contains shall be strained with a strong Expression.

Virtues. — This *Apozem* has the same Virtues as the preceding one, and is a little nourishing; it is good for the Hydropsy, yellow Jaundice, the Retention of the Menses, and the Scurvey. —— The *Dose* is a small Glass twice or thrice a Day.

For a *Cephalick and Purgative Apozem*. — Take the Roots of Jilly-Flowers, of Sea Pæony, and Mizzletoes, of each half an Ounce; Rosemary and Sage of each half a Handful; put them to boil in two Quarts of common Water, to the Consumption of a fourth Part; and in the Colature made without Expression, put to infuse warm, for fifteen Hours, six Drachms of Senna, two Drachms of Troches of Agarick, one Drachm of Juniper-Berries, three Drachms of soluble Tartar, straining the Infusion, afterwards, with Expression to the Colature add solutive Syrup of Roses, composed with Agarick, and Syrup of Flowers of Peach-Trees, of each two Ounces; for a *Purgative Apozem*.

Virtues. — It purges all Sorts of Humours, especially the Pituita from the Brain. —— The *Dose* is from three Ounces to six; taking every Day one or two Glasses of it, for several Days successively.

Note, That on this Model can be prepared purgative *Apozems* of different Qualities; by appropriating the Remedies to the Nature of the Maladies for which they are administered. The Decoctions of purgative *Apozems* must be made light, that there may be Room in their Pores for the Purgatives which are put to infuse in them.

Note also, That *Juleps* are the next in Order.

Julep, or Juleb, is a *Persian* Name, which signifies sweet Draughts; the *Greeks* call it ζουλαπιον, and the *Latins Julepus*, and *Julapium*, or *Hydrosaccharum*. It is a Mixture of Syrups, and distilled Waters, or light Decoctions, the Preparation whereof is commonly of an Ounce of Syrup, on six Ounces of Water or Decoction.

Juleps are made of different Syrups, and of different Liquors, according to the Maladies for which there are administered. They may be render'd sour either with acid Spirits or Juices; they are not prepared but when they are wanted, because they cannot be kept longer than two or three Days in Winter; and about twenty-four Hours in Summer in a cool Place: *Juleps* are never mixed with Purgatives.

For a *Pectoral Julep*. — Take half an Ounce of Syrup of Jujubes, an equal Quantity of Syrup of Poppies; Water of Scabiose and of Borrage, of each two Ounces; shake them well together in a Phial, and the Julep is made; which serves for one Dose only.

Virtues. — It humects the Breast, sweetens the Acrimonious, or Salt Serosities which fall upon it; and facilitates Expectoration.

For an *hysterick Julep*. — Take the distilled Waters of *Melissa*,

Melissa, and of Mugwort, of each two Ounces; one Ounce of Orange-Flowers, two Drachms of Cinnamon; one Ounce of Mugwort; Tincture of Castor, and oleous aromatick volatile Salt, of each four Drops: Mix them well together for a *Julep* of one Dose.

Virtues.—It dissipates the Vapours; fortifies, and provoke the Menses.

For a *fætid hysterick Julep.*—Take an Ounce and a half of the best Assafætida, and stir it well in six Ounces of Black Cherry-Water, in a cold Mortar till it grows milky.

Virtues.—It is good to strengthen the Matrice, to provoke the Menses, and to dissipate the Vapours.——The *Dose*, is from half an Ounce to two Ounces.

For a *camphorate hysterick Julep.*—Light two Drachms of Camphire, and extinguish it in two Drachms of Spring Water, so often as it may be entirely consumed, and then strain the Liquor.

Virtues.—It is good for the Vapours, to strengthen the Matrice, and the Brain, and to provoke the Menses.——The *Dose*, is from two Ounces to eight. If the Camphire was extinguished in Water of Mugwort, instead of common Water, the Remedy would prove more efficacious.

Note, That next come *Emulsions*.

Emulsion, came from the Latin *emulgere*, to milk; for in fact this Remedy approaches very near the Colour and Consistence of Milk: It is extracted from Almonds, Cold Seeds, or Fruits dissolved in distilled Water, which are strained hard, and edulcorated with Sugar or Syrups.

For a *common Emulsion.*—Take Sweet Almonds excoricated or blanched, the Seeds of Cucumbers and of white Poppies, of each two Drachms, half an Ounce of double refined Sugar; pound them together in a marble Mortar, pouring over them gently, and by Intervals, a little of a Decoction of Barley, till the whole be reduced into a Paste, and a Pint of Barley-Water having been added to it, it must be strained with Expression for an *Emulsion*.

Virtues.—It is proper to humect, and to quench Thirst in acute Maladies; in violent Fevers, in the Pleurisy, in the Rheumatism and to soften the Acrimony of the Urine.——The *Dose* is a Glass full, or about four Ounces.

For a *pectoral Emulsion.*—Take twelve sweet Almonds blanched; six Drachms of the four great cold Seeds; half a Drachm of Seeds of Poppies; beat them in a Mortar of Marble; pouring, by Degrees, over it half a Pint of a Decoction of Barley, Jujubes, and Maiden-Hair: Then strain it with Expression; and in the Colatura mix Syrup of Althæa, and of Tussilage, of each an Ounce and a half: For *three Doses* of *Emulsion*.

Virtues.—This *Emulsion* is proper to humect and soften the Acrimony of the Breast, to excite Expectoration, to appease a Cough, to provoke Sleep, which it will procure still better, if an Ounce of Syrup of white Poppies be added to it.——A Glass full for a Dose.

For a *cooling* and *aperitive Emulsion.*—Take one Ounce of the four cold Seeds; the Seeds of Althæa and of white Poppies, of each one Drachm: Let them be pounded in a Marble Mortar, pouring slowly over them a Quart of Decoction of the Roots of Althæa, and of Parsley; strain it with Expression; and to the Colatura add four Ounces of Syrup of Marsh-mallows.

Virtues.—It is proper to expel, gently, the Sand from the Reins and Bladder, to temperate and soften the Acrimony of the Urine, when it proceeds from a Clap, or from another Cause.

Note, That one may add in those *Emulsions* Seeds of Nettles, of Parsley, of Anis, and likewise a Drachm of Sal prunellæ, to render them more aperitive.

For an *astringent Emulsion.*—Take twelve sweet Almonds, blanched; the Seeds of Plantain, of white Poppies, of Quinces, and Sumach, of each a Drachm and a half; pound them in a Mortar, pouring over them by Degrees two Pints of a Decoction of Barley, or Roots of Plantain, and of Betony; then strain it with Expression; and to the Colature add Syrups of dried Roses and of Berberies, of each two Ounces, for four or five *Doses* of *Emulsion*.

Virtues.—This *Emulsion* is proper to stop the spitting of Blood, the Dysenteria, a Loosenesss, and Hemorrhages. To render it still more astringent, it is very proper to dissolve some Laudanum in it.

Note, That *Potions* come next in Order.

Potion, comes from the *Latin potare*, to drink. This Name can be given to all Sorts of Draughts; but in Medicine it is most commonly restrained to certain Mixtures of several Powders, Confections, Electuaries, Syrups, Elixirs, Tinctures, Essences, dissolved in Liquors. There may be prepared *Potions* of all Sorts, for each Malady in particular; for there are *Anodine*, *Emetick*, *Stomachick*, and several other Potions.

A *Cordial Potion*, is properly a Julep, in which have been mixed simple, or compound Drugs; and Powders, and cordial Confections.

A *Cephalick Potion*, is a Julep, in which have been mixed cephalick Remedies.

A *Purgative Potion*, is a purgative Medicine, or Apozem.

Note, That the Doses of Drugs which are to enter Potions cannot be justly determined, in general; for the Physicians prescribe them more or less strong, according to their Indications, and the divers Intentions they may have.

For a *Cordial Potion.*—Take a Drachm of Confection Alkermes, an Ounce of Syrup of Lemons, Water of Buglos, and of Carduus Benedictus, of each one Ounce and a half, mixed together for a Potion.

Virtues.—This Potion is proper to fortify the Heart, and to resist the Malignity of the Humours. It may be taken all at once, or at different Times.

Note, That to this Potion may be added *Salt of Viper*, diaphoretick Antimony, volatile Salts, and several other such Remedies, according to the Intention of the Physician.

For a *Cephalick Potion.*—Take one Drachm of Confection Alkermes, a Scruple of volatile Salt of Harthorn, an Ounce of Treacle-Water, the Water of Betony, and Marjoram, of each an Ounce and a half, mixed together for a Potion, which is to be taken by Spoonfuls.

Virtues.—This *Potion* is proper to fortify the Brain, for the Epilepsy, Apoplexy, Lethargy, and Palsy: The Dose is two or three Spoonfuls at once.

Note, That several other cephalick Drugs may be added to this Potion, as the Tincture of Castor, the Diascordium, and the Essence of Cloves.

For a *Potion for the Cholick.*—Take one Ounce of Mint-Water, half an Ounce of Cinnamon-Water, an Ounce of Syrup of Diascordium, half the Yolk of a new-laid Egg, the Oil of Juniper-Berries, the Spirit of Sal-armoniac, and of Lavender composed, of each ten Drops, two Grains of Salt of Wormwood, mixed together for a Potion to be taken by Spoonfuls.

Virtues.—This Potion cures the windy Cholick, and dissipate Winds generated in the Stomach, for want of Digestion.

For a *lenitive Potion.*—Take two Scruples of Cream of Tartar in Powder, which must be dissolved over the Fire, in three Ounces of Flowers of Elder, add to it an Ounce and a half of Manna, and half an Ounce of solutive Syrup of Roses, which must be strained for a Potion.

Virtues.—This Potion is very good to purge gently, without griping the Patient.

For an *astringent Potion, to stop the vomiting or spitting of Blood.*—Take an Ounce of Syrup of Myrtle, a Dram of Sanguis draconis, the Eyes of Crawfish prepared, and six Drachms of Vinegar, mixed together for a Potion to be taken by Spoonfuls.

Virtues.—This Potion is astringent, proper to stop the spitting and vomiting of Blood, a Loosenesss, and the Dysenteria; for Losses of Blood, for the Whites in Women, and other immoderate Evacuations of the Matrice.——The *Dose* is a Spoonful often repeated.

For an *hysterick Potion.*—Take a Dram of the Diascordium of Fracastor, an Ounce of Syrup of Mugwort, the

the Waters of Melissa, Matricary, and Rue, of each an Ounce and a half; half an Ounce of Orange-Flowers, two Drachms of Cinnamon, four Scruples of Salt of Mug-wort, the Tincture of Castor, and the oleous volatile Salt, of each one Drachm, mixed together for a Potion to be taken by Spoonfuls.

Virtues.—It is proper to dissipate the Vapours, to raise the Obstructions of the Matrice, and to provoke the Menses.

Note, That to this Potion may be added fifteen Grains of Camphire, dissolved or liquified with fifteen Drops of rectified Oil of Succin, but it is much more disagreeable to drink.

For an *antinephretick Potion.*—Take the Syrup of Althæa, of Oil of Sweet Almonds, extracted without Fire, of each an Ounce and a half; three Ounces of good White-Wine, four Ounces of Water of Parietary, one Drachm of Sal-prunellæ, Spirit of Turpentine and of Salt, of each eight Drops, mixed together for two Doses.

Virtues.—It is good to usher out gently the Phlegm, Gravel, or Stone which passes from the Reins thro' the Ureter into the Bladder, and causes the nephretick Cholick, it purges by Urine.

Note, That from Potion I'll pass to *Mixtures.*

MIXTURE, comes from the Latin *miscere*, which signifies to mix, though this Name appears very general, and can be given to a vast Number of different Sorts of *Mixtures* made in *Pharmacy*, it is notwithstanding more properly adapted to certain *Mixtures* of Spirits, Essences, Elixirs, and distilled Waters, which being administered in a small Dose, produce notwithstanding the same Effect of Remedies given in a greater Volume, and operates sooner.

For an *anti-epileptick Mixture.*—Take Waters of Imperial, and of Cinnamon, of each an Ounce; two Drachms of the rectified Spirit of human Cranium; Spirit of Succin rectified, oleous volatile Salt, and Tincture of Salt of Tartar, of each one Dram, to be mixed together for a *Mixture.*

Virtues.—It is proper for the Epilepsy, and other Maladies of the Brain.—— The *Dose* is from one Scruple to four, to be given in and out of the Paroxysm.

For a *Hysterick Mixture.*—Take Waters of Cinnamon, and Theriacal camphorated, and of Orange-Flowers, of each an Ounce; Tincture of Castor, Succin, and Saffron, and Salt of Tartar, of each two Drachms. Distill'd Oil of Savern, Mint, and Wormwood of each six Drops, mixed together for a *Mixture.*

Virtues.—It is proper to appease the Vapours, and to provoke the Menses.—— The *Dose* is from half a Drachm, to a Drachm and a half.

For a *Diuretick Mixture.*—Take an Ounce of Spirit of Turpentine; rectified Salt, dulcified Nitre, of each three Drachms; Succin, and Elixir proprietatis, of each two Drachms; to be mixed together for a *Mixture.*

Virtues.—It is proper for the Stone, the Gravel, the Suppression of Urine, and the nephretick Colick.—— The *Dose* is from four to fifteen Drops in white Wine, or a Liquor appropriated to the Distemper.

Note, That I'll place *Bolus's* next to Mixtures.

By a BOLUS is understood a Sort of Remedy of the Consistence of Paste, which is most commonly a Purgative, divided into several Parts before it is taken.

Note, That the Repugnance Men have always had for the disagreeable Draughts prepared by *Pharmacy*, gave Occasion to invent Several Means to administer the Remedies otherwise than in Draughts; that the Palate may be as little imbibed therewith as possible. The *Bolus* is one of those; for being wrapt in a Wafer, or covered with Sugar, or Powder of Liquorice, it can be swallowed without tasting it.—The mercurial Preparations must always be administred either in *Bolus's*, or Pill, and never in Potion; lest the Mercury, being very heavy, should fall between the Teeth, and shake them.

The Consistence of the *Bolus's* is most commonly like that of the Electuaries; and the Matter thereof different, according to the different Indications.

For a *Cathartick*, and *aperitive Bolus*, for a Gonorrhœa. Take half an Ounce of Confection hamec, a Drachm of Turpentine, half a Drachm of Cream of Tartar; and fifteen Grains of Mercurius dulcis, mixed together for a *Bolus.*

Virtues.—It purges both by Stool, and by Urine; and cleanses the Urethra, and spermatick Vessels, of the venereal Virus.

Note, That from the Bolus's, I'll pass to the *Gargarisms.*

The GARGARISMS are liquid Remedies proper for the Maladies of the Throat, which is washed therewith without swallowing them.

For a *Gargarism for an Inflammation of the Throat.*—Take an Ounce of whole Barley, the Summits of Blackberry Bushes, Leaves of Plantain and of Agrimony, of each half a Handful; boil them in two Pints of common Water, to the Consumption of a third Part; strain them, and in a Pint of the Colature dissolve an Ounce and a half of Honey of Roses, and a Drachm of Sugar of Saturn, for a *Gargarism.*

Virtues.—It is proper to appease the Inflammation of the Throat, to cure the little Ulcers, which may be formed in it, to fasten the relaxed Amigdala, and to stop the Salivation.

For a *Gargarism to stop a Salivation*, excited by the Mercury.—Take a Drachm of whole Barley, Plantain's Flowers, Nuts of Cypres, Pomegranate-Peal, Flowers of Sumach, of each half an Ounce, two Drachms of Berberies, boil them in common Water and Red Wine, a Pint of each, to the Consumption of a third Part; strain them, and in the Colature, dissolve two Drachms of Extract of Mars Astringent, half a Drachm of Salt of Saturn, and two Ounces of Honey of Roses, for a *Gargarism.*

Note, That the Barley must boil first in the Water, then the Pomegranate-Peal, the Berberies, and the Nuts of Cypress bruised are added to it, and afterwards the Wine; and when the Decoction has boiled still a little longer, the Herbs and Flowers are thrown into it, the Coction continuing till the Diminution of a third Part; then it is strained with Expression and in a Pound of the Colature, the Honey of Roses, the Extract of Mars astringent, and the Salt of Saturn are dissolved.

Virtues.—This *Gargarism* is very astringent, proper to dry the Ulcers of the Mouth, to fasten the Gums, and to stop a Salivation when the Patient washes often his Mouth with it.

Note, That next comes *Errhina.*

The ERRHINA, in Latin *nasalia*, are Remedies introduced into the Nose, to make one blow his Nose or sneeze. They are made of various Forms, sometimes in Powder, sometimes liquid, sometimes like a Sort of Unguent, and sometimes in a solid Mass, divided into small pyramidal Sticks.

For a *sternutatory Powder.*—Take white Hellebore, Tobacco, Iris of Florence, each two Drachms, Flowers of Lillies of the Vallies, of Betony, of Marjoram, and of Sage, of each a Drachm.

Note, That the Drugs must be pounded together in a Brass Mortar, and afterwards passed through a common coarse Sieve.

Virtues.—It is proper to excite Sneezing and to purge the Brain.

Note, That a Scruple of Euphorbium may be added to it, when used in the Apoplexy or Lethargy, but in all other Occasions it is dangerous to introduce *Euphorbium* into the Nose, because of its violent Effects.

For a *liquid Errhina.*—Take the Juices of the Roots of our Iris, of Ciclamen, of Beat, of each an Ounce and a half; the Leaves of Betony and of Marjoram, of each an Ounce; mixed together for an *Errhina.*

Virtues.—It dilutes and rarifies the coarse Pituita, stopped at the Top of the Nose and make it flow; it must be snuffed up the Nose, having previously to it filled the Mouth with Water, lest the *Errhina* should fall into it.

For

For an *Errhina in form of Ungent.*—Take the Roots of wild Cucumbers dried, Pyrether, and Black Pepper, of each a Drachm, and an Ounce and a half of Oil of Bays, mixed together for a Liniment.

Virtues.—It is proper for the Head-ach proceeding from a coarse Pituita, for the Apoplexy, Epilepsy, and the Maladies of the Eyes; some of it being introduced into the Nostrils to excite Sneezing.

For a *solid Errhina Astringent.*—Take Sal armoniack, Sanguis draconis, prepared Coral, of each half an Ounce; three Drachms of Red Roses, and two Drachms of white Vitriol, which must be all mix'd together, and incorporated with the White of Eggs to make a Mass, of which are formed pyramidal *Errhina.*

Virtues.—This *Errhina* stops the Hemorrhage of the Nose; it is fastened to a Thread, to be taken out at Pleasure.

Note, That next come *Injections.*

INJECTION is a Liquor introduced by Means of a Syringe, into several small Cavities of the human Body; as in the natural Parts of both Sexes, in Wounds, and even in the Intestines; for the Clysters are a Kind of *Injections.* The Matters of the *Injections* are different, according to the different Indications.

For *an Injection to stop a Gonorrhea.*—Take Plaintain and Rose-Water, of each four Ounces; an Ounce of Honey of Roses; a Drachm of my vulnerary and stiptick Tincture, mixed together for an *Injection.*

Virtues.—This *Injection* is astringent, proper to strengthen the spermatick Vessels, and stop the Gonorrhea.

For a *vulnerary Injection.*—Take an Ounce of round Aristoloche; boil it in a Pint and a half of white Wine, to the Consumption of a third Part, strain it with Expression, and in the Colature dissolve an Ounce and a half of Honey of Roses, and an Ounce of my Tincture for an *Injection.*

Virtues.—This *Injection* is proper to rarify, deterge, and resolve, to resist to the Gangrene; Wounds are syringed with it, Tents, Pledgets, and Compresses applied on the Wounds, are imbibed with it.

Note, That I'll make *Clysters* succeed to *Injections*, since *Clysters* are nothing else, properly speaking, but *Injections.*

CLYSTER, or *Clysmus*, or *Enema*, are *Greek* Names, the two first signify Washing, and the last *Injection.*

Note, That it is pretended, that the Use of a *Clyster* was invented by a Bird, which by Means of its Beak spirts Sea-Water into its Fundament, when it finds itself hard-bound: But let it be how it will, it is an Injection introduced into the Intestines by Means of a Syringe, or sometimes of a Bladder, to remedy to several Maladies; as to soften, and evacuate the Excrements, which, by sojourning too long in the Bowels, are grown hard and dry; to expel the Wind and Worms; to provoke the Urine; to facilitate a Delivery; and to stop a Loosenes. It may be said, that *Clysters* are some of the best Remedies, which Medicine has invented, when they are administer'd *a propos*; but they are often abused, for a great Number of Persons accustom so much their Intestines to those Sorts of Remedies, which they use every Day, as well in Health, as when they are indisposed, that they render their Belly lazy, and incapable of performing of itself its Functions. Their Design is to cool themselves, by keeping always their Bowels clean and washed; but they do not consider, that they hinder thereby the Digestion of the Aliments from being so perfect as it should be; for there is wanted in the Entrails a certain Quantity of Excrements to excite the Fermentation of the Aliments in the Stomach; in the same Manner, as when we want to give a gentle Fermentation to several Infusions, we put the Vessel which contain them in a hot Dunghil: But my Reader must not conclude hence, that I condemn absolutely the Use of *Clysters*; on the contrary, it is a Kind of inward Bath, of a special Efficacy, in several Maladies, especially in those occasioned by an excessive Fermentation of the Humours; therefore,

For an *emollient and laxative Clyster.*—Take two Pints of the cooling and emollient Decoction; an Ounce of lenitive Electuary; two Ounces of Honey of Violets, mixed together for a *Clyster.*

Virtues.—It is proper for those who are hard-bound, to purge the lower Abdomen of bilious and other Humours, to temperate the Heat of the Entrails, and appease the Fever.

Note, That Whey may be used instead of Decoction, to render the *Clyster* still more cooling.

For a *carminative and laxative Clyster.*—Take the Leaves of Mallows, Parietary, Mercurialis, Organ, of each half a Handful; Flowers of Camomile, and of Melilot, of each as much as one can hold between three Fingers; Juniper-Berries, Bays-Berries, and Fennel-Seeds, of each two Drachms; boil them in two Quarts of River-Water to the Consumption of half the Liquor; strain them with Expression; and in one Pint of the Colature, dissolve six Drachms of Catholicon, half an Ounce of Diaphænick, and three Ounces of Honey of Rosmarin for a *Clyster.*

Virtues.—This *Clyster* is proper to purge the slimy Matters, Winds, and other coarse Humours lodged in the lower Abdomen.

Note, That the *Hiera Picra*, or Honey of Mercurialis, may be prescribed instead of the Diaphænick, and of the Honey of Rosemary. That the Decoction of the Herbs is sometimes made with Wine; and that there are sometimes *Clysters* given of Sack-Wine, alone. That in the *carminative Clysters*, an Ounce of Oil of *Aneth*, or of *Camomile* may be added.

For an *Hysterick* and *Laxative Clyster.* Take the Leaves of Mallows, Parietary, Mug-wort, Mercurialis, Matricaria, Flowers of Camomile and of Elder, of each one Third of a Handful; three Drachms of Juniper-Berries; boil them in two Quarts of common Water to the Diminution of half the Liquor; strain them with Expression, and dissolve in the Colature, Electuary Diacatholicon, Laxative Benedicta, of each six Drachms; one Drachm of Troches of Myrrh, and four Ounces of Honey of Mercurialis for a *Clister.*

Virtues.—This *Clyster* is proper to appease the Vapours, and the Suffocation of the Matrice, to facilitate a Delivery, and the Expulsion of the Afterbirth; for the Apoplexy and Lethargy we may add to it as far as two Ounces of Tincture of Antimony, where the Case wants a quick and violent Remedy.

For a *detersive Clyster.*—Take a Pint of the detersive Decoction above described, half an Ounce of double Catholicon, two Ounces of Honey of Roses, and the Yolk of a new-laid Egg, mixed altogether for a detersive Clyster.

Virtues.—It is proper to purge in stopping a Loosenes, and instead of the double Catholicon, we may prescribe Oil of Sweet Almonds, or of white Lillies, especially when the Loosenes is accompanied with slimy Matters, which cause continual Motions.

Note, That the first *Clysters* given for a Loosenes must be a little Purgative, because it is necessary in those Occasions to cleanse the Intestines of the [illegible] which entertain the Loosenes, and often one is cured by that Remedy alone; but if the Malady continues after the Purgatives, *Clysters* only softening, and astringent are to be administred; the Decoction thereof may be made of Milk, or of Viper's Broth, dissolving in it Sugar, or Honey of Roses, and a Yolk of an Egg; and when the Loosenes degenerates into a Dysenteria, a Drachm of Turpentine and an Ounce of Oil of St. John's wort are added to it, sometimes two Ounces of Mutton Suet, and sometimes an Ounce of Populeum.

For a *Clyster for the Nephretick.*—Take the Leaves of Marsh-mallows, and Parietary, of each half a Handful, Flowers of St. John's-wort, and of the golden Rod, of each as much as one can hold between three Fingers, three Drachms of Juniper Berries, and two Drachms of Linseed, boil them together in a Quart of common Water, to the Consumption of half the Humidity; strain them with Expression, and in a Pint of the Colature, dissolve Lenitive

lenitive Electuary, laxative Benedict, of each half an Ounce; two Ounces of Honey of Violets; two Drachms of Turpentine of *Venice*; and six Drachms of Linseed Oil. For a *Clyster*.

Virtues.—It is proper to open the Passages of the Urine; and to cure the nephretick and windy Cholick.

Note, That the Decoction is sometimes made with white Wine; and the *Clysters* with Oil or Grease, purge less than those where there is none; because oily Substances blunt by their ramous Parts the Points of the Purgatives.

Note, That the *Suppositories* follow naturally the *Clysters*.

SUPPOSITORIES are solid Remedies, of a pyramidal Figure, and of the Thickness and Length of the little Finger. They have been invented to supply the Want of *Clysters*, for which several Persons have a great Repugnance; wherefore the Word *Suppository* proceeds from the *Latin supponere*, to substitute, or to use one Thing instead of another. This Remedy is proper to open a little the Body; it is thrust into the Fundament, and kept there as long as possible, that it may have Time to penetrate and soften a little the Matters, and provoke the Intestine *rectum*, by pricking it; but it is very far from having the same Efficacy as a Clyster.

The common Matter of a *Suppository*, is common Honey, boiled to a solid Consistence; it is sharpen'd with a little Salt. When the *Suppositories* are to be stronger, there must be added either half an Ounce of Electuary of *Hiera Picra*, or two Drachms of Aloes.

Note, That the Honey and Salt must be put in an Iron Ladle, or in a little Skillet, over a slow Fire, where they must boil till the Matter has acquired a solid Consistence, which will be known, if a little Bit thereof be put to cool; then it must be poured boiling hot on the Bottom of a little Mortar turn'd upside down; and the *Suppositories* formed on a Marble, or Board greased with Oil.

Note also, That *Pessaries* being likewise solid Remedies, and of almost the same Figure with *Suppositories*, I'll place them next.

PESSARIES are solid Remedies, very near of the Bigness of a Finger, and of a pyramidal Figure; they are introduced into the Matrice, after an End thereof has been fastened to a Ribband that the *Pessary* may be taken out at Pleasure.

Note. That *Pessaries* can be made of Cork, or of a light Wood, or with a Root, or with a little Sheath made of a thin Silk, and filled with Powders incorporated with Wax, Oil and Cotton, the whole pressed very hard in the Sheath, that it may have Solidity enough to be introduced into the Matrice: One must take Care, likewise, that the Seam be very even, and well flatten'd, lest it should wound the Matrice. That made of Wood, or of Cork, or of a Root, must be anointed with a Liniment composed of Drugs appropriated to the Intention of the Physician; for Example, if it be to provoke the Menses, the following Liniment is very proper.

A *Liniment* for *Pessaries.*—Take Myrrh and Aloes, of each a Drachm; a Scruple of Saffron; eight Grains of Camphire; four Grains of Castoreum, pound them well together, and mix them in an Ounce and a half of Unguent of *Althæa*, or Marsh-mallows. Add to it two Drachms of *Sperma ceti*; and six Drops of Oil of Succin; for a Liniment.

Note, That if it be wanted to make a solid Mixture to fill up a little Sheath of Silk, it may be composed in the following Manner.

A *solid Matter for Pessaries.*—Take Gum Ammoniack, and *Galbanum* dissolved in Wine, and boiled, of each two Drachms; Myrrh and Aloes of each one Drachm; Savern-Leaves, and *Dictamnum* of *Crete*, of each two Scruples; Saffron, and Castor, of each half a Drachm; a Drachm and a half of *Sperma ceti*; an Ounce of yellow Wax; and a sufficient Quantity of Oil of Rue, mixed together for a *Cerat*; in which, while yet hot, is dipped a sufficient Quantity of Cotton.

Note, That if it be to abate the Vapours of the Matrice, the *Pessaries* must be anointed with the following Liniment.

A *Liniment for the same Purpose.*—Take Oil of Capers, three Drachms; and two Drachms of Oil of Bays; mixed together for a Liniment.

Note, That if it be to stop a too great Flooding of the Menses, the following Liniment is very good.

A *Liniment for astringent Pessaries.*—Take prepared Coral, and *Terra Sigillata*, of each two Drachms; six Grains of solid *Laudanum*, pounded, and mixed together in two Ounces of white Wax, and an Ounce of Oil of Solanum, in which is dipped a sufficient Quantity of Cotton for a hard Mixture, proper to fill the little Sheaths of Silk.

Note, That next comes *Fomentations*.

A FOMENTATION is most commonly made of Decoctions of emollient and cooling Herbs, to soften some Hardnesses formed in the lower Abdomen, or of astringent Liquors, to strengthen and bend the Fibres: Pieces of Cloth are dipped in those *Fomentations* kept hot, and applied on the afflicted Part; or the Herbs are put in small Cloth-Bags, and after they have been made to boil, are applied. There are also *dry Fomentations*, made on several Parts of the Body; as fried Bran or Oats, which are applied hot, between two Cloths, for rheumatical Pains; Vervein fried for the Pain in the Side, in the Pleurisy; Parietary to be applied on the Region of the Urethra, in the nephretick Cholick: A Hog's Bladder is filled with hot Milk, and applied on the lower Abdomen: Salt and Ashes are calcined to be applied hot on the Neck, to dry and dissipate the Catarrhea's. Lastly, one may use almost as many Sorts of *Fomentations*, as there are different Sorts of Maladies, which afflict the human Body.

For an *emollient and cooling Fomentation.*—Take the Roots of Marsh-mallows, of white Lillies, of each four Ounces; the Leaves of Marsh-mallows, of Violets, of Bear's Foot, of Groundsel, of each a Handful; the Flowers of Camomile and Melilot, of each an Handful; the Line and Fenugreek-Seeds whole, of each an Ounce; boil them in five Quarts of common Water to the Consumption of a third Part; and then strain them with Expression, for a *Fomentation*.

Virtues.—This *Fomentation* is proper to dispose the foreign Matters of the lower Abdomen to be evacuated; it is very good for the Hardness of the Liver, of the Spleen, and of the Matrice.

Note, That to foment well a Patient, one must have two large Pieces of soft and half worn Cloth, folded into four, and having placed the Fomentation over a little Fire to keep it warm, soak well those two Pieces of Cloth in it; then taking out one of them, and squeezing it a little, it must be applied on the afflicted Part, and left there till the Patient begins to feel it too cold; then it must be taken off, and the other, which was left in the *Fomentation* put in its Place, and this put again in the *Fomentation*; continuing thus to put alternately the two Pieces of Cloth, for a whole Hour at least, then the Part fomented is wiped.—One could besides fill two Linen Bags with the Herbs which enter the *Fomentation*, then make them boil, and apply them alternately on the lower Abdomen, instead of the Cloths; this last Sort of *Fomentation* is more tedious than the first, but is better, because the Herbs boiled being applied in Substance on the lower Abdomen, soften and humect it more.

For a *Fomentation for Dislocations and Contusions.*—Take Rosemarin, Sage, Marsh-mallows, Hyssop, and Lavender, of each a Handful; the Rind of Pomegranate, Bays, and Juniper-Berries, of each an Ounce; fill small Linen Bags with those Herbs, *&c.* bruised and mixed together; and put them to boil in two Quarts of Lees of red Wine over a slow Fire, the Vessel cover'd, to the Consumption of a third Part; then apply the Bags hot on the Part.

Virtues.—This *Fomentation* is proper to strengthen and consolidate dislocated Bones, the Nerves and Ligaments; to resolve the Tumours which follow the Contusions;

ſions; and to help the Digeſtion when applied on the Stomach.

Note, That the Decoction muſt be half cold before it is uſed, then one of the Bags is taken out, ſqueezed a little between the Hands, and applied on the Part, where it is left about an Hour; then is taken off, and the other put in its Place; continuing to apply thus the Bags, alternatively five or ſix Times; leaving that which is applied laſt, five or ſix Hours on the Part.

Note alſo, That next follows *Embrocation*.

Embrocation, is an Aſperſion made of ſome Liquor, by Means of Tow or of Spunges on ſeveral Parts of the Body, and particularly on the Head, to open the Pores, and to ſtrengthen.

An *Embrocation* is properly a Lotion moſt commonly compoſed of Decoctions, or Spirit of Wine, or of Oxyrrhonodians, prepared with Oil and Vinegar of Roſes, applied on the ſhaved Head of the Patient, as well to prevent a Delirium as to cure it.

For an *Embrocation for a Lethargy*.—Take the Roots of Cypreſs, of Iris of *Florence*, Calamus Aromaticus, of each half an Ounce; of Leaves of Sage, of Roſemarin, and of Betony, Bays-berries, and Coriander and Cumin-Seeds, of each two Drams; boil them in three Pints of common Water to the Conſumption of a third Part, then ſtrain them with Expreſſion, and to the Colature add four Drachms of Brandy; for an *Embrocation* for the Head.

Virtues.—This *Embrocation* is proper to awake the Spirits in a Lethargy, Apoplexy, and Palſy.

For an *Embrocation to provoke Sleep*.—Take two Handfuls of Lattuces, white Roſes, Flowers of Poppies, and of Betony, of each half a Handful; boil them in a Quart of common Water to the Conſumption of a fourth Part, and ſtrain them afterwards with Expreſſion.

Virtues.—By waſhing the Head with this *Embrocation*, it provokes Sleep.

Note, That next come *Lotion*.

Lotion, comes from the Verb *lavare*, to waſh. Though I do not deſign to ſpeak here of the Baths uſed to waſh the whole Body, either for Health or for Pleaſure; they are prepared either naturally, as hot mineral Waters, and the Water of Rivers in Summer; or artificially by means of the Fire, in a Manner which every Body knows. I'll treat here only of the *Lotions*, made to ſome Parts of the Body in particular, with medicinal Liquors, either to waſh off the Dirt, or open the Pores, or to cool, ſtrengthen, appeaſe the Pains, kill the Vermine, or provoke Sleep.

Note, That *Lotions* are employ'd more or leſs ſtrong and penetrating, in proportion as the Diſtemper is more or leſs violent. The Head is waſhed with Spirit of Wine, or Hungary-Water, to ſtrengthen the Brain, or to cure the Contuſions thereof, or to diſſipate the ſuperfluous Humidities.—Sometimes the Head is waſhed with a clear Lixivium made with Aſhes of Sarment to take off the Dirt, or that of the Hair: The *Root of the Hairs* is waſhed or humected with *Spirit of Honey*, to make them grow. The Parts afflicted with the Itch are waſhed with the Water which has ſerved to ſoften the white Precipitate. The *Feet and Legs* are waſhed with Decoctions of Lattuces, Nenuphar, white Poppies, Mallow, Porcelain, and cold Seeds bruiſed.—To cure a *ſcall'd Head*, is employ'd likewiſe a Decoction of Water-creſſes in common Water, and that compoſed with the Roots of Iris, of Aſara-bacca, of Elicampane, the Leaves of Ivy, of Wormwood, of Fumatery, of Scabioſe, and of Marjoram, the Berries of Bays and Lupines, boiled together in a Lixivium of Aſhes of Juniper: Adding ſometimes to thoſe Decoctions the dried Dung of Pigeons, Goats and Sheep; the Roots of Hellebore, the Coloquintida, Euphorbium, Verdigreaſe, and ſeveral other penetrating Remedies, when the Diſtemper is not to be conquered by gentle ones. Some employ likewiſe, with Succeſs, a Decoction of Lupines, of Wormwood, of little Centaury, made in ſtrong Vinegar, or Urine, to waſh the Head, and even the whole Body, to kill Lice and other Vermine. There are beſides ſeveral other *Lotions* for the Itch, and other cutaneous Diſtempers; uſing for it not only the Decoctions of Enula-campana, *&c.* but likewiſe the Diſſolutions of Mercury made in Aqua fortis, or Spirit of Nitre, and diſſolved in a good Quantity of common Water, waſhing only the Hands, Arms, Feet, Legs, and Thighs with it, without touching the reſt of the Body which could be hurt by the Mercury. Several Parts of the Body are waſhed with Hungary-water or comphorate Spirit of Wine to appeaſe the Pains in Rheumatiſms: It is alſo uſed, with Succeſs, for Burns, adding a little Vitriol to it, or ſome Grains of Verdigreaſe. *Wounds and Ulcers* are alſo waſhed with Decoctions of Ariſtoloche, Gentiana, Centaury, Wormwood, Virga Aurea, Sanicle, *&c.* made in the Juice of the ſame Plants, or in White-Wine, adding ſometimes to it Myrrhe, and Aloes in Powder.

For a *Lotion to kill Lice in the Head*.—Take two Ounces of Staphyſagria, an Ounce of Semen contra, the Leaves of Wormwood, of Betony, and of little Centaury, of each two Handfuls: Boil them in two Quarts of Water, to the Conſumption of a third Part, ſtrain it, and waſh the Head with it, warm. It kills the Lice and Crabs. This Decoction can alſo be made in Urine, adding to it an Ounce and half of the Roots of Enula campana.

For a *Lotion to render red Hair black*.—Take half a Pound of the Peel of green Walnuts, the Bark of Oak, Galls, of each two Ounces; the Leaves of Myrtle-tree, of Pomegranate-tree, of each a Handful: Boil them in three Pints of Water to the Conſumption of a third Part; ſtrain hard the Decoction, and in the Colature diſſolve Roch-Alum, and green Vitriol, of each an Ounce and a half for a *Lotion*.

Note, That though this Lotion belongs more properly to Dying than to Medicine; it will, notwithſtanding, pleaſe thoſe who having red Hair want to make them change Colour; which may be done by waſhing them with this Ink, and letting them dry before they are wiped.

Note, alſo, That from *Lotions* I'll paſs to *Mucilages*.

A Mucilage, is ſometimes a ſlimy Liquor, which ſpins when it is poured, and ſometimes a Size. It is commonly made of Roots of Althæa, of Symphitum, of the Seeds of Lin, of Fænugreek, Quinces, or Pſyllium, the Gums Adraganth, Arabick, or of Plumb-tree, the Glue of Fiſh, the Skin of a Ram infuſed, or boiled in Water. All *Mucilages* are ſoftening.

For a *common emollient Mucilage*.—Take four Ounces of the Roots of Marſh-mallows; the Seeds of Lin and Fænugreek, of each an Ounce; let them infuſe for twelve Hours in two Quarts of warm Water, then boil them over a ſlow Fire, to the Reduction of half the Humidity, and ſtrain afterwards the Mucilage with Expreſſion.

Virtues.—This *Mucilage* is proper to ſoften the Hardneſs, to appeaſe the Pains and to ſweeten.

For a *Mucilage of Gum Traganth*.—Take half an Ounce of Gum Traganth, very white and very clean, put it to infuſe into half a Pint of Water, for two or three Hours, for a *Mucilage*.

Virtues.—This *Mucilage* is good to cool the Breaſt, to eaſe the Cough, thicken the Spitting; ſome of it is mixed in pectoral Syrups: It is alſo applied on chapped Breaſts, Lips, and Hands; it is uſed to give a Conſiſtence to the Cakes of which Troches, Paſtils and Rotules are made.

Note, That to make this *Mucilage*, the Gum muſt be bruiſed and put in a glazed earthen Pot, pouring over it ſix Ounces of common Water, and having covered the Pot, it muſt be put in a warm Balneo Mariæ for two or three Hours, or till the Gum be melted in the Water, and appears like a Gelly; then the Pot is taken out, and the *Mucilage* paſſed through a very clean Searce turned upſide-down, to ſeperate from it a little Dirt, which is always found in the Gum. This *Mucilage* can alſo be made in Plantin or Rose-Water, or other Waters appropriated to the Malady.

For a *Mucilage to ſtop an Hemorrhage*.—Take the Seeds

Seeds of Psyllium and of Quinces, of each half an Ounce: Let them infuse for twelve Hours, in the Waters of Plaintin and Roses warm, of each half a Pint; then boil them over a slow Fire, to the Consumption of a third Part, and afterwards strain them with Expression.

Virtues.—This *Mucilage* is proper to stop the spitting of Blood, and other Hemorrhages, it is mixed with an equal Portion of Syrup of Quinces or of red Roses, and is taken by Spoonfuls.

For a *Mucilage of a Ram's Skin.*—Take the Skin of a Ram newly fleeced with the Wool on, and cut it into Pieces, boil it in a sufficient Quantity of Water on a slow Fire, till the Skin be entirely dissolved in the Water, then strain the Decoction with a strong Expression of the Wool; and if the *Mucilage* was not thick enough Part of the Humidity must be evaporated.

Virtues.—This *Mucilage* is proper to soften and strengthen; it is employ'd in Plaisters for the Rupture.

Note, That from Mucilages I'll pass to *Epithems*.

EPITHEMA, is a *Greek* Word which signifies *Fomentation.*—There are two Sorts of *Epithems*, one *liquid*, and the other *solid*.

The *liquid Epithema*, is a Sort of Fomentation more spirituous than the others, which are used only for the Regions of the Heart and Liver. Simple and compound distilled Waters, light Decoctions, Vinegar, Lemon-Juice, are the common Matters of the liquid *Epithems*.

A *solid Epithema*, is a Mixture of Treacle, Confections, Mithridate, Opiate of Solomon, Diascordium, Conserve of Roses, of Gillyflowers, Buglose, *&c.* of the Cordial Powders, as the Diamargaritum, Diarrodon, Diatriasantali, and even the composed Oil of Scorpion of Mathiol, spread most commonly on a Piece of Scarlet Cloth, or on Leather, and applied about the Region of the Heart to strengthen it.

For a *liquid Cordial Epithem.*—Take the Waters of Buglose, of Scabiose, of Carduus Benedictus, and of Roses, of each three Ounces; Treacle and Confection Alkermes, of each half an Ounce; and two Drachms of the Powder Diarrodon Abbatis, mixed together for an *Epithem*. One must have two Pieces of Scarlet or other Cloth, large enough to cover the Region of the Heart or that of the Liver; and having warmed the Epithem in a Dish, the Pieces of Cloth must be soaked in it, and applied every Quarter of an Hour, one after another, as prescribed in the Fomentations, covering the *Epithem* with some thick Cloth, to entertain the Heat as long as possible.

Virtues.—This *Epithem* is proper to revive the Heart, and strengthen it, awake the Spirits, and resist the Malignity of the Humours. To this *Epithema* may be added such Cordials as are judged proper.

For a *liquid Epithem* for *Children newly born*, to expel the *viscous Pituita*, which they bring into the World. Take Cinnamon, Mace, Nutmeg, Mastick, Olibanum, of each two Ounces; and four Ounces of Treacle and Spirit of Wine: Put the Drugs to infuse together in the Spirit of Wine, on a slow Fire, to make a Tincture thereof; then add to it a Yolk of Egg and Rose-Water, soaking Crumbs of Bread in it, to be applied hot on the Region of the Stomach.

Virtues.—It is pretended that this Epithem is very proper to dissolve and expel the glutinous Matters from new-born Children.

For an *epathick Epithema.*—Take the Waters of Chicory, Buglose, Nenuphar, and Porcelain, of each three Ounces; an Ounce and half of Vinegar of Roses, three Drachms of Powder of Diatriasantali, and two Scruples of Troches of Camphire, for an Epithem to be applied hot by means of Pieces of Cloth, as above-mentioned, on the Region of the Liver.

Virtues.—It is pretended that this Epithema fortifies the Liver in cooling it.

Note, That the *Epithems* applied on the Region of the Heart, can be of some Utility; but those applied on that of the Liver appears to me very needless. Emollient Fomentations or Baths are of a much greater Efficacy, because they have a greater Disposition to humect and soften than the *Epithems*.

For a *solid Epithema.*—Take an Ounce of Conserve of Roses, Confection Alkermes, and Treacle, of each two Drachms; for a solid Epithema, which must be spread on woollen Cloth, and applied warm on the Region of the Heart.

Virtues.—This *Epithema* is supposed to strengthen the Heart by rarifying the Blood, and facilitating its Circulation.

Note, That the Antients preferred Scarlet-Cloth to any other Stuff, for the Epithems, because of its red Colour, which is semblable to that of the Heart; but this Superstition is rejected by the modern Physicians as very ridiculous.

Note, also, That from the Epithems I'll pass to *Perfumes*.

PERFUMES, in Medicine, do not always exhale a very pleasant Smell, for there are some very agreeable, and others very disagreeable, which are not always to be rejected; for besides the good Effects they produce when used *apropos* in certain Occasions; one is even obliged to have Recourse to them, to remedy the Disorders caused by fragant Smells, to certain Persons, and particularly to Women; but all tend only towards giving some Ease to the Patients.

Though the Kind of *Perfumes* be of a very great Extent, they can notwithstanding be divided into two general ones, *viz.* into *liquid* and *dry Perfumes:*—*Liquid Perfumes*, are all the fragrant Waters and Cassoletes.—*Dry Perfumes*, are Pastilles, Juniper-Berries, and the Wood of Juniper, *&c.* which are burnt in the Chambers of Patients, to correct the bad Air.

Note, That Aparments are agreeably perfumed with Water of Orange-Flowers heated on a little Fire, in a Phiol with a narrow Neck, that the Vapour which comes out of it may spread gently, and fill the Room with an agreeable Smell. A Powder is prepared with three Drachms of Benjoin, a Drachm and a half of good Storax, a Drachm of the Wood of Roses, half a Drachm of yellow Sanders, half a Scruple of Calamus Aromaticus, as much of Flowers of Benjoin, and three Cloves; that Powder is mixed in six Ounces of Rose-Water, and three Ounces of Water of Orange-Flowers; and after they have been kept cold in a Matrass well corked for the Space of 24 Hours, and even more, if it be thought proper, Part of that Mixture shall be put into a Cassolette, which must be heated gently, to spread the good Smell thereof thro' the Room. The *Perfumers* make a Mixture of Benjoin, Storax, Iris, and other aromatick Drugs reduced into a coarse Powder, and humect them with Water of Orange-Flowers, forming a liquid Paste of it, which they put in little Vessels of Copper tinned Inside; and this is called a Cassolette. When it is to be used, one of those Cassolettes is placed over a small Fire, that the Matter being heated may spread an agreeable Smell. One can prepare also a dry Composition of Aromats, under the Name of Pastilles, and give it what Figure one judges proper, to use it not only among Cloaths, or wear it in one's Pocket, but likewise to burn some Part thereof, to perfume Apartments. Hospitals, and other Places where one is apprehensive of the Malignity of the Air, are often perfumed with hot Vinegar, or with Spirit of Salarmoniack, or with Spirit of Wine. Some of a Mixture of Spirits of Wine and Sulphur, is poured in an Iron Skillet, to make People in Consumptions receive the Vapour thereof.—*Cephalick Powders* are burnt to strengthen the Brain.—*Astringent Powders* are burnt to hinder the Serosities from falling on the Breast, in the Beginning of a Cold.—*Cordial Powders* are burnt to strengthen the Heart.—*Hysterick Powders* are burnt, Paper, old Shoes, and several other Things which can exhale a disagreeable Smell, to appease Vapours. *Mercurial Powders* are burnt to excite a Salivation.

To make a *Powder for a cephalick Perfume.*—Take Storax and Benjoin, of each a Drachm and a half, Gum of Juniper, and Oliban, of each one Drachm; Cloves and Cinnamon, of each two Scruples; Bay-leaves, Sage, Rosemarin, and Marjoram, of each half a Drachm; all which Drugs must be exactly pulverized, and mixed together;

together; and a ſmall Quantity thereof thrown on lighted Coals, to make the Patient receive the Vapour.

Virtues. — This *Perfume* is good for the Epilepſy, Apoplexy, Palſy, and is very proper to perfume the Caps and Linen of Perſons, who having a cold Brain, and full of Humidity, are ſubject to Fluxions and Rheumatiſms; one can even make them receive the Vapour thereof, through the Mouth, and Noſe; and Women through the natural Parts, in the Suppreſſion of their Menſes, to appeaſe the Hyſtericks.

A *Powder for a corroborative Perfume.* — Take three Drachms of Troches of Nutmegs; *Calamus Aromaticus*, Cinnamon, Storax, Benzoin, of each a Drachm and a half; Mace, Cloves, of each half a Drachm; Roſes, Marjoram, of each two Scruples, all coarſely pounded together for a *Perfume*, to be burnt on lighted Coals, for the Patient to take the Vapour thereof.

Virtues. — It ſtrengthens the Heart, and recreates the Spirits.

A *Perfume to ſtop the Humours which fall on the Lungs.* Take the Succin, Maſtich, Gum Tacamahaca, Roſes, Laudanum, Sugar, of each two Drachms; which Drugs muſt be all coarſely pounded together; and burnt to make the Patient receive the Vapour thereof.

Virtues. — This *Perfume* is proper to appeaſe the great Motion of the Seroſities, which fall from the Head on the Breaſt, at the Beginning of a Cold.

For a *Perfume to provoke the Menſes.* — Take the Roots of Iris, of Briony, of Elder, of each half an Ounce; Sage, Savern, Marjoram, Matricary, Mugwort, of each half a Handful; Juniper-Berries, and Bay-Berries, of each three Drachms; all which muſt be coarſely pounded and mixed together; and afterwards burnt to make the Matrice take the Vapour thereof.

Virtues. — This *Perfume* provokes the Menſes, becauſe it rarifies and diſſolves the too coarſe Blood, which cauſes Obſtructions in the Matrice.

A *Perfume to excite Salivation in the Venereal Diſeaſe.* Take an Ounce and half of Cinnabar; Juniper-Berries, Frankincenſe, Maſtich, and Laudanum, of each a Drachm and a half; pound all thoſe Drugs together, and keep them for Uſe.

When this *Perfume* is uſed, Part thereof muſt be thrown into a Chafing-Diſh, full of lighted Coals; and the Patient made to take the Vapour thereof by Intervals, till a Salivation happens.

Note, That this Manner of adminiſtering Mercury, is very dangerous; and often attended with great Accidents, either becauſe it enters a too great Quantity of Mercury into the Body at once, or becauſe it throws itſelf almoſt entirely on a particular Part, or becauſe it affects the Nerves, and cauſes the Palſy. None but the Cinnabar, in this Preparation, excites the Salivation, the other Drugs ſerving only to correct or volatiliſe it.

Note alſo, That from this I'll paſs to *Frontals.*

A Frontal is a Remedy applied on the Forehead, to appeaſe a little the Head-ach, and provoke Sleep. It is ſometimes compoſed of dried Remedies, as Roſes, Sanders, Betony, Marjoram, Coriander-Seed, Elder-Flowers, and of Nenuphar; of Lavender, Kernels of Peach-Stones, or of Apricocks bruiſed, when it is wanted to rarify a coarſe Pituita, and ſtrengthen the Brain. — Sometimes with wet Linen dipped in Roſe Water, and Vinegar of Roſes, to ſtop the Bleeding of the Noſe; ſometimes with Unguents, Leaves of green Plants, of Gourd, Lattuces, Porcelain, Vine; of green Flowers pounded, of Conſerves, of Opium, to provoke Sleep, and moderate the Head-ach, which accompany a violent Fever.

For a *dry Frontal.* — Take dried red Roſes, yellow Sander, Saſſafras, of each two Drachms; Flowers of Elder, of Lillies of the Vallies, of Betony, Cloves, of each one Drachm: All which Drugs muſt be pounded, humecting them, at the ſame Time, with Roſe-Water; and afterwards wrapped in a Piece of fine and ſoft Linen, to be applied on the Forehead.

Virtues. — This *Frontal* is proper to ſtrengthen the Brain.

Note, That the Virtue of this Remedy conſiſts in the ſpirituous Parts which penetrate the Pores of the Cranium, and which rarifying a coarſe and viſcous Pituita, gives the animal Spirits more Liberty to circulate.

A *liquid Frontal.* — Take Lattuces, Conſerve of Roſes, and Nymphæ, of each half an Ounce; three Drachms of Populeum; a Drachm of Sea-Salt, half a Drachm of liquid Laudanum; to be mixed for a *Frontal.*

Virtues. — It is proper to appeaſe a violent Head-ach and to provoke Sleep.

Note, That I have found by Experience, that Pieces of Linen Cloth, dipped in an Oxycrat, made of equal Parts of Water, and ſtrong Wine-Vinegar, and applied on the Forehead, was an excellent Remedy for a violent Head ach; but would not perhaps pleaſe the Fair-Sex, for it raiſes Pimples on the Forehead; but which diſappear in 24 Hours afterwards, and even ſometimes ſooner.

Note alſo, That *Collyres* come next in Order.

Collyres, are Remedies deſigned particularly for the Maladies of the Eyes; though that Name has been improperly given to ſome Liquors uſed for Venereal Ulcers.

Collyres are either *dry* or *liquid.*

Dry Collyres, are the Troches of *Rhaſis*, prepared Tutty, Sugar-Candy, Iris, white Vitriol in Powder, which is blown through a ſmall Pipe into the Eye, to diſſipate the Cataracts in their Beginning.

Liquid Collyres are compoſed of opthalmick Waters and Powders, as prepared Tutty, diſſolved in Water of Roſes, of Plantain, Fennel, and Celandine. Opthalmick Unguents, are alſo called *Collyres*, as the Unguent of Tutty, and ſeveral others, which I'll deſcribe under the Article *Unguent.*

For a *cooling Collyre.* — Take the Waters of Plantain, of Roſes, and of Fennel, of each two Ounces; and half an Ounce of Whites of Eggs, to be mixed together for a *Collyre.*

Virtues. — It is proper for the Inflammations and Pains of the Eyes, ſoftening and embaraſſing, by its glutinous Parts, the acrimonious Salts, which cauſe that Diſorder. A fine Piece of Linen Cloth, or a little Bit of thin Veal, is imbibed with that *Collyre*, and applied on the afflicted Eye.

Note, That thoſe who employ too much Whites of Eggs, ſee often an Effect of this Remedy, contrary to what they expected, for inſtead of diminiſhing the Inflammation, it increaſes it, by cauſing the Eye to ſwell; becauſe the Glutinoſity of the White of the Egg, drying on the Superficy of the Eye, by the great Heat which accompanies always the Opthalmicks, it ſtops almoſt entirely the Perſpiration, which ſtuffs the Veſſels, and excites a greater Fermentation. A light Mucilage of Seeds of Quinces, may be employ'd inſtead of Whites of Eggs.

For a *deterſive Collyre.* — Take Glaſs of Antimony, pounded very fine, prepared Tutty, Salt of Saturn, of each a Scruple; Waters of Plaintain, of Roſes, and of Celandine, of each an Ounce; mix them together for a *Collyre.*

Virtues. — It is proper to conſume the Cataract in its Beginnings, and cleanſe the Eyes of their Sania; ſmall Pieces of fine Linen Cloth, very white, are dipped in it, and applied on the Eye.

A *Collyre to preſerve the Eyes in the Small Pox.* — Take a Scruple of the beſt Saffron, put it to infuſe for three Hours in the Waters of Roſes and of Plantain, of each an Ounce and a half; then ſtrain it, and in the Colature diſſolve ſixteen Grains of the medicamentous Stone, for a *Collyre*; wherewith the Eyes of the Patient muſt be often waſhed.

Virtues. — It is proper to cleanſe the Eyes of the Sania, to ſtrengthen the Sight, and to hinder the Acrimony of the Humour of the Small Pox from making any Impreſſion on the Eye.

For the *Collyre, or opthalmick Water of M.* d'Aquin. — Take prepared Tutty, and Cloves in Powder, of each an Ounce and a half; Sugar-Candy an Ounce; Camphor and Aloes, of each a Drachm and a half; two Quarts of *Spaniſh* Wine, half a Pint of Water of white Roſes; Waters of Celandine, Fennel and Rue, two Ounces. The Drugs muſt be pounded, mixed together, and put in

in a large Glass-Bottle, and having poured over them the *Spanish* Wine, and the distilled Waters, the Bottle must be well corked and exposed to the Sun in Summer for 15 Days, agitating it from Time to Time; and having left it sometime to settle, the *Collyre* must be descanted for Use.

Virtues.—It is proper to cleanse and strengthen the Eyes, brighten the Sight, and dissipate the Cataracts.

The *Collyre* or *opthalmick Water of Madame* Fouquet.—Take two Ounces of prepared Tutty, a Drachm of white Vitriol; Waters of Roses, and Fennel of each a Pint and a half; Plantain-Water, half a Pint; the Drugs must be pounded and mixed in a Bottle, and having poured the Waters over them, the Bottle must be corked, and exposed to the Sun for several Days; and after the Liquor has been left to settle, the *Collyre* is made.

Virtues.—It is a good Remedy to cleanse and strengthen the Eyes, to brighten the Sight, and dry the Ulcers.

For a *blue Collyre.*—Take a Pint of the Water where Quick-lime has been slaken, and filtrate that Water, and a Dram of Sal-Armoniack, which must be put together in a Brass Bason, and left there for one whole Night; then having filtrated the Liquor, it must be kept in a Bottle for Use.

Virtues.—It is proper for all the Maladies of the Eye: Its blue Colour proceeds from the Brass Particles which the Sal-Armoniack, and that of the Lime have dissolv'd.

For a *dry Collyre.*—Take three Drachms of Sugar-Candy; prepared Tutty, medicamentous Stone, of each a Drachm; Aloes Succotrina, Iris of *Florence*, of each half a Drachm; all which Drugs must be pounded and mixed together for a *dry Collyre.*

Virtues.—It is proper to consume the external Cataracts, to cleanse the Eyes, and brighten the Sight: Three or four Grains thereof are put in a small Pipe, and blown into the Eye. A Drachm of it can also be dissolved in four Ounces of the Waters of Fennel, Plantain, and Celandine for a Liquid *Collyre.*

Note, That next come *Cataplasms* or *Poultices.*

A CATAPLASM, is an outward Remedy, of the Consistence of a Paste, composed, most commonly, of Flowers, Pulps, Oils, Unguents, Gums, and Powders. It is applied on the Parts of the human Body, sometimes to resolve, sometimes to appease the Pains, and sometimes to raise the Spirits.

For an *anodyne and resolutive Cataplasm.*—Take four Ounces of Crumbs of Bread, and a Pint of new Milk; boil them together to the Consistence of a *Cataplasm*; then add to it two Yolks of Eggs, an Ounce of Oil of Roses; and a Drachm of Saffron well pounded.

Virtues.—It is resolutive, and proper to appease the Pains, and resolve the Tumours, being applied hot on the Part: Sometimes a Drachm of Laudanum is added to this *Cataplasm*, to render it more anodyne.

For an *emollient and digestive Cataplasm.*—Take the Roots of Lillies and of Marsh-mallows, of each four Ounces; Leaves of Mallows, Marsh-mallows, and Violets, of each two Handfuls. The Roots of white Lillies must be roasted, till they be soft, and the Roots and Herbs boiled together in the Water, till they be almost reduced to a Pulp; the Decoction must be strained, the Roots and Herbs pounded together in a Marble-Mortar, and the Pulp thereof extracted through a Sieve of Horse-Hairs; then you'll boil, at a slow Fire, Flowers of Fenugreek, and of Linseed, of each three Ounces, stirring them continually till the Matter has acquired the Consistence of Pap; then the Pulp must be mixed with it, and the whole put again on the Fire, till it be thicken'd for a *Cataplasm*; which done, three Ounces of Basilicum, and half an Ounce of Flowers of Camomile in Powder must be added to it, for a *Cataplasm* to be applied hot on the Part.

Virtues.—I know by Experience, this *Cataplasm* to be an excellent Emollient, and very proper to excite a Suppuration.

Note, That from this I'll pass to *Dentrificks.*

The DENTRIFICKS, in Latin *Dentrificia*, are Remedies used to cleanse the Teeth, and preserve them, such are the *Woods of Lentisk*, the *Sanders*, the *Wood of Roses*, *prepar'd Coral*, *burnt Bread*, *Pumice Stone*, *Crystal calcined*, *burnt Hart's Horn*, *Ivory*, and *Egg-Shells*, these Alkalies mixed, or every one by itself, are very proper to cleanse the Teeth, and appease the Acrimony of the Salts left in them after eating. I'll describe the *dentrifick Powders* and *Opiates* in their Place. The Spirits of Salt and of Vitriol, whiten the Teeth in a very short Time, but they corrode them.

Note, That next comes the Preparation of *Coral*, *Pearls*, *Crab's Eyes*, *Spodium*, or *burnt Ivory*, *precious Stones*, *Succinum*, or *Carabé*, *Stone Hematites*, *Load-Stone*, and several other such Matters.

The Preparation of these Matters consists only in reducing them to an impalpable Powder; and a Mortar being not sufficient to make so exact an Attenuation, Recourse is had to Marble or Porphyry-Stone. The common Marbles may be proper for the Preparation of tender Matters, as are the Crab's Eyes and burnt Ivory; but if harder Bodies were ground on them, some of the Marble would mix with the Powder. Therefore to prepare well those Matters, the *Coral*, for Example, must be pounded first, as much as possible, in a Brass Mortar, then the Powder shall be thrown on a Table of Porphyry, to be ground, with a sufficient Quantity of Rose-Water, to the Consistence of a Paste: That Paste must be ground with a Muller, till it makes no more Noise on the Porphiry; and then it must be formed in little Troshes, which is the prepar'd Coral; which grows paler in grinding, and assumes a Flesh-Colour; the Water mixed with it, serves only to grind it more exactly, and with greater Facility.

Virtues.—*Prepared Coral* is supposed good to stop a Loosenes, the Hemorrhages and Gonorrhea's.——The *Dose* is from six Grains to a Scruple.

The *Pearls*, *Mother of Pearls*, and other Shells, are as hard as the Coral, and are attended with the same Difficulties; and take as much Time in their Preparation in the Mortar, and on the Porphyry; but Crab's Eyes, burnt Ivory, and other such calcined Matters, do not require so much Trituration.

The *precious Stones* are harder than the Coral, and therefore require a longer Trituration. A Mark that those Matters are sufficiently ground, is when they are no longer heard under the Muller, and are not felt between the Fingers.

Note, That I have no great Opinion of the Preparations of precious Stones, Pearls, and the like, the Merit thereof consists entirely in the great Price they are purchased at, and the great Figure they make among the Great and Rich, in adorning the Outside of the human Body, but whose Value is quite sunk when taken Inside; since *Pharmacy* and Chymistry furnish us with other Remedies much cheaper, and which have much more Virtues than those attributed to precious Stones and Pearls; therefore they should be entirely banished from an Apothecary's Shop, as needless; even the *Coral* itself is not of so much Efficacy, since its alkaline Qualities can be found in other Remedies, which are neither so costly, nor so difficult to prepare.

The Preparation of the *Tutty*, and the *Lapis Calaminaris*, is different from that of the Coral, *&c.* no otherwise than they are calcined and washed before they are pulverized, to carry off their most saline and sulphurous Parts.

Therefore one may take what Quantity he pleases of those two Drugs, of *Tutty*, for Example, and make it red-hot in a Crucible placed between lighted Coals; when red-hot, it must be thrown in a Bason full of Water, and left there for half an Hour; which Operation must be repeated twice more, changing the Water every Time: Afterwards the *Tutty* having been drained, must be ground on a Porphyry with a Muller, mixing with it as much Plantain, or Rose-Water, as is necessary to reduce it to an impalpable Powder; then it is formed into small Troshes.

Virtues.—The *Tutty* is deficcative, and proper for the Maladies of the Eyes. It is the Basis of the unguent Pompholix; it is mixed in the Collyres, and in fresh Butter: It cleanses the Sania of the Eyes, in drying and fortifying the Fibres.

Note,

Note, That several content themselves with washing the *Tutty* without calcining it, which does not occasion a very considerable Difference.

The *Preparation of the Bol, Terra Sigillata, Chalk, Litharge* and *Ceruse*, consists in pulverizing the Matters, and purifying them of some coarse and terrestrial Parts they contain.

Therefore take what Quantity you please of one of those Drugs, for Example, of *Bol*, reduce it into a subtile Powder in a Brass Mortar, and having put it in an earthen Pan, pour Water over it, stirring the Matter, and descanting afterwards gently the Water into a Vessel, that the purest and most subtile of the Powder may run out with the Water: You'll continue to wash and agitate the Matter, and to pour the Liquor into another Vessel, till nothing but Sand or another coarse Matter remains at the Bottom, which must be thrown away; then all the Lotions must be poured into a Funnel garnished with grey Paper, that the Water may be separated from the Matter; and then the *Bol* remaining shall be formed into little Troches, which must be dried in the Sun.

Virtues.—The *Bol* is astringent, and proper to stop a Loosenesss, Hemorrhages, and Gonorrhæa's.—The *Dose* is from ten Grains to a Scruple.

Note, That this Preparation is not of a great Utility, for very little coarse Matter is separated from the *fine Bol*, and that Impurity besides could not be capable to produce any bad Effect in the Body: As for the *coarse Bol*, as it is only used outwardly, it is no otherwise prepared than by reducing it into a Powder, in a Brass Mortar.

The *Litharge* require no other Preparation than that of the coarse Bol, *viz.* to be put in a subtile Powder in a Brass Mortar.

As for the *Ceruse*, the Lotion renders it whiter, and consequently more proper for the Cosmeticks, and for Painting: But for Pharmacy it suffices to reduce it into a subtile Powder.

The *Preparation of the Lapis Lazuli*, for *Ultramarine*, consists in separating from the *Lapis* the blue, saline, and sulphurous Part, from its metallick and terrestrial Part.

Therefore take what Quantity you please of the bluest *Lapis* you can find, without any Gold or other Veins, pound it in a Brass Mortar, then grind it on the Porphyry, with a small Quantity of common Water, till it makes no more Noise under the Muller; this done, mix it in a Sort of Paste made of Pitch, Wax, and Linseed-Oil; this Mixture shall be washed, working it continually in the Hands over a Marble sloping, with Water, which shall be poured over it by Degrees, and the Lotions received in a Bason placed under the Marble; the Matter must be washed thus till it gives no more Blue; but the Lotions must be separated, for the first contain the finest *Ultramarine*; after they have been left to settle, the Water is descanted gently, and a fine blue Powder is found precipitated at the Bottom, which must be put to drain in a Funnel garnished with grey Paper, then dried; and this is the *Ultramarine* used by Painters, it is also used in Medicine, but as the greasy Paste it is wrapped in could give some disagreeable Impression to it, one should be contented with grinding it on the Porphyry.

Virtues.—The *Lapis Lazuli* prepared, is esteemed a Cordial, proper to resist Venom, and to purify the Blood; it enters into the Confection Alkermes.—The *Dose* is from four to fifteen Grains.

The *Preparation of Gum lacca*, consists in purifying it of its terrestrial Parts, by imprinting in it a vulnerary and detersive Quality.

Therefore a Decoction must be made of two Drachms of the Roots of Aristoloch, or *Hart wort*, in two Pints of Water to the Diminution of a third; having strained the Decoction, four Drachms of Gum-lacca bruised, but not in Powder, must be put to boil slowly in it, till the purest Part of the Gum may be separated from the Faces, and swims a-top, then that pure Part must be gathered and put to dry in the Sun.

Virtues.—The Gum-lacca thus prepared, is detersive, astringent, proper to strengthen the Stomach and the Gums: It serves also of Basis for Sealing-wax.

Note, That next come the *Preparation* of the *Scammony*, into what is called *Decridium*, or *Diacridium*, in French *Diagrede*.

The Design of the Antients in preparing the *Scammony*, was to correct it in refraining its purgative Quality, so that its Effects should be less violent and less griping; but I am of Opinion, that all the Preparations given to it are needless, since though that Gum is used daily in Medicine, without having been prepared, we do not see that it produces any bad Effects, and that the Preparation renders it better.

The *Scammony* which comes from *Aleppo* is esteemed the best; it must be chosen the purest, the most resinous and most friable that can be found, and must be reduced into a fine Powder; notwithstanding which the different Preparations thereof here follows:

The most common *Preparation* given formerly to the *Scammony*, was to inclose it in a Quince digged Inside, to roast the Quince, and take out afterwards the *Scammony*, imbibed with the Juice of the Quince, to dry it, and keep it for Use. They mixed together in an earthen Pan two Parts of good *Scammony* in Powder, and one Part of Juice of Quinces separated, they exposed the Pan to the Sun, or placed it over a slow Fire, and caused the Humidity to evaporate by stirring the Matter with a Spatula, till it had acquired a solid Consistence. Some use yet those Preparations which is called *Diacridium Cydoniatum*, pretending that the Attriction of the Quince has corrected the too purgative Faculty of the *Scammony*.

The most common Method at present of preparing the *Scammony*, is to reduce it into Powder, and make it receive through a grey Paper, for about a Quarter of an Hour, the Vapour of the Sulphur which is burnt under it, stirring it gently from Time to Time with a Spatula. It is pretended that this sulphurous Vapour rarifies the glutinous Substance of the *Scammony*, and hinders it from griping; it is called *Diacridium Sulphuratum*.

If the *Scammony* wants a Preparation there is no better than this:—Steep for about two Hours an Ounce of Liquorice well bruised, in eight or nine Ounces of warm Water; strain the Infusion and mix in it four Ounces of good *Scammony*, in an earthen Porringer, which must be placed on the Sand, and the Humidity made to evaporate at a slow Fire till the *Scammony* has reassumed its former Solidity: It is called *Diacridium Glycyrizatum*, and is a very good Purgative. It purges particularly the melancholick Humour, and operates without griping.—The *Dose*, is from ten Grains to a Scruple. The Extract of Liquorice mixed in this Preparation of *Scammony*, sweetens it much; therefore a greater Quantity thereof is administered than of the other *Diacridiums*, even as far as twenty Grains, which produce a very good Effect.

The *glycirized Diacridium* must be kept in a Bottle well corked, otherwise it would grow damp, because of the Extract of Liquorice.

There is likewise a Syrup made of Sugar, Brandy, and Scammony, by setting the Mixture on Fire; and when the Flame is extinguished the Mixture is kept for Use. It purges without griping; and the *Dose* is from one Spoonful to two.

The *Preparation* of the *Euphorbium*, consists in purifying it and softning it.

Take what Quantity you please of the best and purest *Euphorbium*, reduce it into Powder, and having put it in a Matrass, pour over it depurated Juice of Lemon to the Height of four Fingers Breadth; stop the Matrass, and place it in Digestion at a Sand-Heat, stirring it from Time to Time; and the Gum being dissolved, the Liquor must be strained through a Linen Cloth, into a glass or earthen Vessel, which being placed at a Sand-Heat, the Humidity is made to evaporate to the Consistence of an Extract. This is the *Euphorbium* prepared, which must be kept in a Pot.

The *Euphorbium* must be humected with some Lemon Juice, while pounding, to avoid being incommoded by it; for the little Quantity thereof which enters the Nose or the Eyes, causes in them an insupportable Acrimony and Heat.

There is besides another *Preparation of the Euphorbium*,

bium, which is the moſt common; they grind the *Euphorbium* on the Porphyry, with Oil of Sweet Almonds to be formed into a Maſs; this Maſs is put into a Quince digged inſide, and the Quince wrapped in common Paſte, and bak'd in the Oven: The Maſs of *Euphorbium* is taken out afterwards, and kept in a Pot for Uſe.

Note, That the Oil of Sweet Almonds, and the Juice of Quince, or Lemon, which enters into this Preparation, can a little ſoften the acrimonious Salts of the *Euphorbium*; but whatever Correction may be given to it, it retains always much corroſive, capable to produce violent Effects; therefore I diſapprove much the Uſe of the *Euphorbium* for the Inſide; ſince there are Remedies enough in Medicine to be ſubſtituted to that.

The *Preparations* of the *Onions of Scylle*, conſiſts, 1. In drying them to deprive them of their hurtful and ſuperfluous Humidity: 2. In boiling them to extract the Pulp thereof.

For the firſt, you muſt take *Onions of Scylle*, of a moderate Bigneſs, ſound and well fed, then you'll take off with a wooden Knife the Rind or firſt red and dry Leaves, which are to be thrown away; taking afterwards the whitiſh Laminæ, and leaving the Heart and Roots as uſeleſs; which Laminæ muſt be dried in the Sun.

Theſe Laminæ are employed for the *ſcillitick Vinegar*, of which I'll ſpeak in its Place.

For the *ſecond*, the *Onions of Scylle* muſt be wrapped in common Paſte, and put in the Oven till they are grown ſoft, which is known by introducing a little picked Stick into them; then the Paſte muſt be ſeparated from them, and the Pulp of the *Scylle* taken out, to be made in Troches of *Scylle*, of which I'll ſpeak afterwards.

Virtues.—The *Scylle* enters ſeveral Compoſitions, it rarifies and inciſes the Pituita; it is uſed in the Epilepſy, in the Aſthma, and to reſiſt Venom.

All Authors caution againſt uſing common Knives, to take off the Laminæ of the *Scillè*, pretending that Iron renders that *Onion* venemous.

Note, alſo, That next come the *Preparation* of *clear Turpentine*.

As *Turpentine* is difficult to be taken by the Mouth, becauſe of its Glutinoſity and bad Taſte, Means have been invented to harden it, in order to its being taken either in Boluſſes, or in Pills.

In Winter it is only waſhed ſeveral Times with Roſe-Water, or of Parietary, or of Radiſhes, not ſo much to carry off ſome Dirt which it may have contracted, as to render it harder, for it is condenſed by the Lotions, and becomes whiter; none but the clear Turpentine is taken inwardly.

In Summer the Lotions are not ſufficient, to make the Turpentine fit to be taken inwardly, ſince it would be ſtill ſoft; therefore it muſt be boiled in a diſtilled Water or aperitive Decoction, till being cold, it acquires the Conſiſtence of Reſine, in order to make Pills thereof. That Coction is commonly done in half an Hour; and the *Turpentine* ſeparates itſelf from the Liquor, which remains uſeleſs.

Virtues.—The *Turpentine*, either waſhed or boiled, is aperitive: It is uſed for the Gravel, Gonorrhæa, Ulcers in the Reins, the Bladder, or the Matrice. Thoſe afflicted with the Stone muſt be entirely forbidden the Uſe of *Turpentine*; and it is but after the Inflammation is over, that it is proper for the Affections of the Reins, and the Bladder attacked with an Ulcer. Beſides the diuretick Virtue attributed to all Kinds of *Turpentine*, they have alſo a balſamick Faculty, which rank them among the vulnerary Remedies.—The *Doſe* is from one Scruple to a Drachm; but it muſt not be adminiſtered to thoſe who are ſubject to Vapours.

The Lotions and Coction deprive the *Turpentine* of Part of its eſſential Salt, in which conſiſts its principal Virtue; but the Difficulty of taking it by the Mouth, liquid as it is naturally, has occaſioned thoſe Preparations; which might be very well laid aſide, by mixing the *Turpentine* with aperitive Powders, as with thoſe of *Millepedes*, of *Sal prunellæ*, of *Salt of Tartar*, of *Roots of Althæa*, of *Mercurius dulcis*, of *Crab's Eyes*, whereby it is eaſily formed into a Bolus, or Pill; or with purgative Compoſitions, as with the Confection *Hamec*, that of Pſyllio, the Catholicon, the Lenitive, *&c.* The *Turpentine* of Chio wants no Preparation, for it is ſolid enough to be formed into Pills.

The *Preparation* of the *Millepedes*, and other ſuch Inſects, conſiſts in drying them in the Sun, to preſerve them, and reduce them into Powder when they are wanted.

The *Millepedes* are killed in White-Wine, or in Water ſharpened with Salt; then they are dried in the Sun, to reduce them into Powder.

Virtues.—The *Millepedes* are aperitive, and proper to expel the Gravel, the Stone, for the Nephretick, and the Retention of Urine.—The *Doſe* is from one Scruple to one Drachm.

If ſixteen Ounces of *Millepedes* have been prepared according to the Method here deſcribed, they'll weigh after they are dried, but ſeven Ounces and a half. The volatile Salt of *Millepedes* is thought to be good to eaſe the excruciating Pains of the Gout, thoſe of the Rheumatiſm, and other Maladies which happen to the Muſcles and Nerves.

The *Preparation* of *Vipers*, conſiſts in drying them, that they may be eaſily kept.

You muſt chuſe the biggeſt and moſt lively Vipers, in the Spring or Autumn, cut their Heads, ſkin them, take out their Entrails, waſh their Trunks in Water, and tye them to a Packthread, that they may be hung to dry in a dry Place, drying their Hearts and Livers in the ſame Manner.

The Fat muſt be ſeparated from the Inteſtines, and melted gently in a Porringer over a little Fire, then ſtrained with Expreſſion through a fine Linnen Cloth, to ſeparate it from its Membranes; and being cold, muſt be poured into a Bottle to be kept for Uſe. It is liquid like Oil, becauſe of the Quantity of volatile Salt it contains, which exceeds much that of the Fat of other Animals.

When the Trunks, Hearts, and Livers of Vipers are to be kept long whole, it is very proper to anoint them ſlightly with Balſam of *Peru*, for it hinders the Worms from getting into them.

The *Powder of Vipers* is made, ſometimes, in pulveriſing the Trunks of the Vipers alone; and ſometimes with the Addition of the Livers and Hearts: That done in this laſt Manner is beſt; but it cannot be kept ſo long, as when made with the Trunks alone, becauſe the Livers and Hearts being oily make it grow rank, and Worms are generated in it.

Virtues.—It is pretended that the *Powder of Vipers* is proper to purify the Blood, to expel the bad Humours by Perſpiration, to reſiſt Venom, for intermittent and malignant Fevers, the Small-Pox, and the Plague. —The *Doſe* is from eight Grains to two Scruples.—The *Liver* and *Heart*, put together in Powder, is what we call *mineral Bezoard*.—The *Doſe* is from ſix Grains to a Scruple.

The *Fat of Vipers*, is proper to rareſy the Humours, and to excite Perſpiration: It is preſcribed in malignant Fevers, and in the Small-Pox.—The *Doſe* is from one Drop to ſix.—It is alſo uſed outwardly to reſolve Tumours.

When the Viper is dead, we know by Experience that it has no more Venom; therefore we have no need to uſe the ridiculous Precautions of the Antients, to correct an imaginary Quality, which, they ſaid, remained in the Fleſh of that Animal; for it ſuffices to dry it, and to reduce it into Powder.

Next comes the *Preparation of Hartſhorn, Ivory, human Cranium*, &c.

Thoſe Parts of Animals having no bad Qualities, and their Subſtance being of a Nature to be eaſily diſſolved in the Stomach, they want no other Preparation than that of being raſped and pulverized; all others invented to refine on this, renders, it is true, the Parts of Animals alkaline, and more aſtringent, but deſtroy at the ſame Time what they have beſt; for the Fire in the Calcination diſſipate their volatile Salt and Oil, in which conſiſted their principal Virtue.

From this I'll paſs to the *Preparation*, or Purification of ſeveral *Gums*, which cannot be eaſily reduced into Powder,

Powder, as the *Galbanum*, the *Gum Ammoniack*, *Opoponax*, and *Sagapenum*.

You may take what Quantity you pleaſe of one or ſeveral of theſe Gums, break them in ſmall Pieces, and put them to ſteep for ſome Hours in Vinegar, where they muſt be melted over a ſlow Fire: The Diſſolution muſt be ſtrained with a ſtrong Expreſſion; and the Grounds left put in new Vinegar to perfect the Diſſolution of the Gum; this Diſſolution muſt be ſtrained like the firſt, and mixed with it in an earthen Pan, which muſt be placed over the Fire, to make the Humidity thereof to evaporate to the Conſiſtence of Plaiſter; and thus you'll have the Gums purified.

Virtues.—They are proper to ſoften, to reſolve, to help Suppuration, to abate the Vapours, they are applied on the Navel, and on the Tumours.

Note, That ſometimes other Diſſolvents than common Vinegar are uſed to purify the Gums, for one endeavours always to appropriate thoſe Liquors to the Effects expected; therefore ſometimes the ſcillitick Vinegar is employ'd, ſometimes Wine, and ſometimes the Juice of Plants; but it is much better, if one can, to put the Gums in Powder, even with their Impurities, than to prepare them, *becauſe in the Purification*, is evaporated much of the volatile and ſubtile Parts, in which conſiſts the principal Virtue of thoſe Gums, which is eaſily known at the ſtrong and penetrating Smell, felt during that Preparation; the Vinegar, beſides, fixing or moderating the Volatility of what remains, diminiſhes the Virtues thereof.

When thoſe Gums are to be pulveriſed, one muſt chuſe the fineſt and cleareſt, and make them dry gently between two Papers, in the Sun, or at the Fire. They are eaſily reduced into Powder, when mixed with other Drugs.

Note alſo, That next come the *Preparation of Juices*.

JUICES are Liquors, which flow, ſometimes, ſpontaneouſly, or which are extracted from Vegetables, either by Inciſion, or Expreſſion; ſome are alſo extracted from Animals, but under other Names.

Juices appear more or leſs liquid, according to the divers Coctions, they can have received from Nature, either in the Plant or out of the Plant. They are ſometimes aqueous, ſometimes vinous, oleaginous, gummous, reſinous, and bituminous: They are, alſo, ſometimes ſweet, ſometimes bitter, ſour, acrimonious, inſipid, *&c.* ſometimes of no Smell, ſometimes odorous, and ſometimes ſtinking: Sometimes white, ſometimes black, green, blue, yellow, red, *&c.* They are, beſides, more or leſs abundant, according to the Nature and State of the Plants which bears them.

Juices extracted by Inciſion are purer and better than thoſe extracted by Expreſſion; becauſe the Expreſſion makes a great deal of terreſtrial Parts flow together with the Liquor.

To extract a *Juice* by Inciſion, there are Inciſions made in the Plant, or in the Root, and through thoſe Apertures flows by Degrees an Humour, which is made to evaporate, either in the Sun, or at a ſlow Fire: In that Manner the Aloes Succotrina, the Scammony, and the Sanguis Draconis are prepared.

Juices are *extracted by Expreſſion*, by pounding a Plant or ſome Part thereof in a Mortar, and ſqueezing it hard; for then a Liquor comes out of it, which can be made to thicken, either in the Sun, or at the Fire: In this Manner are extracted the Aloes Cabalin, the Meconium, which we call Opium, the Acacia, the Hypociſtis, and the Elaterium.

A greater Quantity of Juice is extracted from the Plant, if before the Expreſſion it be left ſome Hours in Digeſtion, than if it was put to the Preſs ſo ſoon as it is pounded, becauſe in the Digeſtion the Juice is looſen'd, and becomes leſs viſcous.

There is more Difficulty to extract the Juice of viſcous Plants, as of the Bourroche, Bugloſe, *&c.* than of others; and it is proper to warm them before they are put to the Preſs.

Several Plants are naturally ſo little ſucculent, that one is obliged to moiſten them with ſome Liquors appropriated to their Virtue, when their Juice is to be extracted, ſuch are the little Centaury, the golden Rod, the Mugwort, and ſeveral Roots.

When *Juices* are to be kept in Liquor, they muſt be depurated, either by boiling them a little, and ſtraining them; or leaving them expoſed one Day or two to the Sun, and deſcanting them ſoftly afterwards, from their Sediment. Then Bottles muſt be filled with it to the Neck, putting ſome ſweet Oil a-top, to the Height of two Fingers Breadth. That Oil hinders the external Air from penetrating into it, and conſequently its being corrupted; it may be kept good by that Means at leaſt a whole Year.

For the *Preparation of the black Juice of Liquorice*, commonly called *Spaniſh Liquorice.* Take two Pounds of Extract of Liquorice, half a Pound of white Sugar; Gums Tragacanth and Arabick, of each four Ounces: Mix the whole together for a Maſs, to be formed into Rotules or Magdaleons.

To make the Extract of *Liquorice*, you muſt ſcrape and bruiſe a Quantity of green or dry *Liquorice*, and having ſtrung it, put it into a large earthen Pan, pour hot Water over it, and leave it in Digeſtion over a ſlow Fire, for ſeven or eight Hours; then the Infuſion muſt be ſtrained with Expreſſion, and the *Liquorice* put again to ſteep in other hot Water, which muſt be ſtrained as before, and both Colatures mixed together, and the Humidity thereof made to evaporate over a ſlow Fire to the Conſiſtence of Extract. This is the beſt *Extract of Liquorice* that can be made, but it cannot be kept in Form of Rotules, becauſe it grows damp eaſily, and has beſides a diſagreeable Taſte. Therefore to give it ſome Form, and an agreeable Taſte, the Sugar and Gums mentioned in the Deſcription, muſt be mixed with it; which to do, one muſt bruiſe Gums Adraganth, and Arabick, of each four Ounces, and put them to ſteep in about three Pints of warm Water, till they be diſſolved into a Mucilage; the whole muſt be ſtrained through a proper Sieve, and the Colature having been mixed with the Sugar and Extract of *Liquorice* in an earthen Pan, the whole muſt be placed over a ſlow Fire, to evaporate the Humidity of the Mixture, ſtirring it continually with a Spatula, till it be reduced to the Conſiſtence of an Extract or hard Paſte, of which will be form'd Magdaleons to be kept for Uſe.

Virtues.—The *Spaniſh Liquorice* thus prepared, is an excellent Remedy for a Cold, and to facilitate Expectoration, and to ſoften the Acrimony of the Breaſt, by leaving a little Bit of it to melt in the Mouth.

Note, That the Gums which enter this Compoſition, render the Juice of *Liquorice* more glutinous than it would be without it; they give it likewiſe a better Quality to ſoften and embaraſs the acrimonious Seroſities which fall through the Trachæa on the Lungs.

For the *Preparation of the white Juice of Liquorice.*—Take one Pound of white Sugar, two Ounces of Starch, ſix Drachms of Powder of *Liquorice*, half an Ounce of Iris of *Florence*, two Drachms of Gum Tragacanth, Muſk and Ambergreaſe, of each one Grain.

Note, That you muſt take a Pound of double refined Sugar, and two Ounces of very white Starch, which muſt be pounded together; then you'll ſcrape ſix Drachms of the beſt dried *Liquorice*, which you'll reduce into Powder, together with half an Ounce of Iris of *Florence:* You'll chuſe two Drachms of the beſt Gum Adraganth, and reduce it into Powder in a Mortar of Braſs, made warm; then you'll pound a Grain of Muſk and another of Ambergreaſe, mixed with ſome Sugar; and afterwards all the Drugs ſhall be mixed together in that Marble-Mortar. Which done, you'll diſſolve three Drachms of Gum Draganth in four Ounces of Roſe-Water, to make of it a thick Mucilage; of which you'll take a ſufficient Quantity, to incorporate the Powders into a hard Paſte, and form of it ſmall Sticks, which muſt be dried from the Sun; and thus you'll have a *white Juice of Liquorice.*

Virtues.—This Juice is uſed for the Maladies of the Lungs, for the Aſthma, and to excite Expectoration.—It has not ſo much Virtue as the preceding one; though it be more uſed, in *France* eſpecially, for its agreeable Taſte.

Taste. It is very improperly called *Juice of Liquorice*; since but a very little Quantity thereof enters the Composition. The Gum Draganth does not only serve here to mix the Drugs, and harden the Paste; but is besides very good for the Breast, for it agglutinates and softens by its Mucilage, the Salt Serosity which falls from the Head, and facilitates Expectoration; the Starch is also put in it with the same Intention, the Powder of Iris attenuates the Phlegms which are too thick, and with the Musk and Amber gives a good Smell to the Composition; those who are subject to Vapours can have the Musk and Amber laid aside.

The *Juice of Liquorice* must be left to melt slowly in the Mouth, that it may have Time to humect the Breast in its Passage.

Next comes the Preparation of the *Rhobob*, *Sapa*, and *Defrutum*.

RHOHOB or ROB, is an *Arabick* Name, whereby is understood the Juice of any Fruit whatever, boiled to the Consistence of Honey.

The Name of SAPA is only adapted to the Juice of Grapes boiled.

The DEFRUTUM is nothing else but the Juice of Raisins, evaporated to the Diminution of a third Part only.

For the *Preparation of the Rhobob of Mulberries*, or *simple Diaphorum*. Take four Pounds of the Juice of *Mulberries*, and two Pounds of Honey scimmed; boil them together to a just Consistence.

You must take the *Mulberries* before they are quite ripe; pound them in a Marble-Mortar, and extract the Juice thereof, which must be left to depurate a Day or two in the Sun; after which, having been strained, two Parts thereof shall be mixed with one Part of Honey, in a glazed earthen Dish; and put to evaporate at a slow Fire, to the Consistence of Honey. This will be the *simple Rhobob of Mulberries*, which must be kept in a Pot.

Virtues.—This *Rhobob* is proper for the Inflammation of the Throat, for the Aphthes or little Ulcers, which come in the Mouth of new-born Children. It is also very proper to temperate the Acrimony of the Humours, to cleanse and consolidate. This Remedy is sometimes taken alone by Spoonfuls; but it is oftener mixed in cooling or detersive Decoctions, or proper to the Intentions of the Physician.

For the *Preparation of the Rhobob of Mulberries composed.*—Take the Juices of Mulberries, and Blackberries, and Honey scimmed, of each two Pounds; three Ounces of Sapa; an Ounce of Verjuice; Myrrh, and Saffron, of each one Drachm and half; for a *Rhobob*.

After you have extracted the Juices of Mulberries and of Blackberries, and separated them as in the former Preparation, you must boil them with the Honey, Sapa, and Verjuice, to the Consistence of Honey; then you'll mix in it the Myrrh and Saffron, after they have been reduced into a subtile Powder, for a *Rhobob* to be kept for Use.

Virtues.—This Remedy is a Detersive of the Phlegm of the Breast, whereby it facilitates Respiration.—— The *Dose* is from a Drachm to half an Ounce.

From this I'll pass to the *medicinal Wines*.

A MEDICINAL WINE, is a Wine impregnated with the Substances and Qualities of one, or several Kinds of medicinal Drugs.

For the *Preparation of the Wine of Wormwood.*—Take a Bundle of the dried Summits of Wormwood in Blossom, and three Ounces of Cinnamon bruised; put them into about fifty Quarts of white Wine, newly made, and place the Vessel in the Cave, the Bung-Hole open, and leave it there to ferment: The Fermentation over, the Vessel must be filled quite, and well stopped: Then you'll have the *Wine of Wormwood*.

Virtues.—The *Wine of Wormwood* strengthens the Stomach, provokes the Appetite, kills the Worms, cures the windy Cholick, abates the Vapours, provokes the Menses, and is very proper for the Green-Sickness.—— The common *Dose* is half, or even a full Glass, for several Days successively.

In *England*, where there is little or no Vineyards, the *Wine of Wormwood* may be made of any small white Wine; provided the Vessel be put in a warm Place, proper to excite some Fermentation. The Plant must be taken while in its greatest Vigour and in Blossom. Green Wormwood would not be so good as that which has been dried, because of the Phlegm it contains. The Cinnamon is added to give a good Smell, and an agreeable Taste to the Wine.

For the *Preparation of Vinum Martis.*—Take four Ounces of aperitive Crocus Martis, extracted without Fire; Cinnamon, and the outward Peel of *Seville* Oranges, of each two Drachms; a Drachm of Mace, and half a Drachm of Saffron; put them to infuse for fifteen Days in four Pints of strong white Wine; then strain the Infusion, and keep it for Use.

The Crocus Martis must be taken, prepared by the Dew or Rain, according to the Prescription given in my Treatise of Chymistry: After it has been well ground, it must be put in a Matrass, with the Saffron, Orange-Peel, and the Cinnamon bruised; pouring over it four Pints of good white Wine, and stopping well the Vessel, which must be put afterwards in the Horse-Dung, or exposed to the Sun for fifteen Days, shaking it from Time to Time; that Time expired, the Infusion must be strained or left on the Ground, to be used when wanted.

Virtues.—This Remedy is a very good Aperitive, it provokes the Menses, rises the Obstructions of the Spleen, of the Pancreas, and of the Mesentery.—— The *Dose* is from one Ounce to three; one may add some Sugar to it, or some Syrup of the five Roots to render it less disagreeable; and it must be used several Days successively, to produce any sensible Effect.

For the *Preparation of a magistral purgative Wine.*—Take six Drachms of Senna, Cardamum, and Seeds of Violets, of each two Drachms; Troches of Agarick, and the best Rhubarb, of each a Drachm and a half; a Drachm of Cinnamon, to be infused together for 24 Hours in a Quart of Wine; then the Colature must be preserved for Use.

Virtues.—This Remedy has a purgative Property for pituitous and melancholick Constitutions; for the Palsy, Apoplexy, Quartan Ague, and the Scurvy.——The *Dose* is a Glass-full in the Morning fasting, which must be continued for several Days successively.

Three Ounces of Syrup of Apples composed, may be added to this Infusion, to render it more purgative.

For the *Preparation of a febrifuge Wine.*—Take two Ounces of Quinquina or Jesuit's Bark, put them to infuse in a Quart of strong white Wine, in a Matrass, large enough, that the third Part thereof may remain empty; put the Matrass well corked in a warm Place, for the Space of 24 Hours, shaking it often during that Time; then discant the Liquor, leaving the Grounds at the Bottom.

Virtues.—This Wine is an excellent Febrifuge for Intermittent Fevers; by the Patient taking half a Glass of it every four Hours, for fifteen Days successively, in the Hours of the Intermission: But when the Fever is stopped, he must be contented with one or two Doses every Day, to hinder the Return of the Access.

If this Wine be taken a little muddy at first, *viz.* if it be shaken before it is poured off the Grounds, it will stop the Fever sooner. White Wine is preferable to red, to extract the Substance of the Quinquina, because it is more penetrating; but the Difference is not very great, if red be used instead of white. If other Wine be poured over the Matter left at the Bottom of the Matrass, and it be put in Infusion and Digestion as before, there will be a second Febrifuge Wine, which though not quite so strong as the first, will notwithstanding produce a good Effect.

For the *Preparation of Wine for the Hydropsy.*—Take the Bark of Elder, and Iris of *Florence*, of each two Ounces; half an Ounce of Jalap, two Ounces and a half of Juniper Berries; two Ounces of Senna, four Scruples of Salt of Wormwood; and two Quarts of white Wine: Put the Drugs in a Vessel, and having pour'd the Wine on them, leave them in Digestion, without Heat; and afterwards strain the Infusion with Expression.

Virtues.—This Wine is an excellent Purgative in the Hydropsy; it evacuates the Serosities and Water.—The *Dose* is two Glasses every Day.

Next comes the *Preparation of Medicinal Vinegars.*

A MEDICINAL VINEGAR, is a Vinegar filled with the Subſtances and Virtues of one or ſeveral Sorts of Drugs which ſerve in Medicine.

For the *Preparation of the Vinegar of Elder.*—Take a Pound of dried Flowers of Elder, and four Quarts of the beſt Vinegar, put them together in a Glaſs Veſſel well corked, and expoſe it to the Sun for eighteen or twenty Days ſucceſſively, then ſtrain it with Expreſſion; and put in the ſame Veſſel with the Colature the ſame Quantity of Flowers of Elder as before; and put it in Digeſtion to the Sun for the ſame Space of Time, and afterwards ſtrain the Liquor and keep it for Uſe.

Virtues.—This Vinegar inciſe the Phlegms, provoke the Appetite, and reſiſts Venom: It is oftener uſed in Victuals than in Remedies.

For the *Preparation of Vinegar of Scylle.*—Take two or three Onions of *Scylle* well fed and very ſound, pare the outward Rind, which is half dried, ſeparate the Laminæ with a wooden or Ivory Knife, throwing away the Heart as uſeleſs; cut the Laminæ into Pieces, put one Pound thereof in a large Glaſs Bottle, and pour upon it four Quarts of good White-Wine Vinegar, cork the Bottle, and place it in Digeſtion at the Sun, where it muſt be left forty Days; then the Infuſion muſt be ſtrained with Expreſſion, and kept in a Bottle well corked.

Virtues.—This *Vinegar* is eſteemed proper for the Epilepſy, to purify the Blood, to reſiſt Venom, and to expel the Wind.—The *Doſe*, is from one Ounce to three. It is uſed likewiſe in Gargariſms for the Squinancy.

Note, That all the galenical Preparations heretofore mentioned are but ſmall ones, which can be made with very little Trouble, and at a ſmall Expence; though all of them very uſeful and beneficial; but as *Pharmacy* admits of a vaſt Number of others, which are attended with much more Trouble, and are much more chargeable, and moſt of thoſe Compoſitions are daily preſcribed by Phyſicians, I am indiſpenſably obliged to give here an exact Deſcription of them, and the beſt Method of preparing them. Therefore I'll begin by the *Preparation of Conſerves.*

Among the Parts of a Plant, the Flower is that which is eaſier deſtroy'd, becauſe compoſed of a volatile and æthereal Subſtance; it is alſo the Flower which is the ordinary Matter of *Conſerves*; though the Leaves, Roots, and Fruits are alſo ſometimes employ'd in them.

CONSERVES, differ from *Condits* in their Conſiſtence; for they are prepared into a Paſte, whereas *Condits* are either boiled whole, or in Pieces in the Sugar.

The Name of *Conſerve* has been juſtly given them, ſince they are made with no other View than to preſerve the Parts of the Vegetables in all their Goodneſs; for the Sugar mixed with them being a Salt, it ſtops the Pores thereof, abſorbe their too great Humidity, and hinders the Air from entring into it, to excite a Fermentation, which we call Corruption.

It is to be obſerved, notwithſtanding, that liquid *Conſerves* ferment for ſome Days after they have been made; becauſe the Salts and other ſubtile Parts of the Plant looſen themſelves, put themſelves into Motion, and cauſe a Rarefaction of the coarſer Subſtance of the Compoſition; but that Fermentation being inward, it only ſerves to unite more intimately the Parts of the Plant with the Sugar, and increaſe the Virtue of the *Conſerve.*

For the *Preparation of the Conſerve of Violets.*—Take half a Pound of Violets newly gathered, high in Colour, and very odorous, and pound them in a Marble Mortar till they be reduced to a kind of Pulp; at the ſame Time put a Pound and a half of Sugar to boil in five or ſix Ounces of common Water to the Conſiſtence of Tablettes or Lozenges; then take the Sugar off the Fire, and when it is half cold mix the Violets with it, and put afterwards the Conſerve warm in a Pot, where it muſt be left to grow cold, without ſtirring it, that a Cruſt may be formed upon it, which helps to preſerve it.

Virtues.—This *Conſerve* is Cordial and Pectoral; it ſoftens the Acrimony of the Blood, helps Expectoration, and opens the Body.—The *Doſe*, is from a Drachm to half an Ounce in the Morning faſting.

Simple Violets are preferable to the double in Medicine, becauſe they have more Smell and Virtue, they muſt be gathered in the Morning or in the Evening, in fair Weather; there are Violets at preſent in ſeveral Seaſons of the Year, but thoſe of the Spring are beſt. There are moſt commonly employ'd in the Compoſition of *liquid Conſerves*, but two Parts of Sugar, for one of the Flowers; but as Violets are very humid, and take much Room, the Conſerve will ſoon grow ſour, if there was not a greater Quantity of Sugar put to it; and the ſame would happen to all the other *Conſerves* of light and humid Flowers; for all the Parts of the Flower muſt be as it were wrapped in the Sugar, otherwiſe the Air would enter and cauſe a foreign Fermentation.

One could be contented to mix the Sugar in Powder, with the pounded Flowers, to make the *Conſerve* in the uſual Manner, but the too great Humidity of the Violets would render the *Conſerve* too liquid; therefore it is beſt to boil the Sugar, and to mix the Flower with it, not only that the Heat of the Fire may conſume Part of the Humidity, and make an exact Mixture, but likewiſe that a Cruſt may be formed over the Matter as already obſerved; for by that Method the *Conſerve* is kept much longer in its Beauty, than by the common.

The Violet contains an acrimonious Salt, wrapped in a great deal of mucilaginous Parts; which Salt, without doubt, makes its laxative Quality, but it hinders it from producing in the Breaſt the Effect which could be deſired.

For a *ſoft Conſerve of Roſes.*—Take the Buds of Roſes before they are quite open, cut off with Sciſſars the white Part which is called Nail; weigh a Pound of thoſe Buds thus pared, and make them boil two or three Gallops in three Pints of common Water, ſtrain the Liquor with Expreſſion, and pound thoſe Roſes thus ſoftned in a Marble Mortar, till they be reduced to a Pulp, and may melt entirely in the Mouth; mean while two Pounds of Sugar muſt be put to boil in the Decoction to the Conſiſtence of an Electuary; and being then taken off the Fire, the pounded Roſes muſt be exactly mixed in it, putting again the Baſon over a very ſlow Fire, and ſtirring continually the *Conſerve*, making thereby the Humidity to evaporate gently, till it has acquired a reaſonable Conſiſtence; then the *Conſerve* is put in a Pot to be kept.

Virtues.—This *Conſerve* is proper to appeaſe a Cough, to ſtop Hemorrhages, Vomiting, and a Looſeneſs; to ſtrengthen the Heart and the Stomach, and to help Digeſtion.—The *Doſe* is from one Drachm to three: It moſt commonly enters the ſolid Epithems.

The common Method of preparing the Conſerve of Roſes, is to beat the Buds of red Roſes cleanſed, as above, with double their Weight of Sugar, till the Mixture be in form of Electuary, then to put the *Conſerve* in an earthen Pot, and expoſe it for ſome Days to the Sun, till a Fermentation enſues, and a more exact Union of the Parts. This Manner of preparing the *Conſerve* is natural, and much more valuable, that no Fire is employ'd in it; but the *Conſerve* cannot be kept ſo long in its Beauty, becauſe the Sugar has not ſo well penetrated the Roſes as in the other Method: Add to this, that in making the *Conſerve* over the Fire the Roſes are deprived of Part of their phlegmatick Humidity, which occaſions a Fermentation, which deſtroys their Colour.

It may be objected without doubt, that the Fire cauſes an Evaporation of the moſt ſubtile and odorous Part of the Roſes, and conſequently diminiſhes their Virtue; but red Roſes have not much Smell, and their Virtue conſiſts wholly in their Attriction, which the Fire does not diminiſh.

The *Conſerve* muſt be made ſo ſoon as the Roſes are cut, for if they be left expoſed to the Air they loſe Part of their Beauty. The Decoction carries off almoſt all the Tincture; but it is no Matter, ſince that Decoction is uſed to boil the Sugar; the Tincture is not loſt in boiling, for when the Mixture is made, the Conſerve appears as fine as can be. If ſome Drops of Spirit of Vitriol or of Sulphur be mixed in the *Conſerve* of Roſes, they will heighten its Colour, and render it of a more agreeable Taſte, but it will turn pale as it grows old.

For the *Preparation of a ſolid Conſerve of Roſes.*—Take an Ounce of red Roſes ſeparated from their whitiſh Part, and

and in Powder; mix it with a wooden Spatula, with about a Drachm of Spirit of Vitriol; boil a Pound of superfine Sugar in four Ounces of Rose-Water to the Consistence of Tablettes; take the Sugar off the Fire, and incorporate with it, with the same wooden Spatula, the Powder of Roses; when the Matter will be almost cold, you must throw it by Bits on a Marble, or a Paper anointed with Oil, where it shall be left to harden, keeping it afterwards in a Box.

Virtue.—The same Virtues are attributed to this *Conserve* as to the liquid, but it has not so much. The Powder of Vitriol the Powder of Roses is moistened with, renders the *Conserve* more beautiful than it would be, because it extends and rarifies the Parts which give the Colour to the Roses.

For the *Conserve of Flowers of Tussilage.*—Take half a Pound of Flowers of Tussilage newly gathered in the Beginning of the Spring, take off their Tails, and pound them in a Marble Mortar till they be reduced into a Paste; add to it a Pound of white Sugar in Powder, and pound also that Mixture, till the Flowers and Sugar be well incorporated together: This is the Conserve of Tussilage, which must be put in a Pot, a Third whereof must be left empty. The Pot must be covered, and exposed for some Days to the Sun, to make the Conserve ferment.

Virtues.—This Conserve is a good Remedy for the Maladies of the Breast, for a Cold, the Phthisick, and Asthma; it excites Expectoration.—The *Dose*, is from a Drachm to three.

The Conserves of Flowers of Betony, of Lillies of the Vallies, of Calendula, of Sage, of Rosemary, of Scabiose, and the like, are prepared in the same Manner.

For the *Preparation of the Conserve of the Roots of Enula campana.*—Take what Quantity you please of the Roots of Enula campana, cut them in Pieces, put them to boil at a slow Fire, in a sufficient Quantity of Water, and in an earthen Pot, which must be covered, till they be soft; then take them out of the Decoction, and pound them in a Marble Mortar, straining them afterwards through a Sierce; and having weighed the Pulp, you must boil in the Decoction double the Quantity of white Sugar, to the Consistence of the Sugar of Roses; then take the Sugar off the Fire, and having left it to cool a little, you must mix the Pulp with it, stirring it continually with a proper Instrument till the *Conserve* be cold; then it is put in a Pot to be kept for Use.

Virtues.—This is a very good Remedy for the Maladies of the Breast; it excites Expectoration, may be used for the Asthma, strengthens the Stomach, excites the Appetite, and resists Venom: It also cures the Itch, and provokes the Menses.—The *Dose*, is from a Drachm to three.

The *Conserves* of all Mallow-Roots, as those of Althæa and Symphytum, can be prepared in the same Manner.

To *prepare the Conserve of Hep.*—Take three or four Pounds of the Fruits of Hep, very red, the biggest, and when they are in their full Maturity; open them with a Knife, and take out all the Seeds and Cotton; put them in an earthen Pan, and humect them with good White-Wine, cover the Pan, and carry it to the Cave, where it must be left two or three Days, or till the Fruit be soft; and after it has been bruised in a Marble Mortar, draw the Pulp through a Sierce turned upside down, and mix with it double its Weight of white Sugar; then put it to boil, or to dry, stirring it continually with a wooden Spatula, till it be reduced to a due Consistence. This is the Conserve of *Hep.*

Virtues.—This *Conserve* is proper to stop a Loosenesss, and to provoke the Urine; it is used for the Gravel, and it strengthens the Heart.—The *Dose* is from one Drachm to six.

The Fruits are humected with White-Wine, and carried to the Cave, to soften them and increase their Virtue. The Wine gives them likewise a beautiful Colour. This *Conserve* is of a very agreeable Taste: Its astringent Quality proceeds from the green Acid of the *Hep.*

For the *Preparation of the Conserve of Juniper-Berries.* Take four Pounds of Juniper Berries newly gathered, bruise them, and put them to boil over a slow Fire, in a sufficient Quantity of Water, and in an earthen Pot covered, till they be soft; take them out of the Decoction, and strain them through a Sieve; boil in the Decoction two Pounds of white Sugar, to the Consistence of Syrup, then mix with it the Pulp of Juniper-Berries, six Ounces of the best Rhubarb in Powder, half an Ounce of Nutmegs, an Ounce and a half of the best Cinnamon, six Ounces of Galanga; Calamus Aromaticus, Ginger, and Mace, of each four Scruples, stirring them continually together with a wooden Spatula, and over the Fire, till the Conserve be done; then it must be taken off the Fire, and when cold, put in a Pot to be kept.

Virtues.—This *Conserve* is an excellent Remedy to strengthen the Stomach, provoke the Urine, and keep the Body open.

Note, That next to *Conserves* I place *Honey*, and the *Preparations* thereof.

Preparations of HONEY.

HONEY, was much more in Use among the Antients than it is at present, because Sugar was not then so common; it is notwithstanding preferred yet to Sugar in several Compositions, and in fact it is better in some; for Example, it purges in Clysters, and Sugar don't; it is more detersive than Sugar for Wounds, therefore it is mixed in the Digestives; it preserves better the Compositions it enters than Sugar, because of a viscous Part it contains; wherefore it is employed in the Treacle and Mithridate.

Honey is a good Aliment for those who have fasted long; for it is light, is easily distributed, and spreads in the Vessels a sweet and light Juice, which is a Balsam of Life.

Virtues.—*Honey* opens the Body, and is good for the Maladies of the Breast and Lungs; Hydromels are made of it, which are powerful Detersives; and it is employ'd in Clysters.

Note, That as in my Treatise of Chymistry, I have treated of the Distillation of Honey, I'll only take Notice here of the Preparations made in the *Galenical Pharmacy*: Therefore,

For the Preparation of a vinous Hydromel.—Put in a Copper Bason tinned, four Pounds of the best Honey, and ten Quarts of Water, boil them together over a slow Fire, to the Consumption of about a third Part of the Humidity, or till an Egg can swim in it, scimming it all the while it boils; then put it into a Barrel, and expose it to the Sun, or carry it into a Stove, or some other warm Place, where it must be left forty Days, or till the Liquor has done fermenting, shaking it from Time to Time. Afterwards the Barrel must be stopped, and carried to the Cave to be kept there.

Virtues.—This Hydromel strengthens the Stomach, rejoices the Heart, and puts the Spirits in Motion. It is oftener drank for Pleasure than for a Remedy.——The *Dose* is from half an Ounce to two Ounces.

The *common Hydromel* is prepared like the *vinous Hydromel*, except that it is not made to ferment. There are often vulnerary Hydromels, made of the Decoctions of vulnerary Herbs, and a little Honey, to give to drink to those who have their Lungs affected.

The *vinous Hydromel* is properly a Dissolution of the Honey, the Oil and Salt thereof have been exalted by Fermentation; so that from that Hydromel could be extracted an inflammable Spirit like that of Wine, by Distillation, as I have observed in my Treatise of Chymistry.

For the *Preparation of a simple Oxymel.*—Mix in an earthen Dish, two Parts of the best Honey, and one Part of white Wine Vinegar; place the Dish over the Fire, and make it boil gently, scimming every Time that any Scum appears, till it be reduced to the Consistence of Syrup; which is the *oxymel Simple*, to be kept for Use.

Virtues.—This *Oxymel* is esteemed proper to incise and root out the coarse and viscous Humours glued to the Throat and Breast; it is mixed in Gargarisms and Loochs, and can also be taken by Spoonfuls.——The *Dose* is half a Spoonful. The Proportion of this *Oxymel* in Liquors, is from an Ounce and a half to two, in a Pint of detersive Decoction, or some proper distill'd Water.

The *Oxymel* is not proper for the Breast, when it is irritated

ritated by acrimonious Humours which fall upon it; on the contrary, by its Acidity, it would excite a Cough, and irritate the Breast still more; but it is proper to incise by its Points, and to dissolve the coarse Pituita, which sticks in several Places: It is proper to swallow it gently, that it may have Time to penetrate the Phlegm which it meets in its Passage.

For the *Preparation of the Oxymel of Scilles*, or *Squills*. Mix in a glazed earthen Dish, three Parts of the best Honey, with two of Vinegar of Squills; put it to boil over a slow Fire, scimming it, to the Consistence of Syrup; it is the *Oxymel of Squills*.

Virtues.—This *Oxymel* is proper to incise and attenuate the Phlegm fastened to the Lungs, Breast, and other *Viscera*; it is used for the Squinacies, and for the Epilepsy, mixed in Loochs and Gargarisms; it is also taken in Waters appropriated to the Maladies from one Drachm to an Ounce. It is stronger than the simple *Oxymel* to loosen the Phlegm.

For the *Preparation of the dieuretick Oxymel of Banderon.*—Take the Roots of Smallage, Fennel, Parsley, and Asparagus, of each two Ounces; the Seeds of Fennel, and of Smallage, of each an Ounce; wash the Roots, pull off their Strings, and cut them in small Pieces; bruise the Seeds, and put all together in a glazed earthen Pot, pouring over the Drugs boiling hot Water, and having cover'd the Pot, leave the Matter in Digestion for 24 Hours: Place then the Pot over the Fire, and make it boil to the Consumption of half the Humidity; afterwards strain the Decoction with Expression, and mix it with Honey and Vinegar: Then the Mixture must be clarified with the White of an Egg, and strained afterwards through the Flannel; then put to boil to the Consistence of Syrup. This is the *dieuretick Oxymel*.

Virtues.—This *Oxymel* is incisive and detersive; it opens the Obstructions of the Liver, of the Spleen, and of the Reins: It cleanses the Bladder and provokes the Urine and Sweat.—The *Dose* is from half an Ounce to an Ounce.

For the *Preparation of Honey of Roses.*—Pound in a Marble-Mortar, red Roses newly gather'd, to the Consistence of Paste; leave them in Digestion for five or six Hours in a cold Place; then carry them to the Press to extract the Juice; weigh that Juice, and mix it with the same Quantity of good Honey: Clarify the Mixture with the White of an Egg; then having strained it warm through the Flannel, put it to boil to the Consistence of Syrup; and it is fit to be kept for Use.

Virtues.—It is detersive and astringent; and is employ'd in the Gargarisms, for a sore Mouth, and a sore Throat; in astringent Injections and Clysters.

For the *Preparation of Honey of Violets.*—Take four Pounds of Violets, newly gather'd, and twelve Pounds of common Honey: Mix them together in an earthen Pot, and put it in Digestion in Horse-Dung, or other warm Place for seven or eight Days; make afterwards a strong Decoction of the Flowers or Leaves of Violets, strain that Decoction, and mix it in a Bason with the digested Matter; boil the Mixture to the Diminution of a fourth Part of the Humidity, strain it with Expression, and boil the Colature to the Consistence of Syrup, scimming it from Time to Time. This Honey of Violets must be kept in Stone Juggs.

Virtues.—It is proper to sweeten, cool, and open the Body, and is only used in Clysters, from an Ounce to three each Clyster.

The simple Violets are preferable to the double in this Preparation, because they are more laxative. The Apothecaries employ only the Chalice left after the Flower has been taken out to prepare the Conserve and Syrup; and it is in that Chalice only, that the purgative Quality of the Violets resides.

For the *Preparation of the Honey of Mint.*—Take an equal Quantity of the Juice of Mint, and of common Honey, mix and boil them together, scimming them, to the Consistence of Syrup; which is the *Honey of Mint*.

Virtues.—It is used in Clysters for a Loosenes, and for the Worms.—The *Dose* is from an Ounce to three.

For the *Preparation of the Honey of Nenuphar*, or *Water-Lillies.*—Take four Pounds of Flowers of Nenuphar newly gather'd, boil them in four Quarts of common Water, for a Decoction as much loaded as possible of the Substance of the Flowers; strain it with Expression, and mix in it about the same Weight of common Honey; boil gently that Mixture, scimming it from Time to Time to the Consistence of Syrup; which is the *Honey of Nenuphar*.

Virtues.—It is proper to cool, humect, and soften the Intestines, and to moderate a Loosenes: It is only used in Clysters, from one Ounce to three.

For the *Preparation of the Honey of Mercurialis.*—Mix together an equal Quantity of the Juice of Mercurialis with common Honey; boil them, in scimming them, to the Consistence of Syrup; strain it through a Sieve turn'd upside down, and keep it in Stone Juggs.

Virtues.—This *Honey* is more purgative than the preceding ones; and is employ'd in Clysters for the windy Cholick, and the Hystericks.——The *Dose* is from an Ounce to three.

For the *Preparation of the Honey of the Flowers of Rosemarin*, called in *Pharmacy*, *Mel Anthosatum.*—Take one Pound of Flowers of Rosemarin, newly gathered; bruise them in a Marble Mortar; mix them with four Pounds of scimm'd Honey, beating them for some Time together; put the Mixture in a glazed earthen Pot, cover it well, and expose it to the Sun, or put it in Horse-Dung for a whole Month; adding to it afterwards half a Pint of distilled Water of Rosemarin, or for Want of it, of Decoction of Rosemarin; stop well the Pot again, and place it over a slow Fire; and so soon as the Matter shall begin to boil, strain it with Expression, and leave it to grow cold before you put it in Stone-Juggs to be kept for Use.

Virtues.—This *Honey* is excellent for the windy Cholick, for Lethargy, Palsy, and the Hystericks; and is seldom used but in Clysters.——The *Dose* is from one Ounce to three; though it can be also very well used to wash the Mouth.

Note, That for Want of Flowers of Rosemary (especially in *England*, where they are not very Plenty) one may very well use the Leaves of Rosemary, because they are much loaded with Salts, and oily volatile Particles, which must communicate much Virtue to the *Honey*.

For the *Preparation of Honey of Parietary.*—Take a good Quantity of Parietary, gather'd in its full Strength; cut it and beat it in a Mortar to bruise it; then put it to boil in a Bason with ten Quarts of common Water, to the Diminution of a Third; strain afterwards the Decoction with Expression; and put again to boil in the Colature an equal Quantity of Parietary bruised for about half an Hour; strain again the Liquor with a strong Expression of the Herbs; and mix it then with an equal Weight of common Honey; and boil the Mixture, in scimming it, to the Consistence of Syrup: It is the *Honey* of Parietary.

Virtues.—This *Honey* is only employ'd in Clysters; and is used for the Nephretick, the Stone, the Pains in the Reins, and for the Retention of Urine.—The *Dose* is two or three Ounces for each Clyster.

For the *Preparation of Honey of Hellebore.*—Take a Pound of dried Roots of black *Hellebore*, bruise them, and put them to infuse in a warm Place, for three Days in seven Quarts of common Water; then boil the Infusion over a slow Fire, to the Consumption of half the Humidity, strain it with Expression, and put to boil in the Colature, six Pounds of common Honey, to the Consistence of Syrup, scimming it when it wants it; and this is the *Honey of Hellebore* which must be kept for Use.

Virtues.—This *Honey* can be taken by the Mouth, and in Clysters, for the Lethargy, Apoplexy, Mania, and hypochondriacal Melancholy.——The *Dose*, by the Mouth, is from one Drachm to half an Ounce; it purges upwards and downwards.——The *Dose* in Clysters is from half an Ounce to three Ounces.

For the *Preparation of Honey of Raisins.*—Take two Pounds of Raisins, take out the Stones, and put the Raisins to infuse in three Quarts of warm Water, for the Space of 24 Hours; boil the Infusion the next Day, to the Diminution of half the Humidity, strain it afterwards with a strong Expression, and boil in the Colature two Pounds of common *Honey*, to the Consistence of Syrup.

Virtues.—The *Honey of Raisins* is proper for a Cold, to facilitate Expectoration, and to temperate the Acrimony

mony of the Breast.—— The *Dose* is from half an Ounce to an Ounce.

Note, That from the different Preparations of the *Honey*, I'll pass to *Syrups*.

SYRUPS.

The Antients used sugar'd Waters in their Maladies, which they called Juleps; but as those Liquors could not be kept long, because their superfluous Humidity hastened their Corruption, it was found expedient to give them a Coction, and a thicker Consistence, which was called *Syrup*, from the Latin *Syrupus*, and this from the *Greek* σύρω, *Traho*, and ὀπὸς, *Succus*, because, in fact, most *Syrups* are made with Juices of Plants, and Sugar or Honey.

The Juices which enter the Composition, are commonly extracted from divers Parts of the Plants, and sometimes by the Impression of their succulent Substance in some Liquors; they can also be extracted from the Parts of Animals, as in the Syrup of Tortoise. The Tinctures, Infusions, or Decoctions, employ'd for the Composition of divers *Syrups*, are as many Means used to communicate the Virtue of divers Remedies to the same *Syrups*. The Sugar or Honey render those Juices, those Tinctures, and those Decoctions, more agreeable, or at least more supportable.

Syrups are properly liquid Conserves of the purest Substances of the Mixts. They are commonly made with Sugar, rather than with Honey, and are clarified to give them a more agreeable Taste and Smell. An Apothecary must renew them pretty often, for in growing old, they lose much of their Virtue: It is true, that there are several of them which cannot be made but once a Year; but there are also several others which can be renewed several Times in the Year.

The *Clarification of Syrups* is done in the following Manner:—The White of an Egg is put in a Bason with three or four Ounces of the Liquor, which ought not to be hot, for then the White of the Egg would curdle; they are beaten together, for some Time, with Rods, and the whole turn'd into a Scum, then the Sugar, and the rest of the Liquor, are added to it; that Mixture is put to boil two or three Gallops over the Fire, that the White of the Egg, which is viscous, may load itself with the Dirt which is in the *Syrup*, and be separated towards the Sides of the Bason; when the *Syrup* which boils in the Middle appears very clear, it must be skimmed, and strained afterwards thro' a Flannel; then the clarified *Syrup* is made to boil to the Consistence required, skimming it again from Time to Time if it wants it. When there are more than three Pounds of Sugar to be clarified, it requires more than one White of an Egg.

The *Consistence of a Syrup* must be glutinous, and a little viscous, forming, when pour'd gently from a Spoon, big Drops when it is most out of the Spoon, and a short String. But *Syrups* do not all want the same Coction. Acid *Syrups*, as those of Barberries, Gooseberries, Pomegranates, *&c.* keep well enough, though they have received but a slight Coction, because of their acid Salt. As to *Syrups* which have not that Acidity, and are to be kept long, they want a stronger Coction; taking Care, notwithstanding, that they be not too much done, lest they should candy in cooling, which would oblige the Apothecary to melt them over again in Balneo Mariæ. The Candy is a Crystalization of the Sugar.

Syrups, made with Powder-Sugar, are less subject to grow candy, than those prepared with Loaf-Sugar; because Powder-Sugar contains an Unctuosity which hinders it from crystalizing so easily. But to hinder a *Syrup* from growing candy, one has only but to mix, while it boils, half an Ounce of the best Honey, for each Pound of Sugar: It is also very proper to stir it a little with a Spoon, while it cools, to hinder it from condensing at the Bottom, and it must not be shut up in a Vessel, if it is to be kept, before it is quite cold; for it may happen, that when it has been put a little warm in a Pot, and cover'd, the Humidity, which ascends in a Vapour to the Top of the Pot, falls back on the *Syrup*, and makes it grow musty a-top, and candy at the Bottom.

For the *Preparation of Syrup of Pinks.*—Take two Pounds of red Pinks very odorous, and newly gather'd; free them from their Gem and white Parts, keeping only the red Part; put them in an earthen Pot glazed, and pour over them boiling Water; cover the Pot, and leave the Matter in Digestion for ten or twelve Hours; boiling afterwards the Infusion slightly, and straining it with Expression; then put to steep in it as much Flowers as before; then make the Infusion boil again slightly, and strain it with a strong Expression of the Ground; then you'll mix the Sugar with it, and clarify the Mixture, and having strained it through a Flannel, make it boil gently to the Consistence of *Syrup*; and you'll have a *Syrup of Pinks* of an agreeable Taste.

Virtues.—This *Syrup* is good to strengthen the Stomach, to revive the Heart and the Brain, to resist Venom, and to expel the Humours by Perspiration. It is given for the Plague, for the Small-Pox, for malignant Fevers, and for the Epilepsy.

For the *Preparation of a simple Syrup of Maiden Hairs.*—Take six Ounces of the best *Maiden Hairs* you can find, and newly gather'd, cut them small, and put them to infuse in two Quarts of warm Water for six or seven Hours; boil afterwards the Infusion to the Diminution of a fourth of the Humidity, strain it with Expression, and mix three Pounds of Sugar in the Colature, clarifying the Mixture according to the Method heretofore prescribed, straining it through the Flannel, and putting it to boil to the Consistence of *Syrup*.

Virtues.—This *Syrup* is good for the Cough, for the Maladies of the Breast, to soften the Matrice after a Delivery, and for the Maladies of the Spleen. A Spoonful thereof is mixed in Juleps, Emulsions, and Ptizanes. It is given to new-born Children, with Oil of sweet Almonds, and to Women newly deliver'd.

For the *Preparation of the Syrup of Wormwood simple.*—Take half a Pound of the Summits or Leaves of Wormwood, while the Plant is in its greatest Vigour; cut them small, and put them to infuse for five or six Hours in three Pints of warm Water; then boil the Infusion to the Diminution of a Third, strain it, and boil the Mixture, in skimming it, to the Consistence of *Syrup*.

Virtues.—This *Syrup* helps Digestion, strengthens the Stomach, and kills the Worms.—— The *Dose* is from half an Ounce to an Ounce; but this *Syrup* is not so much in Use as the following.

For the *Syrup of Wormwood compos'd.*—Take half a Pound of dried Summits of the large Wormwood; red Roses, and white Tartar, of each two Ounces; three Drachms of *Indian* Nard; and Syrup of Quinces. Cut the Wormwood and the Nard small, put them in a glazed earthen Pot, mixing with it the Roses and Tartar coarsely pounded, pouring over the Mixture the Juice of Quinces and white Wine; cover the Pot, and put it for 24 Hours in a warm Place, and afterwards boil the Infusion at a slow Fire, to the Diminution of a Third, strain it, and mix the Sugar with it; the Mixture must be clarified, and afterwards boil'd to the Consistence of a thick Syrup. When cold, you must add to it, two Ounces of Tincture of Wormwood extracted with Spirit of Wine, and mix them very exactly together; which Mixture will be the *Syrup of Wormwood compos'd*, to be kept for Use.

Virtues.—This *Syrup* is proper to strengthen the Stomach, to help Digestion, to stop Diarrhea's, for the windy Cholick, for the Hystericks, and to provoke the Urine, and the Menses.—— The *Dose* is from half an Ounce to an Ounce; it is also used outwardly, mixed in Unguents to cleanse Wounds and old Ulcers, and to resist Corruption.

Cinnamon can be substituted to the Spikenard. Some use the small Wormwood for this Preparation, because it is not bitter, but the *Syrup* has not so much Virtue.

Syrup of Wormwood may be made instantly, and without Fire, stirring together equal Parts of Wine of Wormwood, and of Sugar in Powder, with some Water of Cinnamon, till the Sugar be melted. This *Syrup* will be clear, but it cannot be kept so long as the other; tho' it has almost the same Virtue when taken inwardly.

To make the *Tincture of Wormwood*, you must put in a Matrass Summits of Wormwood dried, and pour over them as much Spirit of Wine, as is only necessary to drench well the Herbs; stop the Matrass, and leave the Matter in Digestion for five or six Days; then strain the

Liquor with Expression, which will be the *Tincture of Wormwood*, and which must be left to settle, and filtrated.

Virtues. — This *Tincture* is proper to strengthen the Stomach, to help Digestion, and provoke the Menses. The *Dose* is from six Drops to thirty.

For the *Preparation of Syrup of Althæa, or Marshmallows, of Fennel.* — Take two Ounces of Roots of *Althæa*, of Gramen, Asparagus, Liquorice, Jar-Raisins stoned, and red *French* Beans, of each an Ounce; the Summits of Mallows, Parietary, Maiden-Hairs, of each a Handful; the four great and four small cold Seeds, of each two Drachms; bruise and cut the Roots in Pieces; put those of Gramen to boil first in three Quarts of Water, then those of Asparagus and Althæa; afterwards the *French* Beans, the Raisins, the Herbs, Seeds, and the Liquorice bruised, to the Consumption of a third Part of the Humidity; then strain the Decoction with a slight Expression; and to the Colature add four Pounds of the best Sugar, clarify the Mixture, and make it boil to the Consistence of *Syrup*.

Virtues. — This *Syrup* is proper to soften the acrimonious Pituita, which falls on the Breast, and that which runs through the Reins, it helps Expectoration, provokes the Urine, expels the Sand from the Reins, and is proper for the Nephretick. —— The *Dose* is from half an Ounce to an Ounce and a half; it is mixed in Ptizanes, Juleps, and Emulsions, and also taken often by Spoonfuls.

The mucilagenous Substance of the Althæa, renders this Syrup very glutinous; it appears done before it is so, therefore it must boil till it be pretty thick, if it is to be kept some Time; it is that Mucilage that gives most Virtue to the *Syrup*, for by its oily and ramous Parts, it embarasses the acrimonious Salts which distill from the Brain, and thickens the Serosity which excites the Cough, it pushes gently the Sand, Stone, and Phlegm, out of the Reins and Bladder. The Ingredients which enter the Composition, contain likewise a great Number of saline Parts, which serves for Vehicle to the Mucilage to make it penetrate and push by Urine. One may make a simple *Syrup* of Althæa, with an Infusion of Althæa in warm Water, and an equal Quantity of Sugar, boiled together to the Consistence of *Syrup*.

Virtues. — This *Syrup* is excellent for the Acrimonies of the Breast and a Cold.

For the *Preparation of Syrup of Mugwort.* — Take four Handfuls of the Leaves of Mugwort, cut them and bruise them, and put them to infuse for 24 Hours in two Quarts of distilled Water, or of Decoction of the same Herb, then boil it to the Diminution of a fourth Part, and strain the Decoction with a strong Expression, and having added to the Colature two Pounds of the best Sugar, boil it to the Consistence of Syrup: Towards the End of the Coction, add, tied in a Piece of Linen Cloth, half an Ounce of Salt of Mugwort, two Drachms of Cinnamon coarsely pounded, Spikenard, and Castor, of each a Drachm.

Virtues. — This *Syrup* of Mugwort is proper to provoke the Menses, to abate Vapours, to appease windy Cholick, to strengthen the Brain, to resist Venom, and to provoke Urine. — The *Dose* is from half an Ounce, to an Ounce and a half.

For the *Preparation of Syrup of Chicory.* — Take the Roots of wild Chicory, of Fennel, of Asparagus, of each two Ounces; Leaves of Chicory, of Endives, of Fumitery, of each a Handful; a Handful of Flowers of Chicory, and a Drachm of wild Cherries; boil them in a sufficient Quantity of Water, strain it, and to the Colature add six Pounds of Sugar, which must be clarified, and boiled to the Consistence of *Syrup*.

A *simple Syrup of Chicory* may be prepared with the Juice of Chicory depurated, and an equal Quantity of white Sugar, the whole boiled to the Consistence of *Syrup*.

Virtues. — This *Syrup* is aperitive, and purifies the Blood.

For the *Preparation of Syrup of Chicory composed with Rhubarb.* — Take three Ounces of the best Rhubarb, cut in thin Slices; six Drachms of Salt of Chicory, put them to infuse for 24 Hours in two Quarts of distilled Water, or Decoction of Chicory warm, in a glazed earthen Pot, cover the Pot, and put it near the Fire, or upon hot Embers; the next Day boil the Infusion slightly, and strain it afterwards with a strong Expression. If the Rhubarb is yet tinged, it must be infused anew in other Water, or Decoction of Chicory, for the Space of three or four Hours; and having boiled this Infusion, likewise, the two Colatures shall be mixed together, and left afterwards to settle for a few Hours, that they may be depurated of their coarser Parts which fall to the Bottom; and after the Tincture has been strained through a Flannel, it must be put, thus purified, in a glazed earthen Dish, and the Humidity made to evaporate at a slow Fire, to the Consistence of Syrup. Then four Pounds of Syrup of Chicory shall be weighed, and made to boil five or six Gallops in a Bason, that it may be done to a thicker Consistence than usual; and having taken the Bason off the Fire, the Tincture of Rhubarb thickened must be mixed with it; which is the Syrup of Chicory, composed with Rhubarb.

Virtues. — This *Syrup* purges in Binding, and is good for a Loosenes, for the Obstructions of the small Vessels of the Liver, Spleen, and Mesentery, for the yellow Jaundice, and to kill the Worms. — The *Dose* is from half an Ounce to two Ounces.

The Decoction of Chicory is not so good as the distilled Water of the same Plant to extract the Tincture of Rhubarb, because that Decoction being already loaded with the Substance of the Plant, is not in a Condition of being impregnated in all its Pores of that of the Rhubarb; therefore I find it more proper to employ in that Occasion the Water of Chicory, which being distilled, and as clear as common Water, can more easily extract the Goodness of the Rhubarb.

For the *Preparation of Flowers of Peach-Trees.* — Take two Pounds of Flowers of Peach-Trees, newly gather'd, bruise them slightly in a Marble-Mortar; put them afterwards in a glazed earthen Pot, pour over them four Quarts of boiling Water, cover the Pot, and leave the Matter in Digestion for 12 Hours; then boil it slightly, and strain it with a strong Expression, making in the Colature three or four Times the same Infusions with new Flowers, *i. e.* dividing the two Pounds of Flowers between those Infusions; and having expressed them all, as before, mix in the last Colature eight Pounds of Sugar: Clarify the Mixture and make it boil to the Consistence of Syrup.

Virtues. — This Syrup purges gently the Serosities; therefore it is prescribed to purge the Brain; and is proper, likewise, for the Obstructions, and for Worms. — The *Dose* is from half an Ounce to two Ounces.

One can also make a *Syrup* of the tendrest Leaves of Peach-Trees, instead of Flowers, in the same Manner as that of the Flowers is done, but the Leaves must be more pounded than the Flowers. — This *Syrup* will have the same Virtue as the other, except that it will be a little more purgative; therefore the Dose must be less.

For the *Preparation of Flowers of Peach-Trees compos'd.* — Take an Ounce of Troches of Agarick; put it to infuse for 24 Hours in two Pints of Juice of Flowers of Peach-Tree, warm; the next Day boil the Infusion slightly; then strain it with a strong Expression; and mix in it afterwards a Pound and a half of the best Sugar, and four Ounces of Manna; the whole to be boiled at a slow Fire to the Consistence of Syrup, which must be strained warm, and kept in Bottles.

Virtues. — This *Syrup* is more purgative than the common, and consequently more proper to purge the Brain. —— The *Dose* is from half an Ounce to an Ounce and half.

As there are always some Impurities in the Sugar and Manna, it is proper to strain the Syrup after it has been skimmed.

For the *Preparation of a solutive Syrup of Roses.* — Take pale Roses gather'd in the Morning, free them of their Peccules and Calices, pound them in a Marble Mortar, and having left them a few Hours in Digestion, strain them to extract the Juice thereof, which must be left to depurate either in the Sun or in some other warm Place; then pour it by Inclination, and having strained it through a Flannel, mix with it an equal Weight of Sugar, and make the Mixture boil at a slow Fire, to the Consistence of *Syrup*.

Virtues. — This *Syrup* purges gently the Serosities, and other Humours in strengthening the Stomach. —— The *Dose*

Dose is from half an Ounce to two Ounces.

If instead of boiling the Syrup, you mix the Sugar in Powder, and the Juice of Roses together, in a Glass Cucurbite; that adapting to it a Capital with its Receiver, and luting exactly the Joints, you make a fourth Part of the Liquor to distil in Balneo Mariæ, or *Vaporis*; you'll have very good Rose-Water; and the *Syrup* will be found at the Bottom of the Cucurbite as good, as if it had been made by the common Method; because the Humidity which comes out by the Distillation, leaves it the same Consistence of *Syrup* as if it had boiled; but it acquires a small Taste and Smell of Distillation, which notwithstanding does not at all diminish its Virtue.

The Juice of Roses may be kept in Bottles, putting a little Oil a top, and preparing the *Syrup* when wanted.—A *Syrup* of Roses may also be prepared without Fire, in the same Manner as that of the Blossoms of Peach-Trees is made.

For the *Preparation of Syrup of Roses, compos'd with Senna and Agarick.*—Take two Ounces of the best Senna; an Ounce of Agarick; and half an Ounce of soluble Tartar: Cut the Agarick in small Pieces, put it with the Senna and soluble Tartar in a glazed earthen Pan, and pour over them three Pints of Juice of pale Roses depurated; cover the Pot, and put it in Digestion in hot Water, for 24 Hours; the next Day after you have made the Matter boil slightly, strain it with a strong Expression, and to the Colature add two Pounds of Sugar; clarify that Mixture, and after you have strained it thro' a Flannel, put it to boil over a slow Fire to the Consistence of *Syrup*.

Virtues.—This *Syrup* is more purgative than the preceding, and is used to purge the Brain and the melancholick Humour.—The *Dose* is from half an Ounce to an Ounce and a half.

The Juice of Roses already loaded of its own Substance, cannot dissolve much of that of the Senna and Agarick; therefore one could extract the Tincture of those two Drugs in common Water, and having made that Tincture to thicken over a slow Fire to the Consistence of Syrup, mix it with the solutive Syrup of Roses; it is true, that in the Evaporation, much of the Purgative is dissipated, but the same Dissipation is made by the other Method.

Rhubarb is sometimes introduced in the Infusion of this Syrup, that it may purge the Bile; and there are sometimes made three Sorts of *composed Syrups of Roses*, one with Rhubarb, another with Senna, and another with Agarick. The *composed Syrups of Roses* lose much of their purgative Virtues, as they grow old; therefore there should be but a small Quantity of it made at once; that it might be renewed oftener.

For the *Preparation of Syrup of Roses composed with Hellebore.*—Take the Peels of Mirabolans, and Senna, of each an Ounce; the Roots of black Hellebore, Rhubarb, and soluble Tartar, of each half an Ounce: Bruise the Root of Hellebore with the Peels of Mirabolans; cut the Rhubarb in small Pieces, and put the whole with the Senna and soluble Tartar in a glazed earthen Pot, pour over it three Pounds of Juice of pale Roses depurated and strained through a Flannel; cover the Pot, and put it in Digestion in Balneo Mariæ for 24 Hours; the next Day boil gently the Infusion, and strain it, then dissolve in the Colature seven Pounds of Sugar; clarify the Mixture, and put it to boil over a slow Fire to the Consistence of *Syrup*.

Virtues.—This *Syrup* of Roses is a stronger Purgative than the preceding ones, and excites sometimes Vomiting.—It is prescribed for the hypochondriacal Melancholy, for the Epilepsy, Apoplexy, a scald Head, *&c.* The *Dose* is from two Drachms to six.

For the *Preparation of a cathartick Syrup of Buckthorn.* Take a good Quantity of ripe Berries of Buckthorn; bruise them in a Marble Mortar, where they must be left some Hours in Digestion, then strained with Expression; leaving the Juice afterwards to depurate, by being put to settle, for ten or twelve Hours, in a warm Place; and after it has been separated from its Feces by Inclination, take six Pounds of that Juice and mix it with four Pounds of Sugar, and half a Pound of skimm'd Honey, and put the Mixture to boil over a slow Fire, to the Consistence of *Syrup*; and towards the End of the Operation add to it tied in a Piece of Linnen Cloth, three Drachms of Cinnamon, and two Drachms of Mastick, which must be left ever after to steep in the Syrup.

Virtues.—This Syrup is a great Purgative, and evacuates principally the Serosities; it is prescribed for the Gout, the Hydropsy, and for the Obstructions.—The *Dose*, is from two Drachms to an Ounce and a half. The Patient must eat as soon as he has taken it; for if he was to abstain from eating, as it is observed after the taking of other Purgatives, this Syrup would be griping; because the Buckthorn contains an acid essential Salt, which would prick the Membranes of the Stomach, and of the Intestines; but the mucilaginous Substance of the Aliments softens that Salt in embarrassing its Points.

For the *Preparation of the Syrup of Epithym*, or *Doder.*—Take the *Doder*, Citrine Mirabolans, Tamarins, of each two Ounces and a half; Agarick and Salt of Fumitery, of each six Drachms: Hatch the Doder, bruise the Mirabolans, and dissolve the Tamarins by Degrees in some distilled Water of Buglose, boiling-hot; then put the whole to infuse for twenty-four Hours in two Quarts of the same distilled Water of Buglose, also hot, in a glazed earthen Pot and covered: The next Day strain the Infusion with Expression, and having left it to settle for a few Hours, pour it by Inclination, and mix with the Colature two Pounds of Sugar, then put the Mixture in an earthen Dish, and boil it over a slow Fire, to the Consistence of Syrup.

Virtues.—This Syrup is prescribed to purge the Black Bile, and the hypochondriacal Melancholy, for the Leprosy, Itch, Venereal Disease, Epilepsy, Cancers, and malignant Ulcers.—The *Dose* is from half an Ounce to two Ounces.

For the *Preparation of the simple Syrup of Fumitery.*—Take *Fumitery* in its greatest Vigour, pound it in a Mortar, and strain it with Expression, to extract the Juice thereof, which must be clarefied by making it to boil a Gallop or two, and straining it through a Flannel; then you'll mix together an equal Quantity of this Juice, and of white Sugar; boiling afterwards the Mixture over a slow Fire to the Consistence of Syrup, skimming it from Time to Time.

Virtues.—This Syrup is proper for the Itch, Ring-worms, to provoke the Urine, and purify the Blood.—The *Dose* is from an Ounce to an Ounce and a half.

For the *Preparation of a composed Syrup of Fumitery.*—Take the Citrine Mirabolans, Senna, and the Seeds of Violets, of each three Ounces, an Ounce of Salt of Fumitery; put them to infuse for twenty-four Hours, in four Pounds of depurated Juice of Fumitery hot, the next Day put the Infusion to boil slightly, then strain it with Expression; and add to the Colature three Pounds of Sugar; clarify the Mixture, and put it to boil over a slow Fire, to the Consistence of Syrup.

Virtues.—This Syrup is purgative, and proper to raise the Obstructions, to strengthen the Stomach and Liver, to cure Ring-worms, the Leprosy, Itch, and other cutaneous Distempers.—The *Dose* is from one Ounce to two.

For the *Preparation of a cathartick magistral Syrup.*—Take the Roots of Iris Nostras, and Hermodactyli, of each two Ounces; Gum Turbith, Mechoacan, Jalap, of each an Ounce and a half; Senna, soluble Tartar, of each an Ounce; Troches of Agarick, Seeds of Violets, of each half an Ounce: Bruise all the Drugs, and put them to infuse for twenty-four Hours, in two Quarts of good White-Wine; the next Day let the Tincture be filtrated through grey Paper, or Flannel, and then put it to boil, over a slow Fire, to the Consistence of Syrup. Then take the Grounds left after the Filtration, and put them to boil in six Pints of Water to the Diminution of a Third; strain this Decoction with Expression, and mix in the Colature four Pounds of white Sugar, and four Ounces of Honey well skimmed, clarifying afterwards the Mixture, and putting it to boil to the Consistence of a thick Syrup; which done, it must be taken off the Fire, and the thickned Tincture mixed with it to make of both a Syrup, to be kept for Use.

Virtues.—This Syrup purges powerfully the Serosities and coarse Pituita of the Brain; it raises the Obstructions, is good for the Hydropsy, to provoke the Menses, and for the Green Sickness.—The *Dose* is from half an Ounce.

Ounce to an Ounce and a half.

For the *Preparation of an aſtringent Syrup for the Dyſenteria.*—Take an Ounce of Rhubarb, half an Ounce of Citrine Mirabolans, the Peel of Pomegranate, red Roſes, of each three Drachms; ſlice the Rhubarb, and bruiſe the Mirabolans, and the Peel of Pomegranate, and put thoſe Drugs to infuſe together in three Pints of hot Plantain Water for twenty-four Hours; the next Day boil ſlightly the Infuſion, ſtrain it with a ſtrong Expreſſion, and then mix with it four Ounces of the Juice of Barberies depurated, and two Pounds of white Sugar; clarify the Mixture, and having ſtrained it through a Flannel, put it to boil to the Conſiſtence of Syrup.

Virtues.—This Syrup purges gently by Stools the bilious Humours, in binding; it is excellent for the Dyſenteria, and other Looſeneſs; it ſtrengthens the Stomach.—The *Doſe* is from an Ounce to three.—The Patient muſt take an Ounce and a half of it faſting, for eight or nine Mornings ſucceſſively.

For the *Preparation of the magiſtral cephalick Syrup of Moſes Charas.*—Take the Chips of Gayac, and Schina Roots cut in ſmall Pieces, of each an Ounce and a half; put them to infuſe for twelve Hours, in four Pints of common Water; boil the Mixture to the Diminution of half the Humidity, and add afterwards to it a Handful of the Leaves of Vervaine; of Stæchas, of Marjoram, of each as much as one can cold between three Fingers; three Ounces of Senna wrapped in a Piece of Linnen Cloth, two Ounces of Troches of Agarick, and three Ounces of the beſt Rhubarb cut in ſmall Pieces: Boil ſlightly the Infuſion, ſtrain it with Expreſſion, and having left it to ſettle, filtrate it through a Flannel, and mix with it in an earthen Diſh a Pound and a half of Sugar; then boil it over a ſlow Fire to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper to appeaſe the Pains of the Head, and purges the Pituita and Melancholy.

For the *Preparation of a Syrup of Scammony.*—Take three Drachms of the beſt Scammony, reduced to a coarſe Powder; three Drachms of Liquorice well ſcraped and bruiſed, put them together in a Matraſs, and pour over them a Pint and a half of the beſt Brandy; ſtop the Matraſs, and put it in Digeſtion in Horſe dung, or in another warm Place, for three Days, ſhaking it from Time to Time; afterwards the Tincture muſt be filtrated, and two Pounds of white Sugar having been added to it, the Mixture muſt be boiled in an earthen Diſh, over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper to purge the hypochondriacal Melancholly, for the Lethargy, and Apoplexy.—The *Doſe*, is from two Drachms to an Ounce and a half. It is a vigorous Purgative.

Note, That in *three Drachms* of this Syrup, there are *three Grains of Scammony.*—In *half an Ounce*, ſix Grains of Scammony.—In *five Drachms*, ſeven Grains and a half of Scammony.—In *ſix Drachms*, nine Grains of Scammony.—In *ſeven Drachms*, ten Grains and a half of Scammony.—In *an Ounce*, half a Scruple of Scammony.—In *nine Drachms*, thirteen Grains and a half of Scammony.—In *ten Drachms*, fifteen Grains of Scammony.—In *eleven Drachms*, ſixteen Grains and a half of Scammony.—In *an Ounce and a half*, eighteen Grains of Scammony.

Note, alſo, that I deſign to give in the Sequel of this Treatiſe, the ſame accurate Deſcription of the Quantity of all the violent Remedies which enter the Compoſitions, that young Phyſicians may regulate their Preſcriptions accordingly, and avoid the dangerous Miſtakes which could proceed from preſcribing a too ſtrong Doſe to Patients of a weak Conſtitution.

For the *Preparation of a ſimple Syrup of Mercurialis.*—Take Mercurialis gathered in its greateſt Vigour, pound it in a Marble Mortar, and extract the Juice thereof by means of a Preſs; make it boil a Gallop, and ſtrain it through a Flannel to depurate it; then mix together in an earthen Plate equal Parts of that depurated Juice and of white Sugar; place the Plate over a ſlow Fire, to melt the Sugar, and to make the ſuperfluous Humidity to evaporate to the Conſiſtence of Syrup.

Virtues.—This Syrup is purgative, it provokes the Menſes, expels the After-birth, and purifies the Blood. The *Doſe* is from an Ounce to three.

For the *Preparation of a compoſed Syrup of Mercurialis.* Take the Juices of Mercurialis a Pound and a half, of Boroge and Bugloſe, of each eight Ounces, of the Roots of Iris Noſtras, *i. e.* that grows in one's Country, four Ounces, of Gentian Root two Ounces. All theſe Juices muſt be depurated by a ſlight Coction, and ſtraining them afterwards through a Flannel; in them all mixed together, the Gentian Roots cut in Pieces is put to infuſe for twenty-four Hours; the next Day the Liquor is ſtrained with Expreſſion, and left to purify by ſettling; and having ſeparated it afterwards from its Fæces, it muſt be mixed in an earthen Diſh with two Pounds of white Sugar; and the Humidity thereof put to evaporate over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is purgative, it is preſcribed to purge the Seroſities, to excite the Appetite, to purify the Blood, provoke the Menſes, haſten a Delivery, and for the Expulſion of the After-birth.—The *Doſe* is from an Ounce to three.—It is a good Remedy for the Aſthma, if the Patient takes a Spoonful of it every Morning for a whole Month.

For the *Preparation of the ſimple Syrup of Violets.*—Put in a glazed earthen Pot two Pounds of Flowers of Violets newly gathered, pour over them four Pounds of hot Water, and having covered the Pot, leave the Matter in Digeſtion for eight or nine Hours; then heat the Infuſion in Balneo Mariæ, ſtrain it with Expreſſion, and put to infuſe as before, an equal Quantity of Violets; this ſecond Infuſion ſhall be ſtrained with a ſtrong Expreſſion; leave it afterwards to ſettle for three or four Hours, pour it with Inclination, to ſeparate it from the Fæces; weigh it, and mix with it double the Quantity of Sugar in Powder, in a Pewter Baſon, or in the ſame Pot, put the Veſſel in Balneo Vaporis, *i. e.* over a Pot half full of boiling-hot Water, and ſtir the Mixture with a Spoon till all the Sugar be diſſolved; then ſtrain it and keep it.

Virtues.—This Syrup is preſcribed to cool and humect the Breaſt, to thicken and ſoften the acrimonious Humours, to temperate the Bile, to quench the *Thirſt* in violent Fevers, and in a Cold.—The *Doſe* is from half an Ounce to an Ounce.

When the Syrup of Violets is cold, there ſwims over it a white Skum which muſt be taken off gently with a Spoon; then the Syrup muſt be poured into Jugs, or Glaſs Bottles, and the Bottles well corked, and kept in Summer in a dry and cool Place; for Heat makes the Syrup of Violets to ferment, whereby it loſes its Colour. A Cruſt is formed a-top, which helps to keep it, becauſe it hinders the Air from getting into it.

For the *Preparation of a ſolutive Syrup of Violets.*—Take two Pounds of Flowers of Violets, whole, and half a Pound of Seeds of Violets bruiſed; put them to infuſe for twelve Hours in three Quarts of boiling Water; then boil ſlightly the Infuſion, ſtrain it with Expreſſion; and in the Colature put to infuſe Flowers and Seeds of Violets as before; in this ſecond Infuſion ſtrained ſhall be reiterated the Infuſions and Colatures till the Liquor be entirely impregnated with the Subſtance of the Violets, which will be known at the Violets coming out tinged with the Liquor. In the laſt Infuſion mix three Pounds of white Sugar, clarify the Mixture, and boil it to the Conſiſtence of Syrup.

Virtues.—This Syrup purges the Bile and the Seroſities.—The *Doſe* is from half an Ounce to two Ounces.

For the *Preparation of Syrup of Rhubarb.*—Take half a Pound of the beſt Rhubarb, and ſix Drachms of ſoluble Tartar; cut the Rhubarb in little Pieces, and put it with the ſoluble Tartar in a glazed earthen Pot, pour over it three or four Pints of boiling-hot Water, cover the Pot, and leave the Matter in Digeſtion for ten or twelve Hours, boiling it afterwards ſlightly, and ſtraining it with Expreſſion; and the Grounds are put back into the Pot, and made to ſleep in other boiling-hot Water for five or ſix Hours; then, after it has been boiled ſlightly, and ſtrained as before, the Tinctures are mixed together and left to ſettle; and after they have been filtrated

trated and mixed with three Pounds of white Sugar, the whole Mixture is put to boil over a flow Fire to the Consistence of Syrup.

Virtues.—This Syrup purges the Bile, is good for a Loosenefs, and for the Worms.—The *Dose* is from half an Ounce to two Ounces.

For the *Preparation of the Syrup de Tribus.*—Take four Ounces of the beft Senna, two Ounces of Troches of Agarick; Rhubarb and foluble Tartar, of each an Ounce; having bruifed the Troches of Agarick, and cut the Rhubarb in fmall Pieces, mix all the Drugs together in a Pot, and pour four Pints of boiling-hot Water over the Mixture, cover the Pot, and having left the Matter in Digeftion for twenty-four Hours; boil afterwards the Infufion flightly, ftrain it with Expreffion, leave it to fettle, and having ftrained it through a Flannel, mix with it three Pounds of white Sugar, in an earthen Difh; place the Difh over a flow Fire, and make the Humidity to evaporate to the Confiftence of Syrup.

Virtues.—This Syrup is proper to purge all Sorts of Humours, and is prefcribed for the Epilepfy, Palfy, Lethargy, and Apoplexy, becaufe it evacuates the Humours of the Brain.—The *Dofe* is from half an Ounce to two Ounces.

For the *Preparation of the Syrup of Carthamum.*—Take four Ounces of the Seeds of Carthamum, an Ounce and a half of Senna; Troches of Agarick, and foluble Tartar, of each half an Ounce: Put them to infufe in three Pints of diftilled Water of Bugloffe, hot; then having boiled the Infufion flightly, and ftrained it with Expreffion; in the Colature, clarified by Filtration and Settling, diffolve a Pound and a half of white Sugar, and half a Pound of the folutive Syrup of Rofes; boiling afterwards the Mixture over a flow Fire, to the Confiftence of Syrup.

Virtues.—This Syrup purges the Pituita and Melancholy, raifes the Obftructions, and purifies the Blood.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Polypody.*—Take one Pound of Polypody, very well bruifed, put it to infufe for twenty-four Hours in five Quarts of Spring Water, hot; boil afterwards the Infufion to the Confumption of half the Humidity, adding to it, towards the End of the Evaporation, a Pound and a half of Juice, or Infufion of pale Rofes, diftilled Waters of Borage, Bugloffe, and Fumitery, of each half a Pound. In thefe Juices and Liquors put to infufe, warm, for twenty-four Hours, half a Pound of the beft Senna, and an Ounce and a half of Mirabolans: Put this Mixture to boil over a flow Fire to the Confumption of a fourth Part; then ftrain it with Expreffion, and put the Colature, clarified by Filtration and Settling, to boil with three Pounds of Sugar, over a flow Fire to the Confiftence of Syrup.

Virtues.—This Syrup purges the Atrabilis and Melancholy, and purifies the Blood, and other Humours.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of a fimple Syrup of Endive.*—Take eight Pounds of the Juice of Endive very well depurated, and five Pounds and a half of white Sugar, which muft be boiled together to the Confiftence of Syrup.

Virtues.—This Syrup is prefcribed in Fevers, and in the Pleurify; it purifies the Blood, and temperates the Heat of the Bile.—The *Dofe* is from half an Ounce to two Ounces.

For the *Preparation of a cathartick Syrup of Endive.*—Take an Ounce and a half of the beft Senna, an Ounce of Troches of Agarick; Mirabolans and Salt of Chicory, of each half an Ounce; put them to infufe for twenty-four Hours, in four Pints of diftilled Water of Endive, warm; and after the Infufion has had a flight Coction, and has been ftrained with Expreffion, there fhall be diffolved in the Colature clarify'd by Settling and Filtration, three Pounds and a half of the fimple Syrup of Endive; folutive Syrup of Rofes and the beft Honey, of each three Ounces: The whole Mixture to be boiled over a flow Fire, to the Confiftence of Syrup.

Virtues.—This *Syrup* is proper to raife the Obftructions, to purge the Pituita, the Bile, and the Melancholy.—The *Dofe*, is from half an Ounce to two Ounces.

For the *Preparation of the lientrick Syrup of M. d'Aquin.*—Take the Summits of Wormwood and red Rofes exungulated, of each three Handfuls; the Crocus Martis tied in a Piece of Linnen Cloth, two Ounces; an Ounce and a half of the Skins of Mirabolans, a Drachm of white Tartar in Powder, half a Drachm of red Sanders bruifed: Put all thefe Drugs together in a glazed earthen Pot, and having poured over them the Juices of Plantain and of red Rofes, of each two Pounds, and covered the Pot, place it on the hot Embers for twenty four Hours; make afterwards the Infufion boil gently for a Quarter of an Hour, and after it has been ftrained with Expreffion, mix in the Colature four Pounds of the beft Sugar, clarify the Mixture, and put it to boil to the Confiftence of Syrup.

Virtues.—This Syrup ftops the Loofenefs, and particularly the Lientry; it ftrengthens the Stomach and other Vifcera, fweetens the Acrimony of the Humours, and is ufed in Hemorrhages.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of a fimple Syrup of Negotian*, or *Tobacco.*—Gather the Leaves of Tobacco in their greateft Vigour, hatch them, and pound them well in a Marble Mortar, leaving them afterwards in Digeftion for three or four Hours; then ftraining it with a very ftrong Expreffion, to extract the Juice; which muft be depurated by making it boil one or two Gallops, and ftraining it feveral Times through a Flannel: The depurated Juice muft be weighed, and an equal Quantity of Sugar having been added to it, the whole Mixture muft be put to boil over a flow Fire, to the Confiftence of Syrup, fkimming it from Time to Time.

Virtues.—This Syrup is a little vomitive; it is prefcribed for the Afthma, to purge the Brain and the Stomach, and to raife the Obftructions of the Spleen.—The *Dofe* is from three Drachms to an Ounce. It is alfo applied on old Ulcers, becaufe it is deterfive without caufing any Pain.

For the *Preparation of a compofed Syrup of Tobacco.*—Take two Pounds and a half of depurated Juice of Tobacco, one Pound of fimple Hydromel, mix them together, and put to infufe in them, for three Days fucceffively, three Ounces of Senna; the Troches of Agarick, and Salt of Tobacco, of each an Ounce, and half an Ounce of the Seeds of Violets bruifed; let afterwards the Infufion boil flightly, and having ftrained it with Expreffion, diffolve in the Colature clarified by Filtration and Settling, two Pounds and a half of white Sugar, and put the Mixture to boil over a flow Fire to the Confiftence of Syrup.

Virtues.—This Syrup is proper for the Afthma, to cleanfe the Breaft of the coarfe Humours it may contain, to purge the Brain, to raife the Obftructions; it moft commonly purges downwards, and fometimes upwards.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the emetick Syrup Angeli Salæ.*—Take an Ounce of Glafs of Antimony very well pounded, half an Ounce of red Sanders, Cinnamon and the Seeds of Angelica, of each two Drachms, and half a Drachm of Saffron: Put thefe Drugs to infufe for twenty Hours in a Matrafs, pouring over them twenty Ounces of Vinegar of Rofes, and placing the Matrafs in Balneo Mariæ, and fhaking the Matter from Time to Time: The next Day filtrate the Liquor, and mix it with a Pound and a half of white Sugar in Powder, in a Stone Pan, or a Glafs Veffel; place the Veffel on the Sand, and by a flow Heat, make the Humidity to evaporate to the Confiftence of Syrup.

Virtues.—This Syrup excites Vomiting.—The *Dofe* is from half an Ounce to two Ounces.

For the *Preparation of an emetick and cathartick Syrup.*—Take half an Ounce of the Branches of Garden-Genifta or green Broom; Bay-leaves, and Tobacco, of each a Handful; two Ounces of Lemon-Seeds coarfely bruifed; cut the Branches of green Broom in fmall Pieces, hatch the Leaves, bruife the Seeds, and boil them all together in common Water to the Confumption of half the Humidity, ftrain the Coction, and put to infufe in it for twelve Hours, the Roots of Afarum and Agarick, of each two Ounces; ftrain the Liquor with Expreffion, and to the Colature, clarified by Settling and

Ounce to an Ounce and a half.

For the *Preparation of an aſtringent Syrup for the Dyſenteria.*—Take an Ounce of Rhubarb, half an Ounce of Citrine Mirabolans, the Peel of Pomegranate, red Roſes, of each three Drachms; ſlice the Rhubarb, and bruiſe the Mirabolans, and the Peel of Pomegranate, and put thoſe Drugs to infuſe together in three Pints of hot Plantain Water for twenty-four Hours; the next Day boil ſlightly the Infuſion, ſtrain it with a ſtrong Expreſſion, and then mix with it four Ounces of the Juice of Barberies depurated, and two Pounds of white Sugar; clarify the Mixture, and having ſtrained it through a Flannel, put it to boil to the Conſiſtence of Syrup.

Virtues.—This Syrup purges gently by Stools the bilious Humours, in binding; it is excellent for the Dyſenteria, and other Looſeneſs; it ſtrengthens the Stomach.—The *Doſe* is from an Ounce to three.—The Patient muſt take an Ounce and a half of it faſting, for eight or nine Mornings ſucceſſively.

For the *Preparation of the magiſtral cephalick Syrup of Moſes Charas.*—Take the Chips of Gayac, and Schina Roots cut in ſmall Pieces, of each an Ounce and a half; put them to infuſe for twelve Hours, in four Pints of common Water; boil the Mixture to the Diminution of half the Humidity, and add afterwards to it a Handful of the Leaves of Vervaine; of Stæchas, of Marjoram, of each as much as one can cold between three Fingers; three Ounces of Senna wrapped in a Piece of Linnen Cloth, two Ounces of Troches of Agarick, and three Ounces of the beſt Rhubarb cut in ſmall Pieces: Boil ſlightly the Infuſion, ſtrain it with Expreſſion, and having left it to ſettle, filtrate it through a Flannel, and mix with it in an earthen Diſh a Pound and a half of Sugar; then boil it over a ſlow Fire to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper to appeaſe the Pains of the Head, and purges the Pituita and Melancholy.

For the *Preparation of a Syrup of Scammony.*—Take three Drachms of the beſt Scammony, reduced to a coarſe Powder; three Drachms of Liquorice well ſcraped and bruiſed, put them together in a Matraſs, and pour over them a Pint and a half of the beſt Brandy; ſtop the Matraſs, and put it in Digeſtion in Horſe dung, or in another warm Place, for three Days, ſhaking it from Time to Time; afterwards the Tincture muſt be filtrated, and two Pounds of white Sugar having been added to it, the Mixture muſt be boiled in an earthen Diſh, over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper to purge the hypochondriacal Melancholly, for the Lethargy, and Apoplexy.—The *Doſe*, is from two Drachms to an Ounce and a half. It is a vigorous Purgative.

Note, That in *three Drachms* of this Syrup, there are *three Grains of Scammony.*—In *half an Ounce*, ſix Grains of Scammony.—In *five Drachms*, ſeven Grains and a half of Scammony.—In *ſix Drachms*, nine Grains of Scammony.—In *ſeven Drachms*, ten Grains and a half of Scammony.—In *an Ounce*, half a Scruple of Scammony.—In *nine Drachms*, thirteen Grains and a half of Scammony.—In *ten Drachms*, fifteen Grains of Scammony.—In *eleven Drachms*, ſixteen Grains and a half of Scammony.—In *an Ounce and a half*, eighteen Grains of Scammony.

Note, alſo, that I deſign to give in the Sequel of this Treatiſe, the ſame accurate Deſcription of the Quantity of all the violent Remedies which enter the Compoſitions, that young Phyſicians may regulate their Preſcriptions accordingly, and avoid the dangerous Miſtakes which could proceed from preſcribing a too ſtrong Doſe to Patients of a weak Conſtitution.

For the *Preparation of a ſimple Syrup of Mercurialis.*—Take Mercurialis gathered in its greateſt Vigour, pound it in a Marble Mortar, and extract the Juice thereof by means of a Preſs; make it boil a Gallop, and ſtrain it through a Flannel to depurate it; then mix together in an earthen Plate equal Parts of that depurated Juice and of white Sugar; place the Plate over a ſlow Fire, to melt the Sugar, and to make the ſuperfluous Humidity to evaporate to the Conſiſtence of Syrup.

Virtues.—This Syrup is purgative, it provokes the Menſes, expels the After-birth, and purifies the Blood. The *Doſe* is from an Ounce to three.

For the *Preparation of a compoſed Syrup of Mercurialis.* Take the Juices of Mercurialis a Pound and a half, of Boroge and Bugloſe, of each eight Ounces, of the Roots of Iris Noſtras, *i. e.* that grows in one's Country, four Ounces, of Gentian Root two Ounces. All theſe Juices muſt be depurated by a ſlight Coction, and ſtraining them afterwards through a Flannel; in them all mixed together, the Gentian Roots cut in Pieces is put to infuſe for twenty-four Hours; the next Day the Liquor is ſtrained with Expreſſion, and left to purify by ſettling; and having ſeparated it afterwards from its Fæces, it muſt be mixed in an earthen Diſh with two Pounds of white Sugar; and the Humidity thereof put to evaporate over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is purgative, it is preſcribed to purge the Seroſities, to excite the Appetite, to purify the Blood, provoke the Menſes, haſten a Delivery, and for the Expulſion of the After-birth.—The *Doſe* is from an Ounce to three.—It is a good Remedy for the Aſthma, if the Patient takes a Spoonful of it every Morning for a whole Month.

For the *Preparation of the ſimple Syrup of Violets.*—Put in a glazed earthen Pot two Pounds of Flowers of Violets newly gathered, pour over them four Pounds of hot Water, and having covered the Pot, leave the Matter in Digeſtion for eight or nine Hours; then heat the Infuſion in Balneo Mariæ, ſtrain it with Expreſſion, and put to infuſe as before, an equal Quantity of Violets; this ſecond Infuſion ſhall be ſtrained with a ſtrong Expreſſion; leave it afterwards to ſettle for three or four Hours, pour it with Inclination, to ſeparate it from the Fæces; weigh it, and mix with it double the Quantity of Sugar in Powder, in a Pewter Baſon, or in the ſame Pot, put the Veſſel in Balneo Vaporis, *i. e.* over a Pot half full of boiling-hot Water, and ſtir the Mixture with a Spoon till all the Sugar be diſſolved; then ſtrain it and keep it.

Virtues.—This Syrup is preſcribed to cool and humect the Breaſt, to thicken and ſoften the acrimonious Humours, to temperate the Bile, to quench the Thirſt in violent Fevers, and in a Cold.—The *Doſe* is from half an Ounce to an Ounce.

When the Syrup of Violets is cold, there ſwims over it a white Skum which muſt be taken off gently with a Spoon; then the Syrup muſt be poured into Jugs, or Glaſs Bottles, and the Bottles well corked, and kept in Summer in a dry and cool Place; for Heat makes the Syrup of Violets to ferment, whereby it loſes its Colour. A Cruſt is formed a-top, which helps to keep it, becauſe it hinders the Air from getting into it.

For the *Preparation of a ſolutive Syrup of Violets.*—Take two Pounds of Flowers of Violets, whole, and half a Pound of Seeds of Violets bruiſed; put them to infuſe for twelve Hours in three Quarts of boiling Water; then boil ſlightly the Infuſion, ſtrain it with Expreſſion; and in the Colature put to infuſe Flowers and Seeds of Violets as before; in this ſecond Infuſion ſtrained ſhall be reiterated the Infuſions and Colatures till the Liquor be entirely impregnated with the Subſtance of the Violets, which will be known at the Violets coming out tinged with the Liquor. In the laſt Infuſion mix three Pounds of white Sugar, clarify the Mixture, and boil it to the Conſiſtence of Syrup.

Virtues.—This Syrup purges the Bile and the Seroſities.—The *Doſe* is from half an Ounce to two Ounces.

For the *Preparation of Syrup of Rhubarb.*—Take half a Pound of the beſt Rhubarb, and ſix Drachms of ſoluble Tartar; cut the Rhubarb in little Pieces, and put it with the ſoluble Tartar in a glazed earthen Pot, pour over it three or four Pints of boiling-hot Water, cover the Pot, and leave the Matter in Digeſtion for ten or twelve Hours, boiling it afterwards ſlightly, and ſtraining it with Expreſſion; and the Grounds are put back into the Pot, and made to ſteep in other boiling-hot Water for five or ſix Hours; then, after it has been boiled ſlightly, and ſtrained as before, the Tinctures are mixed together and left to ſettle; and after they have been filtrated

trated and mixed with three Pounds of white Sugar, the whole Mixture is put to boil over a flow Fire to the Consistence of Syrup.

Virtues.—This Syrup purges the Bile, is good for a Loosenefs, and for the Worms.—The *Dose* is from half an Ounce to two Ounces.

For the *Preparation of the Syrup de Tribus.*—Take four Ounces of the beft Senna, two Ounces of Troches of Agarick; Rhubarb and foluble Tartar, of each an Ounce; having bruifed the Troches of Agarick, and cut the Rhubarb in fmall Pieces, mix all the Drugs together in a Pot, and pour four Pints of boiling-hot Water over the Mixture, cover the Pot, and having left the Matter in Digeftion for twenty-four Hours; boil afterwards the Infufion flightly, ftrain it with Expreffion, leave it to fettle, and having ftrained it through a Flannel, mix with it three Pounds of white Sugar, in an earthen Difh; place the Difh over a flow Fire, and make the Humidity to evaporate to the Confiftence of Syrup.

Virtues.—This Syrup is proper to purge all Sorts of Humours, and is prefcribed for the Epilepfy, Palfy, Lethargy, and Apoplexy, becaufe it evacuates the Humours of the Brain.—The *Dofe* is from half an Ounce to two Ounces.

For the *Preparation of the Syrup of Carthamum.*—Take four Ounces of the Seeds of Carthamum, an Ounce and a half of Senna; Troches of Agarick, and foluble Tartar, of each half an Ounce: Put them to infufe in three Pints of diftilled Water of Buglofe, hot; then having boiled the Infufion flightly, and ftrained it with Expreffion; in the Colature, clarified by Filtration and Settling, diffolve a Pound and a half of white Sugar, and half a Pound of the folutive Syrup of Rofes; boiling afterwards the Mixture over a flow Fire, to the Confiftence of Syrup.

Virtues.—This Syrup purges the Pituita and Melancholy, raifes the Obftructions, and purifies the Blood.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Polypody.*—Take one Pound of Polypody, very well bruifed, put it to infufe for twenty-four Hours in five Quarts of Spring Water, hot; boil afterwards the Infufion to the Confumption of half the Humidity, adding to it, towards the End of the Evaporation, a Pound and a half of Juice, or Infufion of pale Rofes, diftilled Waters of Borage, Buglofe, and Fumitery, of each half a Pound. In thefe Juices and Liquors put to infufe, warm, for twenty-four Hours, half a Pound of the beft Senna, and an Ounce and a half of Mirabolans: Put this Mixture to boil over a flow Fire to the Confumption of a fourth Part; then ftrain it with Expreffion, and put the Colature, clarified by Filtration and Settling, to boil with three Pounds of Sugar, over a flow Fire to the Confiftence of Syrup.

Virtues.—This Syrup purges the Atrabilis and Melancholy, and purifies the Blood, and other Humours.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of a fimple Syrup of Endive.*—Take eight Pounds of the Juice of Endive very well depurated, and five Pounds and a half of white Sugar, which muft be boiled together to the Confiftence of Syrup.

Virtues.—This Syrup is prefcribed in Fevers, and in the Pleurify; it purifies the Blood, and temperates the Heat of the Bile.—The *Dofe* is from half an Ounce to two Ounces.

For the *Preparation of a cathartick Syrup of Endive.*—Take an Ounce and a half of the beft Senna, an Ounce of Troches of Agarick; Mirabolans and Salt of Chicory, of each half an Ounce; put them to infufe for twenty-four Hours, in four Pints of diftilled Water of Endive, warm; and after the Infufion has had a flight Coction, and has been ftrained with Expreffion, there fhall be diffolved in the Colature clarify'd by Settling and Filtration, three Pounds and a half of the fimple Syrup of Endive; folutive Syrup of Rofes and the beft Honey, of each three Ounces: The whole Mixture to be boiled over a flow Fire, to the Confiftence of Syrup.

Virtues.—This *Syrup* is proper to raife the Obftructions, to purge the Pituita, the Bile, and the Melancholy.—The *Dofe*, is from half an Ounce to two Ounces.

For the *Preparation of the lientrick Syrup of M. d'Aquin.*—Take the Summits of Wormwood and red Rofes exungulated, of each three Handfuls; the Crocus Martis tied in a Piece of Linnen Cloth, two Ounces; an Ounce and a half of the Skins of Mirabolans, a Drachm of white Tartar in Powder, half a Drachm of red Sanders bruifed: Put all thefe Drugs together in a glazed earthen Pot, and having poured over them the Juices of Plantain and of red Rofes, of each two Pounds, and covered the Pot, place it on the hot Embers for twenty four Hours; make afterwards the Infufion boil gently for a Quarter of an Hour, and after it has been ftrained with Expreffion, mix in the Colature four Pounds of the beft Sugar, clarify the Mixture, and put it to boil to the Confiftence of Syrup.

Virtues.—This Syrup ftops the Loofenefs, and particularly the Lientry; it ftrengthens the Stomach and other Vifcera, fweetens the Acrimony of the Humours, and is ufed in Hemorrhages.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of a fimple Syrup of Negotian*, or *Tobacco.*—Gather the Leaves of Tobacco in their greateft Vigour, hatch them, and pound them well in a Marble Mortar, leaving them afterwards in Digeftion for three or four Hours; then ftraining it with a very ftrong Expreffion, to extract the Juice; which muft be depurated by making it boil one or two Gallops, and ftraining it feveral Times through a Flannel: The depurated Juice muft be weighed, and an equal Quantity of Sugar having been added to it, the whole Mixture muft be put to boil over a flow Fire, to the Confiftence of Syrup, fkimming it from Time to Time.

Virtues.—This Syrup is a little vomitive; it is prefcribed for the Afthma, to purge the Brain and the Stomach, and to raife the Obftructions of the Spleen.—The *Dofe* is from three Drachms to an Ounce. It is alfo applied on old Ulcers, becaufe it is deterfive without caufing any Pain.

For the *Preparation of a compofed Syrup of Tobacco.*—Take two Pounds and a half of depurated Juice of Tobacco, one Pound of fimple Hydromel, mix them together, and put to infufe in them, for three Days fucceffively, three Ounces of Senna; the Troches of Agarick, and Salt of Tobacco, of each an Ounce, and half an Ounce of the Seeds of Violets bruifed; let afterwards the Infufion boil flightly, and having ftrained it with Expreffion, diffolve in the Colature clarified by Filtration and Settling, two Pounds and a half of white Sugar, and put the Mixture to boil over a flow Fire to the Confiftence of Syrup.

Virtues.—This Syrup is proper for the Afthma, to cleanfe the Breaft of the coarfe Humours it may contain, to purge the Brain, to raife the Obftructions; it moft commonly purges downwards, and fometimes upwards.—The *Dofe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the emetick Syrup Angeli Salæ.*—Take an Ounce of Glafs of Antimony very well pounded, half an Ounce of red Sanders, Cinnamon and the Seeds of Angelica, of each two Drachms, and half a Drachm of Saffron: Put thefe Drugs to infufe for twenty Hours in a Matrafs, pouring over them twenty Ounces of Vinegar of Rofes, and placing the Matrafs in Balneo Mariæ, and fhaking the Matter from Time to Time: The next Day filtrate the Liquor, and mix it with a Pound and a half of white Sugar in Powder, in a Stone Pan, or a Glafs Veffel; place the Veffel on the Sand, and by a flow Heat, make the Humidity to evaporate to the Confiftence of Syrup.

Virtues.—This Syrup excites Vomiting.—The *Dofe* is from half an Ounce to two Ounces.

For the *Preparation of an emetick and cathartick Syrup.*—Take half an Ounce of the Branches of Garden-Genifta or green Broom; Bay-leaves, and Tobacco, of each a Handful; two Ounces of Lemon-Seeds coarfely bruifed; cut the Branches of green Broom in fmall Pieces, hatch the Leaves, bruife the Seeds, and boil them all together in common Water to the Confumption of half the Humidity, ftrain the Coction, and put to infufe in it for twelve Hours, the Roots of Afarum and Agarick, of each two Ounces; ftrain the Liquor with Expreffion, and to the Colature, clarified by Settling and

and filtrating, add one Pound of crude Honey; then boil the Mixture to the Consistence of Syrup, to be kept for Use.

Virtues.—This Syrup purges with Violence, upwards and downwards; and is prescribed for the Apoplexy and Hydropsy.—The *Dose* is from half an Ounce to an Ounce.

For the *Preparation of Syrup of Barberries.*—Take the Juice of Barberries, newly extracted and depurated, and white Sugar, of each two Pounds; boil them together over a slow Fire to the Consistence of Syrup.

Virtues.—This Syrup is astringent and cooling: It is used in Juleps to stop a Loosenes, to strengthen the Heart, and resist the Malignity of the Humours.—The *Dose* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Pomegranates.*—Take the Juice of four Pomegranates, newly extracted and depurated; and white Sugar, of each two Pounds, mix them together in an earthen Dish; put the Dish over a slow Fire, and make the Humidity of the Mixture to evaporate to the Consistence of Syrup.

Virtues.—This Syrup rejoices the Heart, stops Vomiting, the Loosenes, the Hemorrhages, and quenches Thirst in cooling.—The *Dose* is from half an Ounce to an Ounce and a half.

It is not necessary to boil the four Syrups as much as others, because the essential Acid they contain, preserve them, though they have not the ordinary Consistence.

For the *Preparation of the Syrup of Quinces.*—Mix in a glazed earthen Dish, equal Parts of the Juice of Quinces, depurated, (by exposing it two or three Days to the Sun, and filtrating it afterwards) and of white Sugar, *v. gr.* two Pounds of each; place the Dish over a slow Fire, and make the Humidity to evaporate to the Consistence of Syrup.

Virtues.—The Syrup of Quinces is astringent; proper to strengthen the Stomach, and to stop the Loosenes.—The *Dose* is from half an Ounce to an Ounce and a half.

If the Juice of Quinces was employ'd without being depurated, it would make a Jelly of Quinces instead of Syrup.

For the *Preparation of Syrup of Lemons.*—Take the most succulent Citrons or Lemons, pare them, and squeeze them in a Marble Mortar with a wooden Pestle, and leave them in Digestion, in the Cold, for three or four Hours, that the Viscosity thereof may be separated, after which they are strained with Expression, to extract the Juice which is to be put in Bottles, and exposed for some Days to the Sun, that it may be depurated; then it is filtrated, and having mixed it with double its Weight of double refined Sugar, in a glazed earthen Dish, the Mixture must be put over a slow Fire, to melt the Sugar, after which it must be strained, and the Syrup will be done.

Virtues.—The Syrup of Lemons is cordial and cooling; it is given to resist the Corruption of the Humours, and to kill the Worms.—The *Dose* is from half an Ounce to an Ounce and a half: It is mixed in Potions and Juleps. This Syrup is cooling, because its Acidity fixes the volatile Salts or Sulphurs, which are too much agitated in the Body, and moderate their Motion which caused the Heat.

A Syrup of Lemons can be made without Fire, by cutting the Fruit in Slices, and covering the Slices with Sugar in Powder, and putting them on a Sieve turn'd upside down, and placing the Sieve over an earthen Pan; and carrying the whole to a Cave, or other damp Place, there will run into the Pan a Syrup, which will have the same Virtues as the other.

For the *Preparation of Syrup of Mulberries.*—Bruise Mulberries in a Marble Mortar, leave them for seven or eight Hours in Digestion in the Cold; then strain the Juice, and having mixed with it an equal Quantity of Sugar, put the Mixture to boil over a slow Fire, to the Consistence of Syrup.

Virtues.—This Syrup is good for a sore Mouth, and a sore Throat; it is mixed in Gargarisms, and is also taken by Spoonfuls for a Cold.

The Syrup of Black-berries can be prepar'd in the same Manner; which is good for a sore Throat, and to stop the Dysenteria.

For the *Preparation of Syrup of Mulberries compos'd.*—Take the Juice of Mulberries, and white Sugar, of each two Pounds; six Drachms of Verjuice; Myrrh and Saffron, of each two Drachms; put the Juice of Mulberries, the Sugar, and the Verjuice, to boil together, and when the Syrup is half done, throw into it the Myrrh and Saffron, tied in a Piece of Linen Cloth, then you continue the Coction till the Syrup be quite done; when quite cold you pour it into a Jug or other Vessel, leaving in it the Myrrh and Saffron tied as it is.

Virtues.—This Syrup is proper for the Squinancy; for the Ulcers of the Palate and Throat, and is mixed in Gargarisms.

For the *Preparation of the simple Syrup of Tussilage.*—Put a Pound and a half of Flowers of Tussilage newly gather'd, and freed from their Tails, in a glazed earthen Pot, pour over them five Quarts of Spring-Water, boiling hot, cover the Pot, and leave the Matter in Maceration for twelve Hours; boil afterwards, the Infusion slightly, and having strained it with Expression, pour it hot on the same Quantity of Flowers (*i. e.* having divided the Pound and a half into two equal Parts) leave the Matter in Digestion, boil it, and strain it as before; then mix in the Colature four Pounds of the best Sugar; clarify the Mixture, and having strained it thro' a Flannel, put it to boil to the Consistence of Syrup.

Virtues.—This Syrup is proper for a Cough, and the Maladies of the Breast.—It is taken by Spoonfuls, and mixed in Juleps.

For the *Preparation of a composed Syrup of Tussilage.*—Take half a Pound of the biggest Roots of Tussilage, wash them and cut them into small Pieces; then boil them for about a Quarter of an Hour in four Quarts of common Water; adding to it afterwards four Handfuls of the Leaves and Flowers of the same Plant, two Handfuls of Maiden Hairs, and an Ounce of Liquorice bruised; continue the Coction to the Diminution of a third Part of the Humidity; then having left the Decoction to grow cold, strain it afterwards with Expression, and in the Colature mix five Pounds of the best Sugar, clarify that Mixture, and boil it to the Consistence of Syrup.

Virtues.—This Syrup is proper for the Pleurisy, for the Asthma, and to facilitate Expectoration.—The *Dose* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Jujubes.*—Boil first in three Quarts of common Water, for half an Hour, an Ounce of Pearl-Barley; then add to it 60 Jujubes open; Liquorice, and Maiden-Hairs, of each an Ounce; a Handful of Violets newly gather'd; the Seeds of Mallows, Quinces, white Poppies, Melons, and Lettuces, of each three Drachms; boil the whole Mixture to the Diminution of a third Part, and having strain'd the Decoction, add to it three Pounds of the best Sugar, clarify the Mixture, and put it to boil to the Consistence of Syrup.

Virtues.—This Syrup is proper to thicken the Serosities, and other too subtile and acrimonious Humours, which fall on the Lungs; it helps Expectoration, ripens the Cough; and is prescribed in the Pleurisy, Asthma, and other Fluxions of the Breast.—The *Dose* is from half an Ounce to an Ounce and a half.

Another Syrup of Jujubes may be prepared with a strong Decoction of Jujubes, and the same Quantity of Sugar.

For the *Preparation of the Syrup of Nenuphar.*—Take two Pounds of the whitest and cleanest Flowers of Nenuphar; put half of it in a glazed earthen Pot, pour over them five Quarts of common Water, boiling hot, cover the Pot, and leave the Matter in Digestion for 24 Hours; the next Day boil the Infusion slightly, strain it with Expression, and in the hot Liquor, put the other Part of the Flowers; let the Matter be macerated, boiled and strained as before; and to the Colature add four Pounds of Sugar, clarify the Mixture; and boil it afterwards to the Consistence of Syrup.

Virtues.—This Syrup temperates the Heat of the Entrails, provokes Sleep, cools and humects much; whence it is much used in continual and intermitting Fevers, and moderates a Loosenes proceeding from acrimonious and bilious Salts, and stops Hemorrhages.—The *Dose* is from half an Ounce to an Ounce and a half.

For the *Preparation of a simple Syrup of Poppies.*—Cut in

in ſmall Pieces two Pounds of Heads of white Poppies, newly gather'd, in their Maturity, and one Pound of Heads of black Poppies; put them in a glazed earthen Pot, and pour over them four Quarts of boiling hot Water, cover the Pot, and leave the Matter in Infuſion for 24 Hours; boil it afterwards gently to the Diminution of half the Humidity; ſtrain the Decoction with a ſtrong Expreſſion, and with the Colature mix three Pounds of Sugar; clarify the Mixture and boil it to the Conſiſtence of Syrup.

Virtues.—This Syrup is ſomniferous, proper to ſoften the Acrimony of the Throat, and of the *Trachæa*, to appeaſe Pains, to ſtop Fluxions, a Cough, Spitting of Blood, and the Dyſentery; it is preſcribed in all the Occaſions where it is neceſſary to ſtop the too great Motion of the Humours.——The *Doſe* is from half an Ounce to ten Drams.

The *Diacodium* of the Antients was properly an Extract of the Heads of Poppies, mixed with a little Sapa or Sugar: But what we call, at preſent, *Diacodium*, is nothing elſe but the Syrup of Poppies. It is not eſſential to introduce the black Poppy in this Compoſition; for if there is none to be had, the white may ſuffice in a proportioned Quantity.

For the *Preparation of the Syrup of red Poppies.*—Take a Pound of Flowers of red Poppies, newly gathered, put half of it in a glaz'd earthen Pot, and pour over it two Quarts of Spring-Water boiling hot, cover the Pot, and put the Matter in Digeſtion for ſeven or eight Hours; then having boiled ſlightly the Infuſion, and ſtrained it with Expreſſion; the other half of the Flowers muſt be put to infuſe in the Colature over hot Cinders, for the ſame Space of Time as before; and after the Infuſion ſhall have boiled and been ſtrained, you'll mix in it four Pounds of white Sugar, and two Ounces of ſkimm'd Honey; clarify the Mixture, and boil it to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper to thicken the Seroſities, and helps Expectoration; it is uſed in a Cold, for the Quinſey, Pituita, and ſpitting of the Blood. It provokes Sleep, and is ſudorifick.——The *Doſe* is from half an Ounce to an Ounce and half. The Flowers of Poppies dried in the Sun, in Summer, are uſed inſtead of Tea; and produces the ſame Effects as the Syrup.—The *Doſe* is a large Cup-full, with ſome Sugar, between Meals.

For the *Preparation of a narcotick Syrup of Succin or yellow Amber*—Reduce into Powder two Ounces of yellow Amber, put it in a glaz'd earthen Porringer; place the Porringer over the Fire in a Chafing-Diſh; cover it with another Porringer, and the Matter ſhall liquify like melted Pitch; mix with it then two Ounces of Opium cut in ſmall Pieces; ſtir the Mixture with a Spatula, to corporiſy the Drugs as much as poſſible, unite them together, and make of them a black Maſs, which muſt be left to grow cold, and afterwards pounded fine.—This Powder muſt be kept for Uſe——The *Doſe* is from one Grain to ſix.

Take two Drachms of that Narcotick Powder, and mix it in two Quarts of hot Water; boil gently that Mixture to the Diminution of about half the Humidity; let the Liquor be filtrated through a grey Paper, it will appear yellow; mix it with a Pound and half of Sugar, and boil it over a flow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is Cephalick and Pectoral; it appeaſes and ſoftens the Acrimony of the Pituita, ſtrengthens, and provokes Sleep.——The *Doſe* is from a Spoonful to three or four, half an Ounce to an Ounce and half, in a Liquor appropriated to the Diſtemper.

For the *Preparation of the Syrup of Ground-Ivy.*—Let about nine or ten Handfuls of Ground-Ivy, gather'd in its greateſt Vigour, be exactly pounded in a marble Mortar; moiſten the Matter with eight or nine Ounces of warm Water; cover the Mortar, and leave the Matter in Digeſtion for ten or twelve Hours; then ſtrain it, and having ſlightly boiled the Juice, ſtrain it two or three Times through a Flannel; weigh that Juice thus depurated, and having mixed with it an equal Quantity of Sugar, place the Mixture over a flow Fire, and let it boil to the Conſiſtence of Syrup.

Virtues—This *Syrup* is proper for the Maladies of the Lungs, and of the Breaſt, proceeding from a coarſe Pituita, which falls upon them. It is good for the Aſthma, to raiſe the Obſtructions of the Spleen, of the Liver, of the Meſentery, and of the Matrix, it provokes the Menſes, and is alſo ſudorifick.——The *Doſe* is from half an Ounce to two Ounces.

Note, That *Ground-Ivy* is commonly in its Vigour in the Month of *April* and *June*.

For the *Preparation of the Syrup of Hyſſop.*—Put to boil in three Quarts of Water half an Ounce of Pearl-Barley, Hyſſop, Roots of Fennel and Liquorice, of each ten Drachms; ſix Drachms of white Adiantus; an Ounce and a half of Jar-Raiſins ſtoned; Jujubes and Dates, of each thirty; ten Figs; the Seeds of Mallows, Quinces, and Gum Adraganth, of each three Drachms; boil them all together to the Diminution of a third Part of the Humidity; clarify the Decoction by ſettling; and having mixed with it two Pounds of Sugar, let the Mixture boil over a flow Fire to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper for the Maladies of the Breaſt, when cauſed by Phlegm and Obſtructions; it is preſcribed for the Aſthma, to provoke Urine, and expel the Sand from the Reins.——The *Doſe* is from half an Ounce to an Ounce and a half.

For the *Preparation of Syrup of Betony.*—Take a good Quantity of green Leaves of Betony, newly gather'd in their Vigour; cut them and pound them in a Marble Mortar, moiſtening them with diſtilled Water of Betony; cover the Mortar, and leave the Matter in Digeſtion, in the Cold, for eight or nine Hours; ſtrain it afterwards to extract the Juice, which muſt be depurated by boiling it ſlightly, and ſtraining it ſeveral Times through a Flannel. After which it muſt be weighed, to mix with it an equal Quantity of Sugar; then the earthen Diſh in which it is mixed, muſt be placed over a flow Fire, to make the Mixture boil to the Conſiſtence of Syrup.

Virtues.—This Syrup is good for the Maladies of the Brain, which it ſtrengthens; it provokes the Urine.——The *Doſe* is from half an Ounce to two Ounces.

A Syrup of Betony can alſo be prepared with a ſtrong Infuſion of Flowers of Betony, in the diſtilled Water of the ſame Plant.

For the *Preparation of a Syrup of Quinquina.*—Take half a Pound of the beſt Quinquina, coarſely pounded; put it in a glazed earthen Pot, and pour over it two Quarts of the beſt white Wine; cover the Pot and put it in Digeſtion in Balneo Mariæ, or in another warm Place, for three Days, ſtirring the Matter from Time to Time. Boil afterwards gently the Infuſion in the ſame Pot, to the Diminution of a fourth of the Humidity; ſtrain it with Expreſſion, and to the Colature add three Pounds of white Sugar; clarify the Mixture, and put it to boil over a flow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is febrifuge; it ſtops all intermittent Fevers.——The *Doſe* is from half an Ounce to two Ounces, diſſolved in the Water of little Centaury.

It is more proper to make this Syrup in an earthen Veſſel, than in a Copper Baſon, to avoid the Impreſſion which the Syrup could take from the Copper.

This Syrup is not to be uſed till after the Patient has been well purged, becauſe it fixes the Humour. It muſt be given three or four Times a Day, and the Uſe thereof continued for fifteen Days ſucceſſively at leaſt.

For the *Preparation of a Syrup of Orange-Flowers.*—Take one Pound of Orange-Flowers, newly gather'd, put them in a Glaſs Cucurbite, and pour over them two Quarts of diſtilled Water of Orange-Flowers: Having adapted a Capital to the Cucurbite, lute exactly the Joints; leaving the Matter in Digeſtion for 24 Hours; the next Day put the Cucurbite in Balneo Mariæ, or to a vaporous Bath, to diſtil a Quart of the Water: Then leave the Veſſels to grow cold, and ſtrain afterwards with Expreſſion, the Matter left at the Bottom; to the Colature add three Pounds of the beſt Sugar; clarify the Mixture, and put it to boil to the Conſiſtence of an Opiate; and when it is almoſt cold, mix the diſtilled Water with it; and the Syrup is done.

Virtues.—This Syrup ſtrengthens the Brain, recreates the Spirits, is ſudorifick, reſiſts the Malignity of the Humours, abates the hyſterick Vapours.——The *Doſe* is from half an Ounce to two Ounces.

In the ſame Manner may be prepared a Syrup of the Peel of *Seville* Oranges.

For the *Preparation of a Syrup of the Juice of Oranges.* Take a good Quantity of bitter Oranges, cut them in Quarters, take out the Inſide, which muſt be ſqueezed in a Marble Mortar, with a wooden Peſtle; cover the Mortar, and leave the Matter in Digeſtion, in the Cold, for ſeven or eight Hours; then ſtrain it through a Linen Cloth, put it in Bottles, which muſt be expoſed to the Sun, to have the Juice depurated; after which it muſt be filtrated, poured into a glazed earthen Diſh, to be mixed with an equal Weight of white Sugar; placing the Diſh afterwards over a ſlow Fire, to have the Humidity evaporated to the Conſiſtence of Syrup.

Virtues.—This *Syrup* is proper to ſtrengthen the Heart and the Stomach, and to reſiſt the Malignity of the Humours.——The *Doſe* is from an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Flowers of Borage.* Take two Pounds of Flowers of Borage, newly gathered; put one Pound of thoſe Flowers in a glazed earthen Pot, and pour over them four Quarts of diſtilled Water of Borage, very hot; cover the Pot, and leave the Matter in Digeſtion for 12 Hours; boil it afterwards ſlightly, and having ſtrained it with Expreſſion, put in the Colature the other Pound of Flowers, proceeding as before, as to the Digeſtion, Coction, and Colature, in which you'll mix four Pounds of white Sugar; clarify the Mixture, and put it to boil over a ſlow Fire to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper to humect the Breaſt, to purify the Blood, and recreate the Spirits: It is preſcribed to the Melancholicks.——The *Doſe* is from half an Ounce to an Ounce and a half.

One can alſo prepare a very good Syrup of *Borage*, by boiling together equal Parts of depurated Juice of *Borage*, and of white Sugar.

The Syrup of *Bugloſe* is ſo much in Quality like that of *Borage*, that one of them can very well be ſubſtituted to the other.

For the *Preparation of Syrup of Camomile.*—Take one Pound of Camomile Flowers, newly gather'd, put one Third of thoſe Flowers to infuſe in two Quarts of Spring-Water, boiling hot, for twelve Hours; which expired, boil ſlightly the Infuſion, ſtrain it with Expreſſion, and in the Colature put to infuſe the ſame Quantity of new Flowers, for the ſame Space of Time as before, boiling, afterwards, and ſtraining the Infuſion in the ſame Manner; repeating the ſame Proceſs a third Time, with what is left of the Pound of Flowers; but in the laſt Colature mix three Pounds of the beſt Sugar, clarify the Mixture, and put it afterwards to boil over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is excellent for the windy Cholick, and to provoke the Menſes.——The *Doſe* is from half an Ounce to an Ounce and a half.

For the *Preparation of a Syrup of Radiſhes.*—Take Garden and wild Radiſhes, of each three Ounces; four Ounces of white Onions; the Roots of Saxifrage, and of Parſley, of each an Ounce; the Leaves of Parietary, of Nettles, of Naſturtium, of each two Handfuls; the Seeds of Parſley, of Sallery, and the Rind of the Root of Capers, of each two Drachms: All theſe Drugs being bruiſed, cut, and mixed together, muſt be put to infuſe for 24 Hours in four Quarts of white Wine; the next Day the Infuſion muſt be ſtrained, and boiled afterwards with ſix Pounds of white Sugar, and the Salts of Tamarich, and of Juniper, of each ſix Drachms, to the Conſiſtence of Syrup.

Virtues.—This Syrup is proper for the Scurvey, to attenuate, to break the Stone in the Reins and the Bladder, and to expel it: It provokes the Urine, is preſcribed in the Nephretick, in the yellow Jaundice, in the Cachexies, and in all the other Maladies, where it is neceſſary to open the Conduits of the Urine.——The *Doſe* is from half an Ounce to two Ounces.

A Syrup of Radiſhes could alſo be prepared with equal Parts of the Juice of Radiſhes, and of Sugar, which Syrup would be alſo very good for the Gravel.

For the *Preparation of the Syrup of Mint.*—Take the Juices of Quinces, and of Pomegranate, of each two Pounds, put to infuſe in them for 24 Hours, eight Ounces of Mint pounded, and two Ounces of red Roſes; then put the Infuſion to boil ſlightly, ſtrain it afterwards with Expreſſion, and mix in it three Pounds of white Sugar, and having clarified the Mixture, put it to boil over a ſlow Fire to the Conſiſtence of Syrup; which is to be aromatiſed with two Drachms of the Troches of *Galla Moſchata*, tied in a Piece of Linen Cloth, and twelve Drops of Oil of Mint.

Virtues.—This Syrup is proper to ſtrengthen the Stomach in faſtening the Fibres; to ſtop Vomiting, Nauſea's, Hickups, and the Lienteria.——The *Doſe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Cinnamon.*—Take half a Pound of the beſt Cinnamon coarſely pounded; put it in a Glaſs-Cucurbite, and pour over it a Quart of Sack; adapt a Capital and a Recipient to the Cucurbite, and diſtil at a ſlow Fire about eight Ounces of the ſpirituous Liquor; leave the Veſſels to grow cold, unlute them, and pour into a glazed earthen Diſh, what is left in the Cucurbite; to which muſt be added a Pint of common Water; and the Matter having boiled ſlightly, ſhall be ſtrained with Expreſſion, and two Pounds of Sugar mixed with the Colature; and the Mixture, after it has been clarified, put to boil over a ſlow Fire to the Conſiſtence of Opiate; with which, when almoſt cold, you'll mix the diſtilled ſpirituous Water, and ſix Drops of Oil of Cinnamon; for a Syrup to be kept for Uſe.

Virtues.—This Syrup ſtrengthens the Heart and the Stomach, recreates and repairs the Spirits, helps the Digeſtion, renders the Breath ſweet, provokes the Menſes, facilitates the Delivery, remedies the Obſtructions of the Matrice, diſſipates the Winds, and excites the Appetite. The *Doſe* is from half an Ounce to an Ounce.

In the ſame Manner may be prepared the Syrup of Cloves, of the Wood of Roſe-Trees, of Saſſafras, of red Sanders, of Anniſeed, of Fennel, of Coriander-Seeds, of Mace, and of Juniper-Berries.

In the Preparation of Syrup of Cinnamon, any white Wine will ſerve inſtead of Sack.

For the *Preparation of Syrup of Carduus Benedictus.* The *Carduus Benedictus* ſhould be gather'd in its greateſt Vigour, and the Roots having been cut off as uſeleſs, the Plant ſhall be cut and pounded in a Marble-Mortar, where it is left in a cold Digeſtion, for five or ſix Hours; and is afterwards carried to the Preſs to extract the Juice, which muſt be boiled ſlightly; and after it has been filtrated through a Flannel, or a grey Paper; it muſt be mixed with an equal Quantity of Sugar, and an Ounce of Salt of *Carduus Benedictus*, and the Mixture boiled over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—The Syrup of *Carduus Benedictus* reſiſts the Malignity of the Humours, is ſudorifick, and kills the Worms; it is preſcribed in malignant Fevers, the ſmall Pox, and the Pleuriſy.——The *Doſe* is from an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of St. John Wort.*—Take the Third of a Pound of Flowers of St. John Wort, newly gather'd, put them in a glazed earthen Pot, and pour over them two Quarts of boiling-hot Water; cover the Pot, and leave the Matter in Digeſtion for twelve Hours; then boil ſlightly the Infuſion, and having ſtrained it with Expreſſion, repeat the ſame Operation twice more with new Flowers, till you have employed a whole Pound of them; and with the laſt Colature, mix three Pounds of Sugar, and an Ounce of Salt of St. John Wort, clarify the Mixture, and boil it to the Conſiſtence of Syrup.

Virtues.—This Syrup ſtrengthens the Heart and the Brain, kills the Worms, reſiſts the Malignity of the Humours, is proper to attenuate the Stones in the Reins and Bladder, and to provoke the Urine.—The *Doſe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Plantain.*—Take four Ounces of the Roots, and an Ounce of the Seeds of Plantain, bruiſe them, and put them to boil gently in a Quart of diſtilled Plantain-Water, to the Diminution of about one third of the Humidity; and having ſtrained the Decoction with Expreſſion, mix in the Colature a Quart of the Juice of Plantain, newly extracted by Expreſſion, and two Pounds and a half of Sugar; clarify the Mixture, and put it to boil over a ſlow Fire to the Conſiſtence of Syrup.

Virtues.

Virtues.—This Syrup is proper to ſtop the Looſeneſs, the Hemorrhages and Gonorrhœas.—The *Doſe* is from half an Ounce to two Ounces.

This Compoſition contains the Qualities of all the Parts of the Plantain, and is certainly the beſt that can be given.

For the *Preparation of the ſimple Syrup of Scordium.*—Take two Pints and a half of the Juice of Scordium, two Pounds of white Sugar, and ſix Drachms of the Salt of Scordium; clarify the Mixture, and boil it over a ſlow Fire, to the Conſiſtence of Syrup.

Virtues.—This Syrup is uſed againſt the Plague, the malignant Fevers, and the Worms; it provokes Perſpiration and the Menſes.—The *Doſe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the compoſed Syrup of Scordium.*—Take a Quart of the ſimple Syrup of Scordium, mix in it half a Drachm of the volatile oleous aromatick Spirit, Camphire diſſolved in two Drachms of Spirit of Wine, and Muſc, of each half a Scruple, tied in a Piece of Linnen Cloth, for a Syrup.

Virtues.—This Syrup is uſed for malignant Fevers, and other Maladies proceeding from the Corruption of the Humours.—The *Doſe* is from half an Ounce to an Ounce and a half.

For the *Preparation of the Syrup of Kermes.*—Pound in a Marble Mortar the Grains of Kermes, when they are very ripe and very red; leave them in a cold Digeſtion for ſeven or eight Hours, to rarify a little their viſcous Subſtance; then put them in a ſtrong Linnen Cloth, and carry them to the Preſs, to extract the Juice thereof, leave that Juice to ſettle for a few Hours, and ſeparate it afterwards from its coarſer Fæces, by deſcanting it into another Veſſel: Weigh that Juice, and having mixed with it an equal Quantity of Sugar, place the Mixture over a ſlow Fire, to boil gently to the Conſiſtence of Syrup.

Virtues.—This Syrup ſtrengthens the Heart and the Stomach, reſiſts the Malignity of the Humours, and hinders Abortion.—The *Doſe* is from half an Ounce to an Ounce.

Note, That *Loochs* come next.

LOOCH.

Looch, *Elegma* and *Linctus*, are three Words which ſignify the ſame Thing, viz. *Licking*, *Sucking*; the firſt is *Arabick*, the ſecond *Greek*, and the third *Latin*: They were given for Names to pectoral Compoſitions, which have a middle Conſiſtence, between Syrups and ſoft Electuaries; the Patients are made to ſuck them with a Stick of Liquorice, by dipping one End thereof in them, or with a Spoon, that being taken by Degrees they may remain longer in the Paſſage, and humect better the Breaſt; they are commonly prepared when wanted, becauſe moſt of the Remedies which enter their Compoſition are ready at all Times, and their Mixture is not difficult.

For a *pectoral Looch.* Pound together the Roots of Enula Campana and Liquorice, of each a Drachm and a half: Take Sugar-candy, and Oxymel of Squill, of each half an Ounce, and three Drachms of the Powder Diatraganth; mix all the Drugs together with a ſufficient Quantity of Syrup of red Poppies, for a *Looch.*

Virtues. This *Looch* is uſed in the Pleuriſy, Aſthma, Phthiſick, and other Maladies of the Breaſt and Lungs; it inciſes and attenuates the Phlegms, and excites Expectoration.

A *Looch to ſtop the ſpitting of Blood.* Take three Drachms of the Powder Diatragacanth, red Roſes, Crab's Eyes prepared, and prepared Coral, of each two Drachms, a Drachm and a half of Conſolida major in Powder, fifteen Grains of Salt of Saturn, four Grains of Laudanum, the Mucilages of the Seeds of Quinces and of Pſyllium, of each half an Ounce; mix the Drugs together in a ſufficient Quantity of Syrup of St. John-wort.

The Roſes and the Roots of Conſolida major muſt be pounded together, and be mixed with the reſt of the Powders: The Laudanum muſt be diſſolved in a Mortar with about half an Ounce of the Syrup; and then all the other Drugs are added to it, to make a *Looch*, with a ſufficient Quantity of the ſame Syrup.

Virtues. This *Looch* is proper, not only to ſtop the ſpitting Blood, but likewiſe all other Hemorrhages. It is taken at the End of a Stick of Liquorice.

For a *Looch of red Cabbages.* Take a Pound of the Juice of red Cabbages depurated, three Drachms of Saffron; Sugar and Honey ſkummed, of each half a Pound: Mix the Juice, Honey and Sugar together, boil the Mixture gently to the Conſiſtence of *Looch*; and when it is cold, mix exactly with it the Saffron reduced into a fine Powder.

Virtues. This *Looch* is proper for the Aſthma, and the other Maladies of the Breaſt and Lungs.

For a *ſimple Looch of Squill.* Take equal Parts of the Juice of Squills, and of ſkummed Honey, and boil them together in a glazed earthen Diſh, over a ſlow Fire to a due Conſiſtence.

Virtues. This *Looch* is proper to rarify or attenuate the Phlegms, and excite Expectoration; it helps Reſpiration, and is uſed in the Aſthma and Peripneumony.

For a *Looch of Poppies.*—Take three Ounces of the Seeds of white Poppies, a Drachm of Sweet Almonds blanched, Gums Arabick and Adraganth, and the Juice of Liquorice, of each ten Drachms; the Seeds of Porcelain, of Lattuces, and of Quinces, of each half an Ounce; a Drachm of Saffron, and a ſufficient Quantity of Syrup of white Poppies for a Linctus.

The Mortar where the Gums are pounded muſt be heated, to dry a Sort of Humidity, which would hinder the Pulverization thereof; the Saffron muſt be pounded after it has been dried between two Papers at a very ſlow Heat; all the Seeds with the Sweet Almonds muſt be pounded in a Marble Mortar, adding to it by degrees the Syrup of white Poppies, to form of them a liquid Paſte, which muſt be ſtrained through a Sierce turned upſide-down; and in the Pulp which will have run through, the Powders muſt be mixed, and as much Syrup as is neceſſary to form the *Looch.*

Virtues.—This *Looch* is proper to agglutinate the ſalt Pituita which falls on the Trachæa, to humect the Breaſt, and to help Expectoration; it is preſcribed in the Pleuriſy and Fluxions of the Breaſt; it provokes Sleep, and appeaſes the Pains. It is taken at the End of a Stick of Liquorice.

For a *Looch of Garlick.*—Make firſt about two Quarts of a ſtrong Decoction of *French* Beans and of Hyſſop dried, ſtrain it through a Linnen Cloth, and put to boil in it half a Pound of Garlick pared of their firſt Skin, and cut in Pieces, till it be ſoft; ſtrain the Decoction, and beat the Garlick in a Mortar, and ſtrain it afterwards through a Horſe-hair Sierce, in form of a Pulp; mean while boil a Pound of Honey in the Decoction of the Garlick, ſkumming it, till it be reduced to the Conſiſtence of an Opiate; then mix the Pulp in it, to form a *Linctus* which muſt be kept for Uſe.

Virtues.—This *Looch* is proper for the Aſthma, to help Expectoration, rarify and looſen the thick Pituita, and reſiſt Venom.—The *Doſe* is from one Drachm to three. When the Patient is ready to take it, there muſt be added to each Ounce thereof half an Ounce of freſh Butter, to ſoften the Acrimony of the Garlick.

For a *Looch of Jar Raiſins.*—Boil in four Quarts of Rain Water, very clean, half an Ounce of the Roots of Peony, cut in Pieces; add to it half an Ounce of Liquorice bruiſed; Hyſſop, Meliſſa, and Ceterach, of each half a Handful, to the Conſumption of a fourth Part of the Humidity; then ſtrain the Decoction with a ſtrong Expreſſion, and put to boil in the Colature a Pound of Jar-Raiſins ſtoned, till they be very ſoft; then ſtrain this ſecond Decoction through a Linnen Cloth, with a ſtrong Expreſſion, and put a Pound of white Sugar to boil in it to the Conſiſtence required.

Virtues. This *Looch* is proper to rarefy and inciſe the coarſe Pituita which falls from the Brain on the Lungs, to facilitate Reſpiration in the Aſthma, and for the Epilepſy. It may be taken either at the End of a Stick of Liquorice, or by Spoonfuls.

For a *Looch of Althæa.* Take two Ounces of the Pulp of the Roots of Althæa; the Powders Diatraganth, and Diarcos, of each three Drachms; two Drachms of Flowers of Sulphur; half an Ounce of Sugar Candy; and as much of Syrups of Maiden-Hair, and of Tuſſilage, as is neceſſary to make a *Looch.*

Virtues. This *Looch* is proper for an inveterate Cough; it loosens the Phlegm from the Breast, helps Expectoration, and eases the Asthmaticks. It is taken at the End of a Stick of Liquorice.

POWDERS.

It is necessary to reduce into *Powder* the dry Ingredients which enter the Compositions of *Pharmacy*; not only that they may be easier and more exactly mixed in them, but that they may likewise communicate better their Virtue when they are in the Body.

Powders are usually made in Brass Mortars; but when they must be very fine, they are usually ground on the Porphyry, to render them impalpable: Though this last Preparation is seldom for any Thing else but Minerals, Stones, and Earths.

When *Gums* are to be reduced into *Powder*, it is necessary to anoint the Bottom of the Mortar, and the End of the Pestle, with some Drops of Oil of Sweet Almonds, or other Oil, otherwise the Gums would stick to the Mortar, and would be pounded but with great Difficulty, except notwithstanding the following: —When the Gums Arabick and Adraganth are to be pounded, the Mortar must be heated before with lighted Coals, that the Heat may dissipate a superfluous Humidity which is in the Gums, and would hinder the Pulverisation. —To pound the Mastich, the Bottom of the Mortar, and the End of the Pestle, must be moistened first with a little Water, otherwise it would stick to the Mortar. —When dry aromatick Matters, as the Cinnamon and Sanders, are to be reduced into Powder, they must be moisten'd with some Water appropriated to their Virtue, to hinder the Dissipation which, otherwise, would happen of their most subtile Particles.—To pound the Coloquintida, it must have been anointed before with Oil of Roses, otherwise much of its Particles would escape.—When the Euphorbium, the Cantharides, and the white Hellebore are to be pounded, they must be humected with some Drops of Vinegar, or other appropriated Liquor; for, without that Precaution the Artist would be much incommoded by the volatile Particles of those Matters, which being agitated by the Pestle, fly and enter the Nose and the Eyes, which excites a violent Sneezing and Tears. When the Saffron, Roses, and several other Flowers which preserve always some Humidity, though they appear dry, are to be reduced into Powder, they must be dried gently between two Papers in the Sun, or before the Fire, otherwise it would be very difficult to pound them. The Opium, Acacia, Hypocistis, Liquorice Juice, Galbanum, Opoponax, Sagapenum, and Assafœtida, when by themselves, are not easily reduced into Powder; but when mixed with dry Ingredients of another Nature, and in great Quantity, they are easily conquered: The same may be said of the Almonds, cold Seeds, small Nuts, *&c.* When Flints and other such hard Stones are to be pounded, they must have been made red-hot several Times before, and extinguished in Water to soften them, otherwise it would be very difficult to reduce them into Powder. When the Talc of *Venice* is to be pounded, it must be exposed for about half a Quarter of an Hour to a great flaming Fire, then pounded in an Iron Mortar almost made red-hot. To pound Horns, Agarick, and Nux vomica, they must be rasped before, and afterwards pounded in a Mortar of Metal. To pound Lead and Tin, they must be put in Fusion in an earthen Dish, then by stirring them continually over the Fire, for the Space of half an Hour or an Hour, they'll reduce themselves into Powder. Several of the Matters to be reduced into Powder are to be beaten hard, as Wood, Roots, Leaves, Seeds, Fruits, Horns, and Bones; but several others are only to be bruised in the Mortar, as the Aloes, Scammony, Earths, and Starch. Salts, and other acrimonious and corrosive Matters, are to be pounded in Mortars of Glass, Marble or of Stone, to avoid the Impression they could receive from the Metal.

For the *Preparation of the Powder Diaturbith cum Rheo.*—Take two Ounces of gummous Turbith; ten Drachms of the best Rhubarb; an Ounce of Hermodacts; Diacrydium, Crystal of Tartar, and Seeds of Violets, of each half an Ounce: The Drugs being pounded and mixed together, must be passed through a Sieve, for a Powder to be kept for Use.

Virtues.—This Powder purges the Pituita of the Brain, the Bile, and the Melancholy, and provokes the Menses. The *Dose* is from eighteen Grains to one Drachm.

For the *Preparation of the Saxon Powder.*—Take four Ounces of the Root of Garden-Angelica, wild Angelica, Althæa, Polypody, of each two Ounces; of Nettles, and Valeriana, of each half an Ounce, and an Ounce and half of the Oil of Bark of *German* Aureola; cut all the Roots and the Bark in small Pieces, put them in a glazed earthen Pot, and pour over them Vinegar, till it surpasses the Matter by two Fingers Breadth; cover the Pot, and lute exactly the Joints, and place it over a slow Fire, to make the Infusion boil gently for a Quarter of an Hour; take off the Pot, and when it is cold open it, and having thrown out the Vinegar left, dry the Roots, pounding them afterwards, with the Fruits of the Herb of *Paris*, to make a Powder for Use.

Virtues.—This Powder is much esteemed against Poison, the Plague, and other malignant Distempers.—The *Dose*, is from half a Scruple to two, and even to a Drachm.

Note, That it would be sufficient in this Description to correct the Bark of the Root of Laureola, by boiling it in Vinegar, to take off Part of the corrosive Acrimony it contains; the other Roots having no bad Qualities, are deprived by the Coction of the most volatile and essential Substance they have; therefore they want no other Preparation than that of being dried in the usual Manner.

For the *Preparation of a purgative Powder, good for all the cold Distempers of the Brain.*—Take Senna and Tartar, of each an Ounce; Hermodacts, and Turbith, of each half an Ounce; the Leaves of Tobacco, Seeds of Pæony and Spikenard, of each four Scruples; Calamus Aromaticus, Cubebs, Mace, Cloves, of each half a Drachm; three Drachms of Salt of Betony: Pound together the Senna, Hermodacts, Turbith, Tobacco, Seeds, Spikenard, Calamus Aromaticus, Cubebs, Mace, and Cloves, mix all the Ingredients together for a Powder to be kept for Use.

Virtues.—It disengages the Brain, by purging the Pituita upwards and downwards, and strengthens the Memory: It is prescribed in the Apoplexy, Epilepsy, and Lethargy.——The *Dose* is from one Scruple to four in Broth.

The Purgatives of this Composition are the Senna, Hermodacts, Turbith and Tobacco.

Note, That a Scruple of this *purgative* and *cephalick Powder*, contains two Grains of Senna; of the Hermodacts and Turbith, of each a Grain, and the Fourth of a Grain of Tobacco. *Half a Drachm* contains three Grains of Senna; of the Hermodacts and Turbith, of each a Grain and a half; a Grain and half a Fourth of a Grain of Tobacco. *A Drachm* contains six Grains of Senna, of Hermodacts, and Turbith, of each three Grains; three Grains and a Quarter of a Grain of Tobacco. *Four Scruples*, contains eight Grains of Senna, of Hermodacts and Turbith, of each four Grains; two Grains and a Quarter of a Grain of Tobacco.

For the *Preparation of the Worm powder of James le Mort.*—Take half an Ounce of Senna, two Drachms of the Seeds of Zedoaria, the Leaves of Abrotanum, Summits of Wormwood, and Flowers of Tanzy, of each a Drachm; two Scruples of Virtriol Martis, and a Scruple of Mercurius dulcis: Pulverise together the Senna, the Seeds of Zedoaria, commonly called Worm-powder, the Wormwood, the Flowers of Tanzy, and the Abrotanum; mix also together the Vitriol Martis, and the Mercurius dulcis; and afterwards mix all those Ingredients thus pulverized for a *Worm-powder.*

Virtues.—This *Powder* kills the Worms, and purges gently.—The *Dose* is from half a Scruple to a Drachm.

The purgative Ingredients which enter this Preparation are the Senna, and the Mercurius dulcis.

For the *Preparation of the Worm-powder of the Physicians of the Faculty of Paris.*—Take the Seeds of common Wormwood, of Porcelain, and Aloes, of each half an

an Ounce; the best Rhubarb, Senna, Coralline, dried Summits of Scordium, of each two Drachms: The Drugs being all pounded, shall be mixed together for a Powder to be kept for Use.

Virtues.—This Powder kills and expels the Worms, provokes the Menses, and resists the Malignity of the Humours. The *Dose* is from a half a Scruple to a Drachm.

The Purgatives of this Preparation, are the Aloes, Senna, and Rhubarb.

The Powders where the Preparations of Mercury enter, ought not to be taken without being formed into a Bolus, lest the Mercury which is heavy, should remain behind in the Teeth and shake them.

For a *Preparation of a laxative Powder of Sarsaparilla.* Take an Ounce and a half of Sarsaparilla; an Ounce of Senna, Hermadacts, Turbith, and Jalap, of each half an Ounce; Diacrydium, white Tartar, Olibanum, Anniseed, of each a Drachm: Pound together the Sarsaparilla, Senna, Anniseed, Tartar, Hermodacts, Jalap, and Turbith; pound also together the Diacrydium, and Olibanum, in a Mortar anointed at the Bottom with some Drops of Oil: Mix afterwards all those Ingredients together, for a Powder to be kept for Use.

Virtues.—This Powder purges, particularly the Waters, provokes Sweat, and is used in verolick Affections, in the Hydropsy, in the Retention of the Menses, and in the Sciatica.——The *Dose* is from a Scruple to four.

The Purgatives contained in this Composition, are the Senna, Hermodacts, Turbith, Jalap, and Diacrydium.

Pulvis Diæsulæ.—R. *Corticis radicis Esulæ minores* Unc. 1. *semiss. Ellebori nigri, salis Vitrioli, Liquiritiæ rasæ,* ana Drach. 3. *Gummi Arabici & Tragacanthi ana Drach.* 2. *semiss.* *Fiat omnium Pulvis, S. A.*

Virtues.—This Powder is employ'd in intermittent Fevers, in the hypochondriacal Melancholy, in the Maladies of the Stomach which proceed from Repletion. It purges upwards and downwards.——The *Dose* is from half a Scruple to half a Drachm.

For the *Preparation of a simple Powder of Hiera Picra.*—Take two Ounces of Aloes Succotrina; Cassia Lignea, Cinnamon, red Roses, Mastich, Spikenard, Carpo Balsam, of each a Drachm: Let the Aloes and Mastich be pounded separately in a Brass Mortar; and having reduced, likewise, the other Drugs in Powder, mix them all together for a Powder to be kept for Use.

Virtues.—This Powder is employed to purge the Stomach, to provoke the Menses, and the Hemorrhoids, to raise the Obstructions of the Liver, and to purify the Blood.—The *Dose* is from half a Scruple to a Drachm.

The purgative Virtue of this Powder consists in the Aloes.

Solutive Powder de tribus.—Take six Drachms of Senna, half an Ounce of Turbith, two Drachms of Rhubarb, Liquorice, Anniseed, and Fennel-Seed, of each a Drachm; and half a Scruple of Spikenard: Let all those Drugs be pounded together, and reduced into a Powder to be kept for Use.

This Powder is esteemed proper to purge the Pituita, and the cold Humours; it evacuates the Waters in rising the Obstructions.—The *Dose* is from a Scruple to four.

This Powder is called *Solutive Powder de tribus*, because of the three purgative Ingredients it contains, and which are the Base thereof, *viz.* the Senna, Turbith, and Rhubarb. The other Ingredients are put in that Powder, to serve of corrective to those Purgatives; but they do not produce much Effect in it; and they would be far better corrected, if, when the Patient is to take that Medicine, to every Dose of Powder, were added eight or ten Grains of Salt of Tartar, or other alkali Salt.

For the *Preparation of the Cornachin Powder*, or *de tribus.*—Take equal Parts of the best Scammony, Crystal of Tartar, and diaphoretick Antimony; mix them all exactly together for a Powder to be kept for Use.

Virtues.—This Powder purges the Humours without Griping.——The *Dose* is from half a Scruple to two Scruples.

The Dose of the Scammony may be augmented when the Powder is to be render'd more purgative; for its purgative Virtues consists wholly in that Drug.—It borrows its Name of *Cornachin*, from its Author *Cornachinus*, a Professor in Physick, at *Pisa*; it is called *Pulvis de tribus*, because it contains but three Sorts of Drugs; and also, sometimes, the Powder of the Countess of *Warwick.*

An *excellent antiepileptick Powder.*—Take Raspings of the Cranium of a Man dead of a violent Death; Livers and Hearts of Vipers, the Nail of an Elk, of each five Drachms; Misletoe, Roots of Pæony, of Valeriana, or Contrayerva, and white Succin, of each half an Ounce; of a dried After-Birth, of the Bone of the Heart of a Stag, dried Dung of a Peacock, of each three Drachms; Cinnabar of Antimony, and volatile Salt of Hart's Horn, of each a Drachm: Let the human Cranium, the Livers and Hearts of Vipers, the Nail of Elks, the Misletoe, the Roots, the Succin, the After-birth, the Bone of the Heart of a Stag, and the dried Dung of a Peacock be pounded together; and having pounded, likewise, the Cinnabar of Antimony, mix all those Drugs together, and add to them the volatile Salt of Hart's Horn, for a Powder to be kept in a Vessel well stopped.

Virtues.—This Powder is proper to strengthen the Brain; and for the Epilepsy and Apoplexy.——The *Dose* is from half a Scruple to two Scruples.

Note, That this Description contains nothing needless, all the Ingredients are essential in it; and one may be sure that it will produce good Effects, let him be ever so little versed in the Knowledge of the Remedies: It may be used by Women, as well as Men and Children; since it has no Smell that could excite Vapours: It must be taken every Day for a whole Month.

For the *Preparation of a Powder for a Fall from a high Place.*—Take the Coagulum of a Hare, and Succin, of each half an Ounce; Flowers of St. John-Wort, and wild Tanzy, of each half a Handful; Myrrh, Rhapontick, and Olibanum, two Scruples; and two Drachms of Sperma ceti: Dry the Coagulum of the Hare, and reduce it into Powder; pound likewise the Flowers, Herbs, and Roots; grind the Succin on the Porphyry, and pound the Myrrh, and the Olibanum, in a Mortar, greased with some of the Sperma ceti; put afterwards the rest of the Sperma ceti in a Mortar, and mix it with the other Ingredients for a Powder to be kept for Use.

Virtues.—This Powder stops the Blood, and dissolves that which may chance to be coagulated in the Body; it moderates the Pains, and strengthens the Parts. It was invented in Favour of Workmen, who fall from high Places, and have some Vessels broken in the Body. The *Dose* is from a Scruple to a Drachm.

Note, That by the *Coagulum* of a Hare is understood a thick Matter coagulated like Cheese, and found adhering to the Stomach of a young Hare; the best is that extracted from young Hares, which have took no other Food yet but the Milk of their Dam.

For the *Preparation of an excellent Powder for the Dysenteria.*—Take two Ounces of the Root *Ipecacuanha*; Citrin Mirabolans, and Rhubarb, of each three Drachms; and an Ounce of Seed of Plantain: Pound all those Drugs together in a Brass-Mortar, for a Powder to be kept for Use.

Virtues.—This Powder excites Vomiting without Violence, it purges by Stools, and stops the Dysenteria.—The *Dose* is from a Scruple to four.

For a *Preparation of a Powder for the Phthisick.*—Take half an Ounce of the Seed of white Poppies; Gums Arabick and Adraganth, the Seeds of Althæa, of Cotton, of Porcelain, the four great cold Seeds, of each a Drachm and a half; the Ashes of Craw-fish, and the Lungs of a Fox, prepared, of each four Scruples: The Gums Arabick and Adraganth must be pounded together in a Mortar heated; the Craw-fish must be burnt in a Pot made red hot, till they be reduced to Ashes; the Seeds must also be pounded a-part till they be reduced into a Paste; and all the Drugs must afterwards be mixed together for a Powder, to be kept for Use.

Virtues.—This Powder is not only good for the Phthisick, but for all the Maladies of the Breast; it absorbs and softens the Acrimony of the Serosities which fall from the Brain, thickens them, and helps Expectoration. The *Dose* is from a Scruple to a Drachm.

Note, That this Description is ill contrived for a Powder, because it enters so much Seed in it, that it reduces it almost to a Paste; therefore it ought not to be prepared before it is wanted; otherwise it would grow rank in Keeping.

For the *Preparation of the Gascoyn Powder*, otherwise called, *The Powder of the Countess of* Kent.—Take four Ounces of the black Ends of the Claws of Crabs; Crab's Eyes, oriental Pearls, and red Coral prepared, of each an Ounce; white Succin, the Root of Contrayerva, and of Viperina, of each six Drachms: two Drachms of the Stone of oriental Bezoard; four Scruples of the Bone of a Stag's Heart; and two Scruples of Saffron: Take out the Flesh of the Crab's Claws; then bruise them with the Crab's Eyes, the Bone of the Stag's Heart, and the Bezoard in a Mortar; grind them afterwards on the Porphyry, till they be reduced into an impalpable Powder; let the Roots be likewise pounded together; and the Saffron by itself, after it has been dried between two Papers at a slow Heat: Mix all those Powders together with the Pearls and prepared Coral, and moisten them with an Ounce and a half of Spirit of Honey; mixing them afterwards with Jelly of Vipers, to be formed in Troches, which must be dried from the Sun, and kept for Use.

Virtues.—This Powder is much esteemed to resist the Malignity of Humours, for the Scurvy, the Small Pox, and other epidemical Maladies.—The *Dose* is from half a Scruple, to half a Drachm.

For the *Preparation of a Powder to help the Digestion.* Take the Seeds of Fennel, Anis, and Coriander, of each an Ounce and a half; Cinnamon, Lemon Peel, Orange Peel, Cloves, Rhubarb, of each a Drachm; and eight Ounces of Sugar-candy: The Sugar-candy having been pounded by itself, and the other Drugs all together, they must be mixed for a Powder to be kept for Use.

Virtues.—This Powder helps Digestion, expels the Wind, and excites the Appetite: It is taken immediately after Meals.—The *Dose* is from half a Drachm to two Drachms.

This Powder is of an agreeable Taste, it is only coarsely pounded, that one may have the Pleasure to shew it.

For the *Preparation of a sudorifick Powder.*—Take equal Parts of Antimony, yellow Sulphur, and Crab's Eyes: Let the Antimony and Sulphur be pounded together, and mixed afterwards with the Crab's Eyes prepar'd, for a Powder to be kept for Use.

Virtues.—This Powder is sudorifick, and purifies the Blood by Perspiration, and the Urine.—The *Dose* is from half a Drachm to a Drachm. It is never prescribed but for Persons of a strong Constitution: It is good for the Itch, Leprosy, Scald Head, Asthma, and King's Evil.

For the *Preparation of a cardiack Powder.*—Take the Stone of oriental Bezoard, the Bone of a Stag's Heart, of each a Drachm and a half; white Succin, the Nail of an Elk, Raspings of Ivory, and Tormentille-Root, of each one Drachm; Angelica, Zedoaria, Wood of Aloes, Lemon Peel, of each two Scruples; half a Scruple of Ambergrease, and four Grains of Musk: The Bone of a Stag's Heart, the Ivory, the Nail of an Elk rasped, the Roots, the Wood of Aloes, and the Lemon-Peel, must be pounded together; the Bezoard and Succin, must be ground on the Porphyry, till they be reduced into an impalpable Powder; and the Ambergrease and Musk having been likewise pounded together, all the Ingredients must be mixed for a Powder to be kept for Use.

Virtues.—This Powder strengthens the Heart, resists the Malignity of the Humours, and excites Perspiration. The *Dose* is from ten Grains to two Scruples.

For the *Preparation of a Powder to prevent Abortion.* Take the Grains of Kermes, red Sanders, Mastich, Plantain-Seeds, the Raspings of Hart's Horn, Succin, Bol-Armoniack, Terra Sigillata, Crab's Eyes prepar'd, Coral prepar'd, Tormentille Roots, of each three Drachms; Mace, Cloves, of each half a Drachm; all these Ingredients having been well pounded, according to the Method so often repeated before, must be mixed together, for a Powder to be kept for Use.

Virtues.—This Powder is proper to prevent Abortion, to stop a Loosenesss, and strengthens the Stomach.—The *Dose* is from a Scruple to a Drachm.

For the *Preparation of a Powder to facilitate or hasten a Delivery.*—Take Cinnamon, Dictamnum of *Crete*, Saffron, Borax, Troches of Myrrh, of each a Drachm; and half a Drachm of Savern: Let the Cinnamon, Dictamnum, and Savern, be pounded together; and the Troches and Borax together; then mix all the Ingredients for a Powder to be kept for Use.

Virtues.—It is proper to hasten the Delivery, when the Woman is in Labour; and to expel the After-Birth. The *Dose* is from a Scruple to two: It is also used to provoke the Menses; dissolved in white Wine, or Water of Mugwort.

For the *Preparation of a Powder for the After-Pains.*—Take the Roots of Consolida Major dried, Acron and Succin, of each a Drachm and a half; dried Orange-Peel, Mace, Saffron, Coriander-Seed, of each two Scruples: Let all the Drugs be pounded together into a fine Powder to be kept for Use.

Virtues.—This Powder is proper to appease the After-Pains, and for the windy Cholick.—The *Dose* is from a Scruple to two.

For the *Preparation of a Powder to appease the Cough of Children.*—Take the Powder of Diatraganth cold, and of simple Diareos, of each half an Ounce; two Drachms of the Roots of Pæony; a Drachm of Juice of Liquorice; Milk of Sulphur, and Saffron, of each two Scruples; human Cranium, and the Seed of white Poppies, of each a Scruple; and three Ounces of Sugar-candy: Let the Roots of Pæony, the Saffron, Seed, and human Cranium be pounded together, and the Juice of Liquorice, and Sugar-candy together; then mix the Ingredients, thus pounded, with the Milk of Sulphur, and the Powders of Diatraganth, and Diareos, for a Powder to be kept for Use.

Virtues.—This Powder is good to thicken the too subtle Humidities which fall from the Brain on the *Trachæa*; to help Expectoration, soften the Acrimony of the Breast, and help Respiration. It is as proper for grown Persons as for Children.—The *Dose* is from half a Scruple to a Drachm.

For the *Preparation of a Powder for the Ulcers of the Throat.*—Take four Ounces of quick Sulphur; Myrrh, and Sugar-Allum, of each two Ounces; Mastich and Oliban, of each an Ounce; Pyrethre, six Drachms. The Pyrethre must be pounded by itself, the Sulphur and Allum by themselves, and the Myrrh and Olibanum in a Mortar anointed with some Drops of Oil, and the Mastich in a Mortar humected at the Bottom with some Drops of Water: All the Ingredients thus pounded, must be mixed together for a Powder to be kept for Use.

Virtues.—This Powder is detersive, and consolidates the Ulcers of the Throat.—An Ounce of it is mixed in a Pint of Brandy, to touch often the Ulcers with it.

For the *Preparation of a Powder of the Emperor* Ferdinand *for the Plague.*—Take the Raspings of Harts horn, and the Seed of Lemons, of each six Drachms; three Drachms of the outward Peel of Seville Oranges; the Roots of white Dictamnum, and Cinnamon, of each two Drachms; Cloves, red Roses, Wood of Aloes, Mace, dried Marjoram, Juniper-berries, the Bone of a Stag's Heart, Tormentille-Root, yellow Sanders, of each a Drachm and half; the Seed of Coriander, and of St. Johnwort, of each half a Drachm: Pound together the Seed, Roots, Cinnamon, Cloves, Roses, the Hartshorn, Wood of Aloes, Marjoram, Juniper-Berries and the Sanders, for a Powder to be kept for Use.

Virtues.—This Powder is not only proper for the Plague, but likewise for all other Maladies where there is Malignity; it is sudorifick, and expels the Humours by Perspiration.—The *Dose* is from half a Scruple to two Scruples.

For the *Powder of Diarhodon, of the Abbot.*—Take two Ounces of dried red Roses; an Ounce of yellow Sanders, Liquorice, Aniseed, of each two Drachms; Cinnamon, Spikenard, the Raspings of Ivory, the Bone of a Stag's Heart, Saffron Mastich, small Cardamum, and Rhapontick, of each a Drachm; pound all these Drugs, according to our Method, and mix them afterwards together, for a Powder to be kept for Use.

Virtues.—This Powder is used to strengthen the Stomach

mach and Liver; it helps Digeſtion, and ſtops Vomiting. —The *Doſe* is from half a Scruple to two Scruples.

Pulvis Diatragacanthi Frigidi.—Take two Ounces of the beſt white Gum Adraganth, ten Drachms of Gum Arabick; Powder of Liquorice, and Starch, of each half an Ounce: Pound theſe Ingredients together according to our Method, for a Powder to be kept for Uſe.

Virtues.—This Powder is proper to ſoften the acrimonious Seroſities which fall on the Breaſt; to appeaſe a Cough, and to help Expectoration.—The *Doſe* is from half a Scruple to a Drachm.

Pulvis Diatragacanthi Calidi.—Take four Ounces of Gum Adraganth; Cinnamon and Hyſſop, of each ſix Drachms; dried Liquorice, and Magiſtery of Sulphur, of each half an Ounce; Ginger two Drachms, and Flowers of Benzoin, half a Drachm; for a Powder to be prepar'd according to our Method.

Virtues.—This Powder is good for the Aſthma, to facilitate Expectoration, ſtrengthen the Stomach, and help Digeſtion.——The *Doſe* is from a Scruple to a Drachm.

For the *Preparation of a Powder for the Piles*, or *Hemorrhoides.*—Take an Ounce of the beſt Wheat-Flower, half an Ounce of Crocus martis; oriental Bole prepared, the Root of Verbaſcum, of each two Drachms; white Hermodacts infuſed for a whole Night in Spirit of Wine, and dried again afterwards, dried Flowers of red Poppies, white Sugar-candy, Sanguis Draconis, Olibanum, of each a Drachm and a half: Let all theſe Drugs, after they have been pounded according to our Method, be mixed together for a Powder to be kept for Uſe.

Virtues.—This Powder ſtops the immoderate Flux of the Hemorrhoides, and reſolves thoſe which are tumified, when applied upon them: It is mixed with the White of an Egg, and the Paſte it forms ſpread on Flax.

For the *Preparation of the Powder of Verbaſcum for the ſame Diſtemper.*—Fill a Crucible with green Leaves of Verbaſcum, cover it with another Crucible, lute the Joints, and place the Veſſel in the Middle of lighted Coals, to reduce the Matter to a Sort of Coal, which may be eaſily reduced into Powder; take off the Crucible, and having pounded the Matter, mix with an Ounce thereof two Drachms of the beſt Rhubarb.

Virtues.—This Powder is proper to reſolve the Hemorrhoides, when applied on them, diſſolved in a little Saliva, or Spittle.

For the *Preparation of a Powder to embalm dead Corps.* Take twenty-ſix Pounds of Powder of Tan; Aloes, Myrrh, Judaical Bitumen, of each ſix Pounds; Roots of Cypreſs, Iris of *Florence*, round Ariſtoloch, Valerian, Gentian, Angelica, Imperatoria, and Ginger, of each four Pounds; Labdam, black Pepper, ſmall Cardamum, dried Leaves of Scordium, Wormwood, Thyme, white Marrubium, and Hyſſop, of each three Pounds: The Tan muſt be pounded by itſelf, and paſſed thro' a coarſe Sieve: The Roots, Leaves, Pepper, and Cardamum, by themſelves; the Labdanum, Myrrh, and Bitumen, by themſelves; and after all thoſe Ingredients have been paſſed thro' a coarſe Sieve, they muſt be all mixed together, and a Pound thereof paſſed again thro' a fine Sieve, to embalm the Heart.

This Powder is deſigned to embalm dead Bodies, after the Brain and Entrails have been taken out, and the Blood and other Humidities found in the Parts, abſorbed by Spunges, and all the inward Parts ſtewed with Spirit of Wine, and Oil of Aſpick. Care muſt be taken not to leave too much Humidity in the Bodies, which are to be embalmed, for it would liquify too much the Powders, and the Corruption would ſeize the Parts: The Spirit of Wine and Oil of Aſpick, are uſed here to penetrate the Fleſh, and unite it with the Powders, that they may form all together but one ſingle Body, and to reſiſt Corruption. It is very proper that the Powder the Heart is embalmed with ſhould be finer than the reſt, that it may penetrate eaſier its Subſtance; for that Viſcera being more eaſy corrupted than the other Parts of the Body, it requires more Precaution. The Body of the Powder is made to fill up the Cavities of the Corps to be embalm'd; after which the Skin is ſewed together, and the Body rubbed all over with Balſam of *Peru*; to hinder the Air from penetrating it, and to make the following Powder agglutinate.

Powder to wrap in a dead Body.—— Take Benzoin, Storax, Olibanum, Myrrh, Aloes, Labdanum, Judaick Bitumen, Varniſh, Tacamahaca, Iris of *Florence*, and the Wood of *Rhodium*, of each two Pounds; dried Orange-Peel, dried Summit of Marjoram, of Thyme, of Roſmarin, Flowers of Lavender, Caſſia Lignea, Cloves, of each half a Pound: Pound the Gums and Bitumen together; and the reſt of the Drugs together; mix the Ingredients thus pounded, and cover over the Body with it; rubbing it at the ſame Time with Balſam of *Peru*, ſo that a Cruſt may be form'd upon it, of the Thickneſs of a Finger's Breadth; wrap the Body thus embalmed in a Cere Cloth, and put it in a leaden Coffin, the Joints whereof muſt be exactly cloſed to hinder the Air from penetrating into it. When the Embalming is well done, the Drugs unite themſelves ſo well with the Parts of the Corps, that they form together but one Body, which may be called *Mummy*.

For the *Preparation of a Powder to cleanſe the Hands.* Take the Paſte of bitter and ſweet Almonds, after the Oil has been extracted from it, and Flower of Rice, of each ſix Ounces; Iris of *Florence*, and prepared Chalk, of each an Ounce; Benzoin, Sperma ceti, Salt of Tartar, of each two Drachms; and half an Ounce of the Wood of *Rhodium*; pounded and mixed together, for a Powder to be kept in a Pot, becauſe it is a little of the Conſiſtence of a Paſte.

Virtues.—This *Powder* cleanſes the Skin, renders it ſoft, white and ſmooth: It is uſed to cleanſe the Hands; it may be humected in the Hand with ſome Water of Orange-Flowers, inſtead of common Water; and rub the Hands with it, without humecting it any more, till the Paſte dries and falls off of itſelf; then the Hands are wiped with a Linen Cloth, wetted with ſome Water of Orange-Flowers.

TROCHES.

Trochiſcus is a *Greek* Word which ſignifies *Rotule.* It is alſo called *Placentula*, or *Orbis*, or *Orbiculus*, or *Parvus Panis*, or *Paſtillus*, this laſt Name being appropriated to a Sort of Troches, which are thrown into the Fire, to give an agreeable Smell to a Room, and correct the Malignity of the Air.—The *Arabs* have called *Fief*, the *Troches* uſed for the Maladies of the Eyes.—*Troches*, in general, are dried Compoſitions, compoſed of ſeveral Mendicaments reduced into Powder, and incorporated with Wine, or ſome diſtilled Water, or with Juices, or with Mucilages, or with Pulps, or with Syrups, in a pretty ſolid Conſiſtence. The Maſs is well pounded in a Mortar, that all the Ingredients may be well incorporated together, and is divided into little Bits, to which one may give what Figure one pleaſes, ſometimes long, ſometimes ſquare, ſometimes triangular, ſometimes round and flat, and ſometimes in ſmall Grains; and they are dried afterwards, that they may be kept without growing ſoft.

For the *Preparation of the Troches of Albandal.*—Take the whiteſt and lighteſt Apples of *Coloquintida*, open them, and having freed them of their Seeds, cut them into very ſmall Pieces, and moiſten them with Oil of ſweet Almonds, rubbing them between the Hands, to make the Oil penetrate, and hinder them from exhaling out of the Mortar, when pounded: Let them be well pounded in a Mortar, ſo as to be reduced into a very fine Powder; form the Powder into a Maſs, with a ſufficient Quantity of Mucilage, or in *Troches*, or in ſmall Bits, which muſt be put to dry from the Sun; when dry, they muſt be reduced again into a ſubtle Powder; and afterwards formed into new *Troches*, with a ſufficient Quantity of Mucilage of Gum Adraganth, which *Troches* ſhall be dried as before, to be kept.

Note, That a Pound of ſixteen Ounces of fine Coloquintida, produces, moſt commonly, five Ounces of Pulp, freed from the Seed. That Pulp being pounded, weighs four Ounces and half a Drachm; and the *Troches* dried, weigh exactly four Ounces and a half.

Virtues.—Theſe *Troches* are purgative, and purge particularly the coarſe Pituita, and all other coarſe Humours, they are preſcribed for the Apoplexy, Lithargy, Hydropſy, and to provoke the Menſes.—— The *Doſe* is from two Grains to half a Scruple in Pills.

Albandal is an *Arabic* Word which ſignifies Coloquitinda.

For the *Preparation of the Troches of Agarick.*—Take two Drachms of white Ginger bruised; put it to infuse in the Cold for 24 Hours in four Ounces of white Wine; strain it afterwards, then rasp and reduce into Powder half a Pound of the whitest and lightest Agarick you can find, reducing it afterwards into a Paste, in a Mortar, with a sufficient Quantity of the Infusion of Ginger; forming *Troches* of that Paste, and put them to dry from the Sun.

Virtues.—The *Troches of Agarick* purge particularly the Pituita of the Brain.—It is prescribed for the Apoplexy, Palsy, and Lethargy.——The *Dose* is from a Scruple to a Drachm.

Note, That I am of Opinion, that the *Troches of Agarick* is a needless Preparation, since the *Agarick*, in its natural State, produces as good an Effect: It suffices to chuse well that Drug before it is employ'd; and if one wants to correct it, nothing better for that Purpose than Sal-Armoniack; for it not only attenuates its purgative Substance, hindering it from Griping; but by its active and volatile Salt, it quickens it to rise with more Facility to the Brain, and to dissolve the coarse Pituita, which may chance to be there. A Scruple of Sal-Armoniack may be added to each *Dose* of Agarick.

For the *Preparation of Troches of Rhubarb.*—Take ten Drachms of the best Rhubarb; half an Ounce of bitter Almonds; three Drachms of red Roses; Spikenard, Anisseed, Wormwood, Asarum, of each a Drachm: Pound together the Rhubarb, Roses, Seeds, Wormwood, and Asarum; pound in a Marble Mortar the bitter Almonds, blanched, till they be reduced into a Paste; mix the Powders with it, and with a sufficient Quantity of Juice of Agrimony thicken'd over the Fire to the Consistence of Honey, make a Mass solid enough to be formed into little Troches, which must be put to dry from the Sun.

Virtues.—These *Troches* are used for the Obstructions of the Liver, Mysentery, and Spleen, and for the Loosenes. They purge gently in Binding.——The *Dose* is from a Scruple to four.

For the *Preparation of Troches of Alkekengi.*—Take two Ounces of dried wild Cherries or Berries of *Alkekengi*; Bol Armoniack, Olibanum, Dragon's Blood, Gum Arabick, Juice of Liquorice, Mastich, Succin, Amydon, or Starch, of each an Ounce; six Drachms of Gum Adraganth; Seeds of Hen-bane and Plantin, of each three Drachms; two Drachms of Opium; a Scruple of Salt of Saturn: Make of them all *Troches* in a sufficient Quantity of Mucilage of Gum Adraganth, extracted in the Juice of Alkekengi.

Virtues.—These *Troches* are thought proper for the Ulcers of the Reins, and of the Bladder, for the Disury, and for those that piss Blood; they provoke Sleep.——The *Dose* is from half a Scruple to two Scruples.

For the *Preparation of Troches of Ramich.*—Take the Nuts of Cypress, the Berries of Myrtle-Tree, Gum Arabick, of each an Ounce and a half; red Roses, yellow Sanders, of each ten Drachms; Sumach, Raspings of Ivory, of each an Ounce; Wood of Aloes, Cloves, Mace, Nutmegs, of each half an Ounce; and four Scruples of Camphire: Let all these Drugs be well pounded, according to our Method, and afterwards mixed in a sufficient Quantity of the Juice of Sorrel, to make a Mass, of which shall be formed *Troches*.

Virtues.—Those *Troches* strengthen the Stomach, the Heart, and Liver, appease the Cholera morbus, and stop the Hemorrhages.——The *Dose* is from a Scruple to a Drachm.

Ramich is an *Arabick* Word, which is thought to come by Corruption from *Rumex*, which signifies Sorell or Quince.

For the *Preparation of Troches against the Plague.*—Take three Drachms of Roots of Angelica; Tormentille, Iris of *Florence*, Zedoaria, and dried Lemon-Peel, of each two Drachms; Ginger, Coriander, red Roses, of each one Drachm; Mace, Cinnamon, Cloves, of each half a Drachm; and a sufficient Quantity of the Extract of Juniper-Berries, to form a Mass of all the Ingredients when pounded, to be formed into *Troches*.

Virtues.—These *Troches* are not only proper for the Plague, but for all the Maladies attended with Malignity; and serve as Preservative against the bad Air.——The *Dose* is from a Scruple to a Drachm.

Trochisci Galliæ Moschatæ.—R. *Ligni Aloes optimi, Drach.* 5. *Ambræ Griseæ, Drach.* 3. *Moschi orientalis, Drach.* 1. Pound the Wood of Aloes by itself, and reduce it into a subtle Powder; the Musk and Ambergrease by itself: Mix the Powders, and reduce them into a solid Paste, with a sufficient Quantity of the Mucilage of Gum Adraganth, extracted in Rose-Water; whereof *Troches* are to be form'd, which must be dried from the Sun.

Virtues.—These *Troches* strengthen the Stomach, repair the exhausted Strength, and stop Vomiting.——The *Dose* is from eight Grains to a Scruple. They can be used, likewise, with some Water of Orange-Flowers, to perfume a Room or Cloaths.

These aromatical Preparations are not to be prescribed to Women, because of the Perfumes which could provoke the Hystericks.

For the *Preparation of Troches of Camphire.*—Take a Drachm of Camphire, Myrrh, Assa Fœtida, Castoreum, of each half an Ounce; three Drachms of Spikenard; a Drachm of Saffron, half a Scruple of Opium; and eight Drops of the Oil of Succin; when all the Drugs which are to be reduced into Powder have been pounded, let all the Ingredients be mixed in a sufficient Quantity of the Mucilage of Gum Adraganth, extracted in Water of Matricaria, for a Mass, of which are formed *Troches*.

Virtues.—These *Troches* are sometimes prescribed in violent Fevers, to temperate the Heat of the Bile and of the Blood, for the Pleurisy, and hectick Fevers: But their more frequent Use is for the Vapours and the Hystericks.——The *Dose* is from a Scruple to two: They are also mixed in Clysters from half a Drachm to two Drachms.

For the *Preparation of hysterick Troches.*—Take Assa Fœtida, Galbanum, of each two Drachms and a half; a Drachm and a half of Castoreum; Asarum, Savern, Aristoloch, Matricaria, of each a Drachm; half a Drachm of Dictamnum: Whereof *Troches* are made (after the Drugs have been pounded according to our Method) in the Juice or Decoction of Rue.

Virtues.—These *Troches* are proper to abate the hysterick Vapours, to provoke the Menses, for the Green-Sicknesses, and to expel the After-Birth.——The *Dose* is from a Scruple to two.

For the *Preparation of Troches of Myrrh.*—Take the best Myrrh, Lupins pared, of each five Drachms; dried Leaves of Rue, Dictamnum of *Crete*, Cummin-Seed, Assa Fœtida, Sagapenum, Opoponax, of each two Drachms: After all these Drugs have been pounded together, according to our Method; reduce them into a hard Mass with the Juice of Mugwort, or of Rue, boiled to the Thickness of a Mucilage; whereof you'll form *Troches*.

Virtues.—These *Troches* provoke the Menses, help the Delivery, expel the After-Birth, and abate the Vapours. The *Dose* is from a Scruple to a Drachm.

For the *Preparation of Troches of Barberries.*—Take two Ounces of Berries of Oxyacantha; an Ounce of red Roses; the Gums Adraganth, and Arabick, Spodium, Starch, and the Seeds of Pumpkins, of each two Drachms; and half a Drachm of Salt of Saturn; pounded, according to our Method, and mixed with the Juice of Barberries, boiled to the Consistence of Mucilage, to reduce them into a Mass, of which are formed *Troches*.

Virtues.—These *Troches* appease the violent Heat of a Fever, stop the Loosenes, Hemorrhages, and the Gonorrhœa.——The *Dose* is from a Scruple to a Drachm.

Narcotick Troches.—Take six Drachms of *Ceruse*; Starch, the Gums Arabick and Adraganth, of each half an Ounce; two Drachms of Laudanum; and half a Drachm of Saffron, pounded and mixed together in a Mucilage of the Seed of *Psyllium*, extracted in Rose-Water, to form a Mass for *Troches*.

Virtues.—These *Troches* are applied outwardly, *viz.* on the Forehead for the Head-ach; between the Teeth for the Tooth-ach; and on the other Parts where there is Pain and Inflammation.—They are reduced into Powder, and moistened with a Liquor appropriated to the Malady.

For the *Preparation of the Troches of Karabe.*—Take an Ounce of Succin, or Karabe, Hartshorn burnt,

burnt, Gums Arabick and Adraganth, Acacia, Hypocistis, Mastich, prepared Coral, Gum lacca, and the Seed of Poppies, of each two Drachms, two Scruples; Olibanum, Saffron, Opium, of each two Drachms: Let the Succin and Hartshorn be ground together on the Porphyr, till they be reduced into an impalpable Powder; pound together in a Mortar made warm, the Gums Arabick and Adraganth; the Saffron and Seed together, and the Mastich and Gum lacca together: The Opium Acacia, and Hypocistis, shall be well bruised, and put in an earthen Porringer, pouring over them about two Ounces of Mucilage of the Seed of Psyllium extracted in Plantain-Water; the Porringer must be placed over a slow Fire, and when the Matter is liquified, the Powders shall be mixed with it, and the Mixture put afterwards in a Mortar, to be pounded a long Time, to form of it a solid Mass, proper for *Troches*.

Virtues.—These Troches are good to stop Hemorrhages, as spitting of Blood, bleeding at the Nose, the Dysenteria, the immoderate Flux of the Menses and of the Hemorrhoides: They are also prescribed for the Diarrhœa, Lienteria, and the Gonorrhœa; they provoke Sleep.—The *Dose* is from half a Scruple to two Scruples.

For the *Preparation of the Troches of Gordon reformed.*—Take Bol armoniack, Sanguis draconis, Spodium, red Roses, Myrrh, of each half an Ounce; Gums Arabick and Adraganth, Pearl-barley, Myrtle-berries, and Liquorice, of each two Drachms; the Seeds of white Poppies, of Cotton, of Porcelain, and of Quinces, of each a Drachm: Let all the Drugs be pounded, according to our Method, and mixed afterwards with a sufficient Quantity of Mucilage of Seed of Psyllium prepared in Plantain-Water for *Troches*.

Virtues.—These *Troches* are thought proper for the Ulcers of the Reins and of the Bladder, for those who piss Blood, to soften the Acrimony of a Clap, and for the Diabetes.—The *Dose* is from a Scruple to a Drachm.

Troches for a Gonorrhœa.—Take two Drachms of Bol armoniack, prepared Succin, and the Raspings of Ivory, of each a Drachm and a half; four Scruples of Plantain-Seed; Agnus castus, Lattuces, Flowers of Pomegranate, red Roses, of each a Drachm; and two Scruples of Sassafras, pounded according to our Method, and mixed together in a Mucilage of the Seed of Quinces, prepared in Water of Nenuphar, to form a Mass for *Troches*.

Virtues.—These *Troches* are proper to dry the small Ulcers of the Urethra, to strengthen the spermatick Vessels, and to stop the Gonorrhœa.—The *Dose* is from a Scruple to a Drachm.

Troches for the Asthma.—Take nine Ounces of white Sugar-candy; an Ounce and a half of Starch, Iris of *Florence*, and Magisterium of Sulphur, of each half an Ounce; three Drachms of Liquorice, and two Scruples of Flowers of Benjoin, pounded according to our Method, and mixed in a Mucilage of Gum Adraganth extracted in Rose-Water, to form a hard Mass for Troches.

Virtues.—These Troches are excellent for the Asthma, for an inveterate Cough, to help Respiration, and Expectoration.—The *Dose* is from half a Drachm to a Drachm.

Note, That the Iris, Magisterium of Sulphur, and the Flowers of Benzoin which enter this Composition, serve to rarify and attenuate by their subtile Parts, the Pituita or other coarse Matter, which embarassing the Fibres of the Lungs and of the Diaphragm, hinders it from extending itself sufficiently for a free Respiration; the same Ingredients help to loosen the Phlegms of the Brain and of the Breast, and dispose them for Expectoration.

For *black Bechick Troches*—Take one Pound of Sugar-candy, four Ounces of Liquorice-Juice, Pearl-barley, and Starch, of each an Ounce; Iris of *Florence*, Gums Arabick and Adraganth, of each half an Ounce; pounded according to our Method, and mixed in a Mucilage of the Roots of Althæa, to form of it Rotules or Pastilles.

Virtues.—They are proper to attenuate and dissolve the Pituita, to help Respiration and Expectoration, to soften the Acrimony of the Breast, and Trachæa, and for the Cold.—They are left to melt gently in the Mouth.

For *red Bechick Troches.*—Take five Ounces of red Sugar-candy, an Ounce of Bol armoniack, half an Ounce of Starch, Iris of *Florence*, and Gum arabick, of each a Drachm, pounded according to our Method, and mixed in a sufficient Quantity of Poppies rhæas boiled to the Consistence of Syrup, for *Troches*.

Virtues.—They are proper to stop Catarrhs caused by subtile or serous Humours, and for spitting of Blood.—The *Dose* is from a Drachm to a Drachm and a half.

Anodine Troches.—Take half an Ounce of Laudanum, Castoreum, Myrrh, and Saffron, of each two Drachms; and a Scruple of Camphire, pounded according to our Method, and mixed in a Mucilage of Gum Adraganth, extracted in the Juice of Henbane, for *Troches*.

Virtues.—These *Troches* are proper to appease Pains in whatever Part of the Body they be, to abate the Vapours, to provoke Sleep and Sweat.—The *Dose* is from four Grains to half a Scruple.

Troches to stop the vomiting of Blood.—Take red Roses, the Seeds of Henbane, Flowers of Pomegranate, oriental Bol, Acacia, Gum arabick, Opium, an equal Quantity of each, pounded or prepared according to our Method, and mixed in a Mucilage of Gum Adraganth extracted in Water of Porcelain, to form a Mass for *Troches*.

Virtues.—These *Troches* are proper to stop all Sorts of Hemorrhages, and to appease excessive Pains.—The *Dose* is from eight Grains to a Scruple.

Troches to stop the immoderate Flux of the Piles.—Take ten Drachms of Bdellium, five Drachms of Myrabolans, three Drachms of the Seeds of Leek, prepared Coral, prepared Succin, prepared Bol armoniack, calcined Shells, of each two Drachms; pounded according to our Method, and reduced into a hard Mass, with a Mucilage of Gum Adraganth, extracted in Rose-Water, for *Troches*.

Virtues.—They are astringent, and may be used to stop a Looseness, and all Sorts of Hemorrhages.—The *Dose* is from half a Drachm to two Drachms.

Troches for a Diarrhœa.—Take the Seeds of Sorrel, Barberies, Myrtles, Chesnuts, Amydon or Starch, and Spodium, of each five Drachms; Succin and Coral, of each three Drachms; pounded according to our Method, and mixed with a Mucilage of Gum Adraganth, prepared in Rose-Water, to form a Mass for *Troches*.

Virtues.—They are proper to stop a Loosenes, and Hemorrhages.—The *Dose* is from half a Drachm to two Drachms.

Troches for the Diabetes.—Take the Berries of Myrtle-tree and the Seed of Sorrel, of each two Ounces; Gum Arabick and Starch, of each an Ounce, pounded; and mixed with a Mucilage of Seed of Psyllium, for *Troches*.

Virtues.—They stop the immoderate Flux of the Urine, by strengthning the Conduits of the Bladder, and are also good for spitting of Blood.—The *Dose* is from a Scruple to a Drachm.

Troches for the Pleurisy.—Take four Ounces of the Blood of a He-goat prepared, an Ounce of Olibanum, Liquorice-Juice, the Livers and Hearts of Vipers, and the diaphoretick Mineral, of each half an Ounce; pounded and mixed together in a sufficient Quantity of Syrup of wild Poppies, to form a Mass for *Troches*.

Virtues.—These *Troches* are proper for the Pleurisy, to help Expectoration, to provoke Sweat and the Urine.—The *Dose* is from a Scruple to a Drachm and a half, in the Water of Carduus benedictus, or of Scorsonnaria.

These *Troches* produce no good Effect, when they are given at the Beginning of the Pleurisy, because then the Humours are too crude; for at that Time the Vessels must be emptied, by often bleeding, and administring to the Patient pectoral Syrups, Tizanes, and Juleps, to prepare and soften the Humours; and when it is perceived that the Dejections shew some Coction, which happens about the seventh Day at the Time of the Crisis, then the *Troches* must be given, and will produce a good Effect; for they expel the rarified Humours, by Perspiration, or the Urine, and help Expectoration.

Troches of Kermes.—Take two Ounces of the Grains of Kermes, Raspings of Hartshorn, Lemon-peel, red Sanders, prepared Coral, Succin, diaphoretick Mineral, and the Trunks of Vipers dried, of each two Drachms; pounded

pounded according to our Method, and mixed together afterwards in a ſufficient Quantity of Syrup of Kermes, to form a Maſs for *Troches*.

Virtues.—Theſe *Troches* are proper to ſtrengthen the Stomach, purify the Blood, and prevent Abortion.—The *Doſe* is from a Scruple to a Drachm and a half.

PILLS.

PILULA, is a Diminutive of *Pila*, *quaſi parva pila*, becauſe *Pills* are formed in little Balls. The *Greeks* called them *Catapotia*, from the Verb καταπινω, *devoro*, becauſe they are ſwallowed without chewing.

PILLS, have been invented for two principal Reaſons. 1. That in that Form ſeveral Remedies may be taken eaſily, which would be very inſupportable to the Taſte, if taken in another Manner, as the Aloes, Coloquintida, Agarick, Turpentine, *&c.* or would ſtick to the Teeth, and perhaps ſhake them, as the Mercurius dulcis, and all other mercurial Preparations; and there are even ſo many Patients ſo very nice, that they would not take any Remedy ever ſo little diſagreeable, if they were not reduced into Pills.—2. That the Remedy being taken dry, may remain longer in the Viſcera, and have more Time to communicate its Virtues to the diſtant Parts, as to the Head and Joints. Moſt *Pills* are *purgative*; but there are alſo ſome *alterative*, *aſtringent*, *ſomniferous*, *diaphoretick*, *aperitive*, *hyſterick*, *cephalick*, *bechick*, *arthritick*. *Pills* are otherwiſe preſerved than Troches; for inſtead that the *Troches* are made as ſoon as the Maſs is made, that they may be dried, the Maſs of the *Pills* is kept, that the Drugs it is compoſed of may ferment together; and therefore are only formed as they are wanted. But it muſt be obſerved, that when the Maſs of *Pills* has been made with Juices or other Liquors, without Sugar or Honey, it grows ſo hard ſoon afterwards, that it muſt be reduced into Powder, and mixed anew with a Liquor to form *Pills* thereof; which happens becauſe the Liquors corporify, and dry without growing moiſt again; whereas when Syrup or Honey has been uſed, the Maſs cannot dry ſo much, becauſe the Honey and Syrup contain a great deal of Salt, which take eaſily the Humidity of the Air, which keeps that Compoſition in the Conſiſtence it muſt have.—It is much more advantageous that the Maſs of *Pills* ſhould remain ſoft, than too hard, becauſe the Fermentation is much better made in the Humidity than in Dryneſs. As *Pills* could communicate a bad Taſte in paſſing through the Palate; they are wrapped in Wafers, or in Gold or Silver Leaves, or in Powder of Liquorice, *&c.*

Pilulæ Cocciæ majores.—Take ſix Drachms of Jalap, half an Ounce of Troches of Alhandal, three Drachms of Scammony, two Drachms of ſoluble Tartar, and a Drachm of Aloes; reduce all theſe Drugs into Powder, and form a Maſs of them with a ſufficient Quantity of Syrup of Stechas, or Juice of Wormwood, for *Pills*.

Virtues.—Theſe *Pills* purge all Humours, but particularly the Pituita; therefore they are preſcribed to purge the Brain.—The *Doſe* is from a Scruple to a Drachm.

Pilulæ coccia minores, ſeu mirabiles.—Take Aloes ſuccotrina, the beſt Scammony, Troches of Alhandal, equal Parts of each: Let the Scammony and Aloes be pounded together into a very ſubtile Powder, in a Mortar anointed with ſome Drops of Oil, reducing alſo into Powder the Troches of Alhandal; and mixing afterwards all the Ingredients together with Syrup of Roſes compoſed with Agarick, to form a Maſs for *Pills*.

Virtues.—Theſe *Pills* are proper to purge all Humours, but they are chiefly uſed to purge the Brain.—The *Doſe* is from half a Scruple to two Scruples.

Note, That all is purgative in this Compoſition.—*Half a Scruple* of the *Pilulæ coccia minores*, contain of Aloes, Scammony, and Troches of Alhandal, of each three Grains.—A *Scruple*, ſix Grains of each.—*Half a Drachm*, nine Grains of each.—*Two Scruples*, half a Scruple of each.

Pills of Agarick.—Take an Ounce of the beſt Agaric; Aloes, and Turbith, of each half an Ounce; Troches of Alhandal, and ſoluble Tartar, of each two Drachms; and a Drachm of Iris of *Florence*; to be pounded and mixed afterwards together with a ſufficient Quantity of Syrup of Roſes compoſed with Agarick, to form a Maſs for *Pills*.

Virtues.—Theſe *Pills* purge particularly the coarſer Pituita of the Brain, and of the other Parts of the Body; and are proper for the Aſthmaticks.—The *Doſe* is from one Scruple to four.

Golden Pills.—Take ſix Drachms of Aloes Succotrina, five Drachms of Scammony, two Drachms of ſoluble Tartar; Troches of Alhandal and Saffron, of each an Ounce, pounded, and mixed afterwards with a ſufficient Quantity of ſolutive Syrup of Roſes, to form a Maſs for *Pills*.

Virtues.—Theſe *Pills* purge all Humours.——The *Doſe* is from a Scruple to a Drachm.

Golden Pills of Turbith.—Take an Ounce and a half of Aloes Succotrina, ten Drachms of Citron myrabolans, an Ounce of Turbith; Saffron, and ſoluble Tartar, of each three Drachms, pounded, and afterwards mixed together, with a ſufficient Quantity of Wormwood to form a Maſs for *Pills*.

Virtues.—Theſe *Pills* purge and ſtrengthen the Stomach; they are proper for the Colick, and to provoke the Menſes.——The *Doſe* is from a Scruple to a Drachm and a half.

The purgative and eſſential Drugs of this Compoſition are the Aloes, Scammony, and Turbith.

Pills of Aloes and Maſtich.—Take two Ounces of Aloes Succotrina, half an Ounce of Maſtich, and four Scruples of Diactamnum, pounded and mixed together with a ſufficient Quantity of Syrup of Wormwood, to form a Maſs for Pills.

Virtues.—Theſe Pills purge the Bile, and the Pituita.——The *Doſe* is from a Scruple to a Drachm and a half.

Pilulæ angelicæ.—Take half a Pound of Extract of Aloes, half an Ounce of Rhubarb, two Drachms of Troches of Agarick, and a Drachm of Cinnamon: Let the Rhubarb, Agarick and Cinnamon be pounded together; mix the Powders with the Extract of Aloes, and a ſufficient Quantity of Honey of Roſes to make a ſolid Maſs, to form of it Grains or ſmall Pills when wanted; they are called angelick Grains, or Grains of Life, becauſe of their Virtue.

Virtues.—They purge the Bile and other Humours; and are taken in eating.——The *Doſe* is from half a Scruple to a Drachm.

Stomachick Pills.—Take half a Pound of Extract of Aloes, prepar'd in the Juice of Wormwood; an Ounce of Extract of black Hellebore; Reſine of Jalap, and ſoluble Tartar, of each half an Ounce; pounded and mixed together with a ſufficient Quantity of *Elixir Proprietatis*, to form a Maſs for Pills.

Virtues.—They purge violently all the Humours, but more particularly the melancholick Humour.——The *Doſe* is from half a Scruple to half a Drachm.

Common Pills.—Take two Ounces of Aloes Succotrina; an Ounce of Myrrh; and half an Ounce of Saffron; pounded, according to our Method, and mixed with a ſufficient Quantity of ſtrong red Wine to form a Maſs for Pills.

Virtues.—They purge in Strengthening, and provoke the Menſes.

The only and eſſential Purgative of this Compoſition, is the Aloes.

Pilulæ ſine quibus.—Take an Ounce and ſix Drachms of Aloes Succotrina; five Drachms of Diacrydium; Agarick, Rhubarb, and Senna, of each half a Drachm; ſoluble Tartar, and the Seed of Violets, of each two Drachms; pounded, and mixed with a ſufficient Quantity of Syrup of Fennel, to make a Maſs for Pills.

Virtues.—Theſe Pills purge all Humours, and particularly the Pituita: They are preſcribed for the Maladies of the Eyes and of the Ears.—The *Doſe* is from twenty Grains to two Scruples.

Hepatick Pills.—Take half a Pound of Extract of Aloes; an Ounce of the beſt Rhubarb; and two Drachms of yellow Sanders; pounded and mixed together with Syrup of Roſes to form a Maſs for Pills.

Virtues.—They purge particularly the bilious Humours, raiſe the Obſtructions, and provoke the Menſes; they are taken in Eating, or immediately before a Meal.—The *Doſe* is from half a Scruple to a Drachm.

Sanders are needleſs in this Compoſition.—As the Maladies of the Liver proceed moſt commonly from the Obſtructions formed in it by Degrees; theſe Pills are excellent

cellent for those Maladies; for they rarify the Blood and the Humours in such a Manner, that they force and open the Passage of the Vessel obstructed; which Fermentation, or Rarefaction, is caused by an acrimonious Salt contained in the Aloes.

Pills of Rhubarb.—Take two Ounces of the best Rhubarb; an Ounce of Aloes Succotrina; half a Drachm of Citrin Mirabolans; and three Drachms of soluble Tartar; pounded, according to our Method, and mixed with a sufficient Quantity of Syrup of Chicory composed with Rhubarb, for Pills.

Virtues.—They are esteemed proper to purge coarse and viscous Humours: They are prescribed for obstinate and rebellious Fevers.——The *Dose* is from a Scruple to four.

Catholick Pills.—Take two Ounces of Aloes Succotrina; an Ounce and a half of the best Rhubarb; Troches of Agarick and Senna, of each an Ounce; and half an Ounce of soluble Tartar; pounded according to our Method, and mixed with Syrup of Violets, or of Roses, into a Mass for Pills.

Virtues.—These Pills purge all Humours, strengthen the Stomach and Brain, and raise the Obstructions.——The *Dose* is from a Scruple to a Drachm.

Pills for the Dropsy.—Take two Ounces and a half of Aloes Succotrina; an Ounce and a half of Gum-Gut, reduced into a subtle Powder, and dissolved in Wine of Malmsey; an Ounce of Diacrydium prepared in the same Manner; an Ounce and a half of the best Gum Ammoniack; and half an Ounce of vitriolated Tartar; pounded and mixed together in solutive Syrup of Roses to make a Mass for Pills.

Virtues.—These Pills are proper to raise the Obstructions of the Spleen, and Mesentery; for the Hydropsy: They purge powerfully.——The *Dose* is from half a Scruple to a Scruple.

The purgative Drugs of this Composition, are the Aloes, Gum Gut, and Diacrydium.—A Scruple of these Pills, contains seven Grains of Aloes, four Grains of Gum Gut, and about three Grains of Diacrydium. Half a Drachm contains ten Grains and a half of Aloes, six Grains of Gum Gut, and about four Grains and a half of Diacrydium. Two Scruples contain fourteen Grains of Aloes, eight Grains of Gum Gut, and about six Grains of Diacrydium.

The Preparation given here to the Gum Gut, and to the Diacrydium, by humecting them with Wine, to grind them on the Porphyry, seems to me needless; since it suffices to reduce those Gums into a very subtle Powder, to mix them exactly with the other Drugs.

Pills of Tartar.—Take Crystal of Tartar, and Gum Ammoniack, of each an Ounce and a half; and six Drachms of Aloes Succotrina, pounded and mixed together with a sufficient Quantity of Syrup of Barberries for Pills.

Virtues.—These Pills are proper to purge gently the Bile and Melancholy, to dissolve the Glands of the Mesentery, and the Hardness of the Spleen, to raise the Obstructions and excite the Menses.——The *Dose* is from half a Drachm to two Drachms.

Pilulæ Polychrestæ majores.—Take two Ounces of Aloes Succotrina; an Ounce and a half of Turbith; an Ounce and a half of Myrabolans of the *Indies*; Hermodacts, Gum Ammoniack, soluble Tartar, of each two Drachms; pounded and mixed with Syrup of Roses for Pills.

Virtues.—They purge the coarse Pituita; and are prescribed for the Sciatica, the Cholick, and the Head-ach. The *Dose* is from a Scruple to a Drachm and a half.

Pilulæ Polychrestæ minores.—Take an Ounce and a half of Aloes Succotrina; ten Drachms of Citrin Mirabolans; five Drachms of the best Rhubarb; pounded according to our Method, and mixed together with Syrup of Chicory composed with Rhubarb, to form a Mass for Pills.

Virtues.—They purge the Bile and Pituita, strengthen the Stomach, and cure the Fevers.——The *Dose* is from one Scruple to four.

Pilulæ Mochlicæ.—Take two Ounces of Aloes Succotrina; Senna, and the Root of black Hellebore, of each an Ounce and a half; Turbith, Hermodacts, Agarick, and Jalap, of each six Drachms; Troches of Alhandal, Rhubarb, Opoponax, Sagapenum and Bdellium, of each three Drachms; two Drachms of Salt of Wormwood; pounded and mixed together with a sufficient Quantity of solutive Syrup of Roses, to form a Mass for Pills.

Virtues.—These Pills purge all the Humours with Violence; they are prescribed for the hypocondriacal Melancholy, Hydropsy, the Retention of the Menses, Apoplexy, Palsy, and Lethargy.——The *Dose* is from half a Scruple to half a Drachm.

Magistral Pills of Gum Ammoniack.—Take two Ounces of the best Gum Ammoniack in Powder; an Ounce and a half of the best Aloes; Myrrh, Mastich, Benzoin, of each half an Ounce; and two Drachms of Crocus Martis; pounded according to our Method; and reduced into a Mass with a sufficient Quantity of Syrup of Wormwood for Pills.

Virtues.—These Pills purge gently the coarse and tartarous Humours of the Body, raise the Obstructions, are proper for the Cachexy, the Hardness of the Spleen and Liver, the Quartan Ague, and the Retention of the Menses.——The *Dose* is from half a Drachm to two Drachms.

Hysterick Pills.—Take ten Drachms of Extract of Aloes, prepared with the Juice of Mugwort; Myrrh, Vitriol of *Mars*, and Salt of Mugwort, of each two Drachms; Castoreum, Camphire, and Leaves of Rue, of each two Scruples; pounded according to our Method; and mixed together with Juice of Mugwort for Pills.

Virtues.—They purge and abate the Vapours, cleanse the Matrice of its Impurities, by unstopping the Obstructions, and provoke the Menses.——The *Dose* is from a Scruple to a Drachm and a half.

There is properly here but the Extract of Aloes, which can be called Purgative; the other Drugs helping only the Aloes to rarify the Blood, and raise the Obstructions.

Arthritick Pills.—Take two Ounces and a half of Aloes Succotrina; half an Ounce of Scammony; Hermodacts, Turbith, Agarick, Troches of Alhandal, Mercurius Dulcis, and soluble Tartar, of each two Drachms; pounded according to our Method; and reduced into a Mass for Pills, with the Syrup of Roses.

Virtues.—These Pills are thought proper particularly to purge the Joints; they are prescribed for the Gout and Rheumatism.——The *Dose* is from half a Scruple to two Scruples.

The Reason why the *Arthritick Pills* purge the Joints, is because being composed of dry Remedies, and full of volatile Parts, they remain a long while in the *Viscera*, and have Time to spread their Substance on all Sides.

Pills of Hellebore.—Take two Ounces of the Roots of black Hellebore, Senna, and Hermodacts, of each an Ounce and a half; and a Drachm of Troches of Alhandal, pounded according to our Method, and reduced into a Mass for Pills, with a sufficient Quantity of Syrup of the Flowers of Peach-Trees.

Virtues.—These Pills purge the serous Humours of the Joints, and of the Head; and are prescribed for the hypocondriacal Melancholy, for the Quartan Ague, Epilepsy, and Mania.—The *Dose* is from half a Scruple to two Scruples.

Mercurial Pills.—Take Quick-silver, and Aloes Succotrina, of each six Drachms; half a Drachm of Troches of Agarick; and two Drachms of the best Rhubarb; let the Quick-silver be extinguished in a sufficient Quantity of Turpentine of *Venice*; and mix afterwards the Powders with it to form a Mass for Pills.

Virtues.—These Pills purge the bilious Humours, and the Serosities; they are prescribed in the Venereal Disease, for the Sciatica, the Itch, Leprosy, the Obstructions, and the King's Evil.——The *Dose* is from a Scruple to a Drachm.

Pilulæ fœtidæ majores.—Take the Gums Ammoniack, Opoponax, Sagapenum, Aloes Succotrina, Troches of Alhandal, of each five Drachms; half an Ounce of the best Turbith; three Drachms of the best Scammony; Hermodacts, Castoreum, Saffron, Salt of Mugwort, of each two Drachms; two Scruples of the Oil of Succin; pounded and prepar'd according to our Method; and reduced into a Mass for Pills with a sufficient Quantity of Syrup of St. John-wort.

Virtues.—These Pills rarify and evacuate the coarse Pituita, and raise the Obstructions; they provoke the Menses,

Menses, and are prescribed for the Gout, the Colick, the Hydropsy, the Rheumatism, and the Vapours. The *Dose* is from a Scruple to two.

These Pills are called *fœtid*, because of the Castoreum and Gums of ill Smell.

Pilulæ fœtidæ minores.—Five Drachms of Turbith; six Drachms of Troches of Alhandal; Gums Ammoniack, Opoponax, Sagapenum, Myrrh, soluble Tartar, of each three Drachms; and a Drachm of Oil of Succin; pounded according to our Method; and reduced into a Mass for Pills, with Syrup of the Juice of Leeks.

Virtues.—These Pills purge the Pituita of the Brain and the Serosities, raise the Obstructions, and provoke the Menses. The *Dose* is from a Scruple to a Drachm.

Pills of Sagapenum.—Take Sagapenum and Troches of Alhandal, of each an Ounce; half an Ounce of Diacrydium; and a Drachm and a half of Salt of Tamarisch; prepared according to our Method; and reduced into a Mass for Pills, with a sufficient Quantity of Syrup of Violets.

Virtues.—These Pills purge particularly the tartarous or melancholick Humour, and raise the Obstructions; they are prescribed for a Quartan Ague; a Pill thereof, of the Bigness of a Pea, being given at the Beginning of the Paroxism, and the Use thereof continued till a perfect Cure.——The common *Dose* is from a Scruple to a Drachm.

Indian Pills.—Take an Ounce and a half of Aloes Succotrina; black Hellebore, and *Indian* Mirabolans, of each five Drachms; Troches of Alhandal, and Agarick, of each half an Ounce; and three Ounces of Salt of Tamarisch; pounded according to our Method; and reduced into a Mass for Pills, with a sufficient Quantity of solutive Syrup of Roses.

Virtues.—These Pills purge vigorously, particularly the tartarous melancholick Humours; it is prescribed to the Hypochondriacks, for the yellow Jaundice, for the Maladies of the Spleen, and the Quartan Ague.——The *Dose* is from a half Scruple to half a Drachm.

Pills for the Colick of M. *d'Aquin.*—Take three Ounces of Extract of Aloes; an Ounce and a half of Agarick; an Ounce of the best Rhubarb; six Drachms of the Liver of a Wolf, prepar'd; half an Ounce of Summits of Wormwood; the Powder of Diarrhodon Abbatis, Salt of Wormwood, and Nutmegs, of each a Drachm and a half; pounded and prepar'd according to our Method; and reduced into a Mass for Pills, with a sufficient Quantity of Syrup of Chicory composed with Rhubarb.

Virtues.—They purge gently all the Humours, and are prescribed particularly for the Colick.——The *Dose* is from a Scruple to a Drachm.

The purgative Ingredients of this Composition are the Extract of Aloes, the Rhubarb and Agarick.

Pills for the Mania.—Take two Ounces of white Hellebore dried and reduced into a fine Powder; and an Ounce of Extract of Opium; mixed together with a sufficient Quantity of Oil of Tartar, *per deliquium*, and of Oil of Turpentine, to form a Mass for Pills.——The *Dose* is from eight Grains to half a Scruple.

Pilulæ de Euphorbio.—Take two Ounces of old Treacle; the Roots of Angelica, and Tormentille, of each a Drachm and half; prepared Euphorbium, and the Confections Hyacinth, and Alkermes, each an Ounce; Extract of Saffron, and of Nux Vomica, of each two Drachms; mixed together into a Mass for Pills.

Virtues.—These Pills are sudorifick and diuretick; they resist the Plague, and all the Maladies where there is Venom.——The *Dose* is from half a Scruple to half a Drachm.

Pilulæ de tribus.—Take an equal Quantity of Rhubarb, of Aloes Succotrina, and of Troches of Agarick; pounded according to our Method, and reduced into a Mass with the solutive Syrup of Roses.

Virtues.—These Pills purge the Pituita and the Bile, strengthen the Stomach, and provoke the Menses.——The *Dose* is from a Scruple to a Drachm.

Pilulæ de duobus.—Take equal Parts of Troches of Alhandal, and of Scammony, pounded, and reduced into a Mass for Pills, with the solutive Syrup of Roses.

Virtues.—These Pills purge the coarse Pituita, and the Serosities, and disengage the Brain. They are prescribed for the Gout and the Hydropsy.——The *Dose* is from eight Grains to a Scruple.

Pilulæ Hydragogæ.—Take half an Ounce of Turbith-Mineral; Troches of Alhandal, and black Hellebore, of each four Drachms; Rhubarb and Elaterium, of each two Drachms; a Drachm of Crocus Metallorum; and half a Drachm of Spirit of Vitriol dulcified; pounded and reduced into a Mass for Pills, with the solutive Syrup of Roses.

Virtues.—These Pills purge violently upwards and downwards; they are prescribed for the Hydropsy and Mania; for the hypochondriacal Melancholy, for the Pox, Scurvy, and King's Evil.—The *Dose* is from half a Scruple to half a Drachm.

Arabick Pills.—Take two Ounces of Aloes Succotrina, dried Root of Briony, the five Species of Myrabolans, Mastich, Asarum, Diacrydium, Roses, of each half an Ounce; a Drachm and a half of Castoreum; and half a Drachm of Saffron; pounded according to our Method; and reduced into a Mass for Pills with the Juice of Fennel depurated.

Virtues.—These Pills purge all the Humours; they are prescribed to abate the Vapours, to excite Mirth, to clear the Sight, to cure the Head-ach, and to provoke the Menses.

The purgative and essential Ingredients of this Preparation are the Aloes, the Root of Briony, the five Myrabolans, the Asarum, and Diacrydium.

The Mastich and Roses are needless in this Composition; therefore I am of Opinion that they should be retrenched.

Cephalick Pills.—Take of the Mass of *Pilulæ Coccias*, and Scammony, of each six Drachms; black Hellebore, and vitriolated Tartar, of each three Drachms; prepared according to our Method, and reduced into a Mass with Syrup of Roses composed with Agarick.

Virtues.—These Pills purge and strengthen the Brain; are proper for the Hypochondriacks, the Mania, Epilepsy, and Vertiges.——The *Dose* is from half a Scruple to half a Drachm.

Pilulæ de Opoponace. Mesvé. ℞. *Aloes Succotrina*, ℥ j. ss. *Trochiscorum Alhandal, Hermodactylorum, Opoponacis, Sagapeni, Bdellii, Ammoniaci, ā* ʒ v. *Myrabolanorum Emblicorum, Citrinorum, Bellericorum, Cassiæ Ligneæ, Piperis Nigri, Zingiberis, Croci, Piperis longi, Myrrhæ, Castorei, ā* ʒ j. *cum succo caulium fiat massa, S. A.*

Virtues.—These Pills purge all Humours; they are principally used to purge the Brain and the Joints; and are prescribed for the Gout, the Convulsions, Rheumatisms, and to provoke the Menses.—The *Dose* is from a Scruple to a Drachm.

The purgative Ingredients which enter this Composition are the Aloes, the Troches of Alhandal, the Hermodacts, the Turbith, the Diacrydium, and the Myrabolans.

Several Drugs, which are pretty needless, could be retrenched for this Composition, the Sagapenum, Bdellium, Ammoniack, Cassia Lignea, the Papers, Ginger, Saffron and Myrrh. I find that the Quantity of the Opoponax, from which the Pills borrow their Name, should be increased, and that instead of the needless Drugs, some Grains of soluble Tartar should be introduced into them. Therefore I'm of Opinion, that those Pills should be composed in the following Manner.

Pilulæ Opoponacis Reformatæ. ℞. *Gummi Opoponacis*, ℥ jj. *Aloes Succotrinæ* ℥ j. ss. *Trochiscorum Alhandal, Hermodactylorum, āa* ʒ v. *Turbith*, ʒ ss. *Myrabolanorum Citrinorum mundatorum, Tartari solubilis, āa* ʒ jjj. *Diacrydii*, ʒ jj. *Castorei*, ʒ j. *cum S. q. Syrupi de pomis regis saporis, fiat massa Pilul. Dosis erit a* ℈ ß. *usque ad* ʒ j.

Pilulæ Cholagogæ Centaurii Quercetani Reformatæ.—Take half a Pound of Extract of Aloes, prepared with the Juice of Centaury; an Ounce of the best Rhubarb, reduced into Powder; both Ingredients mixed with Syrup of pale Roses, to form a Mass for Pills.

Virtues.—These Pills purge the bilious Humours, raise the Obstructions of the Liver, cure the intermittent Fever, and strengthen the Stomach.—The *Dose* is from a Scruple to a Drachm.

Pilulæ Phlegmagogæ de Absinthio Quercetani Reformatæ. Take four Ounces of Aloes Succotrina, ten Drachms of Agarick; Hermodacts, Turbith, Asarum, of each six Drachms;

Drachms; half an Ounce of Troches of Alhandal; and three Drachms of Salt of Wormwood; prepared according to our Method, and reduced into a Mass, with a sufficient Quantity of Syrup of Wormwood for Pills.

Virtues.—These Pills purge the Pituita of the Brain, and other Humours; they are prescribed for the Apoplexy, Palsy, Lethargy, and for the Retention of the Menses.——The *Dose* is from a Scruple to a Drachm.

Pills for a Quartan Ague.—Take an Ounce of Aloes Succotrina; Diacrydium, Agarick, soluble Tartar, of each two Drachms; Asarum and black Hellebore, of each a Scruple; prepared according to our Method, and reduced into a Mass, with a sufficient Quantity of Syrup of pale Roses.

Virtues.—They purge the Pituita, and Melancholy; they are used in intermittent Fevers, and particularly in the Quartan Ague.—The *Dose* is from one Scruple to two Scruples.

The Quartan Ague being most commonly caused and entertained by the coarse and tartarous Humours, which stop several small Vessels of the Spleen, of the Pancreas, or of the other Viscera; it is necessary to prescribe for that Malady, strong and penetrating Remedies, such as those which enter these Pills, to rarify those Humours, and raise the Obstructions.

Pills for the iliack Passion, or *Miserere.*—Take Troches of Alhandal, and Sagapenum, of each six Drachms, and two Drachms of Diacrydium; prepared according to our Method, and reduced into a Mass, with a sufficient Quantity of Juice of Leeks.

Virtues.—They are proper for the iliack Passion, for the Colick, the Migram, and purge the pituitous, and other Humours.

Pilulæ de Resinis. ℞. *Resinarum Jalap, Turbith, Scammonei, Gummi Ammoniaci, āa* ℥ ß. *Oculorum cancri Præparatorum, Diaphoretici Mineralis, Croci martis aperientis, Cremoris Tartari, āa* ʒjj. *Pulverentur, Misceantur, & cum S. q. Syrupi de pomis regis saporis, fiat massa Pilularum, S. A.*

Virtues.—These Pills purge the Pituita, and the Serosities of the Brain, raise the Obstructions, and are proper for the Hydropsy, for the Retention of the Menses, the Green Sickness, the Hardness of the Spleen and of the Liver, and for the Palsy.——The *Dose* is from half a Scruple to two Scruples.

The purgative and essential Ingredients which enter this Composition, are the Resines of Jalap, Turbith, and Scammony; the others are added to them, not only to increase the Qualities of the Pills, but to extend and divide the Resines, that they should not fasten too much against the inward Membranes of the Viscera, where they would cause, by their Acrimony, Gripings, and Superpurgations.

Pilulæ ad Strumas Reformatæ.—Take six Drachms of Turbith; three Drachms of Aloes Succotrina; two Drachms of Troches of Agarick; two Drachms of Sal-Ammoniack; a Drachm and a half of Troches of Alhandal; Scammony, and Opoponax, of each a Drachm; prepared according to our Method; and reduced into a Mass for a Pills, with the solutive Syrup of Roses.

Virtues.—These Pills purge the coarse Pituita; they are prescribed for the scrophulous Tumours, for the Glands of the Mesentery, for the Schirrhes of the Liver, and for the King's Evil.——The *Dose* is from a Scruple to a Drachm.

The purgative Ingredients of this Composition, are the Turbith, the Aloes, the Agarick, the Troches of Alhandal, and the Scammony.

Pilulæ de sex. ℞. *Succi Glycyrrhizæ, Penidiorum, āa* ℥ ß. *Storacis, Thuris, Opii, āa* ʒjj. *cum Syrupo Tussilaginis fiat massa.*

Virtues.—They stop the Fluxions which could fall from the Brain on the Breast; they thicken the Serosities in softening them, provoke Sleep, and remedy to the Phthisick.——The *Dose* is from half a Scruple to a Scruple.

Half a Scruple of these Pills contains a Grain and half the Third of a Grain of Opium. A *Scruple*, two Grains and a Third of a Grain.

Pilulæ Narcoticæ, Plateri. ℞. *Saccbari Candi,* ℥ j. *Cinnamomi* ʒjj. *Piperis, Laudani, āa* ʒj. *Seminis Coriandri,* ℈jj. *Croci,* ℈ß. *Moschi,* ℈ß. *cum Syrupo de Papavere albo fiat massa.*

Virtues.—These Pills appease Pains, provoke Sleep, and Sweat.——The *Dose* is from half a Scruple to half a Drachm.

Half a Scruple of the *narcotick Pills*, contains three Quarters of a Grain of Laudanum; a *Scruple* a Grain and a half.—*Half a Drachm*, two Grains and a Quarter of a Grain.

These Pills are not to be administer'd to Women, lest they should cause Vapours, because of the Musk which is in them.

Pilulæ Narcoticæ, A Mynsicht. ℞. *Extracti opii* ʒvj. *Pulveris specierum Diambræ,* ʒjj. *Extracti florum Papaveris erratici, Croci orientalis, āa* ℈jj. *Lapidis Bezoardi orientalis, Ossis de Corde Cervi, āa* ℈j. *Moschi gr.* x. *Oleorum Caryophylorum, Cinnamomi, Majoranæ, Succini albi, Carvi, āa Gutt.* vjjj. *Misce, & cum Confectione Alkermes fiat massa Pilularum.*

Virtues.—These Pills are somniferous, cordial, sudorifick, appease Pains, and strengthen the Brain.——The *Dose* is from two Grains to half a Scruple.

There is nothing essential in these Pills but the Opium, to which the other Drugs serve only as corrective. *Four Grains* of these Pills contain a Grain and a half of Extract of Opium.—And *eight Grains* of the Pills, three Grains of Opium.

Magistral Pills of Opium.—Take Opium, Saffron, and Cassia Lignea, of each an Ounce and a half, prepar'd and pounded according to our Method, and reduced afterwards into a Mass, with a sufficient Quantity of Wine.

Virtues.—These Pills appease the Cough, thicken and soften the acrimonious Serosities which fall from the Brain, and appease Pains. The *Dose* is from two Grains to twelve.

There is nothing essential in these Pills but the Opium, the rest serving only as corrective to it; but the Opium want none; therefore I find this Composition very needless; since the Laudanum alone is far better.

Pills for the Cough.—Take the Juice of Liquorice, and Olibanum, of each half an Ounce; Myrrh, Saffron, and Opium, of each four Scruples; prepar'd and pounded according to our Method, and mixed with a sufficient Quantity of Syrup of Poppies Rhæados to form a Mass for Pills.

Virtues.—These Pills agglutinate and thicken the acrimonious Humour, which fall from the Brain on the Breast; they appease the Cough, and provoke Expectoration and Sleep.——The *Dose* is from six Grains to a Scruple.

Half a Scruple of these Pills for the Cough contains a Grain of Opium. *Eighteen Grains* contain a Grain and a half of Opium. A *Scruple* two Grains of Opium. And *half a Drachm*, three Grains of Opium.

Pills of Turpentine reformed.—Take four Ounces of the best Turpentine; Powder of dried Root of Althæa, Crab's Eyes prepared, of each an Ounce; purified Nitre, and Millepedes prepared, of each half an Ounce; mixed together for a Mass for Pills.

Virtues.—These Pills are diuretick, make the Gonorrhœa flow; are proper for the Stone, for the Gravel, and for the Ulcers of the Reins, and of the Bladder.——The *Dose* is from a Scruple to four.

As the Mass of these *reformed Pills* is a little soft in Summer, it is proper to keep it in a Pot, and to administer it in Bolus. Most commonly the Turpentine is washed in an aperitive Water before it is employ'd in *Pills*; but by that Lotion some of its Salt is carried off, and consequently its Virtue diminished; therefore it is best to choose it fine, clear, and very odorous.

Pilulæ de Terebinthina A Mynsicht. ℞ *Terebin. Cypriæ in succo limonum lotæ* ℥ j ß. *Succi portulacæ inspissati* ʒvj, *Extracti radicis glycyrrhizæ, Rhabarbari, Tartari vitriolati ana* ʒjjj. *Spongiæ Cynosbati, Ossium Mespilorum ana* ʒj ß. *Salis succini albi, Nitri præparati ana* ʒj. *Magisterii Lapidis percarum pisc. Oculorum Cancri præparatorum ana* ʒß. *Fiat massa pilularum, ex qua postea cum oleo citri rectificato formentur Pilulæ.*

Virtues.—These Pills are proper to attenuate the Stone in the Reins and the Bladder, to expel the Sand and Phlegm by Urine; they are prescribed in the Nephre-

Nephretick, for the Ulcers of the Reins and Bladder, for the Gonorrhœas, for the Obstructions of the Liver, and of the Spleen.—The *Dose* is from half a Drachm to a Drachm.

The Juice of Lemon in which the Turpentine is washed carries off Part of its Salt, therefore that Lotion should be set aside.

Pilulæ Diureticæ, Clossei. ℞. *Terebenthinæ Venetæ, vitrioli albi tenuissimé pulverati āa partes æquales. Misce, fiat Massa.*

Virtues.—These *Pills* are aperitive, proper to raise the Obstructions, to provoke Urine, and to stop the bloody Urine.—The *Dose* is from a Scruple to four.

The Turpentine hinders and breaks the emetick Virtue of the Vitriol, because being all viscous and sulphurous, it embarasses in such a Manner by its ramous Parts, the Points of the volatile acid Salt of the Vitriol, that it hinders it from pricking sufficiently the Fibres of the Stomach, as to excite in it the Kind of Convulsion which causes vomiting; but if that Salt does not produce its Action in the Stomach, it operates in the Blood; for being ushered into it by the Turpentine, it separates the Serosity from it, and provokes Urine.

Excellent astringent Pills.—Take clear Turpentine boiled, and reduced into Powder, Terra Sigillata, Bol armoniack, of each eight Ounces; Sanguis draconis, Coral prepared, diaphoretick Mineral, Succin, Heart's-horn burnt, of each three Drachms; a Drachm of Salt of Saturn; half an Ounce of the sweet Earth of Vitriol, three Drachms of Opium, and four Drachms of Extract of Mars astringent, pounded and prepared according to our Method, and reduced into a Mass for Pills, with a sufficient Quantity of Syrup of dried Roses.

Virtues.—These *Pills* are astringent, proper to stop the Gonorrhœas, to strengthen the spermatick Vessels relaxed, for the Hemorrhages, the Loosenes, and Vomiting.—The *Dose* is from a Scruple to a Drachm.

Pilulæ detergentes, Cartesii. ℞. *Seminum alkekengi, Melonis āa* ʒ ij. *Boli Armenæ, Sanguinis draconis, Coralli rubri præparati, Gummi arabici & Tragacanthi* ʒ j ß. *Mastices* ʒ j. *cum succo equiseti fiat massa pilularum.* S. A.

Virtues.—These *Pills* are employ'd for the Maladies of the Reins and for the Ulcers of the Bladder.—The *Dose* is from half a Drachm to a Drachm and a half.

Pilulæ ad sistendam gonorrhœam. ℞. *Radicum Bistortæ, Tormentillæ, Nymphæ, Seminum Lactucæ Rutæ agni Casti, Succini, Sanguinis Hirci, Mastiches, Olibani, Sanguinis draconis nucis moschatæ āa* ℥ ß, *cum terebenthina veneta fiat massa.*

Virtues.—These *Pills* are astringent, and proper to stop the Gonorrhœas, the Loosenes, and the Hemorrhages.—The *Dose* is from half a Scruple to a Drachm.

These *Pills* must produce very good Effects, since the Ingredients they are composed of are very well appropriated to the Malady they are designed for; but it has been found by Experience that the following ones succeed better than any other.

Pilulæ aliæ ad sistendam gonorrhœam. ℞. *Diaphoretici mineralis, Terræ sigillatæ, Succini, Sanguinis draconis, Coralli præparati, Extracti martis astringentis, āa* ℥ i, *Rosarum Rubrarum, Corticis granatorum, Mastiches, Seminis Talictri, āa* ʒ iij. *Salis Saturni* ℈ iv. *Opii* ℈ j. *Cum S. q. Terebenthinæ Venetæ fiat massa pilularum. Dosis erit à* ℈ j. *usque ad* ʒ j.

These last *Pills* absorbe by their Alkali the viscous and salt Humidity that falls on the spermatick Vessels, and strengthen their Fibres by their astringent Virtue, and appease the too great Motion of the Spirits which are determin'd to fall on them in Abundance. The Quantity of Opium which enters this Composition is so small, that it is not perceived that it provokes Sleep. Those Pills are taken once or twice a-day, and the Use thereof is continued for several Days successively, making besides astringent Injections into the Penis, till the Gleet be stopped. As it is very difficult to stop certain inveterate Claps, particularly when the spermatick Vessels have been a long while debilitated by repeated Debaucheries; it is necessary not only to continue the Use of these *Pills*, but all the other Remedies must be administered which can contribute towards the Cure; as Injections into the Penis, astringent and strengthning Fomentations on the Pireneum, the deficcative Tizanes, and the Tincture of Roses. Astringents ought not to be used in the Cure of Claps, till after the general Remedies have been used which are proper to procure a sufficient running of the virulent Matter.

Pilulæ ad gonorrhœam virulentem. ℞. *Antimonii Diaphoretici, Cinnabaris Nativæ & Antimonialis, Terræ Sigillatæ, Radicis Ireos Florentiæ, Liquiritiæ. Succini albi præparati, Oculorum cancror, præparatorum, āa* ʒ ß. *Myrrhæ Electæ, Olibani, Mastiches, Croci, āa* ʒ ij. *Cum terebenthina veneta, fiat massa pilularum.*

Virtues.—These *Pills* are astringent, and strengthen the spermatick Vessels, by correcting the Virus.—The *Dose* is from a Scruple to two.

Pilulæ Sudorificæ. ℞. *Gummi Gujaci* ℥ j. *Extracta contrayervæ* ʒ vj. *Myrrhæ* ʒ v. ℈ j. *Croci* ℥ ß. *Camphoræ* ʒ ij. ℈ ij. *Laudani Opiati* ℈ j. *Misce, & cum syrupo de Floribus Tunicæ, fiat massa pilularum.*

Virtues.—These *Pills* resist the Malignity of the Humours, appease the Pains, and provoke Sleep and Sweat; they are used in malignant Fevers.—The *Dose* is from a Scruple to a Drachm.

Pills for a Hoarseness.—Take the Pulp of Jar-Raisins, and Liquorice, of each half an Ounce; Gum Adraganth, three Drachms; Gum Arabick, Rosin, Turpentine, of each two Drachms; and a Drachm of Saffron; pounded and prepared according to our Method, and reduced into a Mass for *Pills.*

Virtues.—These *Pills* are proper to soften the Acrimony of the Throat, and to thicken the serous Humour, which running into the Trachæa causes the Hoarseness, one of them is placed under the Tongue where it is left to melt.

The Turpentine and Rosin give so bad a Taste to these Pills, that it is with the greatest Difficulty that one can resolve himself to suffer it to melt in his Mouth; besides, if they be swallowed all at once they produce but very little Effect, because it is but in making their mucilaginous Substance to pass insensibly through the Throat, that the salt Serosity which falls from the Brain can be thickned. Therefore, Starch and the Pulp of the Roots of Althæa should be substituted to those two Things.

Pilulæ senectutis A. Mynsicht. ℞. *Extracti Melissæ* ʒ iij. *Pulveris speciorum diamoschi dulcis* ʒ j ß. *Succini albi præparati* ʒ j. *Trochiscorum Perlarum, Ambræ Griseæ āa* ℈ j. *Misce & cum confectione alkermes fiat massa, ex qua postea cum oleo caryophylorum, & majoranæ, formentur Pilulæ*, S. A.

Virtues.—These *Pills* are proper to restore the exhausted Strength, to strengthen the Heart and the Stomach, and to resist the Malignity of the Humours.—The *Dose* is from six Grains to half a Drachm; but they must not be prescribed to Women, because of the Perfumes they contain, which could excite Vapours.

Tabellæ, or Solid Electuaries.

Tabellæ, or *Lozenges*, or *solid Electuaries*, have been invented for four principal Reasons.—1. To give a good Taste to the Remedies, because more Sugar is mixed in them than in the other Compositions.—2. That they may remain a long while to melt and be dissolved in the Mouth, and their Virtue be better communicated to the Throat and Breast.—3. That they may be kept long; for a solid Consistence is less subject to Corruption than others.—4. To render the Composition portative.—*Tabellæ* are prepared over the Fire, and without Fire. Now Powders are introduc'd into those made over the Fire; but the *Dose* thereof is not so much limited: For in the one no more than an Ounce of Powder enters on each Pound of Sugar; on the others, three; and on the others four. The Matter of the *Tabellæ* which are prepared over the Fire is cut in Lozenges, or Square wise; and those prepared without Fire are figured into Pastilles or Rotulæ; on which is commonly imprinted a Seal.

Electuarium Diacarthami. ℞. *Turbith Electi* ℥ j ß. *Medullæ Seminis Carthami, Pulveris Diatragacanthi frigidi, Hermodactylorum, Diactydii, āa* ℥ j. *Zingiberis* ℥ ß. *Mannæ* ℥ ij ß. *Mellis Rosati, Carnis Cydoniorum Conditæ āa* ℥ ij. *Succhari albi in aqua soluti, & in electuarium solidum cocti* ℥ xxj. *fiat ex arte electuarium tabellatum.*

The Turbith, Hermodacts, Ginger, and Marrow extracted from the Seeds of Carthamum, must be pounded

ed together; and the Diacrydium by itself, then it shall be mixed with the other Powder; next the confect Quinces, the Manna, and the Honey of Roses must be beat together in a Marble Mortar, and the Powder thereof extracted through a Horse-hair Sierce turned upside down, melting afterwards the Sugar in about a Pint of common Water, over the Fire, straining the Liquor, and making it boil till the Water be all consumed, which will be known by dipping a Spatula into it and taking it out immediately; for if the Sugar is done it will spin a long Thread: Then the Bason shall be taken off the Fire, and the Pulps dissolved in the Sugar, mixing in it afterwards the Powders, *i. e.* when the Matter shall be half cold; which done, the Paste shall be thrown, while yet hot, on a Paper anointed with Oil of Sweet Almonds; then the Paste must be extended with a Roller, oiled likewise, and cut afterwards in Lozenges to be kept in a Box in a very dry Place.

Virtues.—These *Tabellæ* purge particularly the Breast, they are prescribed also for the Maladies of the Brain.—The *Dose* is from a Drachm to an Ounce.—They are often mixed in Remedies with other Purgatives.

Provided the Sugar be sufficiently done when the Powders are mixed, there will be no need to place the Bason again over the Fire, but if he had not received yet a perfect Coction, it would be necessary to dry the Matter over a slow Fire before the Powders are mixed.

The purgative Virtue of this Composition consists in the Turbith, Hermodacts, and Manna. The Ginger is employ'd in this Composition to correct the Turbith, by hastening its Operation, and hindering it from griping, but that pretended Corrective gives so much Acrimony to the Composition, that it does more harm than good; therefore it should be retrenched. The Flesh of Quinces and Honey of Roses are two Astringents, which do not very well become a purgative Composition; they are employ'd here to correct the Scammony; but besides that the Scammony wants no Corrective, it is already corrected since it enters the Composition in Diacrydium. The small Quantity of Manna which enters each Dose, is not capable to increase the Strength of the Purgatives; but as it is viscous and softening, it can correct a little their Acrimony; therefore those *Tabellæ* should be reformed in the following Manner.

Tabellæ of Diacarthamum reformed.—Take an Ounce and a half of Turbith, Carthamum-Seed, Hermodacts, and Diacrydium, of each an Ounce; half an Ounce of Gum Adraganth; four Ounces and a half of the best Manna, two Ounces of the solutive Syrup of Roses, and twenty-two Ounces of white Sugar; for *Tabellæ* to be made according to Art.

Tabellæ Diaturpethi cum rheo. ℞. *Turbith, Rhabarbari, āa* ʒx, *Hermodactylorum* ℥j, *Diacrydii* ℥ß, *Seminis Violarum* ʒij. *Sacchari Albi* ℔j. *Fiant Tabellæ*, S. A.

Virtues.—These *Pills* purge the Bile and Pituita, and are proper for the Rheumatism, the Gout, and the Worms.—The *Dose* is from a Drachm to an Ounce.

The purgative and essential Ingredients which enter this Composition are the Turbith, Rhubarb, Hermodacts, Diacrydium, and Seeds of Violets, *i. e.* that they are all purgative except the Sugar.

Tabellæ de Citro.—Take six Scruples of Senna, five Drachms of Turbith, half an Ounce of Diacrydium, dried Lemon-peel, Gum Adraganth, and Seed of Violets, of each two Drachms; and nine Ounces of white Sugar dissolved and boiled in Water of Buglose, to make *Tabellæ* S. A.

Virtues.—These *Tabellæ* purge all the Humours and are said proper to strengthen the Stomach, and the other Viscera.—The *Dose* is from a Scruple to six Drachms.

This Composition borrows its Name from the Lemon-peel, which does not communicate much Virtue to it. The purgative and essential Ingredients thereof are the Senna, Turbith, Diacrydium, and Seed of Violets.

Tabellæ Purgantes Jacobi le Mort. ℞. *Seminis Zedoariæ, Corallinæ āa* ʒiij. *Radicis Jalap* ʒij. *Diacrydii* ʒj. *Mercurii Dulcis* ℈j. *Sacchari Albissimi in aqua vel infusione tanaceti ad tabellarum consistentiam cocti* ℔j. *Fiant Tabellæ* S. A.

The Semen Contra Vermes, the Coralline, must be pounded together; the Diacrydium by itself, and the Mercurius Dulcis by itself; mixing them all together afterwards and boiling the Sugar in seven or eight Ounces of Infusion or distilled Water of Tansy to the Consistence of a solid Electuary; take it then off the Fire, and when half cold mix the Powders with it, throwing the Matter afterwards, while yet hot, on Paper anointed with Oil of Sweet Almonds; and having extended it with a Roller, it must be cut into Lozenges.

Virtues.—These *Tabellæ* purge gently, kill and expel the Worms, and resist Putrefaction.—The *Dose* is from two Drachms to an Ounce and a half.

The purgative Ingredients of these *Tabellæ* are the Jalap, Diacrydium, and Mercurius Dulcis.—*Two Drachms* of these Tabellæ contain of Jalap two Grains and a half; of Diacrydium a Grain and a fourth of Grain; and of Mercurius Dulcis a little less than half a Grain.—*Half an Ounce* contains five Grains of Jalap; two Grains and a half of Diacrydium, and about two Thirds of a Grain of Mercurius Dulcis.—*Six Drachms* contain seven Grains and a half of Jalap, three Grains and three Quarters of a Grain of Diacrydium; and a Grain and a Quarter of a Grain of Mercurius Dulcis.—*An Ounce* contains ten Grains of Jalap, five Grains of Diacrydium; and a Grain and the two Thirds of a Grain of Mercurius Dulcis. *Ten Drachms* contains twelve Grains and a half of Jalap, six Grains and a Quarter of a Grain of Diacrydium; two Grains and the twelfth Part of a Grain of Mercurius Dulcis.—*An Ounce and a half* contains fifteen Grains of Jalap; seven Grains and a half of Diacrydium; and two Grains and a half of Mercurius Dulcis.

Tabellæ Contra Vermes. ℞. *Rhei Electi, Seminis Contra Vermes, Citri Mundati, Portulacæ, Caulicum, Genistæ āa* ʒij. *Aquilæ Albæ* ʒij. *Sacchari Albissimi* ℥xvi. *cum mucagine Gummi Tragacanthi in aqua naphæ extracta, fiant Tabellæ.*

The Rhubarb and Seeds must be pounded together; the Mercurius Dulcis by itself, and the superfine Sugar by itself: The Powder must be mixed together with a sufficient Quantity of Mucilage of Gum Adraganth, extracted in Water of Flowers of Oranges; then a solid Paste shall be made by beating the whole Mixture a long while in a Marble Mortar with a wooden Pestle; and of that Paste shall be formed Rotulæ which must be put to dry.

Virtues.—These *Tabellæ* kill the Worms in the Body. The *Dose* is from one Drachm to six.

Though the *Mercurius Dulcis* be one of the most essential Drugs of this Composition; it should not be introduced, notwithstanding, in a Remedy which is chewed, and remains for some Time in the Mouth before it be swallowed; for the *Mercurius Dulcis* can be separated from it by its Weight, and fastening to the Teeth shake them. To avoid this Accident, the Tabellæ must be reduced into a liquid Paste, and taken as a Bolus.

Tabellæ Cachecticæ Ant. d'Aquin. ℞. *Diaphoretici Mineralis, Oculorum Cancrorum præparatorum āa* ℥ . *Margaritarum præparatorum* ʒij. *Salis Martis* ʒß. *Olei Cinnamomi Stillatitii, Gutt.* ij. *Sacchari optimi pulverati* ℥viij. *cum Mucagine Gummi Tragacanthi, in aqua naphæ extracta, fiant Tabellæ.*

The Mineral Diaphoretick, the Crab's Eyes prepar'd, the Pearls prepar'd, the Salt of *Mars*, and the Sugar, after they have been pounded, shall be mixed together in a Marble-Mortar, adding to it the distilled Oil of Cinnamon; and incorporating the whole Mixture with a sufficient Quantity of the Mucilage of Gum Adraganth, extracted in Water of Orange-Flowers, to make a solid Paste, which must be beaten a long while, and of which are formed *Rotulæ*, of two Drachms each.

Virtues.—These *Rotulæ* raise the Obstructions of the Spleen, of the Matrice, and of the other Viscera; they are prescribed in the Cachexy, the Green Sickness, the Difficulty of Urine, and the hypochondriacal Maladies. The *Dose* is a whole *Rotula.*

Tabellæ de Croco Martis simplices. ℞. *Croci Martis aperientis*, ℥j. *Cinnamomi*, ʒij. *Sacchari Albissimi*, ℥iv. *cum mucagine Gummi Tragacanthi in aqua naphæ extracta, fiant Tabellæ ponderis Dragmarum duarum, in umbra siccandæ.*

The *Crocus Martis* must be ground on the Porphyry, till it be reduced into an impalpable Powder; and after the Cinnamon and Sugar have been pulverised separately, all the Powders must be mixed in a sufficient Quantity of Mucilage of Gum Adraganth, to be reduced into a solid Paste,

Paste, whereof are formed Tabellæ of two Drachms each.

Virtues.—These Tabellæ raise the Obstructions, provoke the Menses, and are prescribed for the Green-Sickness.——The *Dose* is a whole Tabella.

Tabellæ de Croco Martis compositæ. ℞. *Croci Martis aperientis,* ℥ j. ß. *Cinnamomi Acutissimi, Rhubarbari electi, Fæcularum Bryoniæ, Croci, āa* ʒ jj. *Sacchari Albissimi in aqua Arthemisiæ soluti & in Electuarium solidum cocti,* ℥ ix. *fiant Tabellæ.*

Virtues.— These Tabellæ are proper to raise the Obstructions, and provoke the Menses.—— The *Dose* is from a Drachm to half an Ounce.

Emetick Tabellæ.— Take Emetick Tartar, Powder of Liquorice, and Starch, of each two Ounces; and half a Pound of white Sugar; pound each Ingredient separately, and mix them afterwards exactly together in a Marble Mortar, and incorporate them with a sufficient Quantity of Mucilage of Gum Adraganth to make a solid Paste, which must be beaten a long while with a wooden Pestle; and to be formed afterwards into small Tabella or Rotulæ, each weighing half a Drachm.

Virtues.— These Tabellæ purge gently upwards, and sometimes downwards.——The *Dose* is from a Tabella to two.

Each Tabella contains to the utmost six Grains of Emetick Tartar. That Composition could be render'd still more vomitive, if instead of Emetick Tartar, one was to employ the Powder of Algaroth. Those Tabellæ are agreeable to eat; the Liquorice, Starch, and Sugar, serves to sweeten the Emetick Tartar, and make it go down; but if the Remedy was to excite a too violent Vomiting, the Patient should take some Spoonfuls of fat Broth, or of Oil of sweet Almonds.

Tabellæ Mercuriales. ℞. *Panaceæ Mercurialis,* ℥ jj. *Cinnamomi Acutissimi, Ireos Florentiæ, Zingiberis, āa* ʒ j. *Sacchari Albi,* ℥ iv.

The Ginger, Cinnamon, and Iris, must be pounded together; and the Sugar by itself; mixing afterwards all the Powders with the mercurial Panacea in a Marble-Mortar; and corporifying that Mixture with a sufficient Quantity of the Mucilage of Gum Adraganth, beating it a long while with a wooden Pestle, till it be reduced into a solid Paste, to form of it small Lozenges or Rotules, each of them to weigh a Drachm.

Virtues.— These Tabellæ excite the Salivation; and are given to those of a hard Constitution, and that cannot be moved by the common Remedies.

Tabellæ Pectorales D. Gendron Abbatis. ℞. *Hordei integri, lb.* 1. *Uvarum passarum mundatarum,* ℥ iv. *Liquiritiæ rasæ & contusæ,* ℥ jjj. *Seminis anisi,* ʒ j. *Caryophyllos,* No. XIV.

Boil the Pound of whole Barley, after it has been well washed and cleansed in a sufficient Quantity of common Water, till it bursts; then add to the Decoction the Raisins stoned, the Liquorice scraped and bruised, the Annisseed, and the Cloves bruised; and when the whole Mixture shall have boiled sufficiently, strain the Decoction with Expression; and in the Colature put the Sugar to boil over a slow Fire, to the Consistence of a solid Electuary, stirring the Matter continually with a wooden Spatula, when it begins to thicken, lest it should stick at the Bottom of the Bason; then pour it on a Marble, or Paper anointed with Oil of sweet Almonds; and having extended the Matter with a Roller, cut it afterwards into Lozenges, which must be kept in a Box, in a dry Place.

Virtues.— These Tabellæ are proper to ripen a Cold, to soften the Acrimony of the Serosities which fall from the Brain, and to help Expectoration.——The *Dose* is from a Drachm to half an Ounce, or as much as the Patient thinks proper.

These Tabellæ are difficult to make, because of the great Quantity of Mucilage produced by a Pound of Barley; for that Mucilage growing thick in boiling, sticks easily to the Bason, and burns, if the Fire be a little too strong; or if one neglects to stir the Matter as it should. The Virtue and Goodness of those Tabellæ, consists chiefly in the Mucilage of the Barley; for it embarasses by its ramous Parts the Point of the acrimonious Salts, and thickening the Serosity, hinders it from making as much Impression as it would on the Breast; the Raisins, Liquorice, and Annisseed are pectoral, likewise, and becomes very well that Composition. The small Quantity of Cloves which enters it cannot produce a very great Effect, and much less that its volatile Parts are dissipated in boiling; therefore if that Drug was retrenched, it would be no Detriment to the Tabellæ. When they are used, it is proper to leave them to dissolve gently in the Mouth, that their Mucilage may insensibly humect the Conducts which lead to the Breast.

Tabellæ de Althæa simplices, vel Papales. ℞. *Pulpæ radicis Althææ recenter extractæ,* ℥ jv. *Sacchari albi in aqua rosarum soluti & cocti* lb. 1. ß. *fiant Tabellæ, secundum Artem.*

You must boil in Water the Roots of Althæa, or Marshmallows, till they be soft; taking them afterwards out of the Decoction, beating them in a Marble Mortar, and straining them through a Sieve turn'd upside down to extract the Pulp. Then boil the Sugar in six or seven Ounces of Rose Water, till it be reduced to the Consistence of a solid Electuary; taking it then off the Fire, and having mixed with it the Althæa, place it again over a very slow Fire to dry the Matter, stirring it continually, and when it has acquired a reasonable Consistence, throw it upon a Paper anointed with Oil of sweet Almonds, extending it with a Roller, and cutting it afterwards into Lozenges.

Virtues.— These Lozenges are proper to soften and blunt the Acrimony of the Cough, to thicken the Serosities which fall on the Breast, and to help Expectoration. One of those Lozenges is put to melt in the Mouth.

Tabellæ of Althæa can also be made without Fire, with Sugar in Powder, reduced into a Paste in a Marble Mortar, with a sufficient Quantity of Pulp of Althæa; whereof are formed Pastilles or Rotules; which afterwards are put to dry.

Tabellæ de Althæa Compositæ. ℞. *Pulpæ Radicis Althææ,* ℥ jj. *Seminis Papaveris albi, Ireos florentiæ, Liquiritiæ, Pulveris Diatragacanthi frigidi, āa* ʒ jjj. *Sacchari Albissimi in aqua rosarum cocti, lb.* j. *fiant Tabellæ, S. A.*

The Iris, Liquorice, and Seed of Poppies, must be pounded together, and the Powder mixed afterwards with that of *Diatragacanthi frigidi*; boiling the Sugar, afterwards, to the Consistence of Sugar of Roses; and mixing in it, when taken off the Fire, the Pulp, then the Powder to make of it a solid Paste, which shall be extended on an oiled Paper, and cut into Lozenges.

Virtues.— These Tabellæ are good for an inveterate Cough, for the Asthma, and the Ulcers of the Lungs: About a Drachm of them is put to melt in the Mouth.

If two Drachms of Magistery of Sulphur were added to the Composition of these Tabellæ, they would be more proper for the Ulcers of the Lungs, and for the Asthma. These Tabellæ can also be made without Fire, by mixing the Powders with pulverised Sugar, incorporating the whole Mixture in a Marble Mortar, with a sufficient Quantity of Pulp of Althæa, to be reduced into a solid Mass, whereof Pastilles or Rotulæ are formed. These Rotulæ can be render'd more detersive, by adding a Scruple of Flowers of Benzoin to the Composition.

Tabellæ Diasulphuris. ℞. *Magisterii sulphuris,* ℥ j ß. *Gummi Arabici,* ʒ jj. *Ireos florentiæ,* ʒ j. *Sacchari Albissimi,* ʒ jj. *omnia pulverata, & mixta cum s. q. mucilaginis Gummi Tragacanthi in aqua florum papaveris Rhœados extracti, fiat massa ex qua formentur Tabellæ, vel Rotulæ.*

Virtues.—These Tabellæ are proper for the Asthma, for an inveterate cold, to loosen the thick Phlegms, and to cleanse the Ulcers of the Lungs and of the Breast.—— A Drachm of it is left to melt in the Mouth.

Tabellæ seu Rotulæ pectorales Citrinæ, A. Mynsicht. ℞. *Looch sani & experti, pulveris specierum Diarrhodon abbatis, āa* ℥ ß. *succi Glycyrrhizæ, florum Sulphuris, aa* ʒ j. *Benzoini, Radicis ireos florentiæ āa* ℈ jj. *Croci orientalis, Balsami sulphuris anisati, āa* ℈ j. *Sacchari albi in aqua fœniculi dissoluti* ℥ xvj. *Misce & fiant Tabellæ seu Rotulæ.*

The Sugar, Benzoin, Saffron, and Iris, must be pounded each separately, and the Powders mixed with that of the Species Diarrhodon Abbatis, and the Flower of Sulphur; the Juice of Liquorice shall be melted in some Fennel Water to reduce it to the Consistence of Honey, and afterward mixed with the Balsam of Sulphur, and a sufficient Quantity of Fennel-Water to make a solid Paste, which must be beaten a long while in a Marble Mortar, to be formed afterwards into Tabellæ or Rotulæ,

tulæ, which are to be put to dry.

Virtues.—These Tabellæ help Expectoration, soften the Acrimony of the Breath in loosening the Phlegm, and facilitate Respiration: They are used for the Asthma, for an inveterate Cough, for the Phthisick and Pleurisy.——The *Dose* is what Quantity the Patient pleases to take.

Tabellæ Magnanimitatis. ℞. *Pulpæ Pistaciorum, radicis Satyrionis condit. Conservæ florum Rorismarini, confectionis Alkermes cum Ambra & Moscho paratæ, āa ℥ ss. Truncorum Viperinorum & Hepatum,* ʒ iij. *seminis Erucæ,* ʒ ij. *Renum Scincorum, Cardamomi minoris, Radicis Galangæ āa* ʒ j. *Caryophyllorum, Cinnamomi, Macis, Ambræ Griseæ, āa* ʒ ss. *Moschi orientalis,* ℈ ss.

The Trunks and Livers of Vipers, cut in small Pieces, the Seed of Eruca, the Reins of Scinc, the small Cardamom, the Galanga, the Cloves, the Cinnamon, and the Mace must be pounded together; the Musk by itself, and the Ambergrease by itself; mixing afterwards all the Powders together. Then the Pistachoes Nuts, the Roots of Satyrion, and the Conserve of Flowers of Rosmarin, shall be pounded together, adding to it some Syrup of Gilly-Flowers, to reduce the Matter into a liquid Paste, which must be strained through a Sieve to extract the Pulp thereof, which must be mixed with the Confection of Alkermes. Then the Pound of white Sugar shall be boiled in four or five Ounces of Orange Flowers, over a slow Fire, to the Consistence of a solid Electuary; mixing with it, when taken off the Fire, the Pulp, the Confection Alkermes, and the Powder; and the Mixture being thrown afterwards, while yet hot, on a Paper anointed with Oil of sweet Almonds, shall be cut into Lozenges.

Virtues.—These Tabellæ are proper to strengthen the Stomach, and the Brain, to rejoice the Heart, to provoke the Seed; and to resist the Corruption of the Humours. The *Dose* is from a Drachm to three.

Tabellæ Cardiacæ. ℞. *Sacchari Albissimi in aqua florum Arantiorum cocti, lb.* j. *Confectionis Alkermes perfectæ,* ℥ j. *Corticis exterioris citri recentis minutissimé incisi, Antimonii Diaphoretici, āa* ʒ ij. *Olei Cinnomomi stillatitii pauco saccharo pulverato excepti Gutt.* jjj. *Fiant ex arte Tabellæ ad usum.*

Virtues.—These Tabellæ rejoice and strengthen the Heart, and resist Corruption.

Tabellæ Lithonthripticæ fernelii reformatæ. ℞. *Sanguinis hirci præparati,* ℥ j ss. *Oculorum cancri præparat.* ℥ ss. *Seminum Apii, Asparagi, Urticæ, Saxifragiæ, Bruści, Petroselini, Ocimi, āa* ʒ jj. *Radicum Cypri, Costi, Gummi Tragacanthi, Chamædryos, Spicænardi, āa* ʒ j. *Cardamomi, Macis, Zingiberis āa* ʒ ss. *Sacchari in aqua parietariæ cocti, lb.* iij. *fiant Tabellæ, S. A.*

Virtues.—These Tabellæ are proper to attenuate the Stone, the Gravel, and the Phlegm, and to expel them by Urine.——The *Dose* is from a Drachm to three.

Tabellæ of white Poppies. Put what Quantity you please of Syrup of white Poppies, newly prepared, to boil over a slow Fire, to the Consistence of Sugar of Roses, and when it is half cold, cut it into Lozenges, to be kept for Use.

Virtues.—These Lozenges provoke Sleep.—— The *Dose* is from half a Drachm to six Drachms.

Carminative Tabellæ or Rotulæ.—Take a Drachm and a half of the carminative Oil of *A. Mynsicht*; Cinnamon, Cloves, of each half a Scruple; and sixteen Ounces of the best Sugar, which must be pounded, as well as the Cinnamon and the Cloves, and mixed afterwards with the Oil, and a sufficient Quantity of the Carminative Water of *A. Mynsicht*, to make a Mass, which must be beaten a long while in a Marble Mortar, and then formed into Lozenges or Rotules, according to Art.

Virtues.—These Lozenges dissipate Flatuosities, or Winds, and strengthen the Stomach.——The *Dose* is from a Drachm to half an Ounce.

Tabellæ Roborantes, Renodæi. ℞. *Specierum Electuarii Diamargariti frigidi,* ʒ ij. *Rasuræ Eboris,* ℈ ij. *Ossis è corde cervi,* ℈ j.

Pound together the Raspings of Ivory, and of Hart's-horn; and mix that Powder with that of *Diamargariti frigidi*; then put half a Pound of the best Sugar to boil in about two Ounces of Rose Water, to the Consistence of solid Electuary; take it off the Fire, and when it will be half cold, mix exactly the Powders with it; pouring afterwards, the Mixture, while yet hot, on a Paper anointed with Oil of sweet Almonds, and cutting it into Lozenges, to be kept in a Box in a dry Place.

Virtues.—These Tabellæ restore the Strength exhausted after a long Malady, help the Digestion, and resist the Malignity of the Humours.——The *Dose* is from a Drachm to two.

If it be wanted to make these Tabellæ without Fire, the Sugar having been pounded, and the Powder mixed with it, that Mixture must be incorporated with a sufficient Quantity of Mucilage of Gum Adraganth, extracted in Rose Water, to make of it a Paste, whereof are formed Tabellæ or Rotulæ.

Tabellæ Mithridaticæ, preservantes. ℞. *Mithridatii,* ℥ j. *Rasuræ cornu cervi, seminis citri mandati, florum sulphuris, Radicis Zedoariæ, aa* ʒ j. ss. *Capburæ,* ℈ j. *Oleorum succini rectificati, Angelicæ aa* ℈ ss. *Caryophillorum, Rutæ, Gutt.* iv. *Sacchari Crystallini,* lb. j.

The Roots, Seed, and Hartshorn must be pounded together; and the Sugar and Camphire together; and mixed afterwards with the Mithridate, the Flower of Sulphur, and the Oil, with a sufficient Quantity of the Mucilage of Gum Adraganth extracted in Rose Water, to form Tabellæ or Rotluæ, S. A.

Virtues.—These Tabellæ are an Antidote against the Plague, and against an infected Air, and the Malignity of the Humours.—— The *Dose* is from a Drachm to three.

Tabellæ seu Rotulæ Catarrhales Calidæ. A. Mynsicht. ℞. *Pulveris specierum Diamoschi dulcis, Diambræ, Aromatici rosati, Diaireos simplicis aa* ℥ ss. *Thuris, Mastichis, succini Albi, Cornu cervi, aa* ℈ j. *Sacchari albi,* ℥ v.

Let the Succin and Hartshorn be pounded together, the Mastich and Oliban together; and the Sugar by itself; mix those Powders with those of *Diamoschi dulcis, Diambræ, Aromat. Rosat.* and *Diaireos*; incorporate that Mixture in a Marble Mortar, with Water of Betony to make a solid Paste of it, whereof are formed Tabellæ or Rotulæ, which must be anointed slightly, after they have been dried from the Sun, with Oil of Cloves. They must be kept in a Box in a dry Place.

Virtues.—These *Tabellæ* purge the Brain, and dissipate the superfluous Humidities thereof by Perspiration.——The *Dose* is from half a Drachm to two Drachms.

Tabellæ seu Rotulæ Catarrhales Frigidæ, A. Mynsicht. ℞. *Seminis Papaveris Albi Contusi* ℥ iv. *Siliquarum Papaveris Albi Crassiusculé Incisarum* ℥ ij.

Cut coarsely the Heads of the Poppies, bruise the Seed, and put them in a Glass or Stone Cucurbite, pouring upon them the Waters of Tussilage and Scabiose, till the Matter soaks sufficiently in it; cover the Cucurbite and leave the whole in a warm Digestion for about two Days; adapt afterwards a Receiver to it, lute the Joints, and put the Liquor to distil at a Sand-heat: Dissolve in the distilled Water the Mastich very well pounded, boil slightly the Mixture, and having filtrated it, mix the filtrated Liquor with eighteen Ounces of the best Sugar; make them boil together over a slow Fire to the Consistence of a solid Electuary; and when the Matter is half cold, pour it on a Marble rubbed over with some Powder of Starch; and having left it to extend itself sufficiently, cut it afterwards into Lozenges to be kept in a dry Place.

Virtues.—These *Tabellæ* are proper for the Catarrhs which proceed from an acrimonious and subtle Serosity; which is known at the Head being very hot, the Eyes red, and the Saliva salt, or bitter, the whole attended with Fever.—The *Dose* is from one Drachm to three.

OPIATES, CONFECTIONS, and ELECTUARIES.

The Name of *Opiate* was antiently given but to liquid Compositions, where *Opium* was introduced; but at present it is given to several *Electuaries* where there is no *Opium*.—The Names of *Confection*, and of *Electuary*, denote very near the same Thing: The first comes from *conficere*, which signifies to accomplish or perfect; and the last signifies *confectio rerum electarum*; therefore we say *electarium*, as well as *electuarium*. These three Preparations have Consistences very much like that of Honey; and are composed of Powders, Pulps, Sugar, Honey, and Liquors: They are administered inwardly.

They

They have been invented by the Antients for several Reasons, as to correct the too violent Action of some Remedies; to excite and increase the Virtues of some others, to unite by Mixture and Fermentation the Qualities of the Mixts, that they may form a more perfect Compositum; that the Remedies may be kept longer, to put them in a Condition to be easier and sooner taken, without the Patient being obliged to wait for the Preparation.

Diacodium Compositum Mesvé. ℞. *Syrupi Papaveris Albi* lbj. *Trochiscorum Ramish*, ℥ß. *Hypocistidos, Myrrhæ, Croci, Balaustiorum āa* ʒj.

The Balaustes, Saffron, the Troches and Hypocistes are pounded together, and the Myrrhe by itself; then all the Powders are mixed with the Syrup of Poppies made a little warm, for an Opiate to be kept for Use.

Virtues.—This Opiate is proper to stop and soften the Catarrhes, the Loosenesſ, and the Hemorrhages.—The *Dose* is from two Scruples to three Drachms.

Requies Nicolai Myrepsi. ℞. *Rosarum Rubrarum, Violarum aa* ʒiij, *Opii, Seminis Hyoscyami, Papaveris Albi, Intibi, Lactucæ, Portulacæ Psyllii, Corticis Radicis Mandragoræ, Nucis Moschatæ, Cinnamomi, Zingiberis aa* ʒjß. *Sacchari Candi* ʒj, *Trium Santalorum, Spodii, Gummi Tragacanthi aa Gr.* v. *Technicè fiat pulvis usui reponendus, vel cum Julepo Rosato paretur Opiata.*

Each of these Ingredients shall be pounded in particular, *viz.* the Spodium or burnt Ivory, Sugar-candy and Gum Adraganth, and all the other Drugs together; and having mixed all the Powders, that Mixture must be kept for Use, or reduced into an Opiate with three Times as much of Julep of Roses reduced to the Consistence of a thick Syrup.

Virtues.—It is proper to provoke Sleep, to appease Pains, to strengthen and stop the Blood.—The *Dose* of the Powder is from half a Scruple to two Scruples; and that of the Opiate from two Scruples to eight. It is applied on the Temples in violent Fevers to appease the Head-ach.

The narcotick Ingredients which enter this Composition are the Opium, the Seed of Hen-bane, and the Bark of the Root of Mandragora.—*Half a Scruple* of the *Powder*, or two Scruples of the *Opiat Requies*, contain of Opium, of Seed of Hen-bane, and of the Bark of the Root of Mandragora, of each three Quarters of a Grain. A *Scruple* of the *Powder*; or *three Scruples* of the Opiate contains of Opium, of Seed of Hen-bane, and of the Bark of the Root of Mandragora, of each a Grain and a half. *Half a Drachm* of the *Powder*; or *six Scruples* of the Opiate contains of Opium, of the Seed of Hen-bane, and of the Bark of the Root of Mandragora, of each two Grains and a Quarter of a Grain. *Two Scruples* of the *Powder*, or *eight Scruples* of the Opiate, contains of Opium, of Seed of Hen-bane, and of the Bark of the Root of Mandragora, of each three Grains.

Antidotum Assyncitum, Actuarii. ℞ *Opii* ʒvi. *Myrrhæ* ʒv. ℈ij. *Piperis Nigri, Seminis Petroselini aa* ʒv. *Opii, Sinapeos aa* ℥ ss. *Schænanthi* ʒiij. *Amomi, Styracis Calamites aa* ʒij. *Magmatis Hedyctoi* ℈v. *Cassiæ Ligneæ, Piperis Albi, Seminis Sezeleos aa* ℈iv.

The Peppers, Seeds, Amomum, Schænantum, and Cassia Lignea, must be pounded together; and the Myrrh, Storax, and the Troches of Hedyctoi, together; the Opium must be cut in small Pieces, and pounded in a Brass Mortar with a little Honey to reduce it into a Paste; mixing that Paste with sixteen Ounces of skummed Honey, and incorporating the Powders in that Mixture, to make of them all an Opiate, to be kept in a Pot well covered, for Use.

Virtues.—This *Opiate* is proper to resist the Malignity of the Humours, and to appease Pains: It is used for the Epilepsy, Phrensy, and the Tooth-ach; for the contagious Maladies, an inveterate Cough, and to provoke Sleep.——The *Dose* is from a Scruple to a Drachm.

This Preparation is an Opiate whereof *Actuarius* is the Author. The Name of *Assyncritum*, which signifies *none-such*, was given to it, to express its great Virtues.—In a *Scruple* of this *Opiate* there is little less than a Grain of Opium. In *two Scruples*, about a Grain and a half; and in *two Drachms*, two Grains and a half.

Theriaca Andromachi. R. *Trochiscorum Scilliticorum* lbss. *Viperinorum, Hedycroi, Piperis Longi, Opii aa* ℥ij. *Iridis Florentiæ, Rosarum Rubrarum, Succi Glycyrrhizæ Seminis Buniados, Scordii, Opobalsami, vel Succedanii, olei nucis Moschatæ, Cinnamomi, Agarici aa* ℥jss. *Nardi Indicæ, Dictamni Cretici, Radicis Pentaphylli, Zingiberis, Costi Rhaphontici, Prassii Albi, Stœchadis Arabicæ, Schænanti, Seminis Petroselini Macedonici, Calamithæ Montanæ, Cassiæ Ligneæ, Croci, Piperis Albi & Nigri, Myrrhæ Trogloditicæ, Olibani, Terebenthinæ Chiæ aa* ʒvj. *Amomi Racemosi, Radicum Gentianæ, Acori Veri, Meu Athamantici, Valerianæ, Nardi Celticæ, Chamæpityos, Comæ Hyperici, Seminum Ameos, Thalspos, Anisi, Fœniculi, Soseleos Massiliensis, Cardamomi Minoris, Malabathi, Comæ Polii Montani, Chamædryos, Carpobalsami, Succi Hypocistidis, Acaciæ Veræ, Gummi Arabici, Styracis Calamitæ, Terræ Lemnicæ, Challitidis Veri, Sagapeni aa* ℥ss. *Radicis Aristolochiæ Tenuis, Comæ Centaurii Minoris, Seminis Dauci Cretici, Opoponacis, Galbani Puri, Bituminis Judaici, Castorei, āa* ʒij. *Mellis Optimi Despumati & Costi* lbxiv ss. *Vini Generosi*, q. S.

All the Drugs must be pounded together, except the Turpentine and Apobalsamum, without the least Fear that the Gums and Juices should prove an Obstacle to the Pulverization; since on the contrary, they hinder by their Glutinosity a too great Dissipation of the subtle Parts of the Mixture.

Put the Honey and *Spanish* Wine in a large Bason over a middling Fire, and when the Honey shall be dissolved, strain it through a Sieve; boil gently the Colature to the Consistence of a thick Syrup; then take the Bason off the Fire, and mix with the Matter, when half cold, the Powders by degrees, then the Opobalsamum or Oil of Nutmegs, and the Turpentine which must have been liquified together over a slow Fire; agitating the Mixture for a considerable Time with a wooden Spatula till it be quite cold. This Preparation will be the *Theriach* or *Andromachus*, which must be kept in a Pot well covered; taking Care to stir it from Time to Time, to excite the Fermentation thereof.

Virtues.—This *Opiate* or *Antidote* is proper against all Sorts of contagious Maladies, against the Plague, malignant Fevers, and the Small Pox; the Bite of a venemous Beast, the Poison of Hemplock, and of the Napelus: It is good for the windy Colick, and the Worms; for the Asthma, the intermittent Fevers, the Palsy, Apoplexy, Epilepsy, Lethargy, and the Histericks; while new it provokes Sleep, because the Opium is predominant; and then it is good to stop the Hemorrhages, and the Loosenesſ; but when it grows old, it loses that somniferous Quality, because the viscous Parts of the Opium have been rarified and exhaled by Fermentation, so that they are no longer capable of suspending or moderating the Motion of the animal Spirits in the Brain, which was necessary to provoke Sleep.——The *Dose* of the *Theriack*, is from a Scruple to a Drachm.

Andromachus, Physician of the Emperor *Nero*, wanting to refine on the Mithidrate, about 400 Years after the *Romans* had put it in Use, invented this Composition, and described it in elegiack Verses, under the Name of *Galene*, i. e. *Tranquil*, because those who were attacked with the Plague, with the Bites of venemous Beasts, and several other dangerous Accidents, were eased by taking this Remedy. A long while afterwards *Nicander*, a *Greek* Physician and Poet, gave it the Name of *Theriach*, which Name it has retained ever since. It comes from the *Greek* θήρ, which signifies a ferocious Beast, either because the Viper enters it, or because the Composition is proper to cure the Bites, or Stings of venemous Beasts.

Old *Theriacle* is preferable to the new, to resist Venom, because its Parts are subtilized and exalted by Fermentation, and rendered capable to dissolve and rarify the Congelations formed in the Blood, or other Humours, either by the Bites or Stings of venomous Beasts, or by other coagulating Poisons, or by the infected Air, or by a too great Quantity of Acids which may chance to be in the Body. Old *Theriacle* is also preferable to the new, to strengthen the Brain and the Stomach, and to provoke Perspiration, because in a long Fermentation there have been formed several subtle Parts, proper to produce that Effect.

It would be more proper to employ dried Vipers in the *Theriacle* instead of the Troches; one could also spare the Trouble of preparing the Troches of Squill; since the

the Pulp thereof newly extracted would have as much Virtue.

The *Theriacle* is the Assemblage of a great Number of Ingredients of different Kinds and Virtues; which tho' they seem ill appropriated, produce, notwithstanding, all together, a very good Effect for several Maladies; tho' it would be very proper to retrench from the Description thereof several Drugs, which must be either hurtful or needless; as the *Agarick*, the *Juice of Liquorice*, the *Rhapontick*, the *Pentaphyllum*, *Cassia Lignea*, *Turpentine*, *Malabathrum*, *Hypaistis*, *Acacia*, *Gum Arabick*, *Terra Sigillata*, and the *Chalcitis*. I find, likewise, that too much Opium is introduced into it, for the narcotick Virtue is not the most to be esteemed in the *Theriacle*; since an alexiterial Quality is required in it, which consists in its subtle and exalted Parts.

But, however, though this Composition be much respected in Medicine, either for its Antiquity, or the Effects it has produced; it seems to me, that a more efficacious Remedy could be prepared with a small Number of the most essential Drugs it contains, chosen and mixed together according to the Idea of the Physician, without being at the Trouble and Expence of making so large and so embarassing a Preparation; for it happens very often that certain Drugs which enter the Preparation of the *Theriacle*, are good for a Constitution, and contrary to another; for it is difficult to appropriate for all the Maladies, where the *Theriacle* is administer'd, so great a Number of different Drugs heaped upon one another; which do not seem to have been introduced into the Composition, by the Choice of a learned Physician. *Hippocrates* did not give so great an Extent to the Compositions he used; and we see that the Recipe's of the most experienced Physicians, either antient or modern, are short, and confined to a very moderate Number of simple Drugs: There is nothing I hate more than to see a long Scrole sent to an Apothecary's Shop; which serves only to puzzle him, to render a Preparation more nauseous to the poor Patient; and seldom has the Effect proposed. For my Part, I must confess, that I have seldom Recourse to this Part of the *Galenical Pharmacy*, and seldom introduce any of these Ripopees in my Prescriptions, very few excepted, which I think may sometimes answer my End effectually: I'm in particular an utter Enemy to the *Theriacle*; not that I condemn absolutely the Preparation thereof, when done with Judgment; but because I am conscious, that most of the *Theriacle* found in the Shops, is a poisonous Medicine, made with an ignorant and avaricious Hand.

Theriaca Reformata, A Daquin. ℞. *Truncorum Viperinorum siccorum cum Cordibus & Hepatibus*, lb. j. *Pulpæ scillitiæ, extracti opii Thebaici, āa* lb. ß. *Radium Contrayervæ, Angelicæ, Valerianæ majoris, Meu Athamantici, Gentianæ, Aristolochiæ tenuis, Costi, Nardi Indicæ, Cinnamomi, Olei nucis Moschatæ per Expressionem extracti, Croci, dictamni Cretici, folii Indi, Scordii, Calaminthæ Montanæ, Poli Montani Lutei, Chamæpityos, Comarum Centaurii minoris & Hyperici, florum Stœchadis Arabicæ, Granorum Amomi racemosi, & Cardamomi minoris, seminis Petroselini Macedonici, Ameos, Seseleos Massiliensis, Myrrhæ Trogloditicæ, āa* ℥ iv. *Resinæ Styracis electæ Purissimæ, Opoponacis, Sagapeni, Castorei, āa* ℥ ij. *Extracti Mellaginei Granorum Juniperi*, lb. xxxv. ℥ iij. *Vini Malvatici*, ℥ ix. *fiat ex arte Theriaca.*

Virtues.—This *Theriacle* has the same Virtues as the other, but operates with more Efficacy.——The *Dose* is from half a Scruple to a Drachm.

Theriaca Diatessaron, Mesvé. ℞. *Radicum Gentianæ, Aristolochiæ Rotundæ, Baccharum Lauri, Myrrhæ electæ*, ℥ ij. *Mellis optimi despumati*, lb. ij. *fiat ex arte Electuarium.*

Virtues.—This *Theriacle* is good against the Bites of venomous Beasts, against the Epilepsy, the Convulsions, Colick, to expel the After-Birth, to provoke the Menses, and strengthen the Stomach.——The *Dose* is from a Scruple to a Drachm.

Note, That *Diatesseron* signifies a Composition of four Drugs.—This *Theriacle* is also called the *Treacle of the Poor*; because it is made at a little Expence, and in a short Time.

Electuarium Orvietanum Frederici Hoffmani. ℞. *Radicum Vincetoxici, Zedoariæ, Carlinæ, Angelicæ, Petasitidis, Valerianæ, Dictamni albi, Enulæ Campanæ, Chelidoniæ, āa* ℥ iij. *Foliorum dictamni Cretici, Scordii, Rutæ, āa man.* iij. *Pulveris Viperarum*, ℥ ij. *Croci orientalis*, ℥ j. ʒ vj. *Galbani*, ℥ j. ß. *Myrrhæ electæ, Sulphuris, Terræ Sigillatæ, āa* ℥ j. *Salis Viperarum volatilis*, ʒ vj. *Cinnamomi, Caryophyllorum, āa* ℥ ß. *Laudani*, ʒ iij. *Olei Succini & Citri, āa* ʒ j. ß. *Mellis Juniperi*, lb. x.

The Roots, Leaves, Cinnamon, and Cloves must be pounded together into a subtle Powder; the Saffron by itself, after it has been dried between two Papers; the Terra Sigillata and Sulphur by themselves, the Galbanum and the Myrrh by themselves; all which Powders must be mixed with that of Viper. Then the Extract of Juniper-Berries shall be prepared in the usual Manner, in the Consistence of Honey, or of a thick Syrup; dissolving afterwards in it, while yet hot, the Laudanum, with the Powders; and when the Matter is quite cold, the Salt of Viper, after it has been dissolved in two Ounces of *Spanish* Wine, the distilled Oils or Essences of Succin, and of Lemon Peel; to make an Electuary or Opiate, which is to be kept in a Pot well stopped, where it must be left to ferment for several Months before it is used.

Virtues.—This *Orvietan* (the best that can be made) is much esteemed against the Plague, the malignant Fevers, the Small Pox, and the Bite or Stings of all venomous Beasts; and strengthens the Brain, the Heart, and the Stomach.——The *Dose* is from a Scruple to a Drachm and a half.

Electuarium Diasulphuris reformatum. ℞. *Magisterii sulphuris*, ℥ j ß. *Olibani, Myrrhæ, Styracis Calamitæ, Radicis Helenci, Tussilaginis, Meu Athamantici, Liquiritiæ, Ireos florentiæ, Seminis Anisi, āa* ℥ j. *Gum Arabici, Caryophyllorum, Croci, Florum Benzoini, āa* ʒ ij. *Conservarum Capillorum veneris, & Tussilaginis per setaceum Trajectarum, āa* ℥ ij. *Mellis in decocto Hyssopi, & Scabiosæ despumati, & ad Consistentiam Opiatæ cocti*, lb. iij. *fiat Electuarium*, S. A.

Virtues.—This Electuary is proper for the Asthma, to soften the Acrimony of the Breast, to rarify the coarse Pituita; and to abate the Vapours, and to appease the Pains.——The *Dose* is from a Scruple to a Drachm and a half.

Opiata Salomonis. ℞. *Corticis Citri saccharo conditi*, ℥ viij. *Conservarum Oxytriphylli, florum Rorismani, & Buglossi, āa* ℥ ij. *Rosatum rubrarum exungulatarum Siccar. Radicum enulæ Campanæ & Dictamni albi, foliorum Dictamni cretici, Seminum contra Vermes, Citri mundati, Cardui Benedicti, Rasuræ cornu Cervi, āa* ℥ ß. *Corticis Citri, sicci, Santali Citrini, Radicis Gentianæ, Ossis e corde cervi, āa* ʒ ij. *Cinnamomi, Macis, Caryophyllorum, Cardamomi minoris, Grana Juniperi*, No. XXIV. *Syrupi de Limonibus*, lb. ij. *fiat Opiata*, S. A.

The Roots, Seeds, Woods, Flowers, Leaves, Mace, Cloves, Cardamum, the Bone of the Heart of a Stag, the Chips of Hart's Horn, the Bark, and the Juniper-Berries, must be pounded together. The preserved Lemon Peel, shall be cut small, and beaten in a Marble Mortar, with the Conserves and some Syrup of Lemons, to make a liquid Paste thereof, which must be strained into a Pulp through a Sieve of Horse Hairs turned upside down.—The Syrup of Lemons must be boiled over a slow Fire, to the Consistence of Honey; mixing with it when half cold, the Pulps and Powders to form an Electuary, which must be kept in a Pot well stopped.

Virtues.—This Opiate is used to strengthen the Stomach, to stop Vomiting, to provoke the Appetite, to resist the bad Air, and the Corruption of the Humours, to kill the Worms, and for all contagious Maladies.—The *Dose* is from a Scruple to four.

Electuarum Diascordium Fracastorii reformatum. ℞. *Foliorum Scordii*, ℥ iij. *Rosarum rubrarum Exungalatarum*, ℥ j ß. *Cinnamomi, radicis Tormentillæ, āa* ʒ vj. *Styracis Calamitæ foliorum Dictamni Cretici, radicis Gentianæ, Galbani, Succini, āa* ℥ ß. *Opii, Piperis longi, Zingiberis, seminis Oxalides, āa* ʒ ij. *Mellis rosati in Electuarii mollis Consistentiam cocti*, lb. iij. *Vini Hispanici*, ℥ ij. *fiat ex arte Opiata.*

Virtues.—This Electuary is used in malignant Fevers, the Plague, to kill the Worms, to resist Putrefaction, for the Colick; and provokes Sleep when new.——The *Dose* is from a Scruple to a Drachm.

Diascordium Francisci Deleboe sylvei reformatum. ℞. *Foliorum siccorum scordii,* ℥ ij. *Radicis imperatoriæ, Cinnamomi, āa* ℥ j. *Radicis Gentianæ, foliorum Cardui Benedicti, Dictamni Cretici, Boli Armenæ, Gummi Arabici, āa* ℥ ß. *Nucis Moschatæ,* ʒ iij. *Radicis Angelicæ, Opii, Croci, āa* ʒ ij. *Acaciæ veræ,* ʒ j. ß. *Mellis Anthasoti, ad Consistentiam Electuarii mollis Cocti,* lb. ij. *fiat opiata, S. A.*

Virtues. —This Electuary is sudorifick, appeases Pains, provokes Sleep, and stops a Loosenefs.——The *Dose* is from five Grains to a Scruple.

Note, That I chuse here to employ the Drugs in Substance, rather than in Extract, as it was prescribed by the Author, because what they have the most essential, is carried away by the Distillation.

Confectio Narcotica, A. Mynsicht. ℞. *Nucis Moschatæ,* ℥ ß. *Boli Armenæ præparatæ, Laudani & florum Papaveris erratici, āa* ʒ iij. *Croci orientalis, Trochischorum Ramisch, āa* ʒ ij. *Croci Martis astringentis,* ʒ j. ß. *Radicis Tormentillæ, Bistortæ & Zedoariæ, āa* ʒ j. *Magisterii Corallorum, Succini albi præparati, Cornu cervini usti, Caryophyllorum, āa* ʒ ß. *Camphoræ, g. v. Syrupi de papavere Simpl. & de Jujubis, āa* ʒ iv. *fiat Electuarium, S. A.*

The same Method, as to pounding the Ingredients, mixing them, *&c.* is to be observed in the Preparation of all the Electuaries, I have prescribed for some of them; therefore I think it needless to repeat it every Time.

Virtues. —This Confection appeases the Head-ach; the Pains of the Stomach, and of the Matrice; it provokes Sleep, stops the Loosenefs, the Hemorrhages, and Gonorrhœa, abates the Vapours, appeases the Cough and the Hickup.——The *Dose* is from half a Scruple to a Drachm.

Confectio Alkermes reformata. ℞. *Syrupi Kermesini optimi recenter parati, & ad mellis Consistentiam cocti,* lb. j. ß. *Santali Citrini, & Cinnamomi, āa* ℥ j. *Ambræ Griseæ,* ʒ j. *Moschi,* ʒ ß. *Oleorum Macis & Caryophyllorum, āa gutt.* vj. *fiat Confectio, S. A.*

The Pharmacopœa of *Paris* has retrenched the Silk from the Confection *Alkermes,* which can by no Means diminish the Virtue of the Composition; since Silk can communicate no Virtue to the Liquor it is boiled in. I retrench likewise the Rose Water, because in boiling, its volatile Particles, in which consists all its Virtues, are entirely dissipated: And also the Pearls, and *Lapis Lazuli,* which are alkaline and astringent Matters, but cannot communicate any cardiack Quality to the Confection, for they have no volatile nor penetrating Particles, to communicate themselves to the Blood, and thereby help it to expel what is contrary to it: As for the Gold which is also often employed in the Confection *Alkermes,* it cannot serve but as of an Ornament to it, since it is so hard a Matter that it cannot be digested in the Stomach; and therefore is voided in the same Form and Quality it was taken. The Juice of Apples is also retrenched, since the Silk is retrenched; it being employed in the Confection only to extract the Quality of the Silk.

Virtues. —The Confection *Alkermes* is proper to strengthen the Heart, the Stomach, and the Brain; to resist Putrefaction, to raise the Spirits, to expel the Melancholy, and to provoke the Seed. It is prescribed in the Palpitations of the Heart, and in the Sincopes; and it hinders Abortion.——The *Dose* is from a Scruple to a Drachm. It is also employ'd in Epithem, applied on the Region of the Heart, and of the Stomach.

They use in *France* an Opiate of Kermes, to strengthen Horses, whereof here follows the Description.

Opiata Kermes. ℞. *Granorum Kermes,* ℥ xvj. *Baccarum Juniperi,* ℥ viij. *Cubebarum, Baccarum Lauri, āa* ℥ vj. *Radicum Scorsoneræ, Imperatoriæ, Zedoariæ, Ireos florentiæ, Enulæ Campanæ, Rasuræ cornu cervi, & Eboris, āa* ℥ iv. ß. *Corticum Aurantiorum, & Citri Siccator. āa* ℥ iv. *Cinnamomi,* ℥ ß. *Nucis Moschatæ, Caryophyllorum, āa* ʒ ij. *Misceantur omnia simul, pulverentur, & cum mellis spumati,* lb. xiv. ℥ viij. *fiat Opiata, S. A.*

Mr. *Solleysel,* in his Book *Of the perfect Farrier,* orders for a Horse four Ounces of this Opiate in a Quart of white Wine, or two Ounces in a Pint of Sack. It could also be administer'd to Men from half a Drachm to two, to strengthen the Stomach, and resist the Malignity of the Humours.

Opiata Cardiaca Collegii Lugdunensis. ℞. *Baccarum Juniperi,* ℥ iv. *Pulveris Viperini, Macis, Radicum Angelicæ, Aristolochiæ longæ, & rotundæ, Bistortæ, Carlinæ, Contrayervæ, mei Athamantici, āa* ℥ j. *cum melle aqua scordii cocto & despumato, F. Opiata, S. A.*

The Berries, Mace, and Roots, having been well pounded together, must be mixed with the Powder of Viper: Then you must boil three Pounds and three Ounces of the best Honey in five or six Ounces of distilled Water of Scordium, to the Consistence of a liquid Electuary; wherein you'll mix the Powders, to make an Electuary or Opiate, which is to be kept in a Pot well stopped for Use.

Virtues. —This Opiate is proper to resist the Malignity of the Air, in Time of the Plague; to expel by Perspiration the bad Humours; to strengthen the Heart, the Stomach and the Brain; for the Worms, and the Bites of venomous Beasts.——The *Dose* is from a Scruple to four.

Opiate Antinephretick.—Take the Judaick Stone, Succin, Gayac, the Leaves and Flowers of the Golden Rod, of each four Ounces; Sarsaparilla, the Berries of Bays, and of Juniper, of each three Ounces; Sal prunellæ and Sulphur, of each half an Ounce; Mercurius Dulcis, two Drachms; Scammony and Resine of Jalap, of each a Drachm; pound and grind together the Judaick Stone, and Mercurius Dulcis; the Gayac, Sarsaparilla, Golden Rod, Berries, and Seeds together; the Salts together, and the Resines together; then mix exactly all those Powders, and incorporate them in a Mortar, with sixteen Ounces of the best Honey, the Pulp of Tamarines, and Turpentine, of each four Ounces; Oils of Gayac, of Succin, and Balsam Capivi, of each an Ounce and a half; for an Opiate, which must be kept for Use.

Virtues. —This Opiate is a great aperitive, it purges gently, and is used to prevent the Nephretick, to attenuate and divide the Stone of the Reins and of the Bladder; for the Rheumatism; and for the Palsy when it first begins.——The *Dose* is from a Drachm to two.

A *Confection against Worms.*—Take of Semen contra, one Ounce, the best Rhubarb, and Mercurius Dulcis, of each half an Ounce: Pound the Semen contra, and the Rhubarb together; and the Mercurius Dulcis by itself; mix the Powders, and incorporate them in half a Pint of Syrup of Juice of Porcelain, boiled to the Consistence of a soft Electuary, for an Opiate, which is to be kept in a Glass or Stone Vessel.

Virtues. —This Opiate is proper to kill the Worms, and evacuate them gently; and to hinder their Generation.——The *Dose* is from a Scruple to two Drachms.

Electuarium Sassafras reformatum. ℞. *Ligni Sassafras odorantissimi,* ℥ ij. *Cinnamomi,* ʒ iij. *Ambræ Griseæ,* ʒ ß. *Macis,* ℈ j. *Moschi gr.* iij. *Sacchari albi in aqua fœniculi dissoluti & cocti,* lb. j. ß. *fiat Electuarium, S. A.*

Virtues. —This Electuary is proper to resist the Malignity of the Humours; it is sudorifick; it strengthens the Brain, the Stomach, and the Heart, sharpens the Sight, and helps the Digestion.——The *Dose* is from half a Drachm to two Drachms.

Confectio Cephalica, A. Mynsicht reformata. ℞. *Pulveris Dialunæ, A Mynsicht,* ℥ j. ß. *Radicis Dictamni albi, Seminis Citri mundati, Granorum Kermes, Seminis Anetsæ, Extracti lilii Convallium, āa* ʒ ij. *salis Cranii humani, succini albi præparati āa* ʒ j ß. *Croci, Galangæ minoris, Cubebarum, āa* ℥ j. *Ossis de Corde cervi,* ℈ ij. *Conserve floruin Pæoniæ Vitriolatæ, anthos āa* ℥ j. *Sacchari Candi albi, in aqua Apoplectica dissoluti, Syrupi acetositatis Citri, āa* ℥ viij. *Misce, fiat Electuarium, S. A.*

The Roots, Seeds, the Bone of the Heart of a Stag, the Saffron, the Cubebes, and the Kermes must be pounded together, and mixed afterwards with the Succin, the Salt of human Cranium, and the Powder Dialunæ: The Conserve of the Flowers of Peony must be moistened with some Drops of Spirit of Vitriol, and beaten with the Conserve of Flowers of Rosemarin in a Marble Mortar, adding to it some Syrup of Lemons to make a liquid Paste, which shall be strained through a Sieve of Horse-Hair to extract the Pulp: Dissolving the Sugar-candy in about four Ounces of the apoplectick Water of *A. Mynsicht,* over a slow Fire, and mixing the Dissolution with the Syrup of Lemon, boiled in a glazed earthen Dish to the Consistence of a liquid Electuary, in which

which must be dissolved the Extract of the Lillies of the Valleys, and the Pulps; and when the whole is quite cold, the Powders shall be incorporated with it to make a Confection to be kept in a Pot well stopped.

Virtues.—This Confection is proper for all the Maladies of the Brain; which it rejoices and strengthens. The *Dose* is from half a Drachm to a Drachm.

Electuarium Pectorale. ℞. *Pinearum*, ʒj. *Succi Glycyrrhisæ, Amygdalarum dulcium, Avellanarum, āa* ℥ ss. *Hyssopi, Capillorum veneris, seminis urticæ, Radicis Ireos, & Aristolochiæ rotundæ, āa* ʒj ss. *Enulæ Campanæ, Piperis nigri, Seminis Nasturtii, āa* ʒ ss. *Mellis despumati*, lb. j. ℥ ij. *fiat Electuarium, S. A.*

Virtues.—This *Electuarium* is proper to provoke Expectoration, to loosen the Phlegms fastened to the Lungs, to the Breast, and to the Diaphragm, and to help Respiration.——The *Dose* is from a Scruple to a Drachm.

Electuary of Garlick.—Take eight Cloves of Garlick, pound them in a Marble Mortar with some Honey, to make of it a liquid Paste, which must be strained thro' a Sieve turn'd upside down: Add to it four Scruples of Castoreum, Sperma ceti, Juniper Berries, dried Leaves of Parietary, all in Powder, of each two Scruples; five Drachms of the best Treacle, and four Ounces of Oxymel of Squill boiled to the Consistence of Honey, for an Electuary, which must be kept in a Pot well stopped.

Virtues.—This Electuary is proper for the Nephretick, and the windy Colick; it resists the Malignity of the Humours, and is used in the Time of the Plague.——The *Dose* is from a Scruple to a Drachm.

Electuarium Camphoratum Kegleri. ℞. *Camphoræ*, ℥ j. *Zingiberis, Radicis Dictamni albi, & Tormentillæ, Nucis Vomicæ, Ossis de Corde cervi, āa* ʒ ij. *Theriacæ Andromachi*, ℥ iv. *Sacchari albi in aqua aceiosæ cocti*, lb. j.

Pound together the Nux vomica, after it has been rasped, the Bone of the Heart of a Stag and the Roots; and the Camphire with some Spirit of Wine. Mix the Powders; and having boiled the Sugar in the Water of Sorrel to the Consistence of Opiate; mix with it when almost cold, the Theriacle, and afterwards the Powders, to make of it an Electuary, which must be kept in a Pot well stopped.

Virtues.—This Electuary is sudorifick, and hysterick, proper to resist Venom, and the Malignity of the Humours.——The *Dose* is from a Drachm to two.

I would retrench from this Composition the Nux vomica, because it swells in the Stomach, and stops the Respiration.

Confectio Pretiosa, A. Mynsicht, Reformata. ℞. *Conservæ florum Tunicæ, & Rosarum vitriolat. āa* ℥ viij. *Oleo sacchari Citri*, ʒ vj. *Unam nucem Moschatam in India conditam. Granorum Kermesinorum, cornu alcis, aa* ʒj. ss. *Mastichis electi, ligni Aloes, Galangæ minoris, Cardamomi minoris, aa* ʒj. *Ambræ Griseæ, Croci, aa* ℈ ij. *Moschi, Ossis de Corde cervi, Oleorum Cinnamomi, Macis, aa* ℈ j. *Caryophillorum, Rosarum, aa* ℈ ss.

Pound together the Bone of the Heart of a Stag, the Cardamum, the Galanga, the Wood of Aloes, the Nail of an Elk, and the Berries of Kermes; the Mastich, the Ambergrease, and the Musk together: Pound in a Marble Mortar the Nutmeg Confect, till it be reduced into a Paste, mix it with the Conserves, and strain the whole Mixture through a Sieve of Horse-Hair to extract the Pulp; then incorporate with it your Powders, with a sufficient Quantity of Syrup of Kermes to make an Electuary, which is to be kept in a Pot well stopped.

Virtues.—This Confection is esteemed a grand Remedy against the Palpitation of the Heart, and other Weakness; it repairs the exhausted Strength, and is good in the Scurvy, Leprosy, Apoplexy, and Epilepsy; it provokes the Seed.——The *Dose* is from a Scruple to a Drachm.

I have retrenched from this Composition, the *Or potable*, the Tincture of Coral, the Magisterium of Pearls, and the precious Stones, as needless Ingredients.

Electuarium Scorbuticum. ℞. *Conservarum Cochleariæ*, ℥ ij. ss. *Chamædryos, Melissæ, Rosarum pallidarum, Citri, aa* ʒ vj. *Cinnamomi, Cardamomi, aa* ℥ j. *Conditorum calami Aromatici, Zingiberis, Radicis Pimpinellæ, Corticis Citri, aa* ʒ iij. *Extractorum Absinthii & Juniperi, Seminis Sinapi & Erucæ, aa* ʒ ij. *Tartary Vitriolati*, ʒ j. ss. *Oleorum Cinnamomi*, ʒ ss. *Anisi*, ℈ j. *cum Spiritu de Cinnamomo & de Cochlearia, q. s.*

The Cinnamon, Cardamum, and the Seeds, must be well pounded together; and the Powders mixed with the vitriolated Tartar, beat in a Marble-Mortar, the Lemon Peel, and the Confect Roots, and the Conserves, till they be reduced into a Paste, humecting them with some Syrup of Lemons, straining them afterwards into a Pulp through a Sieve of Horse-Hair; and mixing in that Pulp the Extracts, the Powders, the Oils, and a sufficient Quantity of the Spirits of Cochlearia, and Cinnamon, to make an Electuary, which must be kept in a Pot well stopped.

The Extracts of Juniper-Berries, and of Wormwood, cannot be made without letting Escape the most volatile Parts, in which their principal Virtue consisted. Therefore it would be better to employ here the Juniper-Berries, and Summits of Wormwood pounded only.

Electuarium Oxydorcicum, Georgi Batei. ℞. *Succorum depuratorum Rutæ & Chelidoniæ, aa* ℥ iv. *Mellis optimi*, lb. j. *Coque despumando ad debitam Consistentiam, deinde adde, pulveris summitatum Euphrasiæ nigris surculis* ℥ ij. *Seminis fæniculi*, ʒ vj. *Cinnamomi, Cubebarum, Caryophyllorum, Macis, Macropiperis, aa* ʒ j.

Pound together the Plants, Cinnamon, Seeds, Fruits, and Mace; and after the Juices have been extracted by Expression, and depurated, they must boil with the Honey to the Consistence of Opiate; mixing afterwards the Powders in it to make an Electuary to be kept for Use.

Virtues.—This Electuary is very good to sharpen the Sight, and strengthen it. The Author thereof orders to take it Morning and Night, three Drachms for a *Dose*.

Cordial Confection against Melancholy.—Take Cinnamon, Cloves, and Mace, and prepar'd Pearls, of each three Drachms; let the Cinnamon, Cloves, and Mace, be pounded together, and mixed afterwards with the prepared Pearls, and with a sufficient Quantity of Syrup of Gilly-Flowers, to form an Electuary.

Virtues.—This Confection strengthens the Heart, the Brain, and the Stomach, abates the Vapours, and dissipates Melancholy.—The *Dose* is from a Drachm to two.

Electuarium contra Dysenteriam, Philippi Hoechstetteri. ℞. *Radicum consolidæ majoris*, ʒ vj. *Crassulæ, seu Telephii tragi*, ℥ ss. *Croci Martis astringentis*, ʒ j. ss. *Nucis Moschatæ*, ℈ iv. *Pulveris Diarrhodon abbatis, Trochiscorum de Spodio, aa* ℈ iij. *Ramich*, ℈ j. *Rob. Prunellorum Sylvestrium*, ℥ ij. *Conservæ Rosarum rubrarum antique vitriolatæ*, ℥ ij. *Pimpinellæ Sanguisorbæ*, ʒ x. *Syruporum ex Rosis siccis & Myrtillorum, aa* ℥ j. *Theriacæ novæ Andromachi*, ℥ ss. *fiat Electuarium.*

Virtues.—This Electuary stops the Dysenteria, Diarrhæa, Lienteria, the immoderate Flux of the Menses, the spitting of Blood, and the Hemorrhages.——The *Dose* is from a Drachm to three.

Electuarium Terebinthinatum. ℞. *Terebinthinæ Claræ* lbj. *Radicis Bismalvæ, Graminis, Ononidis, Bruscі, Liquiritiæ āa* ℥ j. *Gummi Arabici, & Tragacanthi Oculorum Cancri præparatorum, Nitri Purificati, Salis Sulphuris, Millepedum præparatorum āa* ℥ iij. *Salis Volatilis Succini, Aquilæ Albæ āa* ʒ ij.

The Roots and Millepedes must be pounded together, the Gums in a warm Mortar; the Salts by themselves, and the Mercurius Dulcis by itself; then the Powders must be mixed with the Crab's Eyes prepared; and the whole incorporated with the Turpentine to make an Electuary, which must be kept for Use.

Virtues.—This *Electuary* is proper to attenuate the Stone in the Reins and the Bladder; to expel the Sand and Phlegms by Urine, for the Nephretick; to cleanse and consolidate the Ulcers of the Reins, and of the Bladder, and of the Matrice; for the virulent Gonorrhœa's, and all Retentions of Urine.—The *Dose* is from a Drachm to a Drachm and a half in Bolus.

Triphera Persicat Reformata. ℞. *Seminis Violarum, & Myrabolanorum Citrinorum, aa* ℥ viij. *Foliorum Sennæ Mundatorum, Rhei Electi aa* ℥ ij. *Agarici Trochisciti, & Tartari Solubilis aa* ℥ j. *Conservæ Violarum* lbj. *Mannæ Calabrinæ, Pulpæ Cassiæ aa* ℥ iv. *Pulpæ Tamarindorum* ℥ iij. *Sacchari Albi, in Succis Apii, Lupuli, & Endivi, Depuratis,*

Depuratis Cocti lb iij. *Fiat Electuarium*, S. A.

Virtues.—This *Tryphera* (which Tryphera signifies nice) purges gently; it is given for the Yellow Jaundice, for the Obstructions of the Spleen, and for the Melancholy.—The *Dose* is from two Drachms to an Ounce.

Catholicum Simplex Reformatum. ℞ *Decocti Radicum Althææ, Cichorei, Polypodii Quercini, & Glycyrrhisæ Uvarum Passarum Expurgatarum, Foliorum Arthemisiæ, Agrimonii, Capillorum Veneris, & Seminis Anisi* lb iv.

In which you'll boil three Pounds of skimmed Honey, and a Pound of Syrup of pale Roses, to the Consistence of Opiate, then mix with it *Pulpæ Cassia recens extractæ*, lb ss. *Pulveris Sennæ Mundatæ* ℥ viij. *Agarici Trochiscati* ℥ iij. *Rhubarbari, Tartari Solubilis āa* ℥ j. *Fiat Electuarium.*

Virtues.—This *Electuary* purges all the Humours.—The *Dose* is from a Drachm to an Ounce. It is given in Bolus, and in Glysters.

Note, That this Preparation is called *Catholicum*, which signifies universal, because it is supposed to purge all Sorts of Humours, as the Bile, the Pituita, and the Melancholy.

Catholicum Duplicatum Reformatum. ℞ *Polypodii Quercini Contusi* ℥ iij.

Boil it in two Quarts of common Water, and in the Colature boil four Pounds of white Sugar to the Consistence of Honey; then take it off the Fire, and when almost cold, mix with it, *Pulparum Cassiæ, & Tamarindorum, Recenter Extractarum, Pulvis Rhabarbari Electi, āa* ℥ iv. *Myrabolanorum Citrinorum, Sennæ Mundatæ, Seminis Violarum āa* ℥ ij. *Tartari Solubilis, Rosarum Rubrarum aa* ℥ j. *Fiat Electuarium*, S. A.

Virtues.—This Electuary is said to purge all the Humours; it purges gently by Stools in binding; therefore it is given in the Loosenes.—The *Dose* is from two Drachms to an Ounce.

Catholicum Frambesarii Reformatum. ℞ *Pulparum Cassiæ* ℥ iij. *Tamarindorum* ℥ i ss. *Sennæ Mundatæ & Cremoris Tartari aa* ℥ j. *Jalappæ & Salis Tartari aa* ℥ ss. *Rhabarbari* ʒ ij. *Mellis Despumati* ℥ ix. *Fiat Electuarium.*

Virtues.—This *Catholicum* is more purgative than the preceding one, and purges all Humours.—The *Dose* is from two Drachms to an Ounce.

Catholicum Quercetani Reformatum. ℞ *Succorum Depuratorum Rosarum Pallidarum* lb j. *Chicorii, Lupuli & Fumariæ aa* lb ss. *Sacchari Albi* lb ij.

Boil them together to the Consistence of Honey; and being taken off the Fire, mix with it, when half cold, a Pound of Manna depurated in the Juice of pale Roses; and the Pulps of Cassia, and of Tamarinds, of each half a Pound: Then put the Mixture over a slow Fire, to boil to the Consistence of a soft Electuary; and when half cold, add to it four Ounces of Senna in Powder, two Ounces of Rhubarb, Agarick newly trochiscated, and Cream of Tartar, of each an Ounce and half, to make an *Electuary*, which must be kept for Use.

Virtues.—This *Electuary* purges all Humours.—The *Dose* is from two Drachms to six.

Catholicum pro clysteribus Reformatum. ℞ *Decocti Foliorum Mercurialis, Malvæ, Violarum, Parietariæ, & Seminis Fœniculi* lb viij.

In which must be dissolved eight Pounds of the best Honey, and the whole boiled to the Consistence of Opiate; then add to it two Pounds of Pulp of Pruines, the Powder of oriental Leaves, the Root of Briony, the Seeds of Violets, of each eight Ounces; Aniseed and Sal Gemmæ, of each two Ounces, to make an Electuary according to Art.

Virtues.—This *Catholicum* softens the Humours and purges them, and is only used in Clysters.—The *Dose* is from half an Ounce to two Ounces for each Clyster.

Electuarium Lenitivum Pharmacopææ Parisiensis. ℞ *Hordei Excorticati, Radicis Polypodii Quercini Contusæ, Passularum Enucleatarum, Tamarindorum aa* ℥ ij. *Jujubas, Pruna, Sebesten aa*, xx. *Seminis Violarum, Liquiritiæ Rasæ & Contusæ aa* ℥ j. *Foliorum Mercurialis, man.* ij. *Adianti man.* j.

Make a Decoction thereof in twelve Pints of common Water, till they be reduced to seven; then add towards the End *Foliorum Orientalium Mundatorum* ℥ ij. *Seminis Fœniculi Dulcis* ℥ ij. to four Pints of the Colature add three Pounds of the best Sugar; letting the whole Mixture boil to the Consistence of Syrup; in which must be dissolved the Pulps of Pruines boiled in one Part of the Decoction left; of Tamarins, and of Cassia strained with the rest of the Decoction, of each half a Pound; five Ounces of Senna in Powder, and two Drachms and a half of Aniseed, for an Electuary.

Virtues.—This *Electuary* softens the Humours, and purges particularly the Bile, without Violence.—The *Dose* is from half an Ounce to an Ounce and a half.

Lenitivum aliud excellentissimum. ℞ *Decocti Radicis Althææ, & Ficuum Pinguium* lb iv. *Sacchari Albi* lb iij. *Coquantur ad Consistentiam Mellis, tunc misce Pulpæ Cassiæ recenter extractæ* lb j. *Pulpæ Prunorum, Pulveris Sennæ aa* lb ss. *Seminis Violarum* ℥ iij. *Tartari Solubilis* ℥ i ss. *Fiat Electuarium*, S. A.

Lenitivum pro Clysteribus Reformatum. ℞ *Decocti Radicum Polypodii Quercini, Ireos Nostratis, & Sambuci, Foliorum Mercurialis, Althææ, Parietariæ, & Violarum, florum Camomillæ & Meliloti, Seminis Fœniculi* lb xxx. In fifteen Pounds or Pints thereof you must dissolve nine Pounds of common Honey; boil it afterwards to the Consistence of Opiate, and then dissolve it in the Pulp of Pruines, boiled in one Part of the Decoction left; and the Cassia strained with the rest of the Decoction, of each six Pounds, adding to it afterwards the Powders of the Roots of Bryony, of Hermodacts, of Senna, of the Seed of Violets, of each ℥ xx. ten Ounces of Agaric, and eight Ounces of Sal Gemmæ; for an Electuary, according to Art.

Confectio Hamec Reformata. ℞ *Passularum Mundatarum* lb ss. *Polipodii Quercini Contusi* ℥ j ss. *Epithymi* ℥ j. *Foliorum Absinthii, Thymi, Rosarum Rubrarum, Seminum Anisi, Fœniculi, Fumariæ āa* ℥ ss. *Zingiberis, Spicæ nardi, āa* ʒ ij.

Bruise all these Drugs together, and boil them in an earthen Vessel glazed, in six Pints of distilled Whey, and two Pints of Water of Fumitery, to the Consumption of half the Humidity; strain afterwards the Decoction with Expression, and in the Colature dissolve skimmed Honey and white Sugar, of each a Pound and a half; then boil it to the Consistence of Honey; and having taken the Vessel off the Fire, dissolve in the Matter eight Ounces of Pulp of Cassia, and half a Pound of that of Pruines; and at last mix with it the Powders of Citrin Myrabolans, and of Senna, of each three Ounces, two Ounces of Agarick; Troches of Alhandal and Rhubarb, of each an Ounce and a half; Scammony and Seed of Violets, of each an Ounce; Salt of Fumitery, and of Wormwood, of each three Drachms, for a *Confection.*

Virtues.—This Confection purges vigorously all Humours; it is used for the Venereal Disease, the Scurvy, the Itching of the Skin, the Itch, a Scald-head, Ring-Worms, and the King's Evil.——The *Dose* is from a Drachm to six.

Confectio hamec minor reformata. ℞. *Passularum mundatarum, Prunorum, Jujubarum, Sebestæ, aa* ℥ iij. *Epithymi, absinthii vulgaris, aa* ℥ ij. ss. *Thymi, Calaminthæ Montanæ, Polypodii quercini contusi, Glycyrrhizæ, Radicis Buglossi, aa* ʒ x. *Stœchadis Arabicæ, Chamædryos, Chamæpityos, Spongiæ, Cynorrhodi, seminis Anisi, aa* ʒ v. *Coquantur in aquæ, S. q. In colatura dissolve sapæ, & mellis dispumati, aa* lb. j. ss. *Coquantur ad Consistentiam Electuarii mollis. Tunc depositâ ab igne Pelvi, & sanè refrigeratâ materiâ, insperge pulveris Myrabolanorum Indorum & Cubebarum, aa* ℥ iij. *Scammonii*, ℥ ij. *Agaraci Trochiscati, Tartari solubilis, aa* ℥ j. *fiat Confectio, S. A.*

Virtues.—This Confection purges the Melancholy, the adust Bile, the coarse Pituita; is proper for the Ring-Worms, the Itch, the King's Evil, and the Scurvy.——The *Dose* is from a Drachm to half an Ounce.

Diaprunium simplex reformatum. ℞. *Decocti Prunorum Damascenorum Colati, & Sacchari albi, aa* lb. iij. *Coquantur ad Consistentiam opiatæ, tunc dissolve pulpæ Prunorum*, lb. j. *Pulpæ Cassiæ*, lb. ss. *Pulveris seminis violarum*, ℥ j. ss. *Rhei & Tartari solubilis, aa* ℥ j. *fiat Electuarium*, S. A.

Virtues.—This Electuary is proper to prepare the Humours and loosen them.——The *Dose* is from an Ounce to an Ounce and half.

Electuarium Diaprunum solutivum, seu Compositum. ℞. *Diapruni simplicis supra scripti,* lb. j. *Scammonii subtilissimè pulverati,* ℥ ss. *Exquisitè misceantur pistillo ligneo agitando, & fiat electuarium.*

Virtues.—This Electuary purges very well all Humours.——The *Dose* is from a Drachm to six.

Benedicta laxativa emendata. ℞. *Turbith electi,* ʒ x. *Corticis radicis Esulæ minoris,* ℥ j. *Hermodactylorum, Diacrydii, aa* ʒ vj. *Salis Gemmæ,* ℥ ss. *Spicæ nardi, Zingiberis, Caryophyllorum, Croci, Cardamomi minoris, Galangæ, Macis, Seminum Apii, Carvi, Saxifragiæ, Fœniculi, aa* ʒ j ß. *Pulverentur, Misceantur, & cum mellis despumati,* lb. ij. ss. *fiat Electuarium, S. A.*

Virtues.—This Electuary purges the Pituita and Serosities from all Parts of the Body; it raises the Obstructions, provokes the Menses, and expels the Wind.——The *Dose* is from a Drachm to six. It is also oftner employ'd in Clysters, from three Drachms to an Ounce for each Clyster.

Note, That the Name of *Benedicta* was given to that Composition because of its great Virtues.

Electuarium Aperiens A. Daquin. ℞ *Foliorum Sennæ Orientalis Mundatorum* ℥ vi. *Diacrydii, Trochiscorum Alhandal, Agarici Electi, Rhabarbari, & Seminis Violarum aa* ℥ j ß. *Sagapeni, Myrrhæ, Gummi Ammoniaci, aa* ℥ j. *Antimonii Diaphoretici, Mercurii Dulcis, aa* ʒ vj. *Salis Martis, & Tamarisci aa* ℥ ß.

The Senna, Troches of Alhandal, Agarick, Rhubarb, Seed of Violets, and Sagapenum must be reduced together into a subtile Powder, the Gum Ammoniack, the Myrrh, and the Diacrydium pounded together; and the Mercurius Dulcis and Diaphoretick Antimony together; then all those Powders must be mixed with the Salts; and all together with six Pounds of skummed Honey, to make an Electuary, which must be kept for Use.

Virtues.—This *Electuary* purges all Humours, rarifies the viscous and coarse Matters, raises the Obstructions, and provokes the Menses. It is prescribed in quartan Agues, Cachexies, hypochondriacal Maladies, and Hydropsy.—The *Dose* is from one Drachm to six.

Note, That this Composition is a Mixture of essential Remedies; there was but the Powder of the three Sanders, which having been found needless, in the original Composition, I have retrenched in this.

Electuarium Antihydropicum A. Daquin. ℞ *Rhabarbari electi, Foliorum Sennæ orientalis mundat, Seminis genistæ, Radicum Bryoniæ, Jalappæ, Mechoacan, Scammonii, Gummi guttæ, Trochiscorum Alhandal, aa* ℥ j. *Extracti totius Esulæ, Opoponacis, Sagapeni, Gummi Ammoniaci, & Salis Martis, aa* ʒ vj. *Elaterii,* ℥ ss. *Succorum, Radicis, Ireos nostratis & Sambuci, ad extracti mollioris consistentiam inspissatorum, aa* lb j. *Extracti mollioris granorum Juniperi & Syrupi de Rhamno Catharetico, aa* lb j. *fiat Electuarium, S. A.*

Virtues.—This Electuary purges powerfully the Waters; it is used for the Hydropsy.—The *Dose* is from a Drachm to half an Ounce.

Electuarium Diaturbith minerale, A. Mynsicht. ℞ *Mithridati Damaratis* ℥ iij. *Turbith mineralis, Pulveris Diarhodon Abbatis, ana* ℥ ß. *Spiritus Vitrioli rectificati, Olei Carminativi, A. Mynsicht, ana* ℈ j. *Syrupi de Jujubis, q. s. fiat Electuarium.*

Four Ounces of the Syrup of Jujubes, boiled to the Consistence of Honey must be mixed with the Mithridate, adding to it afterwards the Spirit of Vitriol, the carminative Oil, and the Powders; stirring a long while that Mixture with a wooden Spatula, to make an Electuary, which is to be kept for Use.

Virtues.—This Electuary purges violently upwards, and sometimes downwards; it is proper for the Venereal Disease, the Hydropsy, and the Plague.—The *Dose* is from half a Drachm to a Drachm and a half in Bolus.

All the emetick Virtues of this Composition consists in the Turbith Mineral.

The Mithridate, the Powder Diarhodon, and the carminative Oil, are employed in this Composition to resist Venom, and to strengthen the Stomach against the Action of the Turbith Mineral; but those Ingredients are needless while the Vomitive operates; for the best Corrective which can be given to the Turbith Mineral is fat Broth, because it facilitates Vomiting in softening the Acrimony of the Remedy.—Therefore this Preparation appears needless to me, and it suffices to keep the Turbith Mineral pure, to administer it in Pills, or in a Bolus when wanted, incorporated in some Conserve of Roses, or of Violets.

Electuarium Indum Majus Emendatum. ℞ *Turbith Electi* ℥ vi. *Diacrydii* ℥ j ss. *Tartari Solubilis* ℥ j. *Asarii* ʒ ij. *Syrupi Rosati solutivi ad consistentiam Mellis Cocti* lb ij ss. *Misce fiat Electuarium.*

Virtues.—This Electuary purges the Pituita, and the other Humours from all the Parts of the Body.—The *Dose* is from one Drachm to half an Ounce.

Electuarium Diabalzemer Emendatum. ℞ *Succi Pomorum Redolentium Depurati, & Sacchari Albi ana* lb j ss. *Coquantur simul ad Consistentiam Opiatæ, tunc adde Pulvis Sennæ* ℥ iij. *Radicum Ellebori Nigri, Turbith Gummosi, Rhei Electi, Salis Tamarisci, & Fraxini ana* ℥ ss. *Misce, fiat Electuarium,* S. A.

Virtues.—This Electuary is used to purge the Maniacks, Hypochondriacks, Epileptick, those that have the Pox and the Leprosy.—The *Dose* is from one Drachm to three.

Hiera Picra Simplex Galeni. ℞ *Aloes Succotrinæ* ℥ vi. ʒ ij. *Cinnamomi, Xylobalsami, vel hujus loco surculorum lentisci, Asari, Spicæ Indicæ, Croci, Mastiches ana* ʒ iij. *Mellis Despumati* lb ij. ℥ i ss. *Fiat Electuarium,* S. A.

The Cinnamon, Xylobalsam, or in its stead the Lentisewood, the Asarum, and the Spikenard, must be pounded together, the Aloes and Mastich together; and the Saffron, after it has been dried between two Papers by itself; the Ingredients thus pounded must be mixed together, and the Powder may be kept to be used when wanted: It is introduced into several Compositions.

When it is wanted to make the Electuary, one Part of that Powder must be mixed in three Parts of skummed Honey boiled to the Consistence of a liquid Electuary.

Virtues. The *Hiera Picra* is employ'd to purge the Stomach, to raise the Obstructions, to provoke the Menses, and the Piles, and to purify the Blood.——The Dose is from a Drachm to half an Ounce in Bolus, by reason of its extreme Bitterness. It is also used in Clysters for the Colick, the Hystericks, and the Apoplexy; from two Drachms to an Ounce for each Clyster.

Note, That *Hiera Picra* are two *Greek* Words, the first whereof signifies *great* and *sacred*, and the other *bitter*; *Galen* having so great an Opinion of that Composition that he gave it that fine Name.

The purgative Virtue of the *Hiera Picra* consists in the Aloes.

Hiera Picra Reformata. ℞ *Aloes Succotrinæ* ℥ ij. *Agarici Trochiscati, & Tartaris solubilis ana* ℥ j. *Diacrydii* ʒ vi. *Mellis despumati* ℥ xiij. *fiat Electuarium,* S. A.

Virtues.—This *Hiera Picra* purges with Violence enough; it is used for the windy Colick, the Apoplexy, Lethargy, and Epilepsy.—The *Dose* is from half a Drachm to three Drachms.

Hiera Diacolocynthidos Pacchii Reformata. ℞ *Trochiscorum Alhandal, Agarici, Stœchadis Arabiæ, Marrubii Albi, ana* ʒ x. *Opoponacis, Sagapeni, Seminis Petroselini, Radicis Aristolochiæ Rotundæ, Piperis albi aa* ʒ v. *Cinnamomi, Spicæ Nardi, Myrrhæ, Croci, ana* ℥ ss. *Salis Armoniaci* ʒ vi. *Mellis Despumati & Cocti* lb iij. *fiat Electuarium,* S. A.

Virtues.—This *Hiera* is employ'd in the Epilepsy, Apoplexy, Palsy, Lethargy, to provoke the Menses, to expel the After-birth, and to purge the Pituita of the Brain, and of the Joints.——The *Dose* is from two Drachms to an Ounce. It is also used in Clysters, from an Ounce to an Ounce and a half for each Clyster.

All the purgative Virtues of this Composition proceeds from the Troches of Alhandal, and the Agarick.

Hiera Logadii Reformata. ℞ *Trochiscorum Alhandal & de Agarico, Aloes Succotrinæ ana* ℥ ss. *Diacrydii, Ellebori Nigri, Elaterii, Salis Armoniaci, Gummi Ammoniaci, ana* ʒ vi. *Bdellii, Opoponacis, Sagapeni, Croci, Castorii, Aristolochiæ Rotundæ, ana* ʒ ij. *Mellis Despumati,* lb j ss. *fiat Electuarium.*

Virtues.—This *Hiera* purges with much Violence; it is employ'd for the hypocondriacal Melancholy, the Vertiges, the Epilepsy, Leprosy, Apoplexy, Lethargy, Sciatica,

Depuratis Cocti lb iij. *Fiat Electuarium*, S. A.

Virtues.—This *Tryphera* (which Tryphera signifies nice) purges gently; it is given for the Yellow Jaundice, for the Obstructions of the Spleen, and for the Melancholy.—The *Dose* is from two Drachms to an Ounce.

Catholicum Simplex Reformatum. ℞ *Decocti Radicum Althææ, Cichorei, Polypodii Quercini, & Glycyrrhisæ Uvarum Passarum Expurgatarum, Foliorum Arthemisiæ, Agrimonii, Capillorum Veneris, & Seminis Anisi* lb iv.

In which you'll boil three Pounds of skimmed Honey, and a Pound of Syrup of pale Roses, to the Consistence of Opiate, then mix with it *Pulpæ Cassia recens extractæ*, lb ss. *Pulveris Sennæ Mundatæ* ℥ viij. *Agarici Trochiscati* ℥ iij. *Rhubarbari, Tartari Solubilis āa* ℥ j. *Fiat Electuarium.*

Virtues.—This *Electuary* purges all the Humours.—The *Dose* is from a Drachm to an Ounce. It is given in Bolus, and in Glysters.

Note, That this Preparation is called *Catholicum*, which signifies universal, because it is supposed to purge all Sorts of Humours, as the Bile, the Pituita, and the Melancholy.

Catholicum Duplicatum Reformatum. ℞ *Polypodii Quercini Contusi* ℥ iij.

Boil it in two Quarts of common Water, and in the Colature boil four Pounds of white Sugar to the Consistence of Honey; then take it off the Fire, and when almost cold, mix with it, *Pulparum Cassiæ, & Tamarindorum, Recenter Extractarum, Pulvis Rhabarbari Electi, āa* ℥ iv. *Myrabolanorum Citrinorum, Sennæ Mundatæ, Seminis Violarum āa* ℥ ij. *Tartari Solubilis, Rosarum Rubrarum āa* ℥ j. *Fiat Electuarium*, S. A.

Virtues.—This Electuary is said to purge all the Humours; it purges gently by Stools in binding; therefore it is given in the Loosenes.—The *Dose* is from two Drachms to an Ounce.

Catholicum Frambesarii Reformatum. ℞ *Pulparum Cassiæ* ℥ iij. *Tamarindorum* ℥ iss. *Sennæ Mundatæ & Cremoris Tartari aa* ℥ j. *Jalappæ & Salis Tartari aa* ℥ ss. *Rhabarbari* ʒ ij. *Mellis Despumati* ℥ ix. *Fiat Electuarium.*

Virtues.—This *Catholicum* is more purgative than the preceding one, and purges all Humours.—The *Dose* is from two Drachms to an Ounce.

Catholicum Quercetani Reformatum. ℞ *Succorum Depuratorum Rosarum Pallidarum* lb j. *Chicorii, Lupuli & Fumariæ aa* lb ss. *Sacchari Albi* lb ij.

Boil them together to the Consistence of Honey; and being taken off the Fire, mix with it, when half cold, a Pound of Manna depurated in the Juice of pale Roses; and the Pulps of Cassia, and of Tamarinds, of each half a Pound: Then put the Mixture over a slow Fire, to boil to the Consistence of a soft Electuary; and when half cold, add to it four Ounces of Senna in Powder, two Ounces of Rhubarb, Agarick newly trochiscated, and Cream of Tartar, of each an Ounce and half, to make an *Electuary*, which must be kept for Use.

Virtues.—This *Electuary* purges all Humours.—The *Dose* is from two Drachms to six.

Catholicum pro clysteribus Reformatum. ℞ *Decocti Foliorum Mercurialis, Malvæ, Violarum, Parietariæ, & Seminis Fœniculi* lb viij.

In which must be dissolved eight Pounds of the best Honey, and the whole boiled to the Consistence of Opiate; then add to it two Pounds of Pulp of Pruines, the Powder of oriental Leaves, the Root of Briony, the Seeds of Violets, of each eight Ounces; Aniseed and Sal Gemmæ, of each two Ounces, to make an Electuary according to Art.

Virtues.—This *Catholicum* softens the Humours and purges them, and is only used in Clysters.—The *Dose* is from half an Ounce to two Ounces for each Clyster.

Electuarium Lenitivum Pharmacopææ Parisiensis. ℞ *Hordei Excorticati, Radicis Polypodii Quercini Contusæ, Passularum Enucleatarum, Tamarindorum aa* ℥ ij. *Jujubas, Pruna, Sebesten aa*, xx. *Seminis Violarum, Liquiritiæ Rasæ & Contusæ aa* ℥ j. *Foliorum Mercurialis, man.* ij. *Adianti man.* j.

Make a Decoction thereof in twelve Pints of common Water, till they be reduced to seven; then add towards the End *Foliorum Orientalium Mundatorum* ℥ ij. *Seminis Fœniculi Dulcis* ℥ ij. to four Pints of the Colature add three Pounds of the best Sugar; letting the whole Mixture boil to the Consistence of Syrup; in which must be dissolved the Pulps of Pruines boiled in one Part of the Decoction left; of Tamarins, and of Cassia strained with the rest of the Decoction, of each half a Pound; five Ounces of Senna in Powder, and two Drachms and a half of Aniseed, for an Electuary.

Virtues.—This *Electuary* softens the Humours, and purges particularly the Bile, without Violence.—The *Dose* is from half an Ounce to an Ounce and a half.

Lenitivum aliud excellentissimum. ℞ *Decocti Radicis Althææ, & Ficuum Pinguium* lb iv. *Sacchari Albi* lb iij. *Coquantur ad Consistentiam Mellis, tunc misce Pulpæ Cassiæ recenter extractæ* lb j. *Pulpæ Prunorum, Pulveris Sennæ aa* lb ss. *Seminis Violarum* ℥ iij. *Tartari Solubilis* ℥ iss. *Fiat Electuarium*, S. A.

Lenitivum pro Clysteribus Reformatum. ℞ *Decocti Radicum Polypodii Quercini, Ireos Nostratis, & Sambuci, Foliorum Mercurialis, Althææ, Parietariæ, & Violarum, florum Camomillæ & Meliloti, Seminis Fœniculi* lb xxx. In fifteen Pounds or Pints thereof you must dissolve nine Pounds of common Honey; boil it afterwards to the Consistence of Opiate, and then dissolve it in the Pulp of Pruines, boiled in one Part of the Decoction left; and the Cassia strained with the rest of the Decoction, of each six Pounds, adding to it afterwards the Powders of the Roots of Bryony, of Hermodacts, of Senna, of the Seed of Violets, of each ℥ xx. ten Ounces of Agaric, and eight Ounces of Sal Gemmæ; for an Electuary, according to Art.

Confectio Hamec Reformata. ℞ *Passularum Mundatarum* lb ss. *Polipodii Quercini Contusi* ℥ j ss. *Epithymi* ℥ j. *Foliorum Absinthii, Thymi, Rosarum Rubrarum, Seminum Anisi, Fœniculi, Fumariæ āa* ℥ ss. *Zingiberis, Spicæ nardi, āa* ʒ ij.

Bruise all these Drugs together, and boil them in an earthen Vessel glazed, in six Pints of distilled Whey, and two Pints of Water of Fumitery, to the Consumption of half the Humidity; strain afterwards the Decoction with Expression, and in the Colature dissolve skimmed Honey and white Sugar, of each a Pound and a half; then boil it to the Consistence of Honey; and having taken the Vessel off the Fire, dissolve in the Matter eight Ounces of Pulp of Cassia, and half a Pound of that of Pruines; and at last mix with it the Powders of Citrin Myrabolans, and of Senna, of each three Ounces, two Ounces of Agarick; Troches of Alhandal and Rhubarb, of each an Ounce and a half; Scammony and Seed of Violets, of each an Ounce; Salt of Fumitery, and of Wormwood, of each three Drachms, for a *Confection.*

Virtues.—This Confection purges vigorously all Humours; it is used for the Venereal Disease, the Scurvy, the Itching of the Skin, the Itch, a Scald-head, Ring-Worms, and the King's Evil.——The *Dose* is from a Drachm to six.

Confectio hamec minor reformata. ℞. *Passularum mundatarum, Prunorum, Jujubarum, Sebestæ, aa* ℥ iij. *Epithymi, absinthii vulgaris, aa* ℥ ij. ss. *Thymi, Calaminthæ Montanæ, Polypodii quercini contusi, Glycyrrhizæ, Radicis Buglossi, aa* ʒ x. *Stœchadis Arabicæ, Chamædryos, Chamæpityos, Spongiæ, Cynorrhodi, seminis Anisi, aa* ʒ v. *Coquantur in aquæ, S. q. In colatura dissolve sapæ, & mellis dispumati, aa* lb. j. ss. *Coquantur ad Consistentiam Electuarii mollis. Tunc depositâ ab igne Pelvi, & sanè refrigeratâ materiâ, insperge pulveris Myrabolanorum Indorum & Cubebarum, aa* ℥ iij. *Scammonii,* ℥ ij. *Agaraci Trochiscati, Tartari solubilis, aa* ℥ j. *fiat Confectio, S. A.*

Virtues.—This Confection purges the Melancholy, the adust Bile, the coarse Pituita; is proper for the Ring-Worms, the Itch, the King's Evil, and the Scurvy.——The *Dose* is from a Drachm to half an Ounce.

Diaprunium simplex reformatum. ℞. *Decocti Prunorum Damascenorum Colati, & Sacchari albi, aa* lb. iij. *Coquantur ad Consistentiam opiatæ, tunc dissolve pulpæ Prunorum,* lb. j. *Pulpæ Cassiæ,* lb. ss. *Pulveris seminis violarum,* ℥ j. ss. *Rhei & Tartari solubilis, aa* ℥ j. *fiat Electuarium, S. A.*

Virtues.—This Electuary is proper to prepare the Humours and loosen them.——The *Dose* is from an Ounce to an Ounce and half.

Electuarium Diaprunum solutivum, seu Compositum. ℞. *Diapruni simplicis supra scripti,* lb. j. *Scammonii subtilissimè pulverati,* ℥ ss. *Exquisitè misceantur pistillo ligneo agitando, & fiat electuarium.*

Virtues.—This Electuary purges very well all Humours.——The *Dose* is from a Drachm to six.

Benedicta laxativa emendata. ℞. *Turbith electi,* ʒ x. *Corticis radicis Esulæ minoris,* ℥ j. *Hermodactylorum, Diacrydii, aa* ʒ vj. *Salis Gemmæ,* ℥ ss. *Spicæ nardi, Zingiberis, Caryophyllorum, Croci, Cardamomi minoris, Galangæ, Macis, Seminum Apii, Carvi, Saxifragiæ, Fæniculi, aa* ʒ j ß. *Pulverentur, Misceantur, & cum mellis despumati,* lb. ij. ss. *fiat Electuarium, S. A.*

Virtues.—This Electuary purges the Pituita and Serosities from all Parts of the Body; it raises the Obstructions, provokes the Menses, and expels the Wind.——The *Dose* is from a Drachm to six. It is also oftner employ'd in Clysters, from three Drachms to an Ounce for each Clyster.

Note, That the Name of *Benedicta* was given to that Composition because of its great Virtues.

Electuarium Aperiens A. Daquin. ℞ *Foliorum Sennæ Orientalis Mundatorum* ℥ vi. *Diacrydii, Trochiscorum Albandal, Agarici Electi, Rhabarbari, & Seminis Violarum aa* ℥ j ß. *Sagapeni, Myrrhæ, Gummi Ammoniaci, aa* ℥ j. *Antimonii Diaphoretici, Mercurii Dulcis, aa* ʒ vj. *Salis Martis, & Tamarisci aa* ℥ ß.

The Senna, Troches of Alhandal, Agarick, Rhubarb, Seed of Violets, and Sagapenum must be reduced together into a subtile Powder, the Gum Ammoniack, the Myrrh, and the Diacrydium pounded together; and the Mercurius Dulcis and Diaphoretick Antimony together; then all those Powders must be mixed with the Salts; and all together with six Pounds of skummed Honey, to make an Electuary, which must be kept for Use.

Virtues.—This *Electuary* purges all Humours, rarifies the viscous and coarse Matters, raises the Obstructions, and provokes the Menses. It is prescribed in quartan Agues, Cachexies, hypochondriacal Maladies, and Hydropsy.—The *Dose* is from one Drachm to six.

Note, That this Composition is a Mixture of essential Remedies; there was but the Powder of the three Sanders, which having been found needless, in the original Composition, I have retrenched in this.

Electuarium Antihydropicum A. Daquin. ℞ *Rhabarbari electi, Foliorum Sennæ orientalis mundat, Seminis genistæ, Radicum Bryoniæ, Jalappæ, Mechoacan, Scammonii, Gummi guttæ, Trochiscorum Albandal, aa* ℥ j. *Extracti totius Esulæ, Opoponacis, Sagapeni, Gummi Ammoniaci, & Salis Martis, aa* ʒ vj. *Elaterii,* ℥ ss. *Succorum, Radicis, Ireos nostratis & Sambuci, ad extracti mollioris consistentiam inspissatorum, aa* lb j. *Extracti mollioris granorum Juniperi & Syrupi de Rhamno Catharetico, aa* lb j. *fiat Electuarium, S. A.*

Virtues.—This Electuary purges powerfully the Waters; it is used for the Hydropsy.—The *Dose* is from a Drachm to half an Ounce.

Electuarium Diaturbith minerale, A. Mynsicht. ℞ *Mithridati Damaratis* ℥ iij. *Turbith mineralis, Pulveris Diarhodon Abbatis, ana* ℥ ss. *Spiritus Vitrioli rectificati, Olei Carminativi, A. Mynsicht, ana* ℈ j. *Syrupi de Jujubis, q. s. fiat Electuarium.*

Four Ounces of the Syrup of Jujubes, boiled to the Consistence of Honey must be mixed with the Mithridate, adding to it afterwards the Spirit of Vitriol, the carminative Oil, and the Powders; stirring a long while that Mixture with a wooden Spatula, to make an Electuary, which is to be kept for Use.

Virtues.—This Electuary purges violently upwards, and sometimes downwards; it is proper for the Venereal Disease, the Hydropsy, and the Plague.—The *Dose* is from half a Drachm to a Drachm and a half in Bolus.

All the emetick Virtues of this Composition consists in the Turbith Mineral.

The Mithridate, the Powder Diarhodon, and the carminative Oil, are employed in this Composition to resist Venom, and to strengthen the Stomach against the Action of the Turbith Mineral; but those Ingredients are needless while the Vomitive operates; for the best Corrective which can be given to the Turbith Mineral is fat Broth, because it facilitates Vomiting in softening the Acrimony of the Remedy.—Therefore this Preparation appears needless to me, and it suffices to keep the Turbith Mineral pure, to administer it in Pills, or in a Bolus when wanted, incorporated in some Conserve of Roses, or of Violets.

Electuarium Indum Majus Emendatum. ℞ *Turbith Electi* ℥ vi. *Diacrydii* ℥ j ss. *Tartari Solubilis* ℥ j. *Asarii* ʒ ij. *Syrupi Rosati solutivi ad consistentiam Mellis Cocti* lb ij ss. *Misce fiat Electuarium.*

Virtues.—This Electuary purges the Pituita, and the other Humours from all the Parts of the Body.—The *Dose* is from one Drachm to half an Ounce.

Electuarium Diabalzemer Emendatum. ℞ *Succi Pomorum Redolentium Depurati, & Sacchari Albi ana* lb j ss. *Coquantur simul ad Consistentiam Opiatæ, tunc adde Pulvis Sennæ* ℥ iij. *Radicum Ellebori Nigri, Turbith Gummosi, Rhei Electi, Salis Tamarisci, & Fraxini ana* ℥ ss. *Misce, fiat Electuarium,* S. A.

Virtues.—This Electuary is used to purge the Maniacks, Hypochondriacks, Epileptick, those that have the Pox and the Leprosy.—The *Dose* is from one Drachm to three.

Hiera Picra Simplex Galeni. ℞ *Aloes Succotrinæ* ℥ vi. ʒ ij. *Cinnamomi, Xylobalsami, vel hujus loco surculorum lentisci, Asari, Spicæ Indicæ, Croci, Mastiches ana* ʒ iij. *Mellis Despumati* lb ij. ℥ i ss. *Fiat Electuarium,* S. A.

The Cinnamon, Xylobalsam, or in its stead the Lentiscewood, the Asarum, and the Spikenard, must be pounded together, the Aloes and Mastich together; and the Saffron, after it has been dried between two Papers by itself; the Ingredients thus pounded must be mixed together, and the Powder may be kept to be used when wanted: It is introduced into several Compositions.

When it is wanted to make the Electuary, one Part of that Powder must be mixed in three Parts of skummed Honey boiled to the Consistence of a liquid Electuary.

Virtues. The *Hiera Picra* is employ'd to purge the Stomach, to raise the Obstructions, to provoke the Menses, and the Piles, and to purify the Blood.——The Dose is from a Drachm to half an Ounce in Bolus, by reason of its extreme Bitterness. It is also used in Clysters for the Colick, the Hystericks, and the Apoplexy; from two Drachms to an Ounce for each Clyster.

Note, That *Hiera Picra* are two *Greek* Words, the first whereof signifies *great* and *sacred*, and the other *bitter*; *Galen* having so great an Opinion of that Composition that he gave it that fine Name.

The purgative Virtue of the *Hiera Picra* consists in the Aloes.

Hiera Picra Reformata. ℞ *Aloes Succotrinæ* ℥ ij. *Agarici Trochiscati, & Tartaris solubilis ana* ℥ j. *Diacrydii* ʒ vi. *Mellis despumati* ℥ xiij. *fiat Electuarium,* S. A.

Virtues.—This *Hiera Picra* purges with Violence enough; it is used for the windy Colick, the Apoplexy, Lethargy, and Epilepsy.—The *Dose* is from half a Drachm to three Drachms.

Hiera Diacolocynthidos Pacchii Reformata. ℞ *Trochiscorum Albandal, Agarici, Stœchadis Arabicæ, Marrubii Albi, ana* ʒ x. *Opoponacis, Sagapeni, Seminis Petroselini, Radicis Aristolochiæ Rotundæ, Piperis albi aa* ʒ v. *Cinnamomi, Spicæ Nardi, Myrrhæ, Croci, ana* ℥ ss. *Salis Armoniaci* ʒ vi. *Mellis Despumati & Cocti* lb iij. *fiat Electuarium,* S. A.

Virtues.—This *Hiera* is employ'd in the Epilepsy, Apoplexy, Palsy, Lethargy, to provoke the Menses, to expel the After-birth, and to purge the Pituita of the Brain, and of the Joints.——The *Dose* is from two Drachms to an Ounce. It is also used in Clysters, from an Ounce to an Ounce and a half for each Clyster.

All the purgative Virtues of this Composition proceeds from the Troches of Alhandal, and the Agarick.

Hiera Logadii Reformata. ℞ *Trochiscorum Albandal & de Agarico, Aloes Succotrinæ ana* ℥ ss. *Diacrydii, Ellebori Nigri, Elaterii, Salis Armoniaci, Gummi Ammoniaci, ana* ʒ vi. *Bdellii, Opoponacis, Sagapeni, Croci, Castorii, Aristolochiæ Rotundæ, ana* ʒ ij. *Mellis Despumati,* lb j ss. *fiat Electuarium.*

Virtues.—This *Hiera* purges with much Violence; it is employ'd for the hypocondriacal Melancholy, the Vertiges, the Epilepsy, Leprosy, Apoplexy, Lethargy, Sciatica,

Sciatica, Palsy, Hydropsy, the Scurvy, and to provoke the Menses. ——The *Dose* is from half a Drachm to two Drachms.

Note, That this *Hiera* borrows its Name from its Author *Logadius*, a Physician of *Memphis*.

DISTILLED WATERS.

Note, That as the *Distillation of Waters* is as necessary in the common *Pharmacy*, as in Chymistry, I think proper to give here a concise Treatise thereof; though I do not design to mention in this Place, those which depend purely on Chymistry, as the Aqua-fortis, the common Brandy, the Styptick and Phagedenick Waters, because I have described them at length in my Treatise of Chymistry, under the Letter C.

DISTILLATION, is a Rarefaction and Exaltation of the most humid and essential Parts of the Mixts, resolved by Fire into Vapours, which ascending to the Capital, and being cool'd there, are condensed into Drops which fall into the Receiver.

Distillations are made to separate the purest Substances of the Mixts, that they may be preserved without Corruption.

Distilled Waters are divided into *simple* and *composed*.

Simple distilled Waters are those extracted from the Plant without Addition, as Plantain, Rose, and Sorrel-Water, *&c.*

Composed distilled Waters are those distilled from several Ingredients, as Treacle-Water, Imperial-Water, Aqua mirabilis, *&c.*

The Artist must use, as much as possible, Glass or Earthen Vessels for the Distillation of Waters; but when those Vessels are not large enough to contain the Matter to be distilled, he must then use Copper-Alembicks tinned inside, as I have observed in my Treatise of Chymistry.

There are two Sorts of *Distillations*, one done *per Ascensum*, and the other *per Descensum*.—The first, and most common, is when the Matter is heated underneath. The other is when the Fire is put over the Matter to be heated: Then as the Vapour cannot rise, it is precipitated to the Bottom of the Vessel.

As the Mixts, from which the Waters are extracted, are of different Substances, the one volatile, the other fix'd, some watery and phlegmatick, and others dry and saline; different Means must be used to carry off by Distillation as much of their most essential Parts as possible. I'll give Models to succeed in it.

The distilled Waters can be kept several Years without Corruption; because there have been separated from them, by the Distillation, the fermenting Substances which could spoil them: But they must be renewed every Year, because the Vitriol they have brought along with them from the Plant, is much weaken'd in Winter.

Plantain Water. Take what Quantity you will of large Plantain, newly gather'd, in its greatest Vigour; have pounded in a Mortar enough of it to fill half a large Copper-Cucurbite, tinned inside: Mean while must be extracted by Expression, in the usual Manner, eighteen or twenty Pounds of the Juice of other Plantain, which you'll pour over the pounded Plantain to humect it well, so that it may not stick to the Bottom of the Vessel during the Distillation. Place the Cucurbite over a Furnace, covering it with its Bolt-head, garnished with its Refrigeratory, which must be filled with cold Water; then adapt to it a Receiver, and light a Charcoal Fire in the Furnace, to distil the Humidity moderately quick, so that one Drop may follow the other.

When about half the Humidity is distilled, the Fire must be left to go out; and when the Vessels are cold, the Plantain must be taken out of the Alembick, strained with Expression, and afterwards thrown away as useless; but the Juice extracted from it must be poured back into the same Vessel, and the Distillation renewed, which shall be continued, till there is but little of the Liquor left in the Vessel.

The distilled *Plantain-Water* must be exposed for some Days to the Sun, in Glass or Stone Bottles uncorked, to dissipate the Smell of Empireum, which proceed from the Fire; after which the Bottles must be corked; and the Water kept for Use.

Virtues.—*Plantain-Water* is detersive, astringent, cooling, proper to stop the Loosenes, the Hemorrhages, the Gonorrhœa's, *&c.*——The *Dose* is from an Ounce to six.—It is also used outwardly to wash the Eyes in the Opthalmicks; and for detersive and astringent Injections.

In the same Manner can be distilled the Waters from all the Plants, which abound in humecting and cooling Phlegm; and if the Juice of some of them cannot be extracted easily; there must be made a strong Decoction thereof to humect the pounded Herbs.

The Waters which can be thus distilled are those of *Porcelain*, *Lattuce*, *Sempervivum*, *Bugle*, *Hen-bane*, *Mandragora*, *Mallows*, *Borrage*, *Buglose*, *Solanum*, *Alkekengi*, *Verbascum*, *Agrimony*, *Nenuphar*, *Poppies*, *Alchimilla*, *Sanicle*, *Chelidonium*, &c.

Sorrel-Water.—Take what Quantity you will of very green and tender Sorrel, gather'd in fair Weather while it is in its greatest Vigour, and before it is grown into Seed; pound it or bruise it in a Stone or Marble Mortar, fill with it about half a large Copper-Cucurbite, tinned inside; pour over the Matter a good Quantity of Juice of Sorrel, newly extracted with Expression, so that the Liquor swim over the Matter; adapt to the Cucurbite its Capital, with its Bolt-Head, tinn'd likewise inside, and its Refrigeratory; place the Vessel over a naked Fire; adapt a Receiver to the Cucurbite, and distil the Humidity at a pretty strong Heat, so that the Drops follow close one another.—When about half the Humidity has been distilled, the Vessels must be left to cool; and when cold, what is left in the Cucurbite must be taken out and carried to the Press to extract the Juice; that Juice must be left to settle, and having been afterwards strained through a Flannel, it must be put in an earthen Pan, to have evaporated over a slow Fire about two Thirds of the Humidity thereof, carrying afterwards the Vessel to a cool Place, where it must be left for some Days without touching it; then there will be formed round it small Crystals which are the essential Salt of the Sorrel, which must be separated from the rest, and kept for Use.

But if one will not take the Trouble to prepare the essential Salt of Sorrel, he may content himself with evaporating the Juice to the Consistence of thick Honey; which will be the *Extract of Sorrel.*

The Ground taken from the Press must be dried, and having mixed with it a good Quantity of other dried Sorrel, the whole must be burnt, the Ashes thereof calcined, and having made a Lixivium of those Ashes, it must be filtrated, and afterwards put to evaporate to Siccity, over a slow Fire; there will be found at the Bottom of the Vessel a Salt, which is the *fix'd Salt of Sorrel*, and which must be kept for Use.

Virtues.—The *Water of Sorrel* is esteemed cordial, cooling; proper for violent and bilious Fevers.——The *Dose* is from an Ounce to six.

The *essential Salt of Sorrel* is incisive, penetrating, rarifying; it provokes the Appetite, and is cordial.—The *Dose* is from half a Scruple to half a Drachm.

The *Extract of Sorrel* has very near the same Virtues of the essential Salt; but the *Dose* must be greater, *i. e.* from a Scruple to a Drachm.

The *fixed Salt of Sorrel* is aperitive, penetrating, proper to raise the Obstructions.——The *Dose* is from eight Grains to half a Drachm.

In the same Manner can be distilled the other Plants which have no Smell, and are saline; as the *Carduus Benedictus*, *Nasturtium*, *Scabiose*, *Fumitery*, *Parietary*, *Chicory*, *Tobacco*, *Small Centaury*, *St. John-wort*, *Tussilage*, *Endive*, *Chamædryos*, *Chamepityos*, *Peony*, *Enula Campana*, *Cochlearia*, &c. these Waters must be made to distil pretty quick, that they may exalt along with them some Portion of the essential Salt of the Plant; for in that Salt consists all the Virtue of those Waters which have no Smell; wherefore those Plants are never to be distilled in Balneo Mariæ, nor in Balneo Vaporis, which could only exalt the pure Phlegm. But whatever Method and Precaution may be observed in the Distillation of those, it always happens that the greatest Part of their active and essential Principles remain in the Bottom of the Cucurbite; therefore it would be better to use the Juice, or of a strong Decoction of the Plant, while it is in its Vigour, than of its distilled Water; but when we have no more the Plant in its Vigour, the distilled Water can be used; and to render it more efficacious, there must be dissolved in it, before

before it is taken, ſome of its eſſential Salt, or of its Extract or fixed Salt; which will very well ſupply the Want of the Plant in its Vigour. Theſe diſtilled Waters muſt be expoſed for ſome Time to the Sun, the Bottle uncorked, that the empyreumatical Smell may be diſſipated.

Wormwood-Water.—Take a good Quantity of common Wormwood, green, newly gathered while in its greateſt Vigour; pound the Leaves thereof in a Mortar, and fill with it half a large Copper Cucurbite tinned Inſide; mean while make a ſtrong Decoction of other Wormwood, ſtrain it boiling-hot, and pour as much of it upon the Wormwood in the Cucurbite as is neceſſary to humect it leſt it ſhould ſtick to the Bottom of the Veſſel, which muſt be very well ſtopped, and the Matter left in Digeſtion for two Days; which expired, the Veſſel ſhall be unſtopped, placed on a Furnace, the Bolt-head with its Refrigeratory, and a Receiver adapted to it, the Joints luted, and at a moderate Fire, about half the Humidity diſtilled; which done, and the Veſſels cold, they muſt be opened, the Matter left in the Cucurbite ſtrained, and the Juice extracted from it put to diſtil as before, there will be no more but two or three Pounds thereof left. The diſtilled Water muſt be kept in Bottles well corked.

Virtues.—The *Water of Wormwood* is proper to inciſe and attenuate the Pituita, to ſtrengthen the Stomach, to excite the Appetite, to help Digeſtion, provoke the Menſes, abate the Vapours, and for the Worms.—The *Doſe* is from half an Ounce to four Ounces.

The Liquor left in the Alembick of the Diſtillation may be clarified, and the Humidity thereof evaporated to the Conſiſtence of Honey, which will be the *Extract of Wormwood.* It is aperitive, and proper for the Hyſtericks.—The *Doſe* is from a Scruple to a Drachm, either diſſolved in its proper Water, or taken in a Bolus. The Grounds left after they have been dried, can alſo be burnt with other *Wormwood*; and the Aſhes put in warm Water to make a Lixivium, which having been filtrated, is put to evaporate to Siccity, and what is left in the Bottom of the Veſſel is the *Salt of Wormwood*, which muſt be kept in a Bottle well corked. This *Salt* is very aperitive, proper to raiſe the Obſtructions of the Liver, of the Spleen, Meſentery, and of the Matrice, to provoke the Urine, for the Yellow Jaundice, the Hydropſy, and the Retention of the Menſes.—The *Doſe* is from ſix Grains to half a Drachm, diſſolved in Water of Wormwood.

By the ſame Method are extracted the Waters, Eſſences, Extracts, and Salts of all odorous Plants, *viz.* of *Mint*, *Sage*, *Marjoram*, *Savern*, *Roſemary*, *Henbane*, *Hyſſop*, *Marrubium*, *Mugwort*, *Honey-ſuckles*, *Scordium*, *Lavender*, *Parſely*, *Fennel*, *Muſtard*, *Bays*, *Rue*, *Betony*, *Camomile*, *Origan*, *Melilot*, *Matricaria*, *Juniper*, &c.

Roſe-Water.—Take what Quantity you will of pale or white Roſes, newly blown, the moſt odorous, and gathered ſoon after Sun-riſing, in dry Weather; pull the Leaves off their Pecule, and having pounded them in a Marble Mortar, put them in a Copper Cucurbite tinned inſide, pouring upon them the Juice of other Roſes newly extracted by Expreſſion, to humect them well, or elſe it may be done with Roſe-Water of the preceding Year; then place the Veſſel in Balneo Mariæ or Vaporis, and cover it with its Capital garniſhed with a refrigeratory; adapt a Recipient to it, lute exactly the Joints, and leave the Matter in Digeſtion for two Days; which expired, placed to the Diſtillation by a good Fire, taking Care to change the Water of the Refrigeratory as it grows hot. When about the two Thirds of the Liquor is diſtilled, the Fire muſt be put out; and what is left in the Veſſel carried to the Preſs to extract the Juice, which muſt be put to diſtil as before, to have good Roſe-Water, which muſt be expoſed to the Sun for two Days in uncorked Bottles, to ſharpen its Smell; then the Bottles muſt be well corked.

Virtues.—Roſe-Water ſtrengthens the Breaſt, Heart, and Stomach.——The *Doſe* is from one Ounce to ſix. It is alſo uſed in Collyres for the Maladies of the Eyes; and in Perfumes.

Inſtead of white and pale Roſes, Purple Roſes were uſed in the Diſtillation, the Water drawn from them would be aſtringent, and proper to ſtop the Looſeneſs, for the ſpitting of Blood, for deterſive Injections. It would even be better than the other for Collyres; but it would have but very little Smell: Beſides, it would be the moſt proper Roſe-Water for the Maladies in which that Remedy is commonly uſed; and it could be wiſhed that the World which often will be deceived, would not mind ſo much the Smell of this Water to judge of its Goodneſs; the Apothecaries would make it of red Roſes, and then it would produce better Effects.

In the ſame Manner can be extracted the Water of all Flowers, as, of the *Flowers of Poppies*, of *Nenuphar*, of *Lillies of the Valleys*, of *Borrage*, of *Beans*, of *Roſemary*, of *Bugloſe*, of *Violets*, of *Jeſſamine*, of *Tuſſilage*, of *Oranges*, of *Lavender*, of *Thyme*, of *Sage*, &c. But as a great Number of thoſe Flowers are very little ſucculent to extract the Juice thereof, they muſt be humected before Diſtillation, with a ſtrong Infuſion of another Quantity of the ſame Flowers made ſometimes in hot Water, and ſometimes in White-Wine according to their Quality.

Water of Strawberries.—Take four or five Pounds of ripe Strawberries, bruiſe them in a Marble Mortar, and put them in a large Glaſs Cucurbite, which muſt be placed in Balneo Mariæ, and having adapted a Capital to it, and a Receiver, and luted exactly the Joints, as much of the Humidity of the Fruits as poſſible ſhall be diſtilled by a pretty ſtrong Fire.

Virtues.—The *Water of Strawberries* is good to ſtrengthen the Heart, the Brain, and to enrich the Blood.——The *Doſe* is from an Ounce to three. Ladies uſe it to waſh their Face.

In the ſame Manner can be drawn the Water of the other ſucculent Fruits, as of *Cherries*, *Plumbs*, *Apples*, *Mulberries*, *Raſberries*, *Barberies*, *Quinces*, *Peaches*, *Oranges*, *Lemons*, *Elder-berries*, *Melons*, *Cucumbers*, *Pumpkins*, *Gourds*, &c.

Strawberry-Water, is made in ſeveral other Manners; ſome leave the Fruit bruis'd to ferment two or three Days, that its Principle may be exalted before Diſtillation. Others humect their Strawberries with White-Wine to render the Water more ſpirituous and more aperitive; and others humect them with Aſs's Milk, to make it more proper to beautify the Skin.

Water of Walnuts.—Take a good Quantity of Flowers of Walnut-tree newly gathered, while in their Vigour, and let ſix Pounds thereof be pounded in a Mortar, and put them afterwards in a Copper Cucurbite; mean while make a ſtrong Decoction of other Flowers, and after it has been ſtrained with Expreſſion pour twelve Pounds thereof hot into the Cucurbite, or as much as is wanted to humect the pounded Flowers; place the Veſſel on a Furnace, where it muſt be left in Digeſtion for twenty-four Hours, diſtilling afterwards about half the Liquor; which done, the Fire muſt be put out, and when the Veſſels are cold, what remains in the Cucurbite muſt be ſtrained, and three Quarters of the Juice extracted by that Means, diſtilled, mixing afterwards both Waters together.

Then you muſt gather ſix Pounds of Walnuts, when they are about a Third of their uſual Bigneſs; and having pounded them in a Mortar, you muſt put them in a large Copper Cucurbite, pouring upon them all the diſtilled Water of the Flowers of Walnuts, and leaving the Matter in Digeſtion for twenty-four Hours; and having diſtilled the Water as before, you'll take next ſix more Pounds of whole Walnuts when they are good to preſerve; pound them well in a Mortar, and having put them in a Copper Cucurbite, pour upon them the diſtilled Water, and having left the whole in Digeſtion for twenty-four Hours, proceed to the Diſtillation as before, and you'll have the Water of Walnuts, which muſt be expoſed five or ſix Days to the Sun, in uncorked Bottles, to diſſipate the empyreumatical Smell, then cork the Bottles.

Virtues.—The Water of Walnuts is ſudorifick, proper for malignant Fevers, for the Plague, the Small Pox, the windy Colick, the Hyſtericks, and to ſtrengthen the Stomach.——The *Doſe* is from one Ounce to ſeven.

If after each Diſtillation, the Liquor left in the Cucurbite be ſtrained through a Flannel, the Humidity thereof evaporated to the Conſiſtence of Honey; and thoſe three Juices thus inſpiſſated be mixed together, it will be a very good Extract of Walnuts, which muſt be kept in a Pot.

Virtues

Virtues.—The Extract of Walnuts is sudorifick, aperitive, Febrifuge, strengthens the Stomach, and resists the Malignity of the Humours.——The *Dose* is from a Scruple to a Drachm, in a Bolus, dissolved in its proper Water.

The Grounds left in the Press can also be burnt, to draw from them an alkaly Salt fix'd, by means of a Lixivium.

Virtues.—The *fix'd Salt of Walnuts* is aperitive, and proper to raise the Obstructions.—The *Dose* is from six Grains to a Scruple.

Water of Cow-Dung.—In the Month of *May*, when the Grass begins to have some Vigour, gather the Cow-Dung, newly made, and having filled with it half of a Glass or Stone Cucurbite, place it in Balneo Mariæ, and by a pretty strong Fire, distil a clear Water, which is called the *Water of a thousand Flowers*, and which must be exposed to the Sun in Glass-Bottles for five or six Days, that the disagreeable Smell, which it may have, be dissipated. Then the Bottles must be cork'd and kept.

Virtues.—This Water is aperitive and sweetening; it is prescribed for the Hydropsy, Rheumatism, and the Sciatica.——The *Dose* is from an Ounce to six. It is also used outwardly, to cleanse, cool, and soften the Skin: It is resolutive.

The Name of *Water of a thousand Flowers*, has also been given to the Urine of a Cow, newly voided from the Animal; and it is used with Success for several Maladies in the Spring and Autumn; by drinking two or three Glasses thereof every Morning fasting, for nine or ten Days successively, and taking a Walk afterwards in the Fields.—That Urine purges very well the Serosities without griping; is proper for the Asthma, the Hydropsy, Rheumatism, Gout, and Vapours.

Water of all Flowers.—You must gather in the Month of *May*, Cow-Dung newly made, weigh it and put it in a large Cucurbite of Glass or Stone, mixing with it about the Third of its Weight of white Wine; and having placed the Vessel in Balneo Mariæ, or Vaporis, adapt a Capital and a Recipient to it, and lute exactly the Joints, you'll distil the Humidity of the Matter which is called the Water of all Flowers.

Virtues.—This Water is thought arthritick, good for the Rheumatism, the Sciatica, Gravel, and the Suppression of Urine.——The *Dose* is from an Ounce to four. It is also used to cleanse and soften the Skin, for Pimples, Itchings, and Ring-Worms.

Water of the Frey of Frogs.—Gather in the Spring, about the Month of *March*, what Quantity you will of Frey of Frogs, very pure, condensed, or thick, and which has a Smell, distil the Humidity thereof in Balneo Mariæ, or in the common Manner; and expose the distilled Water to the Sun for seven or eight Days; and afterwards cork the Bottles well to keep them for Use.

The Water of the Frey of Frogs is very cooling, condensating, proper for the Hemorrhages, to appease the Pain of the Gout, for Cancers, Erysipelas, and other Rednesses of the Skin. It is applied outwardly with Linen Cloths. It is used to cleanse the Face, and keep up a fresh Complexion.

In the same Manner are distilled, the Waters of *Milk*, of *Blood*, of *human Brain*, of *Honey*, of *Manna*, of *Rain*, and of *Dew*.

Water of Snails.—Take three Pounds of Snails alive, with their Shells, wash them well, and bruise them in a Marble-Mortar, and put them afterwards into a large Cucurbite, pouring over them two Pints of Ass's Milk, newly milked; mix well the whole together with a wooden Spatula; and having adapted a Capital and Receiver to the Cucurbite, and luted exactly the Joints, leave the Matter in Digestion for twelve Hours, proceeding afterwards to the Distillation; which done, the Water must be exposed for several Days to the Sun, in a Bottle uncorked.

Virtues.—This Water is humecting, cooling, proper for the Redness of the Skin, to wash the Face, and render the Skin smooth. It can be also administer'd inwardly, for the Spitting of Blood, the Nephretick, and the Heat of Urine. The *Dose* is from one Ounce to six.

Aqua Vulneraria. ℞. *Foliorum & radicum Consolidæ majoris, foliorum Salviæ, Artbemisiæ, Buglæ, ana man.* iv. *Betonicæ, Saniculæ, Bupthalmi, Symphyti minoris, Scrophulariæ majoris, Plantaginis, Agrimoniæ, Verbenæ, Absynthii, Fœniculi, ana man.* ij. *Hyperici, Aristolochiæ longæ, Telophii, Veronicæ, Centaurii minoris, Millefolii, Nicotianæ, Menthæ.*

After you have gather'd the Herbs in their greatest Vigour, hatch them and pound them well in a Mortar, and having put them afterwards in a Vessel of a narrow Neck, pour over them white Wine, stir the whole, stop the Vessel, and put it in the Horse-Dung, or in another warm Place, where it must be left in Digestion for three Days; which expired, you'll distil the Matter in Balneo Mariæ, or Vaporis, extracting above half the Humidity, and having left the Vessels to grow cold, what remains in the Bottom of the Cucurbite, must be put to the Press, and the Juice extracted from it, distilled as before; mixing afterwards the first and second Water together, to keep it in a Bottle well corked for Use. This Water is called *Water of Arquebusade*, because used for Wounds made with Fire-Arms.

Virtues.—This Water is good for the Contusions, Dislocations, to resolve Tumours, to cleanse Ulcers and Wounds; and to resist the Gangrene, applied outwardly.

Hungary-Water.—Fill half of a Glass-Cucurbite with Flowers of Rosemary, newly gather'd in their Vigour, pour over them Spirit of Wine till it surpasses the Flowers by two Fingers Breadth, cover the Cucurbite with its Capital, and leave the Matter in Digestion for three Days; and afterwards, having adapted a Receiver to it, and luted exactly the Joints, proceed to the Distillation at a Sand-heat; and keep the distilled Water in a Bottle well corked for Use.

Virtues.—This Water is good for the Palsy, Apoplexy, Lethargy, the Hystericks, Palpitations, for Fainting-Fits, and the Pain of the Stomach.——The *Dose* is from one Drachm to three.—It is also used outwardly for the Tooth-ach, the Burns, the cold Humours, Contusions, to cleanse the Skin, to strengthen debilitated Members, for the Vapours, being applied to the Nose and Temples, and on the Wrists; and for the Gangrene.

Aqua Theriacalis. ℞. *Radicum Gentianæ, Angelicæ, Imperatoriæ, Valerianæ, Contrayervæ, āa* ℥ ij. *Corticum Citri & Arantiorum, Caryophyllorum, Cinnamomi, Baccarum Juniperi, āa* ℥ j. *Summitatum Scordii, Rutæ, Hyperici, āa man.* j.

Let all these Drugs be infused for three Days successively in Balneo Mariæ, in Spirit of Wine and Water of Carduus Benedictus and Walnuts, of each two Pints; and after you have added to it four Ounces of old Treacle, put the whole Mixture to macerate for the Space of twenty-four Hours; then proceed to the Distillation by a slow Fire; to have the Treacle-Water, which must be kept in a Bottle well corked.

Virtues.—This Water is proper to strengthen the noble Parts, to resist the bad Air, to raise the Spirits, to expel bad Humours by Perspiration; it is used in the Apoplexy, Palsy, Lethargy, and Epilepsy.——The *Dose* is from a Drachm to six.

Aqua Imperialis. ℞. *Cinnamomi,* ℥ iv. *Nucis Moschatæ, Corticis Citri, āa* ℥ ij. *Caryophyllorum, Calami Aromatici, Santali Citrini, Radicis Pæoniæ, āa* ℥ j. *Foliorum Lauri, Summittatum Hyssopi, Majoranæ, Thymi, Saturejæ, florum Salviæ, Rorismarini, Lavendulæ, āa man.* i.

Bruise all the Drugs, and put them in a large Glass or Stone-Cucurbite; and having pour'd over them white Wine and Water of Melissa, of each two Quarts, and half a Pint of Orange-Flowers Water, cover the Cucurbite with its Capital, adapt a Recipient to it, lute exactly the Joints, and after twenty-four Hours of Digestion, proceed to the Distillation of the Liquor in Balneo Mariæ, and you'll have the imperial Water.

Virtues.—This Water is good for the Maladies of the Brain, of the Stomach, and of the Matrice: It is used to provoke the Menses, and facilitate the Delivery.—The *Dose* is from two Drachms to an Ounce.

Aqua vitæ Mulierum. ℞. *Foliorum Salviæ minoris, Menthæ Crispæ, Melissæ, āa man.* j. *Cinnamomi, Nucis, Macis, Zingiberis, Caryophyllorum, Granorum Paradisi, Cubebarum, Cardomomi, āa* ℥ j ss. *Galanga,* ℥ j. *Piperis Longi,* ℥ ss.

Let all these Drugs be coarsely pounded, and put afterwards to macerate for fifteen Days in three Quarts of the best White-Wine; then proceed afterwards to the Distillation

Distillation in Balneo Mariæ, and you'll keep the distilled Water in a Bottle well corked.

Virtues.—This Water strengthens the Viscera, and particularly the Matrice; it dissipates the Vapours, and Wind, and provokes the Menses and Sweat.——The *Dose* is from half an Ounce to an Ounce.

Aqua Mirabilis. ℞ *Cinnamomi Electi* ℥ j. *Corticis Exterioris Citri, Nucis Moschatæ āa* ʒ vj. *Caryophyllorum, Galangæ, Cubebarum, Macis, Cardamomi, Zingiberis āa* ʒ ij.

Having bruised all the Drugs together, they shall be put in a Glass Cucurbite, and the Juice of the Melissa depurated, White-Wine and Spirit of Wine poured upon them; and having left the Mixture to macerate for three Days successively; you must proceed to the Distillation at a moderate Sand-heat; then you'll have the *Aqua Mirabilis.*

Virtues.—This Water strengthens all the noble Parts, rejoice the Heart and the Brain, and provokes the Menses. —The *Dose* is from two Drachms to six.

Aqua Apoplectica A. Mynsicht. ℞ *Seminis Erucæ* lb ß. *Radicis Caryophyllatæ* ℥ ij. *Baccarum Juniperi* ℥ j ss. *Radicum Pæoniæ maris, Pyrethri, Acori Aquatici, āa* ℥ j. *Baccarum Lauri Excorticatarum* ʒ vj. *Seminis Sileris Montani, Carvi, Omisi, āa* ℥ ss. *Herbarum Ivæ Arthriticæ, Hyssopi, Majoranæ, Origani, Verbenæ, aa* ʒ ij.

Which Drugs being well bruised, must be put in Digestion in a Matrace, in five Pints of *Spanish* Wine, and a Pint of Spirit of Roses, for fourteen Days, and distilled afterwards in Balneo Mariæ to Siccity.

Et in liquore distillato iterum infunde florum Liliorum Convallium Recentium, Primulæ Veris Recentis, Lavendulæ, āna ℥ ij. *Salviæ, Calendulæ, Betonicæ, Anthos, āa* ʒ vj. *Cardamomi Utriusque, Cubebarum, Ligni Aloes, Nucis Moschatæ, Macis, Cinnamomi, Galangæ Minoris. Piperis Longi, Caryophyllorum, āa* ℥ ß.

Which last Drugs must be macerated for three Days, and afterwards distilled in Balneo Mariæ, at a slow Fire, fastening to the Pipe of the Alembick, or to the Neck of the Receiver, half a Scruple of the Troches of Nutmeg, wrapped in a Piece of Linnen Cloth, and keeping afterwards the distilled Water in a Bottle well corked.

Virtues.—This Water strengthens the Brain and the Nerves, and renews the Memory: It is used in the Apoplexy, Palsy, and other Maladies of the Brain; it rarifies the coarse Pituita, and raises the Spirits.——The *Dose* is from a Drachm to half an Ounce.

Aqua hysterica Fabricii. ℞ *Foliorum Salviæ* ℥ ij. *Florum Rorismarini* ℥ j. *Herbarum Scariolæ, Pulegii, Scordii, Melissæ, Abrotani Fœminæ, Matricariæ, āa* ℥ ss. *Castorei* ʒ ij. *Caryophyllorum, Cinnamomi, Zingiberis, Nucis Moschatæ, āa* ʒ j ss. *Corticis Citri, Arantiorum, Foliorum Majoranæ, āa* ʒ j. *Vini Adusti* lb j ss. *Rhenani* lb iv.

Let all these Drugs be in Digestion for three Days in a warm Place, and afterwards distilled according to Art.

Virtues.—This Water is proper to provoke the Menses to abate the Vapours, and to revive the Spirits in the Lethargy, Apoplexy, and Palsy.——The *Dose* is from a Drachm to an Ounce.

Note, That the *Scariola* may be retrenched from this Preparation as needless.

Aqua Cephalica Caroli Quinti. ℞ *Summitatum Majoranæ, Florum Rorismarini, Salviæ, Lilliorum Convallium, Lavendulæ, āa man.* ij. *Cinnamomi Caryophyllorum Macis, Cardamomi Cubebarum, Granorum Paradisi, āa* ℥ ss.

Bruise all these Drugs and put them together to macerate for six Days in a warm Place, in six Quarts of the best Spirit of Wine, proceeding afterwards to the Distillation in Balneo Mariæ; and putting again to infuse in the distilled Water, for the same Space of Time, an equal Quantity of the same Drugs, and having reiterated the Distillation, you'll have a Spirit which must be kept in a Bottle well corked.

Virtues.—This Water strengthens and rejoices the Brain, in rarifying the coarse Pituita which obstructs the Circulation of the Spirits: It is good for the Epilepsy, Palsy, Apoplexy, and Lethargy.——The *Dose* is from half a Drachm to two Drachms.

Aqua Anti-epileptica Schroderii. ℞ *Cerebri Humani, Aquarum distillatarum Lilium Convallium, Lavendulæ Primulæ Veris, Vini Malvatici, āa* lb ij.

Put the Drugs to infuse for five Days, and having distilled them afterwards in Balneo Mariæ, keep the Water in a Bottle well corked.

Virtues.—This Water is good to strengthen the Brain, and is used in the Epilepsy.——The *Dose* is from half an Ounce to two Ounces.

Aqua Paralytica. ℞ *Radicis Sarsaparillæ, Ligni Guayaci, āa* ℥ ix. *Sassafras* ℥ j ss. *Herbarum Betonicæ, Calaminthæ Montanæ, Chamædryos, Chamæpitios, Hyssopi, Majoranæ, Origani, Prassii, Primulæ veris, Pulegii, Rorismarini, Salviæ, Serpylli, Thymi, Florum Calendulæ & Stæchados, āa man.* ss. *Baccharum Juniperi* ℥ ß. *Infundantur triduo in s. q. spiritus vini, ut supermineat at quatuor digitos, deinde S. A. distillentur. Liquori distillato, iterum per Diem naturalem infundantur, Castorei, Styracis Calamitæ, Cinnamomi, Piperis, Caryophyllorum, Seminis Sinapi albi, Radicum Costi Amari, Pyrethri, Zingiberis, āa* ʒ ß. *Distillentur S. A. & aqua stillatitia servetur usui.*

Virtues.—This Water strengthens the Nerves, and is proper for the Palsy, Lethargy, Hystericks, and Apoplexy.——The *Dose* is from half a Drachm to two.

Aqua Contra Vermes A. Mynsicht. ℞ *Rasuræ Cornu Cervi* ℥ iv. *Foliorum Sennæ, Seminis Contra Vermes, Citrei, Corallinæ Veræ, āa* ℥ j ss. *Nucleorum Persicorum, Rhabarbari Electi, Agarici Optimi, Myrrhæ, āa* ℥ j. *Radicis Dictamni Albi, Aristolochia Rotundæ, Zedoariæ, āa* ʒ vj. *Tartari Albi, Nitri Purificati, Croci Orientalis, āa* ℥ ß. *Summitatum Centaurii Minoris & Tanaceti, Foliorum Persicorum, Ligni Coryli Rasi, āa* ʒ iij. *Hydrargyri, omnia incisa & contusa infundantur per octo Dies in Hydromelitis* lb iv. *Postea adde, Aquarum Absinthii Pontici, Abrothani, ana* lb j ss. *Cardui Benedicti, Graminis, Scordii, ana* lb j. *Misce, & in Balneo Mariæ per Alembycum distillentur.*

Virtues.—This Water is proper to kill the Worms, and hinder the Formation of others; it provokes the Menses, and resists Venom.——The *Dose* is from one Ounce to four.

Note, That if instead of distilling the Matter one was contented with the Infusion it would be purgative, and would be better for the Worms; but it could not be kept so long.

Aqua Carminativa, seu Spiritus Carminativus, Fr. Deleboe Silvii. ℞ *Summitatum Centaurii minoris, foliorum Rorismarini, Majoranæ, Rutæ Hatensis, Basilici, āa man.* ss. *Cinnamomi,* ʒ vj. *Seminum Angelicæ, Levistici, Anisi, āa* ℥ ss. *Baccarum Lauri,* ʒ iij. *Nucis Moschatæ, Macis, Radicum Imperatoriæ, Galangæ, Zingiberis, aa* ʒ j ss. *Angelicæ, Caryophyllorum, Corticis Arantiorum, aa* ʒ j. *Concisis, & crasse contusis affunde, Spiritus Vini,* lb. ij. ℥ iv. *Digerantur per biduum in Balneo mariæ, hinc ad siccitatem distillentur; servetur distillatus spiritus ad usum.*

Virtues.—This Spirit is proper for the windy Colick; it disunites and rarifies the slimy Matters, and appeases the Gripes.——The *Dose* is from half a Drachm to two Drachms.

Aqua Caponis Quercetani. ℞ *Caponem unum Antiquum exenteratum, in frusta discinde, & in Matratio Capax injice, addendo, Sacchari albi* lb ß. *Santali Citrini, Ligni Aloes, Caryophyllorum, Nucis Moschatæ, Coralli Præparati Cinnamomi, Macis ana* ℥ j. *Galangæ, Corticis Citri, Zedoariæ, Croci, ana* ℥ ß. *Granorum Kermes* ʒ iij. *Florum Rorismarini, Salviæ Betonicæ Lavendulæ, Borraginis, Buglossi, Rosarum Rubrarum, ana, man.* j. *Vini Canariæ* lb ij ℥ viij.

An old Capon is preferable to a young one, because being less loaded with Fat, it communicates more Substance to the Broth to render it good; the Guts and Fat must be separated from it, and the Flesh cut into small Pieces, which must be put in a Matrass, and having mixed the other Drugs with it, and poured the *Canary*-Wine over the whole Mixture, the Matrass shall be exactly stopped, and placed in Balneo Mariæ very hot, leaving it there eight or ten Days, or till the Capon be well done, then the Infusion must be strained with strong Expression, and the Colature distilled; keeping afterwards the distilled Water in a Bottle well corked.

Virtues.—This Water is proper to restore the exhausted Strength.——The *Dose* is from two Drachms to an Ounce.

Aqua Antibetica. ℞ *Foliorum Pimpinellæ, Epaticæ, Mulsellæ,*

Millefolii, Agrimonii, Veronicæ, Nasturtii aquatici, aa man. i. *Radicum Pimpinellæ, Enulæ Campanæ, Cichorei, āa* ℥ vj. *Seminum quatuor Frigid. major.* ℥ ij. *florum Borraginis, Buglossi, Cichorei, Rosarum Rubrarum, aa pug.* i. *Cancros fluviateles*, No. XIII. *Limaces*, No. XVI. *Sanguinis Vitulii*, lb. j. *Pulmonis Vitulini*, lb. ss. *Aquæ Epaticæ*, lb. j. *Lactis Caprini, q. s.*

The Lights of Veal must be cut into Pieces, the Craw-fish, and Snails bruised, and the Seeds, Leaves, and Flowers, coarsely pounded; and having put all the Drugs in a Glass or Stone Cucurbite, you must pour over them a Pound of the Blood of a Calf, newly drawn, the Epatick Water, and about a Quart of Goat's Milk, and having left the Matter in Digestion for the Space of twelve Hours, you'll distil all the Humidity thereof in Balneo Mariæ.

Virtues.—This Water is esteemed proper for an hectick Fever, to purify the Blood, and for a Decay of the Lungs.——The *Dose* is from half an Ounce to four Ounces.

Several Ingredients enter this Composition, which produce a very good Effect when taken alone, as the Goat's Milk, or in Broth, as the Calve's Lights, and Blood, the Craw-fish, the cold Seeds, *&c.* but they do not communicate much Virtue to the Water distilled from them: Therefore I should prefer Broths or Decoctions.

Aqua Pectoralis, Georgii Baici. ℞. *Ligni Guajaci pulverati*, ℥ viij. *Radicum Helenii, Aristolochiæ rotundæ, āa* ℥ iij. *Iridis nostratis*, ℥ j. ss. *Petroselini, Fœniculi, Glycyrrhizæ, aa* ℥ j. *foliorum Nicotianæ viridium man.* iv. *Scabiosæ, Veronicæ, Tussilaginis, Hyssopi, summitatum Marrubii, Cardui Benedicti, aa man.* i. *Jujubas, Sebesten, aa* No. XXX. *Caricas, Dactylos, aa* No. XV. *Baccarum lauri*, ʒ vj. *Seminis Nicotianæ*, ʒ iij. *Nigellæ*, ʒ j. *Lini, Urticæ, Nasturtii, Sinapi, aa* ʒ ij.

Put in a large Glass or Stone Cucurbite the Gayac reduced into a coarse Powder, the Roots cut in Pieces, the Leaves hatched and bruised, the Fruits open and cut in small Pieces, the Berries and Seeds bruised, and two Ounces of Turpentine dissolved with five or six Yolks of Eggs, and afterwards into white Wine. Stir the whole together, cover the Vessel, and leave the Matter in Digestion, in a warm Place, for three Days, then uncover the Vessel, adapt a Capital, and a Receiver to it, and having suspended in the Neck of the Alembick a Piece of fine Linen Cloth, containing sixty Millepedes, dried and bruised, lute exactly the Joints, place the Cucurbite in Balneo Mariæ, and distil the Matter by a pretty strong Fire, and the Water in distilling passing over the Knot, will be impregnated with the Substances and Quality of the Millepedes; which Water must be kept in Bottles well corked.

Virtues.—This Water is excellent for the Asthma, for the Difficulty of Respiration, for the Cough, to attenuate the coarse Humours of the Lungs and of the Reins, for the Nephretick, for the Ulcers of the Bladder, and to provoke the Urine.——The *Dose* is from one Ounce to two, taken twice or thrice a Day.

Aqua Pectoralis, A. Mynsicht. ℞. *Amigdalarum amararum Passularum minorum, āa* lb. ss. *Radicum Ireos florentiæ, Glycyrrhizæ, Altheæ, Tussilaginis, āa* ℥ j. *Malvæ minoris Symphiti majoris, Enulæ Campanæ, āa* ℥ ss. *seminum fœniculi dulcis, Cydoniorum, Cardui Benedicti, Cardui Beatæ Mariæ, Myrtillorum, Urticæ, āa* ʒ iij. *Croci orientalis, Cardamomi minoris, Macis, Cinnamomi, aa* ʒ ij. *foliorum Pulmonariæ utriusque, Veronicæ, Marrubii, Hederæ Terrestris, Capillorum veneris, Scabiosæ, Hyssopi, Salviæ, aa* ʒ j ss. *florum Chamomillæ, Farfaræ, Violarum, Jaceæ, aa* ʒ j.

Cut and bruise all the Drugs, put them together in a large Glass or Stone Cucurbite, pouring on them twelve Pints of Hydromel, made with three Pounds of Honey dissolved in five Quarts of Water, and skummed; cover well the Cucurbite, and put it in Digestion at the Sun, or in Horse Dung for eight Days, then having adapted a Capital and a Receiver to it, and luted the Joints, distil the Water in Balneo Mariæ.

Virtues.—This Water is proper for all the Maladies of the Breast; it attenuates and cleanses off gently the coarse Pituita, and strengthens the Lungs and Stomach.—The *Dose* is from half an Ounce to two Ounces.

The Decoction of the Ingredients which enter this Composition done with Hydromel, would produce a much better Effect for the Maladies of the Breast, than can the distilled Water; for that vulnerary Hydromel, would retain the balsamick Substances of the Honey and other Drugs, which cannot be carried off by the Distillation.

Aqua divina Cordialis. ℞. *Radicum morsus diabol. Gentianæ, Cyperi Longi, Ireos florentiæ, Caryophyllatæ, Acori veri, aa* ℥ ij. *Cinnamomi, Santali Citrini, Caryophyllorum, aa* ℥ j. *Corticum Citri & Arantiorum, aa* ʒ. *Macis, foliorum Melissæ, Menthæ, aa man.* i. ss. *florum recentium Violarum, Primulæ veris, Leccoii lutei vulgaris, Jonquillæ, Hyacinthi, Hyacinthi indici, Rosarum Rubrarum, & Pallidarum, Rosæ Moschatæ, Rorismarini, Salviæ, Thymi, Lavendulæ, Majoranæ, Genistæ, Tunicæ, Aurantii, Jasmini, Sambuci, Meliloti, Hyperici, Rossolis, Calendulæ, Chamomillæ, Nicotianæ, Lilii Convallium, Narcissi albi, Caprifolii, Borraginis, Buglossi, aa man.* ss. *Baccarum Juniperi*, ℥ j. *Seminis Coriandri*, ʒ vj.

This Operation must be made at the Beginning of the Spring; after the Roots, Woods, Barks, Berries, and Seeds have been bruised, they must be put in a large Glass or Stone Vessel, and having pour'd ten Quarts of Spirit of Wine upon them, the Vessel must be well stopped, and left in Digestion in the Cold, for three Days, stirring it from Time to Time; and distilling it afterwards in Balneo Mariæ, you'll have an odorous Water, which must be kept in Bottles well corked.

Virtues.—This Water is excellent to strengthen the Brain, Heart, and Stomach; it helps the Digestion, is good for the Asthma, Apoplexy, Palsy, provokes the Menses, helps the Delivery, and excites the Urine.——The *Dose* is from half a Spoonful to a Spoonful. It is also used outwardly to strengthen the Nerves, and is resolutive.

Three Parts of the Year are employ'd in this Preparation, *viz.* the Spring, Summer, and Autumn; because there enter Flowers in it, which have their Vigour and Strength but in those Seasons.

Aqua Antiscorbutica. ℞. *Radicum Raphani rusticani, & Hortensis, ana* lb. j. *Succorum Cochleariæ, Nasturtii, Aquatici, Baccabungæ, Nummulariæ, Menthæ, Melissæ, Fumariæ, ana* lb. ss.

Gather all the Plants as much in their Vigour as possible, pound them well, and extract the Juices thereof by Expression, according to our Method: The Mint and Melissa being Plants very little succulent, must be moistened with their distilled Water after they have been pounded, otherwise it would be very difficult to extract the Juice thereof. The Roots must be well bruised, and put to macerate in the Juices, for twenty-four Hours, in a Glass or Stone Cucurbite, cover'd with its Capital, and afterwards having adapted a Receiver to it, and luted exactly the Joints, you must proceed to the Distillation at a Sand Heat.

Virtues.—This Water is proper for the Scurvy; to raise the Obstructions, for the Stone, for the Nephretick, and to provoke the Urine.—The *Dose* is from an Ounce to six.

As the Virtues of the Plants consist particularly in the essential Salt, the greatest Part thereof remains at the Bottom of the Cucurbite with the Grounds, I'm of Opinion, that after the Distillation, the Extract of the Matter left should be extracted with common Water, in the usual Manner, and that that Extract being thickened to a due Consistence, should be kept in a Pot, a Drachm thereof to be dissolved in six Ounces of the distilled Water, in Proportion as it is administer'd to the Patient.

Aqua vel spiritus Castorei. ℞. *Castorei recentis*, ℥ iv. *florum Lavendulæ recentis*, ℥ j. *Cinnamomi*, ʒ vj. *foliorum Salviæ, Rorismarini, ana* ℥ ss. *Macis, Caryophyllorum, ana* ʒ ij. *spiritus vini rectificati*, lb. ij. *Digerantur per biduum, deinde Balneo Mariæ distillentur.*

Virtues.—This Spirit is very proper to abate and dissipate the Hysterick, to provoke the Menses, to revive the Spirits in the Apoplexy, Lethargy, and Palsy.——The *Dose* is from half a Drachm to two Drachms.

Aqua Diuretica, Ant. d'Aquin. ℞. *Aronidis, Apii, Fœniculi, Eryngii, Baccarum Juniperi & Alkekengi, ana* ℥ ij. *Foliorum virgæ Aureæ, Nasturtii Aquatici, Berulæ, florum Sambuci, ana man.* ij. *Contusa vel incisa omnia maceretur*

rentur horis 24. in vini albi, succorum Raphani & Parietariæ, lb. ij. *Deinde addentur, Mellis optimi*, lb. j. *Terebenthinæ Venetæ*, lb. ſs.

The Plants muſt be choſen in their Vigour, the Roots cleanſed and cut in Pieces, the Juniper-Berries bruiſed, and the Roots, Flowers, and Leaves, having been well pounded in a Marble-Mortar, all the Ingredients muſt be put in a large Glaſs or Stone-Cucurbite, pouring over them the Wine and Juices extracted by Expreſſion; and having left the Matter in Digeſtion for twenty-four Hours, then the Honey and Turpentine muſt be mixed with it; and having cover'd afterwards the Cucurbite with its Capital, it muſt be placed on the Sand, and the Liquor diſtilled by a moderate Fire. The Diſtillation over, there muſt be mixed with each Pound of the diſtilled Water, a Drachm of Spirit of Salt dulcified.

Virtues.—This Water is excellent to raiſe the Obſtructions, to attenuate the Stone in the Reins and Bladder, to provoke the Urine, for the Nephretick, the Gonorrhœa's, the Retention of Urine, and the Scurvy.—— The *Doſe* is from an Ounce to four.

Before this Water is taken, the Bottle muſt be well ſhaken immediately before it is pour'd into the Glaſs, to mix as much as poſſible the Oil of Turpentine which has aſcended in the Diſtillation, and which ſwims always a-top.

Aqua Nephretica. ℞. *Melli optimi*, lb. j. *Terebenthinæ Claræ*, ℥ ij. *Ligni Nephretici, Radicis Aronidis, āa* ℥ j. ſs.

Having pounded the Wood and Roots, all the Drugs muſt be put to macerate in the beſt white Wine, and Lemon-Juice, newly extracted, of each two Pounds; diſtilling the Liquor afterwards by a moderate Fire.

Virtues.—This Water is proper to expel the Gravel from the Reins and the Bladder; and is given for the Nephretick.——The *Doſe* is from half an Ounce to four Ounces.

Aqua contra ardorem Urinæ, A Mynſicht. ℞. *Radicis Glycyrrhizæ, Althææ, Malvæ minoris, Ireos florentiæ, āa* ℥ ij. *Seminum Melonum mundatorum, Cydoniorum, Apii, Papaveris albi, Endiviæ, Lactucæ, āa* ℥ vj. *Granorum Alkekengi, Myrtiliorum, Caſſiæ Fiſtulæ mundatæ, Galengæ minoris, āa* ℥ iij. *foliorum Violariæ, Symphyti minoris, Veronicæ, āa* ℥ ij. *Incidantur, Contundantur, & Infundantur in Aquarum florum Papaveris erratici, Malvæ utriuſque, āa* lb. j. ſs. *Plantaginis, Portulacæ, Violarum, Lactucæ, foliorum Quercus, Nummulariæ, āa* lb. j. *Digerantur per aliquot Dies, poſtea in Balneo Mariæ, per Alembicum diſtillentur, S. A.*

Virtues.—This Water temperates the Heat of the Urine, cleanſes the Ulcers of the Bladder, and is proper for the Gonorrhœa's.——The *Doſe* is from an Ounce to four.—It can be uſed, likewiſe, in Injection.

Aqua Antihydropica, Ant. Mynſicht. ℞. *Seminum Erucæ*, lb. ſs. *Fraxini, Cumini, Apii āa* ℥ j ſs. *Radicum Acori veri, Caryophillatæ, Vincetoxici, Curcumæ, Coſti amari, Cardui Mariæ, Ebuli, Sarſaparillæ, āa* ℥ j. *Rhabarbari electi, Galangæ minoris, Nucis Moſchatæ, Caryophyllorum, āa* ʒ vj. *Corticis Capparum, Mediani Sambuci, Tamariſci, foliorum Agrimoniæ, Soldanellæ, Summitatum Juniperi viridis, āa* ℥ ſs. *florum Hepaticæ albæ, Sambuci, āa* ʒ ij.

Bruiſe well all thoſe Ingredients, and having put them in a large Matraſs, pour over them four Quarts of the beſt white Wine; ſtop the Matraſs, and place it in Digeſtion, in Horſe Dung, for fourteen Days, ſhaking the Matter ſeveral Times a Day, which muſt be poured afterwards into a Glaſs or Stone Cucurbite, adding to it

Aquarum abſinthii Pontici, Abrotani, āa lb. j. ſs. *Hepaticæ utriuſque, Artheniſiæ, Cardui Benedicti, Serpilli, āa* lb. j.

And having placed the Cucurbite in Balneo Mariæ, adapted to it a Capital with its Receiver, and luted exactly the Joints, you muſt proceed to the Diſtillation of the Liquor, which ſhall be kept in a Bottle well corked.

Virtues.—This Water is employ'd for the Hydropſy, it raiſes the Obſtructions, and provokes the Urine.—The *Doſe* is from an Ounce to three.

If a Drachm of Spirit of Nitre dulcified was mixed with each Pound of this diſtilled Water, it would be more aperitive, and more proper for the Hydropſy.

Aqua ad Gonorrhœam fœtidam & virulentem, atque etiam inveteratam, Quercetani. ℞. *Radicis Ireos florentiæ, foliorum dictamni Cretici, & Menthæ ſicæ, āa* ℥ j. *Seminum agni Caſti, Rutæ, āa* ʒ vj. *Terebenthinæ Venetæ*, ℥ iv. *Vini albi*, ℥ xx.

The Roots, Leaves, and Flowers, after they have been bruiſed, muſt be put in a Glaſs or Stone-Cucurbite, and the Turpentine and Wine having been mixed with them, the Cucurbite is to be cover'd with its Capital, and the Matter left in Digeſtion for twenty-four Hours, and afterwards diſtilled in Balneo Mariæ.

Virtues.—This Water is good to cleanſe the ſpermatick Veſſels, after the anodyne Remedies have been uſed. The *Doſe* is from two Drachms to an Ounce.

Aqua Aſthmatica. ℞. *Mellis optimi*, ℥ j. ſs. *Ficuum Pinguium*, ʒ j. *Foliorum Salviæ, Majoranæ, Hyſſopi, Marrubii, āa man.* ſs. *Radicum Enulæ Campanæ, Tuſſilaginis, āa* ℥ ſs. *Sallæ preparatæ, Seminis Urticæ Romanæ, Fœniculi, Ocimi, āa* ʒ iij. ℈ j. *Amigdalarum Dulcium, Pinearum, Dactylorum, Uvarum Paſſularum minorum, Sebeſten, Jujubarum, Radicum Liquiritiæ, Polypodii Quercini, Iridis florentiæ, Gentianæ, āa* ʒ iij. *Caryophillatæ, Zingiberis albi, Baccarum Lauri & Juniperi, aa* ʒ ij. ℈ j. *Cinnamomi Cardamomi, aa* ʒ ij. *Vini Malvatici*, lb. iv. *Spiritus vini*, lb. iij.

All theſe Drugs, after they have been left in Digeſtion together for ſeveral Days, muſt be diſtilled at a Sand Heat.

Virtues.—This Water is good for the Aſthma, it excites and attenuates the coarſe Humours which obſtructs the Action of the Lungs, and helps Reſpiration.——The *Doſe* is from a Drachm to half an Ounce.

If one was to add to each Doſe of this Water, two or three Drops of Balſam of Sulphur, it would be ſtill more efficacious for the Aſthma.

Aqua ad Gutturis affectus, Scroderi. ℞. *Herbæ perfoliatæ Totius, man.* i. *foliorum Pyri Sylveſtris, Apii, Saniculæ, Perichymeni, Scordii, Pentaphylli, Ariſtolochiæ rotundæ, aa man.* j. *Cereviſiæ acetoſentis*, lb. vj.

The Herbs having been pounded together in a Mortar till they are reduced into a Paſte, muſt be put into a Glaſs or Stone Cucurbite, pouring on them ſix Pints of Beer, which begins to grow ſour; then the Veſſel well cover'd muſt be left in Digeſtion for three Weeks, and then uncover'd, and an Ounce and a half of Dog's Dung having been added to the Infuſion, and a Capital with its Receiver added to the Alembick, the Liquor ſhall be diſſolved at a Sand-Heat.

Virtues.—This Water is good for the Inflammations of the Throat, uſed in Gargariſms, and in Fomentation round the Neck; it may even be ſwallow'd from an Ounce to an Ounce and a half. It is vulnerary and a little ſudorifick.

Aqua Anticolica ſeu Carminativa, A. Mynſicht.—℞. *Radicis Zedoariæ*, ℥ iij. *Baccarum Lauri & Juniperi, aa* ℥ j ſs. *Flavedinis Corticum Aurantiorum, Calami Aromatici, Galangæ minoris, Cinnamomi, aa* ℥ j. *Seminum quatuor Calidorum majorum & minorum, Cerefolei, Nigellæ, Anethi, aa* ʒ iij. *Craſſiuſculè contuſa & mixta infundantur in Vini Malvatici*, lb. viij. *per Octiduum, poſtea adde Aquæ Chamomillæ ter diſtillatæ*, lb. j. *miſce & in Balneo Mariæ per Alembicum diſtillentur, S. A.*

Virtues.—This Water is good for the windy Colick, cauſed by a viſcous Pituita.——The *Doſe* is from half an Ounce to three Ounces.

Water to appeaſe the Pains of the Gout.—Let Ox's Dung be dried in the Sun, and mix it afterwards with Freys of Frogs, an equal Quantity of each, in a Glaſs Cucurbite, to which having adapted a Capital with its Receiver, and luted exactly the Joints, proceed to the Diſtillation of the Humidity in Balneo Mariæ; and you'll have a Water which muſt be kept in a cool Place for Uſe.

Virtues.—This Water is eſteemed good to appeaſe the Pains of the Gout, attended with Inflammation of the Part, by applying upon it Pieces of Linen Cloth dipped into it.

A very good Eye-Water.—Take the Flowers of Cyanus, newly gather'd in their Vigour, pound them in a Marble-Mortar, with a ſufficient Quantity of Snow-Water to humect them well; put them in a Glaſs or Stone Cucurbite, and having adapted a Capital to it with its Recipient, leave the Matter in Digeſtion, by a ſlow Heat in Balneo Mariæ, for a whole Day; and having diſtilled afterwards the Humidity, you'll expoſe the diſtilled Water to the Sun, for ſome Days, in a Bottle uncorked; and keep it afterwards for Uſe.

Virtues.—This Water is proper for Inflammations, and other Maladies of the Eyes; it cools them, and strengthens the Fibres thereof, by washing the Eyes with it, and suffering some Drops thereof to enter them.

Aqua ad Oculorum nebulas suffusiones, Joannis a Vigo. ℞ *Herbarum Euphrasiæ, man.* ij. *Rutæ pug.* j. *Gummi Sagapeni* ℥ j. *Sarcocollæ* ʒ ij ß. *Capburæ* ℈ ij. *Mellis Rosati* ℥ x. *Fellis Vervecini* ℥ iv. *Succorum Fœniculi & Chelidonii, āa* ℥ j. *misce, & distilla* S. A.

Virtues.—This Water is detersive, and proper to consume insensibly the Cataracts, which begin to grow on the Eye; by distilling some Drops of the Water into it.

Aqua ad suffusionem, Schroveri. ℞ *Sacchari albi* ℥ ij. *Sarcocollæ, Aloes hepaticæ, Piperis longi, Nucis Moschatæ, Caryophyllorum, ana* ℥ ij. *Croci* ℈ j. *Florum Rorismarini man.* ß. *Aquarum Euphrasiæ, Fœniculi, Verbenæ, ana* ℥ iij. *Succorum Chelidonii minoris, Rutæ, ana* ℥ ij. *Fellis Perdicum* ℥ j. *Mellis Rosati* ʒ vj. *distillentur in Alembico Vitreo, in Balneo Mariæ.*—This is more detersive than the preceding ones; though it has the same Virtues: Some Drops thereof are suffered to enter the Eyes.

Aqua Ocularis interna, A. Mynsicht. ℞ *Baccarum Juniperi* ℥ ij. *Cassiæ ligneæ* ℥ j. *Seminum Sileris Montani, Fœniculi, ana* ℥ ß. *Rutæ* ʒ iij. *Pulveris Specierum Diamoschi dulcis, Nucis Moschatæ, Ligni Aloes, ana* ʒ ij. *Foliorum Euphrasiæ, Verbenæ, Rutæ, Summitatum Rorismarini, Salviæ, Pulegii, Anethi, Fœniculi, ana* ʒ j ß. *Florum Chelidoniæ majoris, Betonicæ, Lavendulæ, Rosarum rubrarum, Rorismarini, ana* ʒ j. *macerentur in vini Malvetici* ℔ vi. *per octo dies, postea Balneo Mariæ distillentur.*

Virtues.—This Water is good to strengthen the Sight, and to dissipate the coarse Humours of the Brain.——The *Dose* is from half an Ounce to an Ounce and half.

Aqua Viridis correcta, Hartmanni. ℞ *Mellis rosati* ℥ ij. *Sulphuris vivi, Viridis æris, Aluminis crudi, ana* ℥ j. *Stercoris canini sicci, Comarum sabinæ, & sambuci, ana* ʒ j. *Foliorum Hyperici, Rorismarini, Rutæ, Plantaginis, Salviæ, Pulegii, ana man.* ß. *Vini albi, & Aqua solani, ana* ℔ j.

All the Drugs, after they have been pounded, must be mixed together, except the Verdegrease, and boil for a Quarter of an Hour: Then the Decoction being taken off the Fire, the Verdegrease must be mixed in it, and the Decoction strained afterwards, to be kept for Use.

Virtues.—This Water is good for Ulcers of the Mouth, of the Throat, Nose, and other Parts of the Body, as well verolick, scorbutick, and others. They are touched with Cotton or Lint, imbibed with that Water: It is detersive and resolutive.

Aqua Epidemica, Georgii Batei. ℞ *Foliorum Chelidoniæ, Rorismarini, Rutæ, Arthemisiæ, Absinthi, Anagallidis, Dracontii, Scabiosæ, Agrimoniæ, Melissæ, Scordii, Centauri minoris, Cardui Benedicti, Betonicæ, Roris solis, ana man.* ij. *Radicum Angelicæ, Tormentillæ, Gentianæ, Zedoariæ, Glycyrrhisæ, ana* ℥ j. *macerentur in Vini albi* ℔ viij. *per duos dies; deinde distillentur secundum artem.*

Virtues.—This Water is used in *England*, in the Epidemical Maladies; as in the Small-Pox, the malignant Fever, and the Plague.——The *Dose* is from half an Ounce to two Ounces; or from half a Spoonful to four.

Note, That the Leaves of Celandine, Agrimony, and Scabiose, and the Roots of Liquorice and Tormentille, could be retrenched from this Composition, without diminishing its Virtues; since those Plants, containing but very few volatile Parts, nothing but Phlegm is exalted from it in the Distillation; and the essential and fixed Parts, which make their principal Qualities, remain at the Bottom of the Alembick.

Aqua Lactis Alexiteria, Georgii Batei. ℞ *Foliorum Almariæ, Cardui Benedicti, Galegæ, ana man.* j. *Menthæ, Absinthii, ana man.* v. *Rutæ man.* iij. *Angelicæ man.* ij. *Contusis adde Lactis recentis Congias* iij. *vel* ℔ xxiv. *fiat distillatio*, S. A.

The Herbs must be gathered in their Vigour, well pounded, and put into a large Cucubite tinned inside; and having poured upon them the new Milk, and stirred well the whole Mixture, you must cover the Vessel with its Bolt-Head and Refrigeratory, and distil the Humidity by a naked Fire, or in Balneo Mariæ, or Vaporis.

Virtues.—This Water is proper to resist Venom, to expel by a gentle Perspiration the bad Humours, and to strengthen and rejoice the vital Parts.——The *Dose* is from an Ounce to six.

Milk being a viscous and cooling Liquor, does not appear to be a Menstruum very proper for this Operation; but it is employed here, I suppose, to temperate the Heat of the Ingredients.—This Water is particularly used in *England*.

Pectoral Milk Water of George Bateman.—Take two Pounds of Hog's Blood; two Pounds of Garden-Snails bruised; Maiden-Hair, and Ground-Ivy, of each two Handfuls; Jar-Raisins, and Jujubes, of each four Ounces; Liquorice, and Aniseed, of each three Ounces; new Milk six Quarts.—The Snails must be gathered alive, washed and bruised; the Herbs gathered in their Vigour, shall be pounded in a Mortar; the Liquorice and Anniseed bruised; the Jujubes opened, and the Raisins stoned; all which Ingredients must be put in a large Glass, or Stone Cucurbite; and having poured over them the Hog's Blood, and new Milk, and stirred well the whole Mixture with a Spatula, a Capital with a Recipient must be adapted to the Cucurbite, and the Joints being exactly luted, the Liquor is to be distilled in Balneo Mariæ, and exposed afterwards, for seven or eight Days, to the Sun in a Bottle uncorked, if it is to be kept; otherwise it would be soon corrupted, by reason of some glutinous Particles exalted along with it in the Distillation.

Virtues.—This Water is proper to cool, and soften the Acrimony of the Breast, for the Phthisick, to provoke Expectoration, and purify the Blood. It is also very good for the Consumption; where the Milk coming out of the Cow or of the Ass cannot run through, because it curdles in the Stomach.——The *Dose* is from an Ounce to six. It can be used, also, to cleanse and embellish the Skin.

Aqua Limacum Magistralis. ℞ *Limacum hortensium incis.* ℔ ij. *Fol. Necotianæ sicc.* No. viii. *Radicis Glycyrrhizæ pulver.* ℥ ij. *Ireos Florentiæ* ℥ j. *Enulæ Campanæ* ℥ ß. *Seminis Bombacis* ℥ j ß. *Frigidorum Majorum, Anisi, ana* ʒ vj. *Croci* ʒ j. *Florum Rosarum rubrarum, pug.* vj. *Violarum, Borraginis, ana pug.* iv. *Sanguinis porcini recensis, Vini albi. ana* ℔ iv. *Succorum hederæ Terrestris, Tussilaginis, Scabiosæ, Pulmonariæ maculosæ, ana* ℔ j ß. *Portulacæ, Plantaginis, Ambrosiæ, Veronicæ, ana* ℔ j. *macerentur per triduum tepidè, deinde distillentur vitreis, organis, calore cinerum ad siccitatem.*

Virtues.—This Water is accounted good for the Maladies of the Lungs and of the Breast; for the Phthisick, Asthma, an inveterate Cough, and to provoke Expectoration.——The *Dose* is from one Ounce to six.

When about half the Liquor is distilled, it is proper to strain with Expression what is left in the Cucurbite; to distil, afterwards, the Colature without the Grounds; otherwise the Ingredients would stick to the Bottom of the Vessel, and give the Water a very bad Smell of Burning, and a reddish Colour.—This Description is taken from the *London* Dispensatory.

Aqua Hemoptoica. ℞ *Radicum Bistortæ, Symphysi majoris, Tormentillæ, ana* ℥ j. *Herbarum Centinodiæ, Malvæ folii, Veronicæ, Pyrolæ, Saniculæ, Bursæ Pastoris cum toto, ana man.* j. *Summitatum Rubi, Lentisci, ana man.* ß. *Granorum Sumach, Myrtillorum, Seminum Plantaginis, Berberis, & Papaveris albi, ana* ʒ vj. *Florum Nymphæ, Cucurbitæ, Cydoniorum, Rosarum rubrarum, ana pug.* j. *Contusis & comminutis omnibus, macerentur per quatriduum ad ignem balnei, in Succorum Plantaginis, Lactucæ, Acetosæ, Agrimoniæ, ana* ℔ ij. *Deinde percolentur; his adde Acaciæ, Hypocistidos, Terræ sigillatæ, armenæ, ana* ℥ ß. *Pulveris Diatragacanthi frigidi* ℥ ß. *Macerentur denuo per quatriduum, deinde in Balneo Mariæ distillentur.*

Virtues.—This Water is esteemed good to [illegible] Hemorrhages, the Loosenesses, and the [illegible] This Description is taken from the *Pharmacopœia* of *Bruxelles*; but I have no great Opinion of it, [illegible] all the Substances of the Drugs proper to produce the Effects expected from them, being too fixed to be exalted by the Distillation, remain almost all at the Bottom of the Cucurbite with the Grounds; and [illegible] thing but the phlegmatick Part of the Ingredients comes out by Distillation.

Flos Cordialum, nec non Cardiacum magnum, Georgii Batei reformatum. ℞. *Florum siccatorum Rorismarini, Calthæ, Tunicæ, Superbæ, Borraginis, Buglossi, Rorellæ, Altes, Betonicæ, āa* ℥ j. *Croci,* ℈ j. *foliorum siccatorum Cardui Benedicti, Scordii, Angelicæ, Apiastri, Menthæ, Amaraci, Valerianæ, āa* ʒ vj. *Radicis Heptaphylli, Zedoariæ, Aristolochiæ rotundæ, Caryophyllatæ, āa* ℥ ß. *Gentianæ,* ʒ ij. *Corticum Sassafras, & Xyloaloes, āa* ℥ j. *Citri, Santali Citrini, Baccarum Juniperi, Kermesini, Cardamomi, Seminis Ocimi, āa* ℥ ß.

All the Drugs, after they have been bruised, must be put in a large Cucurbite, and having poured over them fifteen Quarts of Spirit of Wine, the Vessel, cover'd with its Capital, must be placed in Balneo Mariæ, or Vaporis, and a very gentle Heat of Digestion excited under the Cucurbite for five or six Days successively, after which the Fire shall be increased, to distil ten Quarts or the two Thirds of the Liquor, which must be kept in a Bottle well corked.

Virtues.—This Spirit (called *Flos Cordialum*, by Reason of the great Virtues attributed to it) strengthens the Heart, rejoices the Brain, is proper to resist Venom, for the Epilepsy, Palsy, Apoplexy, and Sincope.——The *Dose* is from a Drachm to half an Ounce. It is also used in Fomentation, for the Temples, Wrists, Heart, and Nose.

What remains in the Cucurbite must be strained with Expression, and the Humidity thereof having been evaporated to the Consistence of Extract; that Extract must be weighed, and to each Ounce thereof, is to be added a sufficient Quantity of Sugar-candy; keeping the Mixture in a Pot well stopped for Use.

Virtues.—This Electuary is proper to strengthen the Heart, the Brain, and other vital Parts, to provoke Strength, and resist the bad Air.

Note, That I have retrenched from the original Description of the Spirit, the Flowers of Roses, of Violets, of Jessamin, and of Oranges; as having little or no Virtue when they are dry. And from the Extract, the Musk, Ambergrease, Gold, *&c.* as needless.

Aqua Lavendulæ Composita. ℞. *Florum Lavendulæ, Lilii Convallium, āa man.* vj. *Salviæ, Rorismarini, Pæoniæ, Tiliæ, āa pug.* j. *Radicis Pæoniæ, Erucæ, āa* ʒ iij. *Galangæ, Zingiberis, Calami aromatici, Nucistæ, Cubebarum, Cinnamomi, Macis, Caryophyllorum, Visci querciui, āa gr.* xxvj. *Vini optimi, q. s. fiat in fusio & distillatio in Balneo Mariæ.*

Virtues.—This Water is cephalick and arthritick, it strengthens the Brain and the Joints, and may be used in the Epilepsy, Palsy, and Apoplexy.——The *Dose* is from two Drachms to an Ounce.

Water to prevent the Accidents which may be occasioned by a Fright or a Fall of a Woman with Child.—Take an Ounce and a half of Cinnamon; half an Ounce of Cubebs; three Drachms of Cloves; Mace, Galanga, Ginger, Zedoaria, Saffron, of each two Drachms; a Handful of Flowers of Lavender, and two Quarts of Water of Lillies of the Valleys distill'd with the best white Wine. Bruise well the Ingredients, put them in a Cucurbite, and having pour'd upon them the Water of Lillies of the Vallies, stop well the Vessel, and place it in Horse-Dung, where you'll leave it four Days in Digestion; which elapsed, open the Cucurbite, adapt a Capital to it with its Receiver, lute exactly the Joints, and distil the Humidity in Balneo Mariæ, to extract a Water which must be kept in a Bottle well corked.

Virtues.—This Water is proper for Women with Child which have been frighten'd, or are sell; for it prevents Abortion, by strengthening both the Mother and Child: It also helps the Digestion.——The *Dose* is from two Drachms to an Ounce.

Water for the Hair.—Put four Ounces of live Flies in a Glass or Stone Cucurbite, pour upon them a Pound of Honey and two Pints of Milk, stir the whole Mixture together with a wooden Spatula, and having adapted a Capital to the Cucurbite, with a Glass Receiver, and luted exactly the Joints; distil the Matter at a moderate Sand Heat, and you'll have a clear Water; if the Fire be increased towards the End of the Operation, there will come out Spirits, which will render the Water yellowish, and increase its Virtue.

Virtues.—This Water is proper to make the Hair grow, and for Deafness.

ELIXIRS.

Note, That as the Name *Elixir* comes from the *Greek* αλυω, *Treho*, because in mixing an Elixir, the purest Substance of the Mixts is extracted: Or from αλεξέω, *Auxilior*, because of the great Benefits received from them in Medicine. Elixir is sometimes called *Enchilana.*

ELIXIR is a Spirit or quintissential Tincture of several chosen Mixts, containing their purest Substance. It is designed for inward Uses.

Elixir Proprietatis. ℞. *Myrrhæ Electæ, Aloes Succotrinæ, āa* ℥ ij. *Croci orientalis,* ℥ j.

The Myrrh and Aloes must be pounded together, and put with the Saffron in a Matrass, pouring upon them Spirit of Wine, that it may surpass the Matter by a Finger's Breadth; then the Matrass must be well stopped, and carried to a warm Place, where the Matter is to be left two Days in Digestion; which elapsed, the Matrass is open'd, and the acid Spirit of Sulphur having been added to the Infusion, to the Height of four Fingers Breadth, the Matrass shall be corked again, and placed in Digestion in the Sun, or in a lukewarm Balneo Mariæ, where having been left four Days, the Liquor shall be filtrated afterwards, and kept in a Bottle well corked.

Virtues.—This Elixir strengthens the Heart and the Stomach, purifies the Blood, provokes the Menses, abates the hysterick Vapours, and is sudorifick.——The *Dose* is from four to sixteen Drops.

Elixir Pestilentiale Crollii. ℞. *Balsami sulphuris Juniperati & Succinati,* ℥ iv. *Tincturæ Theriacalis Myrrhatæ & Camphoratæ,* ℥ iij. *Elixirii de tribus,* ℥ j. ß.

The three Liquors must be mixed in a pretty large Matrass, so that it be but half-full; this Matrass must be stopped with another, to make of them both what we call in Chymistry a circulatory Vessel; which Vessel is to be placed in hot Dung, and left there in Digestion for fourteen Days, that the Liquors may have Time to circulate, and be well mixed together; then the Vessels are opened, and the Liquor pour'd into a Bottle, where it is to be kept well corked.

Virtues.—This Elixir is a Preservative and Remedy against the Plague, and all other contagious Maladies, it helps Respiration, is good for the Asthma, and cleanses the Ulcers of the Breast.——The *Dose* is from a Scruple to a Drachm.

Elixir seu Enchiloma de tribus. ℞. *Radicum recens exsiccatorum Enulæ Campanæ & Angelicæ, Baccarum Juniperi, āa* ℥ iv. *Grosso modo Concisa & Contusa misce & inde Matratio affunde, spiritus Vini rectificati,* lb. j. ß. *Stent in loco calido donec spiritus saturatim fuerit tinctus, tunc filtra, & serva ad usum.*

Virtues.—This Elixir is proper against the Plague, the Asthma, Palsy, Apoplexy, and Lethargy.——The *Dose* is from a Scruple to two Drachms.

Elixir Epilepticum Freyen, reformatum. ℞. *Aquarum imperialis & florum Aurantiorum, āa* ℥ iij. ß. *In quibus dissolve salium volatilium Cranii humani, Sanguinis humani & succini, āa* ℈ ij. *fiat Elixir.*

Virtues.—This Elixir is proper to strengthen the Brain, to purify the Blood, to resist the Malignity of the Humours, and is sudorifick. It is used in the Epilepsy, and the other Maladies of the Brain.——The *Dose* is from ten to thirty Drops.

An excellent antiepileptick Elixir.—Cut in small Pieces half a Pound of the best Opium, put it into a Matrass, and pour upon it Spirit of Wine, so that it swims over the Matter by four or five Fingers Breadth. The Matrass must be well stopped, and carried to a warm Place, where the Matter is left in Digestion for three Days, and afterwards poured into a Glass or Stone Cucurbite; to which a Capital and a Receiver must be adapted, and the Joints having been exactly luted, the Liquor must be distilled in Balneo Mariæ.

The distilled Spirit shall be mixed in a Matrass, with an equal Quantity of human Cranium; and the Matrass stopped with another to make of both a circulatory Vessel, and having luted exactly the Joints, and placed the Vessel on the Sand, a gentle Fire of Digestion must be made

made under it to make the Liquor circulate for two Days, and then the Elixir will be done; which muſt be kept in a Bottle well corked.

Virtues.—This *Elixir* is proper for the Epilepſy, Palſy, Delirium, Apoplexy, the Vapours, Scurvy, to reſiſt Venom, for the Hyſterick, to appeaſe Pains, and is ſudorifick and ſomniferous.——The *Doſe* is from four Drops to twenty.

For want of Spirit of human Cranium, the Spirit of Hartſhorn, or that of Viper can be ſubſtituted to it.

The Opium left at the Bottom of the Cucurbite is not to be thrown away; but a very good Extract may be made of it, in the Manner deſcrib'd in my Treatiſe of Chymiſtry.

Elixir Febrile A. Mynſicht. ℞ *Pulveris Febrifugi A. Mynſicht, Piperis Longi, Caryophyllorum, Nucis Moſchatæ āa* ℥ j. *Herbarum Centaurii Minoris, Cardui Benedicti, Abſinthii, āa man.* vj. *Quinque Folii, Rutæ, āa man.* iij.

The Long Pepper, Nutmeg, and Cloves muſt be pounded coarſely, and the Herbs very well; and having been mixed all together with the Febrifuge Powder, the whole Mixture muſt be put in a Glaſs Cucurbite, with a narrow Neck, and having poured upon it Spirit of Wine, to the Height of four Fingers Breadth, the Veſſel muſt be put in Horſe-dung, or in a luke warm Balneo Mariæ, ſhaking it from Time to Time, till the Spirit of Wine be loaded with a ſtrong Tincture, then the Liquor ſhall be filtrated, and new Spirit of Wine put on the Grounds, to make an End of extracting the Tincture of the Ingredients, by leaving the Matter in Digeſtion as before, filtrating the Liquor, and having mixed it with the firſt, the whole Mixture muſt be put in a Glaſs Cucurbite, adapting a Capital to it with its Receiver, luting exactly the Joints, and diſtilling afterwards about half the Liquor, which will be the Spirit of Wine; and what remains in the Alembick muſt be kept in a Bottle well corked, it being the febrifuge Elixir.

Virtues.—The Author of this *Elixir* pretends that it cures all Sorts of Fevers: It is good for the Hydropſy, and hypocondriacal Melancholy.——The *Doſe* is from one Drachm to two.

The Spirit of Wine diſtilled or extracted from the Tincture, will be impregnated with the moſt volatile and eſſential Parts of the Ingredients: It is proper for the Palſy, Epilepſy and intermittent Fevers.——The *Doſe* is from one Drachm to two.

Elixir Citri. ℞ *Corticum exteriorum Citri Recent, ad Albicante Medulla ſeparatorum* lb ſs. *Aquæ Vitæ* lb ij. *Macerentur aliquandiu, poſtea diſtillentur, donec Phlegma ſtillare incipiat, huic ſpiritui adde Succi Citri depurati* ℥ iij. *Tincturæ Croci* ℥ ſs. *Fiat Elixir.*

Virtues.—This *Elixir* rejoices and ſtrengthens the Heart, reſiſts the bad Air, and the Malignity of the Humours: It is uſed in Time of Plague.——The *Doſe* is from one Drachm to ſix.

Some retrench from this Deſcription the Lemon-Juice, which is not improper, ſince that Acid fixes in ſome Manner the Volatiles of the Remedy, and hinders it from operating as well as it would, for its principal Effect is to agitate the Spirits by increaſing a little the Motion of the Blood, to rariſy the coarſe Humours, and expel them by Perſpiration. The Brandy which is ſulphurous is very proper to extract the oily or eſſential Subſtance of the Lemon-Peel, the moſt eſſential Parts thereof being exalted by the Diſtillation; but in my Opinion the *Elixir* would be rendered as efficacious, by drawing only a ſtrong Tincture of Lemon-Peel in Brandy without Diſtillation.

Elixir Sincopticum. ℞ *Corticis Exterioris Citri* lb ſs. *Croci Orientalis* ʒ vj. *Antidoti Orvietani* ℥ ſs. *Confectionis Alkermes, Diambræ, āa* ʒ ij. *Succi Limonum depurati* lb j. *Aquarum Roſarum* ℥ ix. *Meliſſæ* lb ſs. *Florum trium Cordialium, Calendulæ, Lilii Convallium, Roris Solis, āa* ℥ iv. *Tunicæ* ℥ iij.

You'll take the outward Rind of Lemon ſeparated from the whole Part, and having cut it ſmall, you'll put it with the Saffron in the Matraſs, together with the Orvietan and Confection Alkermes diſſolved in the diſtilled Waters; then ſtop exactly the Matraſs and place it in the Horſe-dung, where the Matter muſt be left in Digeſtion for fifteen Days; pouring afterwards the Infuſion into a Glaſs or Stone Cucurbite, and having adapted a Capital to it with its Recipient, lute exactly the Joints and put in the Pipe of the Alembick four Scruples of Powder of Diambra, tied in a Piece of Linnen Cloth, you'll diſtill the Liquor in Balneo Mariæ.

Virtues.—This *Elixir* is good againſt fainting Fits, Sincope and the Apoplexy.——The *Doſe* is from two Drachms to an Ounce and a half.

Elixir Vitrioli Veneris A. Mynſicht. ℞ *Sacchari Candi albi* ℥ iij. *Galengæ Minoris* ʒ i ſs. *Calami Aromatici* ʒ j. *Menthæ Criſpæ, Salviæ, āa* ℥ ſs. *Cinnamomi Caryophyllorum, Zingiberis, āa* ʒ iij. *Nucis Moſchatæ, Cubebarum, āa* ʒ ij. *Ligni Aloes, Corticis Citri, āa* ʒ j.

The Ingredients having been coarſely pounded, muſt be put in a Matraſs and Spirit of Wine poured upon them to make a liquid Paſte thereof, adding to it the Spirit of Venus to the Height of four Fingers; then the Matraſs muſt be well ſtopped, and placed in Horſe-dung, where the Matter ſhall be left in Digeſtion three or four Weeks, and afterwards decanted and filtrated; pouring Spirit of Wine on the Matter left in the Matraſs to make an End of extracting the Tincture, which muſt be filtrated like the other; and having mixed both Tinctures together, they muſt be made to circulate in a circulatory Veſſel in Balneo Mariæ, for fourteen Days, and the Liquor kept afterwards in a Bottle well corked; which Liquor is the *Elixir of Vitriol.*

Virtues.—This *Elixir* is thought to ſtrengthen the Brain; it is uſed for the Epilepſy, and the other Maladies of the Brain.——The *Doſe* is from half a Scruple to half a Drachm.

Elixir Nephreticum. ℞ *Seminis Melonum & Cucurbitæ, Florum Geniſtæ, Bugloſſi, āa* ʒ j. *Nucleos Avellanarum* No. iv. *Baccarum Myrtillorum, Hederæ, Alkekingi, Juniperi, āa* ℈ ij. *Herbarum Adianti, Veronicæ, Ruſci, ana pug.* j. *Radicum Cyperi, Pimpinellæ Ononidis, ana* ʒ ß. *Succi Limonum* ℥ ij. *Vini Albi Generoſi, q. ſ. fiat infuſio in Cella ſubterranea.*

Virtues.—This *Elixir* is proper to open the Conducts of the Urine, to expel the Sand and Stone: It is uſed in the Nephretick.——The *Doſe* is from half an Ounce to three Ounces.

Elixir ſeu Tinctura Cephalica, Sennerti. ℞ *Radicum Acori Veri, Ireos Florentiæ, Pæoniæ Maris, āa* ℥ ß. *Galangæ, Cinnamomi, Nucis Moſchatæ, Caryophyllorum, Corticum Ligni Saſſafras, Granorum Paradiſi, Cubebarum, āa* ʒ iij ß. *Foliorum Salviæ, Florum Liliorum Convallium, Stœchados Arabicæ, Lavendulæ, Roriſmarini Siccatarum, āa man.* ß. *Seminum Fœniculi Aniſi, Sileris Montani, Pæoniæ, āa* ʒ ij. *Corticum exteriorum Citri Siccatorum, Radicis Zedoariæ, Macis, Santali Citrini, Piperis Longi, āa* ℈ j. *Zingiberis, Spicæ nardi Indicæ, Cardamomi Minoris, āa Gr.* ix.

All the Drugs having been bruiſed, muſt be put together in a Matraſs, and two Quarts of rectified Spirit of Wine poured upon them; then the Veſſel is well corked, and the Matter left in Infuſion for eight Days, ſhaking the Veſſel from Time to Time; and the eight Days elapſed, the Liquor ſhall be ſtrained with Expreſſion, and after it has been filtrated, kept in a Bottle well corked.

Virtues.—This *Elixir* is proper to ſtrengthen the Brain and the Stomach, for the Epilepſy, Palſy, Apoplexy, and to reſiſt Venom.——The *Doſe* is from half a Drachm to two Drachms.

Elixir Lithontripticum. ℞ *Fructus Fragariæ* lb j. *Sacchari Candi* lb ß. *Seminis Milii Solis Contuſi* ℥ iij. *Baccarum Alkekengi* ℥ j ß. *Summitatum Virgæ Aureæ, Foliorum Hederæ Terreſtris, Saxifragiæ, āa man.* ſs.

All the Ingredients cut and bruiſed muſt be put in a Matraſs, and Brandy poured upon them, ſo that it may ſurpaſs the Matter about four Fingers Breadth; then having corked the Matraſs it ſhall be carried to a warm Place, and the Matter left there in Digeſtion for four or five Days, ſhaking every Day the Veſſel; the five Days expired, and the Liquor having been left to ſettle muſt be filtrated, and kept afterwards in a Bottle well corked. It is the *Lithontriptick Elixir.*

Virtues.—This *Elixir* is proper to break the Stone in the Reins and in the Bladder, and to expel it by Urine, for the Nephretick, and for the Retention of Urine.—The *Doſe* is from two Drachms to two Ounces.

Elixir seu Essentia Italica. ℞. *Cinnamomi electi*, ℥ iij. *Cardamomi majoris, Galangæ, aa* ℥ ij. *Caryophyllorum, Zingiberis, aa* ℥ ss. *Nuces Moschatas*, No. ij. *Piperis longi*, ʒ iij. *Moschi, Ambari Griseæ, aa gr.* iv.

All the Drugs having been coarsely pounded and mixed together, must be put in a Matrass, and a Quart of Spirit of Wine having been poured upon them, the Vessel well corked shall be put in Digestion at the Sun, or in any other warm Place, and left there for fifteen Days, shaking it from Time to Time: The fifteen Days elapsed, the Tincture, after it has been filtrated, must be kept in a Bottle well corked; and that Tincture is the *Essence of Italy.*

Virtues.—This Essence is strengthening, cordial, cephalick, stomachical, carminative, restores the exhausted Spirits, provokes the Seed, and becomes very cold and humid Constitutions.——The *Dose* is from eight Drops to twenty, in a Glass of Sack, or other Wine; continuing the Use thereof for several Days successively.

Elixir Carminativum & Antinephreticum, ℞. *Mala Citrea per Taleolas dissecta*, No. iij. *Grana Juniperi*, No. xxx. *Seminum Anethi, Dauci, Coriandri, Anisi, Feniculi, Carvi, āa* ℥ j. *Radicis Viperinæ, Ligni Nephretici, Cinnamomi, āa* ʒ ij. *Sacchari albi pulverati*, lb. ß.

All the Ingredients must be put to macerate, for twenty-four Hours, in a warm Place, in two Pints and a half of Spirit of Wine; filtrating afterwards the Infusion, and keeping it in a Bottle well corked for Use.

Virtues.—This Elixir is excellent for the windy Colick, and the Nephretick, it strengthens the Stomach, and the Brain, and provokes the Urine.——The *Dose* is from a Drachm to an Ounce.

Elixir uterinum, Rolfincii. ℞. *Foliorum Calaminthæ, Matricariæ, Pulegii, āa man.* j. *Radicum Bryoniæ, Rubiæ Tinctorum, Zedoariæ, Dictamni albi, Ireos florentiæ, āa* ℥ j. *Cinnamomi, Antophyllorum, Nucis Moschatæ, Zingiberis, Cardamomi, Baccarum lauri, āa* ℥ j. *Corticum Citri, aurantiorum, āa* ʒ vj. *Granorum Paradisi*, ℥ ss. *Seminum Anisi, Ocimi Caryophillati, āa* ʒ iij.

All the Drugs coarsely pounded, with the Addition of an Ounce of Salt of Tartar, must be put in a Matrass, and Spirit of Wine poured upon them, that it may rise above the Matter by two Fingers Breadth; then the Vessel is well corked, and the Mixture left in Digestion for the Space of fifteen Days; which elapsed, the Infusion is filtrated, and afterwards kept in a Bottle well corked for Use.

Virtues.—This Elixir is thought excellent to correct the cold Intemperies of the Matrice, and genital Parts, the Pains whereof it appeases; it provokes the Menses, and helps the Delivery.——The *Dose* is from a Scruple to a Drachm.

Elixir Antipodagricum. ℞. *Radicum Artimisiæ*, ℥ ij. *Rhapontici electi, Aristolochiæ rotundæ, aa* ℥ j. *Seminis Petroselini Macedonici*, ʒ vj. *Seminis Chamædryos, Centaurii minoris, Hyperici, āa* ʒ v.

All the Drugs having been pounded, are put in a Matrass, pouring upon them Spirit of Wine tartarised; and having left the Matter in Digestion for fourteen Days, the Liquor must be gently descanted, and kept afterwards in a Vessel well stopp'd.

Virtues.—This Elixir being esteemed arthritick, is usefully employ'd for the Numbness of the Nerves, and the Pains of the Gout: It dissipates the Catarrhea's; by bathing the Parts therewith.——The *Dose* taken inwardly is from two Scruples to a Drachm.

Next come our Remedies for outward Application, *viz.* Oils, Balsams, Unguents, Plaisters, *&c.*

Of Oils *in general.*

Note, That by the Name *Oil* is properly understood, the unctuous Juice or fat Substance extracted by Expression from Olives; for *Oleum*, which is the *Latin* Name, comes from *Olea*, or ἐλαία, which signifies Olive-Tree, or Olive; which notwithstanding, all fat and inflammable Liquor, from what Part soever it be extracted, is called *Oil*; the Grease of Animals are but congealed Oils, by the Mixture of the volatile Salts, and of a little Phlegm. The Fruits, Berries, and Seeds abound in Oil; and generally all combustible Matters are no otherwise inflammable but by Means of the Oil they contain.

Oils may be divided into natural and artificial.—The *natural* are as the *Liquid Amber* and the *Turpentine*, which come out through the Incisions made in Trees; and the *Petroleum* which run through the Clefts of Rocks. The *artificial* are all the Oils, extracted by Expression, Distillation, or Infusion.

Note, That I'll speak only in this Treatise of the *Oils* used in the *Galenical Pharmacy*; since I have given a very exact Description of the *Oils* prepar'd chymically, in my Treatise of *Chymistry*. I'll describe first the *Oils extracted by Expression*, and pass afterwards to those *prepar'd by Infusion.*

The Oil of Olives, which is the most common of those extracted by Expression, is prepared in the following Manner.

The Olives are gather'd when they are ripe, *viz.* in the Months of *November* and *December*; they are left to depurate of their watery Humidity in some Corner of the House, for ten or twelve Days, where having heated themselves, they are bruised afterwards under a Mill-Stone, and then put in Frails of Rushes or Palm-Trees, which being placed at the Press, one over another, there comes out an Oil by the single Compression of the Frails, which is called *Virgin Oil*, and is the best.

Next the Olives are moisten'd with warm Water, to render the Oil more fluid, and by pressing them as hard as possible, a very good Oil is extracted from them.

The squeezed Olives are stirred, and having pour'd over them a great deal of warm Water, more Oil is extracted by a new Expression, which being full of Fæces, is worse than the two first: These Oils swimming over the Water, are easily separated from it; but there is found precipitated at the Bottom, a thick Matter, which is what the Antients called *Amurca.*

There has never been such a Thing as the *Omphacine Oil*, prepared in the Manner described by the Antients; for they pretended that it was extracted by Expression from green Olives, wherefore it was called *Omphacium*, because green Olives have some Resemblance with green Grapes, called in Latin *Omphacium*, i. e. crude, and astringent; for if green Olives were bruised and strained, nothing but a viscous Juice could be extracted from them. Those that want to give to the common Oil, the Qualities attributed to the pretended *Omphacine Oil*, boil in it the Summits of Black-berry Bushes, of Oak, of Lentisc, of Honey-Suckles, and red Roses.

Old Oil is commonly requir'd for Plaisters and Unguents, because having received some Fermentation in its insensible Parts, it becomes thereby more penetrating, and more emollient. It is also used for Aliment, and in Clysters for the Colick, the Gripes, and the Dysenteria.

Oils *extracted by Expression.*

Oil of sweet Almonds.—Take what Quantity you will of new and large Almonds, separated from their Shells; rub them well in a coarse and rough Linen Cloth (to cleanse them of a red Scurf fasten'd to the Skin) till no more Dirt comes off; pound those Almonds in a Marble-Mortar, with a wooden Pestle, till they be reduced into a Paste; wrap that Paste in a Sack, or Piece of strong Linen Cloth, put the Sack to Press between two thin Plates of Walnut-Tree, and having placed underneath a Pewter-Dish, or an earthen one glazed, press gently the Matter at first, to make the Oil run by Degrees without bursting the Cloth; but when some Quantity of Oil is come out, you must then press the Matter as hard as you can; and you'll have a very good *Oil of sweet Almonds*, which must be kept in a Bottle for Use.

Virtues.—The *Oil of sweet Almonds* softens the Acrimony of the Trachæa, and of the Breast, provokes the Urine, appeases the Pains of the Nephretick, by facilitating the Evacuation of the Stone, Gravel, or Phlegm, from the Reins or Bladder; it is good for the After-Pains of a lying-in Woman, and for the Gripes of new-born Children.——The *Dose* is from two Drachms to an Ounce and a half. It is used outwardly to soften the Parts.

The common Method is to blanch the Almonds before they are pounded, to extract a finer and clearer Oil; but as it is impossible to blanch the Almonds till after they

they nave been put to ſteep in hot Water, they have been thereby impregnated with that Water, which running along with the *Oil* makes it grow rank if it be kept a little while. Several heat the pounded Almonds before they preſs them, to extract more Oil; but as the Fire communicates always ſome diſagreeable Smell to *Oils*, and render them more acid, it is much better to have a leſs Quantity of Oil, and good.

The *Oil of Walnuts* can be extracted in the ſame Manner without Fire; which Oil is proper to appeaſe the Colick and the Gripes. Ladies uſe it to cleanſe their Skin.

Oleum Amigdalarum Amararum. ℞ *Amygdalarum amararum quantum libuerit, Contundantur exactiſſimè in mortario marmoreo, piſtillo ligneo, deinde moderatè caleſiant & Torculari exprimantur: Eodem modo extrahantur, Olea Nucis Juglandis ſeu Careginum, Avellanarum Balani, Nucleorum Perſicorum, Armeniacorum, Seminis Lini, Cannabis, Sinapi, Buniados, Seſami, Hyoſciami.*

Virtues.—The *Oil of bitter Almonds*, is good for the Maladies of the Matrice, it appeaſes the Inflammations, expels the Stone and Gravel from the Reins and the Bladder; it diſſipates the Noiſe of the Ear, and is uſed to carry off the Spots of the Skin.——The *Doſe* by the Mouth is from half an Ounce to an Ounce; and in a *Clyſter* from half an Ounce to two Ounces. Some Drops thereof are inſtilled into the Ears with a little Cotton for Deafneſs, it is alſo ſometimes mixed on that Occaſion with a little Brandy.

The *Oil of bitter Almonds* differs no otherwiſe from that of Sweet Almonds, than in that it is kept longer without growing rank, either becauſe Bitter Almonds contain leſs Salt than the ſweet ones, or becauſe by heating them the aqueous Humidity, which is the Occaſion of the Rankneſs, is diſſipated. The *Paſte* of Bitter Almonds is a Poiſon for Hens, and does not hurt other Animals. It is uſed to cleanſe the Hands.

The Oils of the Stones of Fruits, and of Seeds which contain a great deal of Oil, are extracted in the Manner of that of Bitter Almonds; but when it is wanted to extract by Expreſſion the Oil of a Seed which is very little oleaginous, as is that of Anis; or when the Oil is naturally congealed as in the Nutmeg, the Matter after it has been well pounded muſt be heated at the Vapour of Water or Wine, then preſſed hard, as I have obſerved in my Treatiſe of Chymiſtry.

Oil of Eggs.—Take Eggs ſeven or eight Days old, and no newer, becauſe being too viſcous then, the *Oil* could not be eaſily ſeparated from them; boil them in Water till they be hard, then taking only the Yolks, crumble them in an earthen Pan, placed over a very ſlow Fire, ſtirring the Matter with a Spatula, till the Matter begins to grow a little reddiſh, and then comes out of it as a melted Marrow; then it muſt be put into a Sack made of ſtrong Linnen Cloth, and preſſing it as ſtrong as poſſible between two warm wooden Plates, there will come out of it a yellow Oil, which muſt be kept for Uſe.

Virtues.—The *Oil of Eggs*, is proper to ſoften the Skin, to take off Cicatrices, to fill up the Cavities left by the Small Pox, and for ſore Breaſts and Burns.

Some moiſten the Matter with Spirit of Wine before they put it to the Preſs, to render the Oil clear or thinner; but it is a Spirit of Wine loſt; for it is entirely diſſipated by the Heat into the Air; the Spirit beſides is not very agreeable to the Qualities of the *Oil of Eggs.*

Oil of Bays.—Take a good Quantity of Berries of Bays, ripe and newly gathered, bruiſe them well, and put them afterwards in a large Kettle, pouring on them Water enough to ſwim over the Berries, by twelve Inches; boil then the Matter for an Hour at leaſt, and afterwards ſtrain the Liquor boiling-hot, carrying the Grounds to the Preſs, and preſſing it as hard as you can; and having left the Colature to grow cold, you'll find a green and congealed Oil ſwimming over the Water, which you muſt gather; and having pounded the Grounds anew, you'll put them to boil in the ſame Water, preſs them as before, leave the Colature to grow cold, and gather afterwards the Oil which ſwims over the Water, and which being neither ſo good nor ſo fine as the reſt, muſt be kept apart.

Virtues.—The *Oil of Bays* rarifies, opens, and ſoftens, it ſtrengthens the Nerves, expels the Wind, ſerves for the Palſy, to reſolve the Tumours, for the Catarrhs, the Sciatica, windy Colick, by anointing well the Parts therewith, warm. It is mixed likewiſe, in Clyſters, from half an Ounce to an Ounce and a half.

OILS, *prepared by Infuſion*, or *Decoction*, or *by a ſimple Mixture.*

Oil of Roſes.—Take a Pound and a half of red Roſes newly gathered, pound them well, and put them into a Jug; and having poured on them three Pounds of Oil of Olives, ſtop the Jug, and expoſe it to the Sun for ſeven or eight Days; which elapſed, boil ſlightly the Matter, and having ſtrained it hard through a Linnen Cloth, put the ſame Quantity of red Roſes in the Colature, and proceed to the Maceration, Coction, and Expreſſion as before; and having repeated the ſame Operation a third Time, you'll have the Oil of Roſes which muſt be kept in a Pot for Uſe.

Virtues.—The *Oil of Roſes* ſtrengthens and conſolidates, in ſoftening; it reſolves the Fluxions, temperates the Heat of the Reins, and of the Head, by anointing the Part with it hot.

Several prepare this Oil with pale Roſes inſtead of red, to render it more odorous; but in boiling it the good Smell of the Roſes is abſorbed by the bad one of the Oil.—It is true that the *Oil of pale Roſes* ſoftens and reſolves better than that of red Roſes, but it is not ſo ſtrengthning.

Eodem modo per infuſionem parentur, Olea florum Anethi, Chamæmeli, Meliloti, Liliorum Alborum, Sinapi, Nymphæ, Sambuci, Verbaſci, Violarum, Ligaſtri, Papaveris, Keiri, Geniſtæ, Althææ, Tamariſci, Hyperici ſimplicis, Narciſſi albi, Roriſmarini, Summitatum Abſinthii, Anagallidis, Menthæ, Abrotani, Rutæ, Myrti, Sampſuchi, Sabinæ.

Oleum Liliorum Compoſitum, Meſvé. ℞ *Florum Liliorum Alborum* ℥ viij. *Maſtiches, Calami Aromatici, Coſti, Carpobalſami, āa* ℥ j. *Cinnamomi, Caryophyllorum, āa* ℥ ß. *Croci* ʒ iij. *Olei Dulcis* lb ij. *Miſceantur & macerentur per dies quadraginta, in vaſe obturato, deinde bulliant, leviter, & exprimantur.*

Virtues.—This Oil of white Lillies is reſolutive in heating; it is uſed for the Pains of the Stomach, of the Breaſt, of the Abdomen, in anointing the afflicted Parts therewith: Though this Sort of Oil is ſeldom uſed; the ſimple Oil of white Lillies, prepared in the Manner of that of Roſes, being almoſt always ſubſtituted to it.

Oleum Irinum.—Take a Pound of the biggeſt and fineſt Roots of Iris you can find, raſp them and put them with half a Pound of Flowers of the ſame Plant into a Jug, and having poured upon them five Pints of common Oil, ſtop the Jug, and having left it in Digeſtion on the hot Embers, or in Balneo Mariæ, boil afterwards ſlightly the Infuſion, ſtrain it with Expreſſion, and having put the ſame Quantity of Roots and Flowers in the Colature, proceed as before; and repeat the ſame Operation for the third Time; but this laſt Time the Matter muſt boil longer, to conſume the Juice of the Iris, and having ſtrained the Liquor with Expreſſion, the Oil muſt be kept for Uſe.

Virtues.—The *Oil of Iris* attenuates, is deterſive, and much reſolutive. It is uſed for the cold Tumors, the King's Evil, and to forward Suppuration.

Oil of St. John-wort compoſed.—Take a Pound of Summits of St. John-wort, in Flowers, newly gathered in their Vigour, bruiſe them, put them in a Jug, and pour over them two Pounds of common Oil, and three Ounces of ſtrong red Wine; ſtop the Jug, and place it in a warm Place, or in Balneo Mariæ, where the Matter muſt be left in Digeſtion for twenty-four Hours; boil afterwards ſlightly the Infuſion, ſtrain it with Expreſſion, and having put in the Colature as much Flowers as before, proceed to the Infuſion, Coction, and Colature; repeating once more the ſame Operation, except that the third Time the Infuſion muſt boil longer, to procure the Diſſipation of the aqueous Juice. After the Oil has been ſtrained for the laſt Time it muſt be left to ſettle, and afterwards decanted gently, to ſeparate the Faeces; then you'll diſſolve in it at a ſlow Heat a Pound of the beſt Turpentine, and pour the Oil while yet hot into a Jug, to keep it for Uſe.

Virtues.—The *Oil of St. John-wort* attenuates, is digeſtive

gestive and resolutive; it appeases the Pains caused by a viscous Humour; it is used to strengthen the Nerves and the Joints, and for the Sciatica. It is an efficacious Balsam to cure Wounds.

Oleum Nicodemi. ℞ *Seminum, seu Summitatum Hyperici, Terebenthinæ, āa* lb j. *Croci* ℥ ß. *Lithargyri* ʒ vj. *Aloes Hepaticæ, Tuthiæ Alexandrinæ, āa* ʒ iij. *Olei* lb ij. *Vini Albi* lb iv.

Bruise the Summits or Seeds of St. John-wort, pound the Aloes, the Tutty and the Litharge, which must be put together with the Saffron in an earthen Pot, and the Oil and Wine having been poured upon them, the Pot shall be covered, and the Matter put to boil over a slow Fire, to the Diminution of a fourth Part of the Wine, or thereabout; then the Pot is taken off the Fire, and exposed to the Sun, during the Canicule, for ten Days, and afterwards put again over the Fire, where the Matter must boil to the entire Consumption of the Wine; and having strained the Infusion with Expression, the Turpentine must be dissolved in it, and the Oil kept for Use.

Virtues.—This *Oil* is a resolutive and nerval Balsam; it cleanses and consolidates Wounds.

Oleum Croci. ℞ *Croci, Calami Aromatici, Seminis Carvi, āa* ℥ j. *Myrrhæ* ℥ ß.

Let the Ingredients infuse together after they have been pounded in a Pint of Red Wine for six Days successively in a glazed earthen Pot; then boil the Infusion at a slow Fire, with a Pint and a half of common Oil, to the entire Consumption of the Wine; which done, strain it and keep it for Use.

Virtues.—This *Oil of Saffron* dissipates Hardness, appeases the Pains of the Matrice and other Parts; it strengthens the Nerves by anointing the afflicted Parts with it.

Oleum de Euphorbio Simplex. ℞ *Euphorbii Pulverati,* ʒ v. *Olei Communis* lb.

The Oil must be put in a Copper Bason over the Fire, and when very hot, the Euphorbium in Powder shall be mixed with it, it will melt in an Instant; and the Dissolution after it has been strained, is kept for Use.

Virtues.—The *Oil of Euphorbium* is resolutive; it is employ'd for the cold Humours, the Lethargy, and Palsy, by rubbing the Parts with it.

Oleum de Euphorbio Compositum. ℞ *Calaminthes Montanæ* ℥ j ß. *Radicis Costi* ʒ x. *Pyrethri* ʒ vj. *Castorei* ʒ v. *Saponariæ, Staphidis Agriæ, āa* ℥ ß. *Trita Macerentur per Triduum in Vini Rubri* lb ij. *Olei Communis* lb i ß. *Coque ad Vini Consumptionem, tunc insperge Euphorbii recentis tenuissimé triti* ʒ ß. *Recoque parùm & exprime; colatum servetur usui.*

Virtues.—The *Oil of Euphorbium composed,* is proper to rarify and melt cold Humours, to strengthen the Nerves, for the Catarrhs, Apoplexy, Palsy, and Lethargy, by anointing the afflicted Parts with it; some Drops thereof are dropped into the Ears, at the Time of the Apoplexy or Lethargy.

Oleum Nicotianæ.—Draw the Juice of Tobacco by Expression, when the Plant is in its Vigour, and having mixed it with an equal Quantity of common Oil, boil the Mixture till the Juice be almost consumed; then strain the Oil and keep it for Use.

Virtues.—The *Oil of Tobacco* is extremely resolutive, it can be employed to melt, and dissipate the Schirrous, and other Tumors.

Oil of Mastich.—Take half a Pound of the best Mastich, pound it coarsely, and put it in a glazed Pot, and having poured upon it two Pounds of Oil of Roses, and two Ounces of the best Wine, cover the Vessel and place it over a moderate Fire, where the Matter must boil gently till the Mastich be dissolved, which will happen in a very short Time; then strain the Oil and keep it.

Virtues.—The *Oil of Mastich* strengthens the Brain and the Stomach, stops Vomiting, by anointing the afflicted Parts with it; it is put in Clysters for the Lienteria and the Dysenteria, from half an Ounce to an Ounce and a half.

The *Mastich* being a Resin, it is dissolved easily in Oil; therefore the Wine is needless here.

Oleum Solani. ℞ *Baccarum Solani Maturarum Contusarum* lb j. *Olei Communis* lb iij. *Coque ad consumptionem succi, exprima, & serva usui.*

Virtues.—This Oil is cooling, and proper to condensate and stop the Humours. It enters the unguent Pompholix.

Oleum Nardinum. ℞ *Spicæ nardi, minutim incisæ & contusæ* ℥ iij. *Vini Generosi* ℥ iv. *Olei Communis* lb j ß.

Let them macerate together for eight Days, in a Jug well covered, then boil it to the Consumption of the Wine, strain the Oil with Expression, and keep it for Use.

Virtues.—This *Oil* rarifies and resolves the coarse and pituitous Humours, it is used for the Palsy, shaking of the Nerves, and Suffocation of the Matrice. Some of it is introduced with a little Cotton into the Ears, for the Noise in those Parts.

Oleum Moschatum. ℞ *Florum Liliorum, Folii Indi, Mastiches Costi, Spicæ nardi, āa* ℥ ß. *Ligni Aloes, Cassiæ Ligneæ, Myrrhæ, Croci, Styracis Calamitæ, āa* ʒ ij. *Bdellii, Cubebarum, Caryophyllorum, āa* ℈ jv. *Nucis Moschatæ* ℈ ij. *Moschi* ℈ j. *Olei Communis* lb ij. *Vini Generosi* lb ß.

All the Drugs except the Musc, having been slightly pounded, must be put to infuse with the Wine and Oil for seven or eight Days, in a glazed earthen Pot, and boiled afterwards to almost the entire Consumption of the Wine; after which the Liquor is strained and kept for Use.

Virtues.—This *Oil* is proper to strengthen the Nerves, Matrice, Stomach, to expel Wind, and to resolve coarse Humours, by anointing the Parts therewith.

Oleum Sicyonium Compositum, Actuarii. ℞ *Radicis Cucumeris Silvestris* lb j. *Florum Rorismarini, Pyrethri, Euphorbii, Agarici, Castorei, Nitri āa* ℥ iij. *Olei Communis* lb iv. *Vini Generosi* lb ij.

All the Drugs pounded must be put into a Jug, with the Flowers of Rosemary and the others coarsely pounded, and having poured upon them the Oil and the Wine, the Jug well stopt, must be exposed to the Sun for seven or eight Days, or to another Heat; boiling afterwards the Infusion at a slow Fire, stirring the Matter from Time to Time with a Spatula, to the Consumption of the Wine; which done, the Liquor must be strained with Expression, and kept for Use.

Virtues.—This Oil is heating and resolutive, proper for the Schirres of the Liver, the Spleen, and the Hardness of the Matrice.

Oleum Resolutivum. ℞ *Radicum Cucumeris Asinini, Bryoniæ, Althææ, āa* lb j. *Olei Communis* lb iv.

Let all the Ingredients be mixed with the Oil, and having been exposed to the Sun, or some other Heat for a whole Month, be boiled, strained with Expression, and the Colature kept for Use.

Virtues.—This Oil is digestive, emollient, and resolutive; it is used to attenuate the viscous Humours, and to dissipate them, by rubbing the Parts therewith.

Oleum Aconistricum Ambratum A. Mynsicht. ℞ *Olei Amigdalarum Amararum* ℥ iv. *Nardini Comp. Liliorum Alborum, āa* ℥ ij. *Succorum Origani Majoranæ, Rutæ, Porri, Raphani, Caparum, āa* ℥ j. *Mixta coquantur ad succorum consumptionem, postea oleo colato adde spiritus vini millepedibus prius impregnati, aceti vini acerrimi, āa* ℥ ß. *Ambræ Griseæ, Florum Serpylli, Baccarum Sabinæ, Seminis Cymini, Macis, āa* ʒ j. *Cubebarum, Ellebori Albi, Mastiches, Ladani, Styracis Calamitæ, ana* ʒ ß. *Castorei Veri, Piperis Longi, Croci, Nitri, ana* ℈ j. *omnia diligenter conquassata, denuo in Balneo Mariæ coquantur, postea oleo colato & expresso immisce, Oleorum Formicarum, Anisi, ana* ʒ j. *Trochiscorum Galliæ Moschatæ* ℈ j. *Misce & ad usum repone.*

Virtues.—This Oil is good for Deafness, it expels the Wind, dissipates the Noise of the Ears, appeases the Pains of those Parts, brings the Abscesses formed in them to Suppuration, by instilling some Drops thereof into the Ear, Morning and Night.

Oleum de Piperibus reformatum. ℞ *Piperis Longi & Nigri, ana* ℥ j ß. *Radicum Zingiberis, Fœniculi & Apii, ana* ℥ ß. *Gummi Ammoniaci, Opoponacis & Sagapini, ana* ʒ iij. *Surculorum Thymi Viridis & Rutæ, ana man.* ß. *Olei Lini* lb ij. *Vini Rubri* lb ß.

Let the Ingredients be pounded, and having been mixed with the Oil and Wine, put them to macerate for a whole Month in a Jug well stopt, in a warm Place; boiling afterwards the Infusion at a slow Fire, straining

it with Expreſſion, and keeping the Colature for Uſe.

Oleum Carminativum reformatum. ℞. *Oleorum Diſtillatorum Seminis Cymini*, ʒ ß. *Aniſi*, ij. ß. *Carvi*, ʒ j. *Arantiorum*, *Chamomillæ*, *ana* ʒ ß.

All theſe Oils muſt be mixed together in a Vial, and the Mixture kept for Uſe.

Virtues.—This Oil is proper to attenuate the Viſcoſities, to expel Winds, to appeaſe the Gripes and Pains: It is uſed for the Melancholicks.——The *Doſe* is from three Drops to ſix. The Region of the Stomach, and of the Navel, can alſo be anointed with it.

Oleum Populeum.—Take a Pound of the Eyes of Poplar, newly gather'd, pound them well in a Mortar, and having put them in a Jug, pour upon them three Pounds of common Oil, and half a Pint of red Wine; ſtop the Jug, and expoſe it for eight Days to the Sun, or to another Heat; then boil the Matter over a ſlow Fire to the Conſumption of the Wine, ſtraining the Oil afterwards with a ſtrong Expreſſion, and having left it to depurate, keep it for Uſe.

Virtues.—This Oil ſoftens in cooling, is good for the Inflammations, and for Burns, when they are broken: It is alſo reſolutive.

The Wine introduced into this Compoſition, is rather prejudicial than uſeful to it; becauſe it deſtroys the cooling Virtue of the Buds of Poplar; therefore it ſhould be retrenched from it; ſince the Humidity of the Poplar ſuffices for the Coction of the Oil.

Oleum Majoranæ. ℞. *Herbarum Majoranæ*, *man.* iv. *Serpinæ*, *man.* ij. *foliorum Myrti vel Baccarum*, *man.* j. *Abrotani*, *Menthæ Aquaticæ*, *ana man.* ß. *Olei Communis*, ℔ iij.

Let all theſe Drugs macerate together for eight Days, in a Jug well ſtopp'd, and carried to a warm Place; then boil the Infuſion, ſtrain it with Expreſſion, and keep the Colature for Uſe.

Virtues.—This Oil of Marjoram is reſolutive, ſtrengthens the Brain and the Stomach, expels the Winds, and Worms; is good for the Sciatica, and attenuates the Viſcoſities, by anointing the afflicted Parts therewith.

Oleum Mucaginum. ℞. *Radicis Althææ recentis*, ℥ iv. *Seminis Fœnugreci & Lini*, *ana* ℥ j. ß. *Scillæ recentis Contuſæ*, ℥ j.

Cut the Roots of Althæa, and the Onions of Squil, into ſmall Pieces, bruiſe them and put them with the Seeds whole in an earthen Pot, pouring over them five or ſix Pints of boiling hot Water, and having cover'd the Pot, leave the whole Mixture to macerate for ten or twelve Hours; then boil the Infuſion till it grows mucilaginous; ſtrain it with Expreſſion, and having added to it afterwards, the Oils of Anethum, Camomile, and white Lillies, of each ſixteen Ounces, boil the Mixture to the Conſumption of the Humidity, ſtirring it towards the End, to hinder the Mucilage from ſticking to the Bottom of the Veſſel, and burning; then ſtrain it, and keep the Colature for Uſe.

Oleum Nephreticum, *A. Mynſicht.* ℞. *Olei Succini albi rectificati*, *Terebenthinæ*, *Juniperi*, *ana* ℥ iv. *Fermenti Panis*, *Salis Communis*, *Tartari albi*, *ana* ℥ j. *Aquarum Hederæ Terreſtris*, *Petroſelini*, *Ononides*, *ana* lb. iij.

Pound very well together the Tartar, and common Salt, mix them with the Levane and Oils, put the Mixture in a large Glaſs or Stone Cucurbite, and having poured on them the diſtilled Waters, cover the Cucurbite with its Capital, adapt a Receiver to it, lute exactly the Joints, and by a graduate Sand-Heat, diſtil the Liquor, increaſing the Fire towards the End of the Diſtillation; ſeparate the Oil which will ſwim on the Water in the Receiver, and keep it for Uſe.

Virtues.—This Oil attenuates and expels the Stone and Sand from the Reins; it gives Eaſe in the Nephretick, puſhes by Urine, ſtrengthens the Matrice, and facilitates a Delivery. The *Doſe* is from two Drops to ſix.

The diſtilled Water that remains in the Receiver after the Separation of the Oil, is alſo aperitive, and has the ſame Virtues with the Oil.——The *Doſe* is from an Ounce to four.

Oleum Balſami, *A. Mynſicht.* ℞. *Oleorum Olivarum*, ℔ j. *Hyperici*, *Baccarum lauri*, *ana* ℥ j. *Granorum Juniperi*, *Petrolei*, *ana* ℥ ß. *Ligni Rhodini*, *Spicæ*, *ana* ʒ ij. *Seminis Angelicæ*, *Aniſi*, *ana* ʒ j. *Terebenthinæ Cypriæ aquæ violarum lotæ*, ℔ ß.

Put in an earthen Jug all the Oils, the Turpentine waſhed in Water of Violets, and two Ounces of the dried Roots of Orcanette bruiſed; ſtop well the Veſſel, and place it in a hot Balneo Mariæ, where it muſt be left twelve Hours in Digeſtion; make afterwards the Balneum to boil, and when the Infuſion is very hot, ſtir it with a wooden Spatula; ſtrain it afterwards with a ſtrong Expreſſion, and keep the Colature in a Bottle well corked. It is a Balſam.

Virtues. This Oil or Balſam, heats, reſolves, opens, and penetrates; it may be uſed to diſſolve cold Humours, for the Palſy, Sciatica, to reſiſt the Gangrene, and to cleanſe Wounds.

Oleum Balſami Pet. de Abbatt. Aponenſis. ℞. *Terebenthinæ*, ℔ j. ʒ iv. *Ladani*, ʒ x. *Styracis liquidæ*, *Myrrhæ*, *Aloes*, *Spicæ nardi*, *Sanguinis Draconis*, *Thuris*, *Mumiæ*, *Opoponacis*, *Bdellii*, *Carpo Balſami*, *Cinnamomi*, *Sarcocollæ*, *Croci*, *Maſtiches*, *Gummi Arabici*, *ana* ʒ j. *Moſchi Gran.* xviij.

Pound coarſely all the Ingredients, put them with the Turpentine in a large Cucurbite, half thereof muſt remain empty, place it in a Sand-Furnace, adapt to it a large Receiver, lute exactly the Joints, and by a graduate Fire diſtil the Spirit and Oil; unlute the Receiver, and put the Liquor into a Funnel lined with grey Paper; the Spirit will run through, and the Oil remain, which muſt be kept in a Bottle.

Virtues.—This Oil rarifies, attenuates, is deterſive, reſiſts Putrefaction, is reſolutive, and ſtrengthens the Nerves and the Matrice; it is put in Wounds, and the aching Members are rubbed with it, when mixed with a proper Oil.

Oleum Scarabæorum. Take a Pound of Beetles, found on human Excrements, while they are in their Vigour, put them alive in an earthen Veſſel, with two Pounds of Linſeed Oil; cover the Veſſel, and place it over a ſlow Fire, to make the Liquor boil gently; and when you'll ſee that the aqueous Humidity is conſumed, ſtrain the Liquor with Expreſſion, and keep the Oil; which is the *Oil of Beetles.*

Virtues.—This Oil is reſolutive, ſoftening and ſtrengthening; it is uſed to reſolve the Hemorrhoides, and to ſtrengthen the Anus when it is relaxed, by applying this Oil upon it.

Oleum Exceſtrenſe. ℞. *Foliorum Roriſmarini*, ℥ iij. *Abrotani*, *Betonicæ*, *Chamæpytios*, *Lavendulæ*, *ana* ℥ j. ß. *Radicis Ellebori nigri & albi*, *Corticis Fraxini Limonum*, *Seminis Cymini & Fœnugræci*, *florum Chamæmeli*, *Geniſtæ*, *Liliorum alborum*, *Sambuci*, *Herbarum Abſinthii*, *Centaurii minoris*, *Eupatorii*, *Fœniculi*, *Hyſſopi*, *Lauri*, *Majoranæ*, *Meliſſæ*, *Nepetæ*, *Pulegii*, *Sabinæ*, *Thymi*, *ana* ℥ j. *Euphorbii*, *Sinapeos*, *Caſtorei*, *Pyrethri*, *ana* ʒ ij. *Olei*, ℔ iv. *Vini*, ℥ ix.

All the Ingredients muſt be bruiſed, and put in a glazed earthen Pot, and having poured upon them the Oil and the Wine, cover the Pot, place it in a hot Balneo Mariæ, and leave the Matter in Digeſtion for twelve Hours: Put afterwards the Infuſion to boil ſlowly, to the Conſumption of the Wine, and of almoſt all the Humidity of the Herbs; then ſtrain the Oil with a ſtrong Expreſſion, and keep it for Uſe.

Virtues.—This Oil is emollient in ſtrengthening, it expels the Winds, attenuates the viſcous Humours, and reſolves the Hardneſs of the Liver, Spleen, and Matrice.

This Compoſition is taken from the *London* Diſpenſary; but I think it too much compoſed; it is true, that all the Drugs which enter it are very good, full of Virtues, and agreeable to the Maladies for which this Remedy is employ'd; but the Compoſition could very well be ſhorten'd, by doubling or tripling, or even quadrupling, the Quantity of ſeveral of the Ingredients, and retrenching the other which have the ſame Qualities.

Oleum Lumbricorum.—Take three Pounds of the biggeſt Earth-Worms you can find, waſh them well, and put them to macerate in an equal Quantity of common Oil, and half a Pint of white Wine, for twenty-four Hours; the next Day boil the Infuſion over a ſlow Fire, to the Conſumption of the Wine; ſtrain it afterwards with Expreſſion to keep it for Uſe.

Virtues.—The Oil of Earth-Worms is proper to ſoften and ſtrengthen the Nerves, for the Pains of the Joints, to reſolve Tumours, and for the Diſlocations and Strains;

Strains; by rubbing the afflicted Parts with it.

Oleum Ranarum. Take ten or twelve Frogs alive, cut them in Pieces, and put them in a glazed earthen Pot, pouring immediately upon them a Pound and half of Linseed Oil; cover the Pot very close, and place it in a boiling hot Balneo Mariæ, where it must be left seven or eight Hours; strain afterwards the Infusion, squeezing hard the Frogs; leave the Colature to settle, and decant it afterwards to depurate it of its Fæces.

Virtues.—The Oil of Frogs softens, and temperates the Inflammations, provokes Sleep, being applied on the Temples, and appeases the Pains of the Gout, by anointing the Parts with it.

In the same Manner can be made the Oil of Toads, of Craw fish, and other aquatick Animals.

Oleum Catellorum. ℞. *Catellos nuper natos*, No. ii. *Vermium terrestrium*, ℔ ij. *Olei Communis*, ℔ iv.

Cut the Puppies into Pieces, put them in a glazed earthen Pot, with a Pound of Earth-Worms alive, well washed; and having poured the Oil upon them, cover the Pot close, and place it in Balneo Mariæ, making a Fire under it to make the Water boil for twelve Hours; or till the Puppies and Worms be very well done; then strain the Oil with a strong Expression, and having left it to depurate, decant it from its Fæces, and mix with it three Ounces of the best Turpentine, and an Ounce of Spirit of Wine; which Mixture must be kept for Use.

Virtues. This Oil of Puppies is very good to strengthen the Nerves, for the Sciatica, the Palsy, to dissolve and resolve the Catarrhea's which proceed from a cold and viscous Pituita; anointing with it the Shoulders, the Back-Bone, and other afflicted Parts.

As some young Puppies are bigger than others, you must employ in this Preparation more or less of them, according to their Bigness; if they are big enough, two are sufficient, but if they be very small, you must take four or five of them.

Oleum Aranearum reformatum. ℞. *Araneas Pingues & Magnas*, No. *Sexaginta*, *foliorum Rutæ recentium contusorum*, *foliorum Sambuci*, *ana man.* j. ss. *Oleorum Lumbricorum*, ℔ j. *Hyperici*, ℔ ß.

Put the Ingredients to macerate together for 24 Hours, in a glazed earthen Pot well stopp'd, in a warm Place; then boil them in Balneo Mariæ, strain the Decoction with Expression, and in the Colature dissolve half a Drachm of Camphire.

Virtues.—The Oil of Spiders is employ'd for the malignant Fevers, the Plague, and the Small Pox, by anointing the Arteries and Emunctories with it.

A simple Oil of Spiders can be prepar'd by putting Spiders to macerate in Oil of bitter Almonds for eight Days, and proceeding to the Coction, *&c.* as above.

Oleum Formicarum. ℞. *Formicarum*, ℥ ij. *Olei Communis*, ℥ viij.

Put the Ants in a Jug, or in a Glass Vessel, pour the Oil upon them, stop the Vessel, and after you have exposed it to the Sun, during forty Days, put it in a boiling Balneo Mariæ, for two Hours; then strain the Oil with Expression, leave it to settle, separate the Fæces, and keep the Oil for Use.

Virtues.—The Oil of Ants re-animates the Spirits, and provokes the Seed, by anointing with it the genital Parts and Reins. It borrows its principal Virtue from the volatile Salt of the Ants.

Oleum Mirabile. Take the Oils of Turpentine, of St. John-wort, and of Petroleum, of each one Pound, mix them together to compose the marvellous Oil.

Virtues.—This Oil is resolutive, proper for Cuts, and to strengthen the Nerves. The Farriers use it when Horses have been pricked in Shoeing.

Oleum contra Surditatem. ℞. *Olei expressi Seminis pororum*, *Amigdalarum amararum & Laurini*, *ana* ℥ ij. *Spicæ nardi*, *Castorei*, *& Colocynthidos incisorum*, *ana* ʒ j. *Succi Rutæ & Vini albi*, *ana* ℥ j. ss.

You must cut small the Spikenard, the Castoreum, and the Coloquintida, and mix them with the Oils of the Seed of Leeks, of bitter Almonds, and of Bays, the Juice of Rue and the white Wine, putting afterwards the whole Mixture in a Matrass well stopp'd in Balneo Mariæ, and increasing the Fire to the Consumption of all the Water; then you'll dissolve some Grains of Musc in the Oil and keep it for Use.

Virtues.—This Oil is resolutive, softening, and attenuating, and very proper to cure a Deafness, by introducing some Drops thereof into the Ear; provided the Patient be not born deaf.

BALSAMS.

Note, That there is so great an Affinity between Balsams and Oils, that they are often confounded together; and that the same Liquor is sometimes called Balsam, and sometimes Oil; though there is notwithstanding this Difference, that the Balsams have generally more Consistence than the Oils.

BALSAMS are divided into natural and artificial. *Natural Balsams* are those which come out of Trees, thro' Incisions made in them, as the *Balsam Capayba*, of *Peru*, &c.—*Artificial Balsams* are those prepared by Chymistry, and Pharmacy; which Balsams are composed of Oils and Essences, Gums, Wax, Resine, Powder; according to the different Virtues to be given to them: There are Balsams prepar'd for Wounds, to preserve dead Bodies, to strengthen, and rejoice the Brain, the Heart and the Stomach, to resist Venom, for the Wounds of the Breast, and to perfume.

Balsamum Polychrestum. ℞. *Foliorum utriusque Plantaginis*, *Telephii*, *Sympythi majoris*, *Bugulæ*, *Sympythi minoris*, *Sanicuiæ*, *Ophioglossi*, *Veronicæ utriusque*, *Absinthii vulgaris*, *Geranii Robertianii*, *Millefolii*, *Pilosellæ*, *Centaurii minoris*, *Summitatum Hyperici*, *Hederæ Terrestris*, *Pentaphylli*, *ana man.* j. *Recentibus omnibus in Mortario contusis affunde Vini rubri & austeri*, ℔ j. *Macerentur diebus quatuor supra Cineres Calidos*, *quinto die succus ex his tepefactis experimatur*, *in quo misce Olei rosati*, ℔ ij. *Coque in vase duplici ad Consumptionum succi*, *tunc Cola*, *& in Colatura dissolve*, *Terebenthinæ Venetæ*, ℔ j. *Olibani subtilissimi pulverati*, ℥ ij. *fiat Balsamum.*

Virtues.—This Balsam is detersive, it consolidates the Wounds, and resists Putrefaction; it is applied on Wounds.

The Plants newly gathered in their Vigour, after they have been pounded, must be put with the Grease, and the Oil of Bays, in a Bason placed over a slow Fire, stirring the Mixture with a wooden Spatula, till the Humidity of the Herbs be entirely consumed; then the Liquor, while yet hot, must be strained with Expression; and to the Colature add an Ounce of Balsam of Succin, half an Ounce of Oil of Mace, the Oils of Petroleum and of Spikenard, of each two Drachms; mixing well the whole Composition together for a Balsam, which must be kept in a Pot well stopp'd.

Virtues.—This Balsam is used for the Rachitis, anointing the Back-bone with it Morning and Evening, a little before the Patient goes to Bed; and apply over it Wool taken off the Back of the Sheep, and over that a Piece of Cloth double: It is also resolutive and nerval.

Balsamum Apoplecticum. ℞. *Olei nucis Moschatæ expressi*, ℥ j. *Styracis*, ʒ ij. *Balsami Peruviani*, *Ambræ Griseæ*, *ana* ʒ j. ß. *Zibethi*, ℈ iv. *Moschi orientalis*, ʒ j. *Olei succini rectificati*, ʒ ß. *Olei Cinnamomi stillatitii*, ℈ j. *Oleorum stillatitiorum Lavendulæ*, *Majoranæ*, *Rutæ*, *Caryophyllorum*, *ana Gutt.* xv. *Citri*, *Arantiorum*, *Ligni Rhodii*, *aa* ℈ ß. *Gagatis*, *gutt.* vj.

The Storax, Musc, and Ambergrease, must be pounded together in a Mortar; and the Oil of Nutmeg melted in a glazed earthen Porringer over a very little Fire; then taking the Porringer off the Fire, and the Oil being half cold, the Balsam of *Peru*, Civet, Oils and Powders shall be exactly mixed with it, to make of the whole Mixture a Balsam, which shall be kept in a Box well stopp'd.

Virtues.—This Balsam is given to smell in the Apoplexy, and other Maladies of the Brain; the Temples and Sutures of the Head are anointed with it, and some Drops thereof introduced into the Ears. It resists the bad Air by its strong Smell. It is also administer'd inwardly for the same Maladies, and to provoke the Seed.—The *Dose* is from six Grains to a Scruple.

Balsamum Apoplecticum reformatum. ℞. *Oleum nucis Moschatæ expressi*, ℥ j. ß. *Styracis Calamitæ*, ʒ ij. *Balsami Peruviani*, ʒ ij. *Benzoini*, *Ambræ grisæ*, *Zibethi*, *ana* ʒ ß. *Moschi*, ℈ j. *Oleorum Stillatitiorum*, *Caryophyllorum*, *Ligni Rhodei*, *ana* ʒ j. ß. *Cinnamomi*, *Citri*, *Arantiorum*, *ana* ℈ j.

Misce, fiat Balsamum, S. A.

Balsamum Aromaticum Mynsicht. ℞ *Olei Absinthii Vulgaris, Hardini compositi, Menthæ Crispæ, Mastichis, ana* ℥ j. *Nucis Moschatæ expressi* ʒ iij. *oleorum stillatitiorum Caryophyllorum, Calami Aromatici, ana* ʒ ß. *Rorismarini, Lavendulæ, Arantiorum, Benzoini, Cymini, ana* ℈ ß. *Diligenter & Fideliter mixtis adde Pulveris Diatrion Piperum, Gummi Tacamahacæ, ana* ʒ j. *Trochiscorum Galliæ Moschatæ gutt.* vj.

You'll mix together all the clear Oils, and having melted in that Mixture, at a very slow Fire, the Oils of Nutmeg, and Benzoin, you'll take the Vessel off the Fire, and mix with the Matter when half cold the Powders, to make of the whole Mixture a *Balsam*.

Virtues.—This *Balsam* is proper to heat and strengthen the Stomach, to help Digestion, to expel Wind, and the Worms from the Abdomen, by anointing the Parts therewith, and applying over it a Linnen Cloth folded in four.

Balsamum Arcæi. ℞ *Sevi Hircini* ℔ ij. *Gummi Elemi, Terebenthinæ Venetæ, ana* ℔ j ß. *Axungiæ Porci* ℔ j.

Put all the Drugs to melt together in a Bason over a moderate Fire, strain the melted Matter through a Linnen Cloth, to separate the Impurities found in the Gum Elemi; leave the Colature to grow cold, which is the Balsam of Arcæus, and which must be kept in a Pot for Use.

Virtues.—The *Balsam of Arcæus*, is proper to consolidate Wounds, for the Dislocations, Contusions, and to strengthen the Nerves.

The *Balsam of Arcæus* is much in Use; but its Consistence is a little too hard, therefore it should be rendered softer, by adding to it six or seven Ounces of the Oil of Hypericon.

Balsamum seu Oleum Benedictum, Apparitii. ℞ *Terebenthinæ Venetæ* ℥ viij. *Olei Veteris* ℥ iv. *Thuris Pulverati, Florum Hyperici, ana* ℥ j. *Tritici Puri* ℥ j ß. *Radicum Cardui Benedicti & Valerianæ, ana* ℥ j.

Put the Roots and Flowers bruised to infuse for two Days, in about sixteen Ounces of Wine, in a Pot covered; and having mixed with the Infusion, afterwards the Oil and Wheat bruised, boil the Mixture to the Diminution of the Wine, strain the Liquor hot with a strong Expression, dissolving in the Colature the Turpentine and the Olibanum in Powder, to make a *Balsam* which must be kept for Use.

Balsamum Absinthiacum, seu Stomachicum A. Mynsicht. ℞ *Olei Nucis Moschatæ expressi* ℥ ij *Absinthii Vulgaris, Nardini Compositi, ana* ℥ ß. *Mastichis* ℥ ß. *Oleorum stillatitiorum Absinthii, Caryophyllorum, Maceris, ana* ʒ j. *Menthæ Crispæ, Thymi, ana* ʒ ß.

You'll melt over a very little Fire the Oil of Nutmeg with those of Wormwood, Spikenard and Mastich; leave afterwards the Matter to cool, and then mix exactly with it the distilled Oils to make a *Balsam*, which must be kept for Use.

Virtues.—The *Balsam of Wormwood*, strengthens the Stomach, helps Digestion, and expels Wind, by anointing with it the Region of the Stomach, and of the Abdomen.

Balsamum Angelicæ reformatum. ℞ *Olei Nucis Moschatæ* ℥ ij. *Olei Angelicæ* ℥ ß. *Radicis Angelicæ Tenuissimé pulveratæ* ʒ ij. *fiat Balsamum.*

Virtues.—This *Balsam* is proper to expel Venom; it may be used in the Plague, and in malignant Fevers: It also strengthens the Stomach.—The *Dose* is from half a Scruple to half a Drachm.

Balsamum Solimani. ℞ *Ova Recentia* No. xii. *Terebenthinæ Ciaræ* ℥ vj. *Picis Navalis, Colophoniæ, ana* ℥ iv. *Myrrhæ* ℥ ij. *Resinæ Pini, Olibani, Sarcocollæ, Vitrioli Romani, ana* ℥ j ß. *Aloes, Nitri, Sanguinis Draconis, ana* ℥ ß. *Croci Orientalis* ℈ iv. *Spiritus Vini* ℔ iv ß.

Let be pounded coarsely together the Myrrh, Sarcocolla, Olibanum, Aloes, and Dragons-Blood; and the Salpetre and Vitriol together, mix the Powders with the Saffron, and put them together in a Glass or Stone Cucurbite, which can contain about eight Pounds; pour over those Drugs the Whites of Eggs and the Turpentine, after they have been well mixed together, mixing afterwards with all those Drugs the Tar, Colophone, and the Resine broken; and lastly, having poured over the whole Mixture the Spirit of Wine; stir well all the Ingredients together, and stop the Cucurbite, they must be left in a cold Digestion for two Days; which elapsed, the Cucurbite must be unstopped and placed on a Furnace; adapting a Receiver to it, luting exactly the Joints, and distilling by a moderate Fire at first, and pretty strong towards the End, all that can come out of the Mixture, which will be the *Balsam of Solyman*, and which must be kept in Bottles well corked.

Virtues.—This *Balsam* is vulnerary, strengthning, and resolutive; applied outwardly it resists the Gangrene, cleanses and consolidates Wounds: Taken inwardly it provokes the Menses and the Urine, and is good for the Nephretick.——The *Dose* is from a Scruple to a Drachm.

The Vitriol and Nitre giving but their Phlegm in this Preparation, cannot but weaken the Spirits of the other Drugs; therefore those two Ingredients should be retrenched.

Balsamum Bezoardium. ℞ *Olei Nucis Moschatæ* ℥ j. *oleorum stillatitiorum Corticis Citri, Corticis Arantiorum, Lavendulæ, Rutæ, Angelicæ, ana* ℈ j. *Succini Rectificati gutt.* x. *Camphoræ gutt.* viij.

You'll melt by a slow Fire the Oil of Nutmeg, mixing with it afterwards the distilled Oils, in which the Camphire has been dissolved; to make of the whole Mixture a *Balsam*, which must be kept in an earthen Pot well stopped.

Virtues.—This *Balsam* resists the bad Air, is proper for the Plague, and other contagious Maladies, abates the Hystericks, and strengthens the Brain, a little bit thereof is introduced into the Nose. This Balsam is also administered inwardly from four Grains to fifteen.

Balsamum Hypaticum A. Mynsicht, reformatum. ℞ *Olei Nucis Moschatæ expressi* ʒ v. *Medullæ Cervi* ʒ iij. *Oleorum Rosarum Vulgarium, Violarum, Nymphæ, ana* ʒ ij. *Seminis Hyosciami & Papaveris albi expressi, Benzoini, Unguenti Populei, ana* ʒ j. *Extracti Opii, Croci Orientalis, ana* ʒ j ß. *Ambræ Griseæ, Moschi, Essentiæ Rosarum, ana* ℈ j.

Put to melt together over a very slow Fire, the Oils, Marrow of a Hart, and the Populeum, soften with some Spirit of Wine the Extract of Opium in Balneo Mariæ, and mix it with the Matter stirring it hard, and when cool dissolve in it the Saffron, Amber, and Musc, after they have been well incorporated together with the Essence of Roses, in a Mortar. This Mixture is a *Balsam* which must be kept well covered.

Balsamum Vulgare. ℞ *Terebenthinæ Venetæ* ℔ j. *Gummi Elemi* ℥ iv. *Resinæ Pini* ℥ ij. *Aristolochiæ Longæ* ℥ j ß. *Sanguinis Draconis* ʒ ij.

The Dragon's Blood and Aristoloche must be pounded each separately, and the Gum Elemi and Resine melted with the Turpentine over a very slow Fire; then the whole Mixture is strained through a Linnen Cloth to separate the Dirt; and the Powders having been mixed with the Colature, the Mixture must be kept for Use.

Virtues.—This Balsam is proper for Wounds, and old and new Ulcers, it cleanses them, renews the Flesh, strengthens the Nerves, and is good for the Dislocations.

Balsamum Viride Mententium. ℞ *Olei Seminis Lini expressi, Olivarum, ana* ℔ j. *Laurini* ℥ j. *Terebenthinæ venetæ,* ℥ ij. *Simul igne lentissimo liqua, refrigeratisque permisce Olei stillatitii Baccarum Juniperi* ℥ ß. *Viridis Æris* ʒ iij. *Aloes Succotrinæ* ʒ ij. *Vitrioli albi* ʒ j ß. *Olei Caryophyllorum* ʒ j. *fiat Balsamum*, S. A.

Virtues.—This *Balsam* is proper to cleanse the Wounds and Ulcers, to incarnate and cicatrise them, and for the Bites of venemous Beasts; some of it is heated and applied on the Wound with a Feather or Pledgets, putting over it a styptick Plaister, the Description whereof will be found under the Article *Plaisters*, by the Name of *Emplastrum Stypticum Crollii.*

Balsamum Guidonis. ℞ *Succi Castorei, Styracis Calamitæ Recentis, ana* ʒ v. *Aloes Hepaticæ, Bdellii, Carpobalsami, Croci, Gummi Arabici, Mastiches, Mumiæ, Myrrhæ Electæ, Sanguinis Draconis, Spicæ nardi, Thuris, ana* ʒ ij ß. *Olei Flavi Terebenthinæ,* ℥ iv. ʒ vj.

The Gums and Carpobalsamum, or in its Stead, Cubebes must be coarsely pounded, the Spikenard cut small, and all together put with the Saffron in a Glass or Stone Cucurbite, pouring upon them the yellow Oil of Turpentine, and the Juice of Castoreum, *i. e.* a certain unctuous Liquor contained apart in the Bag of the Castor;

Castor; but as that Liquor is not always to be met with, the Castor in Powder can be substituted to it: The Cucurbite must be but half full, placing it on the Sand, and having adapted a large Receiver to it, and luted exactly the Joints, a small Fire shall be made under it for two or three Hours to heat gently the Vessel, and to distil the most volatile Liquor, increasing it afterwards by degrees to make the Spirits and the Oil come out; continuing thus a strong Fire, till it has done distilling; then the Vessels are unluted, and eight Ounces of Wine poured upon the Liquor which is in the Receiver, stirring well that Mixture, and pouring it afterwards into a Funnel lined with grey Paper, the Spirit will run through the Paper, and the Oil remain, which must be put in a Bottle, mixing with it two Drachms of Opobalsamum, or for want thereof Balsam of *Peru*, which Mixture, which is *Guido's Balsam*, must be kept for Use.

Virtues.—This *Balsam* is good for the Ulcers of the Matrice and of the Bladder; a few Drops thereof may be administered inwardly, and used in Injection for the Uterus, mixed with a Liquor appropriated to the Distemper; it is also given to smell for the Vapours.

Balsamum Samaritanum.—Mix together equal Parts of common Oil, and Red Wine in a glazed earthen Pot, cover the Pot and place it over a moderate Fire to make the Liquor boil, till the Wine be consumed; keep the Oil for Use, it is the *Samaritan Balsam.*

Virtues.—This Balsam cleanses and consolidates the Wounds, strengthens the Nerves, and resolves the Catarrhs.

Balsamum Christi, Paracelsi, reformatum. ℞ *Vini Nigri* ℔ iij. *Olei Hyperici* ℔ j ß. *Liquoris Mummiæ, & florum Hyperici, ana* ℥ iv.

Put in a Glass or Stone Cucurbite, the Flowers of St. Johnwort, the Liquor of Mumy, the Oil of St. Johnwort, and the Tinto Wine, and having well stirred the whole together, stop exactly the Vessel, and carry it to a warm Place, where it must be left in Digestion for a whole Month; unstop afterwards the Cucurbite, and having adapted a Capital and a Receiver to it, place it in Distillation at a Sand-heat; the distilled Liquor will be the *Balsam Christi.*

Virtues.—This Balsam is vulnerary, and very good for the Wounds of the Articulations.

Balsamum Album Leonardi Fioraventi Doctoris & Equitis Bononiensis. ℞ *Gummi Arabici* ℥ iv. *Galbani, Olibani, Myrrhæ, Gummi Hederæ, Ligni Aloes, ana* ℥ iij. *Galangæ minoris, Caryophyllorum, Consolidæ minoris, Cinnamomi, Nucis Moschatæ, Zedoariæ, Zingiberis, Dictamni albi, ana* ℥ j. *Ambræ Griseæ, ana* ʒ ij.

The Wood of Aloes, Galanga, Cloves, Cinnamon, Nutmeg, Zedoaria, Ginger, and Dictamnum, must be coarsely pounded together; the Musc and Ambergrease together, and the Consolida minor by itself; mixing afterwards all the Ingredients together, and having put the Mixture in a large Glass or Stone Cucurbite, you'll pour over it one Pound of clear Turpentine, four Ounces of Oil of Bays, and three Quarts of rectified Brandy, or Spirit of Wine; then stop exactly the Cucurbite, and having shaken it to mix well the Drugs, put it in Digestion in the Horse-dung, or some other warm Place, where it must be left nine Days; unstop afterwards the Cucurbite, place it in a Furnace at a Sand-heat, and having adapted a Capital and a Receiver to it, and luted exactly the Joints, you'll give a little Fire at first, to heat gently the Cucurbite; and increasing it by degrees, it will distil a white Liquor; you'll continue then the Fire from the second to the third Degree, till you see that the Drops begin to come out blackish, and Vapours appear; then you'll change the Receiver and increase the Fire to the fourth Degree, continuing it in that Condition till no more Vapours come out, for then the Vessels are to be left to grow cold.

The first distilled Liquor is the *white Balsam*, which is properly a Mixture of a whitish Water, and of a brown Oil which swims upon it; its Smell is disagreeable, partaking much of that of Turpentine, and its Taste sweetish.

Virtues.—This *Balsam* is of great Use in Surgery; it is an excellent Remedy to cleanse and mondify Wounds, and the most malignant Ulcers, to reanimate the Spirits in them, and to resist the Gangrene, applied on Pledgets, to resolve the Tumours, and strengthen the Nerves.

Balsamum Spasmaticum, A. Mynsicht. ℞ *Axungiæ Anguillæ* ℥ j. *Oleorum Galbani cum spiritu Terebenthinæ distillati* ℥ ß. *Lumbricorum Terrestrium, Liliorum Alborum, ana* ʒ iij. *Succini albi rectificati, Rorismarini, Angelicæ, ana* ʒ i ß. *Juniperi, Chamomillæ, Origani, Laurini, ana* ʒ j. *Caryophyllorum, Lavendulæ, Salviæ, Rutæ, ana* ℈ j.

There must be melted together in a glazed earthen Porringer, over a little Fire, Oil of Nutmeg and white Wax, of each three Drachms, with the Grease of Eels, and the Oils of Earth-worms, of white Lillies, of Camomile, and of Bays; and having left the Matter to cool, the Oils extracted by Distillation must be mixed with it, and the whole Mixture will be a Balsam, which must be kept for Use.

Virtues.—This *Balsam* strengthens the Nerves, moderates the convulsive Motions, rarifies and resolves the cold Humours, and appeases the After-pains of lying-in Women, by anointing the afflicted Parts with it.

Balsamum Uterinum. ℞ *Sevi Hircini* ℥ ij. *Oleorum stillatitiorum Succini, Gagatis, Rutæ, Sabinæ, ana* ʒ ij. *Galbani puri, Assæ Fœtidæ, Pinquedinis in Cistide Castorei contentæ, ana* ʒ i ß.

The Gums must be pounded in a Brass Mortar, hot, with some Tallow of a He-Goat, till they be reduced into a Paste; mixing afterwards by degrees the other Drugs with it, stirring a long while the whole together, to make a *Balsam*, which must be kept for Use.

Virtues.—This *Balsam* appeases the Pains of the Matrice, abate the Vapours, and provokes the Menses. It is applied on the Navel, and the Nostrils are rubbed with it.

Balsamum Hollerii. ℞ *Succorum Chamæpytios, & Herbæ Paradiseos, Gummi Elemi, Opoponacis, Benzoini, Thuris Mastiches, ana* ℥ ij. *Ligni Aloes, Radicum Ireos, Aristolochiæ Rotundæ, Dictamni, Consolidæ majoris, ana* ℥ j. *Nucleorum Pini, Baccarum Lauri, Cubebarum, Nucis Moschatæ, Zedoariæ, Galangæ, Cinnamomi, Caryophyllorum, ana* ʒ vj. *Myrrhæ, Aloes, Laudani, Sarcocollæ, Castorei, ana* ℥ j. *Terebenthinæ* ℔ ij. ℥ iij ß.

All the solid Drugs must be bruised and put in a Glass or Stone Cucurbite, and having poured upon them the Juice and Turpentine, and mixed well the whole together with a Stick, the Cucurbite shall be covered with its Capital, a Receiver adapted to it, the Joints exactly luted, and the Matter distilled at a graduate Sand-heat; there will come out first a Water, then an oily Liquor, and lastly, an Oil as thick as Honey; the watery Liquor must be separated through a grey Paper, and the Oil kept, which is the *Balsam of Hollerius.*

Virtues.—This *Balsam* is proper to strengthen the Nerves, to resolve the cold Humours, and to dissipate the Catarrhs, by anointing the afflicted Parts with it.

Balsamum Paralyticum A. Mynsicht. ℞ *Olei galbani cum spiritu Terebenthinæ distillati, Succini rectificati, Rorismarini, Angelicæ, ana* ʒ j. *Chamomillæ Romanæ, Caryophyllorum, Salviæ, ana* ʒ ß. *Origani Cretici, Lavendulæ, ana* ℈ j.

There must be melted in a glazed earthen Porringer, over a little Fire, an Ounce of Oil of Nutmegs, with the Oils of Succin and of Galbanum, taking afterwards the Porringer off the Fire, and when the Matter is cool, mixing exactly with it the other Oils, to make a Balsam or Liniment.

Virtues.—This *Balsam* strengthens the Nerves, and resolves the coarse and pituitous Humours; it is employ'd in the Palsy, and the Back-bone rubbed with it.

Balsam, to make Children cut their Teeth easy.—Take three Ounces of Fresh Butter without Salt; Hen's and Duck's Grease, of each two Ounces; and an Ounce of Flowers of wild red Poppies, mix together in a glazed earthen Pot the Fresh Butter, the Grease, and the Flowers, with the Mucilage of Roots of Althæa, and the Juice of Craw-fish, of each two Ounces; cover the Pot, and place it over a little Fire, to make the Matter boil gently to the Consumption of the watery Humidity; strain the Liquor, and mix with the Colature four Ounces of white Sugar-candy, a Scruple of Troches of Gallia Moschata reduced into Powder, and the Yolk of an Egg, to make a *Balsam* which must be kept for Use.

Virtues.—This Balsam is used to soften the Gums of little Children, by rubbing them often with it; whereby they cut their Teeth easy.

To extract the Juice of Craw-fish, you must bruise five or six of them in a Marble Mortar, humecting them with Water of Burroch, and carrying 'em afterwards to the Press.

Balsamum Hyspanicum. ℞. *Frumenti integri, Radicis Valerianæ, Cardui Benedicti, aa* ℥ j. *Vini albi,* ℔ j.

Bruise the Roots, and put them with the Wheat in a glazed earthen Pot, cover the Pot, and place it on the hot Embers, where the Matter must be left in Digestion for twenty four Hours; mixing with it afterwards half a Pound of Oil of St. John-wort; and having boiled the Mixture over a slow Fire, to the Consumption of the Wine, strain the Liquor with Expression, and add to the Colature eight Ounces of the best Turpentine, and two Ounces of Frankincense in Powder, to make a Balsam which must be kept for Use.

Virtues.—This Balsam is excellent to consolidate and cure Ulcers and Wounds; it is introduced into them, or syringed into the Wound. If it be a deep one, after it has been washed with warm Wine; you must join together as much as possible, the Edges of the Wound, and anoint it all round with the same Balsam, putting over it several Compresses to keep the whole steady.

Balsamum Balsaminæ. ℞. *Florum, foliorum, & fructuum Balsaminæ,* ℥ iv. *Radicum consolidæ majoris, Ophyoglossi, Aristolochiæ rotundæ, Valerianæ majoris, ana* ℥ ij. *Visci in folliculis ulmi reperti, Succi Cancrorum fluviatilium, Foliorum Pervincæ & Saniculæ, Summitatum Floridarum Hyperici, Galli lutei, ana* ℥ j ß. *Olei Olivarum* ℔ iv.

Bruise the Leaves, Flowers, and Mistletoe of Elm, and put them together in a glazed earthen Pot, pouring over them the Oil, and the Juice of Craw-fish; cover the Pot and place it in the Sun, where the Matter must be left 12 Days in Digestion; boiling afterwards the Infusion over a slow Fire to the Consumption of the Wine; straining the Decoction with Expression; and after the Oil has been left to settle, you must pour it by Inclination to separate it from its Fæces; and then mix with it half a Pound of distilled Oil of Varnish, to make a Balsam, which is to be kept for Use.

Virtues.—This Balsam is thought excellent to strengthen the Nerves, for Wounds, Burns, the Piles, and sore Breast.

Balsamum Stypticum, A. Mynsicht. ℞. *Amplastri Styptici, A. Mynsicht,* ℥ iv. *Olei vitellorum ovorum, q. s. fiat Balsamum, cui adde Oleorum nucis Moschatæ, Caryophyllorum, Salviæ, ana* ℈.

You'll melt gently in an earthen Dish four Ounces of the styptick Plaister of *A. Mynsicht*, mixing with it, about as much Oil of Eggs as is necessary to give it the Consistence of an Unguent; and when cool, add to it the Oils of Nutmeg melted, of Cloves, and of Sage, making of the whole a Balsam to be kept for Use.

Virtues.—This Balsam strengthens the Stomach, and the Abdomen, it helps Digestion, stops Vomiting, and Hemorrhages, by anointing the Stomach, the Abdomen, and other afflicted Parts with it.

Balsamum ad Nervorum Puncturas. ℞. *Centaurii minoris Contusi,* ℥ ij. ß. *Marrubii Contriti,* ℥ ß. *Infundantur aliquandiu in succi Plantaginis,* ℥ ij. *Olei Communis,* ℥ vj. *Deinde parum bulliant & exprimantur: Colaturæ adde Terebenthinæ Venetæ,* ℥ j. ß. *Vitrioli, Olei Hyperici, ana* ℥ j. *Lumbricorum, de Spica, Galbani & Ammoniaci in aceto dissolutorum & purificatorum, Myrrhæ, Æruginis, ana* ℥ ß. *fiat Balsamum, S. A.*

Virtues.—This Balsam is proper when the Nerves have been pricked, to cleanse old Ulcers, and cicatrise them.

Balsamum dolorem levans. ℞. *Foliorum urticæ urentis, Plantaginis, Mercurialis, Majoranæ, ana man.* j. *Olei nucis Juglandis expressi,* ℔ iij. ℥ iv. *Vini albi generosi,* ℥ viij.

The Herbs must be well pounded in a Marble-Mortar, and put afterwards in a glazed earthen Pot, and having pour'd upon them the Wine and Oil of Walnuts, the Pot must be cover'd and put in Digestion over the hot Embers, where it must be left for twenty-four Hours; and the Infusion boiled afterwards over a slow Fire to the Consumption of the watery Humidity; then the Oil or Balsam is strained with Expression, and after it has been left to depurate of its Fæces, it must be kept for Use.

Virtues.—This Balsam is proper to soften the Humours, and to appease the Pains, either in the Articulations or Wounds.

Balsamum Jacomo de Pinto. ℞. *Olibani, Myrrhæ, Mastiches, Aloes, Sarcocollæ, Styracis Calamitæ, Benzoini, ana* ℥ j. *Olei Hyperici,* ℔ iij. *Ceræ Citrinæ,* ℔ ß. *Colophoniæ, Terebenthinæ Venetæ, ana* ℥ ij. *Axungiæ humanæ, Olei Petræ, ana* ℥ j. ß. *Spicæ,* ℥ j. *Baccarum Juniperi,* ʒ ij. *Salviæ,* ℈ j.

The Gums must be well pounded, and the Wax, Colophon, Turpentine, and human Fat melted in the Oil of St. John-wort, over a little Fire; and when the Matter is half cold, you'll mix with it the Powder and the Oils of Aspich, of Juniper-Berries, of Sage, and the Petroleum, to make a Balsam, which must be kept in a Pot well cover'd.

Virtues.—This Balsam is proper for the external and internal Piles, for the Fistula *in ano*, and for Ulcers; it is detersive, resists the Gangrene, and softens the Acrimony of the Humours.

Balsamum sulphuris simplex.—Take three Ounces of Flowers of Sulphur, put it in a Matrass, and pour over it eight Ounces of Spirit of Turpentine, and having stopped the Matrass, and shaken it well, place it in Digestion at a slow Sand-heat for five or six Hours, or till the Oil is grown red; then pour out the Tincture by Inclination, and keep it: Which Tincture is the Balsam of Sulphur.

Virtues.—This Balsam is proper to cleanse the Ulcers of the Lungs and of the Breast, it helps Respiration, and is given to Asthmaticks.——The *Dose* is from a Drop to six.

Balsamum sulphuris Annisatum.—Put an Ounce and a half of Flower of Sulphur in a Matrass, pour upon it half a Pound of Oil of Anniseed, stop the Matrass, and place it a Sand-heat, where the Matter must be left in Digestion till the Flower of Sulphur be almost entirely dissolved, and the Oil has acquired a red Colour, which commonly happens in nine or ten Hours; and after the Balsam has been left to settle, it must be decanted to separate it from its Fæces.

Virtues.—This Balsam is good for the Ulcers of the Breast, and of the Lungs, for the Asthma, the Indigestions of the Stomach, and the windy Colick.——The *Dose* is from three Drops to twelve.

Balsamum Lucatelli. ℞. *Olei olivarum, Terebenthinæ Venetæ in aqua rosarum ad albedinem, Lotæ, ana* ℔ j. ß. *Ceræ Citrinæ,* ℔ j. *Santali rubri subtiliter pulverati,* ℥ ij.

Put in a glazed earthen Pot the Oil of Olives, and eight or nine Ounces of Canary-Wine, place the Pot in a boiling hot Balneo Mariæ, where having been left till the Wine be entirely consumed, strain the Oil afterwards, and having melted in it over the Fire, the Wax, and the Turpentine, take the Matter off the Fire, and when almost cold, mix with it the red Sanders, reduced into a very subtle Powder, to make a Balsam which must be kept for Use.

Virtues.—The *Lucatellus Balsam* is detersive, proper to consolidate green Wounds, and to strengthen the Nerves.

Balsamum aut Oleum tranquillum Abbatis Rousseau. ℞. *Foliorum solani Racemosi, solani furiosi aut maniaci, Hyoscyami, Nicotianæ, Capitum Papaveris albi, ana man.* ij. *Foliorum Rorismarini, Salviæ, Rutæ, Absinthii, Hyssopi, Tanaceti, Persicariæ, Summitatum Lavendulæ, Thymi, florum Sambuci, Hyperici, ana man.* ß.

The Plants having been all gather'd in their Vigour, must be hatched and pounded together in a Mortar; and put afterwards in a Bason, pouring upon them eight Pounds of Oil of Olives, boiling hot; stirring the Matter with a wooden Spatula, covering the Pot, and leaving the Matter in Digestion for twelve Hours; which elapsed, it must be put to boil over a slow Fire, stirring it all the while to the Consumption of the watery Humidity, or till the Herbs begin to appear fryed, and cease boiling; then the whole must be thrown into a Linen Cloth, to strain it with Expression, and the Colature is the *tranquile Balsam*; or the *Balsam of the Capuchins of the* Louvre.

The Author of this Balsam says, that to make it still better, there must be added to it as many large Toads alive as there are Pounds of Oil; which must

must be put to boil in it, till they remain almost burnt or roasted at the Bottom of the Vessel, that their Juice and Fat mixing with the Balsam, may increase the Excellence of the Remedy.

Virtues.—I have seen by Experience that this Balsam is excellent to cure the Squinancy, by a single Unction, before the Abscess is formed; the Throat of the Patient must be anointed with it for half a Quarter of an Hour, as hot as he can bear it; applying afterwards warm Cloths upon the Part, and reiterating the Friction every half Hour, if the Patient be not asleep. If the Abscess be formed, the Method is changed; for then the Balsam is mixed with an equal Quantity of Spirit of Sal Armoniack; for by stirring them together, a Sort of soft Soap, or of Unguent is made, which is used cold to anoint the Throat.

The same is done of the Balsam alone, hot, on the Breast, for the Fluxions and Inflammations of that Part; if the Distemper is violent, the Patient takes inwardly from half a Spoonful to a Spoonful of this Remedy; the same Dose is given also for the Colick, and the Inflammations of the Entrails; and two or three Spoonfuls thereof are put in a Decoction of Bran, or of Linseed, for a Clyster. It is also very good for Burns, and green Wounds, to provoke the Menses, to facilitate a Delivery, and to dissipate the Inflammation of the Matrice, by anointing the Part with it.

Balsamum Anodynum vel Podagricum, Georgii Batei. ℞. *Saponis*, ℥ j. *Camphoræ*, ʒ vj. *Opii*, ℥ ß. *Croci*, ʒ j. *Spiritus vini rectificati*, ℥ xviij.

The Soap must be rasped, the Opium cut in small Pieces, the Camphire bruised, and all the Drugs put in a Matrass with the Spirit of Wine; stopping afterwards the Vessel, and placing it in Digestion on the hot Sand, or at some other gentle Heat, where it must be left ten Days, shaking it from Time to Time, to facilitate the Dissolution of the Ingredients, the ten Days elapsed, the Infusion shall be strained through a Flannel, and kept: Which Colature is the *anodyne Balsam.*

Virtues.—This Balsam appeases the most excruciating Pains, being applied on the Part with a Piece of Linen Cloth dipped in it, and renewing it every four Hours, till the Pain be entirely ceased. It is used for the Rheumatism and the Gout; it is also taken inwardly from 30 to 50 Drops in Wine.

The principal Quality of this Balsam proceeds from the Opium.

Balsamum Antipodagricum, Phil. Mulleri. ℞. *Mastiches, Olibani, Myrrhæ, Bdellii, Gummi Ammoniaci, Opopanacis, Mumiæ, aa* ℥ ij. *Tartari*, ʒ j. ß. *Vitrioli*, ℔ j. *Mellis*, ℔ ij. *Aquæ vitæ*, ℔ iv.

The Gums must be coarsely pounded together; and the Tartar, and Vitriol together, putting afterwards all the Powders with the Honey and Brandy in a large Glass or Stone Cucurbite, stopping the Vessel, and leaving it in Digestion, in a warm Place, for eight Days successively; which elapsed, the Cucurbite is unstopped, a Capital and Receiver adapted to it, the Joints luted, and the Liquor distilled by a graduate Fire; keeping the Liquor for Use, which is the Balsam for the Gout.

Virtues.—This Balsam is excellent for the Pains of the Gout, and of the Rheumatism; a Piece of Flannel is dipped in it, and applied on the afflicted Part.

Balsamum Italicum. ℞. *Olei Olivarum*, ℔ ß. *Laurini*, ℥ v. *Terebinthinæ*, ℥ ij. *Juniperi, Spicæ, Petræ, Hyperici, aa* ℥ ß. *Ceræ Citrinæ*, ℥ ij. *Misce, fiat Balsamum, S. A.*

Balsamum Magistrale Georgii Batei. ℞. *Olei Olivarum*, ℔ j. ß. *Hyperici*, ℥ j. ß. *Petræ, Spicæ, Laurini, Baccarum Juniperi, aa* ℥ j. *Caryophyllorum*, ʒ j. *Cinnamomi*, ʒ ß. *Terebenthinæ Venetæ*, ℥ viij. *Ceræ*, ℥ iv. ß. *Styracis liquidæ*, ℥ iv. *Gummi Caranæ, Santali rubri, aa* ℥ j. *Benzoini, Sanguinis Draconis, aa* ℥ ß.

Put together in an earthen Pot the Oils of Olive, of St. John-wort, of Aspic, of Bays, the Petroleum, Turpentine, Wax, liquid Storax, and the Gum; cover the Pot, and place it over a moderate Fire, where it must be left an Hour, stirring often the Matter with a Spatula, that the whole Mixture be melted; mean while must be pounded, each by itself, the red Sanders, the Benzoin, and the Dragon's Blood.

Strain the Matter, melted in the earthen Pot, through a Linnen Cloth, while it is hot, stirring it with a Spatula, while it cools; and when almost cold, mix the Powders with it, and lastly the distilled Oils of Juniper-berries, of Cloves, and of Cinnamon, to make of the whole Mixture a Balsam, which must be kept in a Pot well corked.

Virtues.—This *Balsam* is esteemed an efficacious Remedy for internal and external Wounds, for Contusions, to moderate the Pains of the Head, of the Muscles and Nerves, to expel Wind, and the Sand from the Reins and the Bladder, to stop Hemorrhages of the Nose, to help Digestion, and for the Worms. It is taken inwardly from a Drachm to three, in a little warm Wine, and is applied outwardly on the afflicted Parts.

Balsamum Paralyticum Georgii Batei. ℞ *Terebenthinæ venetæ* ℔ iv. *Gummi Elemi, Labdani, ana* ℥ iij. *Styracis liquidæ* ℥ ij. *Cinnamomi* ℥ iß. *Florum Rorismarini, Salviæ, ana* ʒ x. *Olibani, Aloes, Castorei, Myrrhæ, Xylaloes, Florum Hyperici, ana* ℥ j. *Calami Aromatici, Caryophyllorum, Galangæ, ana* ʒ vj.

The Cinnamon, Wood of Aloes, Calamus Aromaticus, Galanga, and Cloves, must be pounded together; and the Myrrh, Labdanum, Olibanum, Aloes, and Castor together; the Flowers of St. John-wort, of Rosemary, and Sage, must be mixed with those Powders; the Turpentine, the Gum Elemi, the Balsam of *Peru*, and the Storax, shall be melted together over a very little Fire, and the whole Mixture put together in a large Stone Cucurbite, pouring over it the Spirit of Wine, and shaking the Cucurbite, that all the Drugs may unite together; then the Vessel being stopt, must be left in Digestion in a warm Place for six Days; and afterwards unstopped and placed at a moderate Sand-heat; and having adapted a Receiver to it, and luted exactly the Joints, a Fire of the first Degree must be made under it, to heat a little the Cucurbite, whereby the Liquor will distil very slowly; which Degree of Fire must be continued for 48 Hours; taking out that first Liquor, which will be found as clear as Water in the Receiver, to keep it in a Bottle well corked. Then the Receiver is re-adapted to the Capital as before, and having increased the Fire to the second Degree, or a little stronger, a clear Liquor will distil, but a little yellowish, and oily; when nothing more will come out by that Degree of Fire, this second Liquor must be taken out of the Receiver, to be kept in a Bottle a-part; re-adapting afterwards the Receiver, and increasing the Fire by little and little to the fourth Degree, when a viscous and thick Oil will come out, of a brown or blackish Colour; continuing the same Degree of Fire, till it has done distilling. This third and last Liquor is to be kept a-part.

The first distilled Liquor is called Mother of Balsam, the second paralytical Balsam. The third the Oil of Balsam.

Virtues.—Those Liquors are good to strengthen the Nerves, to cure a Palsy began, and the Convulsions, being taken inwardly, and applied outwardly.

Balsamum Palmeum. ℞. *Olei Palmei recentis*, ℔ ß. *Laurini*, ℥ ij. *Nucis Moschatæ, Juniperi, Unguenti Martiati, Balsami Peruviani, Capahiba, ana* ℥ ß.

Put all the Ingredients together in an earthen Dish, and liquify them, by a gentle Heat in Balneo Mariæ, to make a *Balsam*, which must be kept in a Pot well covered.

Virtues.—It is nerval, strengthning, resolutive, proper for the Palsy, to soften the Hardness of the Joints, for the Sciatica, and to resolve the cold Humours, by anointing the afflicted Parts therewith.

Balsamum Nephreticum Fulleri. ℞ *Olei amigdalarum dulcium recenter expressi* ℥ iv. *Olei Semin. Papav. albi & lini recenter expressi, ana* ℥ ij. *Olei Petræ* ʒ v. *Balsami Capahiba* ʒ vj. *Balsami Peruviani* ʒ ij. *Olei Juniperi* ℈ iv. *Olei Anisi* ʒ j. *Olei Vitrioli rectificati* ℥ j. *Camphoræ* ℈ ij.

All these Drugs must be stirred together in a pretty large Glass Vessel till they be sufficiently heated, and have acquired a black Colour; the Heat over, they are to be put for two Days in Digestion in Balneo Mariæ, stirring often the Matter, which shall be left afterwards to settle, to be used when wanted.

Virtues.—This Balsam is excellent and efficacious for all the Pains of the Reins, it expels the Sand and the Calculus, provokes the Urine, and is a sovereign Remedy for the Maladies of the Breast; it helps Expectoration,

ration, and appeases the Cough.——The *Dose* is from ten Drops to fifty, given with the Syrup of Althæa, or some other pectoral Decoction.

Balsamum Mirabile, fulleri. ℞ *Thuris* ℥ ij. *Mastiches, Caryophyllorum, Galangæ, Macis, Cubebarum, ana* ℥ ß. *Ligni Aloes* ℥ j.

All the Drugs must be very well pounded, and having been mixed with the Honey and Turpentine, the whole Mixture must be put in a Cucurbite, pouring upon it Spirit of Wine to the Height of two or three Fingers, distilling the whole in Balneo Mariæ, till the Liquor appears red; and continuing the Fire to extract the Balsam, which must be rectified.

Virtues.—This *Balsam* is good to cure all Sorts of Wounds, for old Ulcers, Cancers, Fistula's, and the Maladies of the Eyes.—The *Dose* inwardly is from five Drops to ten.

UNGUENTS.

The Name of *Unguent* derives from the Latin *ungere*, to anoint, and as we anoint with Oils as well as *Unguents*, the Antients called *Unguents* the aromatick Oils the Joints were rubbed with, and those who sold them were called *unguentarii*; but we understand at present by *Unguents*, certain Compositions of Grease, Oil, Wax, Powder, to which are most commonly given Consistences much like that of Grease.

Liniment comes from the *Latin* Word *linire*, to anoint gently; what we call in Latin *linimentum* or *litus*, is a Mixture of *Unguents*, or of Wax and Oil of a Consistence thicker than Oil, but less thick than the *Unguent*; it is commonly used to mollify and soften, by rubbing the tendereſt Parts, as the Breast, *&c.* with it.

The *Cerata*, borrow their Name from the Wax which enter their Composition, called in Latin *cera*; antiently the *Cerata* had a more solid Consistence than the *Unguent*, and softer than the Plaister, but at present there is no Rule observed with regard to that; for they are sometimes made as soft as *Unguents*, sometimes more liquid, and sometimes harder: They consist of the same Drugs the *Unguents* are composed of; and we give sometimes the Name of *Cerat* to Compositions where there is no Wax; and as there is so little Difference between *Unguents*, *Liniments* and *Cerata*, I'll place them all three under the same Article, and not without Reason, since it is very well known that to give a Consistence to these three Compositions, one borrows in Part the Matter of the *Unguent*, which serves here as a Medium, and that the Oils are the common Basis of them all.

Unguentum Rosatum. ℞ *Axungiæ Porci Recentis, purgatæ & sæpius Lotæ, Rosarum Pallidarum recentium contusarum, ana* ℔ vj.

The Hog's Lard must be new freed of all its Skins, and washed several Times in Water; and six Pounds thereof having been put into an earthen Pot, with an equal Weight of pale Roses newly gathered separated from their Calice, and pounded in a Marble Mortar, and both Ingredients well mixed together, the Pot is to be covered and placed in Digestion at the Sun for seven Days, stirring the Matter from Time to Time with a wooden Spatula; the seven Days elapsed, the Infusion is put to boil for an Hour or two over a small Fire, and afterwards strained with a strong Expression, putting into the Colature as much Roses as before; and having left the Matter in Digestion for seven Days more, it must be strained with Expression, and the Colature is the *Unguent of Roses*, which must be kept for Use. If it be wanted to make it red, two Ounces of the Roots of Orcanette must be put to steep in the Unguent while hot, for four or five Hours.

Virtues.—The *Unguent of Roses* is esteemed proper to resolve and soften; it is used for the Hemorrhoids, the Inflammations, and the Pains of the Joints.

Most Dispensaries require red Roses for the Composition of this *Unguent*, but the Apothecaries wanting to render their *Unguent* odorous, employ pale Roses, which have a much stronger and agreeable Smell; they are besides more resolutive, and more capable to produce the Effects expected from the *Unguent of Roses*.

Unguentum Populeum, Nic. Salernitani. ℞ *Gemmarum seu Oculorum Populi nigræ contusorum* ℔ i ß. *Axungiæ Porci recentis* ℔ iv. *Misceantur & Macerentur ad Maium usque mensem deinde adde, foliorum contusorum papaveris nigri, Mandragoræ, Hyoscyami, Solani, Vermicularis, Sempervivi majoris, Lactucæ, Bardanæ majoris, Violarum Umbilici veneris, cymarum rubi tenerrimarum, ana* ℥ iv.

The Buds of Poplar having been gathered when they begin to open, and shew the Points of their Leaves, must be pounded in a Mortar, and put afterwards in an earthen Pot, and having poured upon them the Hog's Lard melted, the Pot must be covered, and the Buds thus preserved in Grease, till the other Plants which enter the Composition of this *Unguent* be in their Vigour, which is commonly in the Month of *May* or *June*; at which Time those Plants must be gathered, pounded well in a Mortar, and put to boil afterwards with the preserved Poplar, over a slow Fire to the Consumption of the watery Humidity; then the *Unguent* must be strained, and afterwards left to settle to separate it from its Fæces.

Virtues.—This *Unguent* softens, temperates the Inflammations, appeases the Pain of the Head, applied on the Forehead, provokes Sleep, and is excellent for the Piles, Burns, and to dissipate the Milk from the Breast, by anointing the afflicted Parts with it.

As the Buds of Poplar cannot be gathered but at the Beginning of the Spring, they must be preserved in the Grease to make them keep their Virtue, till the other Plants which enter the *Unguent* be in their Vigour.

The Leaves of Poppies, of Mandragora, of Hen-bane, of Solanum, and of Lattuce, are Narcoticks, which give to this Unguent a somniferous Virtue, and proper to appease the too great Motion of the Spirits; it is particularly for that Reason, that it appeases the Pains of the Head, and softens in several Occasions.

The Populeum is not a good Remedy for a dry Burn lately done; it cools, it is true, but it incarcerates the igneous Particles which have enter'd the burnt Part, and hinders them from being exalted; therefore it is better to put on the Burn, Spirit of Wine, or an Onion and Salt pounded together, because those spirituous or saline Substances, open the Pores, and make a Passage for the igneous Particles to come out. But when the Burn is several Days old, and broken, and has been done either by Grease or Oil, or some other hot Liquor, the Populeum can be of Use: It is sometimes mixed with Oil of Eggs.

The Populeum being mixed with equal Parts of Unguent of Roses, of Unguent of Marsh-mallows, and of Honey, is called by M. *Solleysel*, in his *Perfect Farrier*, Unguent of *Montpelier*: He thinks it proper to strengthen the weaken'd Parts of Horses.

Unguentum album, seu de Cerusa. ℞. *Olei rosati*, ℔ ij. *Ceræ albæ*, ℔ ß. *Cerusæ Venetæ*, ℥ viij. *Camphoræ*, ℥ j.

The white Wax must be broken into small Pieces, and melted in the Oil of Roses at a slow Fire, mixing with it afterwards with a wooden Spatula, the Cerusa, which has been reduced before into a very subtile Powder, and lastly the Camphire dissolved in some Oil of Roses, stirring the *Unguent* till the Ingredients be very well incorporated together, and keeping the *Unguent* for Use.

Virtues.—This *Unguent* is proper to dry, and cure Burns, for the Itch, the itching of the Skin, and slight Wounds.

The Apothecaries employ most commonly Oil, and often a stinking one, in the Preparation of this *Unguent*, which renders the Smell thereof very offensive.

Unguentum Pompholigos, Nicol. Alexandrini. ℞ *Olei Rosati* ℥ xx. *Succi granorum Solani* ℥ viij. *Coquantur simul igne lento ad succi consumptionem, tunc cola, & in Oleo colato liqua, Ceræ albæ* ℥ v. *Cerusæ Lotæ* ℥ iv. *Plumbi albi pulverati, Pompholigos, vel Tuthiæ preparatæ, ana* ℥ ij. *Thuris subtilissimè pulverati* ℥ j.

The Juice of Solanum, and the Oil of Roses must be put to boil over a little Fire to the Consumption of the Juice; and after the Oil has been strained to separate it from its Fæces, the Wax is put to melt in it; when melted, the Bason is taken off the Fire, and the Powders mixed with the Liquor to make of all an Unguent, which must be kept in a Pot for Use.

Virtues. This Unguent is proper to take off the Inflammation of the Ulcers of the Legs, and to dry them.

Unguentum deficcativum Rubrum. ℞. *Olei Communis*, ℔ j. *Ceræ albæ*, ℥ iij. *Simul liqua igne lento, semique refrigeratis, sequentia pulverata permisce, Lapidis Calaminaris*, B

Boli Armenæ, ana ℥ ij. *Lithargyri auri, Cerusæ Venetæ, ana* ℥ j. ß. *Camphoræ*, ʒ ß.

The Lapis Calaminaris, Bol, Litharge, and Ceruse, must be reduced into a very subtile Powder, and the white Wax, broken into small Pieces, melted in the Oil over a very slow Fire; and when the Matter is half cold, you'll mix the Powders with it, and lastly the Sulphur dissolved in about a Drachm of Oil; which Mixture is the deficcative Unguent, which must be kept in a Pot for Use.

Virtues.—This Unguent dries in cooling, it strengthens and renews the Flesh; it is used for Wounds attended with Inflammation.

Unguentum Basilicum, seu suppurativum. ℞ *Ceræ Flavæ, Sevi Arietini, Resinæ, Picis navalis, Terebenthinæ, Venetæ, ana* ℔ ß. *Olei Communis*, ℔ ij. ß.

All the Ingredients must be melted in the Oil, the Solution strained, and the Colature kept for Use.

Virtues.—The Basilicum is digestive, and promotes Suppuration when applied on Tumours, and in Wounds.

Note, That Basilicum is a great Word which signifies Royal, which Name has been given to express its great Virtues.

Note, also, That *Mesvé* describes a Basilicum, which he composes with Wax, Rosin, Tar, of each half a Pound, and ten Pounds of common Oil; he calls this Unguent *Tetrapharmacum*, because composed of four Sorts of Drugs, or *Basilicum minus*, to distinguish it from *Basilicum majus*, which is a Composition very little in Use. If there be added to the Description I have given of the Basilicum, Myrrh, and Olibanum, reduced into a subtle Powder, we'll have the *Unguentum Basilicum majus*, which is more detersive and vulnerary than the others.

Unguentum Apostolorum. ℞ *Ceræ Flavæ*, ℥ iv. *Resinæ, Terebenthinæ, Gummi Ammoniaci, ana* ℥ j. ʒ vj. *Lithargyri auri*, ℥ j. ʒ j. *Olibani, Bdellii, Aristolochiæ rotundæ, ana* ʒ vj. *Myrrhæ, Galbani, ana* ℥ ß. *Opoponacis, Viridis Æris, ana* ʒ ij. *Olei Communis*, ℔ ij.

The Gum Ammoniack, Bdellium, Olibanum, and Myrrh must be pounded together; the Verdigrease, Aristoloche, and Litharge, each by itself; and having purified the Galbanum and Opoponax with Vinegar, in the usual Manner, put the Litharge to boil with the Oil, adding to it a Pint of Water, or more if wanted, and stirring continually the Mixture with a wooden Spatula; when the Litharge shall be done, you'll melt in the Liquor the Wax and Rosin broken in small Pieces, the Gums purified, and the Turpentine, and taking afterwards the Matter off the Fire, you'll mix the Verdigrease, then the Aristoloche, and lastly, the Gums in Powder, to make an Unguent, which must be kept in a Pot well stopp'd.

Virtues.—This Unguent is proper to cleanse the Wounds and Ulcers, and to cicatrise them.

When Farriers want to bring some Glands, or Tumours, which have happen'd to Horses, to Suppuration; they use the following Mixture. Take four Ounces of common Basilicum, and an Ounce of *Emplastrum divinum*; melt them together, and on Proportion as the Mixture grows cold, mix with it three Ounces of old Treacle for an Unguent.

This Unguent has its Virtues and Utility, as well for Men as for Horses; for it produces a very good Effect, being applied on hard, malignant, painful, and inflamed Tumours, called Buboes; it softens them, and brings them by Degrees to Suppuration, by resisting their Malignity.

Unguentum Mondificativum de Apio, emendatum. ℞. *Foliorum Apii, man.* iij. *Hederæ Terrestris, Absinthii vulgaris, Salviæ, Hyperici, Vicæ-Pervincæ, Consolidæ majoris, Betonicæ, Veronicæ, Verbenæ, Millefolii, Pimpinellæ, ana man.* j. ß. *Olei Communis*, ℔ iv. *Ceræ Citrinæ, sevi arietini, resinæ, Terebenthinæ, ana* ℔ j.

The Herbs having been gather'd in their Vigour, and well pounded, must be put to macerate for two Days with the Oil, Mutton-Fat, yellow Wax and Rosin, boiling afterwards the whole Mixture over a slow Fire, stirring it very often, till the Juice of the Plants be almost entirely consumed; then they are strained with Expression; and in the Colature, half cold, are mixed Myrrh, and Aloes Succotrina in Powder, of each two Ounces; the Roots of Iris of *Florence*, and of Aristoloche, also in Powder, of each an Ounce, for an Unguent which must be kept for Use.

Unguentum mundificativum de resina. ℞ *Olei communis*, ℔ *Resinæ, Terebenthinæ, Mellinæ, Mellis Communis, ana* ℔ ß. *Ceræ flavæ*, ℥ iij. *Myrrhæ electæ, Sarcocollæ, Farinarum lini, Fænugræci*; *Thuris & Mastiches, ana* ℥ j.

The Myrrh, Frankincense, Mastich, and Sarcocolla, must be pounded together in a Mortar anointed at Bottom, and the Fænugreek and Linseed together; melting afterwards in the Oil, the Rosin, Wax and Turpentine, and mixing with the Matter, when half cold, the Honey, Seeds, and Gums, in Powder; to make of the whole Mixture an Unguent, which must be kept for Use.

Virtues.—The Qualities of this Unguent are the same with those of the Mondicative of Smallage.

This Unguent cannot be kept long without growing musty, because of the Honey which enters the Composition thereof; therefore but a small Quantity should be made at once; or one should wait to mix the Honey with it, till when it is to be used.

Unguentum Mundificativum, Nic. l'Emery. ℞ *Axungiæ Porci, Terebenthinæ, ana* ℥ viij. *Butyri recentis, Olei Hyperici, Unguenti populei, ana* ℥ iv. *Olei Laurini, Viridis Æris, ana* ℥ iij. *Vitrioli albi*, ℥ iv. *Boracis, Realgal, aut Arsenici rubri, ana* ij.

Pound and mix together the Verdigrease, white Vitriol, Borax, and Realgal; melt together over a small Fire, in a Bason, the Hog's Lard, fresh Butter, and Populeum; add to it, when off the Fire, the Turpentine and Oil; and when the Mixture is almost cold, mix exactly with it the Powders, stirring the whole Mixture for some Time with a wooden Spatula; and keep the Unguent for Use.

Virtues.—This Unguent is a powerful Detersive; it dries the Wounds, consumes the slimy Flesh, and resists the Gangrene: It may be applied with Pledgets on old Ulcers, and scrophulous Tumours, when open.

Unguentum Ægyptiacum, seu Melleum. ℞ *Mellis optimi*, ℥ xxviij. *Aceti Acerrimi*, ℥ xiv. *Æruginis Æris*, ℥ x.

The Verdigrease must be reduced into a Powder, and boiled afterwards with the Honey and Vinegar to the Consistence of Unguent.

Virtues.—This Unguent is detersive, it consumes the slimy Flesh, and the Corruption, and resists the Gangrene.

This Unguent is called *Ægyptiacum*, because invented in *Egypt*, and *Melleum* because of the Honey which enters into it, it is also called *Unguentum magnum*, because of its great Virtues. The Verdigrease gives it at first a green Tincture, but by boiling, the Acids being separated from it, and re-assuming the Colour of the Copper, the Unguent becomes red. Some add to it burnt Allum, to render it more acrimonious, or Frankincense to give it a greater vulnerary Virtue; but it is Time enough to mix those Drugs with it, when it is used.

Unguentum de Althæa reformatum. ℞. *Radicum Althææ recentium, minutim incisarum*, ℔ ß. *Seminum integrorum lini, & fænugræci saillæ minutim incisæ, ana* ℥ iv. *Aquæ fontanæ* ℔ viij.

Chuse the biggest Roots of Marsh-mallows you can find, wash them well, cut them in small Pieces, and put them in a glazed earthen Pot, with the Seeds whole, and the Onion of Squill cut small; pour upon them four Quarts of boiling hot Spring-Water, cover the Pot, and place it on the hot Embers, where the Matter must be left 24 Hours in Digestion; boiling afterwards the Infusion, and stirring it from Time to Time, with a Spatula, till the Liquor be thicken'd into a Mucilage; then strain it with Expression, and put the Colature to boil with four Pounds of common Oil, to the Consumption of the watery Humidity; and having strained the Oil, which remains, put to melt in it yellow Wax and Turpentine, of each a Pound; strain the Liquor, and when the Colature is half cold, mix with it Turpentine of *Venice*, Galbanum, Gum Ammoniack in Powder, of each two Ounces, for an Unguent to be kept for Use.

Virtues.—This Unguent is emollient, humecting and resolutive; it appeases the Pains of the Side, softens all Sorts of Hardness, strengthens the Nerves, and dissipates the Rheumatism, by anointing the afflicted Parts with it.

Several Descriptions retrench the Gums from the Composition

position of this Unguent, and deprive it thereby of what it has the most essential; others make two Sorts of *Unguent of Marshmallows*; one without Gums, which they call simple, and the other with Gums, which they call composed; but it seems to me more proper to prepare but one Sort, and to make it as good as possible.

Unguentum Aureum. ℞. *Olei communis*, ℔ ij. ß. *Ceræ Flavæ*, ℔ ß. *Terebenthinæ Claræ*, ℥ ij. *Resinæ, Colophoniæ, ana* ℥ j. ß. *Thuris, Mastiches, ana* ℥ j. *Croci*, ʒ j.

The Wax, Rosin, and Colophone, must be put to melt in the Oil; the Mixture strained through a Linen Cloth, to separate the Dirt; mixing afterwards with the Colature the Turpentine, and lastly the Frankincense, Mastich, and Saffron, after they have been reduced, each by itself, into a subtle Powder; for an Unguent to be kept for Use.

Virtues.—This Unguent is proper to incarnate and cicatrise Wounds, the Acrimony thereof it softens. It can be used also for the Pains of the Joints.

This Unguent has borrow'd its Name from its Colour, which is almost like that of Gold.

Unguentum Neapolitanum Simplex. ℞ *Argenti vivi* ℥ vj ß. *Terebenthinæ Venetæ* ℥ iv. *Axungiæ suillæ* ℔ iv.

The Quicksilver must be stirred hard with the Turpentine for six Hours, in a large Brass Mortar, till it be entirely extinguished, mixing with it by Degrees afterwards, the Hog's Lard to make an *Unguent* to be kept for Use.

Virtues.—This Unguent is proper for the Itch, Ring-worms, and other itching of the Skin: It kills the Lice, Fleas, Bugs, and Crab-lice, by anointing the Parts of the Body with it, forbearing to anoint the Breast and Stomach, where it could cause some Alteration, because of the Quicksilver which enters into it. The Bedsteads are rubbed with it to kill the Bugs.

This Preparation of *Unguent* is too weak to excite a Salivation; though it is proper to examine the Constitution of those, on whom it is employ'd; for if they are weak and easy to be moved, it could excite in them a slight one. To each Ounce of *Unguent* there is a Drachm of Quicksilver. The *Unguentum Neapolitanum* has more Strength than the Pomatums, which contain either the Precipitates or Sublimates of Mercury; because the Quicksilver employ'd in it being not impregnated with any Acid, is more capable to soften the Salts or acrimonious Humours which cause the Itch and Ring-worms, than the Preparations of Mercury, the Pores thereof are in Part, full of Acids; but as this *Unguent* has a very bad Smell and Colour, the Patient chuse to have it cured slowly with a Pomatum, rather than soon by means of this *Unguent.*—Here follows the Description of a Pomatum without Smell, which produces a good Effect.

A *Pomatum for the Itch.*—Mix together four Ounces of Hog's Lard, washed several Times, and half an Ounce of white Precipitate of Mercury, for a Pomatum.

Unguentum Neapolitanum quadruplicatum mercurio. ℞ *Axungiæ suillæ* ℔ ij. *Argenti vivi* ℔ ℥ iv. *Terebenthinæ claræ* ℥ iv. *Olei Laurini* ℥ ij. *de Spica, Styracis liquidæ ana* ℥ j.

The Quicksilver must be stirred hard in a large Brass Mortar with the Turpentine, the liquid Storax, and the Oils for ten or twelve Hours, or till it be entirely extinguished, and mixing afterwards by Degrees the Grease with it, for an *Unguent* to be kept for Use.

Virtues.—This *Unguent* is proper to excite Salivation, and to cure the Pox, by anointing gradually the Feet, the Legs, Thighs, lower Abdomen, Back-bone, Neck, Arms, and Hands, as explained at large in my Treatise of Chymistry and Surgery.

Unguentum Enulatum. ℞ *Radicis Enulæ Campanæ* ℔ ß. *Argenti vivi, Terebenthinæ claræ, Olei Absinthii, ana* ℥ iij. *Axungiæ suillæ* ℔ ij. *fiat Unguentum*, S. A.

Virtues.—This *Unguent* is proper for the Itch, Ring-worms, and for other Itchings of the Skin.

Unguentum Nicotianum. ℞ *Foliorum Nicotianæ Contusorum, Axungiæ Porci, ana* ℔ ij. *Succi Nicotianæ expressi* ℔ ß.

Let the Tobacco-Leaves, newly gathered in their Vigour, be well pounded in a Mortar, mix them with the Hog's Lard in a glazed earthen Pot, cover the Pot, and leave the Matter in Digestion for three Days; draw afterwards by Expression half a Pound of Juice of other Tobacco-Leaves, after they have been well pounded, pour that Juice into the Pot with the other Drugs, boiling afterwards gently the Mixture, to the Consumption of the aqueous Humidity, stirring very often the Matter with a wooden Spatula; and having strained it with Expression, mix in the Colature, when almost cold, two Ounces of round Aristolochia in Powder for an *Unguent* to be kept.

Virtues.—This *Unguent* cleanses the Ulcers without Pain, digests the Tumours, cures the Ring-worms, Itch, and other Itchings of the Skin.

Unguentum Opthalmicum, seu de Tuthia. ℞ *Butyri recentis multoties aqua Euphrasiæ abluti* ℥ iv. *Tuthiæ præparatæ* ℥ ß.

The Fresh Butter must be washed five or six Times in the Water of Eye-bright, till it has lost its Smell, and then put to drain, to separate the Water from it as much as possible, mixing it afterwards exactly with the prepared Tutty, for an *Unguent* to be kept for Use.

Virtues.—This *Unguent* is proper for the itching of the Eyes, which it cleanses of the Wax, and stops the Fluxions thereof; a little Bit of it is put in the Corner of the Eye in going to Bed, and the Eye-lid anointed gently with it.

Unguentum Oxydorcicum. ℞ *Butyri recentis puri* ℥ ij. *Mellis Rosati* ℥ j. *Lapidis Calaminaris præparati* ʒ vj. *Tuthiæ præparatæ* ʒ i ß. *Vitrioli albi* ℈ j.

The Fresh Butter must be washed several Times in Plantain Water, and after it has been well drained, you'll mix with it the Honey of Roses, the Powders of Tutty, of Lapis Calaminaris, and of Vitriol, to make an *Unguent*, which must be kept for Use.

Virtues.—This Unguent is proper to cleanse the Eyes, and to dry the little Ulcers which are formed in it.—It strengthens the Sight.

The Word *Oxydorcicum* signifies proper for the *Eye.*—This *Unguent* cannot be kept long without growing rank, because of the Honey which enters the Composition thereof.

Unguentum Pomatum Officinale. ℞ *Radicum Ireos Florentiæ* ℥ iij. *Santali Citrini, Benzoini, ana* ℥ j. *Styracis* ʒ iij. *Ligni Rhodii, Florum Lavendulæ, ana* ʒ j. *Acori veri, Caryophyllorum, ana* ʒ ß.

The Drugs, after they have been coarsely pounded, must be put in a pretty large Sack of fine Linnen Cloth, and that Sack put in an earthen Jug with twelve Golden Pippins pared, and the Core taken out, and cut in small Pieces; and with three Pound of Hog's Lard, and a Pound of the Fat of a young Kid, separated from their Membranes or Skins, and well washed, mixing well all these Drugs together, and having poured upon them half a Pint of Rose-Water, and four Ounces of Water of Orange-Flowers, cover the Jug, and place it in a boiling Balneo Mariæ, where it must be left ten or twelve Hours, or till the aqueous Humidity be almost entirely consumed; then strain the *Pomatum* with Expression, and having purified it of its Fæces, keep it for Use.

Virtues—This *Pomatum* is for the Heats of the Nose and Mouth, and for the Chaps of the Lips, Breasts, Hands and Feet, and to soften the Skin.

Pomatum borrows its Name, and Part of its Virtues from the Apples, though there are several Sorts of *Pomatums* prepared without Apples. The *Pomatum of Jessamin* is but Hog's Lard washed, and impregnated with the Smell of the Flowers of Jessamin by several Sublimations; it is more used for Perfumes than for Remedies; it may be employ'd to soften and resolve.—The red Pomatum used for the Aridity of the Lips is composed in this Manner: Take three Ounces of the Fat of a Loin of Veal, that nearest the Kidney, separate it from the Skin, melt it, strain it, and having washed it in several Waters and drained it, liquify it over a very little Fire, with the same Quantity of white Wax, two Ounces of Oil of the four large Cold Seeds extracted without Fire by Expression, and half an Ounce of Sperma Ceti; add to it a little Bit of the Root of Orcanette bruised, leaving the melted Matter about half an Hour over a little Fire that it may grow red, strain it afterwards through a Linnen Cloth, over a glazed earthen Plate very clean, and having left it to grow cold without moving it, you'll cut it into Lozenges.—The Lips are anointed with this *Pomatum* to soften them.—Another

Pomatum or *Lip-Salve*, may be made without Fire with yellow Wax rasped and beaten a long Time, in a Marble Mortar, with ripe Grapes pared and stoned, and a sufficient Quantity of Oil of Sweet Almonds extracted without Fire.

Unguentum Agrippæ, seu Diabryonias. ℞ *Radicum recentium Bryoniæ* ℔ ß. *Cucumeris Asinini* ℥ iij. *Scillæ* ℥ j ß. *Radicis Ireos* ʒ vj. *Ebuli, Filicis Ari, ana* ℥ ß. *Olei Olivarum* ℔ j ß. *Ceræ Citrinæ* ℥ iv. ſs.

The Roots of Briony and Iris muſt be raſped, and the other Roots bruiſed, and afterwards put in a Jug; and having poured upon them the Oil of Olive, the Veſſel ſhall be ſtopp'd and placed in the Horſe-dung, or hot Balneo Mariæ, where it muſt be left twenty-four Hours in Digeſtion, ſtraining the Oil afterwards with Expreſſion, and having purified it of its Fæces, melting the Wax in it, to make an *Unguent* to be kept for Uſe.

Virtues.—This *Unguent* is proper to reſolve the Tumours; the Belly is anointed with it for the Hydropſy, and the Region of the Spleen for the Obſtructions of that Viſcera: It is applied on the Stomach, and on the Navel to looſen the Belly.

All the Roots which enter the Compoſition of the Unguent of Agrippa being penetrating, purgative and aperitive, ſome Part of their Virtue can paſs through the Pores and excite a Rarifaction in the Humours, which produce a purgative Effect; but it is only in Perſons eaſy to be moved.

Unguentum Stypticum. ℞ *Olei communis* ℔ ij. *ex decocto Myrtillorum ſiccorum* ℥ xv. *Sorborum emmat.* ℔ ß. *Aluminis rupei* ℥ iij. *Miſceantur omnia, & coquantur ad decoctorum conſumptionem, deinde colentur, & in oleo fæcibus liberato liquentur igne lento, Ceræ albæ* ℥ v. *Semirefrigeratis ſequentia pulverata permiſceantur, nucum cupreſſi, Myrtyllorum, Baluſtiorum, Aciorum uvæ, Corticum Granatorum & Glandium, Oſſis e Crure Bovis calcinati, Granorum Sumach, Maſtiches, Acaciæ, Aluminis uſti, Corticis mediani caſtanearum, ana* ʒ vj.

The dried Myrtyls muſt be bruiſed, the Alum pounded, and all together put into a glazed Pot, and having poured upon them the Decoctions and the Oil, and the whole well mixed together, the Pot muſt be covered, and the Matter boiled over a ſlow Fire to the Conſumption of the Decoctions, ſtraining afterwards the Oil, and having left it to ſettle, it ſhall be poured by Inclination to depurate it of its Fæces, putting afterwards the Wax to melt in it; and mixing exactly in the Unguent, when half cold, the Powders; which Unguent muſt be kept for Uſe.

Virtues.—This Unguent is proper to prevent Ruptures and Abortion, it ſtops Vomiting, and ſtrengthens and reſtores the Parts after a Delivery.

Styptick Unguents are good for Ruptures, but it is the ſafeſt Way to employ Bandages with it.

Unguentum de Styrace. ℞ *Styracis Liquidæ, Gummi Elemi, Ceræ flavæ, ana* ℥ viij ß. *Colophoniæ* ℥ ij. *Olei nucum* ℔ ij.

All the Ingredients muſt be melted together in a Baſon over a moderate Fire, ſtraining afterwards the Matter through a Cloth to purify it of its Dirt, and leaving it to grow cold, ſtirring it from Time to Time leſt it ſhould grow lumpy.

Virtues.—This Unguent of Storax is deterſive, cleans the ſcorbutive Ulcers, ſtrengthens the Nerves, and reſolves cold Tumours.

Unguentum defenſivum. ℞ *Olei roſati* ℔ j. *Ceræ flavæ, Boli Armenæ, ana* ℥ iij. *Sanguinis Draconis* ℥ j. *Aceti vini acerrimi* ℥ j. ß.

The Wax ſhall be cut into ſmall Pieces, and melted in the Oil of Roſes, then having taken the Baſon off the Fire, and the Matter being half cold, you'll mix in it with a wooden Spatula, the Bol and Dragon's Blood, in Powder, incorporating with it afterwards, and by Degrees, the Vinegar, ſtirring the *Unguent* in a Mortar.

Virtues.—This *Unguent* ſtops the Fluxions, and hinders them from falling on the afflicted Parts; it alſo ſtrengthens and dries.

Unguentum Contra Vermes. ℞ *Olei Abſinthii* ℔ ß. *Succorum foliorum perſicorum, Tanaceti, ana* ℥ j. *Ceræ* ℥ j ß. *Aloes* ℥ ij. ß. *Centaurii minoris, Corallinæ, Seminis contra Vermes, ana* ʒ j ß. *f. Unguentum*, S. A.

Virtues.—This *Unguent* is proper to kill the Worms, by anointing the Navel with it.

If a Drachm of Mercurius Dulcis was added to this Compoſition, the *Unguent* would ſtill be more efficacious.

Unguentum de Rapis pro Pernionibus. ℞ *Olei Raparum* ℥ iv. *Reſinæ Pini, Ceræ flavæ, Terebenthinæ, Pinguedinis arietis, ana* ℥ j.

You'll put to melt together over a moderate Fire, in the Oil of Radiſhes, or Turnip-Seeds, extracted by Expreſſion, the Turpentine, Mutton-Fat, and Roſin, ſtirring the Matter till cold; which is the *Unguent of Radiſh.*

Virtues.—This Unguent is proper for Chilbains.

The Oil of Hen-bane is better for Chilbains than that of Radiſh.

Unguentum nervinum Jacobi le Mort, reformatum. ℞ *Unguenti Althææ* ℥ iij. *Ceræ* ℥ j ß. *Pinquedinis Anſeris* ℥ ij. *Canis, Felis, ana* ℥ j. *Olei Chamomillæ, & Lumbricorum, ana* ℥ ij. *Laurini, Spicæ, ana* ℥ j. *Olei Euphorbii, & Petrolei, ana* ℥ ß. *fiat Unguentum*, S. A.

Virtues.—This *Unguent* is proper to ſtrengthen the Nerves, for the Convulſions, and the Palſy, by anointing the Back-bone, and the afflicted Parts with it.

Unguentum Anodinum ad Hemorrhoides. ℞ *Oleorum Roſati & Violati, ana* ℥ iij. *Ceræ* ℥ j ß. *Amyli, Lythargyri præparati, Tragacanthi, ana* ʒ iij. *Capburæ, Opii, ana* ℈ ij. *Albumina ovorum*, No. ij.

The Litharge and Starch muſt be pounded together, the Gum Adraganth by itſelf in a Mortar warm; the Opium bruiſed in a Mortar, and pulverizing it with a little of the other Powder, melting afterwards the Wax cut in ſmall Pieces, in the Oil, and mixing the Powders with it off the Fire; and the Unguent being cold, the Whites of Eggs, and the Camphire diſſolved in a little Oil of Roſes muſt be incorporated with it, to make of the whole an *Unguent* to be kept for Uſe.

Virtues.—This *Unguent* is proper to ſoften and dry, it appeaſes the Pains, and temperates the Inflammations; it is applied on the Hemorrhoides.

Unguent for Burns.—Take two Pounds of Oil of Turnip-Seed, Mutton-Fat, and yellow Wax, of each three Pounds; and ſix Ounces of Ceruſe, the Ceruſe muſt be pounded, and the Wax and Fat having been melted in the Oil of Turnip-Seeds, the Powders muſt be mixed in the Liquor off the Fire, for an Unguent to be kept for Uſe.

Virtues.—This *Unguent* is proper to dry Burns when broken, and other Wounds.

Another Unguent for Burns of A. Mynſicht.—Take two Ounces of Whites of Eggs, and an Ounce of Oil of Olives; mix the Whites of new-laid Eggs, and the Oil in an earthen Diſh, ſtir them well together with a wooden Spatula, till they be well mixed, and are formed into an Unguent or Nutritum.

Virtues.—This *Unguent* is excellent for Burns; the Author orders to anoint the burnt Part with it ſeveral Times a Day, without applying any Cloth over it, till the Cruſt formed on the Top falls of itſelf.

Another *Unguent for Burns.*—Crumble four Ounces of Horſe-dung newly voided, and mix with it one Pound of Hog's Lard in a Frying-pan; fry that Mixture over a moderate Fire about a Quarter of an Hour, ſtirring the Matter all the while with a Spatula, and ſtraining it afterwards while hot, with a ſtrong Expreſſion; the Colature is the *Unguent.*

Virtues.—This *Unguent* is excellent for all Sorts of Burns, by applying it upon them with a Piece of brown Paper.

Unguentum de Calce. ℞ *Calcis ſepties ad minimum ablutæ & ſiccatæ, Ceræ, ana* ℥ iij. *Olei Roſati* ℔ j. *Miſce, fiat unguentum*, S. A.

Virtues.—This Unguent is emollient and dries, it is employed for Burns, to cicatriſe old Ulcers, after they have been cleanſed of their Corruption, and are almoſt full of Fleſh.

Unguentum de Calce viva A. Mynſicht. ℞ *Calcis vivæ* ℥ iv. *Auripigmenti* ℥ j ß. *Radicis Ireos Florentinæ, Sulphuris Citrini, Nitri, ana* ℥ ß. *Lixivii Stipitum fabarum fortis* ℔ ij.

You muſt burn a good Quantity of dried Bean-Stalks, take the Aſhes thereof, and pour upon them as much common Water as is neceſſary to make a ſtrong Lixivium, which muſt be filtrated, and two Pounds of it taken,

ken, wherein the Quick-lime is put to macerate in a glazed earthen Pot for some Hours; and having added the other Drugs to it, very well pounded, you'll put the Mixture to boil over a moderate Fire, to the Consistence of a liquid Paste, or of Unguent, adding to it then some odorous Oil.

Virtues.—This Unguent is a depilatory, it carries the Hair off any Part of the Body it is applied to. When it has done its Effect, the Part where it was applied must be anointed with Unguent of Roses, or Pomatum, to carry off the Acrimony left behind.

Unguentum ad Carnositates in meatu Urinario natas. ℞ *Mercurii præcipitati Rubri*, ℥ j. *Aluminis usti*, ℥ ß. *Unguenti albi Rhasis*, ℥ iij.

Let the red Precipitate and burnt Allum be well pounded, mix them exactly in the Unguent of *Ceruse*, and keep the Mixture for Use.

Virtues.—This Unguent is proper to consume the Carnosities, which sometimes grow in the Penis after a Clap; a little of it being put at the End of a Wax Candle to be introduced into the Part. When the Unguent has produced its Effect, and the Wax Candle is drawn out, another is to be introduced into it, anointed with Unguent of Roses, or the following one.

Oleum post ablatam Carnositatem, applicandum. ℞ *Olei Amigdalarum dulcium sine igne extracti*, ℥ ij. *Terebenthinæ Claræ, Cerusæ pulveratæ, ana* ℥ ß. *Cum modico Ceræ albæ misceantur, & fiat Unguentum.*

Virtues.—This Unguent softens and dries the Scars which the preceding Unguent has made.

Unguentum ad facilitandum Partum. ℞ *Axungiæ Gallinæ*, ℥ vj. *Porci*, ℥ ij. *Butyri recentis, Olei Irini, ana* ℥ j. *Trochiscorum de Myrrha*, ℥ ß. *Radicis Aristolochiæ rotundæ*, ʒ ij. *Cinnamomi, Styracis, ana* ʒ j.

The Oil, Grease, and Butter must be liquified together over a little Fire; mixing afterwards in it the other Drugs reduced into a subtle Powder, stirring the Mixture with a wooden Spatula, till the Unguent be cold.

Virtues.—This Unguent is proper to facilitate a Delivery, and to expel the After-birth, by anointing the lower Belly with it, in the Region of the Abdomen, and in the Vagina, when the Woman is in Labour.

Unguentum de Plumbo. ℞ *Plumbi usti, Lithargyri, ana* ℥ j. *Cerusæ, Antimonii, ana* ℥ ß. *Ceræ flavæ*, ℥ ij. *Olei rosati*, ℥ ix.

The Litharge, Antimony, and *Ceruse*, must be well pounded together, and after they have been mixed with the burnt Lead, the whole Mixture shall be mixed with the Oil and Wax melted together, for an Unguent to be kept for Use.

Virtues.—This Unguent is detersive, deficcative, and proper for Ulcers.

Unguentum fuscum Nicolai. ℞ *Olei*, ℔ j. ß. *Ceræ novæ*, ℥ iv. *Picis Græcæ, Nigræ, Sagapeni, ana* ℥ ij. *Mastiches, Galbani, Thuris, Terebenthinæ, ana* ℥ j.

The Mastich and Frankincense shall be pounded together in a Mortar, moisten'd at Bottom with some Drops of Water, to hinder the Gums from sticking to it; and having dissolved the Sagapenum, and Galbanum in Vinegar, and strain the Dissolution, the Humidity thereof must be put to consume to a solid Consistence; liquifying in the Oil over a little Fire, the Wax, Pitch, and Turpentine, straining the Solution, and mixing in it afterwards the Gums for an Unguent, of a brown Colour, which must be kept for Use.

Virtues.—This Unguent mundifies and cleanses Wounds and old Ulcers; and provokes the Suppuration of Tumours, when applied upon them.

Unguentum de Terebenthina. ℞ *Terebenthinæ Claræ*, ℥ j. *Mastiches, Myrrhæ, Olibani, ana* ℥ ß. *Vitellos ovorum*, No. iij.

The Myrrh, Olibanum, and Mastich, must be well pounded together, and mixed afterwards with the Turpentine, and having added to it the Whites of Eggs, the Mixture must be stirred with a wooden Spatula, and the Unguent which is digestive, kept for Use.

Virtues.—This Unguent disposes the Matters for Suppuration; it is applied in Wounds, newly made, on Pledgets, and Tents are anointed with it.

Unguentum Jovis. ℞ *Liquiritiæ recentis*, ℔ j. ß. *Florum Violarum, Papaveris albi, Cicutæ, ana man.* iij. *Hyoscyami, Verbenæ, Parietariæ, Sambuci, Geranii, ana man.* j. *Sempervivi majoris, man.* j. ß.

The Liquorice must be bruised and shred, the Herbs cut and pounded in a Marble or Stone-Mortar; and the whole mixed with seven or eight Pounds of fresh Butter, or as much as is wanted to make a Paste; then put the Matter in Digestion, in a Pot covered for four Days, which elapsed, you'll boil it over a slow Fire, to the Consumption of almost all the Humidity of the Herbs; straining it afterwards with a strong Expression, and having left the Unguent to depurate of its Fæces, which will precipitate at the Bottom, you'll keep it for Use.

Virtues.—This Unguent is proper for the Inflammations, to resolve Tumours, which proceed from a too subtle Blood, and for the Heats of *Venus*, by anointing the afflicted Parts with it; it can also be applied on the Cancers of the Breast.

Unguentum ex Gayaco, Mercati. ℞ *Ramenti Gayaci*, ℔ ß. *Cucumeris agrestis, Fumariæ, Verbasci, ana man.* iij. *Olei Veteris & Vini albi, ana* ℔ j.

Pound together in a Mortar the wild Cucumbers, Fumitery, and Verbascum, putting them afterwards in a glazed earthen Pot, and having mixed with them the Raspings of Gayac, and pouring over the Mixture the Wine and Oil, cover the Pot, and place it on hot Embers, where the Matter must be left three Days in Digestion; and the Infusion boiled afterwards over a gentle Fire, stirring it with a Spatula, to the Consumption of the Wine, and having strained the Matter with a strong Expression, and left the Colature to settle, add to it, common Diachylon, and the Unguents of *Agrippa*, and of Althæa, of each half an Ounce, for an Unguent, which must be kept for Use.

Virtues.—This Unguent is proper to soften Tumours, and Venereal Nodosities; to resolve cold Humours, and appease Pains; by anointing the afflicted Parts with it.

An Unguent to make the Hairs grow.—Take four Ounces of Bear's Grease; an Ounce and half of Laudanum; an Ounce of Honey; of dried Abrotanum, and Balsam of *Peru*, of each six Drachms; three Drachms of dried Roots of Rushes, and two Drachms of the Oil of Nutmegs; pound together the Roots of Rushes, and the Abrotanum; and the Labdanum by itself; melt together the Bear's Grease, Balsam of *Peru*, and the Oil of Nutmegs, by a slow Fire, then mix the Powders with it, and lastly the Honey, to make an Unguent.

Virtues.—This Unguent is proper to make the Hairs grow, either by anointing the Head with it or the Teeth of the Comb.

LINIMENTS.

A *Liniment for the Piles.*—Take of the Pulp of Millepedes, Unguentum Populeum, Oil of Eggs, of each an Ounce; and half a Drachm of Extract of Opium.

You'll pound the Millepedes alive, in a Marble or Stone Mortar, and strain them afterwards through a Sieve turned upside down, to extract the Pulp thereof; then you'll mix this Pulp with the Extract of Opium, and incorporate the Mixture with the Unguent Populeum, and the Oil of Eggs, stirring the whole Mixture a long while together in a Mortar, to make a Liniment.

Virtues.—This Liniment is proper to appease the Pains of the Piles, being applied upon them.

The Opium which enters this Composition, fixes and stops the Fermentation which causes the Pain, but it is but for a few Hours, for it often returns stronger than before; therefore I would retrench the Opium, and employ only the other Drugs.

Another *Liniment for the Piles.*—Take two Drachms of Flower of Sulphur, half an Ounce of Oil of Eggs, and an Ounce of Oil of Roses; mix these Drugs together for a Liniment, which must be applied on the Piles.

Aliud Linimentum. ℞ *Salis Saturni*, ℥ ß. *Oleorum Chamomillæ & Rosati, Succi Umbilici veneris, ana* ℥ ij. *fiat ex arte Linimentum ad formam Nutriti.*

Linimentum aliud. ℞ *Olei lini, Pulpæ Cepæ sub Cineribus Coctæ, ana* ℥ ij. *Ceræ albæ*, ℥ ß. *Misce & fiat ex arte Linimentum.*

Note, That all these different Liniments are very proper to appease the Pains of the Piles.

Linimentum ad Herpetes. ℞ *Axungiæ Porci, Butyri recentis, ana* ℥ iv. *Succi lapathi acuti*, ʒ ij. *Olei Hyoscyami expressi,*

expressi, Mercurii præcipitati rubri, Vitrioli viridis, ana ℥ j. *Aluminis usti,* ℥ ß. *Viridis Æris, Boracis, ana* ʒ ij.

Put the Hog's Lard and Butter to boil with the Juice of Lepathum, to the Consumption of the Juice, strain the Matter, and mix with it the Oil of Seed of Henbane, extracted by Expression, incorporating with the Mixture, when almost cold, the other Ingredients well pounded, to make a Liniment, which must be kept for Use.

Virtues.—It is proper to cure the Itch, Ring-Worms, and other Itchings of the Skin.

A *Liniment to hinder the Face from being scarred by the Small Pox.*—Take Ceruse, and prepared Litharge of Gold, of each a Drachm; the Oils of the four large cold Seeds, of sweet Almonds, and of Eggs, of each half an Ounce.

Put in a Brass Mortar the Litharge and Ceruse, and mix with it by Degrees the Oils, and about six Drachms of the Waters of Plantain and of Solanum, nourishing and agitating the Matter, to make of it a Nutritum, which must be kept for Use.

Virtues.—This Liniment is proper to take off the Cicatrices, and fill up the Pits left by the Small Pox on the Skin; by anointing the Face, Neck, and Hands with it, when the Small Pox begins to dry.

Linimentum ad arcendum vomitum. ℞ *Olei nucis Moschatæ expressi, Aquæ Reginæ Hungariæ, ana* ℥ ß. *Mastiches pulverati,* ʒ ij. *Olei Stillatitii absinthii,* ʒ j.

Put the Oil of Nutmeg to melt over a little Fire, and when half cold, mix with it the Oil of Wormwood, the Mastich reduced into a very subtle Powder, and the *Hungary* Water, to make a Liniment, which must be kept in a Pot well cover'd.

Virtues.—This Liniment is proper to stop Vomiting, and to strengthen the Stomach, by applying it on the Region of that Viscera.

Linimentum somniferum. ℞ *Unguenti Rosati & Populei, ana* ℥ j. *Olei seminis Hyoscyami expressi,* ʒ ij. *de Laudano,* ʒ.

Stir all the Ingredients together in a Mortar till they be well mixed, and keep the Liniment for Use.

Virtues.—It is proper for the Head ach, and to provoke Sleep, by applying it on the Forehead, and at the Temples.

Linimentum Ischiadicum, M. Charas. ℞ *Catellos, Talpas viventes, ana* No. iij. *Lumbricorum Terrestrium,* ℔ j. *Foliorum Lauri, Rorismarini, Menthæ, Majoranæ, Lavandulæ, Serpylli, & Hyperici, ana man.* j.

Cut the Puppies and Moles in small Pieces, add the Earth-worms to it, and put them all in a pretty large Vessel, with the Bay-Leaves, the Rosemary, Mint, and other Herbs, pounded in a Marble or Stone-Mortar, pouring over the Mixture red Wine, and common Oil, of each three Pints; put afterwards the Matter to boil over a very slow Fire, stirring it from Time to Time, to the Consumption of all the Humidity; then strain the Matter with a strong Expression, and put to melt in the Colature, yellow Wax and Goose Grease, of each ten Ounces, to make a Liniment which must be kept for Use.

Virtues.—It has been confirmed by a vast Number of Experiments, that this Liniment is excellent to appease the Pains of the Sciatica, and of all Sorts of Rheumatisms; in anointing the Parts with it before the Fire, that the Liniment may penetrate better, and reiterating the Unction as often as the Case requires it.

Ceratum album refrigerans. ℞ *Olei Rosati,* ℔ ß. *Ceræ albæ,* ℥ j. ß.

Cut the Wax in small Pieces, and put it in a glazed earthen Dish, or in a Bason with Oil of Roses, place the Vessel over a very slow Fire, and so soon as the Wax is melted, take it off, and stir the Matter with a wooden Spatula, till it be congealed, then pour some cold Water over it, and continue to stir the Mixture till the Water be well incorporated with the Cerat, pouring afterwards a greater Quantity of Water upon it, and washing it five or six Times, changing of Water each Time till it be very white, and then keep it for Use.

Virtues.—This Cerat is proper to appease Heat, to cure Inflammations, to soften the Acrimony of the Piles, of the Groin, Breasts, and Ring-Worms, and for Itchings, by rubbing the afflicted Parts with it.

Note, That a *Cerat* should never be made but in a small Quantity; reiterating often the Composition; since as it grows old it loses its Virtue.

Ceratum Polychrestum. ℞ *Olei Olivarum,* ℔ j. *Lithargiri subtilissimé pulverati,* ℥ iv. ß. *Ceræ novæ,* ℥ j. ß. *Terebenthinæ Claræ, Thuris, ana* ℥ j. *Gummi Ammoniaci, Bdellii, ana* ʒ vj. *Galbani, Opoponacis, ana* ℥ ß. *Myrrhæ, Lapidis Calaminaris, Aristolochiæ longæ & rotundæ, ana* ℥ ij.

The Aristoloches having been pounded together; the Myrrh, Bdellium, Frankincense, Galbanum, and Opoponax together; and the Litharge, and Lapis Calaminaris, together; put these two Drugs to boil together in a sufficient Quantity of Water, stirring continually the Water with a wooden Spatula, till it has acquired the Consistence of Unguent, mixing then with it the Gums reduced into Powder, and the Wax, which will melt in it in a very short Time; then take the Vessel off the Fire, and when the Cerat will be half cold, mix exactly with it the Turpentine, and the Powders of Aristoloche, to make a Cerat, which is to be kept for Use.

Virtues.—This Cerat is emollient, digestive, suppurative, and employ'd to cicatrise Wounds.——It is called *Polycrest*, because it can serve for several Uses.

Ceratum seu Cataplasma majoris Compositionis ad Commotionem Cerebri, vigonis. ℞ *Farinæ Fabarum,* ℥ iv. *Furfuris,* ℥ iij. *Foliorum Absinthii, man.* j. *Florum Chamemeli, & Meliloti, ana man.* ß. *Anethi, Betonicæ, Matrisylvæ, ana pug.* ij. *Corticis Granatorum, Foliorum mali Granati, Myrtillorum, Rosarum Rubrarum, ana* ℥ ß. *Seminum Anisi, & Coriandri, ana* ʒ iij.

The Beans, Bran, Pomegranate's Peel, Seeds, Leaves, and Flowers, must be pounded together, and the Powder put in a Bason, mixing with it about two Pounds of liquid Sapa, or a sufficient Quantity thereof to incorporate it, putting this Mixture to boil over a slow Fire, stirring it continually with a wooden Spatula, till it has acquired a solid Consistence, adding to it, towards the End of the Operation, two or three Ounces of Sack-Wine, and mixing with it afterwards of white Wax, melted in the Oils of Anethum, Camomile, Myrtle, and Roses, of each ten Drachms; stirring the Mixture for some Time over the Fire, that the Drugs may unite well together, then putting it to cool, stirring it continually till it be but lukewarm; and mixing then with it five Drachms of Calamus Aromaticus well pounded, and a Scruple and eight Grains of Saffron, reduced also into Powder, to make a Cerat or Cataplasm.

Virtues.—This Cerat is proper to soften the Tumours of the Head, to dissipate the Pituita, and to strengthen the Brain, by applying it on the Head.

Ceratum Barbarum, Galeni. ℞ *Terebenthinæ, Ceræ, Resinæ Pini, Bituminis Judaici, ana* ℔ ß. *Olei,* ℥ iv. *Lithargyri,* ʒ v. *Cerussæ, Æruginis, ana* ʒ ij. ß. *Opoponacis,* ʒ j. ß.

The Pitches and Wax must be melted in the Oil; and the Bitumen Judaicum, the Litharge, Ceruse, Verdigrease, and Opoponax, having been reduced into a subtle Powder, they shall be mixed in the melted Matter on Proportion as it grows cold, to make a Cerat, which must be kept for Use.

Virtues.—This Cerat is very proper for what is called green Wounds, for the Scirrhe's, and the Gout; it is detersive, emollient, resolutive, and cicatrises Wounds.

Note, That there is not Oil enough in this Composition for a Cerat, therefore double or triple the Quantity thereof should be employ'd in it; otherwise it is rather a Plaister than a Cerat.

Ceratum Diapyritis, Galeni, reformatum. ℞ *Olei Veteris,* ℔ ij. *Ceræ Citrinæ,* ℥ iij. ß. *Terebenthinæ, Pyritis præparati, ana* ℥ iij. ʒ j. *Bituminis Judaici, Lithargyri, ana* ℥ ij. ß. *Aluminis,* ʒ xv. *Resinæ, Gummi Ammoniaci, ana* ℥ j. ß. *Galbani, Aloes, ana* ℥ j. *Æruginis Æris, Thuris, ana* ʒ v. *fiat Ceratum, S. A.*

Virtues.—This Cerat is proper for inveterate Ulcers, and Fistula's, it is detersive, emollient, and resolutive.

Note, That the Flints give but very little Virtue to this Cerat, though it borrows its Name from them.

PLAISTERS.

The antient *Greeks* called Plaisters *Emplasta*, of the *Greek* Verb ἐμπλάτειν, which signifies to form in a Mass, to wrap, to stop; but the modern *Greeks* have pronounced *Emplastra*, and the *Latins* have followed them.

Plaister is the most solid Composition of all those which are applied outwardly; it was invented of that Consistence, that remaining longer fastened on the Parts of the Body, the Remedies it is composed of should have Time enough to produce their Effects. The Drugs used to give a Body or Consistence to *Plaisters*, are most commonly *Wax*, *Rosin*, *Pitch*, *Gum*, *Grease*, *Litharge*, and other Preparations of Lead; which being sulphurous, is easily dissolved in boiling with the Grease and Oils, which are Sulphurs, and gives them a hard Consistence.

Emplastrum Diachalciteos, seu Palmeum, seu de Lithargyro, ℞ *Decocti tenuiorum ramorum Palmæ, vel Quercus, Lithargyri auri præparati, Olei communis, ana* ℔ iij. *Axungiæ suillæ* ℔ ij. *Chalcitidis, vel Vitrioli ad Rubedinem calcinati, & in portione decocti diluti* ℥ iv.

You'll make a strong Decoction of the tendereſt Branches of Palm-tree, or of Oak; you'll strain the Decoction, and put in a Bason the prepared Litharge, dissolving it with the Oil, and mixing with it about half of the Decoction, putting the Matter to boil, and stirring it continually with a wooden Spatula, lest the Matter should stick at the Bottom; after about an Hour of Coction, the Hog's Lard and the rest of the Decoction must be added to it, except about six Ounces of it, in which shall be dissolved the calcined Vitriol reduced into a very subtile Powder, continuing to make the Matter boil till it has acquired a Consistence of Cerat, mixing then the dissolved Vitriol in it, and continuing the Coction to the Consistence of a Plaister; take then the Bason off the Fire, stirring the *Plaister* till it be almost cold, and forming it afterwards into Magdaleons, rolling it with the Hands wetted with Water, or Decoction of Palm-tree.

Virtues.—This *Plaister* is good to cleanse and dry Wounds and Ulcers.

This *Plaister* borrows its red Colour from the Colchotar; it could be made white by substituting to the Colchotar, half its Weight of green Vitriol. In the Decoction of the *Plaister*, the Litharge, which is a rarified Lead, must be melted in the Oil and Grease, to give it a solid Consistence; therefore the Matter must boil pretty hard. When the Decoction is consumed, the Matter has done boiling; therefore other Decoction is added to it, to make an End of the Coction, but previously to it, the Bason must be taken off the Fire, and left to cool a little, or the Decoction must be poured gently upon the Matter, for the watery Humidity which the Heat forces to rise, being embarassed by the ramous Particles of the Oil, makes the Matter fly out with Impetuosity. If the Quantity of the Decoction prescribed was not sufficient to finish the Coction of the Plaister, more of it should be used; but none must remain in the Plaister, for the watery Humidity would render the Operation imperfect, and hinder afterwards the Plaister from spreading well on Leather or Cloth; therefore if the Plaister should boil still, though it was solid, and done, it would be a Mark that there remain in it yet some Part of the Decoction which must be quite consumed, leaving even the Plaister over a little Fire for about half an Hour afterwards, continuing to stir it hard with the wooden Spatula, to dry it, and render it more emplastick. It is proper to make use for this Operation of a pretty large Bason, for the Matter rarifies much in boiling, especially towards the End of the Operation, because being thicker then, the watery Humidity has less Issue to evaporate, and raises the Matter with Violence.

Emplastrum Diachylon Album, seu simplex. ℞ *Olei communis* ℔ iij. *Lithargyri auri præparati* ℔ j ß. *Mucilaginum radicis althæa, Fœnugreci, & Lini, ana* ℔ j.

Three Ounces of Roots of Marsh-mallows newly gathered must be cut in small Pieces, and put in a glazed earthen Pot with two Ounces of Fœnugreek and Lin-seeds, and having poured upon those Ingredients six or seven Pounds of hot Water, the Matter must be left in Digestion till the next Day, and then put to boil gently, till the Liquor becomes thick and mucilaginous, is strained with Expression, and mixed afterwards with the Oil and Litharge in a Bason, and the Bason placed over a pretty strong Fire, where the Matter must boil, stirring it continually with a wooden Spatula, till it has acquired the Hardness of Plaister, and the whole watery Humidity be consumed, which will be known at the Matter having done boiling; you'll take then the Bason off the Fire, and continue stirring till it be half cold, and fit therefore to be formed into Magdaleons.

Virtues.—This *Plaister* is proper to soften, to digest, ripen and resolve.

Emplastrum Diachylon de Gummis. ℞ *Massæ Diachyli simplicis* ℔ iv. *Gummi Ammoniaci, Galbani, Bdellii, & Sagapeni, ana* ℥ j.

The common Method is to dissolve the Gums in Wine, or Vinegar, over a moderate Fire, to strain the Dissolution, and thicken the Colature about the same Size, to the Consistence of Plaister; but as by that Manner of operating the most essential of the Gums is evaporated, I would advise to endeavour, as much as possible, to reduce the Gums into Powder; which may be done, if after they have been well chosen, they are put to dry in the Sun, or at a slow Fire, before they are put in the Mortar.

The Preparation of this Plaister is easy, in whatever Manner the Gums be prepared; for nothing else is to be done, but to melt the Diachylon over a moderate Fire, and mix the Gums with it; if the Gums have been dissolved, they must be put to melt with the Plaisters; but if they be in Powder, they are not to be mixed till the Plaister is half cold, to avoid its being lumpy.

Virtues.—The *Diachylon of the Gums* is the most powerful of all Diachylons, to digest, ripen, and resolve.

Emplastrum de Galbano Crocatum. ℞ *Emplastrum Diachyli simplicis, & de Meliloto, ana* ℥ iij. *Ceræ flavæ* ℥ ij. *Terebenthinæ venetæ* ℥ j. *Galbani in Aceto dissoluti, trajecti, & sufficienter spissati* ʒ vj. *Croci subtilissimé pulverati* ʒ iij.

The Wax cut in small Pieces, the Plaisters, purified Galbanum, and the Turpentine, are melted together over a little Fire, stirring the Matter continually with a wooden Spatula, and when the Matter is almost cold, mixing with it the Saffron in Powder, for a *Plaister*, which must be formed in Magdaleons.

Virtues.—This *Plaister* is emollient, proper to resolve the Hardness of the Matrice, of the Liver, and other Viscera.

Emplastrum de Mucaginibus, Textoris, reformatum. ℞ *Mucaginum Radicis Althææ, Seminis Fœnugræci, & Ficuum, ana* ℥ iv. *Terebenthinæ* ℥ iij. *Resinæ Pini, Medullæ cruris Vituli vel Bovis, Butyri recentis, ana* ℥ ij. *Ceræ citrinæ* ℥ xx.

Let them boil together to the Consumption of the Mucilages, strain them afterwards, and make a *Plaister*.

Virtues.—This *Plaister* is emollient, and proper to resolve Tumors, and to help Suppuration.

Emplastrum de Meliloto reformatum. ℞ *Florum Meliloti siccatorum* ℥ iij. *Radicis Iridis, Seminis Fœnugræci, Foliorum Absinthii siccatorum, Gummi Ammoniaci, Myrrhæ, ana* ℥ j. *Radicum Cyperi, Althææ, Nardi Celticæ, Baccarum Lauri, Florum Chamomillæ, Croci, ana* ℥ ß. *Ceræ Citrinæ, Resinæ, Picis albæ, Sevi Hircini, ana* ℔ j. *Terebenthinæ claræ* ℥ ix.

The Flowers, Herbs, Roots, Seeds and Berries, must be pounded together, the Saffron by itself, after it has been dried between two Papers; and the Gum Ammoniack and Myrrh together; mixing, afterwards, all these Powders together, and putting to melt in a Bason, over a little Fire, the Wax, Rosin, Pitch, the Fat of Rams, with the Turpentine, and having strained the Matter through a Cloth, you'll mix the Powders in it, when half cold, to make a Plaister, which must be formed into Magdaleons.

Virtues.—This *Plaister* is emollient, resolutive, and expels Wind.

Emplastrum Album seu de Cerusa. ℞ *Cerussæ Venetæ, Olei Rosati, ana* ℔ iv. *Aquæ fontanæ* ℔ ij. *vel q. s.*

The Cerusse after it has been reduced into a subtile Powder, by rubbing it on a Sierce turned upside-down, is mixed with the Oil and Water in a Bason, which must be

be placed over the Fire, to make the Matter boil, ſtirring it continually with a wooden Spatula, till it has acquired the Conſiſtence of a Plaiſter, and the Water be conſumed, putting then to melt in it by a ſlow Heat, the white Wax broken in ſmall Pieces, and when the Plaiſter is almoſt cold, it muſt be formed into Magdaleons.

Virtues.—It is deſigned to dry the Wounds attended with Inflammation, as Burns; it is alſo uſed to cicatriſe.

Emplaſtrum de Ceruſa uſta. ℞ *Ceruſæ pulveratæ & olei communis ana partes æquales.*

Two or three Pounds of Ceruſe muſt be reduced into a ſubtile Powder, and mixed with an equal Weight of Oil of Olive, in a pretty large Copper Baſon, which ſhall be placed over a Charcoal Fire, ſmall at firſt, ſtirring continually the Matter to mix it, and increaſing the Fire till the Matter be very hot, pouring then upon it two or three Ounces of White-Wine Vinegar, which will occaſion a very conſiderable Ebullition; the Vinegar being conſumed, the Matter will ſink down, and throw out a great deal of ſtinking Smoak: In that Condition it muſt be ſtirred for ſome Time over the Fire, then new Vinegar added to it as before, continuing thus to make it boil by a ſtrong Fire, adding a little Vinegar to it from Time to Time, till it has acquired a Conſiſtence of Plaiſter, and a black Colour; which when half cold muſt be made into Magdaleons.

Virtues.—This *Plaiſter* of burnt Ceruſe is deterſive, and very deſiccative, proper for Wounds, and old Ulcers, particularly for thoſe of the Legs.

What renders this *Plaiſter* black is, that the violent Action of the Fire rarifies the Preparation of the Lead, and makes it re-aſſume its natural Colour, at the ſame Time it diſſolves that Metal, and mix it intimately with the Oil.

Emplaſtrum de Minio ſimplex. ℞ *Minii* ℔ j ß. *Olei roſarum* ℔ iij. *Aquæ communis q. ſ.*

The Minium muſt be well pounded, and mixed afterwards in a Baſon with the Oil, and about two Pints of Water, making the Mixture to boil very faſt over the Fire, and ſtirring it continually with a wooden Spatula, till it has acquired the Conſiſtence of a *Plaiſter*; and if there was not Water enough to finiſh the Coction, more ſhould be added to it.

Virtues.—The *Plaiſter of Minium* is deſiccative, and proper to cicatriſe Wounds.

Some mix eight Ounces of yellow Wax in this Plaiſter, and uſe it then to expel the Milk from the Breaſts, by applying it upon them.

Emplaſtrum de Minio Vigonis, reformatum. ℞ *Minii* ℔ j ß. *Axungiæ Porci, Sevi vervecini, & vaccini, Olei Roſati, ana* ℔ ß. *Olei Myrtini, unguenti Populei, ana* ℥ iv. *Axungiæ Gallinæ* ℥ ij.

Having mixed all theſe Ingredients together, put them to boil with three Pints of common Water, to the Conſiſtence of *Plaiſter*, adding to it then two Ounces of Roſin, and eight Ounces of white Wax, to make of the whole Mixture a *Plaiſter*, which is to be kept for Uſe.

Virtues.—This Unguent is deſiccative and reſolutive, and is uſed to cicatriſe Wounds.

Emplaſtrum de Betonica. ℞ *Foliorum virentium Betonicæ, Lauri, Plantaginis, Apii, & Verbenæ rectè contuſorum, ana man.* iij. *Reſinæ, Picis albæ, Terebenthinæ venetæ, Ceræ flavæ, ana* ℔ ij.

The Plants having been gathered in their greateſt Strength and Vigour, muſt be well cleanſed and pounded in a Mortar; mean while the Roſin, white Pitch, Wax, and Turpentine, having been melted together in a Baſon over the Fire, the pounded Herbs ſhall be mixed together in the melted Matter, and having made the Mixture boil gently for an Hour, ſtirring it often with a wooden Spatula, the Baſon muſt be taken off the Fire, and the Matter left in Digeſtion in the Cold for three or four Days, which elapſed, you'll put again the Matter to boil, to the Conſumption of almoſt all the watery Humidity, ſtraining it afterwards through a Linnen Cloth, and putting the Grounds very hot to the Preſs, to ſtrain it with a ſtrong Expreſſion, and having ſeparated the Faeces which are found at the Bottom of the Plaiſter when cold, you'll place it again over a little Fire to liquify it, mixing then exactly with it, with a wooden Spatula, Maſtich, and Olibanum, very well pounded, of each two Ounces, for a *Plaiſter* which muſt be kept for Uſe.

Virtues.—The *Plaiſter of Betony*, is particularly uſed for the Wounds of the Head; though it may be employ'd likewiſe for the Wounds of other Parts; it is deterſive and cicatriſes.

The *Plaiſter of Betony*, is uſed particularly for the Wounds of the Head, becauſe that Plant is cephalick; but that Quality conſiſts only in the volatile Spirits, which are diſſipated in the Ebullition, or loſe their Volatility in the Glutinoſity of the Plaiſter; therefore I do not ſee why the *Plaiſter of Betony* ſhould be more proper for the Wounds of the Head, than for thoſe of the other Parts of the Body.

Emplaſtrum Cephalicum, aut pro commiſſura, aut ſtephaneon. ℞ *Gummi Hederæ, Tacamahacæ, Styracis, Benzoini, Maſtiches, Olibani, Labdani, ana* ℥ ij. *Cinnamomi, Terebenthinæ venetæ, ana* ℥ j. *Caryophyllorum, & Nucis Moſchatæ, ana* ℥ ß.

The Gums and Laudanum muſt be pounded together, the Cloves and Nutmeg together, and the Cinnamon by itſelf, putting afterwards all thoſe Powders together in a Braſs Mortar, and incorporating them with the Turpentine, and with liquid Storax, enough to give to the Mixture a Conſiſtence of Plaiſter; ſtirring that Mixture a long while to mix and incorporate well the Ingredients together.

Virtues.—This Plaiſter is excellent to ſtrengthen the Brain, to rarify and diſſipate the too coarſe Pituita; it is uſed in the Epilepſy and Lethargy, being applied on the Coronal Suture.

Emplaſtrum Epilepticum A. Mynſicht. ℞ *Oleorum de Caſtoreo, Rutacei, Irini, ana* ℥ j. *Radicis Pyrethei, Pæoniæ, Seminis Pæoniæ, ana* ʒ j. *Viſci Quercini, Scillæ præparatæ, Ungulæ Alcis, Cranii humani, ana* ℈ ij. *Thuris Electi, Maſtiches, Laudani, Galbani, Opoponacis, ana* ʒ ß. *Florum Lavendulæ, Stœchados Arabicæ, Spicæ indicæ, ana pug.* i. *Oleorum ſtillatitiorum Roriſmarini, & Hyſſopi, Nucis Moſchatæ expreſſi, ana* ℈ j. *Reſinæ, Ceræ, ana q. ſ.*

The Roots, Wood, Seeds, Flowers, Squill trochiſcated, human Cranium, the Nail of Elk raſped, the Laudanum, and the Gums muſt be pounded together; melting the Wax and Roſin, of each eight Ounces, with the Oils of Rue, of Iris, and of Caſtor, ſtirring the Matter with a Roller, and mixing with it, when half cold, the Powders, and laſtly, the Oil of Nutmeg melted, and the diſtilled Oils, to make a Plaiſter, which muſt be formed into Magdaleons.

Virtues.—This *Plaiſter* is proper to ſtrengthen the Brain, and a Preſervative againſt the Epilepſy, applied on the Coronal Suture.

The human Cranium and Nail of Elk, ſeem to be very needleſs in the Compoſition of this Plaiſter, ſince their volatile Particles, in which conſiſts their whole Virtues, are ſo much embaraſſed in the ramous ones of the Plaiſter, that it is impoſſible they could produce any Effect; therefore they ſhould be retrenched.

Emplaſtrum Divinum. ℞ *Lithargyri auri præparati* ℔ j ß. *Olei communis* ℔ iij. *Aquæ fontanæ* ℔ ij. *Coque ſimul ad Emplaſtri ſpiſſitudinem, deinde permiſce Lapidis magnetis præparati* ℔ ß. *Gummi Ammoniaci, Galbani, Opoponacis, Bdellii, ana* ℥ iij. *Myrrhæ, Olibani, Maſtiches, Viridis Æris, Ariſtolochiæ Rotundæ, ana* ℥ j ß. *Ceræ flavæ* ℥ viij. *Terebenthinæ* ℥ iv. *fiat ex arte Emplaſtrum.*

Virtues.—This Plaiſter is an excellent Mondicative, emollient and reſolutive; it cicatriſes and ſtrengthens, and is uſed for all Sorts of Wounds and Ulcers, to reſolve Tumours, and for Contuſions. The Surname of *Divinum* was given to it by reaſon of its great Virtues.

The Gums for the Preparation of this Plaiſter muſt be choſen as clean as poſſible, and after they have been put to dry between two Papers at a ſlow Heat, they ſhall be pounded together, pounding the Verdegreaſe and Ariſtolochia, each by itſelf, grinding the Load-ſtone on the Porphyry, to reduce it into an impalpable Powder; and having mixed the prepared Litharge in a Baſon with the Oil and Water, you'll place the Baſon over a good Fire, ſtirring the Matter continually till it has acquired a Conſiſtence of Plaiſter, throwing into it by degrees the Gums in Powder, the Wax cut in ſmall Pieces, and the Turpentine, which will be ſoon melted; then you'll take

take the Vessel off the Fire, continuing to stir the Matter, and when half cold, mixing with it the Verdigrease, and the Aristoloche in Powder, to make a Plaister, which must be formed into Magdaleons, which must be kept for Use.

The Load-stone is employ'd here, with a Design to extract the Iron, which may have been left in the Wound, though it be not capable to produce that Effect, for the Load-stone being embarassed in the thick and glutinous Matters which enter the Composition of the Plaister, those Matters change the Disposition of its Pores, and render it useless to that Respect; therefore if any Virtue can be attributed to it, it is that of drying; but I find that the Magnet enters that Composition in too great a Quantity, therefore I would retrench half of it, and substitute to it three Ounces of Lapis Calaminaris.

Emplastrum de Sulphure. ℞ *Ceræ flavæ, Resinæ, Picis navalis, ana* ℔ j. *Sulphuris tenuissimé triti, Olei Chamæmeli, ana* ℥ iv. *Terebenthinæ, Radicis Ireos, Cumini, ana* ℥ j. ß.

The Sulphur must be pounded by itself, and the Seed of Cummin, and Roots of Iris together; melting together afterwards, over a slow Fire, the Wax, the Rosin, and the Pitch, with the Turpentine and Oil of Camomile, straining the melted Matter through a Linen Cloth, to separate the Impurities thereof, and mixing the Sulphur and other Powders with the Colature, to make a Plaister, which must be formed into Magdaleons.

Virtues.—It resolves the Tumours, and expels the Wind.

Emplastrum Diasulphuris. ℞ *Balsami sulphuris Rulandi,* ℥ iij. *Ceræ,* ℥ iß. *Colophoniæ,* ʒ iij. *Myrrhæ ad pondus omnium.*

The Wax and Colophone must be melted with the Balsam of Sulphur of Rulandus, over a little Fire, mixing with it afterwards three Ounces, seven Drachms of Myrrh, reduced into a subtle Powder, and having taken the Mixture on the Fire, stir it continually till it has acquired a Consistence of Plaister.

Virtues.—This Plaister is detersive, mondicative, and resolutive: It resists Putrefaction.

Emplastrum Regium ad Herniam. ℞ *Picis navalis,* ℔ j. *Ceræ flavæ, Terebenthinæ Claræ, ana* ℥ iv. *Radicis consolidæ majoris siccæ, Mastiches, ana* ℥ ij. *Labdani,* ℥ j. ß. *Hypocistidos, Terræ Sigillatæ, ana* ℥ ß. *Nuces Cupressi,* No. xij. *fiat Emplastrum. S. A.*

Virtues.—This Plaister is excellent for the Ruptures, it strengthens the Peritoneum, after the Intestine has been reduced into its Place, by applying it on the Place of the Relaxation, keeping it firm by Means of a Bandage, and renewing it every tenth Day.

Emplastrum Nigrum. ℞ *Olei Communis, Aceti, ana* ℔ ij. *Lithargyri auri præparati,* ℔ j. *Coquantur ad Consistentiam Emplastri, deinde addantur, Ceræ flavæ, & Picis navalis, ana* ℔ j. *Terebenthinæ Claræ,* ℔ ß. *Plumbi usti, Myrrhæ electæ, ana* ℥ j.

The Litharge, Oil, and Vinegar; must be put to boil together over a pretty strong Fire, stirring the Matter continually with a wooden Spatula, till it has acquired a Consistence of Plaister, then putting to melt in it the Wax, Tar, and Turpentine, stirring it still continually; and lastly, mixing with it, when half cold, the burnt Lead, and Myrrh in Powder, to make a Plaister, which must be formed into Magdaleons.

Virtues.—This Plaister is proper to cure Wounds and Ulcers; it mondifies and cicatrises.

Emplastrum seu Cataplasma de Baccis lauri. ℞ *Baccarum lauri,* ℥ ij. *Mastiches, Thuris, Myrrhæ, ana* ℥ j. *Radicis Cyperi & Costi, ana* ℥ ß. *Mellis despumati, q. s.*

The Berries and Roots must be pounded together, the Myrrh and Frankincense together, and the Mastich by itself, mixing afterwards all those Powders together, and incorporating them with a Pound and a half of skimm'd Honey, boiled to the Consistence of Opiate, to make a Plaister, or rather Pultice, or Electuary.

Virtues.—It is proper for the windy Colick, for the Hydropsy, and for the Pains of the Womb, and of the Intestines; by being applied hot on the lower Abdomen.

Emplastrum de Spermate Ceti. A. Mynsicht. ℞ *Ceræ albæ,* ℥ iv. *Spermatis Ceti,* ℥ ij. *Galbani in aceto dissoluti, trajecti, & cocti,* ℥ j.

The white Wax cut in small Pieces, with the purified Galbanum, must be melted in a glazed earthen Porringer, over a little Fire, mixing with it afterwards the Sperma Ceti, to make a Plaister, which must be kept for Use.

Virtues.—The Plaister of Sperma Ceti appeases the Fury of the Milk of Women newly deliver'd, it hinders it from knotting in the Breasts, and dissolves it when knotted, it is also emollient, and resolves the scrophulous Tumours.

Emplastrum de Spermate Ranarum. ℞ *Spermatis Ranarum, Olei de Spermate Ranarum, Cerussæ tenuissimé pulverati, ana* ℔ ij. *Vitrioli albi, Aluminis crudi, ana* ℥ j. ß. *Coquantur simul ad Emplastri spissitudinem, postea adde, Ceræ albæ,* ℥ iij. *Mastiches, Thuris, ana* ℥ ß. *Camphoræ,* ʒ iij.

Put the Spawn of Frogs, newly gather'd, in a Basson, with the Oil of Frey of Frogs, the Ceruse, white Vitriol, and Allum, all three in Powders; make the Mixture boil over a moderate Fire to the Consistence of Plaister, putting then the Wax to melt in it; and mixing with the Matter, when half cold, the Mastich and Frankincense reduced into a subtle Powder; and lastly the Camphire dissolved in about half an Ounce of Spawn of Frogs; forming afterwards the Plaister into Magdaleons to be kept for Use.

Virtues.—This Plaister is proper for Wounds attended with Inflammation; it softens the Acrimony of the Humours, and dries them; it is used for the Wounds of the Eyes.

Emplastrum Stipticum Crollii, reformatum. ℞ *Litharyri præparati,* ℔ j. ß. *Lapidis Calaminaris,* ℔ ß. *Oleorum Lini, Olivarum, ana* ℔ j. ß. *Laurini,* ℔ j. *Decocti radicis Aristolochiæ, q. s. Coquantur ex arte ad Emplastri spissitudinem, deinde adde, Ceræ flavæ, Colophoniæ, ana* ℔ j. *Terebenthinæ, Vernicis, ana* ℔ ß. *Opoponacis, Sagapeni, Galbani, Bdellii, Ammoniaci, ana* ℥ iij. *Lapidis Hematitis* ℥ ij. ß. *Olibani, Myrrhæ, Aloes, Succini, Aristolochiæ longæ, & rotundæ, ana* ℥ j. ß. *Mumiæ, Sanguinis Draconis, Terræ Sigillatæ, Vitrioli albi, Camphoræ, ana* ℥ j. *Florum Antimonii,* ℥ ß. *fiat Emplastrum, S. A.*

As the Camphire is very volatile, it must not be mixed till the Plaister is almost cold.

Virtues.—This Plaister is proper for Wounds made with a small Sword, for Prickings, and Bites, and for all other Wounds and Ulcers; it digests, ripens, mondifies, cicatrises, and resolves; it strengthens the Nerves, and resists the Malignity.

Emplastrum de Villa magna ad Equini pedis Punctionem. ℞ *Ceræ flavæ, Gummi Elemi, Resinæ, Terebenthinæ, ana* ℔ ß. *Petrolæi,* ℥ j. ß. *Radicis Aristolochiæ, Longæ, Rotundæ, Consolidæ majoris, Sanguinis Draconis, Cinnabaris, ana* ʒ iv.

The Roots must be pounded together, and the Dragon's Blood by itself, putting the Wax, Gum Elemi, Rosin, and Turpentine, to melt with the Oil of Petroleum, and straining the melted Matter through a Linen Cloth to separate the Impurities thereof; and mixing with it, when half cold, the Roots, and Dragon's Blood in Powder, and lastly the Cinnabar ground, to make a Plaister, which must be formed into Magdaleons.

Virtues.—This Plaister is excellent to cure a Prick in a Horse's Foot, by introducing some of it melted into the Wound, and covering it over with a Plaister: It is also very good for Wounds, and the Venereal Ulcers; it cleanses and cicatrises.

Emplastrum ad dolores dentium. ℞ *Gummi Tacamahacæ, Elemi, Mastiches, ana* ℥ ij. *Opii* ℥ ij.

The Mastich and Gum Tagamahaca having been pounded together, must be put with the Opium and Gum Elemi, in a hot Mortar, and with a Pestle, made hot likewise, pounded together, hard enough and long enough to mix well the Ingredients, and form a solid Mass, which may be made immediately into small Plaisters on black Silk, with a hot Spatula.

Virtues.—This Plaister appeases the Pain of the Teeth, and stops the Fluxions; it is used for the Megrim, and other Pains of the Head, by being applied at the Temples on the Artery.

Emplastrum aliud pro dentium dolore. ℞ *Nucum Cupressi, Rosarum Rubrarum, Mastiches, Terræ Sigillatæ, Opii,* ℥ j. *Ceræ flavæ,* ℥ iv. ß. *Terebenthinæ,* ℥ ß. *Colophoniæ, Picis navalis, ana* ʒ ij. *Oleorum Papaveris albi, & Hyosciyami, ana* ʒ j.

The Roses, Nuts of Cypress, and Seed of Cydes, must be pounded together, the Mastich by itself, and the Tera-

Terra Sigillata by itself, incorporating afterwards those Powders with the other Drugs, off the Fire, to form a Plaister which must be kept for Use.

Virtues.—This Plaister operates like the first, by stopping and moderating the Fluxion, which is determined to fall on the Teeth; but as these Sorts of Remedies procure no Evacuation, they do not hinder the Pain from returning, sometimes, with a greater Violence than before; therefore the best Plaisters that can be used for the Fluxions which fall on the Teeth, are Blisters.

Emplastrum Andreæ à Cruce. ℞ *Resinæ*, ℔ ij. *Gummi Elemi*, ℥ iv. *Terebenthinæ Venetæ, Olei Laurini, ana* ℥ ij.

All the Drugs must be melted together, and strained afterwards through a Linen Cloth, to form a Plaister which must be kept for Use.

Virtues.—This Plaister is used for the Wounds of the Breast, and of the other Parts; it cleanses, agglutinates, and consolidates; is proper for Contusions, Fractures, and Dislocations.

Emplastrum Gummi Elemi. ℞ *Gummi Elemi in frusta dissecti*, ℥ iv. *Ceræ flavæ*, ℥ ij. *Terebenthinæ*, ℥ j. ß. *Colophoniæ, Aristolochiæ longæ, & Rotundæ, ana* ℥ j.

The Roots must be well pounded together, and the Gum Elemi, Colophon, and Turpentine having been melted together, the melted Matter must be strained through a Cloth, and the Powder mixed exactly with it to form a Plaister.

Virtues.—This Plaister is proper to cleanse and cicatrise Wounds and Ulcers; to resolve and strengthen.

Emplastrum Vesicatorium, seu Epispasticum. ℞ *Cantharidarum*, ℥ ij. *Picis albæ, Ceræ Citrinæ & Terebenthinæ, ana* ℥ j.

The *Burgundy* Pitch, Wax, and Turpentine, must be melted together, mixing afterwards the *Spanish* Flies with it, after they have been reduced into a Powder, to form a Plaister.

This Preparation for Blisters is very needless, since the Virtue thereof consists wholly in the *Spanish* Flies; which when mixed with Diachylon, or any other Plaister, at the very Time a Blister is wanted, produce the same Effect, as if mixed with this Plaister, which is a Preparation appropriated to it.

Emplastrum de Absinthio. ℞ *Foliorum Absinthii vulgaris*, ℥ ß. *Menthæ, Majoranæ, ana* ʒ iij. *Rosarum Rubrarum, Zingiberis, Nucis Moschatæ, Caryophyllorum, Cinnamomi, Thuris, Aloes, Benzoini, ana* ʒ ij. *Seminum quatuor Calidorum majorum*, ʒ iv. *Olei de Absinthio*, ʒ iv. *Ceræ flavæ*, ℔ ß.

The Plants must be gather'd in their Vigour, put to dry between two Papers, and pounded with the Roses, Ginger, Nutmeg, Cloves, Cinnamon, and four great hot Seeds; the Aloes, Myrrh, and Benzoin, must also be pounded together; and the Wax having been melted in the Oil at a slow Fire, the Powders must be mixed with it, to form a Plaister.

Virtues.—This Plaister is proper for the Weakness, and Crudities of the Stomach, to expel Wind, and to strengthen the Matrice.

Emplastrum de Sapone. ℞ *Massæ Emplastri de Cerusa*, ℔ ß. *Saponis*, ℥ v.

The Plaister of *Ceruse*, and the Soap must be melted together in an earthen Dish, over a little Fire; and the Matter, when cold, must be rolled into Magdaleons, to be kept for Use.

Virtues.—This Plaister is proper to resolve Tumours, and to strengthen the Matrice, applied on the Navel, to provoke the Menses, and is also used for Childblains.

Emplastrum pro Matrice. ℞ *Gummi Galbani*, ℥ iv. *Tacamahacæ, Ceræ Citrinæ, ana* ℥ iij. *Terebenthinæ, Myrrhæ Electæ, ana* ℥ ij. *Assæ fœtidæ*, ℥ j. *Pinguedinis in Cistide Castorei contentæ, Oleorum stillatitiorum Rutæ & Succini, ana* ℥ j.

The Galbanum and Assa Fœtida must be dissolved in Vinegar, over a little Fire, the Dissolution strained with a strong Expression, and the Humidity thereof put to evaporate to the Consistence of Plaister; then the Myrrh, and Tacamahaca having been reduced into a subtle Powder, and the Wax and purified Gums melted with the Turpentine, the Powders must be incorporated with the Matter, when half cold, together with the Castor, and lastly, the distilled Oils, to form a Plaister, which must be kept for Use.

Virtues.—This Plaister is proper to soften the Hardnesses of the Matrice, to prevent the Vapours which cause the Suffocations, and to provoke the Menses, applied on the Navel.

Emplastrum Apostolicum, Nic. Alexandrini. ℞ *Olei veteris*, ℔ j. *Lithargyri auri præparati*, ℔ ß. *Ceræ flavæ, & Colophoniæ, ana* ℥ ij. *Propoleos, Visci Quercini, ana* ℥ j. *Gummi Ammoniaci, Lapidis Calaminaris, ana* ʒ vj. *Mastiches, Thuris, Mumiæ, ana* ℥ ss. *Terebenthinæ, Bdellii, Galbani, Opoponacis, Myrrhæ, Sarcocollæ, Æris usti, Æruginis, Calcis vivæ, Dictamni Cretici, Aristolochiæ rotundæ, ana* ʒ iij.

The Mistetoe, Aristoloch, and Dictamnum, must be pounded together; the Quicklime, and Verdigrease together; the Sarcocolla, Myrrh, Mumia, Frankincense, Bdellium, Mastich, Opoponax, and Galbanum together; and the Litharge, and burnt Copper, having been well pounded, must be mixed in a Bason, with the Oil, and about two Pints of Water, and that Mixture put to boil over the Fire, stirring it continually with a wooden Spatula, till it has acquired a Consistence of Plaister, and the Water be consumed; then the Wax must be put to melt in it, and the Gums in Powder incorporated with it; and when the Plaister is half cold, the other Powders must be mixed with it, after which it must be formed into Magdaleons.

Virtues.—This Plaister is esteemed proper to extract the Venom of venomous Beasts, as of a mad Dog, by Suppuration, it is also very good for Boils, Carbuncles, Abscesses, and the scrophulous Tumours.

The Verdigrease could suffice in this Composition, without employing burnt Copper, which cannot be reduced into Powder but with the greatest Difficulty: They are the same Matters, differing only among themselves in that the Verdigrease is a rarified Copper, and impregnated with some of the acid or tartarous Salts of the Grape, whereas the burnt Copper is the pure Metal.—Yellow Wax may be substituted to the Propolis.

Emplastrum Alexandri ex Alliis. ℞ *Ceræ flavæ*, ℔ j. *Axugiæ Porcinæ recentis, Adipis Anseris, ana* ℥ v. *Terebenthinæ*, ℥ iv. *Spicarum Allii mundatarum*, ℥ iij. ss. *Styracis, Bdellii, Aloes, ana* ℥ iij. *Euphorbii*, ℥ j. ss. *Croci*, ℥ ss. *Mastiches, Thuris, ana* ʒ j. ss.

The Wax and Grease having been melted together, the Cloves of Garlick cut small and bruised, must be mixed with it, leaving the Matter in Digestion for twenty-four Hours; mean while the Storax, Bdellium, Aloes, Euphorbium, Mastich, and Frankincense, shall be pounded together; and the Saffron by itself, after it has been dried between two Papers.

The next Day the digested Matter, *i. e.* the Grease and Garlick, having been boiled to the Consumption of almost all the Humidity, must be strained with Expression, mixing afterwards with it the Turpentine, and Powders, to form of the whole a Plaister.

Virtues.—This Plaister is proper to strengthen the Stomach, and the Intestines, to rarify the coarse Pituita, and to hinder the Progress of the Hydropsy, when it begins.

Emplastrum de Althæa Compositum. ℞ *Ceræ flavæ*, ℔ j. *Radicis Althææ pulveratæ*, ℔ j. *Massæ Emplastri Diachylonis cum Gummis*, ℥ iij. *Oleorum Chamomillæ, Liliorum, Anethi, ana* ℥ ij. *Rosati, Pinguedinis Anatis, ana* ℥ j.

The Roots of Althæa or Marsh-mallows, after they have been well dried in the Sun, must be reduced into a subtle Powder; the Diachylon of the Gums, Wax and Grease of Duck melted together, over a little Fire, with the Oil; then the Mixture is taken off the Fire; and when half cold, the Powder of Althæa is mixed with it, to form a Plaister which must be kept for Use.

Virtues.—The Plaister of Marsh-mallows, is emollient, and resolutive; it moderates and appeases the Pains of the Breast.

Emplastrum febrifugum. ℞ *Spicarum allii mundatarum*, ℥ iij. *Araneas viventes*, No. xxx. *Bituminis Judaici, Salis Armoniaci, Resinæ, Ceræ, Terebenthinæ, ana* ℥ j. ss. *Olei Spicæ, & Mastichini, ana* ℥ j. *Caphuræ*, ʒ ij.

The Bitumen Judaicum, and Sal-Armoniack, must be reduced into a subtle Powder; the Cloves of Garlick, cut in small Pieces, and bruised in a Mortar with the Spiders, mixing them afterwards with the Wax, Rosin, and Turpentine, which have been melted with the Oil of Mastich; that Mixture must be kept thus melted on hot

hot Embers for five or ſix Hours, ſtirring the Matter from Time to Time, ſtraining it afterwards with a ſtrong Expreſſion, and mixing the Powders with the Colature, and laſtly the Camphire diſſolved in Oil of Aſpic, to form a Plaiſter, which muſt be kept well wrapped, leſt Part of its volatile Subſtance in which conſiſts its Virtue, ſhould be diſſipated.

Virtues.—This *Plaiſter* is proper to expel the intermittent Fevers, being applied round the Wriſt in the Time of the Paroxyſm.

This Plaiſter operates like ſeveral other Amulets or Remedies, applied at the Neck or Arm of the Febricitants; the volatile Particles thoſe Sorts of Remedies are full of, can penetrate through the Pores into the Humours, and rectify them by diſſolving the Obſtructions made in them; but we muſt not imagine that thoſe Remedies are infallible; and one muſt have been ſufficiently purged before he uſes them.

Emplaſtrum Baſilicum majus. ℞ *Ceræ albæ, Reſinæ Pini, Sevi vaccini, Picis Nigræ, & Burgundiæ, Terebenthinæ, Thuris, Myrrhæ, ana* ℥ j. *Olei communis, q. ſ.*

The Myrrh muſt be reduced into a ſubtile Powder, and having put all the other Drugs to melt with about an Ounce of common Oil, the melted Matter muſt be ſtrained, and the Myrrh mixed with the Colature to make a *Plaiſter*, which muſt be kept for Uſe.

Virtues.—This Plaiſter helps Suppuration, agglutinates Wounds and cures them.

Emplaſtrum Tetrapharmacum, ſeu Baſilicum minus, Galeni. ℞ *Picis Nigræ Reſinæ, Ceræ, Adipis vaccini, ana* ℥ ij.

All the Drugs muſt be melted together, and the melted Matter ſtrained to ſeparate it from its Impurities; and the Colature when almoſt cold, formed into Magdaleons to be kept for Uſe.

Virtues.—It is proper to procure a Suppuration, and to renew the Fleſh.

Emplaſtrum de Fuligine. ℞ *Saponis veneti* ℥ iv. *Butyri recentis, Terebenthinæ, Fermenti, ana* ℥ ij. *Fuliginis Camini* ℥ j ß. *Salis communis* ℥ j *Mellis roſati* ʒ vi. *Theriacæ Andromachi, Mithridatii, ana* ℥ ß. *Vitellos ovorum,* No. iv. *Croci* ʒ iij.

The Suet, Salt and Saffron, muſt be pounded each by itſelf, and the Butter, Soap, and Turpentine having been melted together, the Powders, Levain, Treacle, Mithridate, Honey of Roſes, muſt be mixed with it off the Fire; incorporating well all thoſe Drugs together by ſtirring it a long while with a Biſtorter, and keeping afterwards that Plaiſter in a Pot well covered.

Virtues.—This *Plaiſter* is very proper to ripen the peſtilential Buboes, the Anthrax, Carbuncles, and to extract the Venom from them.

This Compoſition is rather a Pultice than a *Plaiſter*; the Honey of Roſes, which is aſtringent, does not ſeem to me very proper for it; therefore I would ſubſtitute to it either the Honey of Violets, or common Honey.

Emplaſtrum quatuor gummium. ℞ *Gummi Ammoniaci, Sagapeni, Galbani, Opoponacis, ana* ℔. *Colophoniæ* ℔ ß.

The Gums muſt be diſſolved in Vinegar over a little Fire, the Diſſolution ſtrained through a Flannel with a hard Expreſſion, and put to thicken to a ſolid Conſiſtence; mixing afterwards with it the Colophon, to make a Plaiſter which muſt be kept for Uſe.

Virtues.—This Plaiſter is emollient, ſuppurative, and reſolutive.

Emplaſtrum Stypticum A. Mynſicht. ℞ *Colophoniæ, Terebenthinæ, ana* ℔ ß. *Ceræ Citrinæ* ℔ j. *Cruſtæ Panis Toſtæ, & in aceto macerataæ* ℥ iv. *Olei nucis Moſchataæ expreſſi* ℥ iij. *Maſtiches, Sandaracæ, Olibani, ana* ℥ ij. *Terræ Sigillatæ, Boli Armenæ, Menthæ Criſpæ, Abſinthii, ana* ℥ j. *Calami Aromatici, Caryophyllorum, ana* ℥ ſs. *Balauſtiorum, Roſarum rubrarum, Nucum cupreſſi, Corticis granatorum, Gallarum, Sanguinis Draconis, ana* ʒ ij.

The Maſtich, Olibanum, Sandarach, and Dragon's Blood muſt be pounded together; and having put the Cruſt of Bread toaſted to ſleep about an Hour in Vinegar, and dried it, you'll pound with it the Terra Sigillata and the Bol; pounding afterwards together the Mint, Wormwood, Calamus Aromaticus, Cloves, Roſes, Cypres-Nuts, Galls, Pomegranate-peel, and Balauſtia; then you'll put to melt over a very ſlow Fire the Wax, Colophone, Oil of Nutmegs, with the Turpentine, and about an Ounce of Oil of Quinces; which done, you'll take the Matter off the Fire, and mix with it all the Powders to form a Plaiſter, which muſt be kept for Uſe.

Virtues.—This *Plaiſter* is employed for the Dyſenteria and other Looſeneſs, and for the Cholera Morbus; it ſtops Vomiting, ſtrengthens the Stomach being applied upon it, and on the lower Abdomen.

Emplaſtrum ad Ganglia M. Charas. ℞ *Gummi Ammoniaci, Galbani, Opoponacis, Sagapeni, Myrrhæ electæ, ana* ℥ iij. *Olei Laurini* ℥ j. *Sulphuris vivi, Vitrioli Romani, Salis Armoniaci, ana* ℥ ſs. *Euphorbii* ʒ ij.

The Gums Ammoniack, Galbanum, Opoponax, and Sagapenum, muſt be diſſolved in Vinegar, and the Diſſolution having been ſtrained with a hard Expreſſion, the Humidity thereof muſt be evaporated, till it be reduced to the Conſiſtence of Plaiſter; mean while you'll pound together the Myrrh and Euphorbium, the Sulphur by itſelf; and the Roman Vitriol and Sal armoniack together, mixing afterwards all thoſe Powders, incorporating with the Gums liquified over a very ſlow Fire the Oil of Bays, and afterwards the Powders, ſtirring a long while the Mixture, and the *Plaiſter* will be done.

Virtues.—This *Plaiſter* is penetrating, attenuating, emollient, and reſolutive, proper for the ſcrophulous Tumours, Wens, Schirrs of the Liver, and of the Spleen, and for the King's Evil.

Note, That as this *Pharmacopœa* is calculated for the Uſe both of Apothecaries, and of Perſons in the Country, who living at a great Diſtance from any City, Town or Borough, cannot poſſibly have Recourſe to an Apothecary's Shop ſo ſoon as they want it; I have given here a great Number of Preſcriptions for the Compoſition of Remedies for all Sorts of Maladies, in *Engliſh*, and explained them in ſo clear and conciſe a Manner, that every one may be his own Apothecary in Caſe of Neceſſity.

Note, alſo, That I'll conclude this Treatiſe by a conciſe Explanation of the different Characters uſed in it, and by all Phyſicians, to mark the different Weights and Meaſures of the Drugs which enter each Compoſition; and by a Deſcription of the different Veſſels, and other Utenſils uſed in *Pharmacy.*

The *Weights* uſed in *Pharmacy*, are, the *Pound, Half-pound, Quarter of a Pound, Ounce, Drachm, Scruple,* and *Grain.*

The Pound, in Medicine, is of twelve Ounces, deſigned by this Character ℔ j.—The *Half-pound* by this ℔ ſs.—And the *Pound and Half* by this ℔ j. ſs.

The Quarter *of a Pound*, is of three Ounces; formerly deſigned by this Character 4tar j. which is at preſent out of Uſe, ſince we mark a Quarter of Pound by Ounces, thus ℥ iij.

The Ounce, in Medicine, is the twelfth Part of a Pound, marked thus ℥ j. The half Ounce thus, ℥ ſs. and the Ounce and Half thus ℥ j ſs. which Ounce is compoſed of eight Drachms.

The Drachm, which is the eighth Part of an Ounce, is deſigned by this Character ʒ, which is as a 3 in Arithmetick, becauſe it is compoſed of three Scruples: The *Half-drachm* is marked thus ʒ ſs. and the *Drachm and Half* thus ʒ j ſs.—The *Drachm* is alſo called a *Gros*, or the Weight of a golden Crown.

The Scruple, is the third Part of a Drachm, deſigned by this Character ℈ j. and is compoſed of twenty four Grains: The *Half-ſcruple* is marked thus ℈ ſs. and the *Scruple and Half* thus ℈ j ſs.

The Grain, is the twenty-fourth Part of the Scruple, deſigned by *gr.* j. or *gn.* i.—One ſhould make uſe in *Pharmacy* of the Grains of Braſs, which are uſed in Commerce, and not of thoſe of Corn, which being moſt commonly of a different Bigneſs, one could never be ſure of the Weight.

Note, That there are in *Pharmacy*, as in the Commerce, Meaſures for liquid, and Meaſures for the dried Ingredients.

The Measures for Liquids here in *England*, are the *Pint*, conſiſting of twelve Ounces; the *Half-pint*, conſiſting of ſix Ounces; the *Quarter*, of three Ounces; and *Half*

Half-quartern, of an Ounce and Half; but which are most commonly marked in the Prescriptions by Pound, thus ℔ j. for a *Pint*: *Half a Pound*, thus ℔ ss. for half a Pint: A *Pound and Half*, thus ℔ i ss. for a *Pint and Half*: Three Ounces, thus ℥ iij. for a *Quartern*, an Ounce and Half, thus ℥ j ss. for a *Half-quartern*. And lastly, *an Ounce*, thus ℥ j; or *half an Ounce*, thus ℥ ss.

The *Measures* for *dry Ingredients*, viz. *Wood*, *Herbs*, *Fruits*, and *Seeds*, are the *Bundle*, the *Handful*, and the *Pinch*.

The BUNDLE, is what an Arm foulded round-wise can contain, marked thus *fasc.* j.

The HANDFUL, is as much as a Hand can hold, designed by *man.* j. or M. j.

The PINCH, is as much as three Fingers can hold, designed thus *pug.* j. or thus *p.* j.

The *Measure* of Fruits and of several Animals, is made by Number, designed thus No. or by *Pairs*, designed thus *par.*

When we find in Prescriptions *ana*, or *aa*, we must understand *of each*, or as much of one as of the other.

By *q. s.* must be understood a *sufficient Quantity*, or as much as is necessary.

By *s. a.* or *ex arte*, must be understood *according to the Rules of Art.*

By *B. M.* must be understood *Balneum Mariæ.*

By *B. V.* must be understood *Balneum Vaporis*, or vaporous Bath.

The Vessels used for the Coctions of the Compositions, in *Pharmacy*, are *Copper Basons*, simple or tinned, *large Cauldrons*, *Frying-pans*, *Skillets*, *Iron Pots*, *Copper Pots*, tinned, *Pewter Basons*, *Earthen* or *Stone Pans*, *Earthen Dishes*, *Earthen Porringers*, *Earthen Pots*, *Glass*, and *Stone Cucurbites*, *Copper Cucurbites* tinned Inside, with their Refrigeratories, Crucibles, *&c.*—One must as much as possible employ Earthen or Glass Vessels for the Preparations which are to be taken inwardly; because neither Earth nor Glass communicates any Impression to the Drugs, and Copper can do it; but as Glass and Earthen Vessels are most commonly small, and break easily at the Fire; and the earthen ones are very often penetrated by the Liquors, one may use Copper Vessels tinned, without any Fear that the Metal will communicate itself to the Drugs, because Tin does not rarify itself so easily as Copper. It must be observed besides, that if even a Copper Bason was not tinned, it will communicate neither Smell nor Taste to the Liquors boiled in it, provided Care be taken to pour them into an earthen Vessel as soon as the Bason is taken off the Fire; for while it is on the Fire the igneous Particles which penetrate the Copper raise the Liquor in such a Manner, that it hinders it from touching the Bottom of the Bason, and consequently from taking the Smell of Brass, as I have observed in my Treatise of Chymistry.

The Vessels employed for the Infusions, and to keep the gallenical Compositions, are Pots of Gold, Silver, Pewter, Lead, Earth, Stone, glazed earthen Ware, Glass, Crystal, Bottles, Jugs, and Boxes.

Gold, Silver and Pewter are the most proper Metals for the Fabrication of the Vessels which are to serve for the Infusions, and to preserve the Remedies; but as they can be penetrated by several Salts, and most of the Spirits of the Mixtures, they may communicate some slight Impression to the Vessels put in them, therefore I would prefer Glass and Earthen-ware in that Occasion, to those Metals: Stone, for Example, is the most proper Material for those Vessels; for besides that it is always very clean, it is the less porous, and the most proper to hinder the Dissipation which could happen of the subtile Parts of the Remedies; but as the Stone is not common in all Countries, and the Difference of the Earth causes here no considerable Prejudice, one may use in lieu thereof glazed Earthen-ware.

Lead is seldom employ'd in Vessels for an Apothecary's Shop, unless it be to prevent a Mixture, or a Composition from growing hard, or drying too much; for Example, Musk is preserved in leaden Boxes, that being cooler in that Metal than any where else, less of its Parts may be dissipated. Several observe Lead preferable to others, to preserve Treacle, Orvietan, and Mithridate, because those Compositions retain better their Consistence in leaden Pots, or Boxes, than in those of another Matter; though it is to be fear'd the Particles of the Lead mixing with those Compositions should alter their Quality.

Glass and Crystal, are the finest Matters, and most proper that can be employed for Vessels of *Pharmacy*; for they have a Cleanness which may be kept easily, and a Transparency which shews the Drugs contained in them, without being necessary to open them; the Smallness of their Pores hindering the Dissipation of the subtil Particles of the Remedies. But the Fragility of these Vessels are the Cause that they are not so commonly used.

There are Glass Vessels for Powders, which are oblong or oval Pots fastened on Feet like those of drinking Glasses, in which are kept the composed Powders and Troches. Bottles are made of all Fashions and Sizes, to keep the Spirituous Waters, Tinctures, Elixirs, Essences, and Spirits: And Pots to keep several chymical Preparations, as Precipitates, Sublimates, and antimonial Preparations.

The Jugs are most commonly of Earth, or of Stone, and serve for the Infusions of the Oils.

The Boxes must be made of Wood less subject to Worms, of what Form one pleases; though they be most commonly square: They are used to keep the simple Drugs, as the Senna, Agarick, and Rhubarb.

The Instruments used in Pharmacy, are Mortars of Bell-metal, with their Pestles proportioned to them; Mortars of Brass, Pewter, Lead, and Glass, with their Pestles of the same Matter: Mortars of Marble and Stone, with their wooden Pestles: Porphyries, with their Mullers: Presses, with their Plates and Iron Bars, Furnaces; Tongs, Funnels, Siringes, Spatula's, Bistorters, Rasps, Spoons, *&c.*

The Mortars of Bell-metal are great and small; the great serve to make almost all the Powders, to malax the Masses of Pills and Troches, and to extinguish the Quicksilver; their Pestles are of Iron; and as for the very large Mortars, it is necessary to have Pestles proportioned to them, and consequently very heavy, it is sometimes necessary to suspend them by a Cord, tied to a Bow fastened to the Cieling, to ease the Artist.

The small Mortars of the same Matter are of a different Bigness and Capacity, and serve the one to reduce into Powder a small Quantity of Drugs easily pounded, and the others to dissolve the Compositions which are to enter Potions, Clysters, Colyrs, and Injections: There are also small Mortars made of Silver, Pewter, and Brass, used also for the same Purposes.

The leaden Mortars, are used to make the Unguent Nutritum, the Butter of Saturn, the deficcative Liniments, where it is wanted that the Metal should communicate its Impression.

Iron Mortars are great and small; the great ones serve to reduce into Powder several Ingredients which enter the Remedies applied outwardly: The small ones are employ'd to receive the Matters in Fusion which are thrown into them, *&c.*

The Mortars of Marble are great and small; and great ones serve to pound the Almonds, Nuts, Seed, *&c.* the Oils thereof are to be extracted by Expression; to bruise the Plants, the Juice thereof is also to be extracted. The small ones serve to pound the Almonds, and the Cold Seeds to make the Emulsions.

The Stone Mortars, very clean, can serve instead of the Marble ones, but they are seldom employ'd but for the corrosive Powders; as to pound red Precipitate, to mix crude Mercury with corrosive Sublimate, to make the Mercurius Dulcis: Mortars of Marble and Glass can serve for the same Uses.

The *Porphyries* and *Sea-Shells* are used to reduce into an impalpable Powder the hardest Drugs, as the precious Stones, the Coral, Pearls, and Tutty. They are ground with a Mullar, which is a little Block of Porphyry, or other hard Stone, polished underneath; round, or of a Figure to be laid hold on easily.

The *Funnels* are of Copper, Tin, Earthen Ware, Stone, and Glass: They serve to put the Liquors into the Bottles, and to support the Filtration; but as the Funnels of Metal are subject to grow rusty, or to communicate their Smell or Impression to the Liquors that run through them, those of Glass or of Stone, are preferable to

to them, either in Chmiſtry or in the *Galenical* Pharmacy.

The *Selinges* are of Silver, of Pewter, or of Copper: There are great and ſmall Selinges; the great muſt contain a Pound of Liquor, they ſerve for the Clyſters: The ſmall ones muſt contain two or three Ounces of Liquor; they ſerve for the Injections made in the Penis, in the Matrice, and in Wounds.

The *Spatula's* are either of Silver, or Pewter, Iron, Steel, Ivory, Gayac, Box, or of common Wood.

The Spatula's of Silver, are better than thoſe of any other Metal, becauſe they are not ſubject to ruſt; they are uſed for the Cordial Confections. The Spatula's of Pewter can ſupply the Want of thoſe of Silver.

The Spatula's of Steel are preferable to thoſe of Iron, becauſe their Matter being more compact, they are leſs ſubject to ruſt, and conſequently imprint leſs of their Quality to the Medicaments; though they be commonly made of Iron; which is not a very great Fault, ſince that Metal can communicate no bad Quality to the Remedies.

The Spatula's of Ivory are very proper for the Confections: Thoſe of Gayac, of Box, and of common Wood, ſerve to ſtir the Herbs, and other Ingredients, which enter the Infuſions and Decoctions.

The Biſtorters are Rollers of Wood, which ſerve to mix the Remedies, and to ſpread the Lozenges.

The *Raſps* are of Tin faſten'd on Wood; they are uſed to raſp the Agarick, which is to be reduced in Powder, and to raſp the Fruits and Roots, the Juice thereof is to be extracted.

The *Spoons* are of Gold, Silver, Iron, Wood, Mother of Pearl, Ivory, and Tortoiſe-Shell.

The Spoons of Gold are rare in an Apothecary's Shop, becauſe of their great Value; thoſe of Silver ſupply their Want. The large Spoons and Skimmers are commonly of Pewter or Tin, but thoſe that love Neatneſs have them of Silver.

The wooden Spoons can ſerve for the Extraction of Pulps.

The Spoons of Mother of Pearl, of Ivory, and of Tortoiſe-Shell, are proper to adminiſter Syrups, Potions, or other Liquors to the Patients.

The *Preſſes* are of different Figures; their Matter is always of a ſtrong and compact Wood.

The *Diſpenſaries* are a Kind of flat and ſquare Boxes, without Lids, made in the Faſhion of Drawers; they ſerve to contain the Ingredients which enter a Compoſition well prepar'd, and diſpos'd in Order.

PHILOSOPHY.

PHILOSOPHY, is the Knowledge or Study of Nature and Morality, founded on Reaſon and Experience.

Philoſophy owes its Name to the Modeſty of *Pythagoras*, who refuſed the Title σοφος, *Wiſe*, given to his Predeceſſors *Thales*, *Pherecydes*, &c. as too aſſuming, and contented himſelf with the ſimple Appellation of φιλοσοφος, *quaſi* φιλος της σοφιας, *a Friend, or Lover of Wiſdom.*

Chauvin rather derives the Name from φιλια, *Deſire*, or *Study*, and σοφια, q. d. *Studium Sapientiæ: Pythagoras* conceiving that the Application of the human Mind, ought rather to be called *Study* than *Science*, ſet aſide the Appellation *Wiſe*, and in lieu thereof took that of *Philoſopher*. For having diſcourſed with great Judgment and Learning before *Leontius* King of the *Phliaſii*, that Prince aſked him what he profeſſed, or in what Points his Wiſdom chiefly lay? To which he anſwer'd, that he neither underſtood any Art, nor was he σοφος, but φιλοσοφος; which Title, St. *Auguſtin* obſerves, took ſo well with other Authors, that whoever excelled in any Thing relating to Wiſdom or Knowledge, had no other Appellation. Accordingly *Socrates*, *Plato*, &c. ever reſtrained from the ſwelling Title of *Sophos.*

Philoſophy is a Term uſed in various Significations, among antient and modern Writers. In its latter Senſe, it ſignifies the Love of Truth: Thus *Plato* frequently calls it *Philaletheia*. In other Places it ſignifies the Knowledge of many Things: Thus *Zeno* calls *Philoſophy* καταληψις, *Comprehenſion*, becauſe comprehending all Truth. Agreeable to which is *Cicero*'s Definition of Philoſopher, that he is one who ſtudies to know the Nature and Cauſes of all Things human and divine, and to attain to every good Rule and Method of Life.

For my Part, I define *Philoſophy*, a Deſire, directed by human Wiſdom and Prudence, of acquiring a perfect Knowledge of all Things divine and human.

I call *Philoſophy* a *Deſire*, becauſe a Philoſopher, let him be ever ſo perfect in the Science he profeſſes, and his Knowledge ever ſo great, ſearches ſtill continually to make new Diſcoveries; whereas Love ſuppoſes an Object preſent at leaſt to the Mind, with all its Perfections; and beyond which our Imagination finds nothing more to deſire, and ſuppoſes the Poſſeſſion thereof a perfect Satiety.

That Deſire is to be directed by human Wiſdom and Prudence, otherwiſe it is rather a Depravation of the Mind, or a criminal Curioſity, than a true *Philoſophy*. It is a Depravation of the Mind, when he ſearches to make new Diſcoveries with no other View, than that of flattering ſome of his favourite Paſſions, *viz.* either his Vanity, Ambition, or Avarice. It is a criminal Curioſity, when he attempts to ſoar beyond thoſe Limits, preſcribed by a ſupreme Being to the human Underſtanding, either by endeavouring to penetrate the Secret of his divine Providence, or to fathom the Depth of his infinite Wiſdom; both which are contrary to true *Philoſophy*; which conſiſts chiefly in ſuffering our Underſtanding to be entirely govern'd by our Reaſon, which condemn as a ridiculous Attempt all the Efforts made by a human Underſtanding to ſoar above its Sphere. Experience itſelf convinces us, that then we labour in vain; ſince none of thoſe antient and modern Philoſophers, ſo much vaunted among us, could ever ſucceed in the leaſt of their Enterpriſes of that Kind, otherwiſe we would not have ſo many different Sentiments and Syſtems on the ſame Subjects. For why had *Ptolemy* invented ſo many different Heavens, turning round the Earth, which he places as immoveable in the Center of his Syſtem; and *Copernicus*, on the contrary, made the Earth turn on its Axis, round the Sun, which it fixes in the Center of its Syſtem, as *Ptolemy* does the Earth in his, if the Diſcovery of the true Syſtem of the World had been practicable, and the omnipotent Being who has form'd it, had not been willing to make it a Secret? And is not the Impoſſibility of diſcovering that Secret, a convincing Proof that it is a Folly to attempt it? In fact, is it not enough to ſatisfy a human Mind, govern'd by Reaſon, to know on that Subject; that all that is viſible in this vaſt Univerſe, and the juſt and beautiful Harmony which ſubſiſt between all the Parts thereof, has been calculated by the divine Architect who has form'd it, for the Preſervation of the Individuals? What is it to us, if the Sun or the Earth be placed in the Center of the Syſtem, when we know that they have both been created for our Uſe; the Earth to be our Place of Reſidence during our Paſſage from Time to Eternity, and the Sun to fertiliſe that Earth by its benign Influences, and help her to produce what is neceſſary for our Subſiſtence; nay our Curioſity, without being criminal, or even unreaſonable, can go ſo far as to endeavour to diſcover how thoſe marvellous Effects are produced, ſince that Knowledge diſtinguiſhes us in Part from the irrational Part of the Creation. What! becauſe an Extravagant has invented a Zodiack, and built upon it ſeveral Houſes or Tents, for the Reception of the Sun, in its annual Revolution; muſt we be all guilty of the ſame Folly, in following him to thoſe imaginary Houſes, to make the Difference of the Seaſons? Does not our common Fire convince us, that the nearer the Sun, which is the Source of Light and Heat, is to us, and the leſs obliquely he darts his Rays upon us, the better we are warmed and lighted by him; and that in the Difference of its Diſtance from us, conſiſts Heat and Cold, and conſe-

consequently the Difference of the Seasons, without having Recourse to the Cancer, the Capricorn, &c. for those Differences. Why should we search to discover the Cause of the Ebbing and Flowing of the Sea, since so many others have searched it before us, and all to no Purpose? Is it not enough for Use, that we know that the Sea ebbs and flows, and so many Times in 24 Hours? Is not that Knowledge sufficient for the Security of our Ships either in sailing out of the Harbour, or coming into it; and would that of the Cause of the Ebbing and Flowing of the Sea prove more beneficial to them? Would it be a greater Help to us towards precautioning us against the Ravages which that Flowing causes sometimes at certain Seasons of the Year? Can all those Researches be called a true *Philosophy*, or rather a true Folly? Without mentioning here those Persons, who by Means of a huge Telescope, pretended to discover as many Worlds as there are Planets; and see in the most distant of them all, *viz. Saturn*, Mountains, Vallies, Forests, &c. And if there was an Instrument to help their Ears, as this helps their Eyes, no doubt but some of them had informed us by this Time of the Language of the Inhabitants of those Worlds, which they have also found Means to people, to the entire Devastation of their own Brain.

Philosophy in a narrower Sense, is frequently confined to some one Science or Branch of Science, *v. gr.* to Logick, as we find it in *Plato* and *Aristotle*. To Physicks, or the Knowledge of Nature; in which Sense it was chiefly used in the *Ionick* School. And to Ethicks, or the Rules of Morality: Thus it is *Clemens* of *Alexandria* relates, that among the *Greeks* there are Philosophers who hold Disputes about Virtue.

Agreeable to this last Application, *Pythagoras* defines *Philosophy* a Meditation on Death; by which, according to *Plato* and *Clemens*, is meant an Abstraction or Retirement from the Body: Which *Apuleius* thus explains; a Philosopher is to study nothing so much as to set his Soul at Liberty from its Correspondence with the Body: Thus *Cicero* calls *Philosophy*, *Ars Vitæ*, and *Seneca*, *Lex Vitæ*; and thus *Plutarch*, Constancy, Fidelity, and a sound Mind are the real *Philosophy*, all the other Parts of Wisdom, tending any other Way, are vain Researches and Curiosities: And in this Sense it was, that *Philosophy* chiefly flourished in the School of *Socrates*, afterwards called *Academick* School, and among Stoicks.

Philosophy again is frequently used by *Pythagoras* and *Plato* for Metaphysicks, or the Knowledge of God; which *Plato* calls the *true Philosophy*, others the *prima Philosophia*, and in Respect whereof the *Platonists* call all other *Philosophy*, *Nocturnal*, νυκτερινη φιλοσοφια.

That Definition of *Epictetus* is pretty comprehensive: *Philosophy* consists in three Things; the Practice of Precepts, the Reason of Precepts, and the Proof of Precepts.

Gale includes the several Notions hitherto deliver'd, under this one general Definition: *Philosophy* is the Knowledge of Things natural, moral, supernatural, and notional, first granted by that to our first Parents, and transmitted to us, for the Honour of the Creator, and the Good of the Universe.

This Definition of *Gale*, is in my Opinion absurd, and founded on false Notions. It is absurd, because it supposes an Universal Knowledge, with all the Circumstances of Perfection, which has never been found among Men, from the Creation till now, and never will. It is founded on false Notions, because it supposes that such a Knowledge was granted to our first Parents, and from them transmitted to us, which is contrary to what the sacred Historian, which has wrote the History of the Creation of our first Parents, says of the two different States they found themselves in, *viz.* that of Innocence, immediately after their Creation, and which we have all the Reason to believe, lasted but a very short Time; and that of their Prevarication, which was the sole Inheritance which was transmitted to us from them. As their State of Innocence was, we all allow, the most perfect of the two, we must reasonably suppose, that if they ever had that immense Knowledge granted to them by *Gale*, it must have been while they continued in that State, though we find no where that they had then that Knowledge, *viz.* of Things *natural*, *moral*, *supernatural* and *notional*.

Those who have imagined that our first Parents had the Knowledge of *Things natural*, found their Belief on what *Moses* says, that God brought all the other Creatures before *Adam*, and that *Adam* gave them every one a Name; which, in my Opinion, is a very weak Proof of his having had a natural Knowledge, such as *Gale* supposes; unless it was proved, at the same Time, that those Names were properly adapted, *i. e.* that each Name was a concise Explanation of the particular Properties, and Qualities of the Creature that bore it, which we cannot know any Thing of but by mere Conjecture; having as much Reason to believe, that their different Shape and Form, &c. gave Occasion to the Difference of their Names; and that as they had been all created for *Adam*'s Use, and all subjected to his Empire, each of them should know the Word of Command peculiar to itself, and exclusive of all others, by Means of that particular Appellation, his Sovereign had been pleased to impose upon him; and which by a frequent Repetition thereof, was so well imprinted in his Memory, that it became in Time, entirely familiar to him: Besides how can we judge that every particular Name was properly adapted to every particular Creature, since we may reasonably believe, that none of those Names has been transmitted to us; since we know by Experience, that every Nation has assumed the same Authority God granted to *Adam*, of imposing in their own Language, what Name they pleased on these Creatures; there being as many different Names for them, as there are different Languages. As for the vegetable Kind of the Creation, it is certain he had no Knowledge of their particular Properties, Qualities, and Virtues, at least but a very imperfect one; since God told him of all that is in the Paradise you shall eat, except of the Tree of Life, which makes me judge, that he had no *infused Philosophy*, or natural Knowledge of the Things created, since he knew not exclusive of that Command, what was more proper for him to eat for his Subsistence. And even supposed, that he had had that Knowledge previously to that Command, there had been nothing extraordinary in that Knowledge, which the other Creatures had in common with him, tho' it has never been pretended that they had an *infused Philosophy*, or natural Knowledge.

But perhaps *Adam* knew the Virtues of Simples, and Minerals; the different Substances they were composed of; the Manner of preparing them for his own Use, and of applying them with Efficacy: But even that cannot be supposed; since it is not reasonable to imagine, that his Creator would grant him any other Knowledge, but what could contribute towards rendering his temporal Felicity perfect, without diverting his Attention, which was to be wholly employ'd in the Contemplation of the divine Attributes, without being distracted by any human Knowledge, which could in Time have occasioned a criminal Curiosity; the Knowledge of his Creator to that Point of Perfection that suited his created Mind, was sole capable to employ all the Faculties of his Soul, without leaving the least Room for any other Knowledge; that natural Knowledge, besides, was too mean for that Soul which was never to be found but in Heaven conversing with his Creator; quite needless, and the Time spent in making use of it, as Time ill spent, since no Use could have resulted from it; his knowing that they were created either for his Food, or to recreate his other Senses (as God had been pleased to tell him) being sufficient. He had no Need to know, that the Plants had, besides, certain other Qualities to cure Maladies, which he had not the least Notion of, and to which he was to be a perfect Stranger, so long as he continued in his State of Innocence: That Metals could be prepared to flatter either the Vanity, Luxury, or Avarice of his Posterity, since he knew not then that his Descendants would be susceptible of those Vices; and that some of the Animals he saw were so wild, and of so voracious a Nature, as to devour, not only other Animals like themselves, but even Man himself, when they could attack him to Advantage, or surprize him; since he saw them all equally subject to him, and so beautiful an Harmony subsisting between them, and all so well familiarized together, that there did not appear the least Fear, or even Jealousy among them. He knew nothing that the greatest Part of them should be slaughter'd for Man's Subsistence, for so much Blood spilt,

ſpirit, had revolted his innocent Mind, inſpired him with Horror for himſelf, and been, conſequently, an Obſtacle to his temporal Felicity. He had no other Thought of them, but that they were created to enjoy the ſame Benefits of the Creation, according to their State, he himſelf did; which was in fact the real Deſign of the Creator, if *Adam* had not prevaricated; at leaſt it is my own Sentiment.

Where is then that natural Knowledge or Philoſophy, infuſed into *Adam*, and which has been tranſmitted to us, according to *Gale*'s Definition of *Philoſophy?* Muſt we not believe, on the contrary, that he had not half the natural Knowledge which that Curioſity, which is a Conſequence of *Adam*'s fatal Prevarication, has engaged us to ſeek after ſince; and which is improved daily by the frequent Experiments we make, and the frequent new Diſcoveries which reſult from thoſe Experiments; and which is rather a Puniſhment than a Benefit, ſince it puts continually our Imagination to the Torture, a Thing entirely incompatible with that happy Condition *Adam* is repreſented in, in the State of Innocence.

As to a moral Knowledge (if by it we underſtand that Knowledge which teaches us how to make a juſt Difference between Good and Evil) it is a manifeſt Contradiction of the Scripture, to believe, that *Adam* had ſuch a Knowledge, ſince the Serpent, to tempt *Eve* to eat of the forbidden Fruit, aſſures her that in eating it ſhe ſhall know how to make a Difference between Good and Evil, which implies manifeſtly, that ſhe had not then that Knowledge, otherwiſe the Serpent's Promiſe had made no Impreſſion on her Mind. I confeſs that *Adam* was Maſter of the true Morality, but that Morality was not a Knowledge, ſince Knowledge ſuppoſes a new Acquiſition, or ſomething adventitious to our Exiſtence; but *Adam*'s Morality was nothing adventitious to his Exiſtence, or his Exiſtence was not previous to it; on the contrary, it was coeval with his Exiſtence; or rather there was neither a real nor a rational Inſtant between the Exiſtence of his Soul, and that of his Morality; both exiſting at the very ſame Inſtant, *i. e.* that at that Inſtant his Soul was created, it was created morally good; and his Body being informed with ſuch a Soul, they both conſtituted a moral Man; *Adam* finding no Alteration in him, in that Reſpect, till the fatal Moment he ceaſed from being a moral Man; then he had a Knowledge of Things moral, which has been tranſmitted to us, but that Knowledge was acquired, not an infuſed one; and procured by Means of the Serpent, and the Fruits of *Eve*'s Weakneſs and Curioſity, not granted by God as a new Benefit.

The ſame Thing may be ſaid of the Knowledge our firſt Parents had, *i. e.* that they had the ſame innate Idea we feel within ourſelves, and which is ſo well, and ſo deeply imprinted in our Mind, that it can never be obliterated, whatever Efforts we make to that Purpoſe; with this Difference, notwithſtanding, that *Adam*'s innate Idea of a Divinity, was more perfect than ours, as having been not darken'd yet by thoſe dark Clouds of Ignorance which the Original Sin has ſpread over it; but that Idea was not a Knowledge, it was nothing adventitious to his Soul, on the contrary, it was inſeparable from it, and was as perfect at the firſt Inſtant of that Soul's Exiſtence, as it was ever afterwards; his knowing ſupernatural Things as ſoon as he knew his own Being. Whence I conclude, that *Adam* had not an infuſed Knowledge, or *Philoſophy*, as *Gale* and ſome other Philoſophers have pretended.

Some have given the following Appellations to the antient *Philoſophy*, under its ſeveral Stages. *Philoſophy*, ſay they, became *Impious* under *Diagoras*; *Vicious* under *Epicurus*; *Hypocritical* under *Zeno*; *Impudent* under *Diogenes*; *Covetous* under *Demochares*; *Voluptuous* under *Metrodorus*; *Fantaſtical* under *Crates*; *Scurrilous* under *Menippus*; *Licentious* under *Pyrrho*; *Quarrelſome* under *Clearchus*, &c.

Philoſophy is divided by ſome Authors into two Branches, or conſider'd under two Habitudes, *viz. Theoretical* and *Practical*.

Theoretical or *Speculative* PHILOSOPHY, is that employ'd in mere Contemplation, and which terminates therein. Such is Phyſicks, which is a bare Contemplation of Nature, and natural Things.

Theoretical Philoſophy, is again ſubdivided into three, *viz.* Pneumaticks, Phyſicks or Somaticks, and Metaphyſicks or Ontologia. The firſt conſiders Beings abſtracted from all Matter, its Object are Spirits, their Natures, Properties, Effects, *&c.* The ſecond conſiders Matter and material Things; its Object are Bodies, their Properties, Laws, *&c.* The third extends to each indifferently, its Object is either Body or Spirit.

In the Order of our Diſcovery, or Arrival at the Knowledge of them, Phyſicks is firſt, then Metaphyſicks; the firſt ariſes from the two conſider'd together: After an Acquaintance with God, ourſelves, and natural Bodies, we come to conſider what is common to them all, or the Attributes that agree to all; and that from a Sort of univerſal *Philoſophy*, or Doctrine *De ente*, in general.

But in teaching or laying down theſe ſeveral Branches to others, we obſerve a contrary Order, beginning with the moſt univerſal, and deſcending to the more particular. And hence we ſee that the *Peripateticks*, call *Metaphyſicks*, and the *Carteſians*, *Pneumaticks*, the *prima Philoſophia*.

Others prefer the Diſtribution of *Philoſophy* into four Parts, *viz.* 1. *Pneumaticks*, which conſiders and treats of Spirits. 2. *Somaticks*, of Bodies. The third compounded of both, *Anthropology*, which conſiders Man, in whom both Spirit and Body are found. The 4th, *Antoſophy*, which treats of what is common to all the other three.

Practical PHILOSOPHY, is that which lays down the Rules of virtuous and holy Lives, and excites us to the Practice thereof.

Practical Philoſophy is properly Ethicks alone, or the Method of leading a virtuous and happy Life. Yet moſt Authors divide it into two, anſwerable to the two Sorts of human Actions to be directed thereby, *viz.* 1. *Logicks*, which governs the Operations of the Underſtanding. 2. *Ethicks*, properly ſo called, which directs thoſe of the Will.

In the Schools we divide *Philoſophy* into Logick, or the Art of Reaſoning; *Ethicks*, or the Art of living according to the Rules of Morality; for that Reaſon called *moral Philoſophy*; *Metaphyſicks*, or Doctrine *De ente*; and *Phyſicks*, or the Doctrine of natural Bodies, their Phænomena, Cauſes, and Effects, with the various Affections, Motions, Operations, *&c.* thereof.

Note, As I have already treated amply of all thoſe different Branches, each of them in an entire Treatiſe by itſelf, *viz.* of *Logick*, under the Letter *L*, of *Ethicks*, under the Letter *E*, of *Metaphyſicks*, under the Letter *M*; and of the greateſt Part of *Phyſicks*, in my Treatiſes of *Animals*, *Aſtronomy*, *Geometry*, *Hydraulicks*, *Hydroſtaticks*, *Metals*, *Minerals*, *Opticks*, &c. I have nothing elſe left to treat of in this Place, but of what remains untouched of the *Phyſicks*, and of different Syſtems of both the antient and modern Philoſophers: For,

PHILOSOPHY, is alſo frequently uſed for the particular Doctrine or Syſtem of Opinions, broached by ſome conſiderable Philoſopher, and eſpouſed and adhered to by his Followers.—In this Senſe we ſay the *Socratick*, *Platonick*, *Ariſtotelian*, *Epicurean*, *Hermetical*, *Carteſian*, *Newtonian*, &c. *Philoſophy*.

SOCRATICK PHILOSOPHY.

The *Socratick Philoſophy*, are the Doctrines and Opinions with regard to Morality and Religion, maintained and taught by *Socrates*.

By the Character of *Socrates* left us by the Antients, particularly his Scholars *Plato*, *Laertius*, &c. he appears to have been one of the beſt and wiſeſt Perſons of all the heathen World. To him is aſcribed the firſt introducing of Moral Philoſophy; which is what is meant by that popular Saying, *Socrates firſt called Philoſophy down from Heaven to Earth*; that is, from the Contemplation of the Heavens and heavenly Bodies, he led Men to conſider themſelves, their own Paſſions, Opinions, Faculties, Duties, Actions, *&c.*

While young, he was exceedingly fond of natural Knowledge, as he witneſſes of himſelf in *Plato*; but in his old Age he caſt aſide this Part of *Philoſophy* as obſcure,

ſcure, uncertain, impracticable, and even uſeleſs and impertinent; and applied himſelf wholly to moral or active *Philoſophy*.

It was he firſt, who, when all the other Philoſophers boaſted they knew all Things, owned ingeniouſly he knew nothing but this, that he knew nothing. Which *Pyrrho*, the Father of the *Sceptick Philoſophy*, improved on, when he ſaid he knew nothing; not even this, that he knew nothing. Yet in an Anſwer of the Oracle, it was pronounced, that *Socrates was the wiſeſt of all Men.*

He was accuſed by *Anytus*, *Melytus*, and *Lycon*, three Perſons whoſe Hatred he had incurred, by his ſevere Declamations againſt the Poets, of which Number the two firſt were, and the third an Actor. His Accuſation was, that he corrupted the *Athenian* Youth, and broached new Superſtitions. He was condemned to drink Poiſon by 281 Votes, as we are told by *Quintilian*.

After his Death his Fellow Citizens repented to that degree, that the Gymnaſia, Courts of Juſtice, *&c.* were all ſhut up; *Melytus* put to Death, *Anytus* baniſhed, and a Statue erected to *Socrates*.

He wrote nothing himſelf, yet almoſt all the *Grecian* Sects of Philoſophers refer their Origin to his Diſcipline, particularly the *Platoniſts*, *Peripateticks*, *Academics*, *Cynicks*, *Stoicks*, &c. But the greateſt Part of his *Philoſophy* we have in the Works of *Plato*.

This Foundation of the Syſtem of the *Socratick Philoſophy*, *I know nothing but this, that I know nothing*, will appear ridiculous to thoſe who take *Socrates* Words in their literal Senſe, without entering into the Senſe of *Socrates*, or endeavouring to diſcover his Meaning: But they muſt not ſuppoſe that *Socrates* meant, that he abſolutely knew nothing, and was wrapped in a groſs Ignorance which excluded all Sorts of Knowledge; for that Philoſopher would only let his Diſciples underſtand, that he knew nothing in compariſon to what he ſhould know, to excite among them a ſtill greater Emulation, and inſpire them with a ſtill greater Deſire of making every Day new Progreſſes in all Sorts of Knowledge; that his being confined within two narrow Limits, they ſhould endeavour to acquire, by an aſſiduous and indefatigable Study, a much greater; and be obliged at laſt to confeſs, as he did, that they *knew nothing but this, that they knew nothing*; ſince there was a ſtill greater Extent of Knowledge remaining, which it was impoſſible for them to acquire during the ſhort Courſe of their mortal Life; ſince *Knowledge* was an Abyſs without Depth. To give another Senſe to *Socrates*'s Syſtem, and to pretend that he wanted to give us to underſtand thereby, that he thought he abſolutely knew nothing, is to ſuſpect him of a Thing which was entirely contrary to the Deſign he had formed, of rendering Men familiar with the true Philoſophy; in which it was impoſſible he could ever have ſucceeded, if he had diſcourag'd his Diſciples by perſuading them, that after all the Pains they took to acquire ſome Knowledge, they really knew nothing.

PLATONISM.

Platoniſm, is the Doctrine and Sentiments of *Plato* and his Followers, with regard to *Philoſophy*, &c.

The Founder of this Syſtem of *Philoſophy*, *Plato*, the Son of *Ariſto*, was an *Athenian*, born about the Year of the World 3625; who, after having ſpent his Youth in Exerciſes of the Body, Painting and Poetry, became a Diſciple of *Socrates*. After his Maſter's Death, he applied himſelf to *Cratylus* and *Hermogenes*, till being a Maſter of the *Greek* Philoſophy, he travelled into *Italy*, where he learnt that of the *Pythagoreans*. Thence he proceeded into *Egypt*, where, in ſeveral Years Reſidence, he became fully acquainted with the Secrets of the *Egyptian* Prieſts.

At his Return to *Athens* he began to retail the Stock of Learning he had collected among his Countrymen; Philoſophizing daily in the Academy; and hence his Diſciples were called *Academics*.

In Phyſick he chiefly followed *Heraclitus*; in Ethicks and Politicks, *Socrates*; in Metaphyſicks, *Pythagoras*.

After his Death, two of the principal of his Diſciples, *Ariſtotle* and *Xenocrates*, continuing his Office and Teaching, the one in the Academy, the other in the Lyceum; formed two Sects under different Names, though in other Reſpects the ſame; the one retaining the Denomination of *Academics*, the other aſſuming that of *Peripateticks*.

In after Times, about the firſt Ages of the Chriſtian Church, the Followers of *Plato* quitted the Title of Academiſts, and took that of *Platoniſts*.

It is ſuppoſed to have been at *Alexandria* in *Egypt* that they firſt aſſumed the new Title, after having reſtored the antient Academy, and re-eſtabliſhed *Plato*'s Sentiments; which in Proceſs of Time had many of them been laid aſide.

Porphyry, *Plotin*, *Lamblichus*, *Proclus*, and *Plutarch*, are thoſe who acquired the greateſt Reputation among the *Greek* Platoniſts; and among the *Latins*, *Apuleius*, and *Chalcidius*. Among the *Hebrews*, *Philo Judæus*. The modern *Platoniſts* own *Plotin* the Founder, at leaſt the Reformer of their Sect. He had been Diſciple of *Ammonius*, and had ſtaid twelve Years in his School: He came to *Rome* the firſt Year of the Reign of the Emperor *Philip*, where he made Profeſſion of Philoſophy and of Magick together. He had among his Scholars Chriſtians as well as Idolaters, and appeared not to be very averſe to the Religion of the firſt. *Porphyry* ſays, that he wrote againſt the Gnoſticks. *Marcellus Filin*, has happily cleared his Doctrine: He had conceived the Bizare thought of building a City which he wanted to call the City of *Plato*, where he pretended to make the Inhabitants live according to the Form of the Republick which his Maſter had given in his Books. The Emperor *Galienus* had granted him his Requeſt, if his Council had not repreſented to him that it was an Enterprize impoſſible. After his Death *Porphyry* ſays, that a Dragon which was under his Bed, entered the Wall of his Room and diſappeared, which was perhaps his familiar Dæmon which he conſulted in all Things. He had done much better to believe *Ammonius* his firſt Maſter, and to ſubmit his proud Spirit to the Faith of *Jeſus Chriſt*. He had acquired ſo great a Reputation of Virtue, that Altars were erected to him as to a God.

The *Platonick Philoſophy* appears very conſiſtent with the Moſaick; and a great Party of the primitive Fathers followed the Opinions of that Philoſopher, as being favourable to Chriſtianity. *Juſtin* is of Opinion, *Plato* could not learn many Things he has ſaid in his Works from mere natural Reaſon; but thinks he might have learnt them from the Books of *Moſes*, which he read when in *Egypt*.

Hence *Numinius* the *Pythagorean* expreſly calls *Plato* the *Attic Moſes*; and upbraids him with Plagiariſm, in that he ſtole his Doctrine about the World and God from the Books of *Moſes*.

Theodoret ſays expreſly, that he has nothing good and commendable about the Deity, and his Worſhip, but what he ſtole from the *Hebrew* Theology; and *Clemens Alexandrinus* calls him the *Hebrew Philoſopher*.

Gale is very particular in his Proof on the Point, that *Plato* borrowed his Philoſophy from the Scriptures, either immediately or by means of Tradition; and beſides the Authority of antient Writers, brings ſome Arguments from the Thing itſelf. As *e. gr.* *Plato*'s Confeſſion that the *Greeks* borrowed their Knowledge of the one infinite God, from an antient People, better and nearer to God than they; by which People, our Author makes no doubt, he meant the *Jews*, from his Account of the State of Innocence; as that Man was born of the Earth, that he was naked, that he enjoyed a truly happy State, that he converſed with Brutes, *&c.* In effect from one Examen of all the Parts of *Plato*'s Philoſophy, phyſical, metaphyſical, and ethical; this Author finds in every one, evident Characters of his ſacred Original.

As to the Manner of the Creation, *Plato* teaches that the World was made according to a certain Exemplar or Idea in the divine Architect's Mind. And all Things in the Univerſe, in like Manner he ſhews, do depend on the Efficacy of eternal Ideas.

This ideal World is thus explained by *Didymus*; '*Plato* ſuppoſes certain Patterns or Exemplar of all ſenſible Things, which he calls Ideas; and as there may be various Impreſſions taken off from the ſame Seal, ſo is there a vaſt Number of Natures exiſting from each Idea.' This Idea he ſuppoſes an eternal Eſſence, and to occaſion the ſeveral Beings in Nature to be ſuch

as itself is; and that most beautiful and perfect Idea which comprehends all the rest he maintains to be the World.

Further, *Plato* teaches that the Universe is an intelligent Animal, consisting of a Body and a Soul.

Serranus on *Plato*'s *Timæus* explains this Doctrine thus; 'Our Philosopher will have the Universe ζωονεμψυχον εννυν, consisting of Body and Spirit; the Spirit he makes to be that Analogy or Symmetry, whereby Things of different Nature are amicably associated in the grand Compages of all Things. In which Sense the *Anima mundi* signifies as much as the Form of the Universe.'

Others will have the *Anima mundi* of *Plato* to signify I know not what ignifick Virtue, or vivifick Heat, infused into the Chaos, and disseminated through its whole Frame; for the Conservation, Nutrition, and Vivification thereof.

Others suppose *Plato*, by his *Anima mundi*, to have meant God, or the Spirit of God; and to have taken the Hint from *Moses*, who in his Account of the first Days Creation, says, *the Spirit of God moved on the Face of the Deep.*

The modern *Platonists* explain their Master's *Anima mundi* by a certain universal, ethereal Spirit, which in the Heavens exists perfectly pure, as retaining its proper Nature; but on Earth pervading elementary Bodies, and intimately mixing with all the minute Atoms thereof, assumes somewhat of their Nature, and becomes of a peculiar Kind.—So the Poet:

Spiritus intus alit, totosque infusa per artus
Mens agitat molem, & magno se corpore miscet.

They add, that this *Anima mundi*, which more immediately resides in the celestial Regions as its proper Seat, moves and governs the Heavens in such Manner, as that the Heavens themselves first received their Existence from the Fecundity of the same Spirit: For that this *Anima* being the primary Source of Life, every where breathed a Spirit like itself, by virtue whereof various Kinds of Things were framed conformable to the divine Ideas.

The Notion of an *Anima mundi* is rejected by most of the modern Philosophers; though M. *du Hamel* thinks, without any great Reason, that the Generality of them admit something very much like it. The Peripateticks have recourse to celestial Influxes, in order to account for the Origin of Forms, and the secret Powers of Bodies.

The Cartesians have their subtile Matter, which answers to most of the Uses and Intentions of *Plato*'s *Anima mundi*, being supposed to flow from the Sun and the other heavenly Bodies, and to be diffused through all the Parts of the World, to be the Source and Principle of all Motions, *&c.*

Some later Philosophers substitute Fire, and others a subtile elastick Spirit or Medium diffused through all the Parts of Space.

The principal Thing objected on the Christian Scheme against *Plato*'s Doctrine of the *Anima mundi*, is, that he mingles the Deity too much with the Creatures, confounds in some measure the Workman with his Work, making this as it were a Part of that; the several Portions of the Universe so many Parts of the Godhead: Yet is the same Principle asserted by *Seneca*, Epistle 92. *Totum hoc quo continemur, & unum est, & Deus, & socii ejus sumus & membra.*

The Principles or Elements which *Plato* lays down are Fire, Air, Water, and Earth.

He supposes two Heavens; the *Empyrean*, which he takes to be of a fiery Nature, and to be inhabited by Angels, *&c.* and the starry Heaven, which he teaches is not adamantine or solid, but liquid and spirable.

His *Physicks* or Doctrine *De Corpore*, is chiefly laid down in his *Timæus*; where he argues on the Properties of Bodies in a geometrical Manner; which *Aristotle* takes Occasion to reprehend in him. His Doctrine *De mente* is deliver'd in his tenth Book of Laws, and his *Parmenides.*

St. *Augustin* commends the *Platonick* Philosophy; and even says, that the *Platonists* were not free from Christianity: He adds, that the Generality of the new *Platonists* of his Time embraced the Faith.

Justin the Martyr professes, that *Plato*'s Doctrine was of the utmost Advantage to him, in helping him to believe the Mysteries of the Christian Faith. To which it may be added, that it was in good Measure by *Plato*'s Help that *Origen* confuted *Celsus.*

Indeed the Author of *Platonisme devoilé*, carries Things to an extravagant Length when he contends, that the Dogmata of our Religion are only the Opinions of *Plato*; that the Fathers give us nothing of the Mysteries thereof, but what they learnt from him; and that Christianity is only *Platonism* veiled, or covered over. To which Opinion however M. *le Clerc* seems a little inclined.

I am of Opinion, that *Plato* understood by *Anima mundi*, an eternal, spiritual, omnipotent and incomprehensible Substance operating of itself, without the Influence of a superior Power, and the Succour of second Causes; so quick and so perfect in its Operations, as to admit of no Interval between its determinating itself to operate and its Productions; which Productions are in an entire perfect State, sooner than we can possibly imagine that they are, or have any Existence; producing at the same Instant, by the same Art, and in the same perfect State, an infinite Number of Things corporal and incorporal, *i. e.* of different Substances and Substitances, and of a different Determination and Action, in which that *Anima mundi* resides, and continues to operate, not by its being divided between them, since it is an indivisible Substance, but by its Immensity, and an incomprehensible Irradiation, which though the same in all Individuals, has, notwithstanding, different Determinations to Action; though at the same Time it does not cease from applying itself to new Productions, without impairing in the least its productive Faculty, which is always the same as when it first began to operate, and would always continue so, was it even to unbosom itself of that infinite Multitude of other Productions, which it contains eminently, and would fill Millions of other Worlds, though Millions of them will never have any Existence. That Existence of that spiritual and indefinite Substance in the different Individuals, accounts very well for what *Plato* says, that the Universe is *an intelligent Animal* consisting of a Body and a Soul; and that the different Parts thereof of an eternal and universal Idea, which though they be all originally the same, *i. e.* as contained in that general Idea, appears to us notwithstanding of a different Degree of Perfection in their different Determination; for they are really and identically all equally perfect; and the Difference of Perfection we find in them results only from the Narrowness of our Conceptions, and our Manner of comparing Things with one another. To imagine that *Plato* borrowed his System of the *Anima mundi*, from what *Moses* says in *Genesis*, that the Spirit of God was carried on the Water, must be a Mistake; for the Legislator of the *Jews* speaks rather like a Historian, who accommodates his Expressions to the common Manner of conceiving Things, than as a Philosopher, since he represents there the Spirit of God in a quiescent State, and as if he could exist without operating; but we do not find the least Trace of that quiescent State in *Plato*'s System of the Creation, nor of any Interval between the Efficacy of the universal Idea and its Productions; it is true he says that the World is the Result of a Combination of Necessity and Understanding, *i. e.* of Matter which he calls Necessity, and divine Wisdom; but by making use of those Terms the *Result of a Combination*, it seems that he would give us to understand, that that Result was an instantaneous Act, and that the combined Parts were coeval to one another, which is not admitted by *Moses.*

Plato's Doctrine of the Heavens is better adapted to our Manner of conceiving Things, than that of the Philosophers of the following Ages; since that great Number of Heavens, which they pretend to have discovered, serve only to perplex our Understanding.

ARISTOTELIAN, *or* PERIPATETICK PHILOSOPHY.

The *Aristotelian Philosophy*, is that taught by *Aristotle*, and maintained by his Followers; which is also called *Peripatetick Philosophy.*

The Principles of *Aristotle*'s Philosophy, the Learned agree, are chiefly laid down in the four Books *de Cœlo*, *de*

the eight Books of *Physical Auscultation* Φυσικης Ακροασεως, belonging rather to Logicks and Metaphysicks, than to Physicks. To give an Idea then of *Aristotelianism*, the reigning System of many Ages, and shew *Aristotle*'s Method of philosophizing, we cannot do better than produce a Specimen of that Work.

These four Books he entitles *De Cœlo*, περι Ουρανε, because the Heavens are the Chief of the simple Bodies he treats of. He begins with proving that the World is perfect, which he does thus. All Bodies, says he, have three Dimensions; they cannot have more, for the Number three, according to *Pythagoras*, comprehends all; now the World is the Assemblage of all Bodies; therefore the World is perfect.

In the second Book he lays down certain *Peripatetick* Axioms; as, that all natural Bodies have of themselves a Power of moving; that all local Motion is either rectilinear, circular, or composed of the two; that all simple Motions are reducible to three, the Motion of the Centre, the Motion towards the Centre, and the Motion about the Centre: That all Bodies are either simple or compounded; simple are those which have some Power within themselves, whereby they move, as Fire, Earth, &c. compounded are such as receive their Motion from those others whereof they are compounded.

From these Principles he draws several Consequences. A circular Motion, says he, is a simple Motion: But the Heavens move in a Circle; therefore the Motion of the Heavens is simple: But a simple Motion can only belong to a simple Body, *i. e.* to a Body which moves by its own Power; therefore the Heavens are a simple Body, distinct from the four Elements which move in right Lines. This Proposition he likewise proves by another Argument, thus: There are two Kinds of Motions, the one natural, the other violent; the circular Motion of the Heavens, therefore, is either the one or the other; if it be natural, the Heaven is a single Body, distinct from the four Elements, since the Elements do not move circularly in their natural Motion: If the circular Motion be contrary to the Nature of Heaven, either that Heaven must be some of the Elements, as Fire, or something else: But Heaven cannot be any of the Elements, *e. gr.* it cannot be Fire, for if it were, the Motion of Fire being from below upwards, the Heavens would have two contrary Motions, the one circular, the other from below, upwards, which is impossible. Again, if the Heaven be any other Thing which does not move circularly of its own Nature, it will have some other Motion, which likewise is impossible; for if it moves naturally from below upwards, it will be either Fire or Air; if from above downwards, it will be Water or Earth; *Ergo*, &c. A third Argument is this: The first and most perfect of all simple Motions must be that of a simple Body, especially that of the first and most perfect of all simple Bodies: But the circular Motion is the first and most perfect of all simple Motion; and therefore a Body that moves circularly is simple, and the first and most divine of all simple Bodies. His fourth Argument is: That all Motion is either natural or not; and every Motion which is not natural to some Bodies, is natural to others: Now the circular Motion is not natural to the four Elements; there must therefore be some simple Body to which it is natural: Therefore the Heaven which moves circularly, is a simple Body distinct from the four Elements. Lastly, the circular Motion is either natural or violent to any Body; if it be natural, it is evident this Body is one of the most simple and perfect; if it be not, it is strange this Motion should last for ever. From all these Arguments, therefore, it follows, that there is some Body distinct from the circumambient ones, and which is of a Nature as much more perfect than they, as it is more remote. Such is the Substance of his second Chapter.

In the third Chapter, he asserts, that the Heavens are incorruptible and immutable; and the Reasons he gives for it are; that they are the Abode of the Gods, that no Person has ever observed any Alterations in them, &c.

In the fourth Chapter, he attempts to prove, that the circular Motion has no contrary — In the fifth, that Bodies are not infinite — In the sixth, that the Elements are not infinite. — In the eighth, he shews, that there are not several Worlds of the same Kind, by this very good Argument; that as Earth is heavy by Nature, if there were any other beside ours, it would fall upon our Heads, our Earth being the Centre, to which all heavy Bodies tend. — In the ninth, he proves it impossible, that there should be several Worlds, because if there were any Body above the Heavens, it must be either simple or compound, in a natural or violent State; none of which is possible, for Reasons which he draws from the three Kinds of Motions above-mentioned. — In the tenth, he maintains, that the World is eternal, because it is impossible it should have had any Beginning, and because it endures for ever. He employs the eleventh to explain the Notion of Incorruptibility. — And in the twelfth endeavours to shew, that the World is incorruptible, because it could not have any Beginning; and because it endures for ever: All Things, says he, subsist either during a finite, or an infinite Space: But what is only infinite one Way, is neither finite nor infinite; therefore nothing can subsist in this Manner.

Such is the *Philosophy*, and such the Method of philosophizing, of the Genius of the Nature, the Prince of Philosophers, *Aristotle*. Yet such was his Authority for many Ages in the Schools, that when a Disputant quoted a Passage from him, his Opponent durst not say *Transeat*, but must either deny the Passage, or reconcile it to his own Cause.

The Followers of *Aristotle* were called *Peripateticks*, or the Maintainers of the *Peripatetick Philosophy*; and also *Aristotelians*.

Cicero tells us, that *Plato* left two excellent Disciples, *Xenocrates* and *Aristotle*, who founded two Sects, which only differ'd in Name: The former taking the Appellation of *Academicks*, who were those that continued to hold their Conferences in the Academy, as *Plato* had done before. The others who follow'd *Aristotle*, were called *Peripateticks*, from περιπατεω, *I walk*, because they dispute walking in the *Lyceum*.

Ammonius fetches the Name *Peripatetick* from *Plato* himself, who only taught walking; and adds, that the Disciples of *Aristotle*, and those of *Xenocrates*, were equally called *Peripateticks*; the one *Peripateticks* of the Academy; the other *Peripateticks* of the *Lyceum*: But that at length the former quitted the Title *Peripatetick*, for that of *Academick*, on Occasion of the Place where they assembled, and the latter retained simply that of *Peripatetick*.

The greatest and best Part of *Aristotle*'s Philosophy, he borrow'd from his Master *Plato*: *Serranus* affirms confidently, and says he is able to demonstrate it, that there is nothing exquisite in any Part of *Aristotle*'s Philosophy, Dialecticks, Ethicks, Politicks, Physicks, or Metaphysicks, but is found in *Plato*. And of this Opinion are many of the antient Authors, *Clemens Alexandrinus*, &c.

Gale endeavours to shew, that *Aristotle* borrowed a good deal of his *Philosophy*, both physical about the first Matter, and metaphysical about the first Being, his Affections, Truth, Unity, Goodness, &c. from the sacred Books; and adds from *Clearchus*, one of *Aristotle*'s Scholars, that he made Use of a certain Jew who assisted him therein.

For my Part, I am rather of Opinion with the Antients, that *Aristotle* borrow'd what appears the most reasonable in his *Philosophy*, from his Master *Plato*, than from the sacred Books, as *Gale* pretends, since we find nothing in those Books, which admits of much philosophizing, all in them being a simple Narration of Facts, which *Moses* has adapted to the human Understanding, as to the Manner of conceiving them, which must be credited on his own Authority, and which, were they made the Subject of a true *Philosophy*, and compassed by Reasonings, would be perhaps revoked in Doubt: *Aristotle* having been assisted therein by a *Jew*, appears to me a false Supposition; for the *Jews* of those Times, being entirely guided by a blind Faith, supported by continual Prodigies and Miracles, which being above all human Apprehension, were not permitted to philosophize upon them, and should have even considered as a capital Sin the attempting to do it; for as *Philosophy* owes its Origin to Doubt and Incertitude, and was invented to clear up those Doubts, the *Jews* having then no Doubt, on what was either written or said to them,

them, had not the least Room for philosophizing; it was not long after *Aristotle*'s Time, that their Faith, no longer supported by Miracles, becoming weak, they began to doubt, and their Doubts made them have Recourse to *Philosophy*, in order to enucleate the greatest Difficulties in what was proposed to them, for Object of their Belief. But let it be how it will, I'm of Opinion, that the greatest Part of *Aristotle*'s Philosophy is founded on false Principles, and those Principles are supported by false Reasonings, and some of them very extravagant and ridiculous ones; and this is particularly found in his Books the *Celo* above-mentioned; for what can be more ridiculous than to prove that the World is perfect, by its being an Assemblage of all Bodies, because those Bodies have three Dimensions, *viz.* Length, Depth, and Breadth; as if the Perfection of those Bodies consisted entirely in those Dimensions, without the Concurrence of any adventitious Quality? For Example, could they by means of those three Dimensions alone direct themselves to Motion? Could a Body, by means of those three Dimensions, independently of any other Configuration of the Parts it is composed of, or the Impulsion of another Body, determine itself rather to a rectilinear than to a circular Motion? Could even a square one determine itself, or be determined by another, to a circular one, though that Square has the three Dimensions required by *Aristotle*, viz. Length, Depth, and Breadth, to form a perfect Body? And as we are convinced by Experience that the World admits into its Composition an infinite Number of Bodies of that, and of other Configurations, which not only have no Power to determine themselves to a circular Motion, but cannot even be determined to it by the Impulse or Concurrence of another, the World composed in Part of those Sorts of Bodies, could not be perfect even in his own System.

It is equally false that all natural Bodies have of themselves a Power of moving; that which he admits as a Power, being nothing else but a certain Disposition of receiving the Impulsion of other Bodies, and those of others, which receive it from the first Principle of Motion, *viz.* the ambient subtile Matter, which alone has of itself a Power of moving, which it received at the first Instant of the Creation; and of communicating that Motion to the other Bodies, which otherwise would remain always in the same quiescent State, notwithstanding their natural Propensity to Motion. Neither will I admit with him, that there are simple Bodies, such as he admits them, in the whole Creation, all Bodies of what Nature or Kind soever, participating in something from one another, and that Simplicity he admits, being a Negation of Bodies, since a Body supposes a Composition; having been all extracted from the same informed Mass; the Difference between them consisting only in the lesser or greater Degree of Perfection of the Parts they are composed of, and in the closer or looser Coadunation of those Parts between themselves, and of their being more or less free from heterogeneous Particles: The Elements, which he considers as the first in Rank among his simple Bodies, are all composed, every one of them partaking of the others, more or less according to their greater or lesser Degree of Perfection; the Earth is not without igneous, ethereal, and watery Particles, no more than the Air without earthly, igneous, and aqueous ones; Fire being also a Compound of the three others, though in a lesser Quantity; for the great Volatility of its constitutive Particles, admitting a greater Volume of the subtile Matter, keeps it in a perpetual violent Motion, whereby it disengages itself as much as possible from all heterogeneous ones; and therefore could be considered alone as a simple Body, with respect to the other three, though not in itself. All which notwithstanding their different Degrees of Perfection, have no Principle of Motion within themselves, which on the contrary, they all received from the first Element or subtile Matter they are environed with, or swim in.

It is false that a *circular Motion* is a *simple Motion*, since it is composed of two others, *viz.* of a rectilinear and oblique one; the first Progression of all Bodies being always in a direct Line as the most natural, which it would always follow, was it not directed otherwise, either by the other Bodies it meets with in its Progression, or by the Matter it is environed with, which is confirmed by Experience, since if the first Impulsion be strong enough, it will always proceed in a direct Line, and conquer all Obstacles it meets with; a circular Motion besides being rectilinear in itself, and circular only in our Manner of conceiving Things; since if we follow that Motion throughout all the Points of its Progression, we shall find every one of those Points rectilinear to the Point opposite to it; therefore a circular Motion in our Manner of conceiving Things, should be a Compound of several rectilinear ones, and consequently could not be a simple Motion, nor a simple Body more susceptible of a circular than of a rectilinear Motion, since a circular Motion admitting of several Mediums, the Thing moved must necessarily run through that supposed different Configuration of Parts, answerable to those different Mediums, which different Configuration supposes necessarily a Composition. To conclude, as *Aristotle* does, that Heaven is none of the four Elements, because the Heaven has a circular Motion, and the Elements not, is a false Conclusion drawn from false Suppositions; for it is a false Supposition to say, that the Heaven has a circular Motion, since in our Manner of conceiving Things, that Motion may be eliptical, which is a Compound of two Motions, *viz.* circular and rectilinear, or even rectilinear with respect to the different Parts of the Globe. And what Impossibility could he find in the Motion of the Elements being circular as well as that of the Heavens, since the one is as agreeable to Reason, and as much confirmed by Experience as the other; therefore his Conclusion is false, that the Heaven cannot be any of the Elements, for why not Fire? Since, suppose the Motion of the Heaven to be circular, could not Fire tend upwards in a circular Motion as well as in a rectilinear one, since we see daily other Bodies tending upwards in a circular Motion, and tending downwards in the same Motion. Therefore the Heaven, its circular Motion even admitted, could be any of the Elements; though it be neither of them properly speaking, but like all the rest of created Bodies, a Compound of them all; since no simple Body can be admitted in the Sense of *Aristotle*, without admitting at the same Time eternal and incorruptible, which is a Contradiction of the Notion we should have of a Body, which supposes a Composition, and a Composition a Dissolution. I deny that there is any natural Motion among the created corporal Beings but that of the first Element, or subtile Matter; since a natural Motion would admit of no Changes or Vicissitudes; and we are convinced by Experience, that all Motions, that of the subtile Matter excepted, are susceptible of Changes or Vicissitudes, some more sensible than others, all losing by Degrees something of their former Velocity, Heaven itself not excepted; therefore the Motion of all Bodies is violent, *i. e.* received their Impulsion, from a first Mover, and are maintained in it by the same first Mover.

Aristotle's Philosophy preserved itself, *in puris naturalibus*, a long Time, none of his Followers or Commentators having dared to make any Innovation therein, till the Beginning of the 13th Century, when it began to be new modelled. A reformed System of *Peripateticism* was first introduced into the Schools, in the University of *Paris*; from whence it soon spread throughout *Europe*, and has subsisted in the Universities to this Day, under the Name of *School Philosophy*, or *Scholastick*; the Foundation hereof is *Aristotle*'s Doctrine, frequently misunderstood, oftener misapplied: Whence the Retainers thereto may be denominated *reformed Peripateticks*.

Out of these have sprung at several Times, several Branches, the Chiefs are the *Thomists*, *Scotists*, and *Nominalists*.

The *Peripateticks*, after *Aristotle*, admit two Principles of the natural Body, *viz.* the *Matter* and *Form*; which Form is something like the divine Idea imprinted in Things; so that the Difference between the *Peripateticks* and *Platonists* on this Point, consists only in the Impressions, and can very well be reconciled together.

Therefore if there be any Difference between the *Peripateticks* and *Platonists*, it seems to consist in this only, that besides the Matter and Form which are called the Principles of Composition, and agree with the Matter and Idea of the Platonists, the Peripateticks add a third Principle,

Principle, *viz. Privation*, which is called the Principle of Generation; hence these Expressions so familiar in the School: That there are two Principles of the Composition of the natural Body, or *in facto esse*, viz. the Matter and Form, of which the Body consists: Or three Principles *in fieri*, or of Generation; without which the Generation can neither be nor conceived, *viz.* the Matter, Form, and Privation.

Generation, is commonly defined, *a Passage to Existence, from Non-Existence*; in which Passage three Things are requisite, according to the *Peripateticks*, viz. the *Term* from which this Passage is made, and is called *Privation*: The *Term* to which the Passage is made, and is called *Form*; and lastly the *Subject* itself, which passes from the Privation to the *Form*; which they elucidate by the Example of the Fire; since the Fire is made of Wood, and Wood passes from the Privation of Fire, to the Form of Fire.

Therefore *Privation* is the Term from which the Generation is made; and is defined in the School, *the Absence of Form in a Subject apt to receive that Form*: As Blindness is called the Privation of Sight in Man, because Man is apt to see. And in that they distinguish Privation from Negation; because *Negation*, is *the Absence of the Form in a Subject unapt to receive it*; as the Want of Sight in a Stone is called a *Negation*; because a Stone is not apt to see.

The Matter is taken in three Manners, *viz.* the Matter *In qua*, which is called the Subject, in which the Form or Quality is received; the Matter *Circa quam*, which is called the *Object*; and the Matter *Ex qua*, which is the Subject whereof something is made.

PYTHAGOREAN, or PYTHAGORICK PHILOSOPHY.

The *Pythagorean Philosophy* was thus called, as having been maintained and cultivated by *Pythagoras* and his Followers; not that it was invented by him, for it was much older.

Pythagoras was of *Samos*, the Son of a Lapidary, and Pupil of *Pherecydes*, who flourished about the seventh Olympiad, *i. e.* about 500 Years before *Christ*.

Those who embraced his Doctrine were called *Pythagoreans*, and also the *Italick Sect*, or *Italick School*, because *Pythagoras*, after travelling into *Egypt*, *Chaldea*, and even into the *Indies*, to inform his Understanding, returning home to his own Country, and there unable to bear the Tyranny of *Polycrates*, or *Syloson*, retired into the Eastern Part of *Italy*, then called the greater *Greece*, and there taught and formed his Sect.

He is held to have excelled in every Part of Science: *Laertius* says, among the *Chaldees* and *Hebrews* he learnt Divination, and the interpreting of Dreams: In *Egypt* he learnt all the Mysteries of the Priests, and the whole System of symbolical Knowledge, with all their Theology. *Porphyry* adds, that he learnt the mathematical Sciences in his Travels; Geometry from the *Egyptians*; the Doctrine of Numbers and Proportions from the *Phœnicians*; and *Astronomy* from the *Chaldeans*; Morality and Theology he learnt chiefly from the Magi.

He was the first who assumed the modest Title of Philosopher; the Sages, till his Time, bearing the arrogant Appellation σοφοι.

Zamblichus observes, that in *Phœnicia* he conversed with the Prophets and Philosophers, the Successors of *Mochus* the Physiologist; which *Mochus*, *Selden*, and some others, will have to be *Moses*.

His School in *Italy* was at *Crotona*, where he is said to have been attended by no less than 600 Scholars. His House was called the Temple of *Ceres*, and the Street where it stood the *Museum*.

Out of this School proceeded the greatest Philosophers, and Legislators, *Zaleucus*, *Charandas*, *Archytas*. *Porphyry* says, as soon as he arrived in *Italy*, he had an Auditory of 2000 People, to whom he explained the Laws of Nature, Reason, and Justice.

He endeavour'd to assuage the Passions of the Mind, with Verses and Numbers; and made a Practice of composing his Mind every Morning by his Harp, frequently singing the *Pæans* of *Thales*. Exercises of the Body also made a considerable Part of his Discipline.

His School became so popular, that Cities and People committed their Republick to the Government of his Scholars. At length, *Porphyry* adds, Envy stirring up Sedition against them, they were oppressed, and in Time, their Learning, which they ever kept secret, was lost; except some difficult Things learnt by Rote by the Crowd of Hearers: For *Pythagoras* never committed any Thing to Writing.

Besides his publick School, *Pythagoras* had a College in his own House, which he called κοινοβιον, *Cœnobium*: In this were two Orders or Classes of Scholars, εξωτερικοι, *Exoterici*, called also *Auscultantes*; and εσωτερικοι, *Intrinseci*. The former were Novices and Probationers, who were kept under a long Examen, and even imposed a quinquennial Silence, to teach them Modesty and Attention, according to *Apuleius*; or, according to *Clemens Alexandrinus*, to teach them to abstract their Minds from sensible Objects, and inure them to the pure Contemplation of the Deity.

The latter were called *Genuini*, *Perfecti*, *Mathematici*, and *Pythagoreans*, by Way of Eminence. These alone were let into the *Arcana* and Depth of the real *Pythagorick* Discipline.

Clemens observes, that these Orders corresponded very exactly to those among the *Hebrews*: For in the Schools of the Prophets were two Classes; *viz.* the Sons of the Prophets, who were the Scholars; and the Doctors or Masters, who were also called *Perfecti*; and among the *Levites*, the Novices or Tyro's, who had their quinquennial Exercises, by Way of Preparation. Lastly, even among the Proselytes there were two Orders; *Exoterici*, or Proselytes of the Gate; and *Intrinseci* or *Perfecti*, Proselytes of the Covenant.

Gale endeavours to prove, that *Pythagoras* borrowed his *Philosophy* from that of the *Jews*; to this End producing the Authorities of many of the Fathers and antient Authors, and even pointing out the Tracks and Footsteps of *Moses* in several Parts of *Pythagoras*'s Doctrine.

Pythagoras taught that God is one; that he is a most simple, incorruptible, and invisible Being; and therefore only to be worshipped with a pure Mind, with the simplest Rites, and those prescribed by himself. *Laertius* observes, that he made Unity the Principle of all Things; hence arose Duality, *&c.*

In his Conversation with the *Egyptians* he learnt Abundance of Secrets about Numbers; to which he attributed so much, that he even attempted to explain all Things in Nature by Numbers. In effect it is a common Opinion among the antient Philosophers, that the Species of Things have to each other the Nature and Relation of Numbers; and that the Universe, and all Things therein, were produced according to certain Numbers, inherent in the Creator's Mind.

Hence *Porphyry* observes, the *Pythagoreans* studied the Doctrine of Numbers with great Attention; since when the incorporeal Forms, and first Principles of Things, *i. e.* the divine Ideas, could not be deliver'd in Words, they had Recourse to Demonstration by Numbers; and thus called the common Reason, and Cause of Unity, Identity; and Equality by the Name *One*.

Pythagoras further taught, that there is a Relation or Kin-ship, between the Gods and Man, and therefore, that the Gods take Care of Man. Which *Clemens Alexandrinus* says, is apparently borrowed from the *Christian* Doctrine of Providence.

Pythagoras also asserted a Metempsychosis, or Transmigration of Soul, *i. e.* that after Death Men's Souls pass into other Bodies, of this or that Kind, according to the Manner of Life they had led. If they had been vicious, they were imprison'd in the Bodies of miserable Beasts, there to do Penance for several Ages; at the Expiration whereof they return'd afresh to animate Men. If they had lived virtuously, some happier Brute, or even a human Creature was to be their Lot.

What led *Pythagoras* into this Opinion, was the Persuasion he had that the Soul was not of a perishable Nature: Whence he concluded, that it must remove into some other Body upon its abandoning this. *Lucan* treats this Doctrine as a Kind of officious Lie, contrived to mitigate the Apprehension of Death, by persuading Men that they only changed their Lodging, and ceased to live to begin a new Life.

Reuchlin denies this Doctrine; and maintains that the Metem-

Metempsychose of *Pythagoras*, implied nothing more than a Similitude of Manners, Desires, and Studies, formerly existing in some Person deceased, and now revived in another alive. Thus when it was said, that *Euphorbus* was revived in *Pythagoras*, no more was meant than that the martial Virtue, which had shone in *Euphorbus* at the Time of the *Trojan* War, was now, in some Measure, revived in *Pythagoras*, by Reason of the great Respect he bore the *Athletæ*. For those People wondering how a Philosopher should be so much taken with Men of the Sword, he palliated the Matter by saying, that the Soul of *Euphorbus*, i. e. his Genius, Disposition, and Inclinations, were revived in him. And this gave Occasion to the Report, that *Euphorbus*'s Soul, who perished in the *Trojan* War, had transmigrated into *Pythagoras*.

Ficinus asserts, that what *Plato* speaks of the Migration of a human Soul into a Brute, is intended allegorically, and to be understood only of the Manners, Affections, and Habits, degenerating into a beastly Nature by Vice. *Sirranus*, though he allows some Force to this Interpretation, yet inclines rather to understand the Metempsychosis of a Resurrection.

Pythagoras is said to have borrowed the Notion of a Metempsychosis from the *Egyptians*, others say from the antient *Brachmans*. It is still retained among the *Banians*, and other Idolaters of *India* and *China*; and makes the principal Foundation of their Religion. So extremely are they bigoted to it, that they not only forbear eating any Thing that has Life, but many of them even refuse to defend themselves against wild Beasts. They burn no Wood, lest some little Animalcule should be in it; and are so very charitable, that they will redeem from the Hands of Strangers, any Animal that they find ready to be killed.

I find it needless to think that *Pythagoras* borrowed the just Notion he had conceived of a Divinity, from the *Hebrews*; since he had no Need to go out of himself to find it. The Sublimity of his Genius, which it was almost impossible could be entirely govern'd by a ridiculous Superstition, or darken'd by the monstrous Ignorance of *Paganism*, confining itself entirely within itself, and listening attentively to the Dictates of a judicious Understanding, could soon discover that innate Idea, which represents to it a supreme Being, something much above all that the *Paganism* vaunted of the most powerful of their false Deities; that they were obliged to confess, that even the most antient of their Gods had had a Beginning, which was incompatible with that Immensity and Omnipotency they attributed to them: That it was impossible that what had a Beginning should be the Principle of all Things, since that first Principle can admit of no Origin with Regard to itself; which perfect Notion of the Divinity the *Jews* themselves were not Masters of, and consequently *Pythagoras* could not have borrowed it from them. As to his Doctrine of Numbers, or his teaching that all Things consisted of Matter and Numbers, it must not be understood literally; since it is more reasonable to suppose, that by Numbers he understood that all Things consisted of a Matter, disposed and divided in a certain Manner, Order, and Measure; according to the different Intentions of the Creator, and the different Ends they were created for. That each Individual consisted of its numerical Parts, which constituted the Form thereof, and render'd it capable to discharge its several Functions, agreeable to that just Subordination and Œconomy which subsisted between them, without Disorder or Confusion. That if he consider'd Unity as a Number by Way of Excellence, it was because Unity is most commonly applied to the noblest Part, our Judgment requiring that we should always begin to reckon by the noblest Part of any compound Body; and that Unity, besides, being a Negation of Composition, could be very well applied to the most simple of all Beings, and to the supreme one himself.

As to his Metempsychosis, I am at a Loss to determine whether he understood it in the Sense the *Brachmans* believe it to this Day; or in that which some of his Commentators above-mention'd, to excuse *Pythagoras* from being guilty of so great an Absurdity, have since given to it: For when I examine his Writings, and find him admitting every where a Plurality of Gods, notwithstanding his just Notion of the Divinity, I am apt enough to think, that he understood it in the former Sense; in as much that I do not find that he had the least Notion with the *Hebrews* and *Pagans* of another World, where the Soul, after its Separation from the Body, was received, never to return afterwards into this; and as he admitted the Immortality of the Soul, and was convinced by Experience, that Death separates that Soul from the Body, he could find no other Place for that Soul thus separated, than by making it transmigrate into another Body; neither can I imagine that he confined it for a certain Time in that of some despicable Brute, as a Punishment for the Crimes it had committed in its former Body, since he had no Notion of Punishment and Reward, but only chose the Animal, the Organs whereof were better disposed for the Operations of that Soul, with Regard to its natural Dispositions and Inclinations; so though there was a Change in the outward Form of the Composition, there was none in the Dispositions and Inclinations of the essential Parts thereof. But if I consider Metempsychosis, in the same Manner those Interpreters of *Pythagoras* have done, *i. e.* as a Transmigration of the Dispositions, Inclinations, and Manners, of a Soul into another Person; I destroy entirely the whole System; for that pretended Transmigration of Dispositions, Inclinations, and Manners, *&c.* without the Soul, is not really a Transmigration, but rather a single Imitation; since those Inclinations, Manners, *&c.* of a Person, are so well identified, and so inseparable from the Substance of the Soul, that they cannot be really and identically transmigrated into another, without the real and identical Transmigration of the Soul itself; for tho' they be separated from the Soul operatively, by Death; which deprives it of the Organs necessary for its Operations, they notwithstanding remain in it, identically and potentically, and can by no Means be transported to another, without the Transmigration of the Soul itself; therefore those Commentators of *Pythagoras* destroy, by their Explanation, the whole System of the Metempsychosis; and in that Point *Pythagoras* could not differ from any of the Philosophers both antient and modern, since they all admit of a Metempsychosis of Manners, which is only a simple Imitation, and is consequently no Metempsychosis at all; for if it be true, as they pretend, that when the *Pythagoreans* said that the Soul of *Euphorbus* was transmigrated into *Pythagoras*, they understood only that the Genius, Inclinations, *&c.* of *Euphorbus* were revived in *Pythagoras*; there is nothing in that but a metaphorical Transmigration, which is admitted by every Body else; *i. e.* that *Pythagoras* had a Genius like that of *Euphorbus*.

Epicurean Philosophy.

The *Epicureans* take their Name from the Chief of their Sect, *Epicurus*; whom some however deny to be the Author of the *Philosophy* he taught; charging him with retailing for Physicks the Doctrine of *Democritus*, and for Ethicks that of *Aristippus*. Be that as it will, he was an *Athenian*, and the Son of *Neocles*, born in the 109th Olympiad, and consequently 342 Years before Christ: He began to form his School at *Mitylene* and *Lampsachus*, about the 32d of his Life; though he afterwards removed to *Athens*, where he philosophized chiefly in his Garden, and died of the Stone at 72 Years of Age.

The Doctrine or System of *Philosophy* maintain'd by *Epicurus* and his Followers, is called *Epicureanism*, or *Epicurean Philosophy*. The Poet *Lucretius*, who has given us a beautiful System of *Epicureanism*, prefers its Father *Epicurus* to all other Philosophers; whom, he makes no Scruple to say, he obscured as much as the Sun does the other Stars.

The *Philosophy* of *Epicurus* consisted in three Parts; *Canonical*, Κανονικον, *Physical*, Φυσικον, and ηθικον, *Ethical*; which he explained briefly in three Epistles.

The first, as *Laertius* relates, was about the Canons, or Rules of Judging; wherein rejecting the Rules of Logick, he established the Senses, Passions, and Anticipations, as the Criterions or Judges of Truth.

In the second, he laid down Atoms, Space and Gravity, as the first Principles of all Things. The Universe, he taught, consisted of Atoms or Corpuscles, of various Forms, Magnitudes, and Weights; which having

ing been dispersed at Random through the immense Inane or Space, fortuitously concurred into innumerable Systems, or Worlds, which were thus formed, and afterwards, from Time to Time, increased, changed, and dissolved again, without any certain Cause or Design; without the Intervention of any Deity, or the Intendance of any Providence. Not that he denied the Existence of a God; on the contrary he asserted it; but thought it beneath the Majesty of the Deity to concern himself with human Affairs. *Laertius* assures us, he held him *a blessed immortal Being, having no Affairs of his own to take Care of, and above taking Care of those of others.*

As to Ethicks, his first Principles, or the supreme Felicity of Man, he held was Pleasure; for which the *Epicureans* have in all Ages been decried, as being too much wrapped in Sensuality; though several Authors, particularly *Cicero* among the Antients, and *Gassendus* among the Moderns, have endeavoured to vindicate them from this Charge, by shewing that the Pleasure wherein their Master *Epicurus* placed the *Summum bonum*, or supreme Happiness of this Life, was not a sensual or brutal Pleasure, but a Contentment and Tranquility of Mind, exempt from all tumultuary Passions, *&c.*

This Opinion seems just, and well grounded; which notwithstanding it is certain that in the common Use of the Word, *Epicurean* signifies, an indolent, effeminate, and voluptuous Person, who only consults his Pleasure, without concerning himself with any Thing serious.

In effect, there were always two Kind of *Epicureans*; the rigid and remiss: The rigid *Epicureans* were those strictly attached to the Sentiments of *Epicurus*, who placed all their Happiness in the pure Pleasure of the Mind, resulting from the Practice of Virtues. The loose or remiss *Epicureans*, taking the Words of that Philosopher in a gross Sense, placed all their Happiness in Pleasures of the Body, in eating, drinking, loving, *&c.* The former Kind, who were the genuine *Epicureans*, called the others the *Sophists of their Sect.*

After *Epicurus*, his *corpuscular System* gave Way to the peripatetick, which became the popular System. Thus in lieu of Atoms were introduced specifick and substantial Frames, Qualities, Sympathies, *&c.* which amused the World till *Gassendus*, *Charleton*, *Des Cartes*, *Boyle*, *Newton*, and others retrieved the whole corpuscularian Hypothesis, which is now become the Basis of the mechanical and experimental Philosophy.

Therefore *Gassendus* establishes with *Epicurus* the Atoms, or solid and impervadable Corpuscles for the Principles of all sensible Bodies; but differs from him, in that he refers to God the Creator, Conservator, and Governour, all the Motion, Affection, and Perfection of those Atoms; not believing that they are agitated by a fortuitous Motion, or concur at Random into innumerable Systems; but on the contrary are directed to a constant and certain Motion by a most wise Mover, for the Ends he proposed to himself in the Formation of the Universe, and therefore that Motion has been appointed to every Atom, to retain it continually in a certain and determinate Measure. So that if the Atoms appear quiescent in the sensible Bodies, that proceeds rather from their mutual Implication among themselves, than from their Slowness.

Mr. *Boyle* reduces the Principles of the *corpuscular Philosophy*, to the four following Heads:—1. That there is but one catholick or universal Matter, which is an extended, impenetrable and divisible Substance, common to all Bodies, and capable of all Forms.

This Sir *Isaac Newton* endeavours to improve upon: 'All Things considered, *says he*, it appears probable to 'me, that God in the Beginning created Matter in solid, 'hard, impenetrable, moveable Particles; of such Sizes 'and Figures, and with such other Properties as most 'conduced to the End for which he formed them: And 'that these primitive Particles being solid, are incomparably harder than any of the sensible porous Bodies, 'compounded of them, even so hard as never to wear 'or break in Pieces; no other Power being able to divide what God made one in the first Creation. While 'these Corpuscles remain entire, they may compose Bodies of one and the same Nature and Texture in all 'Ages: But should they wear away or break in Pieces, 'the Nature of Things depending on them would be 'changed: Water and Earth composed of old worn 'Particles, would not be of the same Nature and Texture now, with Water and Earth composed of entire 'Particles at the Beginning, and therefore that Nature 'may be lasting, the Changes of corporal Things are 'to be placed only in various Separations, and new 'Associations of these permanent Corpuscles.'

This Reasoning of Sir *Isaac Newton*, which some are pleased to call an Improvement on Mr. *Boyle*'s System, and Elucidation thereof, is rather in my Opinion capable only to render it more obscure, and less intelligible; for, the first Part of his Reasoning excepted, which he has borrowed from *Gassendus*, all the rest either implies Contradictions, or is founded on false Suppositions. For he says first, with *Gassendus*, that *God created Matter in solid, hard, and impenetrable Particles, even so hard and solid, as never to wear or break in Pieces*; and says afterwards, that *while these Particles remain entire, they may compose Bodies of one and the same Nature and Texture in all Ages: But should they wear away or break in Pieces*, &c. which is a false Supposition, from which he cannot draw the subsequent Conclusion, since he represents at first those Particles so hard and so solid, as never to *wear away or break in Pieces*; which must necessarily be so, if they are impenetrable; since nothing else but the Intromission of heterogeneous Bodies, can cause the Dissolution of the sensible Bodies. The whole Reasoning besides, as well as the System, being entirely false, as I shall prove when I give my own *philosophical Hypothesis.*

2. That this Matter, in order to form the vast Variety of natural Bodies, must have Motion in some or all its assignable Parts; and that this Motion was given to Matter by God the Creator of all Things, and has all manner of Directions and Tendencies.

Sir *Isaac* engages also on this second Article, thus: 'These Corpuscles, says he, have not only *vis inertiæ*, 'accompanied with such passive Laws of Motion as 'naturally result from that Force; but also are moved 'by certain active Principles; such as that of Gravity, 'and that which causes Fermentation, and the Cohesion 'of Bodies.'—This Comment of Sir *Isaac* is nothing else but what Mr. *Boyle* says, only in different Terms; therefore we are not at all wiser for it, unless it be that we learn thereby, that Sir *Isaac* has rendered more confused by his Explication, a Proposition which Mr. *Boyle* had established in very clear Terms: For what can be clearer than to say, that those Particles being designed from the first Instant of their Formation, for the Composition of all sensible Bodies, they must have been indued then with all the Qualities conducive towards that Formation; and as Motion was one of the most essential, it must have been given to them, in order they should direct themselves according to the different Dispositions they were to have in the Composition.

3. That Matter must also be divided into Parts; and each of these primitive Particles, Fragments, or Atoms of Matter, must have its proper Magnitude, Figure, and Shape.

Sir *Isaac* has not attempted to comment on this Article, though it is one of the most Importance; for if those Particles had not their proper Magnitude, Figure, and Shape, they could never form a perfect Composition; not that I understand thereby, that they could exist without Dimensions, for no sensible Thing can exist without it, far from being capable without it of forming a Compositum; but that they have the proper Magnitude, Form and Shape, to direct themselves towards the Composition of the several different sensible Things and Parts thereof, they are assigned for by the Creator from the very first Instant of their Creation.

4. That these different sized and shaped Particles leave different Orders, Positions, Situations, and Postures; from whence all the Varieties of compound Bodies arise.

Stoick Philosophy.

The *Stoick Philosophy*, called also *Stoicism*, is the Doctrine and Opinion of the Philosopher *Zeno*, whose Followers were called *Stoicks*, from the *Greek* στοα, *Portico*, in regard *Zeno* used to teach under a Portico or Piazza.

The Author of this Sect, *Zeno*, was of *Cittium*, a Town

Town in *Cyprus*, inhabited by a Colony of *Phœnicians*; whence he is ſuppoſed to have borrowed many of his Dogmata's from the *Phœnician* Philoſophy, which many learned Men maintain, was itſelf borrowed from the *Jewiſh*: Though it muſt be allowed, there appear as many Things in the *Stoick Philoſophy* borrowed from *Plato* and *Socrates*'s School, as from that of *Moſes*.

Zeno making a trading Voyage from *Cittium* to *Athens*, richly freighted with *Tyrian* Purple, was ſhipwreck'd not far from Port; upon which we are told, conſulting the Oracle how he ſhould beſt ſpend the reſt of his Life, he was anſwered, *by becoming of the ſame Colour with the Dead*; upon which he applied himſelf to the Study of the antient Philoſophers, and became a Hearer of *Crates* the Cynick. But *Laertius* tells us, he had too much natural Modeſty to give into the Cynick Impudence.

From *Crates* he had Recourſe to *Xenocrates*, then to *Polemon*; and at length began to think of inſtituting a new Sect.—To this Purpoſe ς-οα, or *Portico*, called from the Pictures of *Polignotus* therein, the *painted Portico*, was pitched on: Here uſing to walk and philoſophize, he was ſoon attended by a great Number of Diſciples, hence called Στωικοι, *Stoici*.

He became exceedingly reverenced at *Athens*, for the Probity and Severity of his Life and Manners, and the Conſiſtence thereof with his Doctrine; inaſmuch that the *Athenians* decreed him when living, a golden Crown, and uſed in dubious Times to depoſite the Keys of the City with him; and after his Death conſecrated an Altar to him.

One of his chief Followers was *Cleanthes*, who was ſucceeded by *Chryſippus*, and he by *Diogenes Babylonius*, *Antipater*, *Ranætius*, and *Pollidonius* among the *Greeks*; and by *Cato*, *Varro*, *Cicero*, *Seneca*, the Emperor *Antoninus*, &c. among the *Romans*; and by *Pantenus* and *Clemens Alexandrinus* among the Chriſtians.

The *Stoicks* cultivated Logicks, Phyſicks, Metaphyſicks, *&c.* but chiefly Ethicks. The Principal of their Dogmata of the former Kinds are as follows.

That there are certain *Comprehenſions* (which others call *common Notices*, or *innate Ideas*, or *Principles*, and *Cicero*, *inchoatæ intelligentiæ*, Beginnings of Underſtanding) naturally found in the Mind: That God is the ſeminal Cauſe of the Univerſe; that the World is an Animal; which Opinion the *Stoicks* maintained in common with the Platoniſts, by reaſon of God's inhabiting and informing every Part thereof in Quality of an *Anima mundi*. That Nature is an artificial Fire tending to Generation; and that the World is to be deſtroyed at laſt by Conflagration.

For the Morality of the Stoicks, it was couched much in Paradoxes; as that a wiſe Man is void of all Paſſion or Perturbation of Mind: That Pain is no real Evil, but that a wiſe Man is happy in the midſt of the ſevereſt Torture: That a wiſe Man is always the ſame, and always joyful; that none but a wiſe Man is free, all others are Slaves; that none but a wiſe Man is rich: That none but a wiſe Man is to be eſteemed a King, Magiſtrate, Poet, or Philoſopher; that all wiſe Men are great, that all Things are a wiſe Man's, who is contented with himſelf; that wiſe Men are the only Friends and the only Lovers; that nothing ever happens to a wiſe Man beyond Expectation; that all Virtues are inviolably connected together; that all Things are equal and equally to be deſired; and that Goodneſs admits of no Increaſe or Diminution.

Whether Virtue might be loſt or no, was hotly diſputed among them? *Chryſippus* held it might, by Drunkenneſs and Atra-Bilis; *Cleanthes*, that it could not, by reaſon of the Firmneſs of the Comprehenſions.

They owned but one God, whom however they called by various Names, as *Mind*, *Fate*, *Jupiter*, &c. by which they did not mean various Things, but various Powers and Relations of the ſame Thing. Providence they expreſſed under the Name of *Fate*, which *Chryſippus* defines to be a natural Series or Compoſition of Things mutually following each other, by an immutable Nexus or Tie from all Eternity. Laſtly, they held that the human Soul ſurvived the Body.

The Notion of the *Stoicks*, that Nature was an artificial Fire proceeded, in all Appearance, from their being conſcious that Nature was a powerful Agent in the Productions of Things, by an innate Warmth, the firſt Principle thereof it had not in itſelf, but which it had received from the firſt Principle of all Things in the Creation, whence they called it an artificial Fire, becauſe formed by another, as well as Nature itſelf; imagining at the ſame Time, that that ſame Fire, by its violent and continual Motion, and the repeated Shocks it gave to the Frame it had been incarcerated in from the Beginning, having at laſt broke its Priſon, and ſet itſelf at full Liberty, to follow its natural Rapidity, all the other Obſtacles it could meet with afterwards being too weak to ſtop its Courſe, would at laſt deſtroy the whole Microcoſm. As for their Morality, I do not find it ſo very paradoxical, as one would imagine; for they could very well underſtand, by *a wiſe Man being void of all Paſſion or Perturbation of Mind*; that his Wiſdom is a ſtrong Bar to the Impetuoſity of his Paſſions, and prevent the Diſorders, which otherwiſe they could cauſe in his Mind; that as thereby he is perfectly ſenſible of their firſt Motions, he is alſo thereby always ready to hinder them from proceeding further, by ſmothering them in the firſt Inſtant of their Determination to Action, ſo that he can very well be ſaid to be void of all Paſſion or Perturbation of Mind, ſince they are never obſerved in him, and we cannot judge of thoſe Things but by outward Appearance. Neither is it a Paradox to ſay that there *is no real Evil*, ſince in fact all *Evils* of any Kind whatever have their firſt Principle in our Imagination, which increaſes or diminiſhes them at Pleaſure; and we know by Experience, that it can change Things good in themſelves into Evils, with reſpect to itſelf. For Example, Death, conſidered in general as the greateſt Evil, has been conſidered, has been thought by a vaſt Number of Chriſtians as a real Good, ſince it ſerved to reunite them for ever to the ſupreme Being; and is alſo conſidered as ſuch by Heroes, whoſe Mind being entirely governed by Valour and Courage, prefer the Glory of rendering their Name immortal by a glorious Death, to few Years more of a mortal Life; and Riches, which have nothing bad in themſelves, are rendered an Evil by the depraved Imagination of an Avaritious: From this Stoick Notion of Evil, proceeded in Part that marvellous Conſtancy and Equality of Mind, of the primitive Chriſtians amidſt the ſevereſt Torments, which Perſecution had invented againſt them. I agree with the *Stoicks*, that none but a wiſe Man is free, and all others are Slaves; for as the greateſt Freedom conſiſts in being entirely Maſter of oneſelf; Wiſdom alone being capable to place us in that happy State, have we not Reaſon to conclude that a wiſe Man is free, even while confined in the moſt dreadful Dungeon, and loaded with Chains; for then his Wiſdom keeps his Soul, with all the Organs neceſſary for its Operations, ſeparated as it were from what the Body has the moſt mortal, which is left to ſtruggle under the Burthen, though it feels no other Pain, than a Perſon would in a profound Lethargy, or bereaved of his Senſes. A wiſe Man is certainly rich, ſince he values no other Riches, and even knows no other than that of poſſeſſing himſelf. I approve alſo very well this Sentiment of the *Stoicks*, that *wiſe Men are the only Friends and the only Lovers*; ſince in fact, none but wiſe Men have a true Notion of Friendſhip and Love; for their Love and Friendſhip is entirely free from human View or Conſideration; they love a Perſon for himſelf, *i. e.* for that real perſonal Merit, which alone can be the Object of a true and ſincere Love, directed by Wiſdom; and that Object is ſubject to no Viciſſitudes or Alterations, it never ceaſing being the Object of that ſame Love; when as a Love which has no other Object than that of gratifying a criminal Paſſion, or ſome other human View, which can juſtly be ſtiled an extravagant Love, or rather is no Love at all, that Paſſion once gratified, and that human View ſerved, the pretended Love vaniſhes, and even ſometimes changes into Hatred. But alas! I know by a fatal Experience, that the firſt Kind of Love or Friendſhip is entirely out of Date, and is as obſolete among us, as the other Parts of a *Stoick Philoſophy*; Friendſhip conſiſting entirely at preſent in pompous Proteſtations, fine Promiſes, founded on Hypocriſy, Perfidy, and Falſhood: It is a ſuperb Mauſoleum, which under a magnificent outward Appearance, hides Corruption and Death; for ſome of thoſe Maniacks, when once their Turn is ſerved, make

no Scruple of wounding their Friend in his most sensible Part, I mean his Reputation, and would even deprive him of his Life, if they could do it with Impunity, to exempt themselves from shewing their Gratitude. *Nothing happens to a wise Man beyond his Expectation*, because as he knows that this Life is a perpetual Rotation of Good and Evil, Felicity and Unhappiness, Mirth and Sorrow, Opulence and Indigency, his Wisdom has taught his Mind to receive with the same Indifference any of those different Changes, whenever they happen, and be always ready for it, without going to meet them, which would shew some Inquietude; and cause, perhaps, some Alteration in its domestick Peace. I would be also apt enough to think, with the *Stoicks*, that all *Virtues are inviolably connected together*; for it is almost impossible, that a Person who possesses some Virtue in an eminent Degree, should not be soon Master of all the others: As it is equally impossible that he should be long virtuous in one Sense, and vicious in another; for we have so great a natural Propensity to Vice and Immorality, that if we give it once Entrance into our Mind, it will soon find the Secret to supplant the Virtues it could chance to meet with there; likewise, when we have given Admittance to some Virtue, in the same Place, and our Wisdom has render'd us sensible, that it has chosen that noble Part of ourselves for the Place of its Residence, we may be sure, that all the other Virtues will flock thro' the same Way, and in a very short Time, being all together in our Mind, with that beautiful Harmony, which can render a wise Man truly virtuous.—*All good Things are equal, and equally desirable*; if by Goodness, the *Stoicks* understood that which can satiate a rational Soul, govern'd by a true Wisdom, such as the Practice of all moral Virtues; the Tranquility of the Mind, a noble Contempt for what the World esteems most; the Pleasure of doing good, *&c.* which in fact, is the only true and real good; all other being nothing else but real Evils, which our Passions have falsly stiled Goodness.—I am likewise of Opinion, that such a Goodness admits of no Increase, when one is entire Master of it, for how can a Man be better than truly good; but I cannot agree in this Point with the *Stoicks*, that it can admit of no Diminution, since a daily Experience convinces us of the contrary. If they object to me that such a Goodness which admits of Diminution, is not a true Goodness, but only a mere Appearance, without Reality; I'll answer, that as we cannot judge of such a Thing but by the outward Appearance; when we have seen a Person profess for a considerable Time, what we call Goodness, attended with all the Circumstances requisite to it, without ever in the least deviating from it, and notwithstanding became vicious at last, we have all the Reason imaginable to believe, that *Goodness admits of Diminution.*—I am likewise of *Chrysippus*'s Sentiment, that Virtue can be lost, and is in fact often lost, either by neglecting to listen to the Dictates of Wisdom, or by frequenting too often, and with too much Familiarity, the Vicious, or the Hypocrites; for Hypocrisy is still a great Enemy to Virtue, and much more likely to make it make a Shipwreck, than Vice itself; for a virtuous Man is almost always on his Guard with the Vicious, but he does not use the same Precaution with the Hypocrite, with whom he imagines itself in Safety, since nothing has a greater Resemblance to Virtue than Hypocrisy.—I deny their Affirmation, that none but a wise Man ought to be a King, a Magistrate, a Poet, or Philosopher, which is a ridiculous Paradox; since those different Conditions can very well subsist, and really often subsist independently of Wisdom; since the royal Dignity, Magistracy, *&c.* is a real State, not a nominal one, and that we see daily that all Kings, all Magistrates, all Poets, all Philosophers, are not wise Men, no more than all wise Men are Kings, Magistrates, *&c.* for there are unwise and tyrannical Kings, ignorant and corrupt Magistrates, very good Poets, who never had any other good Qualities, and Philosophers of Name only; as there are, likewise, very wise Men in Slavery, or exposed to Injustice, or have never mounted *Pegasus*, nor studied any other Philosophy, than their own common Sense. As a Christian I reject *Chrysippus*'s Notion of Providence, as smelling too much of the *Pagan* Superstition.

Cynick Philosophy.

The *Cynick Philosophy* taught the Contempt of every Thing, especially Riches and State, Arts and Sciences; all excepting Morality.

The Founder of this Sect is said to have been *Antisthenes*, a Disciple of *Socrates*, who after his Master's Death, quitting the *Lyceum*, retired to *Cynosarges*, a Kind of Academy, not far from the Gates of *Athens*.

Hence some will have it came the Name κυνικος, *Cinicus*, viz. from *Cynosarges*. But others, with more Probability, derive it from κυων, Dog, because of their Severity and Importunity in reprehending Vice. Thus *Aristotle* observes, the *Cynicks were so called from their free Way of rebuking*, &c. Hence *Diogenes* the *Cynick* says of himself, *I bite the Evil*; and *Antisthenes* himself was called an ingenuous and sincere Dog: It being the distinguishing Character of the *Cynicks*, to attack and bark at the Ill, and to defend and fawn on the Good.

Arrian praises the *Cynical* Genius to the Skies: 'A 'Cynick, says he, is a Messenger sent from *Jupiter*, to 'overlook human Affairs. A publick Doctor and Tu'tor of Mankind; instructs and chastises at the same 'Time: An *Æsculapius*, a Lord and King, adorned 'with a Scepter and Diadem. Who governs the Peo'ple; and this voluntarily, without trembling, without 'Guards, *&c.* but by a good Conscience.'

The Ground of this Encomium may be owing, in some Measure, to that Affinity between the *Stoicks* and *Cynicks*: The chief Difference between them consisted in this, that the former were more reserved and modest than the latter; who are said to have banished all Shame: And were able to practise any Obscenity without Blushing.

Hence, *Laertius* observes of *Diogenes*, that he did every Thing openly, whether it belonged to *Ceres* or to *Venus*: Though the same *Laertius* adds, that he did it in Imitation of the Chorididascali, *i. e.* he only run to an Excess of Impudence, to put others out of Conceit with it.

The *Cynick* Philosophers were so well convinced in their own Time, that Reason and common Sense were already almost entirely banished from the World, that *Diogenes*, who knew perfectly well that there could be no Man without it, used to seek one through the Streets of *Athens* (famous then for Wisdom and Learning) with a lighted Candle at Noon-day, meaning thereby, that even among so great a Number of pretended Wise, it was impossible to find a rational Man, him and his Followers excepted; for the Pride of the *Cynick* Philosophers was so monstrously great, that they imagined, that Virtue and Wisdom deserted all the rest of the World, to retreat among them; though at the same Time they had none of the former, and very little of the latter.

Pyrrhonian Philosophy.

The *Pyrrhonian Philosophy*, thus called from *Pyrrho* the Founder thereof, was founded on Doubt and Incertitude, *Pyrrho* professing to doubt of every Thing, and maintaining, that Men only judge of Truth and Falshood from Appearances which deceive them.

On this Principle he kept himself in continual Suspension of Mind, never determining on any Thing, to avoid the Inconveniences of Error and false Judgments.

Those now distinguished by the Name of *Pyrrhonians*, are Persons, who from the great Number of Things that are dark and obscure, and from the Aversion they bear to popular Credulity, maintain that there is nothing certain in the World.

The *Academicks* differed from the *Pyrrhonians*, in that they owned there was something more like or akin to Truth than others; which the *Pyrrhonians* peremptorily denied.

Le Clerc observes, that the *Pyrrhonians* in affirming that there is nothing certain, were the most affirming and decisive of all Philosophers; since they must have first examined all Things, to be able to determine precisely that all Things are uncertain.

Some are of Opinion, that the very Principle of the *Pyrrhonians* destroys itself: For if thereby nothing is certain

tain, say they, then must that Dogma itself be precarious; and if no one Thing be more probable, or likely to Truth than another, why shall the Principle of the *Pyrrhonians* be believed preferably to the opposite one; since itself is come at in the same Way as our other Knowledge?

SCEPTICK PHILOSOPHY.

The *Sceptick Philosophy*, is almost the same Thing as Pyrrhonianism, so that the same Sect of Philosophers is often called indifferently *Scepticism*, or *Pyrrhonianism*.

The antient *Scepticism* consisted in doubting of every Thing, in affirming nothing at all, and in keeping the Judgment in suspense on every Thing. *Sixtus Empiricus* makes *Scepticism* to consist in a Faculty of opposing all Appearances, of making all, even contrary Things equally probable, and of proceeding first to an εποχη, Suspense of Mind; and then to an entire Tranquility.

Hence this great Maxim of theirs: *This no more than that:—Every Reason has another against it.*—And I determine nothing.

This Hesitating of the *Scepticks* is well describ'd by *Aristotle* in *Euseb. de præpar. evan.* all Things are equally indifferent, uncertain and undeterminate: Neither our Senses nor our Opinions give us either Truth or Falshood; therefore neither the one nor the other are to be credited; but all Things to be left on a level, without admitting any Opinion, Inclination or Motion of the Mind at all. It is added, that the *Scepticks* carried this Suspense of theirs so far, as to deny that any Thing is either Good or evil, just or unjust, true or false; or that any Thing is this more than that.

It is from this Acatalepsia of the *Scepticks*, that *Des Cartes* seems to have borrowed his great Principle of doubting of all Things, as is owned by many of his Followers. It must be owned there is some Difference between the doubting of the *Scepticks* and that of the *Cartesians*. In physical Matters it is true, there does not seem a great deal of Difference; and *Des Cartes* in that respect, may, without much Injustice, be deemed a *Sceptick*: But this may be said in his Favour, that the great *Socrates* was so far a *Sceptick* himself, physical and sensible Things, he held, were all dubious, and at best but probable.

The Origin of *Scepticism* is somewhat obscure. *Pyrrho* who lived under *Alexander the Great*, and made the Tour of *India* in his Retinue, is usually reputed the Author; whence *Pyrrhonians* and *Scepticks*, are, as already observed, ordinarily used indifferently.

It must be owned however, that the great Dogma of the Scepticks had been countenanced, and even cultivated before *Pyrrho*, by *Democritus*, *Heraclitus*, &c.—*Sextus Empiricus* says expressly, that all that *Pyrrho* did was to improve, illustrate and inforce the Dogma, and form the Retainers thereto into a Sect.

Democritus's Philosophy was near akin to *Scepticism*; for upon his observing that Honey seemed sweet to some and bitter to others, he concluded that it was neither sweet nor bitter; and thereupon pronounced ου μαλλον, *non magis*, which is pure *Scepticism*. Yet the same *Sextus* adds, that *Democritus* was no *Sceptick*.

Though *Plato* argues very strenuously against the Acatalepsy of the *Scepticks*; yet it is certain that Dogma received a great Part of its Encouragement from *Socrates* School, and *Plato*'s Academy. Nay it was a great Controversy among the Antients, whether *Plato* himself was a Sceptick or Dogmatist? Indeed *Plato*'s decisive Way of speaking in many Cases, seems to leave no great Room for such a Doubt; but it is certain his Followers of the new Academy founded by *Arcesilas*, gave much into this Way; and *nihil scit* was held by them a Principle.

Sextus Empiricus observes, that *Socrates* himself had a Tincture of *Scepticism*; some even make him the Author of it, from that customary Saying of his, *I know nothing but this, that I know nothing.* If this were the Origin of *Scepticism*, it must be owned it was mightily improved afterwards, etc *Metrodorus* said, *I know nothing, not even this that I know nothing.* The same *Sextus* however adds, that *Plato* introducing his Master in his Gymnastick Dialogues, disputing with the Sophists, makes him act the Part of a *Sceptick*.

Some have even charged *Job* and *Solomon* with *Scepticism*, from their proposing a great Number of Questions, without deciding any of them. The Philosopher of *Kiel* who has published a Dissertation on *Scepticism*, fetches its Origin still higher: He will have the Devil the Author thereof, who made our First Parents doubt of the Word of God himself; and drew them in the first *Proselytes* to *Scepticism*; though this Origin (with the Philosopher's Leave) is in my Opinion, what we call in *French*, *tiré par les cheveux*, i. e. very lame; for we don't see in the sacred Writ, that the Devil tempted our first Parents by making them doubt in the Manner the *Scepticks* do, but on the contrary, by promising them a still much greater Knowledge than that they had already, which formal Knowledge was a formal Contradiction of *Scepticism*.

The different Opinions which divided Men's Minds, even in the Time of antient Philosophers, as well in metaphysical as physical Matters, might have given Occasion to *Pyrrhonianism* and *Scepticism*; since it was agreeable enough to Reason to think, that there was nothing certain, either with respect to Things spiritual, and which were purely the Object of our Imagination, or to those which affected in the most sensible Manner our external Senses, since the Learned could not agree among themselves on any Point relating to them, though every one of them pretended at the same Time to have Truth on his Side, and the opposite Party thought him in the wrong. In that great Variety of Sentiments what Party could a rational Mind have espoused, even with a moral Certainty, that he had espoused the best, since each of them used Arguments equally strong, equally persuasive, and equally probable, to defend his; and had it not been a kind of Temerity to side with either; and more reasonable to remain in a kind of Suspence between them all, and think that all the Points controverted had very precarious Principles? Hence therefore proceeded in all Appearance the Sects of *Scepticks* and *Pyrrhonians*, who thought, as I suppose, that the best Method they could take to enjoy that Tranquility of Mind, which was to be found no where else, was to suspend their Judgments till the contending Parties could agree among themselves, and believe nothing till the Truth could be found.

If on this Foundation the antient *Scepticism* and Pyrrhonianism has been established, and the continual Altercations of the antient Philosophers made it flourish; it is not at all surprizing, that even at this present Time it gains so much Ground among us, since there is so great a Variety of Sentiments either in theological, physical, and political Matters; that it is really very surprizing to me, that every sensible Man is not a *Pyrrhonian*, or a *Sceptick*; it is true, that we almost all agree on the Existence of a supreme Being, and so did almost all the antient Philosophers, but we have had, and have still like them, so many different Sentiments on the Manner of that Existence, that if we had not Recourse to Faith maintained by Revelation, it would not at all be surprizing, if we were to doubt of the Truth thereof: And must not that Faith be both very implicite and explicite, when the different Objects thereof are represented to us by Sectaries, Visionaries, or Enthusiasts, under so many different Shapes; when some of them multiply the Number of these Objects, and others diminish them; those condemning what these approve, and all pretending to have Truth on their Side? What Side must a rational Mind incline to? Shall he prefer a Party to another, at the Risk of remaining still as much in Suspense as ever, if he has espoused the best; while the opposite one is continually traducing it as bad, and heretical? He must consult his Reason; Yes, but can his Reason determine him in a Choice which is entirely above his Sphere? Then he must follow the most antient and common Belief, Ay; but even that common Belief is disputed: Therefore he should have no other Party left than that of becoming a *Sceptick* or *Pyrrhonian*, if that Profession was not condemned as criminal among Christians in Matters of Religion. But it is not on that Subject only, that Men are kept in Suspence, by the continual, uncharitable, and unchristianlike Disputes of the different Sects on Points of Belief; for we have been so much used of late to romance on all Subjects, that one must have made almost an entire Divorce with his common Sense, to believe what is either written or said on

on any Subject whatever, except a great Number of Falshoods, which are so ill disguised and so glaring, particularly in Politicks, that as they are only calculated to impose on the Vulgar, which never take any Time to distinguish Truth from Falshood, especially when Falshood flatters some of their favourite brutish Passions; that a sensible Man cannot help knowing that they are really Falshoods. That excepted, I profess myself a *Pyrrhonian* or *Sceptick*, on all that come through such undirect Channels, even on that which has the greatest Appearance of Truth.

CARTESIAN PHILOSOPHY.

The *Cartesian Philosophy*, or *Cartesianism*, is the System of Philosophy advanced by *Des Cartes*, and maintained by his Followers the *Cartesians*.

René Des Cartes, the noble Founder of this Sect, was born of a noble Family of *Britanny* in 1596, his Monument informs us, that having been Master of all the Learning of the Schools, which proved short of his Expectation, he betook himself to the Army in *Hungary* and *Germany*, and there spent his vacant Winter Hours in comparing the Mysteries and Phænomena of Nature, with the Laws of Mathematicks, daring to hope that these might unlock the other. Quitting therefore all other Pursuits, he retired to a little Village near *Egmond* in *Holland*; where spending twenty-five Years in continual Reading and Meditation he effected his Design. He was a Person of great Genius and Penetration, both as to the Invention and orderly ranging and disposing of Things. He began a new Method of *Philosophy*, and finished it on his own Foundation. His Reputation in foreign Nations (even in *England*) appears from his Monument; which consists of four Faces, inscribed with so many Encomiums. It was erected at *Stockholm*, where he died, in the Year 1650, by Monsieur *Chanut*, the King of *France*'s Resident in that Court. But his Bones were afterwards removed to *Paris*, at the Charge of M. *d'Alibert*, who also erected a handsome Monument over them, in the Church of St. *Genevieve*, where I have often visited it.

The *Cartesian Philosophy* is founded on two great Principles, the one *metaphysical*, the other *physical*. The metaphysical Principle is this, *Cogito ergo sum*, *I think therefore I am*. This Principle has been attacked and defended with a World of Spirit, and a World of Zeal and Partiality on either Side: For, though it be true, say some Authors, that we are as sure by an inward Perception or Consciousness that we exist, as that we think; yet it is true to, that this Conclusion of this Reasoning *I am*, is drawn from the antecedent *I think*; since *to think* supposes *to be*, or *exist*, and the Mind sees clearly the necessary Connection between thinking and being.

The physical Principle of *Cartesianism* is this, *that nothing exists but Substances*; which appears a dangerous Principle to the Divine; and is accordingly controverted every Day in the Schools of the Catholicks, who undertake to prove that there are absolute Accidents, agreeable to their Sentiment on the Eucharist.

Substance he makes of two Kinds; the one a *Substance that thinks*, the other a *Substance extended*. Actual Thought therefore, and actual Extension are the Essence of the Substance: So that the thinking Substance cannot be without some actual Thought, nor can any Thing be retrenched from the Extension of a Thing, without taking away so much of its Substance.

The first Article of this is refuted by Mr. *Locke*, who shews, that thinking is not essential to the Soul, or that its Essence does not consist in Thought; but that there are various Occasions where it does not think at all. The latter is stiffly opposed by the Catholicks, as inconsistent with the Doctrine of Transubstantiation.

The Essence of Matter thus fixed in Extension, *Des Cartes* naturally concludes there is no Vacuum nor any Possibility thereof in Nature; but that the World is absolutely full; for mere Space is precluded by his Principle; in regard, Extension being implied in the Idea of Space, Matter is so too. If there was any such Thing as a Vacuum, says he, it might be measured: The Vacuum therefore is extended, and of Consequence so is Matter; every Thing extended being Matter.

These Principles of Physick once supposed, *Des Cartes* explains mechanically, and according to the Laws of Motion, how the World was formed, and whence the present Appearances of Nature do arise. He supposes that God created Matter of an indefinite Extension; that he divided this Matter into little square Portions, or Masses full of Angles; that he impressed two Motions on this Matter, one whereby each Part revolved round its Center; another whereby an Assemblage or System of them turned round a common Center; whence arose as many different Vortices or Eddies, as there were different Masses of Matter thus moving round common Centers.

These Things thus set going, the Consequences, according to *Des Cartes*, in each Vortex will be as follows: The Part of Matter could not move and revolve among each other, without having their Angles gradually broke; and this continual Friction of Parts and Angles must produce three Elements; the first, an infinitely fine Dust formed of the Angles broke off; the second, the Spheres remaining; all the angular Irregularities are thus removed: These two make the Matter of his first and second Element. And these Particles not yet rendered smooth and spherical, and which still retain some of their Angles and hamous Parts, make the third Element.

Now the first or subtilest Element, according to the Laws of Motion, must take up the Center of each System or Vortex, by reason of the Smallness of its Parts: And this is the Matter which constitutes the Sun, and the fix'd Stars above, and the Fire below. The second Element composed of Spheres makes the Atmosphere and all the Matter between the Earth and the fixed Stars; in such Manner as that the largest Spheres are always next the Circumference of the Vortex, and the smallest next its Center. The third Element, or the hooked Particles, is the Matter that composes the Earth, all terrestrial Bodies, Comets, Spots in the Sun, *&c.*

This System, tho' very artfully concerted, yet is consider'd by some Authors, as carrying with it more of the Air of a Romance, than of a just Philosophy. Accordingly several Divines and Philosophers cry out on it: The first, that it leads to Atheism, by furnishing the Maintainers of an eternal Matter, with Means how, from the Laws of Motion, to account for the Production of the World: Though it is certain *Des Cartes* supposed a Deity; and so must all who admit his Philosophy; else whence will they derive that Motion of Matter, which of itself is destitute of any such Principle?

But some Philosophers think, that they have much better play against it; and the Elements, subtile Matter, hooked Atoms, Vortices, and other Machines, are now nearly on the same Footing, with the occult Qualities of the antient Peripateticks.

Indeed *Des Cartes*, by introducing Geometry into Physicks, and accounting for the natural Phænomena from the Laws of Mechanicks, did infinite Service to Philosophy; and contributed both by his Practice and Example to purge it from the venerable Rust, which in a long Succession of Ages he had contracted: Accordingly to him in some Measure is owing the present System of Mechanical and *Newtonian* Philosophy.

Cartesianism was ready to be prohibited by an Act of the Parliament of *Paris*; and had been so, in Effect, but for a burlesque Address presented to the first President, who was a great Opposer of *Cartesianism*.

It is my Opinion, the metaphysical Principle of *Des Cartes*, COGITO, ERGO SUM, *I think, therefore I am*, is the most reasonable of any Principle of that Kind; for our Existence and Thought are naturally so very inseparable, that it is not at all probable we could be without thinking; not even without thinking actually, notwithstanding what Mr. *Locke* is pleased to say to the contrary. For we have two Ways of thinking, *viz.* that of thinking with Reflection, and another of thinking without Reflection: The first is the Operation of the Imagination alone; and the other the Operation of the same Imagination, assisted by our Memory. It is true, that we can, and even but too often think without Reflection; but it is, notwithstanding, thinking; and tho' that Thought escapes us almost at the very Instant it is formed, it is however sufficient to convince us of our Existence: For to pretend we can exist without thinking, is a ridiculous Paradox, which it is impossible that even those who propose

tain, ſay they, then muſt that Dogma itſelf be precarious; and if no one Thing be more probable, or likely to Truth than another, why ſhall the Principle of the *Pyrrhonians* be believed preferably to the oppoſite one; ſince itſelf is come at in the ſame Way as our other Knowledge?

SCEPTICK PHILOSOPHY.

The *Sceptick Philoſophy*, is almoſt the ſame Thing as Pyrrhonianiſm, ſo that the ſame Sect of Philoſophers is often called indifferently *Scepticiſm*, or *Pyrrhonianiſm*.

The antient *Scepticiſm* conſiſted in doubting of every Thing, in affirming nothing at all, and in keeping the Judgment in ſuſpenſe on every Thing. *Sixtus Empiricus* makes *Scepticiſm* to conſiſt in a Faculty of oppoſing all Appearances, of making all, even contrary Things equally probable, and of proceeding firſt to an εποχη, Suſpenſe of Mind; and then to an entire Tranquility.

Hence this great Maxim of theirs: *This no more than that:—Every Reaſon has another againſt it.*—And I determine nothing.

This Heſitating of the *Scepticks* is well deſcrib'd by *Ariſtotle* in *Euſeb. de præpar. evan.* all Things are equally indifferent, uncertain and undeterminate: Neither our Senſes nor our Opinions give us either Truth or Falſhood; therefore neither the one nor the other are to be credited; but all Things to be left on a level, without admitting any Opinion, Inclination or Motion of the Mind at all. It is added, that the *Scepticks* carried this Suſpenſe of theirs ſo far, as to deny that any Thing is either Good or evil, juſt or unjuſt, true or falſe; or that any Thing is this more than that.

It is from this Acataleplia of the *Scepticks*, that *Des Cartes* ſeems to have borrowed his great Principle of doubting of all Things, as is owned by many of his Followers. It muſt be owned there is ſome Difference between the doubting of the *Scepticks* and that of the *Carteſians*. In phyſical Matters it is true, there does not ſeem a great deal of Difference; and *Des Cartes* in that reſpect, may, without much Injuſtice, be deemed a *Sceptick*: But this may be ſaid in his Favour, that the great *Socrates* was ſo far a *Sceptick* himſelf, phyſical and ſenſible Things, he held, were all dubious, and at beſt but probable.

The Origin of *Scepticiſm* is ſomewhat obſcure. *Pyrrho* who lived under *Alexander the Great*, and made the Tour of *India* in his Retinue, is uſually reputed the Author; whence *Pyrrhonians* and *Scepticks*, are, as already obſerved, ordinarily uſed indifferently.

It muſt be owned however, that the great Dogma of the Scepticks had been countenanced, and even cultivated before *Pyrrho*, by *Democritus*, *Heraclitus*, &c.—*Sextus Empiricus* ſays expreſly, that all that *Pyrrho* did was to improve, illuſtrate and inforce the Dogma, and form the Retainers thereto into a Sect.

Democritus's Philoſophy was near akin to *Scepticiſm*; for upon his obſerving that Honey ſeemed ſweet to ſome and bitter to others, he concluded that it was neither ſweet nor bitter; and thereupon pronounced ου μαλλον, *non magis*, which is pure *Scepticiſm*. Yet the ſame *Sextus* adds, that *Democritus* was no *Sceptick*.

Though *Plato* argues very ſtrenuouſly againſt the Acataleply of the *Scepticks*; yet it is certain that Dogma received a great Part of its Encouragement from *Socrates* School, and *Plato*'s Academy. Nay it was a great Controverſy among the Antients, whether *Plato* himſelf was a Sceptick or Dogmatiſt? Indeed *Plato*'s deciſive Way of ſpeaking in many Caſes, ſeems to leave no great Room for ſuch a Doubt; but it is certain his Followers of the new Academy founded by *Arceſilas*, gave much into this Way; and *nihil ſcit* was held by them a Principle.

Sextus Empiricus obſerves, that *Socrates* himſelf had a Tincture of *Scepticiſm*; ſome even make him the Author of it, from that cuſtomary Saying of his, *I know nothing but this, that I know nothing*. If this were the Origin of *Scepticiſm*, it muſt be owned it was mightily improved afterwards, ere *Metrodorus* ſaid, *I know nothing, not even this that I know nothing*. The ſame *Sextus* however adds, that *Plato* introducing his Maſter in his Gymnaſtick Dialogues, diſputing with the Sophiſts, makes him act the Part of a *Sceptick*.

Some have even charged *Job* and *Solomon* with *Scepticiſm*, from their propoſing a great Number of Queſtions, without deciding any of them. The Philoſopher of *Kiel* who has publiſhed a Diſſertation on *Scepticiſm*, fetches its Origin ſtill higher: He will have the Devil the Author thereof, who made our Firſt Parents doubt of the Word of God himſelf; and drew them in the firſt *Proſelytes* to *Scepticiſm*; though this Origin (with the Philoſopher's Leave) is in my Opinion, what we call in *French*, *tiré par les cheveux*, i. e. very lame; for we don't ſee in the ſacred Writ, that the Devil tempted our firſt Parents by making them doubt in the Manner the *Scepticks* do, but on the contrary, by promiſing them a ſtill much greater Knowledge than that they had already, which formal Knowledge was a formal Contradiction of *Scepticiſm*.

The different Opinions which divided Men's Minds, even in the Time of antient Philoſophers, as well in metaphyſical as phyſical Matters, might have given Occaſion to *Pyrrhonianiſm* and *Scepticiſm*; ſince it was agreeable enough to Reaſon to think, that there was nothing certain, either with reſpect to Things ſpiritual, and which were purely the Object of our Imagination, or to thoſe which affected in the moſt ſenſible Manner our external Senſes, ſince the Learned could not agree among themſelves on any Point relating to them, though every one of them pretended at the ſame Time to have Truth on his Side, and the oppoſite Party thought him in the wrong. In that great Variety of Sentiments what Party could a rational Mind have eſpouſed, even with a moral Certainty, that he had eſpouſed the beſt, ſince each of them uſed Arguments equally ſtrong, equally perſuaſive, and equally probable, to defend his; and had it not been a kind of Temerity to ſide with either; and more reaſonable to remain in a kind of Suſpence between them all, and think that all the Points controverted had very precarious Principles? Hence therefore proceeded in all Appearance the Sects of *Scepticks* and *Pyrrhonians*, who thought, as I ſuppoſe, that the beſt Method they could take to enjoy that Tranquility of Mind, which was to be found no where elſe, was to ſuſpend their Judgments till the contending Parties could agree among themſelves, and believe nothing till the Truth could be found.

If on this Foundation the antient *Scepticiſm* and Pyrrhonianiſm has been eſtabliſhed, and the continual Altercations of the antient Philoſophers made it flouriſh; it is not at all ſurprizing, that even at this preſent Time it gains ſo much Ground among us, ſince there is ſo great a Variety of Sentiments either in theological, phyſical, and political Matters; that it is really very ſurprizing to me, that every ſenſible Man is not a *Pyrrhonian*, or a *Sceptick*; it is true, that we almoſt all agree on the Exiſtence of a ſupreme Being, and ſo did almoſt all the antient Philoſophers, but we have had, and have ſtill like them, ſo many different Sentiments on the Manner of that Exiſtence, that if we had not Recourſe to Faith maintained by Revelation, it would not at all be ſurprizing, if we were to doubt of the Truth thereof: And muſt not that Faith be both very implicite and explicite, when the different Objects thereof are repreſented to us by Sectaries, Viſionaries, or Enthuſiaſts, under ſo many different Shapes; when ſome of them multiply the Number of theſe Objects, and others diminiſh them; thoſe condemning what theſe approve, and all pretending to have Truth on their Side? What Side muſt a rational Mind incline to? Shall he prefer a Party to another, at the Riſk of remaining ſtill as much in Suſpenſe as ever, if he has eſpouſed the beſt; while the oppoſite one is continually traducing it as bad, and heretical? He muſt conſult his Reaſon; Yes, but can his Reaſon determine him in a Choice which is entirely above his Sphere? Then he muſt follow the moſt antient and common Belief, Ay; but even that common Belief is diſputed: Therefore he ſhould have no other Party left than that of becoming a *Sceptick* or *Pyrrhonian*, if that Profeſſion was not condemned as criminal among Chriſtians in Matters of Religion. But it is not on that Subject only, that Men are kept in Suſpence, by the continual, uncharitable, and unchriſtianlike Diſputes of the different Sects on Points of Belief; for we have been ſo much uſed of late to romance on all Subjects, that one muſt have made almoſt an entire Divorce with his common Senſe, to believe what is either written or ſaid

on any Subject whatever, except a great Number of Falshoods, which are so ill disguised and so glaring, particularly in Politicks, that as they are only calculated to impose on the Vulgar, which never take any Time to distinguish Truth from Falshood, especially when Falshood flatters some of their favourite brutish Passions; that a sensible Man cannot help knowing that they are really Falshoods. That excepted, I profess myself a *Pyrrhonian* or *Sceptick*, on all that come through such undirect Channels, even on that which has the greatest Appearance of Truth.

CARTESIAN PHILOSOPHY.

The *Cartesian Philosophy*, or *Cartesianism*, is the System of Philosophy advanced by *Des Cartes*, and maintained by his Followers the *Cartesians*.

René Des Cartes, the noble Founder of this Sect, was born of a noble Family of *Britanny* in 1596, his Monument informs us, that having been Master of all the Learning of the Schools, which proved short of his Expectation, he betook himself to the Army in *Hungary* and *Germany*, and there spent his vacant Winter Hours in comparing the Mysteries and Phænomena of Nature, with the Laws of Mathematicks, daring to hope that these might unlock the other. Quitting therefore all other Pursuits, he retired to a little Village near *Egmond* in *Holland*; where spending twenty-five Years in continual Reading and Meditation he effected his Design. He was a Person of great Genius and Penetration, both as to the Invention and orderly ranging and disposing of Things. He began a new Method of *Philosophy*, and finished it on his own Foundation. His Reputation in foreign Nations (even in *England*) appears from his Monument; which consists of four Faces, inscribed with so many Encomiums. It was erected at *Stockholm*, where he died, in the Year 1650, by Monsieur *Chanut*, the King of *France*'s Resident in that Court. But his Bones were afterwards removed to *Paris*, at the Charge of M. *d'Alibert*, who also erected a handsome Monument over them, in the Church of St. *Genevieve*, where I have often visited it.

The *Cartesian Philosophy* is founded on two great Principles, the one *metaphysical*, the other *physical*. The metaphysical Principle is this, *Cogito ergo sum*, *I think therefore I am*. This Principle has been attacked and defended with a World of Spirit, and a World of Zeal and Partiality on either Side: For, though it be true, say some Authors, that we are as sure by an inward Perception or Consciousness that we exist, as that we think; yet it is true to, that this Conclusion of this Reasoning *I am*, is drawn from the antecedent *I think*; since *to think* supposes *to be*, or *exist*, and the Mind sees clearly the necessary Connection between thinking and being.

The physical Principle of *Cartesianism* is this, *that nothing exists but Substances*; which appears a dangerous Principle to the Divine; and is accordingly controverted every Day in the Schools of the Catholicks, who undertake to prove that there are absolute Accidents, agreeable to their Sentiment on the Eucharist.

Substance he makes of two Kinds; the one a *Substance that thinks*, the other a *Substance extended*. Actual Thought therefore, and actual Extension are the Essence of the Substance: So that the thinking Substance cannot be without some actual Thought, nor can any Thing be retrenched from the Extension of a Thing, without taking away so much of its Substance.

The first Article of this is refuted by Mr. *Locke*, who shews, that thinking is not essential to the Soul, or that its Essence does not consist in Thought; but that there are various Occasions where it does not think at all. The latter is stiffly opposed by the Catholicks, as inconsistent with the Doctrine of Transubstantiation.

The Essence of Matter thus fixed in Extension, *Des Cartes* naturally concludes there is no Vacuum nor any Possibility thereof in Nature; but that the World is absolutely full; for mere Space is precluded by his Principle; in regard, Extension being implied in the Idea of Space, Matter is so too. If there was any such Thing as a Vacuum, says he, it might be measured: The Vacuum therefore is extended, and of Consequence so is Matter; every Thing extended being Matter.

These Principles of Physick once supposed, *Des Cartes* explains mechanically, and according to the Laws of Motion, how the World was formed, and whence the present Appearances of Nature do arise. He supposes that God created Matter of an indefinite Extension; that he divided this Matter into little square Portions, or Masses full of Angles; that he impressed two Motions on this Matter, one whereby each Part revolved round its Center; another whereby an Assemblage or System of them turned round a common Center; whence arose as many different Vortices or Eddies, as there were different Masses of Matter thus moving round common Centers.

These Things thus set going, the Consequences, according to *Des Cartes*, in each Vortex will be as follows: The Part of Matter could not move and revolve among each other, without having their Angles gradually broke; and this continual Friction of Parts and Angles must produce three Elements; the first, an infinitely fine Dust formed of the Angles broke off; the second, the Spheres remaining; all the angular Irregularities are thus removed: These two make the Matter of his first and second Element. And these Particles not yet rendered smooth and spherical, and which still retain some of their Angles and hamous Parts, make the third Element.

Now the first or subtilest Element, according to the Laws of Motion, must take up the Center of each System or Vortex, by reason of the Smallness of its Parts: And this is the Matter which constitutes the Sun, and the fix'd Stars above, and the Fire below. The second Element composed of Spheres makes the Atmosphere and all the Matter between the Earth and the fixed Stars; in such Manner as that the largest Spheres are always next the Circumference of the Vortex, and the smallest next its Center. The third Element, or the hooked Particles, is the Matter that composes the Earth, all terrestrial Bodies, Comets, Spots in the Sun, *&c.*

This System, tho' very artfully concerted, yet is consider'd by some Authors, as carrying with it more of the Air of a Romance, than of a just Philosophy. Accordingly several Divines and Philosophers cry out on it: The first, that it leads to Atheism, by furnishing the Maintainers of an eternal Matter, with Means how, from the Laws of Motion, to account for the Production of the World: Though it is certain *Des Cartes* supposed a Deity; and so must all who admit his Philosophy; else whence will they derive that Motion of Matter, which of itself is destitute of any such Principle?

But some Philosophers think, that they have much better play against it; and the Elements, subtile Matter, hooked Atoms, Vortices, and other Machines, are now nearly on the same Footing, with the occult Qualities of the antient Peripateticks.

Indeed *Des Cartes*, by introducing Geometry into Physicks, and accounting for the natural Phænomena from the Laws of Mechanicks, did infinite Service to Philosophy; and contributed both by his Practice and Example to purge it from the venerable Rust, which in a long Succession of Ages he had contracted: Accordingly to him in some Measure is owing the present System of Mechanical and *Newtonian* Philosophy.

Cartesianism was ready to be prohibited by an Act of the Parliament of *Paris*; and had been so, in Effect, but for a burlesque Address presented to the first President, who was a great Opposer of *Cartesianism*.

It is my Opinion, the metaphysical Principle of *Des Cartes*, COGITO, ERGO SUM, *I think, therefore I am*, is the most reasonable of any Principle of that Kind; for our Existence and Thought are naturally so very inseparable, that it is not at all probable we could be without thinking; not even without thinking actually, notwithstanding what Mr. *Locke* is pleased to say to the contrary. For we have two Ways of thinking, *viz.* that of thinking with Reflection, and another of thinking without Reflection: The first is the Operation of the Imagination alone; and the other the Operation of the same Imagination, assisted by our Memory. It is true, that we can, and even but too often think without Reflection; but it is, notwithstanding, thinking; and tho' that Thought escapes us almost at the very Instant it is formed, it is however sufficient to convince us of our Existence: For to pretend we can exist without thinking, is a ridiculous Paradox, which it is impossible that even those who propose

pose it can understand; since our Soul is a spiritual Substance, and as such is always in Motion, from the very first Instant of its Existence, though while incarcerated in the Body, we are not always equally sensible of its Operations, either through the Imbecility of the Organs; or some other Obstructions, proceeding from external Causes. Even when Nature indulges itself with Rest, to repair the exhausted Spirits; and even then not always without Reflection, though, at the same Time, all the Faculties of the Soul, seem suspended in their Operations, since we remember awake, the Thoughts we had while asleep: Not even the greatest Depravation of those Faculties hinders us from thinking; for the Confusion of our Thoughts, and the Impossibility we are reduced to, sometimes, of telling them, is no Proof that we can exist without thinking: Therefore the metaphysical Principle of *Des Cartes* is just, *I think, therefore I am.*

As to his *physical Principle*, that *nothing exists but Substances*, it admits of some Difficulties; and still more, if he was not to distinguish two Sorts of Substances; *viz.* a *thinking one*, and the other *extended*; for by the first he lets us know, that he admits spiritual Substances, such as the Divinity, and the Soul, and therefore cannot be suspected of Atheism. But its extended Substance, whereby he lets us know that he admits of no absolute Accidents; and that, on the contrary, all Accidents are so inseparable from their Subject, that they cannot exist without it, as being Part of the Substance thereof; and therefore, that one of them destroy'd the other, meets with many Opposers; though if those Accidents result from the different Disposition of the Particles which compose those Substances, their existing independently of those Substances is incomprehensible; therefore those who assert it, are obliged to have Recourse to a Miracle, to support their Sentiment.

His supposing, that *God created Matter of an indefinite Extension, and divided that Matter afterwards into little square Particles*, is to represent him as imperfect in his Productions as we are in ours; as if he could not have produced, all at once, that Matter distributed into those little square Particles? And as if it was necessary they should be such for the Formation of every Individual. To break afterwards the Angles of these square Particles, by their Friction against one another, in order to form a second Element of the first Dust arising from that Friction, seems in fact a little puerile, as well as what he says of the Particles, some of the Angles thereof having been found harder than the rest, have resisted the Friction, and which he appoints for his first Element; for it had been more reasonable to have said, (since he was determined to form three Elements, each of them of Particles different in Bigness and Form) that God had formed them together, and appointed at once to every different Kind thereof the Space they were to fill; for as those Spaces are not indefinite, how could *Des Cartes* answer that there should not happen some Confusion in the Distribution of those Particles, by being too much of one Kind, to form an Element, and too little of another Kind to form the other Element? And if to answer this Difficulty he has Recourse to Providence, which is never mistaken or disappointed in his Designs, then he'll speak rather as a Theologian than a Philosopher; and will be obliged to confess, that it had been better to have admitted the different Kinds of Particles, created at once according to their different Dimensions and Forms, proper to compose the three different Elements, than to spend so much Time in that Composition, which had introduced a Priority of Time in the Elements; the second and third, which had been formed of the Refuse of the first, being thereby made posterior to the first. Even that Seniority had been founded in one and the same Element; for if the second and third Element were to be formed of the excrementitious Particles of the first; as these Particles had proceeded from the Rotation of the others, and that Rotation supposes different Intervals, the two other Elements must have been dependant on those Intervals; and therefore could not have been formed but by Degrees, and in Proportion, as the Matter they were to be composed of had fell from the first Element.

Newtonian Philosophy.

The *Newtonian Philosophy*, is the Doctrine of the Universe, and particularly of the heavenly Bodies; their Laws, Affections, *&c.* as delivered by Sir *Isaac Newton.*

The Term *Newtonian Philosophy* is applied very differently; whence divers confused Notions relating thereto.

Some Authors under this *Philosophy* include all the corpuscular Philosophy, considered as it now stands corrected and reformed by the Discoveries and Improvements made in several Parts thereof by Sir *Isaac Newton.*

In which Sense it is that *Gravesande* calls his Elements of Physicks, *introductio ad Philosophiam Newtonianam.* And in this Sense *Newtonian* is the same with the new Philosophy, and stands contradistinguished to the Cartesians, the Peripatetick, and the antient Corpuscular.

Others, by *Newtonian Philosophy*, mean the Method or Order which Sir *Isaac Newton* observes in philosophizing, *viz.* the reasoning and drawing of Conclusions directly from Phænomena, exclusive of all previous Hypothesis; the Beginning from simple Principles, deducing the first Powers and Laws of Nature from a few select Phænomena, and then applying those Laws, *&c.* to account for other Things. And in this Sense the *Newtonian Philosophy* is the same with the experimental Philosophy, and stands opposed to the antient Corpuscular.

Others, by *Newtonian Philosophy*, mean that wherein physical Bodies are considered mathematically; and where Geometry and Mechanicks are applied to the Solution of Phænomena. In which Sense the *Newtonian* is the same with the mechanical and mathematical Philosophy.

Others again, by *Newtonian Philosophy*, understand that Part of physical Knowledge which Sir *Isaac Newton* has handled, improved, and demonstrated in his *Principia.*

Others, lastly, by *Newtonian Philosophy*, mean the new Principles which Sir *Isaac Newton* has brought into *Philosophy*; the new System founded thereon, and the new Solutions of Phænomena thence deduced; or that which characterizes and distinguishes his *Philosophy* from all others. Which is the Sense wherein we shall chiefly consider it.

As to the History of this Philosophy, we have but little to say; it was first made publick in the Year 1686, by the Author, then a Fellow of *Trinity-College, Cambridge*; and in the Year 1713, re-published with considerable Improvements. Several Authors have since attempted to make it plainer, by setting aside many of the most unintelligible mathematical Researches, and substituting either more obvious Reasonings, or Experiments, in lieu thereof; particularly *Whiston*, in his *Prælect. Physic. Mathem. Gravesande in Element. & Inst.* and Dr. *Pemberton* in his View.

Notwithstanding the great Merit of this Philosophy, and the universal Reception it has met with in *England*, it gains Ground very slowly abroad; *Newtonianism* has scarce two or three Adherents in a Nation; but *Cartesianism*, *Hugenianism*, and *Leibnitzianism*, remain still in the chief Possession.

The Philosophy itself is laid down principally in the third Book of the *Principia.* The two preceding are taken up in preparing the Way, and laying down such Principles of Mathematicks, as have the most Relation to Philosophy; such are the Laws and Conditions of Powers. And these to render them less dry and geometrical, the Author illustrates by *Scholia* in *Philosophy*, relating chiefly to the Density and Resistance of Bodies, the Motion of Light, and Sounds, a Vacuum, *&c.*

In the third Book he proceeds to the Philosophy itself; and from the same Principles deduces the Structure of the Universe, and the Powers of Gravity, whereby Bodies tend towards the Sun and Planets; and from these Powers, the Motions of the Planets and Comets, the Theory of the Moon and the Tides.

This Book, which he calls *De mundi Systemate*, he tells us, was first wrote in the popular Way: But considering that such as are unacquainted with the said Principles, would not conceive the Force of the Consequences, nor be induced to lay aside their ancient Prejudices; for this Reason, and to prevent the Thing from being in continual Dispute, he digested the Sum of that Book into Propositions, in the mathematical Manner; so as it might only come to be read by such as had first consider'd

der'd the Principles. Not that it is necessary a Man should master them all. Many of them, even the first Rate Mathematicians, would find a Difficulty in getting over. It is enough to have read the Definitions, Laws of Motion, and the three first Sections of the first Book; after which the Author himself directs us to pass to the Book *De Systemate mundi*.

A general Idea, or Abstract of the whole *Newtonian Philosophy*, I shall here gratify the Reader withal, as I have done in the other Philosophies, with my own Remarks thereupon.

The great Principle on which the whole *Philosophy* is founded, is the Power of Gravity. This Principle is not new; *Kepler*, long ago, hinted it in his *Introduct. ad Mot. Martis*. He even discover'd some of the Properties thereof, and their Effects in the Motions of the primary Planets.

His Proof of the Principle from Phænomena, together with the Application of the same Principle, to the various other Appearances of Nature, or the deducing those Appearances from that Principle, constitute the *Newtonian* System; which drawn in Miniature will stand thus.

1°. The Phænomena are, 1. That the Satellites of *Jupiter* do, by Radii drawn to the Center of the Planet, describe Areas proportionable to their Times; and that their periodical Times are in a sesquiplicate Ratio of their Distances from their Center: In which all Observations of all Astronomers agree. 2. The same Phænomenon holds of the Satellites of *Saturn*, with Regard to *Saturn*; and of the Moon with Regard to the Earth. 3. The periodial Times of the primary Planets about the Sun, are in a sesquiplicate Ratio of their mean Distances from the Sun. But, 4. The primary Planets do not describe Areas any Ways proportional to their periodical Times about the Earth; as being sometimes seen stationary, and sometimes retrogade with Regard thereto.

2. The Powers whereby the Satellites of *Jupiter* are constantly drawn out of their rectilinear Course, and retained in their Orbits, do respect the Center of *Jupiter*, and are reciprocally as the Squares, of their Distances from the same Center. 2. The same holds with the Satellites of *Saturn*, with Regard to *Saturn*; of the Moon, with Regard to the Earth; and of the primary Planets with Regard to the Sun.

3. The Moon gravitates towards the Earth, and by the Power of that Gravity is retain'd in her Orbit: And the same holds of the other Satellites with Respect to their primary Planets; and of the Primary with Respect to the Sun.

As to the Moon, the Proposition is thus proved: The Moon's mean Distance is 60 Diameters of the Earth; her Period, with Regard to the fixed Stars, is 27 Days, 7 Hours, 43 Minutes, and the Earth's Circumference 12324960 *Paris* Feet. Now supposing the Moon to have lost all its Motion, and to be let drop to the Earth, with the Power which retain her in her Orbit; in the Space of one Minute she will fall $15\frac{1}{12}$ *Paris* Feet; the Arch she describes in her mean Motion, at the Distance of 60 Semi-diameters of the Earth, being the versed Sine of $15\frac{1}{12}$ *Paris* Feet. Hence, as the Power, as it approaches the Earth, increases in a duplicate Ratio of the Distance inversly; so, as at the Surface of the Earth, it is 60×60 greater than at the Moon: A Body falling with that Force in our Region must, in a Minute's Time, describe the Space of $60 \times 60 \times 15\frac{1}{12}$ *Paris* Feet, and $15\frac{1}{12}$ *Paris* Feet in one Second.

But this is the Rate at which Bodies fall, by Gravity, at the Surface of our Earth; as *Huygens* has demonstrated by Experiments with Pendulums. Consequently the Power whereby the Moon is retained in her Orbit, is the same with what we call Gravity: For if they were different, a Body falling with both Powers together, would descend with double the Velocity, and in a Second of Time describe $30\frac{1}{6}$ Feet.

As to the other secondary Planets, their Phænomena, with Regard to their primary ones, being of the same Kind with those of the Moon about the Earth; it is argued by Analogy, they depend on the same Causes: It being a Rule or Axiom, which all Philosophers agree to, that Effects of the same Kind have the same Causes. Again, Attraction is always mutual, *i. e.* the Re-Action is equal to the Action. Consequently the primary Planets gravitate towards their secondary ones; the Earth towards the Moon, and the Sun towards them all. And this Gravity, with Regard to each several Planet, is reciprocally as the Square of its Distance from its Center of Gravity.

4. All Bodies gravitate towards all the Planets; and their Weights towards any one Planet, at equal Distances from the Centre of the Planet, are proportional to the Quantity of Matter in each.

For the Law of the Descent of heavy Bodies towards the Earth, setting aside their unequal Retardation from the Resistance of the Air, is this; that all Bodies fall equally in equal Times: But the Nature of Gravity, or Weight, no doubt is the same on the other Planets as on the Earth.

Suppose, *e. gr.* such Bodies raised to the Surface of the Moon, and together with the Moon deprived at once of all progressive Motion, and dropped towards the Earth: It is shewn, that in equal Times they would describe equal Spaces with the Moon; and therefore, that their Quantity of Matter is to that of the Moon, as their Weight to its Weight. Add, that since *Jupiter*'s Satellites revolve in Times that are sesquiplicate Ratio of their Distances from the Center of *Jupiter*, and consequently at equal Distances from *Jupiter*, their accelerating Gravities are equal; therefore, falling equal Altitudes in equal Times, they will describe equal Spaces; just as heavy Bodies do on our Earth. And the same Argument will hold of the primary Planets with Regard to the Sun. And the Powers whereby unequal Bodies are equally accelerated, are as the Bodies, *i. e.* the Weights are as the Quantities of the Matter in the Planets. And the Weights of the primary and secondary Planets towards the Sun, are as the Quantities of Matter in the Planets and Satellites. And hence are several Corollaries drawn, relating to the Weights of Bodies on the Surface of the Earth, Magnetism, and the Existence of a Vacuum.

5. Gravity extends itself towards all Bodies, and is in the Proportion to the Quantity of Matter in each.

That all the Planets gravitate towards each other, has been already shewn; likewise, that the Gravity towards any one consider'd apart, is reciprocally as the Square of its Distance from the Center of the Planet: Consequently Gravity is proportional to the Matter therein. Further, as all the Parts of any Planet gravitate towards another Planet; and the Gravity of any Part is to the Gravity of the whole, as the Matter of the Part to the Matter of the whole; and Re-action equal to Action: *i. e.* A Planet will gravitate towards all the Parts of another Planet; and its Gravity towards any Part, will be to its Gravity towards the whole, as the Matter of the Part to the Matter of the whole.

Hence we derive Methods of finding and comparing the Gravities of Bodies towards different Planets; of finding the Quantities of Matter in the several Planets, and their Densities; since the Weights of equal Bodies revolving about the Planets, are as the Diameters of their Orbit directly, and as the Squares of the periodical Times inversly; and the Weight at any Distance from the Center of the Planet, are greater or less in a duplicate Ratio of their Distances inversly: And since the Quantities of Matter in the Planets are as their Powers at equal Distances from their Centers; and lastly, since the Weights of equal and homogeneous Bodies, towards homogeneous Spheres, are at the Surfaces of the Spheres, as the Diameters of those Spheres; and consequently the Densities of heterogeneous Bodies, are as the Weights at the Distances of the Diameters of the Spheres.

6. The common Center of the Gravity of the Sun and all the Planets is at Rest; and the Sun, though always in Motion, yet never recedes far from the common Center of all the Planets.

For the Matter in the Sun being to that in *Jupiter*, as 1033 to 1; and *Jupiter*'s Distance from the Sun to the Semidiameter of the Sun in a Ratio somewhat bigger; the common Center of Gravity of *Jupiter* and the Sun will be found a Point a little without the Sun's Surface. And, by the same Means, the common Center of *Saturn* and the Sun will be found a Point a little within the Sun's Surface: And, the common Center of the Earth and all the Planets will be scarce one Diameter of the Sun distant from the Center thereof; but the Center is always at Rest: Therefore, though the Sun will have

have a Motion this and that Way, according to the various Situations of the Planets, yet it can never recede far from the Center. So that the common Center of Gravity of the Earth, Sun and Planets, may be esteemed the Center of the whole World.

7. The Planets move in Ellipses that have their Foci in the Center of the Sun, and describe Areas proportional to their Times.

This we have already laid down *a posteriori* as a Phænomenon: And now that the Principle of the heavenly Motions is shewn, we deduce it there from *a priori*. Thus, since the Weights of the Planets towards the Sun are reciprocally as the Squares of the Distances from the Center of the Sun; if the Sun were at Rest, and the other Planets did not act on each other; their Orbits would be eleptical, having the Sun in their common Umbilicus, and would describe Areas proportional to the Times: But the mutual Actions of Planets are very small, and may be well thrown aside: Therefore, *&c.*

Indeed the Action of *Jupiter* on *Saturn*, is of some Consequence; and hence, according to the different Situations and Distances of those two Planets, their Orbits will be a little disturbed.

The Sun's Orbit too is sensibly disturbed by the Action of the Moon: And the common Center of the two describes an Ellipsis round the Sun placed in the Umbilicus; and with a Radius drawn to the Center of the Sun, describes Areas proportional to the Times.

8. The Aphelia and Nodes of the Planets are at Rest, excepting from some inconsiderable Irregularities, arising from the Action of the revolving Planets and Comets. Consequently, as the fixed Stars retain their Position to the Aphelia and Nodes, they too are at Rest.

9. The Axis, or polar Diameter of the Planets is less than the equaterial Diameter.

The Planets, had they no diurnal Rotation, would be Spheres, as having an equal Gravity on every Side: But by this Rotation the Parts receding from the Axis endeavour to rise towards the Equator; which, if the Matter they consist of be fluid, will be effected very sensibly. Accordingly *Jupiter*, whose Density is found not much to exceed that of Water on our Globe, is observed by the Astronomers to be considerably less between the Poles than from East to West. And on the same Principle, unless our Earth were higher at the Equator than towards the Poles, the Sea would rise under the Equator, and overflow all near it.

But this Figure of the Earth, Sir *Isaac Newton* proves likewise *a posteriori*, from the Oscillations of Pendulums being slower and smaller in the Equatorial, than the polar Parts of the Globe.

10. All the Moon's Motions, and all the Inequalities in those Motions follow from these Principles, *e. gr.* her unequal Velocity; and that of her Nodes, and Apogee in the Syzygies and Quadratures; the Differences in her Excentricity and Variation, *&c.*

11. From the Inequalities in the lunar Motions, we can deduce the several Inequalities in the Motions of the Satellites.

12. From these Principles, particularly the Action of the Sun and Moon upon Earth, it follows, that we must have Tides, or that the Sea must swell and subside twice every Day.

13. Hence likewise follows the whole Theory of Comets, as that they are above the Region of the Moon, and in the planetary Spaces; that they shine by the Sun's Light reflected from them; that they move in conick Sections, whose Umbilice are in the Centre of the Sun; and by Radii drawn to the Sun, describe Areas proportional to the Times; that their Orbits or Trajectories, are very nearly Parabola's; that their Bodies are solid, compact, *&c.* like those of the Planets, and must therefore acquire an immense Heat in their Perahelia; that their Tails are Exhalations arising from them, and encompassing them like Atmospheres.

The Objections raised against this *Philosophy* are chiefly aimed at the Principle, *Gravity*; which some condemn as an occult Quality; and others as a miraculous, and preternatural Cause; neither of which have longer any Room in sound *Philosophy*. Others again set it aside, as destroying the Motion of Vortices; and others, as supposing a Vacuum; in fact, Sir *Isaac*, different from all other Philosophers, takes no Pains to prove his Principle *a priori*, as they have all done, which, notwithstanding, is very essential in *Philosophy*; for though we know, by the Phenomena, that a Body gravitates towards its Centre; our Mind cannot be satisfied till we know, likewise, whence that Gravitation proceeds; if that Gravity be a Quality essential to the Body; as some will have it; or super-added to it, in the Sentiment of others; or an Impulse of some Body from without, according to others; which is an Imperfection in his System, and which keeping always the Mind in Suspence, will hinder most Philosophers from espousing it. For if all the Bodies known in Nature, have an essential Gravity, *i. e.* cannot exist without it, as Sir *Isaac* seems to insinuate, by calling it *Vis*, and *Power*; how will he be capable to explain the Phenomena of those Bodies which ascend and swim in Fluids? If he says, that it is only because they are not Bulk for Bulk, so heavy as those Fluids; such Answer does not resolve the Difficulty; for though those Fluids be Bulk for Bulk heavier than the Body ascending or swimming in them: As the Bodies which compose those Fluids, are appointed by Nature to form a whole Mass, and should consequently gravitate towards one another in Sir *Isaac*'s System, the Body which ascends or swims in them being heterogeneous to that Mass, should retain still its natural Tendency towards the common Center of all heavy Bodies, and finds, through the Interstices left between those fluid Bodies, continually tending towards one another, by Means of their continual Fluctuation, a Passage to its natural Center.

Experimental Philosophy.

The *Experimental Philosophy*, by the *Greeks* called εμπειρια, or εμπειρικη, is that which proceeds on Experiments; on which are deduced the Laws of Nature, and the Properties and Powers of Bodies, and their Actions upon each other, from sensible Experiments and Observations.

Experiments are of the last Importance in *Philosophy*; and the great Advantages the modern Physicks have above the antient, is chiefly owing to this, that we have a great many more Experiments, and that we make more Use of the Experiments we have.

Their Way of philosophizing was, to begin with the Causes of Things; and argue to the Effects and Phenomena; ours, on the contrary, proceed from Observations and Experiments alone.

My Lord *Bacon* found the Way for the new *Philosophy*, by setting on Foot the making of Experiments. His Method has been prosecuted with laudable Emulation by the Academy *Del Cimento*, the Royal Academy at *Paris*, the Royal Society, Mr. *Boyle*, Sir *Isaac Newton*, and many others.

In Effect, Experiments within these 60 or 70 Years, are come into such Vogue, that nothing will pass in *Philosophy* but what is founded on Experiment, or confirmed by Experiment, *&c.* so that the new *Philosophy* is almost altogether experimental.

Indeed the Antients, whatever we commonly say to the contrary, seem to have thought as well of the experimental Way as the Moderns. *Plato* misses no Occasion of speaking of the Advantages of the εμπειρια; and as to *Aristotle*, his History of *Animals* may bear Witness for him. *Democritus*'s great Business was to make Experiments; and even *Epicurus* himself owes Part of his Glory to the same Cause. *Plato* calls it, in Respect to his Subject, ευαισθησια, Subtlety of Sense.

Yet there are some, even among the Learned, who conceive of Experiments in a different Manner. Dr. *Keil* allows that *Philosophy* has received very considerable Advantages from the Makers of Experiments; but complains of their Disingenuity, in too often wresting and distorting their Experiments and Observations, to favour some darling Theories they had espoused. But this is not all: M. *Hartsocker*, in his *Recueil de plusieurs Pieces de Physique*, undertakes to shew, that they who employ themselves in the making of Experiments, are not properly Philosophers, but as it were the Labourers or Operators of Philosophers, who work under them, or for them, furnishing them with Materials to build their Systems and Hypothesis upon.

The

The learned M. *Dacier*, in the Beginning of his Discourse on *Plato*, at the Head of his Translation of the Works of that Philosopher, deals still more severely with the Makers of Experiments. He speaks out with a Sort of Indignation, as a Tribe of idle curious People, whose *Philosophy* consists in making Experiments on the Gravity of the Air; the Equilibrium of Fluids, the Magnet, *&c.* and yet arrogate to themselves the noble Title of Philosophers. In fact, that Title is very improperly adapted to them, since there is a great Difference between Wisdom, on which *Philosophy* is founded, and Genius and Dexterity, on which all Kinds of Experiments depend; for a Person may have a very good Genius for Mechanism, and not be very wise, of that Wisdom which becomes a true Philosopher; that experimental Part, which of late Ages has been joined to *Philosophy*, belonging more properly to Mechanicks. For a Philosopher, taking the Term in its strictest Sense, should go no further than the Contemplation of Things, leaving the Execution thereof to another Set of Men; though he should have a certain Theory thereof, in order to judge pertinently of them; as a Physician is obliged to understand Pharmacy and Chymistry, though the Practice of those Arts, belongs properly to Apothecaries and Chymists.

Natural Philosophy.

Natural Philosophy, sometimes also called Physicks and Philiology, is the Doctrine of natural Bodies, their Phænomena, Causes, and Effects; with the various Affections, Motions, and Operations thereof.

Note, That as I have treated of all those Things in several Treatises apart, *viz.* in those of *Anatomy*, *Animals*, *Astronomy*, *Botany*, *Metals*, *Minerals*, &c. the greatest Part whereof is of my own Invention, and where every Body can discover, that my own Sentiment is in a great Measure very different from those of the different Sects of Philophers heretofore mentioned, I have nothing left to conclude this Treatise, than to shew, in Abregee, in what I differ from them, on the principal Points.

My own Philosophy.

I take the Liberty to call this *Philosophy* my own, because it is really my own Sentiment, which I have borrowed from no Body.

I'm of Opinion, that there was always from the Beginning an indefinite and inexhaustible Substance, subsisting independently of all other created Beings, though it contained them all (not only those, which have already existed, exist, and are to exist, but even those which are possible, and are never to exist) in the same Manner as our Imagination contains an infinite Number of Ideas, some whereof are produced *ad extra*, some remain *in fieri*, and are to exist in Time; and others remain in a State of Possibility, and will never be exploded. That those several Beings, tho' but in Embrio, were as perfect then as they were after their Explosion, as well in the just Conformation of their Parts, as in the beautiful Symetry which subsists between them, though not discernible by a mortal Eye; since by the incomprehensible Act of the Will of a supreme, eternal, and omnipotent Being, they were all exploded at once, in their full Perfection, and sooner than we could possibly have conceived it; each Kind of them, finding themselves, at the very same Instant, at the Place of their Destination, without any other Difference in the Degrees of their Perfection, but a relative one, *i. e.* that each Kind was perfect in itself, and imperfect only when compared with other Kinds, which according to their Situation, and their different Functions were more perfect.

Though I admit three Elements with *Des Cartes*, I do not agree with him with Respect to the Formation of those Elements; for it is my Opinion, that they were all three made perfect at once, by the just Symetry of their Parts, as well adapted to each other from the very first Instant they began to form a Compositum, as they have appear'd since: That Grinding of the Particles of the first Element, invented by *Des Cartes*, in order to form the second and third, of the Dust and other Superfluities thereof; not only supposes some Imperfection in the first Principle, as if the Perfection of its Productions, depended of a second Thought or Reflection; but likewise an Interval of Time in the Production of the most essential Parts of the Universe, which is a Contradiction of its Existence; since those Elements being made purely for the Benefit of the Earth, and all the Productions thereof; it is very reasonable to suppose, that if the Earth was not prior to them, it was at least coeval, and that the inexhaustible Source whence they proceeded, had Matter enough in Store to form them all, without having Recourse to the penurious Expedient, of waiting for the Shreds, and Refuse of the Particles of the first Element, to form the second and third therewith. And since the first and second Element were to be extended over the Surface of the Earth; and the Particles they were composed of, were to direct themselves accordingly, how could such a Thing have been done, since the Limits nor the Form of their Extension was not fixed yet; it is true, that we may have Recourse for that to the infinite Knowledge, of the first Principle, who knew the Limits he had designed for each Being; but why should we have Recourse to metaphysical Means, when we can appropriate Things to an easier Manner of understanding them, and more agreeable to our natural Conceptions; for it is more agreeable to these Conceptions, that the first and second Element having been formed for the Utility of the Earth, and to encompass it; if the Earth was not prior, it must have been at least coeval to them; since the first Principle does nothing in vain; and if the Earth had been posterior in its Formation to the first and second Elements those two Elements should have been consider'd as useless, at least for all that Time the Earth had been forming of their Superfluity. But what should have been, besides, the Want of Capacity in the Artist, to have set such an incomprehensible Multitude of Particles a going at Random, and leave to pure Hazard, the perfecting of his Work, by breaking, grinding, and polishing those Particles, which he had left in a monstrous Confusion.

It is also my Sentiment, that those Particles, which composed the three Elements, were directed to Motion that very same Instant the supreme Being willed their Explosion, and that it was by Means of that Motion they were actually exploded; that they sallied out from their Source, in the same Manner a River which overflows its Banks, spreads itself over a flat Superficies; each of them following its natural Impulse and Tendency, as well towards their common Center, as towards each other; which Motion and Direction, they have preserved since, without the least Alteration or Diminution; for as that Motion was the second Principle of their Existence, and not a Consequence resulting from their Existence, as in Beings produced, since, by Generation; that Motion order'd so well the Parts from the Beginning, which concurred to it, and established among them so natural and beautiful a Harmony, that none of them obstructing or pressing too hard on the other, but, on the contrary, assisting one another mutually in their several Functions; and their Texture being so compact as to admit of no heterogeneous Body, to obstruct their Rotation, it is almost impossible they should suffer the least Change, or Alteration.

The Difference we discover in the different Bodies, which compose both the celestial and terraqueous Globe, does not consist in the Difference of the Matter those Bodies are compos'd of (since the Matter is the same every where) but in the different Configuration of the Particles of that Matter, and in the lesser or greater Velocity of their Motion.

For the experimental Philosophy gives us Room to suppose, that the Sun which was placed in the Center of the System, must have been there, before the actual Explosion thereof, as a round and smooth Globule, composed of an incomprehensible Infinity of other Globules, of the same Form, but of different Sizes; which Globules, by the actual Expansion of the whole System, finding themselves more at Liberty to follow their natural and violent Propensity to Motion, unfolded themselves into a much greater Volume, to fill the whole Center of the System, which by the same Expansion was also become much larger; much as a certain Quantity of Quick silver, confined within a narrow Compass, search to extend itself, when it is allowed more Room: That natural Propensity to Extension, increasing rather than diminishing, the greater is the Space allowed for it; and its Motion increasing on Proportion as it has more Room to move, the

The globulous Particles which compose the Sun's Substance, being still more perfect in their globular Configuration than those of Quicksilver, and therefore indued with a still much greater Velocity; like them, they are in a perpetual violent Motion, to extend their Limits still further and further, and that Motion, and the insuparable Obstacles they meet with to extend themselves further, occasion a violent Friction among them, which produces Heat and Light; from which Velocity and natural Propensity to Expansion proceeds likewise its Rotation in its Orbit, in order to find a Place to break through, to explode itself further. The same Thing may be said of the fixed Stars.

As for the *Planets*. They are round, thin, compact and smooth Bodies, composed of Particles of different Configuration, but all united in so perfect a Mechanism, that there is not the least Irregularity therein; being all joined together to maintain in the whole Frame the natural Motion thereof, which is that of proceeding gradually each in its Orbit, in order to accomplish their periodical Revolution round the common Center of the whole System.

The Figure of the Planets being round, none of the Sides thereof has a greater absolute Gravity than the other, but each Side equiponderate the other opposite to it, otherwise there would frequently happen some Disorder in their periodical Revolution; either by the ambient Atmosphere pressing too hard on either Side, and thereby obstructing the Rotation, or by the lighter Side exhausting at last its mobile Faculty, by the too violent and too frequent Efforts it would be obliged to make, to rise the heaviest: But they are all placed in Equilibrio on their Axis, the better to be accellerated in their Progression, by the ambient Atmosphere pressing gently on them.

The *Earth* admits in its Composition a greater Quantity of different Particles of different Forms, than the Planets, and the Texture thereof is much loofer, as appointed for quite different Purposes; for the Earth is not to reflect the Light of the Sun as the Planets do; but, on the contrary, to leave a Passage through its porous Substance to the Sun's Beams, in order to facilitate the Vegetation, Crystallization, *&c.* forming in its Bosom.—The Earth has also a Principle of Motion peculiar to itself, and as perfect as that of the Planets; though we are not so sensible of it, because we are carried along with it.

All the sublunary Things which seems to us subject to Succession of Time, to Vicissitude or Changes, have all an actual Being from the Beginning; for there is nothing created *de novo*; and the first Animal of each Kind contained actually all the Animals which have been seen since, and will be seen hereafter; as the first Plant did all the other Plants; the first Mineral all the other Minerals, *&c.* or rather, it is nothing else but the same Animal, the same Plant, *&c.* renewed *in infinitum:* For if Things were created *de novo*, in the same Manner they have been created at first, and with the same Faculty of reproducing themselves, by means of the infinite Multitude of actual Beings each of them contain in Miniature, there should be also other Worlds created to contain them.

The supreme Being having done nothing in vain, but all Things having been created to some Purpose, there is no such Thing as a Vacuum in Nature, either as *absolute* or *coacervatum*. There is no absolute Vacuum, because the Universe is entirely full of Matter; otherwise, that Part which should remain empty, would be a needless or superfluous Place, formed without any View or Design, which would argue an Indifference in God with regard to his Operations, which is incompatible with his infinite Wisdom. There is no *coacervatum Vacuum*, since a Thing containing, supposes necessarily a Thing contained; but if there was a *coacervatum Vacuum*, it would be a Thing containing, and nothing contained in it, which is a Contradiction.

This Question on the *Vacuum* has much puzzled both antient and modern Philosophers. The Antients in their Controversies distinguished two Kinds, a *Vacuum Coacervatum*, or a *Vacuum Interspersum*, or *Disseminatum*.

Vacuum Coacervatum, is conceived as a Place destitute of Matter; such *e. gr.* as there would be, should God annihilate all the Air, and other Bodies within the Walls of this Chamber. The Existence of such Vacuum is maintained by the Pythagoreans, Epicureans, and the Atomists or Corpuscularians; most of whom assert such a Vacuum actually to exist, without the Limits of the sensible World. But the modern Corpuscularians, who hold a *Vacuum Coacervatum*, deny that Application, as conceiving that such a Vacuum must be infinite, eternal, and uncreated.

According then to the latter Philosophers, there is no *Vacuum Coacervatum* without the Bounds of the sensible World; nor would there be any Vacuum, provided God should annihilate divers contiguous Bodies, than what amounts to a mere Privation, or nothing: The Dimensions of such a Space, which the Antients held to be real, being by these held to be mere Negations, that is, in such a Place there is so much Length, Breadth, and Depth wanting, as a Body must have to fill it.

The *Cartesians*, however, deny any *Vacuum coacervatum* at all; and assert, that if God should immediately annihilate all the Matter, *v. gr.* in this Chamber, and prevent the Ingress of any other Matter, the Consequence would be, that the Walls would be contiguous, and contain no Space at all.—And they add, that if there be no Matter in a Chamber, the Walls can be conceived no otherwise than as contiguous, those Things being said to be contiguous, between which there is not any Thing intermediate: But if there be no Body between, there is no Extension between; Extension and Body being the same Thing: And if there be no Extension between, then the Walls are contiguous; and where is the *Vacuum?*

Vacuum disseminatum, or *interspersum*, is that supposed to be naturally interspersed in, and among Bodies, in the Pores of the same Body, and in the Interstices between different Bodies.—It is this Kind of *Vacuum* which is chiefly disputed among the modern Philosophers: The Corpuscularians strenuously asserting it, and the *Peripateticks* and *Cartesians* as stiffly impugning it.

The great Arguments the *Peripateticks* use against a *Vacuum interspersum*, is, that there are divers Bodies frequently seen to move contrary to their own Nature and Inclination; and for no other apparent Reason than to avoid a *Vacuum:* Whence they conclude, that Nature abhors a *Vacuum*, and give us a new Class of Motions ascribed to the *fuga vacui*, or Nature flying a *Vacuum*.

Such is the rising of Water in a Syringe upon the drawing up the Piston; such also is the Ascent of Water in Pumps, the swelling of the Flesh in a Cupping-Glass, *&c.*

The *Cartesians* deny, not only the actual Existence, but even the Possibility of a *Vacuum:* And that on this Principle, that Extension being the Essence of the Matter or Body, wherever Extension is, there is Matter; but mere Space or Vacuity is supposed to be extended, therefore it is material. Which Sentiment is the most agreeable to Reason, since according to my own Sentiment, Extension is the Protraction of a Body according to all its Dimensions, which Protraction cannot be effected but by an immediate Contact of all the Points of the extended Body, with other Bodies over which it is extended, whereby it is supported in its Extension, otherwise the Particles of that Body could never be protracted to any Extension, it being unconceivable, and even contrary to a daily Experience, that the Particles of the extended Body at so great a Distance from each other, could mutually support one another, but on the contrary, must immediately follow their natural Propensity towards their common Center.

On the other hand, the corpuscular Authors prove, not only the Possibility but the actual Existence of a *Vacuum*, from divers Considerations, particularly from the Consideration of Motion in general; and that of the Comets, Planets, *&c.* in particular; from the Fall of Bodies, from the Vibration of Pendulums, from Rarefaction and Condensation, from the different specifick Gravities of Bodies, and from the Divisibility of Matter into Parts.

1. It is argued, that Motion could not be effected without a *Vacuum*.—This is what *Lucretius* urged long ago.—*Principium quoniam cedendi nulla daret res—Undique materies quoniam stipata fuisset.*

The Force of this Argument is pretended to be increased

creased from the two following Considerations, *viz.* that all Motion is either in a streight Line, or in a Curve which returns into itself, as the Circle and Ellipsis; or in a Curve which does not return into itself, as the Parabola, *&c.* and, secondly, that the moving Force must be always greater than the Resistance.

For, they suppose, that hence it follows, that no Force, even though infinite, can produce Motion where the Resistance is infinite; that consequently there can be no Motion either in a streight Line, or a non-returning Curve; because in either of these Cases the Protrusion, and consequently the Resistance, would be infinite.—That there remains, therefore, only the Motion in a revolving Curve, practicable; which must either be a Revolution upon an Axis, or an annular Motion round a quiescent Body; both which are again impossible in an elliptick Curve; and consequently all Motion must be in Circles geometrically true, and the revolving Bodies must either be Spheres, Spheroides, Cylinders, or Portions of them exactly geometrical, otherwise their Revolution in a Plenum would be impossible: But such Motions or such figured Bodies we do not know in Nature; therefore there is a Vacuum. It is my Sentiment, that this Gibberish, which scarce any Body understands, does not at all prove a Vacuum; for though the World be full of Matter from the Beginning, that Matter is so subtile, and so well adapted to the different Phænomena which happens in it, that far from being an Obstacle to them, it on the contrary contributes towards rendering them more perfect, and towards answering in a more regular Manner, their several different Purposes: Which Assertion I prove by the same Example of Motion, which is brought in this Place to prove a *Vacuum*; for we must be convinced by an Infinity of Experiments, that it would be impossible to regulate any Motion whatever, if there was not some Resistance in Nature, either to moderate its too great Impetuosity, according to the Intentions of the first Motor, or to stop it entirely, when those Intentions have been answered. That some subtile Matter serves likewise to keep that Motion in a certain Regularity, by maintaining it in a certain Degree of Velocity for a certain Space of Time; which could not be done if there was a Vacuum; for as the Body in Motion could not meet then with any Resistance, once set agoing, it would always retain the same Degree of Velocity it received from the first Impulse, and never stops of itself; which Motion a Vacuum (suppose such a Motion was possible, which I cannot believe) could never be regular, for as there would be then no ambient Atmosphere to maintain it in the Direction it received from the first Impulse, it could never be carried in a strait Line, but decline from the second Instant of the Impulse, either to the Right or Left, according as the Disposition of the Parts of the Body moved, should incline it more towards one Side than the other; and if even it should happen that all its Parts should be in Equilibrio, the Motion could never be but circular, and even that but a very weak, short, and irregular one, let the Impulse be ever so violent, which could then contribute to nothing more than to a greater Irregularity of the Motion. I have said, that I do not even think a Motion possible in Vacuo, since it is my Opinion, that it is the Resistance the Body moved meets with from the subtile Matter, which causes the Vibrations; which is also confirmed by Experiment, that a Motion is increased or accellerated by meeting with a Resistance from some foreign Body, provided that Resistance be proportional to the Motion, *i. e.* the Body be not too hard, and the Vibration against it too violent; which is not to be feared from the subtile Matter, which being in a fluid State, accommodates itself easily to the Motion given by the first Impulse.

2. They pretend that the Motions of the Planets and Comets demonstrate a *Vacuum*: Thus Sir *Isaac Newton*, 'That there is no such fluid Medium as Æther (to fill up the porous Parts of all sensible Bodies, as the Air, and interstellar Parts, and so make a Plenum) seems probable, because the Planets and Comets proceed with so regular and lasting a Motion, through the celestial Spaces, both from and to all Parts: For hence it appears, that those celestial Spaces are void of all sensible Resistance, and consequently of all sensible Matter. For the resisting Force of fluid Mediums arises partly from the Attrition of the Parts of the Medium, and partly from the Inactivity of Matter.—Now that Part of the Resistance of any Medium which arises from the Tenacity or Attrition of its Parts, may be lessened by dividing the Matter into smaller Parts, and by rendering those Parts more smooth and slippery; but that Part of the Resistance which arises from the Inactivity of Matter, is always in proportion to the Density of the Matter, nor by any other Means, except by diminishing the Density thereof.

'Consequently, if the celestial Regions were as dense as Water or Quicksilver, they would resist almost as much as Water or Quicksilver; but if they were perfectly dense, without any interspersed Vacuity, though the Matter were ever so fluid and subtile, they would resist more than Quicksilver does; a perfectly solid Globe in such a Medium would lose above half its Motion, in moving three Lengths of its Diameter; and a Globe not perfectly solid, such as the Bodies of the Planets and Comets are, would be stopped still sooner. Therefore that the Motion of the Comets and Planets may be regular and lasting, it is necessary the celestial Spaces be void of all Matter, except perhaps some few, and much rarified Effluvia of the Planets and Comets, and the passing Rays of Light.'—Neither this mechanical Reasoning of Sir *Isaac* destroys the Existence of the subtile Matter, nor assert the Existence of a *Vacuum*, (if we can attribute that Name Existence to a Thing which is a Negation thereof) for though the celestial Bodies, *viz.* the Planets and Comets, be environed by the subtile Matter, and their porous Substance penetrated by Part thereof, it does not at all obstruct their natural Motion; on the contrary, it maintains it in that Regularity it received from the first Impulse; for that subtile Matter forming an Atmosphere round the Body of the Planet, the upper Part and back Part of that Atmosphere presses gently on those Parts of the Body of the Planet, which they touch immediately, while the other Part of the Atmosphere, which is underneath the Planet, gives Way as gently to that Compression; otherwise the Planet could never be kept steady in its natural Progression, but should reflect one Way or other, which would cause a very sensible Disorder in the whole System. As to Sir *Isaac*'s Comparison between the Fluidity of Water and Quicksilver, and that of the subtile Matter, it is very lame; for it suffices to say, that the Fluidity of the subtile Matter is proper to itself, and appropriated to the several different Phænomena it is to produce.

3. The same Author deduces a *Vacuum* from the Consideration of the Weights of Bodies, thus:—'All Bodies about the Earth gravitate towards the Earth; and the Weights of all Bodies equally distant from the Earth's Center, are as the Quantities of Matter in those Bodies. If the Æther therefore, or any subtile Matter, were altogether destitute of Gravity, or did gravitate less than in Proportion to the Quantity of its Matter: because (as *Aristotle*, *Des Cartes*, and others argue) it differs from other Bodies only in the Form of the Matter; the same Body might by the Change of its Form, gradually be converted into a Body of the same Constitution with those which gravitate most in Proportion to the Quantity of Matter. And on the other Hand, the most heavy Body might equally lose their Gravity, by gradually changing their Form; and therefore the Weights would depend upon the Forms of Bodies, and might be changed with them; which is contrary to all Experiment.' This Reasoning (if not almost unintelligible) is at least as weak as the other, to establish a Vacuum, since it is founded on an entirely false Supposition; for though Gravity be placed in the Disposition of the Particles of the Matter, and a Body be more or less heavy, according to the Difference of that Disposition, it could not be concluded hence, that the subtile Matter, which is the lightest of all Bodies that gravitate, could become heavier, by altering the Configuration of its Parts, since that Alteration is impossible; and if possible, it would no longer be considered in our System as a subtile Matter; but by its gravitating then towards its Centre, in the Manner of the heaviest, should leave room for other subtile Matter of the same Consistence, it had before that Transformation.

tion. Besides, that subtle Matter, as I consider it, gravitates as much, in Proportion to its Form, or even with a greater Celerity towards its Centre, than the heaviest Bodies; but as it is of a globular Figure, and perfectly smooth, these Globules which arrive first to the Center, being compressed by these which touch them immediately a-top, give Way to them, these to the others, and thus successively by a perpetual Rotation.

4. The same Author pretends, that the Descent of Bodies proves that all Space is not equally full; which he attempts to prove thus: 'If all Spaces were equally full, 'says he, the specifick Gravity of that Fluid, with which 'the Region of the Air would in that Case be filled, 'would not be less than the specifick Gravity of Quick-'silver or Gold, or any other the most dense Body; and 'therefore neither Gold, nor any other Body, could de-'scend therein. For Bodies do not descend in a Fluid, 'unless that Fluid be specifically lighter than that Body. 'But by the Air-Pump we can exhaust a Vessel, till even 'a Feather shall fall with a Velocity equal to that of Gold 'in the open Air: The Medium, therefore, through 'which the Feather falls, must be much rarer than that 'thro' which the Gold falls.

'The Quantity, therefore, in a given Space, may be 'diminished by Rarefaction: And why may not be di-'minished *in infinitum*: Add, that we conceive the solid 'Particles of all Bodies to be of the same Density; and 'that they are only rarifiable by Means of their Pores: 'Whence a Vacuum evidently follows.' I deny that the Descent of Bodies proves that all Space is not equally full; which is deduced, as I suppose, from the different Degrees of Rapidity, discover'd in the Descent; for tho' some Bodies descend with a greater Rapidity than others, that should not be attributed to the Vacuity of the Places they descend through, but to the Configuration of the Body descending, which admit of a greater Quantity of Contacts, of the super-incumbent subtile Matter, than from that which is underneath; or to its Volume, which dispersing the subtile Matter at a vast Distance, on both Sides, bear thereby the whole Weight of the super-incumbent, because that Expulsion accelerating the Motion of the subtile Matter which is on the Sides, incapacitates it thereby to bear so well part of the Weight of the super-incumbent, as it would have done, if so great a Dilatation had not happen'd. I deny, likewise, that if all Spaces were equally full, the specifick Gravity of that Fluid, with which the Region of the Air would in that Case be filled, would not be less than the specifick Gravity of Quicksilver or Gold; since the Gravity of that Fluid, answers the Designs of the first Principle whence it proceeds, as Quicksilver or Gold does: Though in a quite different Manner; for as Gold, by the natural Configuration of its Parts, was designed to be a very heavy Body; the subtile Matter, likewise, by the Configuration of its Parts, was designed to be the most fluid of all Bodies; even of that Fluidity which is scarce sensible; which Fluidity, therefore, is a proper Medium for heavy Bodies to descend through. As for the Example of a Feather in an Air-Pump, brought by the Author to support his Reasoning, it does nothing to the Purpose, since it proves only, that the subtle Matter can be rarified to such a Degree by its Motion being accelerated by Means of the Air-Pump, that it gives Passage to the lightest Bodies.

5. The same Author pretends, besides, 'that there is 'a Vacuum, is evident by the Vibrations of Pendulums: 'For since those Bodies, in Places out of which the Air 'is exhausted, meet with no Resistance to retard their 'Motion, or shorten their Vibrations; it is evident there 'is no sensible Matter in those Spaces, or in the occult 'Pores of those Bodies.' To which I answer, that the greater Freedom of the Vibrations in those Places, does not proceed from their Meeting with no Resistance, but the subtile Matter being there more rarified than any where else, the Resistance is better appropriated to the Motion.

As to spiritual Substances, I'm of Opinion, that there was from all Eternity, an immense, infinite, inexhaustible, and incomprehensible Substance, subsisting by itself, independently of all corporeal Beings; containing all Things by his Immensity, producing all Things by his Omnipotency, and governing all Things by his Wisdom; and whence all other spiritual Substances proceed by Participation; some of them existing, likewise, independently of Corporality; and other informing Bodies; tho' this last Kind of spiritual Substances, acquire no greater Degree of Perfection, by that Information; but are as perfect at the very Instant of their Emanation, as those are which exist by themselves; neither are they subject to the least Change or Vicissitudes, or contract the least Imperfection, by that Union with the Body; their most essential Perfections, *viz.* Impassibility, Immutability, Immortality, and all the other Perfections, being inseparable from a spiritual Being. Those Substances have no particular Residence in the Bodies they inform, but are diffused throughout every Part thereof, animating them all equally, though several Philosophers, through Want of a due Attention, to the different Disposition of the different Organs, appropriated in the Body, for the several different Functions of the Soul, have falsly imagined, some of them, that it resided chiefly in the Brain, some in the Heart, and others even in the Liver: It is true, that the Soul performing its Operations in a more perfect Manner (according to our Manner of conceiving Things) in some Parts of the Body, than in others, has occasioned the Mistake. Those who have placed the chief Residence of the Soul in the Heart, have been prompted to it, by the Blood being formed in that Part; by Means of the Circulation thereof, they imagined, Life was communicated to all the other Parts of the Body: Those who fixed it in the Liver, did it for the same Reason, pretending that the Blood was form'd in that Viscera, not in the Heart. And those who have fixed it in the Brain, have done it, because that Part seems to command all the others in general; that it is where the Soul performs its most noble Functions; and where its most excellent Faculties reside, *viz.* Understanding, Imagination, Will, *&c.* but this proceeds not from the Soul residing in a particular Manner in the Brain; but because the Organs of that Part, have been appropriated by Nature to those excellent Operations; for to appoint a principal Seat for the Soul, in either Part of the Body, is to admit a Divisibility in a spiritual Substance, which is susceptible of none; for though the Soul be confined in the Body (by a Miracle of the infinite spiritual Substance, whereof she is an Emanation, otherwise she could not be confined in it) it retains still all its natural Perfections, *viz.* Immortality; since Death has no other Effect, with Regard to the Soul in particular, than by imbecillitating all the Organs which served for her Operations, obliged her to break her Confinement, and quit the Body, as being no longer of any Use to her; nor she, reciprocally of any Use to it; and then return to her first Principle, to exist by herself. Impassibility; for the Soul is as impassible in the Body, as it is when separated from it; it is true, that by her Means, the several Parts of the Body are render'd sensible, *i. e.* that by her Impression, on the several Humours, which she prepares for the Preservation of the whole Microcosm, the most subtile, or volatile Parts of the Humours being exalted from them, are diffused throughout all the Parts, whereby the Sensation is produced; therefore it is these Particles, which though exalted, and volatilized by the Soul, remain still material; and are no Portion thereof; it is, say I, those Particles that are wounded, while the Soul itself remains invulnerable; otherwise it were not a spiritual Substance; for every Substance that can be immediately affected by a material Body, so as to be susceptible, then, of some Alteration, must necessarily be a material Substance.

There remains no other Faculty, *in actu*, after the Soul is separated from the Body, but the Imagination; all the others being then only *in potentia*, i. e. that they are capable of operating in the same Manner they have done, was the Soul to animate another Body; but the Imagination acts as it did while assisted by the Organs; or rather in a far greater Degree of Perfection; because it being no longer under the Direction of human Conceptions; it follows, entirely, its innate Propensity, which extends then beyond all Limits; and centers itself in that Infinity, which is its Source. But this Manner of imagining Things the Soul is capable of after it is separated from the Body, is not the same as that it follow'd when confin'd in it; for all that is capable, or will be capable to all Eternity to strike a perfect Imagination, is but a single instantaneous Act of that Imagination.

PHYSICK.

PHYSICK.

PHYSICK, more properly called *Medicine*, is the Art either of preſerving Health, or of recovering it when loſt.

I ſay that *Phyſick* or *Medicine*, is the Art of preſerving Health; not by making an Apothecary's Shop of the Body of a Perſon who is in perfect Health, and thereby deſtroying it, inſtead of preſerving it; but by a Phyſician taking Care (when conſulted by a Perſon in Health, on what he muſt do to continue ſo) to caution him againſt all Exceſs and Debaucheries, which he knows could impair that Health.

I add, *or of recovering it when loſt*; which is in fact the chief, and moſt eſſential Employment of a Phyſician, who is very ſeldom wanted in any other Caſe; for the beſt Phyſician a Perſon in Health can conſult, is his own Prudence, or Diſcretion; but when that Health is conſiderably impaired, it is then that he muſt have Recourſe to a learned and experienced Phyſician, who is the ſole Perſon capable to recover it.

Hippocrates defines *Medicine*, the Addition of what is wanting; and the Retrenchment of what is redundant. *Galen*, the Art of preſerving preſent Health; and of retrieving it when paſt. *Heraphilus*, the Knowledge of Things good, indifferent, and ill with Regard to Health. And by *Boerhaave*, the Knowledge of thoſe Things, by whoſe Application, Life is either preſerved ſound and healthy, or when diſorder'd, is again reſtored to its priſtine Healthineſs.

This laſt Definition of *Boerhaave*, is in my Opinion a very weak one, for it confines *Medicine* to the ſingle Adminiſtration of the Remedies, which makes but one Part thereof, and that not the moſt eſſential; ſince Medicine conſiſts as well in the abſtaining from the Adminiſtration of Remedies, when the Symptoms require it, and Nature declares itſelf favourable, either by a Criſis, or ſome other ſeaſonable Evacuations; as in the Adminiſtration thereof: Nay *Boerhaave* does not even uſe the Term *Adminiſtration*, but only that of *Application of Remedies*, which in Strictneſs ſignifies an outward Application, which belongs properly to Surgery; thereby confining *Medicine* to Surgery alone.

Phyſick or *Medicine* is divided into five principal Branches, the firſt conſiders the human Body as curable, and is called *Phyſiology*; the Objects of this Part are called *res naturales*. The ſecond conſiders the Diſeaſes, their Differences, Cauſes, and Effects: As it conſiders the Cauſes in general, it is called *Pathology*; *Atiology* when it penetrates into their Cauſes; *Noſology* when it examines their Differences: And *Symptomatology*, when it explains their Effects. The Objects of this Part, are called *res præternaturales*, or beyond Nature.

The third Branch conſiders the Signs or Symptoms, and how to form a juſt Prognoſtick, or Judgment from them; with Regard either to the Adminiſtration of proper Remedies, or to pronounce in the Affirmative, on the Recovery, or the dangerous State the Patient is in: This is called *Semeiotica*; and its Objects are natural, non-natural, and preter-natural.

The fourth Branch conſiders the Remedies, and their Uſe, whereby Life may be preſerved, whence it is called *Hygieine*. Its Objects are what we ſtrictly call non-natural.

Laſtly, the fifth furniſhes the *Materia Medica*, its Preparation and Manner of Exhibition, ſo as to reſtore Health, and remove Diſeaſes, and is called *Therapeutica*, containing the *Dietetica*, *Pharmaceutica*, *Chirurgica*, and *Jatrica*.

Therefore to proceed with the ſame Order in this uſeful Treatiſe, I have done in all others, I'll begin by an accurate Explication of the firſt Branch of *Medicine*, viz. *Phyſiology*; ſince no Body can pretend to be a good Phyſician, without as perfect a Knowledge as poſſible can be acquired of the Œconomy of the human Body, called *Animal Œconomy*; which Œconomy conſiſts chiefly in explaining the Parts thereof, their Structure and Uſe; but as I have already given that Explication at large in my Treatiſe of *Anatomy*, under the Letter *A*; I'll content myſelf with examining carefully in this Place, the Humours of the human Body, ſince they are the Seat of all our Diſeaſes: And in Proportion as they are predominant over one another, are the Occaſion of the Difference of Temperaments or Conſtitutions.

HUMOUR, in its general Senſe, ſignifies the ſame as *Liquor* or *Liquid*; and is applied in Medicine to any Juice, or fluid Part of the Body, as the *Chyle*, *Blood*, *Fat*, *Serum*, *Lymph*, *Spirits*, *Bile*, *Seed*, *Salival*, and *Pancreatick Juices*, &c.

The four Humours ſo much talked of by the antient Phyſicians, are four liquid Subſtances, which they ſuppoſe to moiſten the whole Body of all Animals, and to be the Cauſe of the divers Temperaments thereof. Thoſe are the *Blood*, *Phlegm*, *Bile*, and *Melancholy*, or *Atra Bilis*.

They ſay that the Blood is a hot and humid Juice, in which Life chiefly conſiſts: That the Phlegm or Pituita is humid and cold: The Bile a ſerous Liquid of a yellow Colour, ſwimming in the Blood: And laſtly, call *Melancholy* or *Atra Bilis*, that purple and blackiſh Part of the Blood, which ſettles at the Bottom of Veſſels, which they imagine cold and dry; but this is, in fact, but a mere Imagination; for neither that yellowiſh Serum ſeen in the Blood, is bitter like the Bile; nor the blackiſh Part of the Blood acid, like the *Melancholy*.

Notwithſtanding which they deduce the different Temperaments or Conſtitutions from thoſe four Humours, in Proportion as they are variouſly mixed together, with Regard to the principal Qualities as they call them, *viz.* of Heat, Cold, Humidity, and Siccity.

Therefore, in their Sentiment, according to the learned *Fernel*'s Definition, *Temperament is the Harmony of the principal Qualities which are found in the Mixts.*

They diſtinguiſhed two Kinds of Temperaments, the one *ad pondus*, with Reſpect of Weight; the other *ad juſtitiam*.

Temperament *ad pondus*, is where the elementary Qualities are found in equal Quantities, and in equal Proportions; ſuch as they are ſuppoſed to be in the Skin of the Fingers, without which thoſe Parts would want the Power of diſtinguiſhing Objects with ſufficient Accuracy.

Temperament *ad juſtitiam*, is that which contains unequal Portions of theſe Qualities, but yet in ſuch Proportion as is neceſſary for the Diſcharge of the Functions proper to the Part. Such is the Temperament in a Bone, which contains more earthy than aqueous Parts, to make it more hard and ſolid for its Office of ſuſtaining.

Galen obſerves, that the *Temperamentum ad pondus*, is only imaginary; and that though it were real, it could not ſubſiſt above one Moment.

It muſt be obſerved, that though but one of theſe Qualities, *viz.* either Cold or Siccity be predominant, it is notwithſtanding called by them *Temperament*, viz. either dry or cold, *&c.* Likewiſe if two Qualities be predominant at once, as it happens, ſay they, in each Element; the *Temperament* is called either *fiery* or *bilious*, viz. where Heat and Siccity; or *ſanguine*, where Heat and Humidity; or *phlegmatick* or *pituitous*, where Cold and Humidity; or laſtly, *melancholick*, where Cold and Siccity are found to be predominant.

Whence they infer, that a *ſanguine Temperament* is the beſt for a long Life; becauſe, ſay they, Life conſiſts in the natural Warmth, and radical Humidity: And they are of Opinion, that a *bilious Temperament*, mixed with Melancholy, contribute much towards rendering a Man ingenious and witty; in which they are not miſtaken, ſince the Bile ſharpens the Wit, and Melancholy fixes our Attention: They ſay that the Pituita mix with Melancholy, renders a Man ſtupid; that the Bilious, are violent and paſſionate: And the Sanguine, indolent.

Thoſe Temperaments, if we will believe them, are changed either by the Conſumption or Irritation of the Humours; or by eating too much, or bad Aliments; or by other Cauſes, either internal or external.

The modern Phyſicians do not allow of theſe Diviſions of Humours of the Antients; but chuſe rather to diſtinguiſh them into Nutritions, called alſo Elementary, as Chyle and Blood; thoſe ſeparated from the Blood, as Byle, Saliva, Urine, *&c.* and thoſe return'd into Blood.

Humours again are diſtinguiſhed into natural, or ſalutary, or morbid and corrupted. To the former belong all the Juices ordinarily ſecreted for the Uſes of the Body.

To the latter belong those compound Humours, which thickning and growing putrid, cause Tumors, Abscesses, Obstructions, and most Diseases. Of the former *Humours* I have spoke at large, in my Treatise of Anatomy; and of the latter I'll speak in this Place, distinguishing them by various Names, viz. *malignant*, *adust*, *acrimonious*, *corrosive*, *crude*, *peccant*, &c. *Humours*; as more proper for my present Subject.

A *malignant Humour*, is that which in a Disease renders it more than ordinarily dangerous and difficult of Cure, as in epidemical and infectious Fevers, attended with Spots and Eruptions of various Kinds.

Adust Humour, is that which by long Heat becomes of a hot and fiery Nature; such is Choler supposed to be. Melancholy is usually considered as black and adust Bile. Blood is said to be adust when by reason of some extraordinary Heat, its more subtile Parts are most evaporated, having the grosser with all the Impurities therein, half torrified, as it were.

Acrimonious Humour, is that which dissolves other Humours in the Body.

Acid Humour, is that which coagulates the animal Fluids, and produces Obstructions with all their Train of Consequences.

Corrosive Humour, is that which carries Devastation wherever it passes, even breaking and lacerating the Texture of the Fibres, *&c.*

Crude Humours, are those which want that Preparation and Elaboration, which they ordinarily receive from a thorough Digestion. The Retainers to the Doctrine of Trituration, hold that the Crudity of the Humours only consists in this, that they are not broke and comminuted so much as they should be by the ordinary Action of the Stomach.

Peccant Humours, are those which offend either in Quantity or Qualities, *i. e.* when they are either morbid or in too great Abundance; which Humours are the Cause of most Diseases.

This ushers us into our second Branch of Medicine, called *Pathology*, and which considers Diseases in general.

Disease, in Medicine, is that State of a living Body, wherein the principal Functions thereof, are either obstructed, impaired, or some of them entirely suspended.

A *Disease*, is an Indisposition contrary to Nature, whereby the Action of some Part is immediately injured.

A Disease, is a depraved and disorderly State of the solid and fluid Parts, whereby all, or some of the Functions either of the Body or Mind, or both, are either abolished or impaired.

An ingenious Author holds the Essence of a Disease to consist in a Want of that Equilibrium between the solid and fluid Parts, which is necessary to the Maintainance of Health: Others add, that all Diseases arise either from too lax or too strict a Tension of the Fibres.

Several Authors have given us very compendious Theories of Diseases, reducing them all to some one general Disaffection. *Boutakoe* deduces all the Diseases of the human Frame from the *Scorbutus*:—*Musgrave*, from the *Arthritis*:—Dr. *Woodward*, from the Bile:—Others imagine all Diseases the Effects of a *pocky Virus*, which has lurked in the Seed ever since the Sin of *Adam*:—*Helmont*, and *Serenus* the *Dane*, take them to depend on some extraneous Ferment, formed in or out of us. Lastly, it appearing from the Observations of *Pliny*, *Kircher*, *Langius* and *Bonomo*, that there are little Worms in feverish Blood, Pustules, Carbo's, and the Itch; divers Physicians have took Occasion to suspect, that all Diseases arise from Worms.

For my Part I am of Opinion, that the original Cause of all Diseases in the human Body, proceed from the Imperfections of the Ferment of the Stomach, whereby the Coction of the Aliments is rendered imperfect; and the different Disposition of the Pores of the Body, which are too much contracted or too much dilated; since from a bad Coction proceeds the Imperfection of the Chyle; for of an imperfect Coction is formed a Chyle, too much loaded with the coarser Particles of the Aliments, which should be evacuated with the Excrements, and which on the contrary being ushered along with the Chyle, not only retards it in its Motion, but forcing their Way through the different Meats, it flows through in its Progress to the Blood, dilates with Violence the several small Vessels, Glands, *&c.* they meet with, so as to lacerate those which are less capable to resist that Violence, and obstruct some others, so that they are quite imbecilitated in their Functions, till they be restored to them by means of the Remedies prescribed by a judicious Physician. The Corruption of the Mass of the Blood occasioned also thereby, either in Part or totally, is not one of the least of our Diseases.

The different Disposition of the Pores of the Body, contributes likewise much towards them; for by those Pores being too much dilated, there ensues a too great Dissipation of the Spirits, and consequently of the native Warmth; if on the contrary, the Pores be too much contracted, the Humours which should have perspired through them being opposed in their Passage, either fall back on the Mass of the Blood, where they cause Obstructions and several other Disorders; whence ensues several Diseases, more or less dangerous, according as those Humours superabounds; or on the several Parts of the Body, where they cause Fluxions, Tumors, Ulcers, *&c.*

Some Diseases only impair the Use of the Part, as the Opthalmia, Gout, *&c.* Others destroy it entirely, as the Gutta Serena, Palsy, *&c.* Some affect the whole Body, as the Fever, Apoplexy, Epilepsy, *&c.* others only impair a Part, as the Asthma, Colick, Dropsy, *&c.* Some only affect the Body, as the Gout; others disturb the Mind, as Melancholy, Delirium, Vertiges, *&c.* others affect both the Body and Mind, as the Mania, Phrenzy, *&c.*

As the Actions or Conditions of the Body, so also the Diseases or Effects thereof may be reduced to three general Heads, *viz.* 1. Diseases of the *solid Parts*.—2. Those of the *fluid Parts*.—And 3. Diseases compounded of both.

A popular Syllabus of Diseases may be given, as follows:—The *solid Parts*, i. e. the Bones and Flesh, may be disordered five Ways, *viz.* rendered turgid by Tumors, cut with Wounds, corroded by Ulcers or Caries's, removed out of their Places, as in Hernia's, Prolapsus's, and Dislocations; or discontinued by Fractures or Contusions.

Diseases of the *Fluids*, are either in the Mass of the Blood or the Spirits:—Those of the Blood are reducible to two Kinds, *viz.* those that thicken or inspissate, or, which amounts to the same, retard its Motions; and those which attenuates and dissolve, and consequently accelerate it.

To this latter Kind belong *Fevers*, and feverish Affections alone: All other Diseases of the Blood belong to the former.

In too thick a State of the Blood, its Principles are too crass, and its Molecules too big, whence a lentor, lazy Motion, and even Stoppage, particularly in the sinuous Passages of the Glands: Hence *Obstructions*, *Inflammations*, *Scirrhus's*, *Sarcoma's*, *Veruca*, *Pustules*, *Edematae*, *Impetigines*, and other *Tumors* and *Congestions*, both in the Viscera, and Habit of the Body: And hence again, *Drowsiness*, *Melancholy*, *hypochondriacal Affections*, &c. If this thick Blood be too much replete with sharp acid Salts, it will destroy the Texture of the Parts and break out in Ulcers, as in *phthisical*, *scrophulous*, *scorbutick*, and *venereal Diseases*, *Gangrenes*, *Carbo's*, *Cancers*, and other *erosive Tumors*, according to the Quality and Degree of Saltness and Acrimony; and from the same Source arises *Cephalalgia's*, *Cardialgia's*, *Colicks*, *Gout*, *Rheumatism*, *Pleurisies*, &c. which by abrading the solid Substance frequently emaciate the Body.

The Diseases of the *animal Spirits* arise either, 1. From an Intermission or Retardation of their Motion; or a Diminution of their Quantity; or,—2. From a Disorder in their Quality.

To the first Class are reduced the *Catalepsis*, *Apoplexy*, *Comacarus*, *Palsy*, *Stupor*, *Tremor*, &c. To the second, belong the *Mania*, *Phrenzy*, *Delirium*, *Foolishness*, *Melancholy*, *Vertigo*, *Spasms*, *Epilepsy*, *hysterick Affections*, *Horror*, &c. Add, that as all Diseases of the Blood arise from external Causes, *viz.* some one or more of the Non-naturals, as Food, Air, Evacuation, *&c.* so those of the Spirits generally proceed from Disorders of the Blood.

Lastly, the Diseases of the *Fluids*, whether those in the Blood or Spirits, are seldom confined long thereto; but presently come to disturb and impede some of the Functions

Functions of the solid Parts, and at last corrupt the Substance of the Solids themselves. Hence compound or complicated Diseases, which are infinitely various.

Boerhaave divides Diseases into those of the *Solids* and *Fluids*.

Diseases of the *Solids* he considers either of the simple and similar Parts, or of the organical.

Similar Diseases are, 1. Those of the least and smallest *Fibres*, which are reducible to too great Tension and Laxness, too great Strength or Weakness, and a Solution of their Continuity.

2. Those of the *Membranes*, which being only Assemblages of the Fibres mentioned, are subject to the same Disorders.

3. Those of the last and smallest *Canals*, which are formed of such *Membranes*.

4. Of the *Membranes* composed of such Canals.

5. Of *Canals* composed of such Membranes, which are all the greater Vessels of the Body.

6. Of the *solid Parts*, which are composed of Canals compressed, and grown together so as to be void of Humour to distend them; or Canals growing into a consistent Part, the Humour hardening together with the Vessel that contain it.

Lastly, supposing these Parts all sound, Diseases may befall them with respect to their Structure, from a vice, or vicious Application of the Matter of Nutrition.

Organical Diseases.—An organical Part consisting of the several simple Parts above-mentioned, and fitted to perform any Office by means of some Humour contained in it; may be considered, either in itself, as a solid Part, or with respect to the Humour it contains: In the first View, *organical Diseases* are reducible to four Classes.

1. Disorders in the Figure and Circumstances thereof, as *Roughness*, *Solidity*, *Cavity*, &c.—To this belongs *Anastomosis*, when one Vessel opens into another; the *Diapedesis*, when a Rupture is made; *Diaresis*, when a Breach is occasioned by Corrosion; the *Emphrasis*, which is the total Obstruction of the Cavity, by a viscous grumous Matter; the Στενοχωρια, or Narrowness of the Passage; the Θλιψις, or Compression of the Sides of the Cavity; Συμφυσις, when the Sides are quite closed up; and Συνιζησις, when the Vessel is so emptied that the Sides falling together, the Cavity is lost.

2. In the Number, where it is either deficient or redundant: But the Parts seldom err in this Respect, so as to occasion a *Disease*.

3. In the Magnitude; to which belong Nodes, Exostoses, and Callus's.

4. In the Situation and Connexion, as when the Ligaments are too long, or too short, when broke or depraved; also *Distortions*, *Laxations*, *Subluxations*, *Herniæ*, or *Ruptures* in the Groin, Scrotum, Bladder; *Procidentiæ*, of the Womb, Bladder, and Rectum; Disorders of the Tendons and Muscles, particularly their flying out of their Places; the Relaxation or Rupture of the membranous Ligament that should retain them.

Lastly, there is a *Disease*, common both to *similar* and *organical* Parts, called *Solution of Continuity*; wherein their natural Cohesion is separated: As by a Wound or other Cause.

If this happen to a simple similar Part of the Body, it is called simply *Solutio continui.*—If to a compound or organical Part, it acquires a particular Denomination, from the Nature of the Part, the Difference of the Cause, or the Manner of Application; as a *Wound*, *Rupture*, *Fracture*, *Puncture*, *Fissure*, *Contusion*, *Ulcer*, *Corrosion*, *Dilaceration*, *Exfoliation*, *Caries*, &c. which all see in my Treatise of *Chirurgery*, under the Letter C.

Diseases of Fluids, considering those Fluids simply, and in themselves, may be reduced to Disorders in respect of Quantity or Quality: But considering them as contained in Solids, they may err to in Place and Proportion.

As to the *first*, such an Abundance of the Humours, as disturb the animal Functions, is called a *Plethora*.

Plethora, is chiefly understood of the Blood tho' sometimes of the other Humours.

The *Plethora* is the Consequence of a good Chylification, Sanguification, *&c.* attended with a too sparing Discharge by Perspiration.

The *Plethora* is chiefly produced in a Body whose Organs of Digestion are strong, Blood-Vessels lax, Diet full of good Juice, Temperament sanguine, Mind at Ease and indolent, of a middle Age, and in a moist Air.—It renders Heat and Motion intolerable; stretches the great Vessels, and compresses the smaller: And hence Stiffness and Heaviness, and on the least Occasion Ruptures in the Vessels, Suffocation, *&c.*

Dr. *Freind* makes the *Catamenia*, or *Menses*, the mere Result of a *Plethora*; and will have them only an Evacuation for Relief, against the Quantity of the Blood, which he supposes to be natural to Women, from the Humidity of their Temperature, the Smallness of their Vessels, *&c.* Hence a Conservation in the Blood-Vessels, of a Superfluity of Aliment remaining over and above whatever is excreted by the common Ways.—*Diseases* from the Defect of Humours, we scarce know of any.

As to the *second*, such Quality of the Humours as disturb the animal Functions is called *Cacochimia*. Now this is either in the Fluids considered in themselves, their own Parts, and Composition; or considered as they concur towards constituting some Part of the Body.

Goræus gives the Name *Cacochimia*, to the Abundance, or Excess of any ill Humour; whether it be Bile, Pituita, *&c.* provided there be only one that thus offends in Quantity.

If the morbid Quality be considered in the Particles of the Humour, it must either consist in an Augmentation of Bulk, whence the *Emphraxis*, *Atrophy*, *Symphysis*, and *Synerefis*; or in the Diminution thereof, as in the *Diapnoe* and *Ceneangeia*; or in an Increase of Solidity, whence too great an Attenuation; or a Decay thereof; whence a *Lentor*, *Stagnation*, and *Cohesion*; or in the Figure, as when of spherical it become angular, and consequently, with respect to the Part it is applied to, sharp; whence *Acrimonies*, both acid, alkaline, muriatick, ammoniack, saponaceous, vitriolick, *&c.* and Oleosities; or in Rigidity and Flexibility; or in Elasticity; or in Cohesion, and Divisibility.

Again, all the Juices being considered together, the principal Disorders they are subject to, are too great Fluidity or Tenacity; too much Velocity in their Vessels, or too little.

Lastly, considering the Fluids are contained in the Solids, there arises divers *Diseases*, merely from their changing of Place; which may be reduced to two Classes, *viz.*—The grosser Humours intruding themselves into the finer Canals; and the Humours extravasating, or getting out among the solid Parts; whence *Inflammations*, *Aneurisma's*, *Varices*, *Echymoses*, *Ædema's*, *Pustules*, *Dropsy*, *spongeous Membranes* of the Head, Breast, Abdomen, and Uterus; and Emphysema's; all mentioned at large in my Treatise of *Chirurgery*, under the Letter C.

Add, that the Humours collected and stagnating among the Parts, grow putrid, purulent, ichorous, erosive, and sharp; and thus destroy the tender Stamina of Solids; whence *Sinus's*, *Fistula's*, *Ulcers*, *Gangrenes*, *Sphacelus's*, *Cancers*.

Those are the prime Differences of the Diseases of the Body, and from these arise most of the rest: So that they may be regarded, not only as Diseases, but as the Causes of Diseases.

There is another Division of *Diseases* in Use among Physicians, taken from certain external Accidents, which are common to a great many different *Diseases*: Which Distinction too has its Use, tho' some pretend that it is generally run too far. *Diseases* then, are distinguished,—1. With respect to their Cause, into *Idiopathy*, *Sympathy*, *Protopathy*, *Deutropathy*, *hereditary*, *connate*, and *acquired*.

Idiopathy, is a Disease, or Indisposition, peculiar to some Member, or Part of the Body; not caused by any other *Disease*, or preceding Affection; nor having any Dependance on the rest of the Body. In which Sense it stands opposed to *Sympathy*, which is when the Indisposition takes its Rise from some prior Disorder, in some other Part of the Body. Thus a Cataract in the Eye in an *Idiopathy*; and Epilepsy is either *idiopathick* or *sympathick*; *idiopathick*, when it happens purely thro' some Fault in the Brain; *sympathick*, when it is preceded by some other Disorder.

Sympathy, is an Indisposition befalling one Part of the Body, through the Defect or Disorder of another; whether

whether it be from the Affluence of ſome Humour, or Vapour ſent from elſewhere; or from the Want of the Influence of ſome Matter neceſſary to its Action.

HEREDITARY, are *Diſeaſes* capable of being tranſmitted, by Blood, from Father to Son. The *Gout*, *King's Evil*, *Madneſs*, &c. are *hereditary Diſeaſes*, i. e. are tranſmitted from the Parents in the Stamen, or firſt Rudiments of the Fætus; and ſuch, probably, is the Origin of numerous other chronick *Diſeaſes*.

2. With reſpect to their Subject, into Diſeaſes of old Age, Children, Adults, Men, Women, Maids, pregnant, parturient, endemical, epidemical, *&c.*

Endemical Diſeaſe, is that which affects many People together, in the ſame Country; as proceeding from ſome Cauſe peculiar to the Country where it reigns:—Such are the *Scurvy* in the northern Climates; *intermitting Fevers* and Colicks, in marſhy Places, *&c.*

Epidemical Diſeaſe, is a general or ſpreading Diſorder, as the Plague, ariſing from ſome Corruption, or Malignity of the Air, which ſeizes a great Number of People in a little Time. The *Latins* call them *populares morbi*, popular *Diſeaſes*; in oppoſition to thoſe called *Sporadici*, which are only here and there, as ariſing from private or particular Cauſes; and affecting only particular Conſtitutions, Ages, *&c.*

3. With reſpect to Duration, into moſt *acute*, which terminate in four Days; *acute*, in twenty; and *chronical* which are all thoſe of longer Continuance.

Dr. *Quincy* thinks an acute Diſeaſe, may be defined that which is attended with an increaſed Velocity of Blood; which, in my Opinion, is a falſe Definition; ſince the Acuteneſs of the Malady may equally proceed from an almoſt unconquerable Obſtruction of the Velocity of the Blood, as from an Exceſs of that Velocity; ſince both render the Malady equally dangerous, whence it is called acute; and thoſe Diſeaſes are the more dangerous, in that beſide the Violence of the Symptom, if there be no Time to empty the *Primæ Viæ*, it is very difficult to ſtop their Progreſs, and ſave the Patient.

A chronical Diſeaſe is a ſlow Diſeaſe, which laſts a long Time; at leaſt upwards of forty Days: Such are the *Gout*, *Dropſy*, *Aſthma*, *Peripneumony*, *Conſumption*, &c. Chronick Diſeaſes are uſually owing either to ſome natural Defect in the Conſtitution; or to an irregular Manner of Living. Moſt of the chronical Diſeaſes, ſays Dr. *Cheyne*, the Infirmities of old Age, and the ſhort Periods of the Lives of *Engliſhmen*, are owing to Repletion: This is evident hence, that Evacuation of one Kind or another, is nine Parts in ten of their Remedies. In fact I know ſeveral Perſons, who are continually uſing Purgatives, in order to procure more Room, for the Foods they are continually loading their Stomach with, and in which they glory. The Source of chronical Diſtempers, ſays the ſame Author, are, 1. Viſcidity in the Juices, or the Over-largeneſs of their conſtituent Particles; which not being ſufficiently broken by the concoctive Powers, ſtop or retard the Circulation, *i. e.* in plainer Terms, that that Viſcidity of the Juices proceed from a too precipitated Coction of the Aliments, occaſioned by overloading the Stomach with too much Food; whereby having more Matter than it can naturally work upon, it lets the Matter eſcape through the Pilore, half digeſted: Whence enſues a Chyle, loaded with viſcous Particles, which, in Proceſs of Time, vitiate the whole Maſs of the Blood, and cauſes thoſe chronick Diſeaſes, which but too often reſiſts the moſt efficacious or ſpecifick Remedies. Or, 2. Too great Abundance of ſharp acrimonious Salts, whereby the Juices themſelves are render'd ſo corroſive, as to burſt or wear out the Solids; which commonly proceeds from a depraved Appetite, which craves after unwholſome and coarſe Aliments, or ſome preter-natural ones; or thoſe dreſſed in an extraordinary Manner, to gratify our Luxury, at the ſame Time that they deſtroy our Conſtitution; as Meat half done, Sauces, Ragouts, Fricaſeys, *&c.* Or, 3. A Relaxation, or Want of due Force and Springineſs of the Solids themſelves; occaſioned by Want of due Exerciſe, after we have loaded our Stomach with Aliments.

4. With Reſpect to Seaſons, into *Vernal*, *Autumnal*, *continual* and *intermitting*.

5. With Reſpect to their Effects, into *benign*, *malignant*, *curable*, *incurable*, *mortal*, and *contagious*.

And, 6. With Reſpect to their State, into *Beginning*, *Progreſs*, *State*, *Declenſion*, and *End*.

The entering into a particular Examen of the Cauſe of a particular Diſeaſe, is called *Æthiology*. To examine their Differences, *Noſology*; and to explain their Effects, *Symptomatology*; all which I'll treat of when I enter into a particular Detail and Examen of the different Maladies of the human Body; and this leads me into the third Branch of my Diviſion of *Medicine*.

The third Branch of *Phyſick* or *Medicine*, called *Lemeiotica*, is that Part which conſiders the Signs or Indications of Health and Diſeaſes; and enables the Phyſician to judge what is, was, or will be the State, Degree, Order, and Effect of Health or Sickneſs.

INDICATIONS, in *Phyſick*, ſignifies the pointing out, or diſcovering what is fit to be done, and what Means applied in any Caſe from the Knowledge of the Nature of the Diſeaſe, and the Virtues of Medicines.

There are four Kinds of *Indications*, viz. *preſervative*, *curative*, *palliative*, and *vital*.

A *preſervative Indication*, is that which directs how to cut off the Cauſe of an approaching Diſeaſe.

A *curative Indication*, is that which ſhews how to remove a Diſeaſe actually formed.

A *palliative Indication*, directs how to leſſen the Effects of a Diſeaſe, or take off ſome of its Symptoms, before it can be wholly removed.

And *vital Indication* relates to the Strength of the Body, which muſt be narrowly inquired into, before any Remedy, particularly a violent one, can be adminiſter'd with Safety; and in which ſeveral Phyſicians are very deficient; and even in all this Branch of Medicine; for few of them take the Time to mind any of the Indications: How could they in the ſhort Time they ſtay with their Patient, which is ſcarce long enough to feel his Pulſe, examine now and then his Tongue, aſk him how he has paſſed the Night, write a Preſcription in Haſte, receives his Fee, and away he goes to another, and from thence to ſeveral more, where he performs the ſame Ceremony, and in the ſame haſty Manner; which to reform, and to render the Profeſſion reputable, and more uſeful, a Phyſician ſhould make it his whole Study to examine carefully all the *Indications* heretofore mentioned.

1. The *preſervative Indication*, by preſcribing in Time to his Patient, Remedies which he thinks the moſt ſpecifick to prevent a Malady, which he ſees him threaten'd with; and not ſuffer, either through Negligence, or with a criminal and ſcandalous Deſign of making a Jobb of it, a ſlight Indiſpoſition to degenerate perhaps into a dangerous Malady, to the imminent Danger of the Life of the poor Patient, for which he is to anſwer at that tremendous Tribunal, where no Murder is to be palliated under any Conſideration whatever.

2. If the Diſeaſe be actually formed, then the *curative Indication* is to be minded, by preſcribing thoſe Remedies, which he knows to be the moſt ſpecifick, for the ſpeedy Cure of ſuch a Malady, without tampering with it, either to try Experiments, or to pleaſe the Apothecary, by loading the Stomach of the poor Patient, already averſe to it, with a Load of poiſonous Medicines.

3. The *palliative Indication*, is of very great Conſequence, ſince there are ſometimes Symptoms much more dangerous than the Malady itſelf, and which neglected, even for ſo ſhort a Time, put the Patient in very great Danger; and others, which, if not taken off, will render the Diſeaſe rebellious to all Remedies; therefore this Axiom is not true, in all Circumſtances, *Sublata cauſa tollitur effectus*.

4. As to *vital Indications*, both Phyſicians and Apothecaries are often very deficient in it; but particularly the latter; though the Strength of the Patient ſhould be always conſulted; for though the Remedy is well appropriated to the Malady, and produces the Effect expected from it; if it operates with too much Violence, it may weaken the Patient to ſuch a Degree, as to reduce him into a worſe Condition, than he was while afflicted with the Diſeaſe he has been cured of.

The *counter Indications* contribute alſo very much towards avoiding thoſe dangerous Inconveniencies. For a *counter* or *contra Indication*, is an *Indication* which forbids that to be done which the main Scope of a Diſeaſe points out. Suppoſe, *e. gr.* in the Cure of a Diſeaſe, a Vomit

Vomit were judged proper, if the Patient be subject to a Vomiting of Blood, or has an extremely weak Stomach, it is a sufficient *Contra-indication*, as to its Exhibition: For if he be subject to a vomiting of Blood, the Efforts made in Vomiting may cause a violent Hemorrhage; and if his Stomach be very weak, Vomiting may occasion a Syncope, or other dangerous Accidents. The same is to be said of those who are suspected to have Abscesses in the Capacity of the Breast, who are not to take Vomits, for Fear they should be suffocated, during the Efforts, by the Abscess breaking at that Time.

Next to Indications, and Contra-indications, are *Signs*, which in Medicine denote some Appearance in the Body, distinguishable by the Senses; whence, by just Reasoning, is inferred the Presence, Nature, State, of Health, a Disease, or Death.

Those *Signs* which denote the present Condition of a Body, whether sick or well, dying or the like, are called *diagnostick Signs*. Those which foretel the future State thereof are called *prognostick Signs*.

That *Sign* which is peculiar to the Disease, and inseparable from it, as arising from the Nature thereof, is called a *pathognomonick Sign*. But the Truth is, there is nothing in all Medicine that answers to the Idea of a *pathognomonick*; Disease and Symptoms are too complicated. And we are to judge of the former not by any one *Sign*, but by the Concurrence of several; though this Rule is not without Exception; for though almost all Maladies are attended with several, some of those Signs are of so little Consequence, that they scarce deserve the Attention of a Physician, who is to mind those chiefly, which he thinks can help him in the Cure of the Disease, as I shall explain it in a more particular Manner hereafter.

As all *Signs* are Effects produced by the Cause of the Disease, the Disease itself, and the Symptoms; they usually note the present Condition of the Matter which first produced the Disease, and even of that produced by the Disease: On which Footing *Signs* are all reducible to these three Classes, *viz.*—*Signs* of Crudity and Coction of the Disease; of its Event, whether in Health, Sickness, or Death; and of its Secretion and Excretion, which last Signs are called *critical* ones.

CRUDITY, sometimes denotes that State of a Disease, wherein the morbifick Matter is of such Bulk, Figure, Cohesion, Mobility, or Inactivity, as creates or increases the Disease.

The *Crudity* is discovered,—1. From the Disease continuing its Degree of Strength, or increasing.—2. From a continual Increase of Symptoms.—3. From a disorderly Exercise of the Functions.—4. But chiefly from a Fault in the Quantity or Quality of the Humours; both those still circulating, and those secreted; as of *Sweat*, *Tears*, *Mucus* of the Nose, *Saliva*, *Sputum*, the *Bile*, *Urine*, *Ichor*, *Pus*, *Blood*, *Menses*, *Lochia*, *Milk*, *Aphthæ*, &c.

The State of the Disease wherein the crude Matter is changed, and rendered less peccant and laudable, is called *Digestion*, *Concoction*, or *Maturation*.

DIGESTION, is that State of a Disease wherein the morbifick Matter is so changed in Bulk, Figure, Cohesion, Mobility, *&c.* as already observed, by the Use of proper Medicine, or even by the Force of Nature, as to be less noxious, and hurtful, and consequently to abate the Violence of the Distemper. The Matter of the Disease so far *digested* as to become next a-kin to salubrious or healthy Matter, is said to be resolved; which is done either by the natural Strength of the Patient, or of its own Accord, or by the Application of Remedies; whereby its Bulk, Figure, Cohesion, *&c.* are so far changed, as that it ceases to be morbid, and becomes laudable.

This, *Boerhaave* observes, is of all others the most perfect Cure, where it is effected without any Evacuation; as supposing the Matter favourable, the Constitution excellent, and the Medicines good.

Critical Signs, are certain Signs usually arising in the Course of acute Diseases, as Fevers, Small-pox, *&c.* which indicate the Patient's State, and determine him either to recover or grow worse.

The *Crises* have been frequently observed to happen on the seventh, fourteenth, or twentieth Day.

The Cause of such Change is owing to the remaining vital Forces being irritated by the Matter of the Disease so or so conditioned, *i. e.* fit either to be evacuated or translated, or to kill.

If the Matter be disposed for Evacuation or Translation, but is not salubrious, it produces a Change called a *critical Perturbation*, or *imperfect Crisis*.

If the Change become sensible, they are called *Signs of a Crisis*, either future or present.

The *Signs* of the *Crisis*, are frequently confounded with those arising from the Cause of the Disease; whence the most unhappy Consequences.

The Differences between *critical Signs* and *morbid* ones are, that the first proceed from the vital Powers prevailing over the Force of the Disease: But the latter from the Disease prevailing over the vital Faculty; that the first are preceded by a manifest Concoction, but the latter are formed even in Crudities; that the former are formed about the critical Times; but the latter at all Times of the Disease, chiefly during its Increase.

The *principal Symptoms of an approaching Crisis*, are, after Digestion, and about the critical Times, a sudden Stupor, Drowsiness, Wakefulness, Delirium, Anxiety, Dypnæa, Grief, Redness, Titillation, Pricking, Heaviness, Darkness, Light, spontaneous Tears, Nausea, Heat, Thirst, Trembling of the lower Lip, *&c.*

The *Symptoms and Effects of a present Crisis*, are, after the preceding ones, a Vomiting, Salivation, Loosenes, thick Sediment in the Urine, bleeding at the Nose, Hemorrhoides, Sweat, Abscesses, Pustules, Tumors, Buboes, Aphthæ, *&c.*

As to the *Theory of critical Days*, it may be observed, that the Concoction of any morbifick Matter, and the Humour to be secerned, is nothing else but a Change thereof into such a due Magnitude or Smallness, as it may be carried by the circulating Blood along the Canals, and excerned by Vessels destined for that Purpose. But if the morbifick Matter cannot be reduced to such a Magnitude or Smallness as may correspond to the Orifices of the secretory Vessels; then either an Abscess or Hemorrhage will follow, if a Crisis be begun; for which Reason Abscesses, *&c.* are accounted less perfect Crisis. But that the morbifick Matter may be reduced to a due Magnitude or Smallness, and its wish'd-for Discharge take Place, there is required a considerable Time, if the Quantity of Matter be large; that is, if the Distemper be great and severe: And since there are a great many Causes, and those very constant, which may occasion the Blood and offending Humours therein, to be of a different Fluidity in the Inhabitants of different Climates; it is impossible but that different Spaces of Time should be required for the finishing Concoction: Which make it impossible to determine the *critical Days* in one Climate, from what they are found to be in another.

The Causes of real critical Days, that is, such on which happens the last Concoction of the morbifick Matter, which is always attended with its Expulsion, are all those Things which occasion the Humours to become of such a certain Magnitude or Minuteness, and of a greater or lesser Cohesion; but with any given Power, Bodies unequally large, or unequally cohering, cannot be concocted in an equal Time: Wherefore, it is to be found by the Observations made by all Nations among themselves, which are the usual Causes and Conditions of these Diseases, which require certain Number of Days to finish such a Concoction in.

Among all other Signs, a judicious Physician must mind, in a particular Manner, the *critical* and *prognostical* ones. The *critical*, because though a Disease declares itself favourably, by some Signs of a good Crisis; if those Signs be not minded, the *Crisis* may be either neglected, and thereby frustrated of the good Effects it would otherwise have produced; if, *e. gr.* by a Sweat, in suffering the Patient to cool himself, either outwardly, by thrusting his Arms out of his Bed, *&c.* or inwardly, by taking some cooling Draughts, *&c.*—Or prevented, by the administrating of some Remedy, to procure the Evacuation of the morbifick Manner, otherwise than Nature had determined itself to do it; whereby being disturbed in its salutary Operations, the Patient is exposed to the imminent Danger of losing his Life. The *prognostick Signs*, are very near of the same Consequence; since it is on

on them that the Physician must found his Judgment of the Recovery or Death of his Patient; in which he must not shew too much Precipitation, inclining rather to Uncertainty, while he sees some probable Signs of a Recovery, let them be ever so small or glimmering, than pronounce affirmatively on the Death; for while a Patient is flatter'd with some Hopes of Recovery, that Hope keeping up the few Spirits he has left, may help Nature to make a last Effort, or the Remedies which are administer'd to him, to produce their Effects; but when he is terrified with the Apprehension of an approaching Death, he sinks under his Burthen; and the morbifick Matter conquering entirely the little Strength he has left, he lies down at last. Though there are several Physicians who have acquired a great Reputation by that rash Way of Proceeding; and have been puffed up for never mistaking themselves in their Prognostick; why? because, like barbarous Executioners, they frighten a Patient to Death: For I leave the World to judge what a great Shock it is to a poor Patient, already much debilitated by Sickness, to hear the Person, whom he had call'd to relieve him, condemning him to die; is not such a Sentence capable to cause a strange Revolution, enough to make the Prognostick true?

Symptom is ordinarily confounded with *Sign*, and defined an Appearance, or Assemblage of Appearances, in a Disease, which shew or indicate its Nature and Quality; and from which one may judge of the Event thereof.

In which Sense a *Delirium* is held a Symptom of a *Fever*. — *Pain*, *Wakening*, *Drowsiness*, *Convulsions*, *Suppression of Urine*, *Difficulty of Breathing* and *Swallowing*, *Coughs*, *Distastes*, *Nausea's*, *Thirst*, *Swoonings*, *Faintings*, *Loosenes*, *Costiveness*, *Dryness*, and *Blackness of Tongue*, are the principal Symptoms of Diseases.

Boerhaave gives another Notion of Symptoms: Every preternatural Thing arising from a Disease, has its Cause, in such Manner, however, as that it may be distinguished from the Disease itself, and from its next Cause, is properly a *Symptom* of the Disease.

If it arise, after the same Manner, from the Cause of the Disease, it is called a *Symptom* of the Cause.

If it arise from some former *Symptom*, as its Cause, it is proper called a *Symptom* of a *Symptom*.

Whatever happens to a Disease from any other Causes than those mentioned, is properly called an *Epigennema*.

Hence it appears, that the *Symptoms* above recited, are really Diseases themselves. They are various as to Number, Effect, *&c.* though, after the Antients, they may be conveniently enough reduced to Faults in the Functions, Excretions, and Retentions.

Under the first come all Diminutions, Abolitions, Increases, and Depravations of Animal Actions, particularly with Regard to Hunger and Thirst, Sleeping and Waking.

Under the second come *Nausea's*, *Vomitings*, *Lienteries*, *Celiac Affections*, *Diarrhœa's*, *Dysenteries*, *Illiack Passions*, &c.

Under the third come the *Jaundice*, *Stone*, *Dropsy*, *Fever*, *Ischuria*, *Strangury*, *Asthma*, *Catarrhea*, &c.

A perfect Knowledge of the *Symptoms* of Diseases, depends more on Practice than on Theory; for though the Theory leads to it, and we are taught in the Schools, all that relate to that difficult and intricate Part of Medicine, *Symptoms*; that Diseases are attended with such and such *Symptoms*; that such *Symptoms* are good, such bad, such dangerous, and such mortal; that each Disease has its particular *Symptoms*, which vary according as the Disease itself changes, and on which one may form a just Prognostick; those general Rules, though very good in themselves, are not, notwithstanding, infallible; and were we to follow them blindly, we should be but too often mistaken, in the Judgment we form of the Event of a Disease; since the Age of the Patient, his Constitution, his Manner of Living, even his favourite Passions, the Climate, the Seasons, the Temperature of the Air, cause very great Alterations in the *Symptoms*; for we must not expect, for Example, to find the same dangerous *Symptoms*, in a Person afflicted with an acute Malady, and who, while in Health, observed this salutary Advice of the School of *Salerna*, *moderata dicta*; and never committed any Excess either in Eating or Drinking, or of any other Kind soever, we must expect to find in one who never refused, either his Appetite, or Passions, any Thing that could gratify them, but has abandoned himself to all Sorts of Excesses. All the Symptoms in such a Person, afflicted with an acute Malady, are most commonly violent, therefore very difficult to conquer, and consequently dangerous; caused by the excessive Superabundance of the Matter morbifick, which being then in a violent Ferment, overflow all the natural Faculties, and thereby either obstruct almost all their respective Functions, or disorder them in such a Manner, that a Physician must proceed with the greatest Caution in attempting to restore them to their former State; for if the natural Evacuations, for Example, be too abundant, or too frequent, in endeavouring to moderate or stop them, he may thereby occasion other Symptoms, perhaps as much, or even more dangerous; the same in procuring or facilitating those Evacuations, if they be stopped; which cannot be said of a Person who has led a sober and frugal Life; for as the morbifick Matter is not so excessively abundant; Nature, which is not overloaded with that preternatural Burthen, and has not been exhausted, by Excesses or Debauchery, retains yet a great deal of its former Strength, whereby it is render'd capable to assist the Remedies in their Operations, and to act both in Concert to conquer the morbifick Matter, by some gentle Evacuations; Nature, most commonly declaring itself, first towards those Evacuations, and thereby shewing the Physician which Way, and in what Manner he is to help to perfect the Cure.— It is most commonly easier to recover a Person of a weak Constitution, in an acute Malady, (*e. gr.* a violent Fever) provided his Weakness does not proceed from past Excesses, and a too great Dissipation of Spirits, than of a strong one; because as there is not then so great a Disproportion between the morbifick Matter, and the Spirits, which are to help to conquer it, the Conflict between them is not so great, nor consequently, the Symptoms arising from it, so violent, so frequent, nor so dangerous. For though there be but a small Quantity of Spirits, those Spirits are notwithstanding capable to rarify, assisted therein by the Remedies, the morbifick Matter, and prepare it for Evacuation; and as they do not flow towards it, with too much Impetuosity, nor in too great Abundance, but operate without crowding one another, they operate quicker, easier, and with more Efficacy, and consequently the Fermentation being moderate, the Symptoms are neither so frequent nor so violent. Acute Maladies are less dangerous in hot than in cold Climates, and are also less frequent; for as the Pores of the Body are always extremely dilated, there is always a free Passage for the Evacuation of the morbifick Matter by Perspiration or Sweat; so that it seldom gathers in that Quantity capable to cause an acute Disease, and when it does, that Dilatation of the Pores, facilitates much the Effect of the Remedy; the dry and subtile Air, besides, which penetrates those Pores, helping much towards the Rarefaction of the morbifick Matter. But the same cannot be said of chronical Diseases, which are more dangerous in hot Climates than in temperate ones; because as the excessive Dilatation of the Pores, occasions an excessive Dissipation of Spirits; the length of Time exhausting thereby the Strength of the Patient, renders him incapable at last to resist the Malignity of the Disease. A humid Air, which is always loaded with viscous Particles, which it ushers into the Pores of our Bodies whereby they are obstructed, itself impairing the natural Heat, and rendering the Motion of the Spirits too languishing and slow, by Means of the ramous Particles it wraps them in, is not favourable for the Cure of acute Maladies, particularly Fevers; and is no less contrary to chronical ones; because the Exaltation of the Spirits is always imperfect, and there remain always in the Body a great Quantity of a viscous Phlegm, continually supplied with Abundance of Particles of the same Kind from the Air, which serves as Leaven for the Disease, and cannot be conquer'd but with the greatest Difficulty; since the Imbecility of the Spirits, and of the native Warmth, render them incapable of assisting but very weakly the Remedies in their Operation; a very cold Climate, where the Air is pure and serene, is much more favourable to Diseases, either acute or chronical; for though the outward Cold

contracts the Pores, and thereby obstructs the Perspiration of the Humours, as it hinders, at the same Time, the Dissipation of the Spirits, and of the native Warmth, those Spirits and Warmth being concenter'd within, prevent by a laudable Coction of the Aliments, the Chyle from being loaded with heterogeneous Particles, capable to corrupt the Mass of the Blood; and when such a Thing happens, either by the Excesses of the Person, or the bad Quality of the Aliments, they assist powerfully the Remedies in their Operations, that they may be capable to procure the Evacuation of the morbifick Matter thro' the natural Ways.

My mentioning so often the Remedies in this Place, leads me insensibly into the fourth Branch of my Division of *Medicine*, called *Hygieine*, which considers the Remedies, and their Use, whereby Life may be preserved.

HYGIEINE may be divided into three Parts, *viz. Prophylactice*, which forces and prevents Diseases. — *Synteritice*, employ'd in preserving Health.— And *Analeptice*, whose Office is to cure Diseases. — But before I proceed further on this Division, I must give the Reader a Notion of *Remedies* or *Medicines* in general.

Medicines, or *Remedies*, or *Medicaments*, denote any natural Substances, applied to a human Body, in order to answer some Intention of Cure.

Medicines are distinguished, with Regard to the Manner of Application, into *internal* and *external*.

Internal Medicines are those taken in at the Mouth.

External or *Topical Medicines* are those applied outwardly to any particular Part.

With Regard to their different Manner of Operation, *Medicines* are distinguished into *Agglutinants*, *Alterants*, *Anastomaticks*, *Astringents*, *Evacuents*, *Incarnatives*, *Specificks*, &c. all which I have explained in my Treatise of *Pharmacy*.

A general Idea of the Manner wherein *Medicines* operate on a human Body, as explained by the Sect of mechanical Physicians, may be conceived from what follows.

A few different Sorts of Particles, variously combined, will produce great Variety of Fluids; some may have one Sort, some two, some three or more. If we suppose only five different Sorts of Particles in the Blood, and call them *a*, *b*, *c*, *d*, *e*; their several Combinations, without varying the Proportions in which they are mix'd, will be these following; but whether more or less need not be determined.

ab : *ac* : *ad* : *ae* :
bc : *bd* : *be* : *cd* :
ce : *de* : *abc* : *adc* :
abd : *abc* : *ace* : *adc* :
bdc : *bde* : *bec* : *dec* :
abcd : *abce* : *acde* : *abde* : *bcde* : *abcde*.

No Theory of Secretion has hitherto been able to give any tolerable Account of the Operation of such *Medicines*, as promote an Evacuation. For if the Humours be equally mixed with the Blood, that is, if the Blood be in every Part of the Body the same, and its Particles be not more apt to form certain Humours, in some certain Parts of the Body than in others; or if they be not forced by the Power of some Medicine, to form such Humours; then the Quantities of Humour, separated in equal Times, will always be as the Velocity of the Blood; but the Velocity of the Blood, some imagine, is seldom doubled by any Medicine, and never tripled by the most acute Fever. The Quantity of Humour, however drawn off by evacuating Medicines, is often twenty Times greater than the natural Quantity; and therefore, upon Supposition, that the Humours are every where equally mixed with the Blood, the Operation of evacuating Medicines can never be accounted for.

Though those who make this Argument pretend that it has the Strength of Demonstration, yet there are some who explain the Operation of Purgative, and other evacuating Medicines, by a stimulating Faculty; whereby the sluggish Juices are not only forced out, but the obstructed Canals open'd, and the Motion of the Blood quicken'd. But tho' such a Power be allowed, it would remain to be explained, why certain Medicines do only stimulate certain Glands? For it is evident, that evacuating Medicines have some other Power besides the squeezing out stagnant Juices; because when they are all squeezed out, they still evacuate as much, if they be repeated, as they did before; as is plain by continuing a Salivation for many Days. 2. Those that reason thus, cannot suppose, that all Bodies have every where, and at all Times, Juices stagnating; but these Medicines constantly produce their Effects, more or less at all Times. 3. If the Vessels be supposed to be obstructed, an evacuating Medicine could but double the Quantity that was evacuated before it was taken. 4. If these Medicines operate only these Ways, then in a healthful Body, where there were no Obstructions, they would have no Effect at all. 5. If the removing Obstructions were the Cause of a greater Quantity evacuated, then the Evacuation should still continue in a greater Degree than before the Obstruction was removed, whereof in fact we constantly find it less as the Medicine works off. 6. Though a Medicine by stimulating a Vessel, may quicken the Motion of the Fluid in that Vessel; yet it can never increase the Quantity of the Fluid running through it, in equal Spaces of Time; because it quickens the Motion of the Fluid only by contracting the Vessel: And therefore the faster the Fluid is made to run through the Vessel, the less Fluid does the Orifice of the Vessel admit; and consequently after the Vessel is contracted by the stimulating Medicine, the Secretion will be less instead of being greater.

That a Stimulus causes the Part on which it acts to contract, is Matter of Fact, and that purgative Medicines do stimulate the Bowels; but it may perhaps be likewise said, they stimulate the Heart and Arteries, and increase their Force, because they not only quicken, but raise the Pulse: So that a greater Quantity of Blood is sent to the Glands of the Guts. This may be granted, say also those Authors; but not that it is the principal Action of purgative Medicines; because that by the same Force, a greater Quantity of Blood is sent to all the other Glands of the Body, whose Fluids are not, however, sensibly increased; and the Glands of the Intestines receive a less Quantity, in Proportion, than any others, because they cannot be so much dilated by the greater Force of the Blood as others, which are not so much stimulated by the Medicine.

There are others who will have evacuating Medicines endued with attenuating Quality, by which they dissolve all the Cohesions of the Particles of the Blood, and so set the several Humours at Liberty, to pass through their proper Glands: But if these Medicines have the Power universally to dissolve all the Cohesions of the Blood, then every evacuating Medicine (say those that are of a contrary Sentiment) would equally and indifferently increase the Quantity of every Secretion. Mercury would as constantly purge as salivate, and Nitre promote Perspiration as well as Urine; but this is repugnant to Experience, if they have a Power to dissolve certain Cohesions, and not others; this is but setting certain Particles at Liberty, to pass through their proper Glands, which were not so before; and is preparing the Humours, in order to increase the Quantity of Secretion: Evacuating Medicines must therefore have the Power to affect some Particles, and not others; that is, to repel some, and attract, retain, and alter others; and this is what may be affirmed to be in all Medicines, and is what a thousand chymical Experiments demonstrate.

The several Humours then being formed, continue the same Authors, by the different Cohesion of the Particles of Blood, the Quantity of Humour secerned by any Gland, must be in a Proportion compounded of the Proportion, that the Number of the Particles cohering in such a Manner, as is proper to constitute the Humour which passes through the Glands, bears to the Mass of Blood; and of the Proportion of the Quantity of Blood that arrives at the Gland. And hence it follows, that where there is a determinate Quantity of a certain Humour to be separated, the Number of Particles that are proper to compose the secerned Liquor, must be reciprocally proportional to the Quantity of the Blood that arrives at the Gland: And therefore if the Quantity of the Secretion is to be increased, the Number of Particles must be increased; if the Secretion is to be lessen'd, the Number of Particles proper for such a Secretion, must be lessen'd in the same Proportion.

Medicines, therefore, say they again, which can alter the

the Cohesions and Combinations of the Particles, may either increase or diminish the Quantity of any Secretion. Thus, suppose the Humour which passes through the Glands of the Intestines, to be composed of three or four several Sorts of Parts; that *Medicine*, which will easily cohere to these Particles, and cohering increase their mutual Attractions, so as they may unite in greater Numbers at, or before they arrive at the Intestines, than they would have done if the Medicine had not been given, must necessarily increase the Quantity of Humour, which passes through the Glands of the Intestines; if the Quantity of Blood which arrives at the Glands, be not diminished in the same Proportion as the Number of Particles is increased. After the same Manner the Dieureticks, Sudorificks, and *Medicines*, which promote all other Secretions, operate, say they.

The same Gentlemen pretend likewise, that, why increasing the Quantity of some Secretions, should diminish that of others, is not easy to explain on any other Foot; for if the Blood be equally mixed in every Part of the Body, with all the Humours which are separated from it; that is, if the Mixture of the Blood be every where alike, so that every Humour bears the same Proportion to the rest of the arterial Blood, in one Part of the Body that it does in another; and if every Humour has its own proper Gland, through which it is separated: Then what is separated from one Gland is not substracted from another; and consequently does not diminish the Quantity of Humour which flows to this other, but does indeed rather increase the Quantity of this other Secretion: For the more any one Humour is carried off, the greater Proportion any other remaining in the Blood, bears to the remaining Blood: And therefore the more any one Secretion is increased, the more all the rest should be increased likewise. But if all the Humours be composed by a Combination of a few different Sorts of Particles, then the more apt these Particles are to run into any one Sort of Combination, the less all other Combinations must be; and consequently the increasing any one Secretion must necessarily diminish the Quantity of all others; but most especially of that, which has the most of the same Sort of Particles.

For my Part, I must confess that this System of Combinations, adapted to the different Manner of operating of Remedies, is a pretty diverting Thing, especially for those which have some Notion of Algebra, but I must confess also, that in my Sentiment, it has no other Merit; and does not at all explain in an intelligible Manner, that of operating of Medicines; and there is scarce any Appearance of Truth in it, the whole System or Hypothesis being founded in Part on the false Supposition, that Purgatives penetrate as far as the Substance of the Blood, to separate the Humours which superabound in it, in order for their Secretion, which is false; for if *Purgatives* were to enter the Substance of the Blood, they would prove more prejudicial than beneficial to it, for by the excessive Fermentation they might excite in it, they would so disunite the Particles the whole Mass is composed of, as to occasion Diseases much more dangerous than those whereof the Cure is attempted by their Means; therefore *Purgatives* operate no where else but in the Primæ viæ; where by irritating the Glands they meet with on their Passage, they force them to contract themselves with such Violence, as to secrete through their spungeous Substance the Humour they contain; and as there is no Intermission in the Circulation of the Blood, and in that Circulation it is always unloading itself of the superfluous Humours, more or less, according to its Faculty of Secretion, which is increased or diminished, in Proportion to its greater or lesser Velocity, the Glands are no sooner empty but they are filled again; and as they are some Time before they can recover their former State and contract their Pores, extremely dilated by the Irritation, the Secretion continues, more or less, according as the Purgatives are more or less violent, and consequently have made a greater or lesser Impression on the Membranes of the Glands; and if the Irritation has been excessive, the Pores of the Glands being excessively dilated every where, as well towards receiving the Secretion of the Blood, as towards secreting that Secretion; the Evacuation of the Humours will consequently be more copious, and continue longer, whereby one may very well account for the Copiousness of a Salivation; for as the Pores of the Glands are extremely dilated by the continual Rotation of the mercurial Particles through them; when a too great Quantity of those Particles is introduced into them, by means of a too copious Friction, or inward Administration of mercurial Preparations, that Rotation being more violent by a too great Number of the mercurial Particles crowding through the Pores, they are so much dilated, that their contractive Faculty is thereby almost entirely imbecillitated; so that the Humours finding a more free Passage that Way than any where else, flow all thither in Abundance, and with great Impetuosity.

As to *Sudorificks*, they certainly penetrate as far as into the Substance of the Blood; for as they are composed of more subtile Particles than the Purgatives, and those Particles less embarassed with viscous and ramous ones, they are therefore easier volatilized in the Stomach, and rendered capable thereby to penetrate the most exiguous Pores of the Substance of the Chyle, which ushers them along with it into the Mass of Blood; and the greater is the Number of those Particles it is loaded with, the more copious is the Secretion of the Humours, for if they be but in small Quantity, they only produce an insensible Perspiration, if otherwise they provoke Sweat. Their Manner of operating in the Blood is by Rarefaction; but as though Humours cannot be all equally well attenuated, some of them, especially the Phlegm, being of a too viscous Texture to be entirely rarified, the coarser Particles thereof being too heavy to be ushered through the Pores, along with the volatile ones of the Remedies, which the native Heat keeps in a continual Motion, they follow their own Propensity downwards, and are evacuated through the Primæ viæ along with the Urine; those who have took a Sudorifick evacuating much more of that Excrement immediately after the Remedy has done operating, or even while it operates than they did before.

The *Dieureticks* being composed of hooked, sharp, and incisive Particles, fasten or entangle themselves in the ramous Texture of the Phlegm, which they shake and lacerate, more or less, according as their Motion is more or less accellerated by the native Warmth, which Laceration producing a more than ordinary Heap of watery Humour, that Humour forces with Impetuosity through its natural Passage, meeting with Opposition from all other Parts, whence ensues a greater Evacuation of Urine.

Now for our Division of *Hygieine* into *Prophylactice*, *Synteritice*, and *Analeptice*.

PROPHYLACTICE, is, as we have already observed, that Part of Medicine, which directs the preventing or preserving from Diseases; which consists, according to some, in taking Remedies by way of Precaution.

The principal Preservations, according to *Boerhaave*, are Abstinence, Quiet, drinking of warm Water; and after this a gentle and continued Motion till the first Appearance of Sweat; then a profuse Sleeping, the Body well covered.

By such Means, says he, gross Humours are dilated, the Vessels relaxed, and noxious Matter excreted.—He adds, that the best Defence against the Force of external Cold, is to lessen the Winter's Cloathing late in the Spring, and to increase the Summer's Cloathing soon in Autumn.

I agree with *Boerhaave*, that Abstinence is an extremely good Preservative against Diseases, *i. e.* a great Frugality in Eating; a Regularity in Meals, having always a certain Hour fixed for each of them; and a reasonable Interval between them, that the Stomach may have Time to digest what it has received, before it be loaded with other Aliments; proportioning always the Aliments to its digestive Faculty; since the principal Source of all Diseases, as already observed, is a bad Digestion; seldom using those Provocatives, which under Pretence of sharpening the Appetite, destroy the Stomach. A moderate Exercise, and Sleep, is also a very good Preservative, as well as Sobriety.

In Time of Plague, *Preservatives* are very necessary against the Contagion of the Air; and the Reader will find several of them in my Treatise of Pharmacy.

Generous Wines, Cardiacks, and Sudorificks are also *Preser-*

Preservatives. Dr. *Wenceslaus Dobr. Zensky de Nigro Ponte* gives us an universal *Preservative* against Infection in all Diseases. Whoever, says he, in conversing with Patients of any Kind, would preserve himself from Infection, must, while he is within the Sphere of their Effluvia, never swallow his Spittle, but spit it out: For he conceives it to be the Spittle that first imbibes the Infection.

SYTERITICE, relates to what is used to preserve Health; therefore there is no Difference between it and *Prophylactice*; for the same Means which are used to prevent Diseases, are used to preserve Health.

ANALEPTICE, relates to Remedies proper to restore the Body when wasted or emaciated, either by the Continuance of a Disease, or the Want of Food; which Remedies are called *Restoratives.*

The *Medicines* that come under this Denomination, are of an emollient softening Nature, but nutritive withal, and are rather administered to repair the Wastes of the Constitution, than to alter and rectify its Disorders.

Such are supposed to be the Leaves of *white* and *black Maiden-hair*, *black Hellebore*, *Rocket*, *Eruca*, *Scabious*, *Colts-foot*, *Bohea Tea*, *Chick Peas*, *Hops*, *Chocolate*, *Pistachio-Nuts*, *Balsam of Tolu*, *Bdellium*, *Benzoin*, *Storax*, *Eryngo*, *Iris*, *Satyrion*, &c.—Though, in my Opinion, the best *Restoratives*, are generous Wines, as *Sack*, *Burgundy*, *Lachryma Christi*, &c. Mutton-Juice, and a Juice extracted from Beef, and the Trunks of Vipers, in Balneo Mariæ, to take two or three Spoonfuls of it twice or thrice a Day.

To reduce all this Theory into Practice, I'll divide the human Body into three Parts, *viz.* the *Head*, *Breast*, and *Abdomen*; and treat of all the different Diseases each Part is subject to; of their Causes, Symptoms, Prognosticks, and the Manner of curing them. Beginning by the Diseases of the Head.

DISEASES OF THE HEAD.

The HEAD, is subject to several very dangerous Diseases, *viz.* to the *Apoplexy*, *Carus*, *Coma*, *Epilepsy*, *Lethargy*, *Mania*, *Madness*, *Palsy*, *Phrenzy*, *Syncope*, &c.

The APOPLEXY, is a sudden Privation of all the Senses, and all the sensible Motions of the Body, except those of the Heart and Lungs, attended with a great Depravation or Suspension of the principal Faculties of the Soul.

Apoplexy differs from *Carus*, *Lethargy*, and *Coma*, in regard that in those three Distempers the Stupor is not so profound, nor all Sensation quite destroyed.

It differs from *Syncope*, in that there is no sensible Pulse in this last; whereas in an Apoplexy the Pulse is perceptible almost till Death.

It differs from an *Epilepsy*, in regard all Motion is not abolished in that as in this:—And it differs from the *Palsy*, inasmuch as the *Palsy* is not attended with any Stupor, nor does it deprive the Patient of Sense and Perception.

Hippocrates distinguishes two Kinds of *Apoplexies*, the one *strong* the other *weak*; only differing in the greater or less Difficulty of Respiration and Pulsation. In the *former* the Pulse and Breath seem entirely stopped. In the *latter* there are considerable Remains of them.

The more modern Authors distinguish *Apoplexies* from their Cause, into *sanguineous* and *pituitous*; to which may be added *lymphatick*, *polypous*, *serous*, *atrabilary*, &c.

Causes of Apoplexy.—*Apoplexy* is occasioned by a sudden and violent Obstruction of the Circulation of the animal Spirits through the Organs of Sense, and a Suspension of their Generation in the Ventricles of the Brain, proceeding either from an Interruption of the Passage of the Blood into the Brain, whereby it is deprived of the vital Spirits necessary for the Formation of the animal ones; or from an Abundance of Phlegm, or viscid Pituita, wherewith the Brain is oppressed, as is observable in Winter *Apoplexies*, or in those of old People; or from a melancholick acid Humour that coagulates the Blood, or too gross a Lympha which stop up the Nerves, or a Plethora which oppresses them; or from Excrescences withinside the Cranium pressing the Vessels; or from a Polypus blocking up the Carotydes, &c.

Signs of an Apoplexy.—The Fit of an *Apoplexy* is usually preceded by a violent Pain of the Head, Dimness, and Loss of Sight or Memory.—Sometimes by an universal Indolence; and sometimes by a Flux of pituitous Matter by the Nose and Mouth.

Symptoms of Apoplexy.—*Apoplexy* is attended with a Snoring and Difficulty of Breathing; sometimes with a Fever, rarely with a Foaming at the Mouth, frequently with a Sweat, Hemorrhoids, or Diarrhæa, and so goes off.

Prognostick of Apoplexy.—*Apoplexy*, in general, is always very dangerous; but much more so when it proceeds from a gross Lympha, which obstructs the Passage of the animal Spirits through the Nerves; or a coagulated Blood; for as that Malady cannot be cured but by large Evacuations; the gross Lympha cannot be evacuated, till it be rarefied, which Rarefaction cannot be done always so soon, as it would be necessary to save the Life of the Patient: Neither can the Blood be easily dissolved; therefore the Patient most commonly dies of an Apoplexy proceeding from those two Causes; and always of that proceeding from a Polypus.—The less dangerous is that caused by a Pituita, or an Atrabilis, which can be easily rarefied by Remedies administred in Time; and these are the Kinds of *Apoplexy* which have these Intervals, the last whereof is almost always mortal.

Cure of the Apoplexy.—To prevent an *Apoplexy*, Wine and hard Labour are to be avoided; no Eating to Excess; nor no Sleeping after Dinner; Exercise to be kept up; and Care and Chagrin to be kept under.—To *cure* an *Apoplexy*, Medicines must be used that occasion large Evacuations; and nothing of Opiate or Astringents to be meddled withal. During the Fit, copious Bleeding in the Jugulars to be used, and the Patient laid on his Back, applying strong Volatiles to the Nose; blowing up strong Sternutatories, and rubbing the Temples with cephalick Mixtures. A hot Iron may also be applied near the Vertex or Occiput; and Epispasticks to the Neck: To which are added powerful Purgatives, Clysters, &c.—Cupping, and Scarifications on the Head, are commended by some in lieu of Venæsection.

Boerhaave prescribes for the *Apoplexy*, the following *Gargarism*, *Masticatory*, *Vomitive*, *Purgative*, *Fumigation*, and *Clyster*.

Gargarism.—Take the Roots of Imperatory, Pyrheter, and small Galanga, of each an Ounce; the Leaves of Rue, Origan, and Thyme, of each a Handful; Flowers of Lavender, and Matricary, of each an Ounce; the Bark of Winter, six Drachms: Mix all the Ingredients to boil in three Pints of Water, in a Vessel well cover'd, to the Diminution of a fourth Part; strain the Decoction, and to the Colature, when cold, add three Drachms of Spirit of Sal Armoniack, for a Gargarism, which must be used cold.

Masticatory, which excites a Salivation.—Take Mastick, white Wax, Ginger, of each an Ounce, to make Pastiles, S. A.

Vomitive.—Take an Ounce and half of emetick Wine, and an Ounce of Oxymel of Squill, mixed together for a Dose.—Or take six Grains of *Emetick Tartar.*—Or take an Ounce of the Juice of wild Radish, extracted by Expression; two Ounces of Oxymel of Squill, mixed together for a Dose.—Or take two Grains of Powder of Algaroth.

Purgative.—Take ten Grains of Diacrydium, ten Grains of Resin of Jalap, two Drachms of rectified Spirit of Wine, mix well all the Ingredients together in a Mortar, and add to the Mixture six Drachms of laxative Syrup of Roses composed with Senna, for a Dose.

Fumigation, which irritates the Nostrils.—Take the distill'd Oils of Rosemary, of Tansy, of Lavender, Rue, Wormwood, of each four Drops, a Drachm of the Infusion of Castoreum, an Ounce of the Unguent for the Nerves, and a Drachm of the oleosum volatile Salt, mixed together into a Balsam, for a Fumigation under the Nose of the Patient, and to rub the Temples withal.

An *acrimonious Clyster.*—Take half a Drachm of the Pulp of Coloquintida, a Drachm and half of Leaves of Tobacco, boil them in ten Ounces of Water; strain the Decoction, and to the Colature add two Drachms of Sal Gemma, for a Clyster.

This Remedy is also very good for the Apoplexy, to help towards the Rarefaction of the Humours, after the Evacuations required have been made. Take twenty Drops of volatile Spirit of Sal Armoniack, fifteen Drops of Tincture of Karabé, and an Ounce of Water of Carduus Benedictus, mixed together for a Dose.—This Remedy being used every Month, after the first Fit, may prevent a second, provided the Patient be well purged at least twice a Year, with half a Drachm of Gilla vitrioli, or seven Grains of emetick Tartar.

Carus, is a Species of lethargick Disease, consisting in a profound Sleep, with a sudden Deprivation of Sensation and Motion, and an acute Fever.

The *Carus* differs from a *Coma* in this, that the Patient in the latter, answers when interrogated; but not in the former.—From a Lethargy it is distinguished by the Fever which attends it, which the Lethargy is free from; and by the Return of Sensation, which the lethargick Person finds when agitated or pricked. From a proper Apoplexy by the Freedom of Respiration, which is always hurted in an Apoplexy. From an Epilepsy, in that there is no Motion or Froth at the Mouth in the *Carus*. From a Syncope, by the Pulse which is high, and the Face ruddy; whereas the Pulse is low, and the Face cadaverous in the Syncope. From an hysterick Suffocation, in that the Patient hears and remembers Things in the latter, not in the former.

Causes of the *Carus*.—The *Causes* of the *Carus* are almost the same with those of the Apoplexy; the general one being also an Interruption of the animal Spirits through the Organs of Sense, but not so absolute a one as in the Apoplexy, since it proceeds only from an Atrabilis, which does not obstruct entirely the Passage, and can be easily rarefied by the violent Agitation, assisted therein by some Remedies appropriated to the Malady.

Symptoms.—The most considerable Symptoms of the *Carus* is a violent Fever, attended with an excessive Heat, which manifests itself in a particular Manner, on the Face; and an almost entire Privation of the sensitive Faculty.

Cure.—The same Remedies used in the Apoplexy, are also used in the Carus; but not in so large a Dose: And I have even seen Patients afflicted with that Malady, recover their Senses by means of the Smoak of Paper burnt under their Nose; or by rubbing their Temples with Hungary-Water; but the surest Remedy is Cupping or Bleeding.

Prognostick.—The *Carus* is far from being so dangerous as the Apoplexy: And when once thoroughly cured seldom returns.

The Coma, is a sort of sleepy Disease, otherwise called *Cataphora*; consisting in a violent Propensity to sleep, whether Sleeps ensues or not.

If Sleep ensues, the *Coma* is called *Coma somnolentum*, wherein the Patient continues in a profound Sleep; and when awaked immediately relapses, without being able to keep his Eyes open.

If he does not sleep, but is continually awake with frightful Dreams, it is called *coma vigil:* And here too his Eyes are shut, and he appears asleep.

Causes of the Coma.—The Cause of the *Coma somnolentum*, may be any Thing that prevents the Course of Spirits; as the cold, humid Temperature of the Brain: hot putrid Vapours ascending into the Head, and stopping the Canals of the animal Spirits, narcotick Vapours, &c.

The *Coma vigil*, is supposed to arise from the Conflict or jarring Mixture of Bile and Pituita; the one urging to sleep, the other waking; though I am of Opinion, that it is rather a Conflict of the animal Spirits with some Humour, either Bile or Pituita, attempting to overflow the Ventricles of the Brain; which *Coma* degenerates into a *Coma somnolentum*, when Part of the animal Spirits have been exhausted in that Conflict: Hence the Patient sleeps not at all, or, at most, but for a Moment, is uneasy, starts, rises up, and sometimes throws himself on the Persons near him; his Eyes all the Time fast closed.

Prognostick.—Neither Coma's is otherwise dangerous, than that if neglected they may degenerate into a Lethargy.

Cure.—The Remedies for a *Coma*, are those which occasion great Evacuations; as violent Clysters, or Vomitives; Medicines that purge and dry the Brain; and those which occasion Revulsions of Humours; as Vesicatories, Cauteries, &c. to which may be added volatile Spirits, Salts, and most Cephalicks.

The Epilepsy, is a Convulsion, either of the whole Body, or some of its Parts, attended with a Depravation of the Senses and Understanding, and returning from Time to Time in Fits or Paroxisms.

In *French* it is usually called *le mal caduc*, and in *English* the Falling Sickness, by reason People fall down when attacked therewith: The *Latins* call it *comitialis morbus*, by reason when any Body was seized therewith in a Comitia, or Assembly of the *Roman* People, they presently broke up the Assembly, as deeming it an unhappy Presage.

Some call it the *morbus sacer*, as supposing it sent by way of immediate Punishment from God. Others call it *morbus herculeus*, *Sonticus*, *Lues Deifica*, &c.

Cause of the Epilepsy.—*Boerhaave* attributes the Cause of this Disease to too much Action of the Brain on the motory Nerves, and none on the sensative ones. Some account for it from the Abundance of sharp Humours mixing with the animal Spirits, and giving them extraordinary and irregular Motions and Directions; whence arises its Distinction from a Syncope and Apoplexy, which take away all Motion as well as Sense. For my Part I attribute it to a viscous Lympha ushered into the Brain along with the Blood, and which being there still more condensed by the Coldness of the Parts, agglutinates itself to the Substance thereof, stops Part of its Pores, and obstructs the Motion of the animal Spirits, till the Circulation of the Blood being accellerated, and the vital Spirits it contains excessively agitated by the Convulsions of the whole Substance of the Brain, proceeding from such Obstruction, penetrate that viscous Matter, and by violently shaking the Parts thereof, break at last its Texture, and procure thereby to the animal Spirits the same free Motion they had before.

The *Epilepsy* is either *idiopathick*, or *sympathetick*. It is *idiopathick* when it arises merely from a Disorder of the Brain or Spirits: And *sympathetick* when it is preceded by some other Disease which brings it on.

Symptoms.—The Patient seized herewith falls instantly, and suddenly down, or rather throws and precipitates himself violently to the Ground: When down he grinds his Teeth, foams at the Mouth, and frequently makes his Head; his Arms, Legs, Neck, Back, &c. either becoming rigid, or variously distorted. And as all the Parts are in a violent Contraction, there is frequently an involuntary Flux of Urine, Seed, and fæcal Matter. After some Time he returns to himself, only retaining a Head-ach, Heaviness, Weariness of the Limbs, &c.

Etmuller more accurately distinguishes the Disease into three Degrees: The first or lowest is much the same with the highest Degree of a Vertigo. In the second there arise various Agitations and Gesticulations; and the Senses, both external and internal; either remaining, or being transported into a Delirium, they dance, sing, laugh, weep, talk idly, shreek, and beat their Breasts. Sometimes they remember all after the Fit is over; and sometimes nothing at all. In the third Degree, which alone is ordinarily called the Epilepsy, they lose the Use both of Reason and Sense; fall, or fling themselves down, foam, grind their Teeth, and bite their Lips, with the other Circumstances above related. Those affected with the second Degree, are usually held for *possessed by the Devil.*

Prognostick. The Epilepsy sometimes hangs many Years to a Person without much Danger: Though when its Paroxisms return fast, it renders the Patient more or less paralytick, delirious or stupid. In young People there is Hope of going off in the Time of Puberty. *Hippocrates* observes, that when it seizes a Person after 25 Years of Age, it lasts for Life; but this does not always hold.

Cure.—The Cure is very difficult: The principal Anti-Epilepticks are, the Roots of Peony, Leaves of Lilies of the Valley, Seeds of Rue, Mistletoe of the Oak, or Hazel, Box-Wood, Spirit of Black-Cherries, Spirit of human Blood, human Secundines, human Cranium, Tooth of Sea-horse, Castoreum, Peacock's Dung, Camphire, Salt, and Oil of Amber.

To

To recover a Person in a Fit, Tobacco Smoak, or that of burnt Feathers, is recommended; *Barbette*, above all Things, directs the Flowers and Spirit of Sal Armoniack against this Disease; *Crato*, native Cinnabar. Sir *John Colbatch* has an express Treatise on the Misletoe of the Oak, to shew it a Specifick in this Disease. Elks Claws have long had the Reputation of the same.

Mr. *Poupart*, from a Dissection of an Epileptick Person, wherein immediately under the *Dura Mater*, was found a deal of white, thick, viscid Pituita, glued, and as it were incorporated with the Membrane; thinks, that this might be the Cause of the Disease; the excessive Quantity of such thick Lympha, loading the Brain, and obstructing its Motions. The first Cause he judges might be the Spongeousness of the *Dura Mater*, which imbibed the Serosities of the Brain.

He adds, that he knows an epileptick Person, who, upon the first Approach of his Disorder, rubs his Forehead with his Hand, and bends his Head as far backward as he can, resting it against a Wall; and by that Means secures himself against the Convulsion. It is probable, that by this he gives a Motion to the Lympha, and drives it from the Place which before it disturbed.

Here follows a pretty good Remedy for the Epilepsy. Take the Root of Peony, Seed of Peony, Elks Claws, Magistery of human Cranium, of each half an Ounce: Precipitate of the Moon, and lunar Bezoardick Powder, of each three Drachms: Crude Cinnamon prepar'd, Misletoe of Oak, Troches of Squill, of each two Drachms: Human Secundines, Peacock's Dung, of each a Drachm; Castoreum, long Pepper, Cubebs, of each one Scruple, to all these Ingredients reduced into a subtile Powder and mixed together, add the rectified Oil of Hart's Horn, and the Oils of white Succin, of Nutmeg, and of Rue, of each half a Scruple, to be mixed together, and kept for Use.—— The Dose is from half a Scruple to a Scruple.

MANIA, in *Medicine*, Madness, is a vehement Kind of Delirium, without a Fever.

Causes.—The Cause of the *Mania* is thus accounted for by Dr. *Quincy*. As often as the Species of Things wherewith we have been acquainted are hurried together, we may be said to dream; and thence in Sleep these Species are added with other Things, and variously compounded, from the manifold Repercussions of the animal Spirits, which arise from the Cause producing Sleep, and pressing the Nerves, so as to revert the Fluctuation of their Juice. A Delirium is, therefore, the Dream of waking Persons, wherein Ideas are excited without Order or Coherence, and the animal Spirits are drove into irregular Fluctuations.

If then the Cause inducing a Delirium be of that Nature, that it can excite Ideas or Motions of a considerable Impetus, without any Regularity or Order, such a Delirium will be attended with Boldness or Rage, and violent Motions of the Body; that is, a *Mania* will be produced.

Now it is plain, that all the known Causes of this Distemper, give a greater Disposition to the Blood for Motion, and renders it fluxile, but not consistent, and uniformly thick enough; and therefore, that they dispose Persons, likewise, to continued Fevers, since they occasion the Blood to be thrown out of the Heart with an increased Force, unless some other Cause intervenes, whereby the Efficacies of these are interrupted in disposing the Blood into febrile Motions; and the Blood is so disposed, as often as it can be rarified into its minutest Parts; that is, so uniformly rarified, that it can easily, with any Force by the Motion received from the Heart, go into any Part divisible at the Occursions of those Orifices, into which it ought to be distributed: For then the Cohesion of the Parts, which can be but very small, will not be any Obstruction to the Increase or Propagation of the Blood's Velocity. But if it happens that the efficient Cause, or the Heart, throws the Blood with a greater Force, or that the Blood can be more easily propelled in any given Time, it will occasion, at the same Time, that some Part of the Blood will be more nearly united, so as to form Moleculæ, consisting of cohering Particles; which Moleculæ will cohere to one another, and not so easily obey the Direction of the Heart's propelling Force. The Blood hereupon cannot be uniformly rarified, nor enter so easily into the small Orifices of the Vessels, and so soon travel through them, and therefore there will no Fever arise, but a Delirium without a Fever, wherein the Heat of the Blood will be greater, and the Pressure in the Brain uncertain: Whence uncertain Recursions of the Spirits, in ordinate Undulations, confused Vibrations of the Nerves, and a remarkable Energy of Imagination; whence will proceed Audacity and Passion beyond Measure. This is a long Discourse to say nothing; and so abstract, and metaphysical, though used to prove a physical Cause, that I don't believe, the Author thereof understood it very well himself. For why so many Words to prove that *Mania* proceeds from a Disorder of the Brain; and if it could even be said, that the Doctor proves it in this Place, does his Reasoning account for the different Stages of *Mania?* Why some are outrageous in it, others melancholick, and others have some Intervals of good Sense, or are mad, but on certain Points?

My Sentiment on the Causes of this melancholick Disease, is, that it proceeds either from an evil Temperature of the Brain, or from a bad Conformation thereof; and sometimes from both. That a violent Madness, attended with Rage, Fury, *&c.* proceeds from a too great Siccity of the Brain; which thereby being rendér'd uncapable of moderating the too great Impetuosity of the vital Spirits usher'd into it along with the Blood, leave those Spirits to escape in the same Confusion they are brought in, to the Place of their Destination, the Ventricles, where they crowd in too great Abundance, and loaded with the Impurities they have contracted in the Mass of the Blood, and which should have been separated from them by the refrigerating Quality of the Brain, in their Passage through it, before their Admission into the Ventricles; hence ensues a Conflict between them and the few animal Spirits they meet with there, appointed for their further Elaboration into animal Spirits, and Direction, but which meeting with such insuperable Obstacles, are not only frustrated in their Design, but overpower'd by so great a Quantity of heterogeneous Bodies, are themselves diverted from their natural Course, and forced to follow the irregular Impetuosity of the prevailing imperfect Spirits. A *melancholick Mania* proceeds from a too great Viscidity of the Brain, which obstruct the Passage of the vital Spirits to the Ventricles, for the Formation of a Quantity of animal Spirits, sufficient to discharge the Functions of the several Faculties of the Soul. And an *alternative Mania* proceed from some Disorders in the Organs of those Faculties, whereby the animal Spirits are often diverted from their natural Determination.

Symptoms.—Every Body is so well acquainted with the Symptoms of the different Kinds of *Mania*, that it would be needless to make here a Recapitulation thereof.

Prognostick.—*Mania* is a dangerous Disease, and almost incurable, under what Kind we may be pleas'd to consider it; for though it be often palliated, there remains always a Leaven thereof. *Cure.*—The *outrageous Mania* is easier palliated than any of the two others, because, as it proceeds in Part from the too great Abundance, and too violent Impetuosity of the Spirits; that Impetuosity may be moderated by copious Evacuations, especially of the Blood; and by Aliments of little Substance, administer'd with a parcimonious Hand.

PALSY, *Paralysis*, is a Disease wherein the Body, or some of its Parts lose their Motion, and sometimes their Sensation or Feeling.

Causes.—The Causes of the Palsy, are an impeded Influx of the nervous Spirits into the Villi of the Muscles; or of the arterious Blood into their Vessels; which may happen from some Fault, either in the Brain, the Nerves, Muscles, or their Vessels.

Division of the Palsy.—The Palsy is said to be perfect or compleat, when there is a Privation of Motion, and Sensation, at the same Time. Imperfect, when one of the two is destroy'd, the other remaining.

The Palsy again is either *universal*, *lateral*, or *partial*.

Universal Palsy, called also *Paraphlegia*, or *Paraphlexia*, is a general Immobility of all the Muscles that receive Nerves from the Cerebrum, or Cerebellum, except those of the Head. Its Cause is usually supposed to reside in the Ventricles of the Brain, or in the Root of the spinal Marrow.

Etmuller makes this a different Disease from the *Paralysis*, which he supposes to consist in a Relaxation of the Ligaments and Membranes serving for Motion; but the *Paraphlegia* is a mere Obstruction of the Nerves.

The *Paraphlegia* is seldom a primary Disease, usually a secondary one, attending, or following an Apoplexy, Scorbutus, Carus, or Arthritis.

Lateral Palsy, called also *Hemiplegia*, is the same Disease with the *Paraplegia*, only that it affects but one Side of the Body. Its Cause is the same, only restrained to one Side of the Brain, or spinal Marrow.

Partial Palsy, is where some particular Part or Member alone is affected, *e. gr.* where the Motion of the Arm or Leg is destroyed.

Dr. *Quincy* observes, that a Palsy where Motion is destroyed, Sensation remaining, may be produced, First, by too much Humidity stretching the muscular Fibres in Length. Secondly, from cold Things which thicken the Juices. Thirdly, from external Compression. Fourthly, from hot Things, which straiten the supple Membranes and Vessels. All these Causes affect either the Blood or Muscles; the former by thickening that Humour, so that it cannot suddenly rarefy; and the latter by relaxing the Muscles into too great a Length by too much Moisture, or contracting them into too narrow Dimensions by too much Heat. But the Sensation may yet be preserved, because, notwithstanding all the Hindrances, the animal Spirits and Nerves may not be at all affected.

The *Causes* of the *Palsy* where Sensation is destroyed, Motion remaining, he observes, may be all those Things which so far thickens the animal Spirits in the Nerves, arising below the Cerebellum, that though indeed they may flow into the Muscles through the Nerves, and there, by the Occursion of some Liquor secreted from the Blood, rarefy; yet they cannot alone flow in such Quantities into the Nerves, as from a very slight Cause to be made to undulate; whence Sensation will cease without losing the Motion of the Part.

The Causes of this Kind are also, whatsoever renders those Nerves more lax and moist, and so less apt for lively Vibrations; the animal Spirits flowing in the mean Time into the Muscles, from whence Motion is performed without Sensation.

My own Sentiment is, that the *Cause* of the *Palsy*, whether universal or partial, is an Obstruction of the Passage of the animal Spirits through the Nerves; either entire when the Part is deprived both of Motion and Sensation; or in Part when it is deprived but of one of those two Faculties.

Prognostick.—Palsy, whether universal or partial, is always incurable in old People; for as the Source whence the animal Spirits flow is much exhausted in them, and consequently the Channels through which they flow to all the Parts of the Body, much contracted, through the Scarcity of those Spirits, which flow then but in a very small Quantity through them; those Passages once obstructed, those Spirits flowing neither in a Quantity, nor with an Impetuosity capable to conquer them, take another Course; whereby those Passages are soon entirely contracted, and consequently rendered useless:—In young Persons, who abound yet with animal Spirits, those Spirits, assisted with Medicines, can force their Passage through the Nerves, let the Obstruction be ever so great, provided the Remedies be well appropriated to the Malady.

Cure.—The Cure of the *Palsy*, according to *Waldschmit*, does not differ much from that of the Venereal Disease. Internally Mercurial, Sudorificks, and Decoctions of the Woods are good: Externally, Unctions, particularly of spirituous and penetrating Things; and Bathing. The *Mare*, as they call it in *France*, or the Grounds of the Grape after the Wine has been extracted from it, is also an excellent Remedy, by putting the Patient to sweat in it.

Here follows the Medicines of Dr. *Boerhaave*, for this Disease.—Take Mastich, Olibanum, Succin, of each half an Ounce; mix them together for a Powder; which you'll burn on lighted Coals, and receive the Vapour thereof in a Piece of thick Flanel, very dry, to rub hard the Parts with it. Take three Ounces of Spirit of Lavender, two Drachms of Sal Armoniack, four Drachms of Tincture of Castoreum; and six Ounces of distilled Water of Lavender, which must be mixed together to rub the Parts therewith. Take Plaister of Cumin, of Melilot, Galbanum, of each an Ounce, and half an Ounce of the Oil of Castoreum, for a Plaister, which must be spread on Leather, and applied on the afflicted Part after it has been well rubbed.

Take the infused Oils of Wormwood, Anet, Camomile, Rue, Castoreum, Saffron, Iris, Earth-Worms, Nardus, of each a Drachm; Unguent of Agrippa, of Athanita Martiotum, for the Nerves, of each six Drachms; mixed together for a Liniment. He prescribes likewise the acrimonious Plaisters of *Cuminum*, *Galbanum* and *Melilot*. My Tincture is also excellent for the same Disease, either to take inwardly, or to be applied outwardly.

Phrenzy, *Phrenitis*, *Phrenesis*, is a constant and vehement Delirium, or Distraction, accompanied with an acute Fever.

It differs from the *Mania*, and *Melancholy*, in that those are without Fevers.

Causes.—Physicians generally make the *Phrenzy* to consist in an Inflammation of the Meninges of the Brain; and distinguish it from the *Paraphrenitis*, which is supposed to be an Inflammation of the Diaphragm.

Willis will have them the same Disease, and both to consist in an Inflammation of the animal Spirits. He only distinguishes them as the Inflammation arises from the Cerebrum alone, or from the Cerebrum and Cerebellum together; and concludes that they both arise after a Fever, from the boiling Blood throwing its adust Excrements into the Brain.

Boerhaave makes the *Phrenitis* either true, wherein the Cerebrum or Meninges, or both are inflamed; or symptomatick, where the Matter of a Fever is translated into the Cerebrum. My Sentiment is, that the *Phrenzy* is caused by an excessive Effervescency of the Blood, in the Vessels of the Cerebrum, whereby those Vessels being much swelled or distended, they press hard on the Substance of the Brain, and obstruct the Motion of the animal Spirits therein, whence ensue Convulsions in the whole Substance thereof; which Sentiment is confirmed by Experience, since this Disease is often the Effect of inflammatory or malignant Fevers; though it sometimes arises from the Suppression of the natural Evacuations, as the Menses, *&c.*

Symptoms.—The Symptoms of the Phrenzy are so evident of themselves, that it is needless to rehearse them here.

Prognostick.—The true *Phrenzy* either kills on the third, fourth, fifth, or seventh Day; or changes into a Mania, Lethargy, Comus, *&c.*—Tremors, gnashing of the Teeth, grumous Blood distilling from the Nose, are Prognosticks of Death.

Cure.—If the *Phrenzy* arises from a Suppression of the natural Evacuations; those Evacuations must be first rectified: But if from any other Cause, the too violent Motion of the Spirits must be appeased first.

Spasm, *Spasma*, or *Spasmus*, is a great Term of equal Importance with the Latin *convulsio*, and the English *Convulsion*.

Cardan distinguishes two Kinds of *Spasms*; the first consisting in a constant Contraction of the Muscles, which renders the Members rigid and inflexible. The second, in sudden unnatural Motions and Palpitations, frequently intermitting and beginning again.

Causes.—*Spasms*, in whatever Part of the Body they be, arise from the animal Spirits meeting with Obstructions in their Passage through the Nerves, which divert them from the natural Direction they had received in the Cerebrum; whence,

Symptoms.—Proceed the unnatural Motions of the Parts of the Body, a *Spasm* is attended with, which are greater or less, more or less frequent, according as the Obstructions are greater, and more difficult to conquer.

There are *accidental Spasms*, which are of a short Continuance, as those arising from Flatulencies, or from Bites of venemous Beasts, or from the Puncture of a Nerve, from the Acrimony of the Humours vellicating the Stomach, excessive cold, hysterick Vapours, *&c.*

There are Spasms peculiar to certain Members, and distin-

distinguished by particular Names: That of the Mouth is called *Spasmus Cynicus*; that of the Penis *satyriazis*.

The *cynick Spasm*, is a Sort of Convulsion, whereby the Patient is brought to imitate the Gestures, Snarlings, Howling, *&c.* of a Dog.

Dr. *Freind* in the *Philosophical Transactions*, gives us an Account of a very extraordinary *Spasmus* of this Kind, wherewith two Families at *Blackthorn* in *Oxfordshire* were seized.

The Novelty of the Thing drew Abundance of Visitors to the Village, and among the rest Dr. *Willis*; who a good while, ere he reached the Place, heard a terrible Noise of Barking and Howling: Upon his entring the House he was straight saluted with five Girls, howling and answering each other by Turns, with violent Motions of the Head. In their Face there was no Convulsions seen beside cynick Distortions, and Oscillations of the Mouth: Their Pulse was pretty regular; their Noise was rather like that of the Howling, than that of the Barking of Dogs; only that its Returns were more frequent, with deep Sighings between.

The *Spasmus* had seized them all equally, whereof the youngest was but six, and the eldest fifteen Years of Age: At Intervals they had their Reason and Senses entire; but not long, ere one of them returning to her Howling, set on the rest: Till at length, all fainting, they fell like Epilepticks on a Bed laid in the Middle of the Room to receive them.

A little while they would lie quietly and decently together; but upon a new Orgasm of the Spirits, they began to beat and bruise each other. Two of the youngest awaked while the Doctor stay'd, and left their Sister on the Bed: But the *Spasmus* soon had hold on them again.

In *July*, 1700, Dr. *Freind* himself visited another Family in the same Village, where one Boy and three Girls had been seized ten Weeks, without any apparent preceding Cause. A Girl had it first, and the rest, as the Mother informed him, were so struck with their Sister's Disorder, that they too were seized.

At his Arrival they were all at play very briskly and unconcernedly before the Doors; at length the eldest Girl, about fourteen Years of Age, was seized as usual.

The only Symptom of its Approach, was a Swelling of the Stomach; which rising gradually up to the Throat, set the Muscles of the Larynx and the Head upon their usual Convulsions: This Rising was a certain Symptom of an approaching Paroxysm in them all; and if they endeavoured to stop it, it bursted out with the greater Violence, and held the longer.

The Noise they made was incessant and disagreeable; but not so much as the Barking or Howling of Dogs as had been given out, as a quaint Kind of a Song, consisting of three Notes or Tunes, repeated twice over; and closed by deep Sighs, *&c.* accompanied with extraordinary Gestures and Nutations of the Head.

This Disease the Doctor takes to be natural, and to arise from the common Cause of all Convulsions, *viz.* from the animal Spirits growing unruly in the Nerves, and driving the Muscles into various Contractions, according to the Circumstances of the Indisposition.

Myself have known here in *England*, a young Lady of a noble Family, and of a great Fortune, afflicted with such *Spasmus*, which made her mimick all the Gesticulations of a Monkey, and even his Voice; which those, who knew her from her Birth, say she brought along with her into the World, the Lady her Mother having been frighted by a Monkey while with Child of her.

The Nuns of *Loudun* in *France*, so well known throughout the whole World, by the Nick-name of *Devils of Loudun* (because supposed possessed by the Devil) were certainly afflicted with nothing else but a *Spasmus* of this Kind, though poor *Grandier*, their Father Director, was unjustly burnt, under the false Pretence that he had contributed to their supposed Possession; and I really believe that most of the Possessions mentioned in holy Histories (those mentioned in the Scripture excepted) were nothing else but *Spasms* or Epilepsies.

Prognostick.—A *Spasmus* happening after the taking of *Hellebore*, or any other violent Purgative, is mortal: *Spasms* attended with violent and continual Fevers are also very dangerous.

Cure.—The celebrated Dr. *Charleton* prescribes for Convulsions the Powder of an old Raven: All the Remedies proper to restore the natural Motion of the animal Spirits, are good for the Convulsions and Spams, as Sudorificks, Diaporeticks, *&c.*

SYNCOPE, is a deep and sudden Swooning, wherein the Patient continues without any sensible Heat, Motion, Sense, or Respiration; is seized with a cold Sweat over the whole Body, and all the Parts turn pale and cold, as if dead.

Causes.—There are several Causes of *Syncope*; 1. Too great an Exhaustion of Spirits, as after long Diets, excessive Unctions, violent Exercises, long Bathing, *&c.*—2. The irregular Motion of the Spirits, preventing their due Influx into the Parts, as sometimes happens in Fear, Wrath, and other violent Passions.—3. In moderate Hemorrhages.—4. An ill Constitution of Blood, as in Cacochymias, or in Persons who have taken something that either dissolves or coagulates the Blood.—5. Secret Diseases, as Abscesses, or Polypus's of the Heart, Worms, *&c.*

In very numerous crowded Assemblies People sometimes fall into *Syncopes*, through the hot, thick, impure Air they breathe. Some Women are liable to them upon the Smell of Musk, Civet, *&c.*

Prognostick.—The *Syncopes* are very dangerous which arise from Hemorrhages, or from a too great Exhaustion of Spirits; and those proceeding from Abscesses, or Polypus's of the Heart, are almost always mortal.

Cure.—The volatile Spirits and Aromaticks, are prescribed for *Syncopes*. *Heurnius* recommends Treacle-Water and Cinnamon Water. And *Etmuller* the volatile Salt of Vipers, Spirit of Sal Armoniack, Oil of Amber, and sometimes Bleeding.

VERTIGO, is an Indisposition of the Brain, wherein the Patient sees the Objects about him as if they turned round, and fancies he turns round himself, though all the while at Rest.

Physicians distinguish two Kinds, or rather two Degrees of *Vertigoes*.—The first, called a *simple Vertigo*, is when the Body and external Objects appear to turn round, without any great Dimness of Sight.

The other called *Scotania*, or *vertigo tenebrosa*, is when the Eyes are also darkened, and as it were covered with a Mist.

Some make a third Stage, *viz. vertigo caduca*, wherein the Patient actually falls down. But this seems scarce to differ from an Epilepsy.

Sometimes the *Vertigo* is seated in the fore Part of the Head, and sometimes in the hind Part; where the latter is much more dangerous.

Causes of the Vertigo.—*Bellini* accounts for the *Vertigo* very well, from a preternatural Motion in the Retina. For it is evident an Object will seem to move circularly, if the Images thereof painted on the Retina fall successively on different Parts of the Retina. This they may do either by the Object's moving while the Eye is at Rest; or from the Eye moving while the Objects rest; or lastly, the Object and Eye being both at Rest, and the Rays falling on the same Place, by the optick Nerves being alone in Motion. For since a right and an oblique Incident do not excite the same Tremors in the Nerves, and the same Species of Motion; if the optick Nerve only be moved, and the Object be at Rest, it will appear to shift its Situation, by the Change of the Place in which it was represented.

The *external Causes of Vertigines*, are a continued turning round of the Body, Drunkenness, too long fasting, immoderate Exercise, Surprize, Voracity, much Use of Pulse, Onions, Leeks, Radishes, Cabbage, Mustard, *&c.* and in the general whatever may press, distend, or contract the Arteries.

Cure of the Vertigoes.—The first Step in the Cure is bleeding in the Jugular or Cupping; then they proceed to an Emetick; then a Vesicatory on the Neck, or a perpetual Blister, or Issues; with Sternutatories and other Medicines, that obtained in the Apoplexy.

DISEASES OF THE THROAT.

Quinsey, called also *Angina*, is an Inflammation of the Throat, and particularly of the Muscles of the Larynx or Pharynx, which exactly closing the Chinks thereof, prevent the Air from passing in and out of the Trachea, and the

the Food from being swallowed and conveyed into the Stomach.

If any Symptom appear on the Outside of the Throat, the *Quinsey* is said to be external. — If none appear, internal.

The *Quinsey* is also divided into true and spurious.

Causes of the Quinsey.—The *Quinsey* is caused by a Defluxion of Blood, either pure or bilious, from the Branches of the carotide Arteries; and there causing a Phlegmon, either a simple or an erysipelatous one.

Symptoms of the Quinsey.—The general Symptoms of the *Quinsey* are, that it is always attended with a Difficulty of Respiration, and of Deglution. The *true Quinsey* is always attended with a Fever. And the *spurious* is free from it.

Prognostick of the Quinsey.—The *Quinsey* is of all others the most dangerous when the Tumour is neither perceivable on the Inside nor the Outside. That appearing on the Outside is the most curable.

Cure of the Quinsey. In the *external Quinsey*, before any Suppuration appears, Recourse is had to repeated Venesection in the Jugulars.—Vesiccatories and Cupping are also used with emollient Gargles, *&c.*

The following is an excellent Gargle of my own Invention for the *Quinsey.*—Take two Ounces of the best Honey; the Buds of Black-berry Bushes, and dried red Roses, of each a Handful; put them to boil together in three Pints of River-Water, for the Space of half a Quarter of an Hour, skimming well the Decoction, and straining it afterwards with Expression; the Colature is the Gargle, wherewith the Patient must gargle his Throat as often as possible.

In *violent Quinseys* Recourse should be had to Laryngotomy, or Bronchotomy, which though rarely practised, may yet be used with Safety.

From the Head I'll descend to the *Thorax*, or middle Venter.

Diseases of the Thorax or Breast.

The principal Maladies of the *Breast* are the *Empyema*, *Asthma*, *Phthisick*, *Peripneumony*, *Pleurisy*, &c.

The *Empyema* is a Collection of Pus, or purulent Matter, in the Cavity of the Breast, discharged thither upon the Bursting of some Abscess or Ulcer, in the Lungs or Membranes that inclose the Breast.

The *Empyema* sometimes succeeds a Quinsey, sometimes a Peripneumony, but more usually a Pleurisy; as being ordinarily the Effect of a Peripneumonick or Pleuritick Abscess. It usually comes 15 or 20 Days after those Diseases.

Causes of the Empyema.—Sometimes also the *Empyema* is generated of extravasated Blood, issued out of a bursten, broken, or putrified Vein.

Signs of the Empyema.—The *Empyema* is distinguished by a Difficulty of Breathing, a dry Cough, a Heaviness about the Diaphragm, a Noise, and fluctuating of the Matter upon moving; slow Fever, ruddy Cheeks, hollow Eyes, the Tips of the Fingers hot, and a Swelling of the Abdomen.

Prognostick.—The *Empyema*, let the Cause thereof be what it will, is always extremely dangerous; for tho' the Matter may be evacuated by Means of the Paracentesis, or Tapping, such another Depositum is soon made, if not always in the same Place, at least in some other Part of the Breast.

Cure of the Empyema.—The Difficulty of the Cure of this Disease proceeds from the Difficulty of absorbing, or evacuating such extravasated Matter: If Nature shews any Endeavour to throw it off by Vomiting or Urine, or the like, she must be seconded, and assisted therein. Thus, if the Urine be purulent, administer Diureticks. If the Stools, Laxatives. If the Spitting, Expectorants or even Emeticks; though I would not advise to attempt this last Remedy, but with the utmost Caution, lest the Patient should be suffocated in the Operation.

There is also a Kind of *Spurious* or *Bastard Empyema*, proceeding from a pituitous or serous Humour, brought by some Duct or Passage into the Thorax; where corrupting, it degenerates into a Matter like Pus. An *Empyema*, in Course of Time, breeds a Phthisis.

The *Asthma* is a Difficulty of Breathing, arising from a Disorder of the Lungs; and usually attended with violent Motions of the Diaphragm, abdominal, and intercostal Muscles, to the very Scapula, and the Pinnæ of the Nostrils; as also a Rattling in the Throat.

If Respiration be only thick and quick, without the other Symptoms, it is called a *Dypsnæa.* If it be so intense as to occasion a violent Motion of the Muscles of the Thorax, so that the Patient cannot be tolerably easy, except in an erect Posture, it is called *Orthopnæa.*

The *Asthma* is usually divided into *moist* and *dry*, or *manifest* and *occult*, or *pneumonick* and *convulsive.* The first attended with an Expectoration of purulent Matter: The latter without.

Causes of the true, or *pneumonick Asthma.*—The *true* or *pneumonick Asthma*, is occasioned by an Abundance of Serosities, or of gross, viscous or purulent Humous, collected in the Cavity of the Lungs, which stop up, or streighten the Passages of the Air, and compress the Bronchia. It may also be owing to Empyema's, Phthisis's, Polypus's, Crudities in the Stomach, Cachexies, *&c.*

Causes of the convulsive Asthma.—The *convulsive Asthma* is supposed to be occasioned by an irregular Motion of the animal Spirits; and happens when the Spirits do not flow fast enough, or in sufficient Quantity into the Muscles of the Breast, either by the Reason of an Obstruction, or some other Obstacle: The necessary Consequence whereof is a violent and painful Respiration. The *Asthma* again is either continual or periodical, and intermitting; which last returns where a sober Regimen is not observ'd.

Symptoms of the Asthma.—The greatest Symptoms of the *Asthma*, are an extreme Difficulty of Respiration, especially when the Patient is in Bed, and in a prone Posture; the Contents of the lower Belly in that Case, bearing against the Diaphragm, so as to lessen the Capacity of the Breast, and to leave the Lungs less Room to move. —— It is also always attended with a violent dry Cough.

Prognostick.—The *Asthma* of any Kind whatever, is consider'd as incurable; though it be a Disease of a long Duration; and which suffers the Patient to live several Years in Misery, wherefore *Seneca* calls it *Meditatio mortis.*

Cure of the true, or *pneumonick Asthma.*—What I call Cure, in this Place, are only the Means used to ease the Patient in the most violent Paroxisms of the Disease, and render them less frequent, which is done by Bleeding; after which Emeticks may be used; and if the Paroxism returns, Epispasticks, with Glysters instead of Purges. Infusions of *Fim. Equin.* or the Juice thereof, being detersive and attenuating, are reputed excellent. Linctus's also give some Relief; Millepedes, Spirit of Gum Armoniack, with Sal Armoniack, Coffee, Tincture of Sulphur, *&c.* are commended in *Asthmatick* Cases.

The *Cure of the convulsive Kind*, is attempted by Anti-epileptick, Anti-hysterick, Anti-spasmodick, Opiates, *&c.*

Phthisis, in its general Sense, denotes any Kind of Consumption of the Body, in what Part soever it be seated, or from what Cause soever it arise. Thus we have a nervous *Phthisis*, and renal *Phthisis*, dorsal *Phthisis*, pulmonary *Phthisis*, &c.

But *Phthisis*, in its proper Sense, is restrained to a Pulmonary Consumption, or a Consumption arising from an Ulcer, or other Disorder of the Lungs, accompanied with a slow hectick Fever, which wastes, extenuates, and consumes the muscular Flesh.

Causes of the Phthisis.—*Sydenham* observes, that the *hectical Phthisis* has its Origin in the Winter's Cold; from a sharp Humour trickling down upon the Lungs, where, like a Catarrhea, it irritates them so as to raise a Cough. Among the Causes of this Disease may be reckoned Intemperance, as it brings on a Plethora or Cacochymia, Peripneumonics, Asthma's, Pleurisies, *&c.*—*Morton* adds, that the *Phthisis* frequently arises from an ill Conformation of the Breast; which is either natural, as when the Breast is too narrow, the Neck too long, *&c.* or accidental, where there happens a Curvity or Distortion of the Breast.

Symptoms of a hectical Phthisis.—This Disease is attended with a Spitting, first of a viscid Pituita, then a heavy fetid Pus, then of pure Blood, and sometimes of the very Substance of the Lungs rotted by Ulceration; with Night-

Night-Sweats, falling of the Hair, and a colliquative Flux, which is soon follow'd by Death. *Sydenham* says, that the *Phthisis* kills two Thirds of those who die of chronick Diseases. Among the Symptoms *Morton* reckons a Nausea, or Reaching, with a Heat in the Palms of the Hands, and Redness in the Cheeks, all after eating.

In the last Stage of the *Phthisis*, the Nose appears sharp, the Eyes hollow, the Temples fallen, the Ears cold and contracted, the Skin about the Forehead hard and dry, and the Complexion greenish, or livid, *&c.* which is called *facies Hyppocratica.*

Prognostick.—A confirmed *hectical Phthisis*, is almost always incurable, and consequently mortal, because then almost the whole Substance of the Lungs is supposed ulcerated, the which it is impossible to restore to its former laudable Consistence; whereby the Blood being deprived of that Refrigeratory becomes adust, and consequently very slow in its Circulation, whereby it is render'd uncapable, at last, of discharging its principal Functions, but that only by Degrees, and on Proportion as the Humours it is overloaded with, and which it can no longer rarify through a too great Scarcity of the vital Spirits, weaken the first Principle of Life it had been impregnated with at the very first Instant of its Formation; till they have entirely extinguished it.

Cure of an hectical Phthisis.—Though the Cure of this Disease be extremely difficult, especially here in *England*, where the Climate contributes much towards rendering it rebellious to the most efficacious Remedies, it is, notwithstanding every Way attempted. *Sydenham* adds, the Defluxion on the Lungs, in the first Stage to be abated by Blood-letting, *&c.* and pectoral to be used, accomodated to the various States of the Disease, *viz.* Incrassants, Attenuants, to asswage the Hectick, *&c.* with Emulsions, Asses-Milk, *&c.* and Balsamicks to cure the Ulcer.

But he is of Opinion, that the chief Assistance in this is from riding on Horseback, where the Patient need not confine himself to any Laws of Diet, *&c.* This alone, he adds, is almost as sure a Cure for a *Phthisis*, as the Cortex for an intermitting Fever. But I am of a different Sentiment, and believe, that any violent Exercise, such as Riding, whereby the whole Body is shaken, is contrary to the Cure of a Disease, proceeding from an inward Ulcer; for if it can be said, that such Exercise facilitates the Expectoration of the most tenacious Matter of the Ulcer, which obstructs the Bronchia of the Lungs, it may be said, likewise, that the Expectoration, excited by such Exercise, being most commonly attended with frequent and violent Efforts, may either cause a greater Inflammation of the Ulcers, or the breaking of some Vessels, which may be attended with very dangerous Symptoms: And to speak according to my certain Knowledge, I have known several Persons afflicted with *Phthisis*, who have followed Dr. *Sydenham*'s Advice in that Particular, but none of them cured thereby.

Dr. *Baynard* recommends Butter-Milk, as an admirable Succedonicum to Asses-Milk. *Sylvius* says, he knows of no Medicine, either internal or external, so good against fresh Ulcers of the Lungs, as Balsam of Sulphur, especially when prepared with Oil of Annifeed.

Etmuller observes, that the Cough of *phthisical* People is at first only stomachal; at length it becomes pulmonary. He adds, that Vomitories are good in a Beginning *Phthisis*, Purgations by all Means to be avoided; and commends the Use of Medicines made of Tobacco, not only as they promote Expectoration, but are vulnerary. But if *Etmuller* has found that those Remedies made of Tobacco were good for his northen Constitutions, I would not prescribe them in milder Climates; for the Tobacco, let it be ever so well disguised, contains always an acrimonious Salt, which by pricking the Membranes, excite a violent Cough, which is always a very dangerous Symptom in that Disease; unless the sharp Points of those Salts be blunted, and embarassed in a great Quantity of oleagineous Particles; as they are in the Composition of the tranquile Balsam, of the Abbot *Rousseau*, of which I have given the Description in my Treatise of *Pharmacy*.

It is a common Observation, that in those Countries where they burn Turf, People are rarely affected with the *Phthisis*; which *Willis* ascribes to the Sulphur abounding therein, and recommends Tincture of Sulphur as the best Remedy he knows of in any Cough without a Fever; adding, that a Suffumigation, or Smother of Sulphur and Arsenick, has frequently proved a Cure in the most desperate *Phthisis*.

Bonetus holds the *Phthisis* to be contagious; and that there are frequent Instances of it being communicated by Cloaths, Linnen, Beds, *&c.* I would not affirm, that it can be communicated by these Things, but I have seen it communicated by laying in the same Bed w th a *phthisical* Person; which may be very well accounted for, since all contagious Maladies are communicated by the Air being infected therewith; and have we not all the Reason imaginable to believe, that the Air which has run through infected Lungs is infect, and that those who breathe such Air, are, likewise, infected therewith? I would not even advise any Body to eat or drink after a Person affected with a consummate *Phthisis*.

Pitcairn recommends *Mercurius Dulcis*, in the Beginning of a *Phthisis*; and *Barbette* and *Colbatch* assert, that contrary to the Opinion of most Authors, they have frequently used Acids with Success in the *Phthisis*.

Boerhaave prescribes the following Remedies for an *hectick Phthisis*.

A *Conditum.*—Take three Ounces of Conserve of red Roses; two Drachms of Bol Armoniack reduced into an impalpable Powder; and as much Syrup of Myrtle, as is necessary to make a Conditum; of which the Patient shall take half a Drachm every two Hours.

A *Conserve.*—Take three Ounces of the Leaves of Plantain, while yet very tender, an Ounce and a half of Flowers of wild Poppies; and an Ounce of the Seed of Plantain, newly gather'd; mix all these Ingredients with a sufficient Quantity of Sugar, to make a Conserve, of which the Patient shall take half a Drachm every two Hours.

A *Decoction.*—Boil two Handfuls of Sorrel in a Pint of Whey, strain the Decoction, and give every Hour a Glass thereof to the Patient.

The Remedies I prescribe in those Cases, are, 1. A good Regimen, which consists in abstaining from all Sorts of Ragousts, Frigaseys, and all Kinds of Dishes, where too much Salt or Spices are introduced; of all Sorts of Pulses, or other windy Aliments; of all spirituous Liquors, unless it be those, which are truly cordial, as the Ratafia, Ros-Solis, *&c.* and even those must be used with a great deal of Moderation; abstaining above all Things from Beer, or any other such Liquor; and from any Meat which is not of a light Digestion, or that can promote a Loosenes; preferring roasted to boiled Meat, drinking always the oldest Wine, and the most cordial; eating Sweetmeats often, and other dry Aliments.

For common Drink I prescribe a Tizane, made of Jujubes, and Dates, of each four Ounces; a Handful of the smallest Maiden-Hairs; two Ounces of Liquorice scraped and stringed; and two golden Pippins, cut in Quarters; all these Ingredients to be boiled together, in three Quarts of River-Water, to the Consumption of a sixth Part; the Jujubes and Dates having been open'd before they are put to boil. Of this Tizane the Patient may drink as much as he pleases.—I prescribe, besides, fifty Drops of my Tincture, or even half a Spoonful in the Morning Fasting, and as much at Night in going to Bed; and with those two Remedies only, I promise a perfect Cure, even here in *England*, provided the Lungs be not entirely ulcerated; and have performed such a Cure here in *London*, after all other Remedies had been attempted in vain.

Pleurisy is a violent Pain in the Side, attended with an acute Fever, a Cough, and a Difficulty of Breathing.

Causes of the Pleurisy.—The *Pleurisy* arises from an Inflammation of some Part of the Pleura, to which is frequently joined that of the exterior and superficial Part of the Lungs. It usually arises upon cooling too hastily, after violent Heat; as by drinking cold Water, laying open to the Air, *&c.*

This Inflammation seizes any Part of the Teguments of the Thorax, *viz.* either the Pleura or Mediastinum; and therefore the pricking Pain may be felt in any Part of the Thorax: But the Place it most ordinarily infests is the Side; sometimes the Left, sometimes the Right, sometimes higher, sometimes lower.

This

This makes what we call the *Pleuritis vera*, or *true* or *internal Pleurisy*; in Opposition to the *notha*, or *spurious* or *external Pleurisy*, which is a Pain in the Side without any Fever, and frequently without any Cough; and is supposed to arise from a sharp Serosity, lodged in the Pleura, or higher among the internal Muscles.

Symptoms of a Pleurisy.—The *Symptoms* of a true Pleurisy, is a sharp and fixed Pain commonly in the Left-Side, attended with a violent Fever, and a great Difficulty of Breath; and also with a short dry Cough. A false Pleurisy is only attended, as already observed, with the same Pain, Difficulty of Breathing, and Cough, but without Fever.

Prognostick.—Both *Pleurisies*, either *true* or *spurious*, are very dangerous, and require a speedy Relief; and when after the necessary Remedies have been administered, the Symptoms increase instead of diminishing, or even remain the same, the Disease is mortal.

The *Pleurisy* sometimes succeeds another Fever, occasioned by a Precipitation of the febrile Matter upon the Pleura. When it rises to an Impostume it is called *Empyema*. When it happens in the Mediastinum, or Diaphragma, it is called *Paraphrenitis*.

Cure.—The great Remedy in the true Pleurisy is copious and repeated Bleeding. In Adults, *Sidenham* observes, is seldom cured with less than the Loss of forty Ounces of Blood. By omitting Phlebotomy the Patient is frequently suffocated.

Etmuller recommends Sudorificks in the *Pleurisy*; and observes, that much more Regard is to be had to the Sputum that attends the Cough than the Urine.

Baglivi notes, the *Pleurisies* are frequently occult; and gives this Method of discovering them. Make the Patient lie on his Right or Left Side, and bid them breathe strongly and cough: If he feels any Pain or Heaviness after it, he is certainly *pleuritick*. The same Author adds, that a hard Pulse is a certain Attendant of the *Pleurisy*.

Riverius gives us Instances of notable Cures performed herein by Cupping and Scarification.

Boerhaave prescribes the following Remedies to be applied inwardly for the *Pleurisy*.

Fomentation.—Take Mallows, Marsh-mallows, and Parietary, of each two Handfuls; red Poppies and Henbane, of each a Handful; Flowers of Elder, of Camomile, and of Melilot, of each three Ounces; boil all these Ingredients in new Milk, for a Fomentation.

Liniment to anoint the Sides.—Take four Drachms of Sugar of Saturn; six Drachms of Vinegar; and an Ounce of Oil of Roses extracted by Infusion; mixed together for a Liniment to anoint the Sides.

Internal Remedies.—A *Decoction.*—Take Leaves of Tussilage, and of Marsh-mallows, of each two Handfuls; Flowers of red Poppies, and of Althæa, of each a Handful and an half; Parsely-roots, Sarsaparilla, of each three Ounces; four Drachms of Linseed bruised; of Lattuce, and of Carduus Dominæ, of each an Ounce: Boil all the Ingredients together in a sufficient Quantity of Water, that there may be three Pints left, whereof the Patient shall drink two Ounces every Hour.

An *Emulsion.*—Take the four great cold Seeds, and the four small ones, of each three Drachms; two Ounces of Seed of white Poppy; mix them all together with Barley-Water, for an Emulsion, with fourteen Ounces thereof shall be mixed a Drachm and half of pure Nitre; and an Ounce of Syrup of Maiden-Hair: Of which Emulsion the Patient may drink a Glass every Quarter of an Hour.

For my Part I prescribe, after Bleeding has had the desired Effect, the following Sudorifick:—Take Waters of Walnuts, and of Carduus benedictus, of each half an Ounce; half an Ounce of Syrup of Diascordium; and twelve Grains of volatile Salt of Sal Armoniack, mixed together for a Dose.—And for common Drink a Decoction of an equal Quantity of dried Betony and the smallest Maiden-hair, half a Pint, warm, to a Dose, and sweetened with *Lisbon* Sugar.

For outward Application, a Plaister made of Flower of Rye, and Vervaine pounded, and incorporated together with Whites of Eggs.

PERIPNEUMONY, is an Inflammation of some Part of the Thorax, properly of the Lungs, attended with an acute Fever, and a Difficulty of Breathing.

The *Peripneumony* is distinguished into *vera*, or *true*; and *notha*, or *spurious*.

The *true Peripneumony*, is a real Inflammation of the Substance of the Lungs, attended with a symptomatical Fever and a Cough; by the former of which it is distinguished from an Asthma, and by the latter from a Pleurisy.

Causes of the true Peripneumony.—Its usual Causes are Want of Exercise, hard Study, Suppression of natural Evacuation, or moist Air, and the like.

Symptoms.—When the *Peripneumony* arises from a Phlegmon, the Patient spits pure Blood; when it is erysipelatous, the Sputum is yellow, and not much tinged with Red. In this last the Breast is not so much contracted, but the Fever more violent.

Prognostick.—The *Peripneumony* is more dangerous, though less painful than a Pleurisy, particularly in young People which are soon carried off: Its usual Way of going off is by Expectoration of well concocted, reddish, yellow, or white Matter. The flowing of the Menses, or any Hemorrhage, a Diarrhæa, Abscesses about the Ears or other Parts, are also good Prognosticks.

Cure.—The Medicines prescribed for the Cure of the *Peripneumony*, are mostly the same that obtain in asthmatick and pleuretick Cases.

Mr. *Boerhaave* prescribes the following Remedies.

Decoctions.—Take forty Ounces of a Decoction of Barley, two Drachms of Nitre, and four Ounces of Oximel; mix them together, of which the Patient shall drink two Ounces, warm, every Quarter of an Hour. Or take the Leaves of Parietary, Agrimony, Dent de Lion, of each a handful; the Seeds bruised of white Poppies, and of Fennel, of each an Ounce; Liquorice, an Ounce and a half; to make fifty Ounces of Decoction; which must be drank in the same Manner as that above prescribed.

Aliments.—Pulses, farinous Matters, Pease, and Summer Fruits, ripe.

My *Tincture* is an excellent Remedy for this Malady.

Spurious, or *Bastard* PERIPNEUMONY, is a Disease of the Lungs, arising from a heavy pituitous Matter generated throughout the whole Mass of the Blood, and discharged upon the Lungs.

Signs.—The *spurious Peripneumony*, is known by the Viscidity, Paleness, and Slowness of the Blood, Ropiness of the Saliva, Paleness, and Want of Scent of the Urine, Swellings and Obstructions in the minuter Vessels, short Breath, Oppression in the Thorax, *&c.*—Worn out, phlegmatick, cold, phthisical, catarrhous Constitutions, are most liable to it.

Symptoms.—It begins with a Feebleness, Indolence, Wearinesss, Difficulty of Breathing, Oppression of the Breast, Feverishness; and goes on, without any great Appearance of Danger, to Death itself; without any Prognostick thereof in the Urine, Pulse, *&c.*

Cure.—This Disease is cured by Blood-letting, Clysters, thin Diet, Diluters, Aftergents, and Aperients.

Dr. *Boerhaave* prescribes the following Remedies, for the *spurious Peripneumony*.

Glyster.—Take three Ounces of Honey; a Drachm of Nitre; a Yolk of an Egg, and eight Ounces of a Decoction of Barley, for a *Glyster*.

A *Decoction.*—Take two Ounces of the Roots of Fennel, four Ounces of Gramen; of Leaves of Parietary, and of Agrimony, of each a Handful and an half; an Ounce of the Seeds of white Poppies, bruised; and an Ounce and a half of Liquorice: Boil all these Ingredients together, in such a Quantity of Water, as there may be two Pints of the Decoction left; two Ounces hereof the Patient must drink every two Hours.

CONSUMPTION, *Tabes*, is a Disease, arising from a Defect of Nourishment; or a preternatural Decay of the Body, by a gradual Waste of muscular Flesh.

It is frequently attended with an hectick Fever; and is divided into several Kinds, according to the Variety of its Causes; as *universal*, or *scorbutick Consumption*, where it arises from a Cacochymia, or scorbutick Habit; and *pulmoniack Consumption*, or *Consumption of the Lungs*, where it arises from some Cause in the Lungs, properly called a *Phthisis*; and this last is very common here in *England*, and that which is known, among Foreigners, under

under the Name of the *English Consumption*, *la Consumption d'Angleterre*; of which I have spoke at large under the Title *Phthisis*.

A *Consumption* may be either *accidental*, *natural*, or *hereditary*.

Causes of an *accidental Consumption.*—*Accidental Consumptions* may arise, 1. From Ulcers, chalky Stones, or Polypus's in the Lungs, caused by something that obstructs the Circulation in the pulmonary Vessels, or renders the Blood viscid, as a Suppression of any natural Evacuation.—2. From Intemperance, occasioning either a Cacochymia, or Plethora.—3. From Peripneumonies, Pleurisies, Asthma's, Coughs, Catarrhs, Diarrhea's, Venereal Disorders, and Excess of Venery.—4. From Grief, hard Study, *&c.*

Causes of *natural Consumptions.*—Natural Consumptions may arise from the Thorax, or an evil Conformation of the Parts.

Causes of an *hereditary Consumption.*—An hereditary Consumption may be communicated from the Parents without any other visible Cause.

Symptoms.—A *Consumption* usually begins with flying Pains and Stitches; Pain at the Pit of the Stomach, or in the Diaphragm; frequent Spitting, Loss of Appetite, a quick Pulse, a Sweetness or Saltness in the Saliva, Heats and Flushings in the Face and Palms of the Hands after Meals, an hectick Fever towards the Evening, Heaviness, Faintness, Night-Sweats; and where the Lungs are first disordered, a Cough, Catarrh, or Asthma usually precede it.

When these Symptoms are violent it is confirmed; and then comes on an Expectoration of purulent or bloody Matter, and the Vomica pulmonum; at length the Feet swell, the Expectoration stops; a Diarrhœa comes on; then the Facies hippocratica, and Death.

Cure of an *universal*, or *muscular Consumption.*—The Cure of this dangerous Disease depends principally upon Removal into a proper Air; and as there is no such Air in *England*, it is not surprizing, that a confirmed *Consumption* is always incurable in this Kingdom: That Cure depends also upon a regular nourishing Diet: The Appetite is to be excited by proper Bitters, and other Stomachicks.

In a *pulmonary Consumption*, or *Phthisis*, balsamick Medicines, and vulnerary Medicines, such as my Tincture, which I warrant a Specifick in that Case, are usually added.

Most commonly, especially here in *England*, a great Quantity of oleaginous Medicines is used in these Cases, but I am of Dr. *Wainwright*'s Opinion, that the Particles of oily Medicines are too gross and viscid to enter the small Orifices of the Lacteals; and think that their Operation or Effect being confined to the first Passages, they are not only of no Service in the Cure, but are apt to pall the Appetite, occasion Obstructions in the Mouth of the Lacteals, and Diarrhœas; all which I know to be true by Experience.

A Cough, *tussis*, is a Disease affecting the Lungs, occasioned by a sharp serous Humour, vellicating the fibrous Coat thereof, and urging it to a Discharge by spitting, *&c.*

When the Humour is so subtile that the Lungs cannot lay hold of it to throw it off, or when the Humour is so thick that it will not give Way, it is said to be a *dry Cough*.

Prognostick.—*Dry Coughs* are the most dangerous.—*Hippocrates* says, that *Cough* ceases if the Testicles swell.

Cure.—A pectoral Syrup, and Decoctions, are Medicines for a Cough of any Kind whatever; and a few Drops of Laudanum may be administered with Safety, to appease the Violence of the Paroxisms, and prevent some dangerous Consequences it could be attended with; as the breaking of some Blood-Vessels, and the bursting of Abscesses, if there were any in the Capacity of the Thorax.

The Hickup, *singultus*, is a convulsive Motion of the Diaphragm, whereby that Muscle retiring impetuously downwards, impels the Parts beneath it.

Causes of the Hickup.—The *Hickup* is occasioned by sharp Humors, a too great Plenitude of the Stomach, a Bit of any Thing stopped at its upper Orifice; or, in general, by any Thing capable of irritating the Nerves of the Diaphragm.

Note, That the *Hickup* is a very dangerous Symptom, in a chronical Disease.

Cure of the *Hickup.*—The Remedy for the *Hickup*, according to *Hippocrates*, is to fetch the Breath very long; or even to stop the Breath for some Time. A Sneezing happening upon a *Hickup* generally cures it; the Diaphragm shook by the violent Expiration, being apt to throw off what before irritated it.

Besides the Maladies of the Lungs heretofore mentioned, there are also formed in that Part *Polypus*'s, and a *Vomica* which is a Collection of Pus, sometimes expelled in the Paroxism of a violent Cough. Dr. *Rob. Clarke*, in the *Philosophical Transactions*, gives us a very odd Instance of a Patient, who cough'd up, at Times, several hundred *Polypus's of the Lungs*. They seemed to have some Organization, and were all perfectly alike. The Patient said, though they had no Life, he had frequently pressed a slimy Matter out of the Body. Dr. *Lister* observes, that such *Polypus's* are formed in the remoter and deeper Branches of the Aspera arteria, whence they are very difficult to get up. The Patient above-mentioned never brought them up till after a continued coughing of half a Day and Night. He adds, that they are nothing but viscous Excretions of the small Glands, hard baked in those Glands whose Form they receive. The celebrated M. *Buissiere* observes, they are frequently mistaken for Pieces of the Blood Vessels, or Lungs.

As the chief Seat of the Blood is in the Thorax, where it receives its last Degree of Perfection in the Ventricles of the Heart; and the Blood is as it were the Focus of several very dangerous Maladies the human Body is afflicted with; or, to speak more properly and clearly, from the Disorders, Intemperies, or Corruption of the Mass of Blood, arise the greatest Part of the Maladies we are subject to, I'll treat in this Place of those different Maladies, beginning by *Fevers* of all Kinds.

A Fever, *febris*, is a Disease or rather Class of Diseases, proceeding from an excessive Effervescency of the Blood, occasioned by its being obstructed in its Circulation.

Sydenham defines a *Fever*, a strenuous Endeavour or Effort of Nature to throw off some morbifick Matter that greatly incommodes the Body.

Quincy defines it an augmented Velocity of the Blood; others a Fermentation of the Blood accompanied with a quick Pulse and excessive Heat.

But to explain my own Definition; I say, that *a Fever is an excessive Effervescency of the Blood, occasioned by its being obstructed in its Circulation*; the Truth thereof appears from the different periodical Changes, or Paroxisms, a *Fever* is attended with.

1. The first Indication we have of a Fever is from the Pulse being quicker than usual; which Quickness does not proceed, as some imagine, from the Blood being then accelerated, but rather from its being obstructed in its Circulation; which Obstruction hindering the usual Quantity of Blood from falling into the Ventricles of the Heart, and consequently their dilating themselves to their natural Extent to receive it, and contracting themselves as usual to expel it; render that Dilatation and Contraction more frequent; and therefore the Pulsation of the Arteries quicker, because as the Volume of the Blood which falls at once into the Heart, is not heavy enough to press on its Fibres, so as to occasion a Contraction sufficient to expel it into the Arteries, there happen then several Dilatations and Contractions for one, *i. e.* several Dilatations to receive that Quantity of Blood necessary to occasion an efficacious Contraction, and several needless Contractions, till that sufficient Quantity of Blood required for an efficacious one, be in the Heart; tho' at every Contraction, which I call inefficacious, there escapes always some Drops of Blood, but not enough to form that copious Ejaculation which fill the Vessels at once, and renders thereby the Interval between each of them almost imperceptible; since the Vessel is no sooner empty than it is filled again, which is not the Case in a Fever, where the Vessels being never full as they should be, every Ejaculation is perceptible.

The next Thing ſenſible in a Fever is a certain Chillneſs, becauſe as the natural Heat is communicated to the Extremities of the Body, by Means of the Circulation, that Circulation once obſtructed, that Heat diminiſhes every where, as being then deprived of the Supplies it received continually from its natural Source. Till the vital Spirits crowding to that Part where the Obſtruction happens, there enſues a Conflict between them and the morbiſick Matter, whence an exceſſive Effervescency, in the Maſs of the Blood, which cauſes that violent Heat, which ſucceeds to the Chillneſs; and which laſts, till the Blood has conquer'd the Obſtacle, forced its Way thro', and re aſſum'd its former Courſe; then the Paroxiſm diminiſhes. And this is my own Sentiment on Fevers in general.

Cauſes of Fevers.—The Cauſes of Fevers are innumerable; and the Diſeaſe even often ariſes in the ſoundeſt Bodies, where there was no previous morbiſick Apparatus; as Cacochymia, Plethora, *&c.* but merely from a Change of Air, Food, or other Alteration in the Non-Naturals. A Fever, *Boerhaave* obſerves, is an inſeperable Companion of an Inflammation.

Symptoms of Fevers.—The Symptoms are many; every Fever ariſing from any internal Cauſe, is attended with a quick Pulſe, and unuſual Heat, at different Times, and in different Degrees. Where theſe are intenſe, the Fever is acute; where remiſs, ſlow.

The Diſeaſe begins almoſt always with a Senſe of Chillneſs; and in its Progreſs is chiefly diſtinguiſhed by the Velocity of the Pulſe: So that a too quick Contraction of the Heart, as already obſerved, furniſhes the proper Idea of a Fever; and the Health of the Patient is the Scope Nature chiefly aims at in the Diſeaſe. Other attendant Symptoms are uſually a laborious and diſturbed Reſpiration, an uniform, high-colour'd Urine; a Parchednes and Dryneſs of the Tongue, Mouth, *&c.* a Clamminess of the Saliva; Thirſt; Wakefulneſs, and Nauſea againſt every Thing but thin diluting Liquors.

From theſe Symptoms Dr. *Morgan* lays it down as a Principle, that in every Fever there is a general Obſtruction, and Diminution of the glandular Secretions; that is, a great Part of the Lympha, or Serum of the Blood, which ought to be continually drained off by the Glands, is, during the Fever, ſo retained in, and cloſely united to the Maſs, that it circulates together with it in the Veins and Arteries. This he endeavours to prove to be the State and Condition of the Blood, in the Production of a Fever, by accounting for all the above-mention'd Phænomena from it, as the juſt and adequate Effects of ſuch a Cauſe.

Cure of the Fevers.—The general Indication in the Cure of Fevers, is to raiſe the Obſtructions which hinder the eaſy Circulation of the Blood, by evacuating the morbiſick Matter which cauſes thoſe Obſtructions; or at leaſt fixing it in ſuch a Manner, that circulating no longer with the Blood, it may be eaſier evacuated.

The Cure of Fevers, *Boerhaave* ſummarily comprehends in correcting the ſharp, irritating febrile Matter, diſſolving the Lentor, and mitigating the Symptoms. If Nature ſeems to carry the Fever too high, it muſt be moderated by Abſtinence, thin Diet, drinking of Water, bleeding, and cooling Clyſters. If ſhe bring it on too ſlowly, it muſt be excited by Cardiacks, Aromaticks, Volatiles, *&c.*—The Cauſe removed, the Symptoms ceaſe of Courſe; and if they can be bore without much Danger of Life, it were beſt not to enter into any particular Cure thereof: If they be unſeaſonable, or too ſevere, they are each to be abated with the proper Remedies.

Sydenham recommends an Emetick in the Beginning of a Fever; or if it have been then omitted in any other Stage thereof; eſpecially where there is a Propenſity to Vomiting: For Want of this, a Diarrhœa frequently ſucceeds, which is exceedingly dangerous. After this he uſes a Paregorick; and the following Days, if there be no Indication to repeat the Venæſection, nor any Diarrhœa, he preſcribes, every other Day an Enema, till the twelfth Day, when Matters coming to a Criſis, he has Recourſe to hotter Medicines, in order to promote and accelerate it. He adds, that if the Diſeaſe proceed well, and the Fermentation be laudable, there is no Occaſion for any Phyſick at all. About the fifteenth Day, if the Urine be found to ſeparate, and give a Sediment, and the Symptoms be abated, a Cathartick is uſually order'd, leſt the Sediment returning into the Blood again, occaſion a Relapſe.—Nothing cools the Patient, and abates the Fever, ſo much as a Cathartick after Venæſection.

The more acute the Fever, the thinner, according to *Etmuller*, muſt be the Diet. It is no Matter if the Patient ſhould faſt for ſeveral Days running; for never did feveriſh Perſons die of Hunger: Eating always exaſperates the Diſeaſe. Vomitories, he allows the principal Place in the Cure of all Fevers; but as a Patron of the hot Regimen, aſſigns Sudorificks the ſecond. Spirit of Sal Armoniack, or its Sal Volatile, he obſerves, is an univerſal Febrifuge, and rarely fails, which I know by Experience to be true, or even Sal Armoniack rectified. All Sugar Things are hurtful.

My Method of Proceeding in the Cure of Fevers, is to preſcribe, 1. A Diet, which I regulate according to the Violence of the Diſeaſe, never allowing my Patient the Uſe of ſolid Aliments; and when I judge proper he ſhould take any, they muſt be all liquid, and of an eaſy Digeſtion; ſuch as thin Broth, made of Chickens or Veal, if there be no Fear of a Diarrhœa; for otherwiſe the Body muſt always be kept open and cool; and the natural Evacuation promoted; ſince, moſt commonly, the morbiſick Matter take that Courſe, and the Patient is cured with little or no Phyſick. To ſucceed therein, I preſcribe, 2. A common Drink, made of common Barley, Liquorice, and the Roots of Gramen, of which he may drink as much as he pleaſes; and by Intervals a Glaſs of a Liquor made of Water and Jelly of Currants beaten together. 3. At Night I order him Water-Gruel, made very thin, and very well boiled, which helps towards compoſing the Patient. Thus far for the Regimen.—As for the Medicines, if there be Repletion, and Nature declares itſelf that Way, by Nauſea's, *&c.* I preſcribe a gentle Vomitive, to fruſtrate thereby the Fever from further Food; and next the Venæſection, to help the Blood towards unburthening itſelf of the morbiſick Matter; and two or three Days afterwards, if I perceive a conſiderable Abatement in the Symptoms, I order a gentle Cathartick: But if the Symptoms continue, I have Recourſe to Sudorificks, and Narcoticks, to appeaſe the too violent Agitation of the Spirits; and to evacuate, at the ſame Time, Part of the morbiſick Matter by Sweat.

Hippocrates, in all Fevers, preſcribes Wine, neither do I entirely interdict the Uſe thereof, but it muſt be well temperated with Water. Dr. *Hancock* preſcribes Water.

Prognoſtick.—So long as the Urine remains crude, that it does not give a Sediment, the Patient's Caſe is dubious: But when once the Coction commences, and the Urine ſeparates, the great Danger is over. Among the Signs of Death, ſome Authors are of Opinion, that there is none more certain than a frequent blowing of the Noſe without any Diſcharge of Matter. A ſtrong, equal Pulſe, with Deliria, Tremors, Twitches of the Tendons, and other Symptoms, fatal in the Diſeaſes of the nervous Kind, always preſage well in Fevers. On the contrary, a quick, weak, faltering Pulſe, however favourable the other Symptoms may ſeem, infallibly proclaim Death at the Door, ſays Dr. *Morton*.

Note, That it appears by Obſervation, that a frequent letting of Blood, renders Perſons more inclinable to Fevers.

Diviſion of Fevers.—Fevers are of various Kinds, nominated and diſtinguiſhed from the particular Cauſes that produce them; the Time they continue, their Acceſſes, and Returns; and their different Smptoms. The moſt general, and genuine Diviſion of Fevers, is into eſſential and ſymptomatick.

Eſſential Fever, is that whoſe primary Cauſe is in the Blood itſelf; and which does not ariſe as an Effect, or Symptom, from any other Diſeaſe in the Solids, or other Parts. This is what we abſolutely and properly call a Fever.

Symptomatick Fever, is that which ariſes as an Accident or Symptom of ſome other antecedent Diſorder, as an Inflammation, Phlegmon, Erysipela's, Impoſthume, Small-

Small-Pox, Pleurisy, &c. Whence it is particularly denominated *inflammatory*, *erysipelatous*, *purulent*, *variolous* or *pleuritick Fever*.

Essential Fevers, are generally distinguished into *continued* and *intermitting*:—Others chuse to divide them into *diary*, *intermitting*, *continent*, and *continued*.

Continual Fever, is that which gives the Patient no Respite or Intermission; but sticks to him from its first Seizure to its final Period. This is sub-divided into *putrid* and *not putrid*.

Continual Fever, *not putrid*, is that wherein the Parts of the Blood are not so dissolved and broke, as to give Occasion for the principal Parts thereof to be secreted, or that wherein there is not any Discharge of putrid, purulent Matter into the Blood. Of this there are two Kinds, the *diary* and *synochus*; to which some add the *hectic*.

Diary Fever, is that which does not ordinarily hold beyond twenty-four Hours. It is the gentlest of all *Fevers*; is frequently got by too much Exercise, or other external Accidents. It is cured by Rest alone, and keeping a-bed:—If it remains for several Days, it is either called a continual *Ephemera*, or a simple *Synochus*.

Hectick Fever, is a slow durable *Fever*, which extenuates and emaciates the Body by insensible Degrees.

It has three Stages:—The first, while it consumes the Juices of the Body:—The second, when it exhausts the fleshy Substance of its Humidity: And the third, when it lays hold of, and destroys the Solids themselves; in which last Stage it is reputed incurable. Its Effect is somewhat like that of a Flame; first consuming the Oil of the Lamp; then the Moisture of the Wick, and lastly the Wick itself. But this *Fever* is frequently considered as of the *symptomatick* or *secondary* Kind, arising in Phthises, Peripneumonies, &c.

Continual putrid Fever, is that wherein the Texture of the Blood is rendered so lax, or even dissolved, that its Parts or Principles separating, some of the principal are secreted, and lost.

Putrid Fevers, are frequently considered as *secundary* ones, arising from the Discharge of putrid, purulent Matter from some morbid Part, as an Ulcer in the Lungs, &c. They are divided into *simple*, and *compound*, or *remitting*.

Simple continual putrid Fever, or a *continent Fever*, properly so called, by the *Greeks* Συνοχος, is that which continues uniformly from first to last, without any Fits, or Periods of Exasperation and Remission of Heat, and the other Symptoms.

Willis divides the *putrid Fever* into four Stadia or Stages. The Beginning, which is attended with a Chilness, Shivering, Weariness, Thirst, Wakefulness, Pain in the Head and Loins, Nausea and Vomiting. The Increase, wherein the former Symptoms are heightened, with the Addition of Deliria, convulsive Motions, Foulness of the Mouth, high turbid Urine, without any laudable Sediment or Hypostasis. The State, which contains the Crisis, which in this Disease is much what the Paroxism is in *Intermitters*: For as that returns at certain Hours, so do the critical Motions in continued Fevers happen on the fourth, fifth, sixth, and seventh Day. The last Stage is the Declension, which ends either in Recovery or Death.

These *Fevers* are subdivided into *burning* and *slow*.

Ardent, or *burning Fevers*, is a very acute *Fever*, attended with a vehement Heat, intolerable Thirst, a dry Cough, Delirium, and other violent Symptoms.

Prognostick. It frequently kills on the third or fourth Day, rarely exceeds the seventh. It often goes off in an Hemorrhage, on the third or fourth Day; which, if it proves too sparing is mortal. Sometimes it goes off by Stools, Vomiting, &c. and sometimes ends in a Peripneumony.

To the Class of *burning Fevers* are reducible, the *Liperia*, *Assodes*, *Elodes*, &c.

The *Liperia* is a burning Fever wherein the Heat is very intense within-side, and at the same Time the external Parts cold.

The *Assodes* is a burning Fever, attended with great Inquietudes, Nauseas, Vomiting, &c.

The *Helodes*, is a Fever wherein the Patient sweats continually.

The *syncopal Fever*, is that attended with frequent Swoonings.

The *Epialos*, is that wherein both Heat and Cold are felt in the same Part at the same Time.

Slow Fevers, are gentle, but durable ones, which consume the Patient by Degrees. They usually arise from Disorders in the Lympha or Pituita; whence *Sylvius* calls them *lymphatick Fevers*.

The principal of these are the Catarrhal, attended with a Catarrh, Cough, Hoarseness, &c. And the *scorbutick Fevers*, into which acute Fevers, and sometimes *Intermitters* degenerate. To this Class are also reducible,

Colliquative Fevers, wherein the whole Body is consumed and emaciated in no long Time; the solid Parts, with the Fat, &c. melted down, and carried off by a Diarrhæa, Sweat, Urine, &c.

Remitting Fever, called also a *continual Fever*, and a *compound continual Fever*, is that which continues some Time without any gradual Increase of Heat; yet is liable to alternate Fits of Remission and Aggravation; either stated and periodical, or irregular.

Of this there are divers Kinds, denominated from the Periods of returning; as the *remitting*, *continual Quotidian*, *continual Tertian*, *continual Quartan*, &c. which are only a continued *Fever*, whose Accesses or severer Fits return every Day, or every other Day, or every third Day, or every fourth Day.

Some enumerate divers other more complicated continual *Fevers*, as the *double* or *triple Quotidian*, which has two or three Paroxisms every Day: *Double* or *triple Tertian*, or *Quartan*, which has two or three every third or fourth Day: The *Semi-tertian*, which consists of a continual and two intermitting *Fevers* of different Kinds, *viz.* a *Quotidian* and *Tertian*. The Patient, besides a continual Fever, having an extraordinary Fit every Day, and every other Day two.

Others divide the *remitting*, or *compound continual Fever*, into *simple* and *spurious*.

The *simple Remitter*, returns regularly, and is only distinguished from an *Intermitter*, in that the feverish Heat in the Intervals of this latter is never quite extinguished; and that the Paroxisms do not begin with so much Chilness and Horror, and goes off in profuse Sweats.

The *spurious Remitter*, is attended with grievous Symptoms in the nervous Kind, resembling those of the Rheumatism, Colick, Pleurisy, and other inflammatory, and spasmodick Diseases; besides immoderate Excretions, Vomitings, Diarrhæa's, &c. whence its Returns are uncertain and variable.

The *simple* rarely, if ever kills: The *spurious* frequently. Sometimes it degenerates into a malignant Συνοχος.

Cure of these Fevers. The first is cured with the *Quinquina*, or Cortex Peru, almost as infallibly as an Intermitter; the febrile Ferment being much the same in both: And the same Remedy is found almost a sure, though not so speedy a Remedy of the spurious, if properly applied.

Intermitting Fever, is that which ceases and returns again alternately, at stated Periods, called also an *Ague*.

In this Kind, Cold and Heat, Shivering and Sweat, succeed each other.

Symptoms of an intermitting Fever. The Paroxisms are attended with Sickness, Nausea's, Vomitings, Headach, Pain in the Back and Loins, &c. The Paroxisms are acute, but the Disease usually more or less chronical.

Prognostick. No body was ever killed of an intermitting Fever, except in the first Stage of the Paroxism, during the Shivering, caused by the Oppression of the Spirits. When the Disease becomes of a very old Standing, it sometimes degenerates into other fatal ones.

Cure of the Intermitting Fever. As to the Cure, it is found by abundant Observations, that neither Bleeding nor Emeticks, nor Catharticks, nor any other Remedy administered during the Fit, avail any Thing. A just Dose of Vinum Benedictum, three Hours before the Paroxism, *Morton* assures us, has often cured it: Antimonium Diaphoreticum, a little before the Paroxism, has the like Effect: And Salt of Wormwood, is commended on the same Occasion. *Doleus* mentions Lapis Lazuli, taken in Spirit of Wine before the Fit, as admirable.

And

And several Bitters, as Carduus Benedictus, Gentian Root, Camomile Flowers, Pulvis Febrifugus, &c. were much valued before the Invention of the Cortex Peruv. but that Bark has almost thrown them all out of Use; being by the general Consent of Physicians allowed a Specifick for intermitting Fevers, in all Seasons, Ages, and Constitutions.

Intermitting Fevers are of divers Kinds, as the

Quotidian Fever, where the Paroxism returns every Day. *Double Quotidian*, which returns twice in twenty-four Hours.

Tertian Fever, which only returns every other Day; which again is either *legitimate* or *spurious*. The *legitimate Tertian* only holds twelve Hours, and is followed by an absolute Intermission. The *spurious Tertian* exceeds twelve Hours, and sometimes holds eighteen or twenty.

Double Tertian, is that which returns twice every other Day. The Name *double Tertian* is also used where the Fever returns every Day, like a Quotidian, only at different Times of the Day; the third Fit answering to the Time of the first, the fourth to that of the second, &c.

Quartan Fever, is that which only returns every third Day, leaving two Days Intermission between every two Fits.

Double Quartan, is that which has two Fits every fourth Day. The same is also given to the Fever, which returns every two Days successively, only leaving one Day's Intermission.

Triple quartan Fever, is that which has three Fits every fourth Day; or that which returns every Day like a Quotidian, only at different Seasons of the Day; the fourth Fit answering to the Time of the first, the fifth to the second, &c.

Causes of Intermission. All these various Kinds of Intermissions, proceed from the greater or lesser Number of Obstructions the Blood meets with in its Course; and the more or less Time it takes in conquering them. The more distant the Obstruction is from the Heart, and the nearest the Extremities, the longer the shivering of the Paroxism, or rather the cold Fit of the Fever lasts; for as that great Interval takes in a large Quantity of Blood before it makes any Efforts to force its Way further; all the Parts without that Obstruction, being thereby deprived of a necessary Supply of the vital Spirits, in which consists the native Warmth, must be susceptible of a kind of deadly Chilness; but when that Interval is once so full as to be impossible for it to contain any more Blood, without either lacerating the Vessels, or a Rarefaction of the Matter which causes the Obstruction, then ensues a vehement Effervescency of the Blood, to conquer the Obstacle which obstructs its Passage, and which causes that excessive Heat, succeeding the cold Fit; and which lasts till the Obstacle be entirely conquered. The same Paroxism returns sooner or later, according as the viscous Matter which formed the first Obstruction, and which is carried along with the Blood, is in a greater or lesser Abundance, and more or less apt to form new Obstructions; for if it be in a great Quantity, by its circulating along with the Blood, it retards its March, and thereby find Means to gather itself again, and that very soon (since it meets with little or no Opposition from the Blood) and to form new Obstructions; but if on the contrary, the morbifick Matter be not in a great Quantity, the vehement Impetuosity wherewith the Blood flows in conquering the Obstruction, so well lacerates and shatters its Texture, that it is long before it can reunite again into a Mass to form a new Obstruction; hence a greater Interval between the Paroxisms.

If the Obstructions be formed near the Heart, as the Blood sally from it with much Impetuosity, being then impregnated with a great Abundance of vital Spirits (Part thereof are dissipated in a long Circulation) by its meeting with the Obstruction, there ensues an immediate Effervescency to conquer it, which lasts more or less, according as the Obstruction is stronger or weaker; and as that Effervescence happening then in a Blood full of Spirits, causes a violent Agitation among them, it is long before the Blood can recover its former Temperies, and may not have recovered it before it meets with new Obstructions which cause new Fermentations; hence a continual Fever.

Lastly, there are some extraordinary Species of Fevers, not reducible to any of the formention'd Classes, as malignant, eruptive, and pestilential Fevers.

Malignant Fevers, are those wherein the usual, regular Symptoms do not appear (Nature being oppressed with the Malignity of the febrile Matter) but other foreign Symptoms arise; as a Pain about the Stomach and Præcordia; a livid Complexion, with the Face much disfigured, &c. sometimes Efflorescences on the Skin, &c.

Some Authors, from microscopical Observations, affirm, that in all malignant Fevers the Blood is so corrupted, that Swarms of little Worms are generated therein, which occasion most of the Symptoms.

Cure of malignant Fevers.—In all malignant Fevers the Blood is too fluid. Blood-letting has here no Place; Vomitories do well at first, afterwards Sudorificks, and Alexipharmicks. Blisters are commended in the Process of the Disease.

Eruptive Fevers are those, which, beside the Symptoms common to other Fevers, have their Crisis attended with cutaneous Eruptions. Such are those of the Small Pox, Meazles, the Petechial, the Purple or Scarlet Fever, and the miliary Fever.

Symptoms.—The other Symptoms are a grievous Oppression of the Breast, laborious short Breath, obstinate Waking, Spasms, sore Throat, Cough, &c.

Prognostick.—All these Kinds of Fevers are very dangerous; and are always cured by Antidotes and Sudorificks.

Pestilential Fevers, are acute, contagious, and mortal Diseases.—Some will have the Fever to be the Disease, or Plague itself; others only account it a Symptom of the Plague.

Petechial Fever, is a malignant Fever, wherein, besides the other Symptoms on the fourth, or more frequently the seventh Day, Petechiæ, or red Spots, like Flea-bites, appear chiefly on the Breast, Shoulder, and Abdomen. The Spots, afterwards, turn paler, then yellow, and so disappear. When they grow livid, or black, they usually prove fatal. The petechial Fever is also called *Febris Lenticularis*, and *Pulicaris*.

The *Plague*, *Pestilence*, *Pestis*, is a very acute, malignant, and contagious Disease; usually proving mortal.

The Plague is commonly defined by a malignant Fever; but *Diemerbroeck* thinks the two ought to be distinguished; the Fever not being the Essence, but only a Symptom, or Effect of the Plague.

The Plague is reckon'd by Dr. *Lister*, and many others, as an exotick Disease, never bred or propagated in *England*, but always imported from abroad, and particularly from the *Levant*, the Coasts of *Asia the lesser*, *Egypt*, &c. where it is familiar. *Sydenham* observes, that it rarely infests *England* oftener than once in forty Years.

Causes of the Plague.—The Origin and Cause of the Plague has been a celebrated Subject of Controversy among Physicians. The Disorder is generally supposed to be communicated by the Air; but how, and in what Manner the Air becomes thus deadly, is the Question.—Some will have Insects the Cause of Plagues, as of Blights; which being brought in Swarms from other Parts, by the Winds are taken into the Lungs by Respiration, mixed with the Blood and Juices, and attack and corrode the Viscera.

Mr. *Boyle* attributes Plagues principally to the Effluvia, or Exhalations breathed into the Atmosphere from noxious Minerals.

To support this Sentiment, it is said, that the Air, in Effect, is depraved in far more Places than improved, by being impregnated by subterraneous Expirations. That among Minerals known to us, there are more noxious than wholesome; and the Power of the former to do Mischief, is more efficacious than of the latter to do good; as we guess by the small Benefit Men receive in Point of Health by the Effluvia of any Mineral or other known Fossil, in Comparison of the great and sudden Damage often done by the Expirations of Orpiment, Sandarach, and white Arsenick.

They say further, that amongst the various Sorts of Particles wherewith the Atmosphere is replete, some may be so small and solid, or so conveniently shaped, as to enter many of the numerous Orifices of the minute Glan-

Glandules of the Skin, or at other Pores thereof. That thus, though neither Paper, nor Bladder, be pervious to the elastick Parts of the Air; yet may either of them be easily penetrated by other Corpuscles of the Atmosphere; and that Mr. *Boyle* has prepared a dry Body, which being inclosed in either, would, without wetting or discolouring, or any Way sensibly altering them, pass in a Trice through the Pores thereof, in such Plenty, as to exert a manifest Operation on Bodies, placed at some Distance beyond them.

This they pretend is confirmed from the sudden Check almost every Summer given to the Plague at *Grand Cairo*: For since morbifick Causes operate more effectually than curative ones, it seems more than probable, that Exhalations ascending from under Ground, may produce pestilential Fevers, and the Plague itself; since the Corpuscles which impregnate the *Egyptian* Air upon the Swelling of the *Nile*, put a speedy Stop, not only to the Contagion, but to the Malignity of the Plague, assisted even by the Summer's Heat, which is there excessive.

It is possible there may be noxious Minerals in a Country, continue they, that are not often able to produce Pestilences; they may be in Strata, or Beds, so deep, that even a small Earthquake shall not affect them, tho' a more violent Shock may.

And hence they account for the Plague raging in some Part of *Africa*, once in thirty, or once in a hundred Years; since there may be periodical Paroxisms, or grand and vehement Commotions in the subterraneal Parts, though not yet observed in them.

They think, that it is probable that peculiar Kinds of venemous Exhalations, may sometimes be emitted, especially after Earthquakes, and thus occasion mortal Diseases in Animals of one Kind, and not of another; and in this, or that Place, and not elsewhere.

Fernelius gives us an Account of a Plague, or Murrain, in 1514, which invaded none but Cats.—*Dionysius Halicarnasseus* mentions a Plague, which attacked none but Maids: And that which raged in the Time of *Gentilis*, killed scarce any Women, and very few but lusty Men. *Boterus* mentions another Plague, which assaulted none but the younger Sort; and we have Instances of the same Kind of a later Standing. *Cardan* speaks of a Plague at *Basil*, with which the *Switzers*, and not the *French*, *Germans*, or *Italians* were infected. And *John Vienhovius* takes Notice of a cruel Plague at *Copenhagen*, which, though it raged among the *Danes*, spared the *Germans*, *Dutch*, and *English*, who went with all Freedom, and without the least Danger to the Houses of the Infected.

These different and extraordinary Phænomena of the Plague, would easily persuade me, that the Seed of that mortal Disease, is in the Blood infected therewith, as is that of the Scurvy, Small-Pox, and other epidemical Diseases, in other Climates. That the fermentative Power of that Seed or Focus, receiving a greater Increase at one Time than at another, either from an excessive concenter'd Heat, or from a too great Rarefaction of the Air, there arise hence a vehement Fermentation of the whole Mass of the Blood, as to render all the Humours it consists of so excessively adust; that instead of reviving, and feeding the Parts they pass through in the Circulation, which then is extremely slow, they on the contrary lacerate and destroy their minutest Vessels, whence ensues an Extravasation of that Matter, especially on the noble Parts, which being then entirely divested of Spirits, soon grows putrid, and thereby infects not only the Part it touches immediately, but likewise all the adjacent ones; whence those putrid Exhalations, which mixing with the Air the Patient breathes, infects, by Expiration, all the ambient Atmosphere, and render thereby the Disease contagious.

Symptoms of the Plague.—The Plague, according to *Sydenham*, usually begins with a Chillness and Shivering, like the Access of an intermitting Fever; then comes on a Nausea, with vehement Vomitings, an intense Pain about the Region of the Heart, as if pinched in a Press; and a burning Fever, which continually preys on the Patient, till either Death, or the Eruption of some Bubo, Parotis, or other Tumour, in the Inguina or Axillæ, or behind the Ears, relieve him, and discharge the Matter of the Disease. Sometimes, indeed, it attacks without any Fever; Purple Spots appearing all at once, the certain Signs of present Death: But this rarely happens, except at the Beginning of some terrible Plague. It has also been known to make its first Appearance in Tumours, without any Fever, or other violent Symptom.

Heaviness, Pain in the Stomach, Head and Back, Cardialgy, broken Sleep, Anxiety, Alteration in the Look, Difficulty of Breathing, Hiccough, Syncope, Delirium, convulsive Twitchings, Diarrhœa, Eyes sunk or inflamed, Tongue black and dry, vehement Drought, fœtid Breath, Carbuncles, livid Spots, purple, green, *&c.* are also Symptoms usually attending this Disease.

Prognosticks of the Plague.—A great deal of the Prognostick depends on the Circumstances of the Tumours, or Plague-Sores: As they appear, and increase, the Fever abates; and as they sink, or diminish, renews again. When they happen about the Time of the Crisis, and suppurate kindly, they are good Prognosticks of a happy Recovery.

In acute Diseases, says *Hippocrates*, Prognosticks are ever fallacious. However, in the terrible Plague at *Nimeguen*, *Diemerbroeck*, who attended the Sick thro' the whole Progress thereof, relates, that those taken ill about New and Full Moon, rarely escaped; that Faintings, Swoonings, and Palpitations of the Heart, were usually deadly Signs; an intermitting Pulse always mortal; Drowsiness, Sneezings, tremulous Motions, doating, sore Throat, *&c.* were ill Omens: Pleurisies, always mortal; Costiveness a good Sign; a Diarrhœa almost constantly fatal; bloody Stools, or Urines, always presaged ill.

Cure of the Plague.—As to the Cure, Physicians are much divided. It is generally attempted by Alexipharmicks and Cardiacks, with the Assistance either of Sudorificks, or Phlebotomy, or both. Many eminent Physicians, both antient and modern, highly commend Bloodletting; *Sydenham* particularly says, that if used copiously, and in Time, it never yet did harm, but that Sudorificks often prove pernicious: *Diemerbroeck*, on the contrary, with other very experienced Writers, protests against Phlebotomy as very dangerous, and often deadly: their chief Hope they built on Diaphoreticks and Sudorificks, as the only Means to evacuate the morbifick Matter. Emeticks and Purgatives are expressly forbid: And yet Dr. *Sayer* used the former with good Success in the Beginning of the Disease in the Plague at *London*, *Anno* 1640.

The Juice of Lemons is commended as of singular Efficacy in the Plague, and pestilential Fevers. *Piso* relates that it is the principal Remedy of the *Indians*, and protests he never knew any Thing come up to it. Dr. *Harris* observes, that the same is what the *Turks* have principally Recourse to. Camphire is also much extolled; this, *Etmuller* assures us, was the Basis of *Heinsius*'s antipestilential Oil, who had a Statue erected to him when dead, in the City of *Verona*, for the Service he had done hereby. It was prepared of equal Quantity of Camphire, Citron Bark, and Amber. Viperine Salt, and Rob of Elder-Berries, are also commended.

For Preservatives against the Plague, they are usually summed up in that popular Distich.

Hæc tria labificam tollunt adverbia Pestem,
Mox, longe, tarde, cede, recede, redi.

I propose my Tincture as an excellent Preservative against the Plague. Cauteries, and especially Issues, and Setons in the Inguina, are found of great Service in preserving from Infection. A Piece of Myrrh held in the Mouth in contagious Places, is also commended. But *Diemerbroeck* assures, that there is nothing better in this Intention than smoaking Tobacco; but he adds, that it was only so to such as had not made the Practice familiar to them. The other Preservatives used by that Author, were the *Rad. Heleni*, Cardamums, white Wine Vinegar, and Chearfulness; and when he found his Spirits low, as if the Diseases were taking Possession, a Cup of generous Wine, sometimes even to a Degree of Ebriety.

Scorbutus or *Scorbutum*, the *Scurvy*, is a Disease very frequent in the northern Countries; particularly in fenny, wet, humid Places, exposed to the North, *&c.*

Causes of the Scurvy.—*Charleton* observes, that it arises chiefly from sharp, saline Particles, taken in by Inspiration,

tion, from ſalt and corrupted Meats eaten, from bad Waters drank, from Naſtineſs, deep Chagrins, &c. which Sentiment is confirmed by a daily Experience, ſince Sailors, when at Sea, who breathe continually a ſalt Air, eat ſalt and corrupted Meats, drink bad Waters, and do not keep themſelves, then, extremely clean, are more ſubject to it than others.

Dr. *Quincy* will have the Scurvy to conſiſt in ſuch a Conſtitution, wherein the Blood is unequally fluid: And hence he obſerves, it is beſt remedied by Stimuli, Exerciſe, and ſuch Means as promote Sanguification.

Symptoms of the Scurvy.—The Scurvy is accompanied with a great Variety of Symptoms, attacking the ſeveral Parts of the Body all at once: Hence *Willis* ſays, it is not any particular Diſeaſe, but a Legion of Diſeaſes.—The moſt uſual Symptoms are Bleeding, Coughing, Vomiting, Difficulty of Breathing, Looſeneſs, a Relaxation of the Parts, Sweating, a fœtid Smell of the Gums, a falling of the Teeth, ſtinking Breath, reddiſh or yellow livid Spots, Pains of the Arms and Legs, Wearineſs, Faintings, Lazineſs, Head-ach, &c.

Some diſtinguiſh the Scurvy into hot and cold; but there is but little Foundation for ſuch a Diſtinction, as the Cauſe is the ſame in all.

M. *Poupart*, in the Memoirs of the *French* Academy, gives us a very accurate Hiſtory of a particular Kind of Scurvy, very frequent in *Paris*, in the Year 1699. The Symptoms and Conſequences of this new Scurvy, were very extraordinary; and ſoon determined M. *Poupart* to conclude it ſomewhat of that cruel Plague wherewith the *Athenians* were ſo long and ſo dreadfully haraſſed; yet was it a true Scurvy, and the Perſons attacked with it had all the uſual ſcorbutick Symptoms.

Prognoſtick of the Scurvy.—A confirmed Scurvy is always very dangerous; eſpecially when the Perſon afflicted therewith, indulges that Inaction, or Indolency inſeparable from it, and neglects keeping himſelf very clean.

Cure of the Scurvy.—The Cure is very difficult; and when the Diſeaſe is rooted next to impoſſible. It ſometimes goes off in a Flux by Stool, ſometimes by the Hemorrhoides, and ſometimes by Urine; but more often degenerates into a Dropſy, Atrophy, Apoplexy, Epilepſy, or Convulſions.

A very exact Diet is held of more Effect than the beſt Medicines; without this it becomes incurable. Bleeding does not avail; ſtrong Purgatives are hurtful: So is Sugar and all ſugar'd Things. *Mercurius Dulcis* uſed internally, ſo as not to ſalivate, but only raiſe a Sweating, is found excellent. *Dolæus* undertakes to cure any *Scorbutus* in twelve Days Time, by the Uſe of this alone; only the Patient to drink nothing at all Times but a proper Decoction, and to abſtain from Acids and Hog's Fleſh. *Charleton* recommends a continued Uſe of Milk, particularly Milk Emulſions of ſweet Almonds, Decoctions of China, Broths, and other Anti-Acids and Analepticks.—*Etmuller* makes the Baſis of the Cure of the *Scorbutus*, and hypochondriacal Diſeaſe, the ſame, *viz.* copious Vomiting; ſtrong Catharticks, he obſerves, are prejudicial; but gentle ones good; for the Body is to be ſtill kept open. He adds, that Vinegar is hurtful, and yet the acid Juices of Fruits and Vegetables wholeſome. Accordingly the Uſe of Lemon-Juice is much recommended by *Lifter*. Milk, and all milky Things, while the Stomach is yet able to digeſt, are excellent; ſo are Martials.—*Etmuller*, inſtead of Mercurials, recommends Antimonials.

Thus much in the general.—For the particular Symptoms, particular Medicines adapted thereto are to be uſed; only mixing Antiſcorbuticks with them all.

The chief ſimple Antiſcorbuticks are, Horſe-Raddiſh, Sorrel, Butter-Bur, Scorzonera, Sow-Thiſtle, Zedoary, Polypody, Elecampane, Guaiacum, Saſſafras, Muſtard-Seed, (which is the beſt of all) Naſturtium Aquaticum, Trifolium Paludoſum, Oranges, Lemons, Juniper-Berries, Cream of Tartar, Tartarum Vitriolatum, &c.

Boerhaave preſcribes the following Remedies for the Scurvy.

Vomitives.—Take Tartarum Vitriolatum, Cream of Tartar, and Sal Polychreſte, of each half a Drachm; mix them together for a Powder, which ſhall be taken in a Pint of Whey, in the Morning; the Patient drinking afterwards twelve Ounces of Whey.

Attenuant and *digeſtive Remedies.*—A Drachm of the Tincture of Salt of Tartar of *Van Helmont*, made with two Ounces of Wine.

A Drachm of the Tincture of Mars of Ludovicus, with an Ounce of Wine.

The Salts of the Vegetables of Tachenius, with three Ounces of Wine.

Two Drachms of Elixir Proprietatis with Vinegar, &c.

The *Evil*, or *King's-Evil*, is a Diſeaſe called in Medicine, *Strumæ* and *Scrophulæ*, conſiſting in ſcirrhous Tumours, ariſing moſt commonly about the Neck, but ſome alſo on the other glandulous Parts, as the Breaſt, Arm-pits, Groin, &c.

Cauſes of the King's-Evil.—The Cauſe of the King's Evil is a thick and viſcous Lympha, extravaſated in the Subſtance of the Glands, and renders them imbecil towards the Secretion of the Serum.

Cure of the King's Evil.—The Kings of *England* and *France* have of a long Time pretended to the Privilege of curing the King's Evil by *Touching*. The Right or Faculty, it is ſaid by ſome, was originally inherent in the Kings of *France*; and thoſe of *England* only claimed it, as an Appendage, or appurtenant to that Crown, to which they laid a Claim. But ſome *Engliſh* Writers ſet the Thing on a different Footing, and will have it to have been practiſed by their Kings, as early as *Edward the Confeſſor*; which Opinion the ingenious Mr. *Becket* has abundantly overthrown.

Raoul de Pruelles addreſſing his Tranſlation of St. *Auguſtin de civitate Dei*, to *Charles* V. of *France*, ſays expreſly, *Vos devanciers, & vous aves telle vertu & puiſſance que vous eſt donne & attribuee de Dieu, que vous faites miracles en votre vie, telles, ſi grandes, & ſi apertes que vous gariſſes d'une tres horrible maladie, que ſapelle les Eſcrouelles* (*i. e.* the King's Evil) *de la quelle nul autre prince terrien ne peut garir hors vous.*

Steven de Conti, a Religious of *Corbie*, who lived in the Year 1400, and wrote a Hiſtory of *France*, ſtill preſerved in MSS. in the Library of St. *Germain des Prez*, deſcribes the Practice of touching for the Evil. After the King had heard Maſs, a Veſſel of Water was brought him, and his Majeſty having put up his Prayers before the Altar, touched the diſeaſed Part with his Hand, and waſhed it with the Water.

Matthew Paris will have St. *Louis* the firſt who practiſed it: Others contend, that King *Robert* was the firſt who was gifted this Way. It is certain we find no Mention of any ſuch Prerogative before the Kings of the 11th Century, when that Prince reigned. F. *Daniel hiſt. de France, Tom.* I. *pag.* 1032.

Polydore Virgil ſtrains hard to prove the ſame Virtue in the Kings of *England*, but to little Purpoſe. *Favyn. hiſt. de Navarre* 1062.

The Continuer of *Monſtrelet* obſerves, that *Charles* VIII. touched ſeveral ſick Perſons at *Rome* and cured them, *dont ceux des italies*, ſays he, *voyant ce myſtere ne furent onques ſi Emerveillez.*

The ſame Virtue, we know not on what Grounds, is commonly attributed to a ſeventh Son, born without any Daughter between: As alſo to the Chiefs of certain particular Families, particularly the eldeſt Perſon of the Houſe of *Aumont* in *Burgundy*.

The King's Evil is a contagious Malady, and is propagated from Father to Son, and from Generation to Generation; therefore it is conſidered in *France* as a diriment Impediment to Matrimony; ſo that a Marriage contracted, where either of the contracting Parties is attacked with that Diſtemper, is declared null by the Laws of that Realm; but it is not minded in *England*, where I have ſeen People eaten with it, having communicated it to one another, and to their Children likewiſe. In *France* it is even a kind of Shame to bear the leaſt Mark of that Diſeaſe; but here thoſe afflicted with it ſpeak as freely of it as the *Portugueſe* do of their Iſſues.

The King's Evil is a Diſeaſe very rebellious to all Sorts of Remedies, eſpecially when rooted in, and it is but very ſeldom that Patients are thoroughly cured; though I have cured two Women in *London* who are yet living Witneſſes thereof, though one of them had a Complication of Diſeaſes.

Note,

Note, That from the Breast, or middle Venter, I'll descend to the Abdomen, or lower Belly, where I find first, the Hypochondriac which are subject to divers Disorders called *hypochondriack Affections*; otherwise the Spleen, Vapours, *&c.*

DISEASES OF THE ABDOMEN.

The *hypochondriac*, is a very comprehensive Disease, and is variously denominated according to the various Symptoms it is attended with, and the various Parts where it is supposed to be seated, or in which it arises.

When conceived as situate in the hypochondriack Regions, or arising from some Disorder of the Parts contained therein, *viz.* the Spleen, Liver, *&c.* it is properly called the *hypochondriacal Disease*, *Spleen*, &c.

When conceived as owing to some Disorder of the Womb, it is called *hysterick Affection.*

And lastly, when the flatulent Rumblings in the Intestines, Belchings, *&c.* are considered, it is called the Vapours.

Causes of the Hypochondriack.—The Seat of this Disease is commonly supposed to be in the animal Spirits, and the nervous System. Its Cause is referred to an acid Salt abounding in the Mass of Blood; *to which the* ill Disposition of the Stomach, and the other Parts contained in the Epigastrium, may greatly contribute. *Purcel* assigns Crudities and Indigestions as the prime Cause, and in that he is not at all mistaken. According to *Sydenham*, vehement Motions of the Body, or more usually violent Perturbations of the Mind, as Grief, Anger, Fear, *&c.* are its procatarctick Causes.

Symptoms of the Hypochondriack.—Its Symptoms are very numerous; the most usual are a Pain in the Stomach, Windiness, Vomitings, a Swelling or Distention of the *Hypochondriums*, or upper Part of the Belly, Noise and Rumblings in the lower Venter, wandering Pains, a Constriction of the Breast, Difficulty of Breathing, Palpitation of the Heart, Faintings, Vigiliæ, Inquietudes, Swimming of the Head, Fear, Suspicions, Melancholy, Deliriums, *&c.* Not that all these Accidents befall always every Person afflicted with this Disease; but sometimes some of them, and others at other Times, according to the Constitution, *&c.* of the Patient.

In effect, the Hypochondriacal is a very vague indeterminate Sort of Disorder. Dr. *Sydenham* observes, that its Symptoms ape or emulate those of most other Diseases; and that whatever Part it is in, it produces somewhat like the common Disease of that Part. Thus in the Head it produces a Sort of Apoplexy, Fits like to Epilepsy, called hysterick Fits, intolerable Head-ach, *&c.* In Persons affected with the *Cholorosis*, it produces a Palpitation of the Heart; sometimes, though rarely, it seizes the Lungs, and causes a continual dry Cough: It also imitates the Cholick and iliack Passion, and sometimes the Stone, Jaundice, *&c.* In the Intestines it produces a Diarrhœa; in the Stomach Nausea's. Sometimes it seizes the external Parts, and particularly the Back, which it renders chilly and painful; and the Legs and Thighs, which it swells so as to resemble the Dropsy: Seizing the Teeth it resembles the Scurvy (indeed *Etmuller* makes the Scurvy itself to be a great Degree of this Disease). Lastly, which is the most unhappy Circumstance of all, the Patient is more affected in Mind than in Body.

Prognostick.—The Hypochondriack is a very common and obstinate Disease; and as it proves rebellious to almost all Sorts of Remedies, it teazes both the Patient afflicted therewith, and the Physician who undertakes the Cure thereof; and though it proves very seldom mortal, it notwithstanding most commonly accompanies the Patient to the Grave. In some Parts of the Province of *Kent* in *England*, they are much afflicted with this Disease, the Cause thereof the old Women of those Parts attribute to Witchcraft.

Cure of the Hypochondriack.—My own Method in the Process of this Cure is, by attempting first to restore the Mind of my Patient to its pristine Sanity; in advising him to be chearful, and avoid all that could cause him the least Uneasiness, as Chagrin or Melancholy; for till this Symptom, which is the most dangerous of all, be quite cured, it is impossible to succeed in the Cure of the Disease; for if even the Patient was so well cured of all his other Disorders, that remaining he'll never be persuaded that he is cured. I prescribe also for that Purpose the Half-Bath, which I have found by Experience, to answer pretty well my Intention. My next Care is how to repair the Tone of the Stomach, and procure a good Digestion of the Aliments; which I attempt first by gentle Purgatives, to evacuate the morbifick Matter both by Stool and Urine; and forbid my Patient the Use of all Sorts of Aliments which are not of a very easy Digestion: I order him next Stomachicks, Restoratives and Cephalicks; and conclude by Remedies to purify the Mass of Blood; prescribing besides a moderate Exercise.

The Hysterick is, as already observed, a Species of the Hypochondriack, peculiar to Women, and supposed to arise from some Disorder of the Womb.

Causes of the Hysterick.—The ordinary Causes of this Disorder are violent Passions, Rage, Love, Grief, ill News, sweet Smell. As for popular Notion of malignant Vapours arising from the Womb, and occasioning all the Symptoms of the Hysterick, the Learned all discard it, and hold Men as subject to the Disease as Women. The real Cause is in the animal Spirits, and the nervous System; and the Affection does not differ from the Hypochondriack.

According to Dr. *Quincy*, hysterick Affections arise either from too titillating, or too uneasy Sensations: The former proceeds from that Irritation of the Nerves, which the Make and Secretion of those Parts have naturally subjected them to, and which in some Sorts of Constitutions, arise to that Degree, as to draw the whole System into Disorder, and occasion a surprizing Variety of Symptoms, *e. gr.* several Sorts of Convulsions, and Species of Madness; which therefore are by some termed *furores uterini.*

Symptoms of the Hysterick.—Some Women under this Disorder fancy a Rope tied about their Necks, ready to strangle them; and others, a Piece got into their Throat which they cannot swallow, but stops their Breath: Some will even remain a good while, as if really strangled, without any Sense or Motion.

The more common Symptoms or Accidents of this Disease, are a Swimming of the Head, Dazling of the Eyes, Inquietudes, Pains of the Abdomen, Belches, Nauseas, Vomitings, Deliriums, Convulsions. It is not always attended with all these Symptoms, but sometimes with more, and sometimes with less, and those more or less violent.

Dr. *Purcel* describes a hysterick Paroxism, as beginning with a Sense of Coldness creeping up the Back, and afterwards spreading over the whole Body: Then ensues a Head-ach, and sometimes a Palpitation of the Heart, with a Fainting from which the Patient soon recovers. Sometimes after the Coldness succeeds a remarkable Heat, which brings on the forementioned Symptoms. *Baglivi* adds, that hysterick Women feel a Sense of Cold in the Crown of the Head; and this he takes to be the chief Diagnostick of the Disease.

Prognostick.—This Malady proves very seldom mortal, but it is a very obstinate one, and rebellious to almost all Sorts of Remedies, especially as to a perfect Cure thereof. There is no Part in the World where Women are more subject to it than in *England.*

Cure of the Hysterick.—For the Cure as many of the Symptoms are convulsive Antispasmodics, are indicated. During the Paroxism fetid Things, whether internally or externally applied, are of Advantage, particularly Castoreum, the Smoak of burnt Horn, or burnt Feathers held to the Nose. Volatile Spirits also help to awake the Patient out of the Paroxism; as also Tickling in the Soles of the Feet. Where it is severer than ordinary, Recourse must be had to Puncture, Scarification, Vesicatories, Causticks, *&c.* The Reader will find several Remedies for the Hysterick in my Treatise of Pharmacy.

The *Clorosis* (which signifies *Greeness*, *verdure*, from the *Greek* χλοη, *Grass*) is a feminine Disease, vulgarly called the *Green-Sickness*, White Jaundice, *&c.*

Its usual Subjects are Girls, Maids, and Widows; and even Wives whose Husbands are deficient, *&c.*

Causes of the Chlorosis.—This Disease comes on commonly antecedent to, or about the Time of the Eruption of the Menses. Though the Stoppage of the Menses

is not always the Cause of this Distemper; for they sometimes flow regularly, though but seldom, in the Progress thereof. — According to *Etmuller*, the Suppression of the Menses are rather the Effect than the Cause. I rather attribute the Cause of this Disease to an effrenate Desire of the Act of Venery, which generate a Plenitude in the spermatick Vessels, which for Want of Evacuation, acquire a preternatural Quality, which sends putrid Vapours into the Mass of the Blood, which infects it, and renders it very slow in its Circulation.

Symptoms. — This Disease gives a pale, yellow, or greenish Tincture to the Complexion, with a Circle of Violet under the Eyes. — The Patient is melancholy, and uneasy; has frequently a low wandering Fever, with an unequal Pulse, Vomiting, Heaviness, Listlesness, Drowsiness, Difficulty of Breathing, longing for absurd Foods, *&c.*

Prognostick.—This Malady is much more troublesome than dangerous; and is so common, that it is not minded.

Cure of the Chlorosis. — The most specifick Remedy for this Disease is the Congress; though it is chiefly attempted by Bleeding in the Foot, Chalybeats, and Bitters. In the colder Constitutions, Decoctions of Guaiacum are found of Use.

The *Jaundice* (from the French *Jaunisse*, Yellowness, or *Jaune*, yellow) is a Disease consisting in a Suffusion of the Bile, and Rejection thereof to the Surface of the Body, whereby the whole exterior Habit is discolour'd.

Causes of the Jaundice. — There are three Kinds of *Jaundice.* The first, properly called the *Jaundice*, or *yellow Jaundice*, is owing to the yellow Bile, which, in this Case is too exalted, or too abundant in the Mass of the Blood; or perhaps to an Obstruction of the Glands of the Liver, which prevents the Gall being duly separated from the Blood; or to a Stoppage of the Porus Bilarius, or the like Means, whereby the Mixture of that Fluid with the Aliment in the Intestines is prevented.

The second, called the *black Jaundice*, is owing to the same Bile being mingled with Acids.

The third, bordering on green, takes its Rise also from a Mixture of Bile with an Acid.

Diagnostick. — In the yellow Jaundice, the Albuginea, or White of the Eye, and the Skin, are chiefly yellow; and besides troubled with an Itching. In the black Jaundice, the natural Colour is lost, by Reason of an atrabilary Humour, spread underneath the Skin: It first appears brownish, and afterwards of a Lead-Colour.

Prognostick.—The Jaundice often proves a Forerunner of the Dropsy.—The black Jaundice is incurable, especially in Men advanced in Years; who when afflicted with it, must prepare for the other World.

Cure.—The acid Spirit of Sal Armoniack, is said to be an excellent Remedy against the Jaundice. You'll find several Remedies for the same Disease in my Treatise of Pharmacy.

The *Dropsy* is a preternatural Collection of Serum, or Water, in some Part of the Body; or a too great Proportion thereof in the Blood.

The Dropsy acquires different Names from the different Parts it afflicts, or the different Parts the Waters are collected in.

That of the Abdomen, or lower Belly, called simply and absolutely Dropsy, is particularly denominated *Ascites.*—That of the whole Habit of the Body, *Anasarca*, or *Leucophlegmatica.* — That of the Head, *Hydrocephalus.* —That of the Scrotum, *Hydrocel.*

There is also a Species of this Disease supposed to be caused, instead of Water, by a Collection of Wind, called *Tympanites*; and by *Hippocrates*, dry Dropsy. — We also meet with Dropsies of the Breast, Pericardium, Uterus, Ovaries, *&c.*

Causes of Dropsy. — The Causes of Dropsy in general, is whatever may obstruct the serous Part of the Blood, so as to make it stagnate in the Vessels; or burst the Vessels themselves, so as to let the Blood out among the Membranes; or weaken and relax the Tone of the Vessels; or thin the Blood, and make it watery, or lessen Perspiration.

These Causes are various, *viz.* sometimes acute Diseases, scirrhous Tumours of any of the more noble Viscera, excessive Evacuations, particularly Hemorrhages, hard Drinking, *&c.*

Symptoms of the Dropsy.—The *Ascites* or Water-Dropsy of the Abdomen, is the most usual Case, and what we particularly call the Dropsy. Its Symptoms are Tumours, first of the Feet and Legs, and afterwards of the Abdomen, which keeps continually growing; and if the Belly be struck or shook, there is heard a Quashing of Water. Add to this three other Attendants, *viz.* a Dypsnæa, intense Thirst; and sparing Urine; with which may be number'd Heaviness, Listlesness, Costiveness, a light Fever, and an Emaciation of the Body.—*Baglivi* notes, that in a Dropsy arising from a morbid Liver, there is always a vehement dry Cough, which is never observed in the other Cases.

Prognostick. — The Dropsy is always a dangerous Disease, and though cured in Appearance, for some Time, returns again, and kills the Patient at last. *Tycho Brahe* notes, that hydropick Persons usually die about Full-Moon.

Cure of the Dropsy. — The curative Indications are two, *viz.* the Evacuation of the Water, and the Strengthening of the Blood and Viscera. The first is effected by strong Purgatives, particularly Elaterium, and the Infusion of Crocus Metallorum, though this last works upwards more than downwards. For such as are too weak to bear Purgatives, Dr. *Sydenham* recommends Dieureticks, whereof the best are those made of lixivial Salts.

For the second Intention, Exercise and Change of Air, Wine, and other generous Liquors, also Stomachicks, Chalybeats, and other corroborating Medicines are prescribed.

Where other Means fail for evacuating the Water, Recourse is had to the Paracentesis, or Operation of Tapping, described in my Treatise of Chirurgery, under the Letter C.

Mayern recommends *Mercurius Dulcis*, and Nitre, and Ants Eggs, for the promoting of Urine, and draining the Tumour. Exercise, and Change of Air, Wine, and other generous Liquors cautiously taken, have also their Use. *Wainwright* extols our Infusion of green Tea in Rhenish Wine; as also Briony Juice, as excellent in this Disease; some commend Garlick. — I know by Experience, that the Millepedes are also an excellent Remedy.

Boerhaave prescribes the following Remedies: Take the Root of Imperatory, *Aristolochiæ longæ, & rotundæ*, Zedoariæ, Sileri Montanæ, of each an Ounce; six Drachms of Ginger; two Ounces of the Summits of little Centaury; an Ounce of Rosmarin; Bays and Juniper Berries, of each an Ounce and a half; Thyme and Serpilium, of each an Ounce; the Seeds of Wormwood, and of Tanzy, of each an Ounce; pounded together to make a subtile Powder; then take six Ounces of that Powder, and four Pints of the best *French* Wine; to make of them a medicinal Wine; of which the Patient shall drink two Ounces four Times a Day, with the Precaution of having his Stomach empty before he takes it.

The *Anasarca* is a Sort of universal Dropsy, wherein the whole Substance of the Body is stuffed or bloated with pituitous Humours.

The *Anasarca* is the same with what is otherwise called *Leucophlegmatica.*

Causes of the Anasarca. — It may be either owing to some Disorder of the Blood, which in this Disease is of a pale Colour, viscid and cold, or to an aqueous Humour, extravasated, and gather'd together in the Muscles and the Pores of the Skin.

Symptoms.—In an *Anasarca* the Legs swell at the Beginning, especially towards Night, and then pit remarkably: The Urine is pale, the Appetite decays; at length the Swelling rises higher, and appears in the Thighs, Belly, Breast, and Arms. The Face becomes pale and cadaverous; the Flesh soft and lax; a Difficulty of Respiration comes on, attended with a slow Fever.

Prognostick. — This Disease is extremely dangerous, and always mortal in Persons advanced in Years.

Cure. — The Remedies used in the *Ascites* or Water-Dropsy, are used in this; but seldom with any Success.

The *Tympanick*, or *Tympany*, is a flatulent Tumour, or Swelling

Swelling of the Abdomen or Belly, very hard, equable, and permanent; whereby the Skin is ſtretched ſo tight, it gives a Sound like that of a Drum.

The *Tympanites* is a Species of Dropſy, by ſome called a *dry Dropſy*: But what the Cauſe and Seat of the Diſeaſe is, or what the morbifick Matter is that occaſions the Tumour, Phyſicians are not at all agreed.

Cauſes of the Tympanites.—Some are of Opinion that Wind certainly makes a principal Part of the morbid Matter; but this is ſcarce ever found without Water, excepting at the Beginning; ſo that ſome will not allow of any Difference between the Tympany and the Aſcites.

Some ſuppoſe it to ariſe from a watery Humour extravaſated and rarified into Vapour; and by a Property common to it with common Air, corrupting the Parts. But this *Boerhaave* makes a particular Kind of Tympanites, or windy Dropſy; and adds, that it is cured like the Aſcites, or watery Dropſy, by Tapping, *&c.*

Others will have the Tympanites to ariſe from the Air inſinuating itſelf through Perforations in the putrified Inteſtines. A Tympanite from this Cauſe, *Boerhaave*, who makes it a peculiar Claſs, obſerves, is almoſt always incurable.

Willis ſets aſide this latter Cauſe, and accounts for the Diſeaſe from an Irregularity in the animal Spirits belonging to the Viſcera, which ruſhing tumultuarily into the nervous Fibres, bloat them up: Thus is the Peritoneum inflated, the Inteſtines diſtended, and the Meſentery, and other Viſcera, rendered turgid; and while this is doing, that the Vacuities left in the tumified Viſcera may be filled up, a Quantity of the Humour contained in them is rarified into Vapour, which preſently ſpreads in Blaſts through the vacant Places. Others account for the Tympanites from a Convulſion of the Muſcles of the Abdomen, *&c.*

M. *Liſter* has propoſed a new Syſtem of the Tympanites, built on a great Number of Obſervations. According to him, it does not proceed from any Convulſion of the abdominal Muſcles, nor from any Air contained in the Cavity thereof, or in the Thorax, the Meſentery, or Epiploon; but from the Air incloſed in the Stomach and Inteſtines, which ſwells them exceſſively.

This Air, always carried into thoſe Parts with the Food, maintains a kind of Equilibrium therein, oppoſing on the one hand to the too great Preſſure on that long Canal when empty of Food; and finding on the other Side, in the Spring of the Coats of the Stomach and Inteſtines, an Obſtacle capable of preventing its too great Dilatation.

If this Equilibrium chances to be deſtroyed by the Irritation of the Fibres, whoſe Spring in that Caſe prevails over that of the Air, this latter is expelled, either upwards or downwards, or both; (whence Belching, *&c.*) but if the Equilibrium comes to be broke by the Force of the Air, rendered ſuperior to that of the Fibres, by thoſe latter being left deſtitute of Spirits, from the Blood being impoveriſhed by a long Sickneſs; in that Caſe the Air rarefying itſelf beyond Meaſure, ſwells the Cavities it is contained in.

If it be demanded why, when the Stomach and Inteſtines are ſo full of Wind, none of the Wind eſcapes, either through the Anus or by the Mouth, which uſed to be expelled by thoſe Paſſages?

M. *Mery* ſolves the Paradox thus: According to this Theory, the Fibres, both of the Stomach and Inteſtines, have loſt their Spring, at leaſt in Part, and are in an imperfect Palſy; but the Winds evacuated either by the Anus or Mouth, are Winds which thoſe Viſcera expell out of their Cavities, by putting them in a State of Contraction capable of ſurmounting the Forces which oppoſe the Egreſs of the Matters contained in thoſe Cavities. Theſe Forces are two Sphincters, one whereof ſhuts the upper Orifice of the Stomach, and the other the Anus; but paralytick Viſcera, *i. e.* Viſcera deſtitute of Spirits, in which alone conſiſts the Strength of the Muſcles, cannot overcome the Reſiſtance of thoſe two Muſcles: Whence the Wind therefore cannot eſcape through its uſual Outlets.

Symptoms.—The Symptoms of the Tympanites, are an exceſſive Tenſion of the Abdomen, an irregular and hard Pulſe, frequent Head-ach, *&c.*

Prognoſtick.—The Tympanites rarely kills of itſelf, but it almoſt always accompanies the Patient to the Grave, or degenerates into an Aſcites.

Cure.—Catharticks rather aggravates than alleviate this Diſeaſe: Antihyſtericks, Antiſcorbuticks, Chalibeats, and Strengthners are of Uſe, before it be commenced an Aſcites. Equal Quantities of Leek and Elder Leaves mixed analytically, is a famed empirical Medicine, which has often proved effectual, when every Thing elſe had failed.

It is uſual to apply Carminatives to the Belly, as the Emplaiſter of Cummin-Seeds, *&c.* and alſo to uſe Carminatives mixed with Catharticks, Diureticks, *&c.* internally: But if the Diſeaſe proceeds from a paralytick Cauſe, deſtroying the Tone of the Fibres of the firſt Paſſages, what is of Uſe in rectifying paralytick Diſorders, where the Tenſion of the Fibres is inſufficient, will doubtleſs, for the ſame Reaſon, be of Uſe here.

Cholera morbus, is a ſudden overflowing, or Eruption of the Bile, or bilious Matters, both upwards and downwards. It has its Name either from the great Quantity of Choler it evacuates, or becauſe the Matter is inceſſantly expelled at the Inteſtines, which they antiently called *Cholades.*

Cauſes.—It is ſuppoſed to have its Riſe from the great Abundance of bilious Humours; which being very acrimonious, vellicate the Membranes of the Stomach and Inteſtines; and by that Means occaſion unuſual and violent Contractions. Dr. *Sydenham* obſerves, it generally attacks about the latter End of Summer, and proceeds not unfrequently from Surfeits.

Prognoſtick.—The *Cholera morbus* is very dangerous: Whence the *French* antiently called it *Trouſſe-galant*, becauſe it carries off the Patient in a very ſhort Time.

Cure.—Dr. *Sydenham* ſays, that the Cure depends upon large Quantities of Chicken-Broth, drank ſo as to excite Vomiting plentifully; and that the Broth is alſo to be injected Clyſter-wiſe; though I ſhould be very loſt to have recourſe to ſuch a Remedy, which in my Opinion ſhould rather increaſe the Malady than cure it; but he adds, that the Cure is to be compleated by Laudanum given at proper Intervals, and in proper Doſes.

The Remedy in the *Indies* for the Cholera morbus, or Mandechin, is to keep the Patient from drinking, and to burn the Soals of his Feet.

My Method in the Cure of the Cholera morbus is to begin by preſcribing a Doſe of Ipecacuanha; and when that Remedy has done operating, to order ſome Spoonfuls of Mutton-Juice, in Balneo Mariæ, and adminiſtered to the Patient by Intervals; and at Night a few Drops of Laudanum; though my Tincture would produce a ſtill better Effect. I preſcribe likewiſe Clyſters made of a Sheep's-Head, Wool and all; to which I add a few Drops of Laudanum.

Dyſentery, is a bloody Diarrhæa, or a Flux of Blood by Stool; attended with Pain and Griping.

The Word *Dyſentery* is formed from the *Greek* δυς, *Difficulty*, and ἔντερον, *Inteſtine*; and properly ſignifies that Kind of Flux of the Belly, characteriſed by the Frequency of Stools, or Dejections, mixed with Blood, and accompanied with Gripes: The Fever, Ulcer, *&c.* which attend it, are not eſſential to the Diſeaſe; though many, both of the antient and modern, think the Ulcer is.

Etmuller makes three Kinds of Dyſenteries. 1. When a laudable Blood is evacuated, from a mere Plethora, or Plenitude, without any Diſorder of the Inteſtines; as in the hæmorrhoidal Flux.

2. When a thin watery Blood is evacuated, called the *hepatick Flux*, though really ariſing from the hæmorrhoidal Veſſels.

The third Kind, which is that we properly call Dyſentery, is, when Blood is caſt out, mixed with a purulent Matter in the Excrements. This is either benign, *i. e.* without a Fever, and not contagious; or malignant, which is attended with a peſtilential Fever, and frequently ravages whole Cities, and Provinces; happening moſt commonly in Armies. In the laſt Stage, a Sort of Carbuncles are frequently ejected along with the purulent Matter, which are difficult to be accounted for, unleſs from the Excoriation, and Ulceration of the Inteſtines. Sometimes the Inteſtines are even gangrened.

Causes of the Dysentery.—Physicians assign several Causes of the Dysentery, *viz.* the next, second, mediate, and remote Causes.

The next Cause of the Dysentery, is a serous, or other morbid Humour, mixed with the Mass of Blood; the Consequence of which is a too great Fermentation in the Blood, and a Dissolution of its Parts, which are thus render'd too liquid.

The second Cause is a Vellication, and Irritation of the nervous Fibres of the Intestines, occasioned by sharp, acid Humours, separated from the Blood; which occasion the spiral Fibres that produce the peristaltick Motion of the Guts to move too fast, and thus to expel the Matters too hastily out of the Intestines.

The mediate Cause is some foreign Body adhering strongly to the Intestines, and by its sharp Points, vellicating their nervous Fibres, and at length ulcerating them.

The remote Causes are any Thing that corrupt the Mass of the Blood, as viscid, and crude, sharp Juices; ill Foods; autumnal Fruits; Grapes; new Wine drunk in Excess; Poisons; violent Medicines; Waters conveyed through leaden Pipes; rainy Weather in the Spring, with a dry Winter, and a hot Summer.

Symptoms.—The Seat of the Disease is in the Intestines, either the big, or small, or both. When the Disease is in the small ones, the Gripes begin long before the Stools, and are felt about the Navel; and the Blood and Excrements are more blended, as being longer together. When the larger Intestines are seized, the Pain is less vehement, and is felt lower, *&c.*

The Dysentery, *Sydenham* observes, begins with a Chilness and Shivering; which is followed by a Heat; then Gripings of the Belly ensue, with mucous or sanious Stools, which, in Process of Time, are found intersperfed with Streaks of Blood, with vehement Pain.

The Stools are sometimes void of Blood, and yet if they be frequent and attended with Gripes, and a mucous Colluvies, the same Author says it is a proper Dysentery. Along with the Excrements, besides a whitish Mucosity, frequently comes Scrapings of the Guts, in Form of little Skins.

Prognostick.—The Dysentery is always a very dangerous Disease; but much more so, if pure Blood be evacuated, for then the Patient's Life is in great Danger; and likewise when the Dejections, or Stools, have a cadaverous Smell.

Cure.—The Ipecacuanha is excellent on this Occasion: Not so much as a Vomitory, Dr. *Freind* observes, as a Sudorifick; having this Faculty, beyond all other Emeticks, that it corrects the dysenterick Ferment, in Proportion as it evacuates it. In the *Philosophical Transactions* we have an express Discourse on the Subject; where it is asserted to be infallible in all Dysenteries and Loosenesses, how dangerous and inveterate soever; except in pulmonick and hydropick Patients, whose Fluxes are Indications of approaching Death.

Sydenham orders Phlebotomy; but *Willis* says, no Evacuation is good; and prescribes hot Cardiacks, as Spirit of Wine a little burnt, *&c.* Balsamick and Styptick Medicines are also to be used, according to the divers Causes and Symptoms of the Disease; therefore my Tincture is excellent in this Case, which I have experienced several Times.

Borri, in a Letter to *Bartholine*, affirms, there is no better Medicaments in Dysentery than Rose-Water, wherein Gold has been extinguished.

Dolæus relates, that he cured above a hundred Persons with Oil of sweet Almonds, mixed with Orange Juice.

Purgatives have rarely any good Effect in Dysenteries, as increasing the Fermentation of the Blood, and irritating the Fibres of the Intestines more and more. Nor are Emeticks much better; as tending to draw the peccant Humours into the Stomach, or at least into the higher Intestines, and cause more frequent Stools.

Diarrhæa, is a Looseness, or Flux of the Belly; or a profuse Evacuation of liquid Excrements by Stool.

The Word, in the general, is used for any Kind of Flux of the Belly; but properly for that wherein the Humour or Excrement flows out either pure, or mixed with, or without Pain, in a fluid State.

Diarrhæa's are of divers Kinds, according to the Diversity of the Excrements: Some being bilious; some pituitous, and some purulent.

Causes.—The purulent Diarrhæa always arise from some Abscess open'd in the Body; the rest, either from morbid Humours, irritating the Intestines, and expressing the Juices out of the adjacent Parts; or from a Laxness of the intestinal Fibres; or an extraordinary Fermentation in the Blood, whereby it discharges its Excrements into the Intestines.

There are also Diarrhæa's arising from unwholsome Foods, and Stoppage of the other Excretions, particularly Perspiration. It is a standing Observation, that such as perspire but little, are ever subject to a Diarrhæa; and, on the contrary, People who perspire much, are commonly bound.

Prognosticks.—Diarrhæa's, where the Stools are very frequent, and of an insupportable cadaverous Smell, are always dangerous.

Cure.—In the Cure of Diarrhæa's, from whatever Cause they arise, the Stomach must be corroborated, and Sudorificks to be mixed with Absorbents. The Patient to drink sparingly. Quince and Wine burnt with Aromaticks is good. *Wainwright* observes, that a Flannel Shirt contributes much to the Cure of an habitual Diarrhæa.

Stolterfoht, a Physician of *Lubeck*, relates, that a Mechanick of that City had a continual Diarrhæa from 30 to the Age of 63 Years, which always gave him five or six Stools a Day, yet he was in good Health all the while, having a good Appetite, and sufficient Strength and Vigour. But in his 65th Year, taking some astringent Medicines, he stopped his Flux; upon which he was immediately seized with a violent Pain in the Kidneys, Difficulty of Breathing, and Loss of Digestion; he gave up his Food as he took it, grew cold at the Extremes of the Body, swelled in the Thighs, had an insupportable Thirst, and more Appetite, and urined with much Difficulty a thin watery Humour, destitute of all Sulphur.

Lientery, is a Kind of Loosenesss, wherein the Food passes so suddenly through the Stomach and Guts, as to be thrown out by Stool, with little or no Alteration.

Causes.—The Lientery is generally owing to a Defect in the Ferment of the Stomach, or to a Relaxation of the Pylorus, attended with so brisk an Irritation of the Fibres of the Stomach, that instead of retaining the Aliment it lets it pass. Excess of Drinking sometimes occasions this Disease by relaxing the Stomach, and especially the Pylorus, too immoderately.

Symptoms.—Those afflicted with this Disease, have always a little Fever, with a sudden Chilness seizing them all over several Times in a Day. The Motion to go to Stool is so quick and so violent, that they cannot stop it for any Space of Time.

Prognostick.—This Malady is more troublesome than dangerous; though it most commonly accompanies the Patient to the Grave, for it is not only almost incurable, but it is even often very dangerous to cure it.

The Antients were of Opinion, the Lientery was owing to the too great Smoothness and Slipperiness of the Inside of the Intestines, by which they let the Food slip off before it was digested; and hence they give it this Name, which is formed from λεῖος, smooth, polished, and ἔντερον, Intestine.

Colick, is a severe gnawing Pain, felt in the lower Venter, so called because the ordinary Seat of the Disorder, was antiently supposed to be in the Intestine Colon.

We usually distinguish three Kinds of Colick, the bilious, windy, and nephretick.

Cause of the bilious Colick.—The bilious Colick has its Rise from certain sharp, bilious, stimulating Humours, which being diffused through the Intestines, vellicate their Fibres, and occasion a Sensation of Pain. Though *Willis* takes the Part here principally affected to be the Mesentery.

Symptoms.—Dr. *Sydenham* observes, that the bilious Colick usually attacks about the Beginning of Summer; that it is generally attended with a Vomiting of bilious green Liquor; that the Patient complains of excessive Heat, great Gripings, Faintness, *&c.*

Prognostick.—*Sydenham* is of Opinion, that if the bilious Colick be not soon remedied it is apt to turn into the

the iliack Passion. And *Baglivi* notes, that if the Patient sweats much, and be much enfeebled, the Disease is apt to degenerate into a Palsy.

Cure.—The Cure, *Baglivi* says, depends on Bleeding, gentle Catharticks, and Clysters: And if it arise from a Crapula, an Emetick is to precede; after which the Cure is to be compleated by proper Anodynes.

Wind-Colick, is Vagabond, never staying in any fixed Place, being produced by windy Vapours, which swell and distend the Intestines they are inclosed in.

The *nephretick Colick*, is that felt usually in the Reins whence it has its Name.

Cause of the Nephretick.—It has usually its Rise from some Stone or Gravel detached from the Kidneys, and fallen into the Pelvis.

Symptoms.—The *Nephretic* is always attended with violent Reachings and Vomitings, and an excessive Heat, in the Region of the Loins.

Prognostick.—The Nephretick is a very painful Disease, and is also very dangerous.

Cure.—S. *Manouchi*, a *Venetian* Physician at the Court of the Great Mogul, gives the following Remedy as infallible in nephretick Cases: An Iron Ring, about an Inch and a half in Diameter, and thick in Proportion, is to be heated red-hot; then laying the Patient on his Back, the red-hot Ring to be applied to his Navel, so as the Navel be in the Centre of the Ring; the Patient will presently feel the Pain, which will occasion him to shrink back very suddenly; the sudden Revulsion thus occasioned in the lower Venter will in a little Time dissipate all his Pain. The same Author adds, that he can warrant the Success of this Remedy; but I hope he will be so good as to excuse me if I don't believe him: For there are in my Treatise of Pharmacy a great Number of other Remedies for the Nephretick, which, though not quite so violent, produce notwithstanding very good Effects.

Cure for all Sorts of Colicks.—In Colicks arising from Flatulencies, carminative Waters, Oils, Aromaticks, *&c.* are always to be added to the Compositions:—And in nephretick Colicks, besides emollient Clysters, Solutions of Manna, Cremor Tartari, *&c.* in Whey, *&c.* and proper oleaginous Mixtures are to be exhibited to relax the Fibres; after which proper Anodynes take Place. In a Fit of the Nephretick, the first Remedy I prescribe to ease the Patient is, Oil of Sweet Almonds, Syrup of Marsh mallows, and Lemon, of each half an Ounce; and an Ounce of Water of Parietary, mixed together for a Dose.

Baglivi recommends Camomile as an Antidote against the Colick, from what Cause soever it arise. Where the Disease is obstinate, much Riding has been found of especial Service.

Some, particularly *Sydenham*, mention a nervous Colick, mostly incident to hysterick and hypochondriack Persons; but this appears only a Species of the windy Colick.

The *iliack Passion*, is a violent Kind of Colick; called also Volvulus, Miserere, and Cardapsus.

Causes of the iliack Passion.—The immediate Cause of the iliack Passion, is owing to an Irregularity or Inversion of the peristaltick Motion of the Guts, *viz.* when it begins with the lower, and is continued upwards; which irregular Motion is called Antiperistaltick; and is occasioned by the Hardness of the Excrements, which obstructs the Passage through Inflammation of the Intestines, and their Engagement in the Anus or Scrotum, as sometimes happens in Hernias.

Symptoms.—Persons afflicted with this Disease expel the feculent Matter by the Mouth, which Expulsion is accompanied with a Swelling and Tension of the Abdomen, an intense Pain, and a total Constipation. Persons afflicted with the iliack Passion have sometimes been found to return Suppositories and Clysters by the Mouth.

Prognostick.—The iliack Passion is a very dangerous Malady; which requires immediate Relief; otherwise it carries off the Patient in a very short Time; though I have seen Persons live several Weeks afflicted with this Malady.

Cure. Some have been cured of this Disease, by swallowing a great Quantity of Quicksilver, or a Musket Ball, or a Ball of Regule of Antimony; all which heavy Bodies can raise the Obstruction. The following Pill are a good Remedy for the iliack Passion:—Take eight Grains of Troches of Alhandal, three Grains of Diacrydium, and eight Grains of Sagapenum; mixed together in the Juice of Leeks, for a Dose of Pills; which may be repeated if the Disease continues.

The *Stone*, is a Disease, called also *Calculus*, and *Lithiasis*, and occasionally the *Gravel.* It consists of a stony Concretion, formed either in the Bladder or Kidneys; which prevents the Discharge of Urine, and occasions violent Pains.

The Stone, *Etmuller* says, is not a Disease, but the Product of a Disease; the Disease properly is the Lithiasis, or the Disposition of the Kidneys, or Bladder to generate Stones.

Causes.—The Stone is generated, according to some Authors, of the earthy viscid Part of the Blood, hardened in course of Time, by the Heat of the Kidneys, much after the same Manner as Brick is baked in a Kiln. Dr. *Quincy* supposes it generated of the harder Parts of the Urine, put up by the Straitness of the Ducts, and brought into Contact and Cohesion.

Etmuller ascribes the Stone sometimes to the stony and metallick Particles of our Food and Drink, which the Reins, through Weakness and Relaxation thereof, cannot eject; but more usually to the unequal Strength of the Kidneys: Whence it is that we see one Kidney breed Stones, the other remaining sound.

For my Part, I attribute the Generation of the Stone to a viscid or slimy Matter, separated from the Urine in the Pelvis; and which being too thick to be ushered through the Ureters along with the Urine, adheres to the Pelvis, where it is condensed by the excessive Heat of the Kidneys, increased by the Efforts it makes to unload itself of that foreign Body; and where it grows in Bulk by the new Accession of the like slimy Matter, the Quantity thereof augments in Proportion, as the Pelvis grows more imbecil in its natural Functions.

The Stone in the Bladder, is first formed in the Pelvis of the Kidneys; whence falling into the Bladder it becomes augmented by new Lamellæ, or Coats.

Symptoms of the Stone in the Kidneys.—The Symptoms of the Stone in the Kidneys, are, 1. A fixed obtuse Pain in the Region of the Loins, appearing like a Weight loading the Reins. As the Stone falls out of the Pelvis into the Ureter, the Pain is exceedingly acute and racking, which holds till either the Stone be got into the Bladder, or returned again into the Pelvis.—2. An Inflexibility of the Spina dorsi, from the Extension and Compression of the Nerves.—3. A Stupor of the Thigh and Leg of that Side, from the Consent of Parts.—4. A Retraction of the Testicle.—5. A very small Quantity of Urine, either thin and limpid, or bloody. But as soon as the Stone is got into the Bladder, the Urine becomes thick, turbid, blackish, and in great Quantity.

Symptoms of the Stone in the Bladder.—The Symptoms of the Stone in the Bladder, are a Sense of Heaviness in the Perinæum, and inguinal Region, a perpetual and troublesome Desire of making Water, which is followed with a sharp Pain, particularly in the Glands of the Penis, whence a Prolapsus of the Anus. But the surest Way of finding it is by the Touch, *viz.* by thrusting the Finger or a Catheter up the Anus.

Prognostick.—The Stone, both in the Kidneys and Bladder, but more particularly in the Kidneys, is a very cruel Malady; which, though it does not kill always the Patient, but keeps him languishing for several Years in the most excruciating Tortures, makes him notwithstanding wish often for Death, to finish his Miseries.

Cure of the Stone.—The Cure of the Stone, is either by some Medicines which will dissolve or break the concrete Stone; so that it may be evacuated by Piece-meal, which is called a Lithonthriptick, or by enlarging the Capacity of the Vessels, or by the Operation of cutting called *Lithotomy*; which Operation is described at large in my Treatise of Chirurgery, under the Letter C.

We have yet no assured Lithontripticks known, how many soever may pretend to it; though a poisonous Heap of Medicines have been bought lately at a very dear Rate, as a Specifick for the Stone, which have been found since by Experience to be of no other Effect than to cause great Disorders in the Stomach. I have found lately,

lately, in my chymical Experiments, an excellent Remedy for the Stone, which I have seen produce marvellous Effects, though I would not warrant it infallible, otherwise than it gives immediate Ease; and helps to expel a great Quantity of Sand and Gravel by Urine.

Deckers recommends calcined Egg-Shells as excellent in all Suppressions of Urine; though I believe nothing of it: *Hamilton*, Linseed Oil; and Mr. *Boyle*, the Herb Arsemart.

Stones are distinguished into three Kinds, white, red, and yellow, which last are the most usual.

Dr. *Lister* observes, that Stones are found, not only in the Bladder and Kidneys; but also in the pituitary Ducts, the Brain, Liver, Lungs, Stomach, Intestines, and Joints of the Hands and Feet; to which may be added, that in the *Philosophical Transactions*, we have also an Account of Stones in the pineal Gland, the Heart, Gall-Bladder, *&c.*

It is said, that in some desperate Cases, the Stone has been known to make itself a Way through the spinal Muscles, *Si credere fas est.*

Note, That the *Opiata Antinephretica*, described in my Treatise of Pharmacy, is a good Remedy for the Stone and Gravel.

I have also explained the Venereal Disease in my Treatise of Chirurgery; and the Method how to cure the different Stages thereof.

From the Maladies of the Abdomen or lower Venter, I'll pass to those which affect the Extremities of the Body.

Diseases of the Extremities.

The *Gout*, *Arthritis*, is a painful Disease, occasioned by a Flux of sharp Humours, upon the Joints of the Body.

Some Physicians define the Gout, an Inflammation, Swelling, and Painfulness of the Joints.

Causes of the Gout.—The Gout is supposed to arise from two Causes: A Redundancy of Humours, and a Weakness of the Joints. Its proper Seat is in the Limbs, not in the Trunk of the Body: In the latter Case it frequently proves mortal, not in the former.

Musgrave makes the Apoplexy a Gout, because arising from the Abundance of Pituita or Phlegm. According to this the redundant Pituita, throws itself on the Lungs, the Liver, or any other Part, it makes, according to him, an apoplectick Gout, a Gout of the Liver, of the Lungs, of the Spleen, *&c.*

The Gout may be consider'd as a painful, periodical, and critical Paroxysm, tending to free the Body of an offensive, or corrosive Matter, by throwing it upon the Extremities, breathing it out insensibly, or comminuting it so as to render it harmless, or capable of circulating freely along with the Juices, till by collecting again, gradually increasing, or separating from the Blood, it causes another Paroxysm.

According as different Parts are affected by this Distemper, it goes by different Names. When it seizes the Feet, it is called *Podagra*. When the Knees, *Gonagra*. When the Hands, *Chiragra*. And when the Hip-Joint, *Sciatica*, &c. Sometimes it attacks the whole Body at the same Time, and then it is called the general and universal Gout.

The Gout may be hereditary or natural to the Constitution, proceeding from a too great Constriction of the capillary Vessels, whence the gouty Humour is more easily lodged, and detained in them. It may also proceed from high Living, Crapula's, and eating such Things as are hard of Digestion; a sedentary Life, drinking too freely of tartarous Wines; irregular Living; Excess in Venery; an obstructed Perspiration.

Some are of Opinion, that the immediate Cause of the Gout, appears to be an alkaline or acrimonious Matter in the Blood; which being separated from it at particular Times, falls upon the Joints, but most frequently upon the Feet and Hands; which if it be repelled, or if the Blood be overcharged therewith, so that a Crisis cannot be procured in the Extremities (as generally happens in Old Age) it falls upon the nobler Parts.

My Sentiment is, that the immediate Cause of the Gout is a Kind of vitriolick Salt, usher'd into the Mass of the Blood, by a bad Coction of the Aliments; but which at first is in so small a Quantity in the whole Mass, that it produces none of those bad Effects which could be expected from it, as a Coagulum, *&c.* its being continually volatilized by the native Heat, and kept in a continual Motion by the Rapidity of the Circulation, till that native Heat being much abated, and the Circulation becoming much slower towards the Extremities; that Salt losing thereby its Motion, falls by its own Weight on those Parts, and corrode the tendereſt thereof, such as the Articulations; whence ensues, that excruciating Pain felt in the Paroxysm, and which continues, till Nature, in the Convulsions excited thereby, calls the animal Spirits to the Succours of the afflicted Part, which following the natural Impulse, crowd thither; and by the excessive Heat, they cause in the Part, by their continual Rotation, exalt once more those saline Particles, and expel the greatest Part thereof by Perspiration; but as those cannot force their Way through the Flesh, without causing some Disorders in the Mechanism of the Fibres, by their Acuteness and Sharpness, hence ensues the Swelling of the Part.

The Gout is either regular or irregular.—Regular, when it appears to be seated in the Extremities of the Body, returns at stated Periods, and with a gradual Increase, and Decline of the Symptoms. Irregular, when the Paroxysms are frequent, and uncertain; when the Symptoms vary, and happen promiscuously, and the Disease appears to be seated in the internal Parts of the Body; as the Stomach, Brain, *&c.* leaving the extreme Parts, as the Hands, Feet, *&c.* free from Pain.

Symptoms of the regular Gout.—The regular Gout, chiefly and immediately affects the Tendons, Nerves, Membranes, and Ligaments of the Body about the Joints. Sometimes a cold shivering Fit precedes, and generally a Fever accompanies its first Appearance, which soon goes off, and returns by Intervals. A slight Pain is felt in the Joints, where the Crisis is performed, which increases gradually; and in the Podagra, generally fixes first on the great Toe; then proceeding to the Tarsus and Metatarsus; sometimes, especially in old Age, it attacks the Knees and Hands; and wherever it is, by wounding and corroding the Part, causes a violent Pain, not unlike that of a dislocated Bone. When the Pain is at its State, *i. e.* while the native Heat is working to exalt and expel the saline Particles which cause it, there appears an Inflammation and Swelling; both which increase, as the Pain decreases; and upon their Remission, the Paroxysm is ended; though the Tenderness and Swelling, in severe Fits, will sometimes remain a longer Time, and cause an Uneasiness upon Motion.

Young Men, Women, and Children, are seldom troubled with the Gout, unless it be hereditary; and that it rarely attacks before the Patient is 35 or 40 Years old, and sometimes not till the Decline of Life; that the corpulent are more subject to it than those who are spare and lean: That the Pain increases towards Night, and decreases towards the Morning; that the longer the Intervals between the Paroxysms, the more severe they prove, and the longer they generally continue; because there is then a greater Quantity of the morbifick Matter gather'd in the Neighbourhood of the Part; which is much more difficult, and takes much more Time to be expelled.

The Disease usually returns twice a Year, *viz.* in the Spring and Autumn; and in the latter Paroxysm, is, sometimes, two or three Months before it comes to a Period: Though its Duration is sometimes not above three or four Weeks.

These are called Cardinal Paroxysms, to distinguish them from others of less Duration, which happen between the Spring and Autumn. The more high-colour'd the Urine, and the less Sediment it deposites, the further is the Disease from the State of Concoction, as it is term'd. According to the Violence and Continuance of the Fever, the Paroxysm proves more or less severe.

In Constitutions much broke or shatter'd with the Gout, there are usually stony or chalky Concretions formed in the Joints of the Fingers or Toes, and thence translated to the Viscera, which Case is often attended with

with irregular, frequent, and ſhort Paroxyſms in the Extremities. In the Decline of Life, when the uſual Fits do not happen; if the gouty Matter be ſuddenly repelled from the Extremities (to uſe the improper common Stile) by an improper Regimen or Medicines, it uſually ſeizes the internal Parts, and frequently the Stomach, Head, Inteſtines, &c. cauſing Want of Appetite, reaching to vomit, Indigeſtion, or Cachexia, the Jaundice, Aſthma, Diarrhæa; and at laſt ſo obſtructs the fine capillary, nervous Tubes (eſpecially thoſe of the Stomach and Brain) as poſſibly to hinder the Flux of the animal Spirits: Upon which Death ſuddenly enſues.

Sydenham gives us the Hiſtory of a regular Fit of the Gout in the Feet. It begins towards the Cloſe of *January*, or Beginning of *February*, without the leaſt previous Notice; except, perhaps, a Crudity or Apſy for ſome Weeks before-hand; with a Sort of Intumeſcence, and a Heavineſs of the Body, which continually increaſes, till at laſt a Paroxyſm breaks out; being preceded, ſome Days, with a Sort of Torpor, and a ſenſible Deſcent of the Flatulencies through the Fleſh of the Thighs, with ſome ſpaſmodick Symptoms. The Day before the Paroxyſm, the Patient's Appetite is very greedy; an Hour or two after Midnight he is waked by a Pain, commonly in his great Toe, ſometimes in the Heel, Ancle, or the Calf of the Leg, not unlike the Pain felt upon the Diſlocation of the ſaid Bones; with a Senſe as if Water was ſprinkled on the Part affected. This is ſucceeded by a Chilneſs, and ſome Approach to a Fever: The Pain, in the mean time, which at firſt was more remiſs, gradually increaſes; in Proportion to which the Chilneſs abates. By Night it is arrived at its Height, and ſettled about the Ligaments of the Bones of the Tarſus and Metatarſus; where it ſometimes reſembles a violent Tenſion; and ſometimes a Laceration of theſe Ligaments; ſometimes the biting or gnawing of a Dog, or a Squeezing or Coarctation. Thus far the Part affected has ſuch an exquiſite Senſe, that it cannot bear the Weight of the Linen, nor even the Shaking of the Room, occaſioned by a Perſon's Stepping. Hence a thouſand vain Endeavours to get Eaſe, by changing the Poſture of the Body, the Poſition of the Foot, &c. till about Two or Three o' Clock in the Morning (the Space of a Nychthemeron from its Acceſs) when a Remiſſion is firſt perceived; the morbid Matter being by this Time tolerably digeſted, or even diſſipated: The Patient thereupon drops aſleep, and at his waking finds his Pain much abated, but the Part newly ſwelled. A few Days hence the other Foot undergoes the ſame Fate: Sometimes both are attacked from the firſt. From the Time it has ſeized on both Legs, the Symptoms become more irregular and precarious, both as to the Time of Invaſion, and the Duration thereof. But thus ſtill holds, that the Pain recruits in the Night, and remits again in the Morning. A Series of theſe little, alternate Acceſſes, &c. conſtitutes a Fit, or Paroxyſm of the Gout, which holds longer or leſs, according to the Age, &c. of the Patient. In ſtrong People, and thoſe who have had it often, fourteen Days is a moderate Paroxyſm. In old People, and thoſe long uſed to it, it will hold two Months.

For the firſt fourteen Days, the Patient is uſually coſtive; a Loſs of Appetite, Chilneſs towards Evening, and a Heavineſs and Uneaſineſs of the Parts not affected, attend the whole Paroxyſm. As it goes off, he is ſeized with an intolerable Itching, eſpecially between the Fingers; the Furfur falls, and his Toes ſcale, as if he had drank Poiſon.

Such is the Courſe of a regular Gout; but when thro' improper Treatment, it is diſturbed or prolonged, it ſeizes the Hands, Wriſts, Elbows, Knees, and other Parts: Sometimes diſtorting the Fingers, and taking away their Uſe; ſometimes generating tophaceous Concretions, or Knots about the Ligaments of the Joints, reſembling Chalk, or Crab's Eyes; ſometimes riſing a whitiſh inflammable Tumour, almoſt as big as an Egg about the Elbows.

It may be added, that where a Perſon has laboured under the Gout for many Years; the Pain is ſenſibly leſſen'd each Paroxyſm, till at length it becomes rather an Uneaſineſs than a Pain: Hence that Reflection of *Sydenham*, *Dolor in hoc morbo amariſſimum eſt naturæ Pharmacum.*

Prognoſtick of the Gout.—The Gout is ranked among the Number of incurable Diſeaſes: In effect, we have no true and aſſured Remedy yet diſcovered for it; thoſe that now obtain are little more than Palliatives, they tend to aſſuage the Pain, to diminiſh it for a Time, but not to extirpate it; and I have ſeen my Tincture do that very effectually, and even expel it from the Stomach; without Fear of any dangerous Conſequences; for it not only opens the Pores to facilitate the Perſpiration of the vitriolick Salts, but likewiſe by its vulnerary Virtues, cures the Parts wounded.

Cure of the Gout.—Bleeding and Purging are found abſolutely prejudicial: Emeticks, according to *Pitcairn* and *Etmuller*, may do Good in the Beginning of the Diſeaſe. But upon the whole, nothing in *Sydenham*'s Opinion, proves of more Service than Digeſtives or Medicines which ſtrengthen the Stomach, and promote Digeſtion: As Angelica-Root, Enul. Campan. the Theriac. Andromach. the Jeſuit's Bark, and Antiſcorbuticks: Theſe chiefly to be adminiſtered in the Intervals between the Paroxiſms. *Muſgrave* however recommends internally Repellents, and principally Cardiacks, externally Emplaiſters Gum. carm. or oxycroc. or cephalic. with Burgundy Pitch; or green Sear-cloth, commonly called *Hat-caſe*, &c. Yet *Dolæus* affirms, that Repellents do more Harm than Good; and gives us the following *Recipe*, as more than equal to all others. ℞ *Confect. Hamech* ℥ j. *Pulv. Jalap* ℥ ß. *Extract. Trifol. Febrin.* ʒij. *Litharg. aur.* ℥ vj. *Sapæ antim.* ʒ ß. *Sacchar. Canth.* ℥ vj. *Ol. olicar. q. ſ. Ceræ & Picis parum. f. ſ. a.* An Emplaiſter to be laid on the Joint affected, till the Pain and the morbid Matter be driven away. You'll find ſeveral other very good Receipts for the Gout, in my Treatiſe of Pharmacy.

The different Symptoms of the Gout are ſo unaccountable, that it is almoſt impoſſible to account for it, though ſeveral very learned Phyſicians, both antient and modern, have attempted to do it, and all to very little Purpoſe. Was I to endeavour to do it according to my own Syſtem of the immediate Cauſe of that cruel Diſeaſe, I would ſay, as I have done already, that the Gout affects ſome Seaſons of the Year more than others, *viz.* the Spring and Autumn; becauſe, 1. The Fermentation of the Humours being greater at that Time than at another, and thereby the Circulation of the Blood accellerated, its flowing then with greater Impetuoſity thro' the Veſſel, it uſhers along with it all it meets with in its Paſſage, the lighter and more ſubtile Bodies accompanying it throughout its whole Circulation, and thoſe which are heavier, parting from it by their own Weight, in thoſe Parts where that Rapidity begins to ſlake, *v. gr.* towards the Extremities, ſuch as earthy, metallick, and mineral Particles; which being not quite deſtitute of Motion by that Separation, retain on the contrary ſtill enough of it to excoriate and wound the tendereſt of thoſe Parts, where they cauſe an exquiſite Pain; for though they may in all Appearance act in the ſame Manner on the adjacent ones, as thoſe Parts are much harder, we are not ſenſible of it, becauſe they make but very little Impreſſion on them; and if they did, the Pain would not be very near ſo exquiſite. Its affecting the great Toe firſt, when the Gout is in the Foot, is becauſe the Articulation of that Toe being much bigger than that of the reſt, it is conſequently more expoſed to the morbifick Matter, and takes in a greater Quantity thereof; whereas the other Toes eſcape, by means of the Interpoſition of Bones. The ſame Pain being felt in ſome of the neighbouring Parts, *viz.* the Tarſus and Metatarſus, does not evidence, that thoſe Parts are always affected with the ſame morbifick Matter, for they ſuffer ſometimes by Compaſſion. The Pain being felt ſuddenly in another Place, while it ceaſes in that which was attacked firſt, is not that the Pain is tranſplanted, or flies from one Place to the other; but becauſe the vitriolick Parts entangling themſelves at laſt in the ſulphurous Particles of the Blood, loſe thereby their Activity, which gives a Reſpite to the Part, till by the Aſſiſtance of a new Supply of Particles of the ſame Kind, they begin to act anew on the Part; but during that Reſpite, the ſame Pain may be felt in another Part, by that Part being affected in its Turn, by its Share of the ſame morbifick Matter; which morbifick Matter when it

ſur-

ſurabounds in the Maſs of Blood (as it muſt do in Proceſs of Time, unleſs Sobriety and ſpecifick Remedies, to repair the Tone of the Stomach, come to the Succour of the Patient) it falls then on the inward Parts, and kills the Patient. The Paroxiſms of the Gout, return, when the morbifick Matter evacuated, is reimplaced by other of the ſame Nature; which happens ſooner or later, according as the Patient takes more or leſs Care to prevent it.

The *Rheumatiſm* (which bears a great Reſemblance of the Gout, whence ſome call it univerſal Gout) is a painful Diſorder felt in various external Parts of the Body, accompanied with Heavineſs, Difficulty of Motion, and frequently a wandering Fever.

The Rheumatiſm is a Pain uſually wandering, but ſometimes fixed in the muſcular and membranous Parts of the Body, happening chiefly in Autumn.

The proper Seat of the Rheumatiſm is ſuppoſed to be in the Membrana communis of the Muſcles; which it renders rigid and unfit for Motion, without great Pain.

The Rheumatiſm is either univerſal or particular.

Univerſal Rheumatiſm, is that which attacks all the Parts of the Body, even the internal ones.

Particular Rheumatiſm, is that which is confined to particular Parts. In which Caſe the Pains are uſually erratick, paſſing from one Side to another; but ſometimes fixed. This is alſo called a windy or ſcorbutick Rheumatiſm.

The Difference between the Rheumatiſm and the Gout conſiſts chiefly in this, that the Rheumatiſm attacks not only the Joints as the Gout does, but alſo the Muſcles and Membranes between the Joints.

Cauſe of the Rheumatiſm.—The Rheumatiſm is ſuppoſed to ariſe from a ſharp ſerous Humour thrown on the ſenſible Parts, and occaſioning a Pain by its Vellication. Dr. *Quincy* ſays, it proceeds from the ſame Cauſe as that whereby the mucilaginous Glands become ſtiff, and gritty in the Gout.

Dr. *Muſgrave* takes it to be occaſioned by a ſharp alkaline Salt, rather than acid one; from this Conſideration, that the Urine of the rheumatick People, does not afford above a thirteenth Part of the alkaline Salt found in that of healthful People.

Hence he conjectures, that the Salt is retained in the Blood, implicated and embaraſſed in the Pituita, by which Means it forms a Viſcidity which occaſions all the Pains and Tumors of the Rheumatiſm.

The expoſing the Body too ſuddenly to the cold Air, after having heated it to a great Degree, is the moſt uſual remote Cauſe.

Symptoms.—A Fit of the Rheumatiſm is frequently preceded by a Fever of two or three Days, and ſometimes by a Shivering. The Attack happens in various Parts of the Body, as the Hands, Arms, Thighs, Legs, Feet, *&c.* a Redneſs, Swelling, and Lameneſs often ſucceeding. The Pain ſometimes fixing in the Loins, and reaching as far as the Os Sacrum; this Diſorder is called *Lumbago*, and bears a near Reſemblance to the Nephritis; being only diſtinguiſhable therefrom by this, that the latter is attended with a Vomiting, which the former is not.

Prognoſtick.—The Rheumatiſm uſually proves a tedious laſting Diſeaſe, holding for ſeveral Months, ſometimes Years; not continually, but by Paroxiſms, in aged Perſons, and thoſe of weak Conſtitutions and decayed Viſcera, it ſometimes ſeizes the Head.

Cure.—The Cure is by Evacuation, chiefly, according to *Sydenham*, by repeated Phlebotomy, with a plentiful Uſe of Volatiles and Diluters. *Schmitzius* recommends Sudoriſicks; and *Muſgrave* Cataracticks and Emeticks; and I recommend the hot Half-bath, with Diaphoreticks and Diureticks.

Rickets, *rachitis*, is a Diſorder affecting the Bones of Children, and cauſing a conſiderable Protuberance, in Curvation or Diſtortion thereof.

Cauſes.—This Diſeaſe ſometimes ariſes from a Fault in ſwathing the Child, rolling him too tight in ſome Places, and too looſe in others; placing him in an inconvenient, or too often in the ſame Poſture, or ſuffering him to be long wet. It is likewiſe attributed to the Want of proper Motion, and the uſing of the Child to be borne in one Arm only; whence the Legs and Knees remain too long in the ſame incurvated Situation. Or it may be occaſioned by ſome Fault in the Digeſtion, occaſioning the Aliment to be unequally applied to the Body, by which ſome Parts of the Bones increaſe in Bulk more than the reſt.

Prognoſtick.—The Rickets uſually appear between the firſt eight Months, and the ſixth Year of the Child's Age: The Part it affects grows lax, flaccid, and weak; and if it be the Legs, they become unable to ſupport the Body. All the Parts ſubſervient to voluntary Motion are likewiſe debilitated and enfeebled; and the Child grows pale, ſickly, ſlothful, and cannot ſit erect.

His Head generally becomes too large for the Trunk, and cannot be ſupported or managed by the Muſcles of the Neck, which gradually wear away. Swelling and knotty Excreſcencies appear in the Wriſts, Ancles, and Tops of the Ribs; and the Bones of the Legs and Thighs grow bowed and crooked. The like Diſorder ſometimes alſo ſeizes the Bones of the Arms.

Prognoſtick.—If the Symptoms continue long, the Thorax becomes ſtrait, a Difficulty of Reſpiration enſues, as alſo a Cough, and a hectick Fever; the Abdomen ſwells, the Pulſe grows weak and languid, and the Symptoms increaſing at length prove mortal.

Cure.—When the Diſorder is taken early, it may be remedied by proper Bolſters and Bandages, ſuited to the Parts affected: But when the Bones are grown rigid and inflexible, other mechanical Contrivances, as Padding, ſtrait Boots, and ſeveral Sorts of Machines or Engines made of Paſte-board, Whale-bone, Tin, *&c.* are made uſe of, in hope to reſtore the diſtorted Bones to their natural Straitneſs; but which I know by Experience ſerve only to render them ſtill more diſtorted.

Others chuſe a Liniment of Rum and Palm Oil; and others a Plaiſter de minio and oxycrocum, applied along the Back to cover the whole Spine. Dry Frictions over the whole Body, with a warm Linnen Cloth before the Fire, eſpecially on the Parts affected, are of great Service. The Oil of Snails is very famous for the ſame Intention, being what drops from them, after bruiſing and ſuſpending them in a Flannel Bag. With this the Limbs and ſpinal Bone are anointed.

Some want much cold Bathing, before the Diſtemper comes to be confirmed, during *May* and *June*, continuing the Child in the Water two or three Seconds at each Plunge; but I do not at all approve of this Remedy, for of ſeveral Children that have been thus plunged, to my certain Knowledge, and contrary to my Sentiment, none have been cured, and ſome have died.

Cutaneous Diseases.

The *Leproſy*, *lepra*, is a foul cutaneous Diſeaſe, appearing in dry, white, thin, ſcurſy Scabs, either over the whole Body, or only ſome Part of it; and uſually attended with a vehement Itching, and other Pains.

Cauſes.—The Leproſy ſeems to ariſe from a great Obſtruction of Perſpiration; whereby the thin ſaline Humours are thrown off from the Blood, and arreſted by the Denſity and Cloſeneſs of the Cuticula.

This Diſtemper has been much more frequent in former Times than at preſent, and much more in the hot Countries of the Eaſt, particularly among the *Jews*, than among us, (though about ten Years ago I had a Leprous for a Patient) perhaps by reaſon the Salts which by the Appointment of Nature, are to be eliminated through the Pores of the Skin, along with the excrementitious Serum their proper Vehicle, are in hot Countries conveyed in greater Plenty to the Surface of the Body, than in thoſe northern Regions they ordinarily are; and ſticking in their Paſſage in the thin dry Membrane of the Cuticle, the aqueous Parts which are their Vehicle, ſlip away from them by inſenſible Evaporation, and leave them thoſe to corrode and fret it, till at length, through the Quantity ſo gathered, the Membrane becomes dry, brittle, and white, which is the Cauſe of that Diſquammation, or falling away in white Scales: That Whiteneſs, as well as Brittleneſs proceeding merely from the Quantity of thoſe Salts, which are themſelves white; and when the Moiſture is drawn from them, being aculeated, and having inſinuated themſelves into the Pores of the Cuticle, diſſolve the Continuity of it by their Points and Edges, which thus mortified and broken,

broken, is apt on the least Friction to fall off, as above-mentioned.

The Antients distinguished two Kinds of Leprosy, *viz.* the *Lepra Græcorum*, and *Lepra Arabum*: Tho' the two seem only to have differed in Degree; the Symptoms of the *Grecian* being further heightened and aggravated in the *Arabian*.

Lepra Arabum, is the same with what is otherwise called Elephantiasis, by reason in this the Patient's Skin is rough and wrinkled like an Elephant's Hide.

In the Lepra Arabum the Skin is beset with a dry scabby Crust; as in the former Case the Salts being left destitute of their Humidity, are not so active, and therefore affect only the Cuticle; in the latter Case these Salts, with their Vehicle, crowding faster than they can be evaporated through the Pores of the Skin (being still *in fluore*, and so more caustick) corrode deeper, and eat not only the Cuticle, but the excretory Vessels, and Surface of the Skin itself; which thereby spins out a Liquor somewhat thicker than usual; which when the thinnest and most aqueous Parts are evaporated, are condensed into that Crust or Scab, which is the distinguishing Character of this Disease.

The *Lepra* begins within-side, a long Time before it appears without side. It was frequent in *Europe* in the 10th and 11th Centuries, but seems at present almost extinct, unless we allow the venereal Disease to be the same with the Lepra, as was the Opinion, among many others, of the learned *Pitcairn*, and as has been endeavoured to be proved by Mr. *Becket*, in a Discourse expressly on the Subject in the *Philosophical Transactions*.

Symptoms.—The Symptoms of the antient *Lepra*, as laid down by *Galen*, *Aretæus*, *Pontanus*, *Ægineta*, *Cardan*, *Varanda*, *Gordon*, *Pharæus*, and others, are as follows:—The Patient's Voice is hoarse, and comes rather through the Nose than the Mouth; the Blood full of little white shining Bodies, like Grains of Millet, which upon Filtration separate themselves from it; the Serum is scabious, and destitute of its natural Humidity, insomuch that Salt applied to it does not dissolve; it is so dry, that Vinegar poured on it boils; and is so strongly bound together by little imperceptible Threads, that calcined Lead thrown into it swims. The Face resembles a Coal half extinct, unctuous, shining, and bloated, with frequent hard Knots, green at Bottom, and white at Top. The Hair is short, stiff, and brinded, and not to be torn off without bringing away some of the rotten Flesh to which it adheres; if it grows again, either on the Head or Chin, it is always white. Athwart the Forehead run large Wrinkles or Furrows, from one Temple to the other; the Eyes red and inflamed, and shine like those of a Cat; the Ears swell'd and red, eaten with Ulcers towards the Bottom, and encompassed with little Glands; the Nose sunk, because of the rotting of the Cartilage; the Tongue dry and black, swelled, ulcerated, divided with Furrows, and spotted with Grains of White; the Skin covered with Ulcers, that die and revive on each other, or with white Spots or Scales like a Fish; it is rough and insensible, and when cut, instead of Blood, yields a sanious Liquor. It arrives in Time to such a Degree of Insensibility, that the Wrist, Feet, or even the large Tendon, may be pierced with a Needle, without the Patient's feeling any Pain. At last the Nose, Fingers, Toes, and even privy Members fall off entire, and by a Death peculiar to each of them, anticipate that of the Patient. It is added, that the Body is so hot, that a fresh Apple held in the Hand above an Hour, will be dried and wrinkled, as if exposed to the Sun for a Week.

Cure.—As to the Cure, that which proved effectual in those southern Countries fails among us, where the strongest Medicament, and the most powerful Mercurials are necessary. Bathing is judged to be of good Use in the Lepra. Dogs and Hares are said to be subject to this Disease. Among the *Indians* a white Man is despised, this passing with them for the Mark of a Leper.

Matthew Prior says, that in Christendom there were fifteen thousand Hospitals for Lepers; but the Disease having been discontinued for two hundred Years, the Revenues of those Hospitals were abused, and Persons feigned themselves Lepers, to be entitled to the Provision which occasioned their Regulation in some Countries, and their entire Suppression in others. In *France*, they were united to our Order of St. *Lazare* and Mount *Carmel*, in 1664, and the Administration of them given to our Knights. In *England* they have been converted to other Purposes. Formerly the Causes of Lepers were committed to the ecclesiastical Tribunals; and it was prohibited to prosecute a Leper before a Lay-Judge, in Regard they were under the Protection of the Church, which separated them from the rest of the People, by a Ceremony still to be seen in the antient Rituals.

The *Itch* is a Disease of the Skin, wherein it is corrupted by the oozing out of certain sharp saline Humours, which gather into Pustules, and occasion a Puritus or Itching.

There are two Kinds of Itch, a humid, and a dry Kind. The latter has been usually supposed to be owing to an atrabilary Humour; and the former to a saline Pituita.—They are both contagious.

Causes.—Dr. *Bononio* has given a much more rational Account of the Cause of this Distemper, than any Author before him: He examined several Globules of the Matter picked out of the Pustules of itchy Persons with a Microscope, and found them to be minute living Creatures, in Shape resembling a Tortoise, of brisk Motion, with six Feet, a sharp Head, and two little Horns at the End of the Snout. Hence he makes no Scruple to attribute this Disease to the continual Biting of these Animalcules in the Skin; by Means of which, some Portion of the Serum oozing out through the small Apertures of the Cutis, little watery Bladders are made, within which the Insects continuing to gnaw, the Infected are forced to scratch, and by Scratching increase the Mischief; breaking not only the little Pustules, but the Skin too, and some little Blood Vessels, and so make Scabs, crusty Sores, *&c.*

Hence we perceive how the Itch comes to be catching; since these Creatures, by simple Contacts, easily pass from one Body to another; their Motion being wonderfully swift, and they crawling on the Surface of the Body, as well as under the Cuticula.

Cure.—The Cure of the Itch is attempted with lixivial Washes, Baths, and Ointments made of Salts, Sulphurs, Mercury, *&c.* these being very powerful in killing the Vermin lodged in the Cavities of the Skin, which scratching will never do, they being too minute to be caught under the Nails. And if in Practice it is found, that this Disease, after it seemed to be cured by Unction, frequently returns again, this is easily accounted for, since though the Ointment may have killed all the living Creatures, yet it may not possibly have destroy'd all their Eggs, laid, as it were, in the Nests of the Skin; from which they afterwards breed again, and renew the Distemper.

Herpes, is a cutaneous Heat or Inflammation, attended with a Roughness of the Skin, and the Eruption of a Number of little Pustules spreading every Way.

There are divers Kinds of this Disease: As,

Miliary Herpes, which is an Assemblage of innumerable little Pustules, under the Cuticle of the Size of Millet Seeds; popularly called the *Shingles*.

The *Herpes miliaris*, according to *Wiseman*, approaches very nearly to the Nature of the Plora, and therefore to be cured with mercurial Catharticks, *&c.*

Simple Herpes is a single Pustule or two, rising chiefly on the Face, of a whitish or yellowish Colour, pointed, and with an inflamed Base.—These dry away of their own Accord, upon letting out the little Drops of Pus contained in them.

A third Species of Herpes is what the *French* otherwise call *Serpigo*; and in *English*, a *Tetter*, or *Ring-Worm*.

Herpes exudens, is a more corrosive Kind; the Pustules are ruddy, and attended with an Itching; and ulcerate the Parts they rise on.

Erysipela's, is a Disease of the Skin, called also *Sacer ignis*, and St. *Anthony's Fire*.

Its Seat is any Part of the Body, but principally the Face.

Causes of the Erysipela's.—Dr. *Quincy* accounts for the *Erysipela's* from a too fizy Blood, which obstructing the Capillaries, occasions Inflammations: Others from a too sharp and bilious Blood, which, on Account of its great

Subtilty,

Subtilty, occasions no sensible Tumour; but spreads and diffuses itself all around. Its Colour, though red, generally inclines towards a yellow, on Account of the Mixture of Bile; and always the more of the Bile, the more dangerous the Disease.

There is another Species of *Erysipela's*, though less usual than the former; most commonly arising from a too copious drinking of spirituous Liquors.

Symptoms.—The Symptoms of the first Kind of Erysipela's, are, that it shews itself in a ruddy Inflammation of the Part, with a little Swelling of the same; an intense Pain, and a Crowd of little Pustules, which, as the Inflammation increases, grow into Vesiculæ. The Disease spreads itself apace; shifting from one Place to another, with a Fever attending it. It attacks the Patient all at once, and chiefly when out in the Air; whence the Country People call it Blasting, *Sideratio.*—The other Species of Erysipela's, begins with a Fever, after which there is an universal Eruption of Pustules, almost over the whole Body, much like those after the Stinging of Nettles, and sometimes rising into Vesiculæ. At going off they leave an intolerable Itching, and as often as scratched, return again.

Etmuller gives it as the distinguishing Character of an Erysipela's, that when pressed very lightly by the Finger, there follows a white Spot, which presently after becomes red again; which does not happen in an ordinary Inflammation, unless when violently pressed.—Scorbutick People are most subject to this Disease.

Cure.—It is disputed, whether purging be good in the Erysipela's? *Sydenham* recommends it the next Day after Bleeding. *Etmuller* cautions us against them both, and recommends Diaphoreticks. Dr. *Freind* observes, that in the last Stage of an Erysipela's of the Head, attended with a Coma, Delirium, *&c.* unless Catharticks will do good, the Case is desperate. All unctuous Astringents, and cold Applications, externally, are dangerous; and sometimes makes the Erysipela's degenerate into a Gangrene.

DISEASES OF THE EYES.

Opthalmia, is a Disease of the Eyes, properly, an Inflammation of the *Tunica adnata*, or *Conjunctiva*, accompanied with a Redness, Heat, and Pain.

The Ophthalmia is either moist or dry: In the first there is a Shedding of Tears, in the second none at all.

Causes of the Ophthalmia.—The immediate Cause of the Ophthalmia, is the Blood flowing in too great Abundance in the little Vessels of the *Adnata*, so as to stagnate therein, and distend them. The remote Causes are the same with those of other Inflammations. In Summer it is frequent to have *Epidemick Ophthalmia's.*

Symptoms.—It sometimes happens in the Ophthalmia, that the two Eye-lids are so distorted, that the Eye continues constantly open, without being able to shut; which is called χηρωσις; sometimes the Eye-lids are so fasten'd together, that the Eye cannot be open'd, which is called φιμωσις, *q. d.* Closure of Things that should be open.

Cure.—Snow applied to the afflicted Eye, is reputed a good Remedy for the Ophthalmia: The Ephemerides of the *Leopoldine* Academy, mention an Ophthalmia cured by applying Cow's Dung, while hot, between two Linen Cloths, to the Eye. A Fox's Tongue, and the Fat and Gall of a Viper, are empirical Preservatives against the Ophthalmia.—The Cure of the Ophthalmia's, according to the modern Practice, depends chiefly on the due Repetition of Purgatives. If these fail, Recourse is had to Vesicatories, Issues, Setons, *&c.* *Thomas Pitcairn* prefers Bleeding; it being his Observation, that no Disease requires copious Bleeding so much as the *Ophthalmia.*

Pitcairn, and some others, distinguish an external and internal Ophthalmia; the first in the *Adnata*, which is that hitherto spoke of; the second in the Retina. The Symptoms or Indications of the latter, are *Muscæ volitantes*, Dust seeming to fly in the Air, *&c.* This when inveterate, degenerate into a *Gutta Serena*, or *Amaurosis.*

Gutta Serena is a Disease of the Eyes, being an entire Privation of Sight, without any apparent Fault or Disorder of the Part, excepting that the Pupil looks somewhat larger, and blacker than before.

Cause of the Gutta Serena.—Its Cause is supposed to be a Compression, or Obstruction of the optick Nerves, which prevents the due Flux of the animal Spirits into the Retina. *Pitcairn* ascribes it to an Indisposition of the Retina, occasioned by the Vessels thereof being too much distended with Blood.

Symptoms.—The *Muscæ volitantes* are a pathognomonick Sign of a growing *Gutta Serena.*

Prognostick.—The *Gutta Serena* is one of the most dangerous and untractable of all the Diseases of the Eyes.

Cure.—The Cure of the *Gutta Serena*, according to *Pitcairn*, must be attempted with Mercurials, and even Salivation, and with Decoctions of Guaiacum.

Medicine or Physick, must have been nearly coeval with the World. The Injuries and Vicissitudes of the Air, the Nature and Qualities of Foods, the Violence of external Bodies, the Actions of Life, and lastly, the Fabrick of human Compages, must have render'd Diseases almost as old as Mankind: And the Presence of a Disease, as it brings with it a painful Sensation, or the Loss perhaps of the Use of a Limb, does, by a necessary mechanical Impulse, both in Brutes and Men, compel the Diseased to seek for Help, and to apply Remedies, either by mere Experiment, or by Instinct, and spontaneous Appetite. Hence arose the Art of Medicine, or Physick; which, in this Sense, has been always every where among Mankind.

Antient Histories and Fables tell us, that in a little Time from the Flood, it was so well cultivated by the *Assyrians*, *Babylonians*, *Chaldeans*, and *Magi*, that they were able to remove present Diseases, and prevent future ones. Hence it passed into *Egypt*, *Lybia Cyrenaica*, and *Crotona*; and thence into *Greece*, where it flourished, particularly in the Island of *Cnidus*, *Rhodes*, *Cos*, and in *Epidaurus*.

The first Foundations of the Art were laid by Chance, natural Instinct, and Events unforeseen: These were improved by the Memory of the Success of the former Experiments; by writing down Diseases, their Remedies, and Events, on Columns, Paintings, and the Walls of their Temples; by exposing the Sick in the Markets and publick Ways, that those who passed by, might enquire into the Disease, and communicate a Remedy, if they knew any: And lastly, by Analogy or Reasoning, from a Comparison of Things already observed, with Things present and to come.

The Art, at length, received a much greater Degree of Perfection, by appointing of Physicians; some for the Cure of particular Diseases; and others for Diseases in general; by an accurate Observation of the Disease, and its Symptoms; and by an exact Description of the Remedy, and its Use: Immediately upon which it got among the Priests, and at length was confined to particular Families; descending by Way of Inheritance from Father to Son: Which again proved a great Help to its Progress. The Extispicy, or inspecting the Entrails of Beasts, used by the Priests; the Custom of embalming dead Carcases, and even Butchery itself, promoted the Knowledge of the human Fabrick, and of the Causes both of Health, Diseases, and Death.

Lastly, the Dissecting of living Animals for philosophical Purposes, distinct Narratives of the Cause, Rise, Increase, Crisis, Declension, End, and Effect of Diseases, and the Knowledge of Medicines, their Choice, Preparation, Application, Powers, and Events, seemed to have almost brought the Art to its Perfection.

Hippocrates, who was Cotemporary with *Democritus*, and perfectly acquainted with every Thing then discovered, and, besides, furnished with a great Number of Observations of his own; collecting into one all that was valuable and useful; compiled a Body of *Greek* Medicine; and was the first who deserved the Title of a true Physician; for being a Master of the εμπειρια, *Experience*, as well as of Analogy and Reason, and withal well versed in a pure Philosophy; he first, made Physick rational; and laid the Foundation of the dogmatical Medicine; which has since obtained.

What *Hippocrates* had done, continued a long Time sacred and unaltered, and was the standing Practice of many Ages; at length *Aretæus* the *Cappadocian* digested it into a more orderly Body: Whence, in various Places, at

at various Times, and by various Hands, particularly the *Alexandrian* School, it was farther altered and improved, till at length it came into the Hands of *Claud. Galen*, who collecting the scattered Parts, digesting those which were confused, and explaining every Thing by the rigid Doctrine of the Peripateticks, did both a great deal of Service, and a great deal of Mischief, to that noble Art; he being the first who introduced the Doctrine of the Elements, the cardinal Qualities, and their Degrees, the four Humours, into *Medicine*, and on these he made the whole Art to depend.

After the sixth Century, the Arts were not only extinguished, but almost all Memory of them lost, till the ninth; from which to the thirteenth, *Medicine* was vigorously cultivated by the *Arabs* in *Asia*, *Africa* and *Spain*; who applying themselves particularly to the Study of the Materia Medica, and its Preparations, and to the Operations of Chirurgery, rendered both more just and more copious at the same Time. And yet *Galen*'s Errors become now more predominant than ever.

At length however, they were purged out and exploded by two different Means; principally indeed by the Restoration of the pure Discipline of *Hippocrates* in *France*; and then also by the Experiments and Discoveries of Chymists and Anatomists; till at length *Harvey*, overturning by his Demonstrations the whole Theory of the Antients, laid a new and certain Basis of the Science. Since his Time Medicine is become free from the Tyranny of any Sect, and is improved by sure Discoveries in Anatomy, Chymistry, Physicks, Botany, Mechanicks, *&c.*

Hence it appears, that the Art originally consisted solely in the faithful collecting of Observations; and that a long Time after they began to enquire, and dispute, and form Theories: The first Part has always continued the same; but the latter always mutable.

Thus I have traced *Medicine* or *Physick*, from its dark Origin to our Times; but to render this Treatise still more perfect, I must give the Reader a concise Idea of the different Sects which have arose in Medicine, *viz.* of the *Empiricks*, *Dogmatists*, *Galenists*, *Chymists*, *Paracelsists*, &c.

Empiricks.

Empiricks, were such Physicians of Antiquity as formed themselves Rules and Methods, on their own Practice and Experience, and not on any Knowledge of natural Causes, or the Study of good Authors, and who prescribed without enquiring into the Nature of the Disease, or the Properties and Virtues of their Medicines; depending wholly on the Authority of some general experienced Remedies.

Medicine was almost altogether in the Hands of *Empiricks*, till the Time of *Hippocrates*, who first introduced Reason, and the Use of Theory therein; and hence arose a new Sect called *Theoretici*.

Pliny and *Celsus* makes mention of the *Empiricks*, and their Profession, which the *Greeks*, and the *Latins* after them, call *Empirici*; as attributing all to Experience, and nothing to the Authority of the Masters of that Art, or the Deductions of Reason.

Pliny relates, that the Sect of *Empiricks* had its Rise in *Sicily*; the first who professed it, he says, were *Apollonius* and *Glaucius*; others say *Acron Argentinus*. They, and their Followers made great Opposition to the dissecting of human Bodies, particularly to that practised by *Herophilus* and *Erasistratus*, on living Bodies of Criminals condemned to die.

But the Word *Empirick* is now more odious than ever, being confounded with that of *Charlatan*, or *Quack*, and applied to Persons who practise Physick at Random, without a proper Education, or understanding any Thing of the Principles of the Art; retailing their poisonous *Nostrums*, in some publick Place, where by their Buffoneries, they assemble the ignorant Rabble, on purpose to cozen them of their Pence, and but too often of their Health.

Indeed it is possible, the World may be abused even on this Side of the Question; for those of the Physicians servilely attached to the Train and Method of the Schools, the Reasonings of *Hippocrates* and *Galen*, and the Statutes of the Faculty, we all know, have been ever forward, who thinks more freely, and are less stiffly devoted to Antiquity, Custom, and the reigning Practice, or Mode, as *Empiricks*, Charletans and Quacks.

Dogmatists.

The *Dogmatists*, were a Sect of antient Physicians called also *Logici*, Logicians, from their using the Rules of Logick and Reason in Subjects of their Profession.

They laid down Definitions and Divisions, reducing Diseases to certain Genera, those Genera to Species, and furnishing Remedies for them all; supposing Principles, drawing Consequences, and applying those Principles and Consequences to the particular Diseases under Consideration. In which Sense the *Dogmatists* stand contradistinguished to Empiricks and Methodists.

The Dogmatists were those who brought Physick into a Form and Arrangement like those of other speculative Sciences, defining, dividing, laying down the Principles and drawing Conclusions: And hence also the Appellation of *Logici*, q. d. Reasoners. They also applied themselves to seek the Causes of Diseases, the Nature of Remedies, *&c.*

Erasistratus, a famous *Dogmatist*, went so far, that not contented to dissect Dogs, and other brute Animals, he begged condemned Criminals of the Magistrates, opened them while alive, and searched in their Entrails.

Methodists.

The *Methodists*, were a Sect of antient Physicians who reduced the whole healing Art, to a few common Principles, or Appearances.

The *Methodists* were the Followers of *Thessalus*, whence they were also called *Thessalici*. They were strenuously opposed by *Galen* in several of his Writings; who scrupled not to assert, that the methodical Herely ruined every Thing that was good in the Art.

Quincy mistakenly uses *Methodists*, *Methodici*, for those Physicians who adhere to the Doctrine of *Galen* and the Schools; and who cure with Bleeding, Purges, &c. duly applied according to the Symptoms, Circumstances, *&c.* in Opposition to Empiricks and Chymists, who use violent Medicines and pretended Secrets, or Nostrums.

Galenists.

The *Galenists*, are such Physicians as practise, prescribe, or write on galenical Principles, thus called because introduced by *Claudius Galen*, born at *Pergamus* in *Asia*, the Son of *Nicon* a famous Architect, and Pupil of *Satyron* and *Perops* two able Physicians. He first distinguished himself at *Athens*, then at *Alexandria*, and lastly at *Rome*; where he wrote a great deal, and where he also died in the Year of Christ 140.

He is said to have composed two hundred Treatises, whereof there are one hundred and seventy still extant. There have been twenty-three several Editions of this Author: The first is that of *Venice*, in Folio, in the Year 1525: The best is that of *Paris* in thirteen Volumes in Folio, *Greek* and *Latin*, published in 1639.

This Author digesting and collecting what the Authors before him had done; and explaining every Thing according to the strictest Doctrines of the Peripateticks, set Physick on a new Footing, introduced the Doctrine of the four Elements; the cardinal Qualities, and their Degrees, and the four Humours or Temperaments.

Medicine was wholly galenical, till the Times of *Paracelsus*. *Geber* indeed, and after him *Raymond Lully*, *Arnoldus de Villa Nova*, and *Basil Valentine*, made some Attempt to apply Chymistry to Medicine, especially the last of them; but no great Advance was made. *Paracelsus*, and after him *Van Helmont*, altered the whole Body of Medicine, exploded *Galenism*, and the Peripatetick Doctrine, and rendered Medicine wholly chymical.

The late Improvements in Philosophy, have reformed and retrieved the galenical *Medicine*, which has now little of *Galen*'s in it. It is become all mechanical and corpuscular: Instead of Qualities and Degrees, every Thing is now reduced to mechanical Affections; to the Figures, Bulks, Gravities, *&c.* of the component Particles, and to the great Principle of Attraction.

The *Galenists* stand opposed to the Chymists: The

Materia Medica of the first is chiefly of the vegetable Kind; the Virtues of which they procure by the more simple and easy Means, and seldom go beyond Decoction. The latter take in Minerals, Salts, Stones, and even Metals, and Semi-metals: These, they hold, afford more efficacious Remedies, and their Virtues, procured by long, artful, laboured Processes, with the Help of Fire, are had more pure, and in a lesser Compass.

At present the *Galenists* and Chymists are pretty well accommodated, and most Physicians use the Preparations and Remedies of both.

Note, That there is in *London* a celebrated and illustrious Corporation, called the *College of Physicians*, who by several Charters and Acts of Parliament of *Hen.* VIII. and his Successors, have certain Privileges, whereby no Man, though a Graduate in Physick of any University, may, without Licence under the said College-Seal, practise Physick, in, or without seven Miles of *London*; nor even in any other Part of *England*, unless he has taken the Degree in one of the *English* Universities; with Power to administer Oaths, fine, and imprison Offenders, in that or several other Particulars; to search the Apothecaries Shops, *&c.* in and about *London*, to see if their Drugs, *&c.* be wholesome, and their Compositions according to the Form prescribed by the said College, in their Dispensatory.

By the said Charter they are also freed from all troublesome Offices, as to serve on Juries, be Constables, keep Watch, provide Arms, *&c.*

This Society had antiently a College in *Knight-rider-Street*, the Gift of Dr. *Linacre*, Physician to King *Henry* VIII. since that they have had a House built them by the famous Dr. *Harvey*, in 1652. at the End of *Amen-Street*, which he endowed with his whole Inheritance in his Life-time; but this being burnt in the great Fire in 1666, a new one was erected at the Expence of the Fellows, in *Warwick Lane*; with a noble Library given partly by the Marquis of *Dorchester*, and partly by Sir *Theodore Mayerne*.

Of this College there are a President, four Censors, and twelve Electors; the Censors have, by Charter, Power to survey, govern, and arrest all Physicians, or others practising Physick, in, or within seven Miles of *London*; to fine, amerce, and imprison them at Discretion.

The Number of Fellows was antiently thirty, till King *Charles* II. increased their Number to forty; and King *James* II. giving them a new Charter, allowed the Number of Fellows to be enlarged, so as not to exceed fourscore; reserving to himself and his Successors, the Power of placing and displacing any of them for the future.

The College are not very rigorous in asserting their Privileges; there being a great Number of Physicians, some of very good Abilities, who practise in *London*, &c. without their License, and are connived at by the College: Yet, by Law, if any Person not expresly allowed to practise, take on him the Cure of any Disease, and the Patient die under his Hand, it is deemed Felony in the Practiser.

In 1696, the College made a Subscription to the Number of forty-two of their Members, to set on foot a Dispensatory, for the Relief of the sick Poor: since that they have erected two other Dispensatories.

PLUMBERY.

PLUMBERY, from the Latin *plumbum*, Lead, is the Art of casting, preparing, and working Lead, and of using it in Buildings, *&c.*

The Lead used in *Plumbery* is furnished from the Lead-Works in large Ingots, or Blocks, called Pigs of Lead, ordinarily weighing about a hundred Pounds a piece. As this Lead melts very easily, it is easy to cast Figures thereof of any Kind, by running it into Moulds of Brass, Clay, Plaster, *&c.*

But what makes the Basis of the Plumbers Work in Building, are the *Sheets* and *Pipes* of Lead.

The Lead designed for *casting large Sheets* thereof, is melted in a large Caldron, or Furnace, usually built with Free-stone, and Earth, fortified on the Outside with Massive of Shards and Plaster. At the Bottom hereof is a Place sunk lower than the rest, wherein is disposed an Iron Pot, or Pan, to receive what may remain of the Metal after the Sheet is run. The Furnace is so raised above the Area of the Floor, as that the Iron Pot just rests thereon.

The Furnace is heated with the Wood laid within it, throwing afterwards into it the Lead, pell-mell with the burning Coal to melt.

Near the Furnace is the Table, or Mould, whereon the Lead is to be cast. It consists of large Pieces of Wood, well joined, and bound with Bars of Iron at the Ends. Around it runs a Frame, consisting of a Ledge or Border of Wood two or three Inches thick, and one or two high from the Table, called the *Sharps*. The ordinary Width of the Tables is from three to four Feet; and their Length from 18 to 20 Feet.

The Table is covered with fine Sand, prepared, by moistening it with a watering Pot, then working it with a Stick; and at last to render it smooth and even, beating flat with a Mallet, and plaining it with a Slip of Brass or Wood.

Over the Table is a Strike or Rake of Wood, which bears and plays on the Edges of the Frame by means of a Notch cut in either End thereof; and so placed, as that between it and the Sand is a Space proportionable to the intended Thickness of the Sheet. The Use of this Stick is to drive the Matter, while yet liquid, to the Extremity of the Mould.

A-top of the Table is a triangular Iron Peel or Shovel, bearing before, on the Edge of the Table itself, and behind on a Trestle somewhat lower than the Table. Its Use is to convey the Metal into the Mould; and the Design of its oblique Disposition is, that it may by that Means be able to retain the Metal, and keep it from running off at the fore Side, where it has no Ledge. Some of those Peels are big enough to hold fifteen or sixteen hundred Weight of Lead, and even more.

Things being thus disposed, with a large Iron Ladle they take out the melted Lead, Coals and all, out of the Furnace; and with this, mixed as it is, fill the Iron Peel. When full they take out the Coals, and clear the Lead with another Iron Spoon pierced after the Manner of a Skimmer.

This done, they hoist up the lower Part of the Peel by its Handle; upon which the liquid Matter running off, and spreading itself on the Mould, the Plumber conducts and drives it to the Extremity of the Table by means of the Strike, which the Workmen passes along the Ledges, and thus renders the Sheet of an equal Thickness.

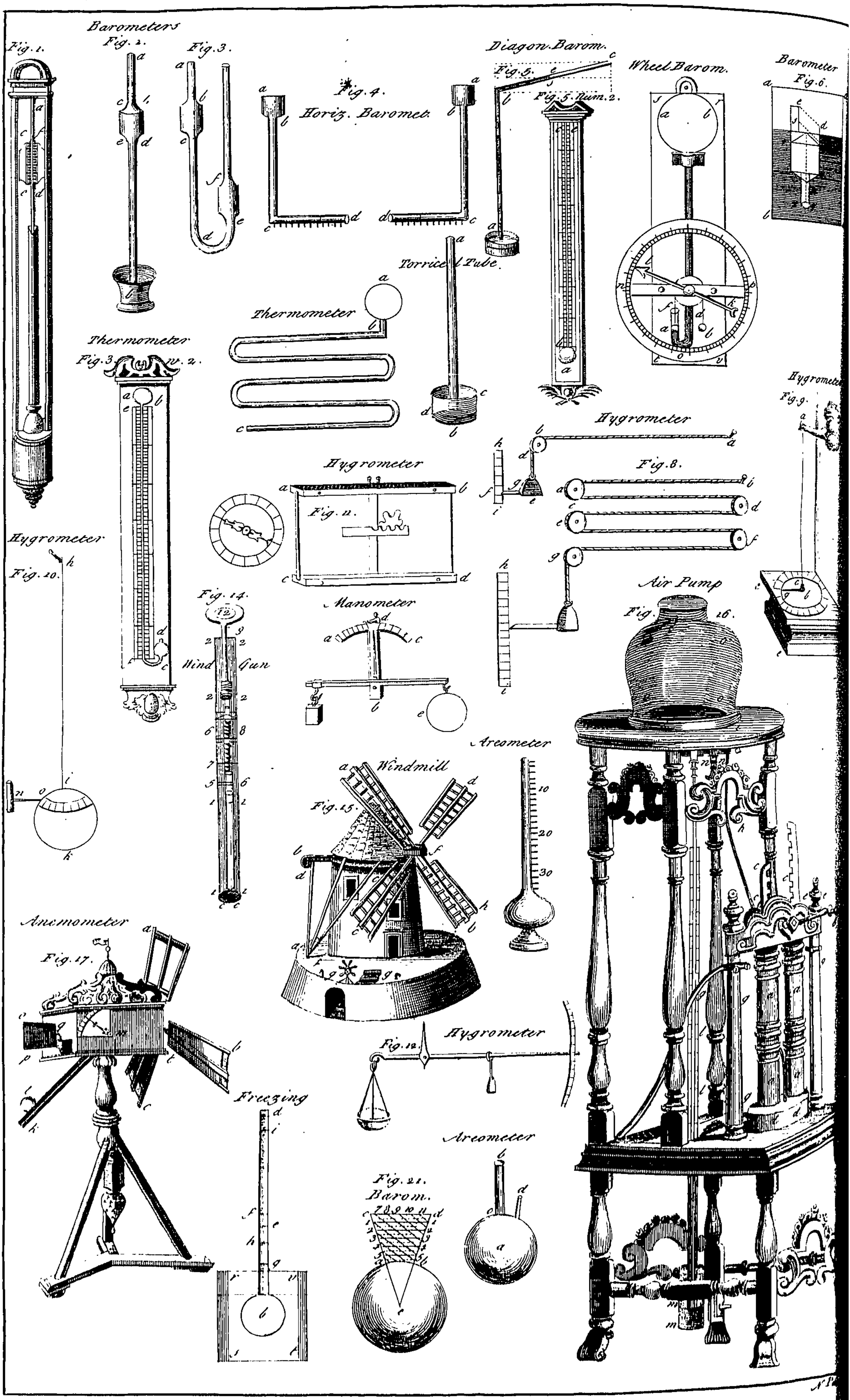
The Sheets thus cast, there remains nothing but to edge them, *i. e.* to planish the Edges on both Sides in order to render them smooth and strait.

To *cast thin Sheets of Lead*; the Table or Mould is of a Length at Discretion, only edged on one Side. Instead of Sand they cover it with a Piece of woollen Stuff, nailed down at the two Ends to keep it tight; and over this lay a very fine Linnen Cloth. The Feet of the Table are uneven, so that it does not stand horizontal, but moderately inclined.

Great Regard is had to the Lead while melting, that it has the just Degree of Heat, so as it may run well, and yet not burn the Linnen. This they judge of by a Piece of Paper; for if the Paper takes Fire in the liquid Lead, it is too hot; and if it be not shrunk and scorched a little, it is not hot enough.

Being then in its just Degree, they have a Strike, but different from that described in the former Article; as serving both for Peel and Strike, to contain and to conduct

PNEUMATICKS.



duct the liquid Lead. It is, in Effect, a wooden Case without any Bottom, only closed on three Sides. It is pretty high behind, but the two Sides, like two acute Angles, still diminish to the Tip, from the Place where they are joined to the third or middle Piece, where they are of the same Height therewith, *viz.* 7 or 8 Inches high. The Width of the Middle makes that of the Strike, which again makes that of the Sheet to be cast.

The Strike is placed a-top of the Table, which is before cover'd in that Part, with a Paste-board which serves as a Bottom to the Case, and prevents the Linen from being burnt, while the Liquid is pouring in. The Strike is so disposed on the Table, as that the highest Part looks to the lower End of the Table, and the two sloping Sides to the higher End.

The Strike is now filled with Lead, according to the Quantity to be used; which done, two Men, one at each Side the Table, let the Strike descend down the Table, or else draw it down with a Velocity greater or less, as the Sheet is to be more or less thick; the Thickness of the Sheet still depending on the Promptitude wherewith the Strike slides down the inclining Mould.

These fine smooth Sheets of Lead are sometimes used between the Joints of large Stones in great Buildings, *&c.*

As to *Pipes of Lead*, there are some cast without soldering; and others solder'd.

To *cast Pipes without soldering*, they have a Kind of Furnace, consisting of a large Iron Furnace or Cauldron, supported on a pretty high Iron Stand. The Cauldron is encompassed with a Massive of Bricks and Loam; only leaving a Mouth or Passage for the Conveyance of Wood underneath, and lighting the Fire, and another little Aperture behind, to serve as a Vent-Hole.

In this Furnace they melt the Lead, after first heating it with a Fire underneath: To forward the Fusion, they put in burning Faggots along with the Metal. The Metal is skimmed and laden off with the Instruments mentioned above.

Near the Furnace is a Bench, furnished at one End with a little Mill, with Arms or Levers to turn it withal. A strong Girt, armed with an Iron Hook at one Extremity, is fasten'd by the other to the Axis of the Mill, around which it turns when in Motion. On this Bench the Moulds of the Pipes are placed horizontally, and the Mill and the Girt serve to draw out the Iron Core after the Pipe is cast.

The Moulds of these Tubes are of Brass, and consist of two Pieces, which open and shut by Means of Hooks and Hinges; their inner Calliber, or Diameter, is according to the Size of the Pipe to be made; their Length is usually two Foot and a half.

In the Middle is placed a Core, or round Piece of Brass or Iron, somewhat longer than the Mould, and of the Thickness of the inner Diameter of the Pipe. This Core is passed through two Copper Rundles, one at each End of the Mould, which they serve to close; and to these is joined a little Copper Tube, about two Inches long, and of the Thickness the leaden Pipe is intended to be of. By Means of these Tubes the Core is retained in the Middle of the Cavity of the Mould.

The Core being in the Mould, with the Rundles at its two Ends, and the Lead melted in the Furnace; they take it up in a Ladle, and put it into the Mould, by a little Aperture at one End, made in Form of a Funnel.

When the Mould is full, and the Metal cold, they pass the Hook of the Girt into a Hole at the End of the Core; and turning the Mill with the Hand, draw out the Core. They then open the Mould, and take out the Pipe.

If they desire to have the Pipe lengthen'd, they put one End thereof in the lower End of the Mould, and pass the End of the Core into it; then shut the Mould again, and apply its Rundle and Tube as before, the Pipe just cast serving for Rundle, *&c.* at the other End.

Things thus replaced, they pour in fresh Metal into the Mould; thus repeating the Operation till they have got a Pipe of the Length requir'd.

But if Plumbers want to make *Pipes of Sheet-Lead solder'd*; they have wooden Cylinders, and Rollers of the Length and Thickness required, and on these they form their Pipes, by wrapping the Sheet around them; soldering up the Edges all along, thus; after grating the Lead well with a Grater, they rub Rosin over the Part thus grated, then pour on it some Solder melted in a Ladle, or else melt it with a hot soldering Iron, smearing those Parts where they would not have the Solder catch, with Chalk, or the Soil of the Hand. — The Solder which the Plumbers use, is a Mixture of two Pounds of Lead with one of Tin.

PNEUMATICKS.

PNEUMATICKS, is the Doctrine of the Air, or the Laws wherein that Fluid is condensed, rarified, gravitated, *&c.* This is also called by *Wolfius*, *Aerometry*, or the Art of measuring the Air.

To proceed with the same Order in this Treatise I have done in all others, I'll ask first what's the Air, which is the Object of *Pneumaticks*; and enquire afterwards into the Nature and Origin thereof; its mechanical Properties and Effects; from which I'll pass to the Consideration of the same Air; as composing the Atmosphere; and conclude the Treatise, by reducing all this Theory into Practice, by Means of the several different Instruments invented for the Purpose. And to begin by the Definition of the *Air*.

The AIR, as I consider it in this Place, is a certain subtile homogeneous elastick Matter; the Basis and fundamental Ingredient of the atmospherical Air, and that which gives it the Denomination.

We are obliged to confess, that we know but little of the particular Nature of the aerial Matter, otherwise than by mere Conjecture; having no Way to examine it a-part; or to separate it from the other Matters it is mixed with; and consequently no Way of ascertaining with Evidence, what belongs to it abstractedly from the rest.

Dr. *Hook*, and some others, will have it to be no other than the Æther itself; or that fine, fluid, active Matter, diffused through the whole Expanse of the celestial Regions; which coincides with Sir *Isaac Newton*'s *Subtile Medium*, or Spirit.

In this View it is supposed a Body *Sui Generis*, ingenerable, incorruptible, immutable, present in all Places, in all Bodies, *&c.*

Others considering only its Property of Elasticity, which they account its essential and constituent Character, suppose it mechanically producible; and to be no other than the Matter of other Bodies alter'd, so as to become permanently elastick. Mr. *Boyle* gives us several Experiments, which he made *for the Production of the Air*; *taking Production for the obtaining a sensible Quantity thereof from Bodies wherein it did not appear either at all, or in so great Plenty.* — Among the several Ways of doing this, the *fittest for Practice*, he observes, *are Fermentation, Corrosion, Dissolution, Decomposition, the Boiling of Water, and other Fluids; and the mutual Action of Bodies, especially saline ones, upon each other.* He adds, *that various, solid, and mineral Bodies, unsuspected of Elasticity, being plunged in corrosive unelastick Menstrua, will, by a proper Comminution of their Parts in the Conflict, afford a considerable Quantity of permanent elastick Air.*

Of the same Opinion is Sir *Isaac Newton*; *the Particles of dense, compact, and fixed Substances, cohering by a strong attractive Force, are not separable without a vehement Heat, or perhaps not without Fermentation; and such Bodies being at length rarified by such Heat or Fermentation, become true permanent Air.* — *Thus*, the same Author adds, *Gunpowder generates Air by Explosion.*

We have here, therefore, not only the Materials whereof Air should be made; but the Means of doing it: With Regard to which the Air is divided into real and perma-

permanent; and apparent or tranſient. For all that which appears to be *Air* does not continue ſuch, is evident from the Inſtance of an Æolipile, the Water of which being ſufficiently rarefied by the Fire, ruſhes out in a ſharp whiſtling Blaſt, perfectly reſembling *Air*, while the Motion laſts; but ſoon loſes that Reſemblance, eſpecially in the Cold, and returns by Condenſation into its original Water: And the ſame may be obſerved of Wine, and other ſubtile and fugitive Spirits, raiſed by Diſtillation. Whereas real *Air* is not reducible by any Compreſſion, Condenſation, or the like, into any other Subſtance beſides *Air*.

Water then, though it may put on an aerial Nature for a while, yet is not capable of perſiſting therein; and the ſame may be ſaid of other Fluids. The furtheſt they can go is to become vaporous; which is the Matter of the Fluid rendered much rarer, and put in a briſk Motion. For a Subſtance to become permanent *Air*, it muſt be of a fixed Kind; otherwiſe it is not capable of undergoing the Alteration neceſſary to be induced into it; but gives Way, and flies off too ſoon. So that the Difference between permanent and tranſient *Air*, amounts to the ſame as that between Vapour and Exhalation; the one, *i. e.* being dry, the other moiſt, *&c.*

We can go a little further yet.—This elaſtick Property of the *Air* is ſuppoſed by many Philoſophers, to depend on the Figure of its Corpuſcles, which they ſuppoſe to be ramous; ſome will have them ſo many minute Flocculi, reſembling Fleeces of Wool; others conceive them rolled up like Hoops, and curled like Wires, or Shavings of Wood, or curled like the Springs of Watches, and endeavour to reſtore themſelves in virtue of their Texture: So that to produce *Air*, muſt be to produce ſuch a Figure and Diſpoſition of Parts; and thoſe Bodies only are proper Subjects, which are ſuſceptible of ſuch Diſpoſition; which Fluids, from the Smoothneſs, Roundneſs, and Slipperineſs of their Parts are not.

But Sir *Iſaac Newton* puts the Thing another Way; ſuch a Texture, he thinks, by no Means ſufficient to account for that vaſt Power of Elaſticity obſerved in the *Air*, which is capable of diffuſing into above a Million of Times more Space than it before poſſeſſed. But as all Bodies are ſhewn to have an attractive, and a repelling Power; and as both theſe are ſtronger in Bodies, the denſer, more ſolid and compact they are: Hence it follows, that when by Heat, or any other powerful Agent, the attractive Force is ſurmounted, and the Particles of the Body ſeparated ſo far as to be out of the Sphere of Attraction; the repelling Power commencing thence, make them recede from each other with a ſtrong Force proportionable to that wherewith they before cohered; and thus they become permanent *Air*. Hence, ſays the ſame Author, it is, that as the Particles of permanent *Air* are groſſer, and ariſe from denſer Bodies, than thoſe of tranſient *Air*, or Vapour: True *Air* is more ponderous than Vapour; and a moiſt Atmoſphere lighter than a dry one.

But after all, there may be ſtill Reaſon to doubt, whether the Matter thus produced from ſolid Bodies have all the Properties of the *Air*; and whether ſuch *Air* be not tranſient, as well as that from humid ones, though not to that Degree. Mr. *Boyle* argues from an Experiment made in the Air Pump, with lighted Match; that thoſe light and ſubtile Fumes into which the Fire itſelf ſhatters dry Bodies, have no ſuch Springs as *Air*; ſince they were unable to hinder the Expanſion of a little *Air* included in the Bladder they ſurrounded. Yet in ſome ſubſequent Experiments, by diſſolving Iron either in Oil of Vitriol and Water, or in Aqua fortis; a large aerial Bubble was produced, which had a real Spring, ſo as to hinder the ſurrounding Liquor from regaining its Place; and which, by the Application of a warm Hand, readily dilated itſelf like other *Air*, and broke into the Liquor in ſeveral ſucceeding Bubbles; and even thro' the Liquor into the open *Air*.

The ſame excellent Perſon further aſſures us, he procured a real elaſtick Subſtance from divers other Matters; as Bread, Grapes, Muſt, Ale, Apples, Peas, Beef, *&c.* or from ſome Bodies by only burning them in Vacuo, particularly Paper, Hartſhorn, *&c.* which yet, upon further Examination, was ſo far from being pure *Air*, that Animals incloſed in it, not only could not reſpire it without Harm; but even died ſooner than in Vacuo, where there was nothing like *Air*.

We may here add an Obſervation of the Members of the Royal Academy of Sciences at *Paris*; importing that the Property of Elaſticity is ſo far from conſtituting *Air*, that *Air* is rendered more elaſtick by the Mixture of ſome other Matters along with it, than it is in its Purity. Thus, from ſome Experiments of M. *de la Hire*, at *Paris*, and of M. *Stomcari* at *Bologne*, M. *Fontenelle* aſſures us, that *Air* moiſten'd with Water is conſiderably more elaſtick, and expands further than when pure. M. *de la Hire* even found the moiſt Air eight Times more elaſtick than the dry: But Dr. *Jurin* explains the Experiment another Way, and endeavours to ſhew that the Concluſion does not neceſſarily follow from them.

Several are of Opinion, that ſuch *Air*, conſidered in itſelf, exiſts no where in its Purity; and that wherewith we are concerned; and whoſe Properties and Effects are chiefly conſidered, is acknowledged by Mr. *Boyle* to be the moſt heterogeneous Body in the Univerſe: *Boerhaave* even ſhews it to be an univerſal Chaos, or Colluvies of all the Kinds of created Bodies. Whatever Fire can volatilize is found in the *Air*; but there is no Body that can withſtand the Force of Fire.

Hence, for Inſtance, 1. The whole volatile Kingdom muſt neceſſarily be found therein; for all of that Tribe, as Salts, Sulphurs, Stones, Metals, *&c.* are convertible into Fume, and thus capable of being rendered Part of the *Air*.

2. All the Parts of the animal Kingdom muſt be in the *Air*: For, beſides the copious Effluvia continually emitted from their Bodies by the vital Heat, in the ordinary Courſe of Perſpiration; by means whereof an Animal, in the Courſe of its Duration impregnates the *Air* with many Times the Quantity of its own Body; beſides this, we find that any Animal when dead, being expoſed to the *Air*, is in a little Time carried whole off, Bones and all. So that the Whole of what before was an Animal, *e. gr.* a Man, an Ox, or the like, is now in the *Air*.

3. As to Vegetables, nothing of that Claſs can be ſuppoſed wanting, ſince we know that all Vegetables by Putrefaction become volatile, even the earthy or vaſcular Part in Time follow the reſt.

Of all the Effluvia floating in this grand Ocean the Atmoſphere, one of the principal are the ſaline. Theſe Authors commonly conceive, are chiefly of the nitrous Kind; but there is no doubt but that there are of all the Sorts, vitriolick, aluminous, Sea-ſalt, *&c.*

Mr. *Boyle* even obſerves, that there may be many compound Kinds of Salts in the Air, which we have not on Earth; ariſing from different ſaline Spirits, fortuitouſly meeting, and mixing together. Thus the Glaſs Windows of antient Buildings are ſometimes obſerved to be corroded, as if they had be Worm-eaten; though none of the Salts above-mentioned have the Faculty of corroding Glaſs.

The ſulphurous too muſt make a conſiderable Article in the *Air*; on account of thoſe many Volcano's, Grotto's, Caverns, and other Spiracles chiefly affording that Mineral diſperſed through the Globe.

Thus far of the *Nature and Origin of the Air*, which no otherwiſe concerns our preſent Subject, than as it is the Baſe thereof, ſince the ſpecial Object of *Pneumaticks* is not the Air in general, but only its *Properties* and *Effects*, as reduced to preciſe Laws and Demonſtrations.

The moſt conſiderable of the *mechanical Properties and Effects* of the *Air*, are its *Fluidity*, *Weight*, and Elaſticity.

1. The *Fluidity* of the *Air* is evident from the Paſſage it affords to Bodies through it; as in the Propagation of Sounds, Smells, and other Effluvia: For this argues it a Body whoſe Parts give Way to any Force impreſſed, and in yielding, are eaſily moved among themſelves; which is the Definition of a Fluid.

They who with the *Carteſians* make Fluidity conſiſt in a perpetual Inteſtine Motion of the Parts, find *Air* alſo anſwer to that Character: Thus, in a darkened Room, where the Species of external Objects are brought in by a ſingle Ray; they appear in a continual Fluctuation; and thus even the more accurate Weather-Glaſſes are

are obſerved never to remain a Moment at reſt.

The Cauſe of this Fluidity of the *Air*, is attributed by ſome very modern Philoſophers to the Fire intermixed therewith; without which they imagine the Atmoſphere would harden into a ſolid, impenetrable Maſs. And hence the greater the Degree of Fire therein, the more fluid, moveable, and pervious the Air: And thus as the Degree of Fire is continually varying, according to the Circumſtances and Poſition of the heavenly Bodies; the *Air* is kept by a continual Reciprocation. Hence, in good Meaſure, it is, that on the Tops of the higher Mountains, the Senſes of Smelling, Hearing, *&c.* are found very feeble.

2. That the *Air* is heavy, follows from its being a Body; Weight being an eſſential Property of Matter.

But we have infinite Arguments of the ſame from Senſe and Experiment: Thus the Hand, applied on the Orifice of a Veſſel empty of *Air*, ſoon feels the Load of the incumbent Atmoſphere. Thus Glaſs-Veſſels, exhauſted of their *Air*, are eaſily cruſhed to Pieces by the Weight of the Air without. So two ſmall hollow Segments of a Sphere, exactly fitting each other, being emptied of *Air*, are preſſed together with a Force equal to an hundred Pounds, by the Pondus of the ambient *Air*.

Further, a Tube cloſe at one End, being filled with Mercury, and the other End immerged in a Baſon of the ſame Fluid, and thus erected: The Mercury in the Tube will be ſuſpended to the Height of about thirty Inches above the Surface of that in the Baſon; the Reaſon of which Suſpenſion is, that the Mercury in the Tube cannot fall lower, without raiſing that in the Baſon; which being preſſed down with the Weight of the incumbent Atmoſphere, cannot give Way, unleſs the Weight of the Mercury in the Tube exceeds that of the *Air* out of it. That this is the Caſe, is evident hence, that if the whole Apparatus be included in an Air-Pump, in Proportion as the *Air* is exhauſted from the ſame, the Mercury falls; and gradually letting in the *Air* again, the Mercury re-aſcends to its former Height. This makes what we call the *Torricellian* Experiment.

To ſay no more, we can actually weigh *Air*; for a Veſſel, full even of common *Air*, by a very nice Ballance, is found to weigh more than when the *Air* is exhauſted; and this Effect is proportionably more ſenſible, if the ſame Veſſel be weighed full of condenſed *Air*, in a Receiver void of *Air*.

The Weight of *Air* is continually varying, according to the different Degree of Heat and Cold.—*Ricciolus* eſtimates its Weight to that of Water, to be as 1 to 1000; *Merſennus*, as 1 to 1300, or 1 to 1356; *Lana*, as 1 to 640; *Galileo* only makes it as 1 to 400. The ingenious Mr. *Boyle*, by a more accurate Experiment, found it about *London*, as 1 to 938; and thinks, all Things conſider'd, the Proportion of 1 to 1000 may be taken at a Medium; for there is no fixing any preciſe Ratio, ſince, not only the Air, but the Water itſelf is continually varying. Add, that Experiments made in different Places, neceſſarily vary, in Regard of the different Heights of the Places, and the different Conſiſtences of *Air* ariſing therefrom.

It muſt be added, however, that by Experiments made ſince before the Royal Society, the Proportion of *Air* to Water was firſt found as 1 to 840; then, as 1 to 852; and a third Time, as 1 to 860. And laſtly, by a very ſimple and accurate Experiment of the late Mr. *Hawkſbee*; the Proportion was ſettled, as 1 to 885. But theſe Experiments being all made in the Summer Months, when the Barometer was 20¾ Inches high; Dr. *Jurin* thinks, that at a Medium, between Heat and Cold, when the Barometer is 30 Inches high, the Proportion between the two Fluids may be taken as 1 to 800.

Air, then, being heavy and fluid; the Laws of its Gravitation, or Preſſure, may be inferred to be the ſame as in other Fluids; conſequently its Preſſure muſt be at its perpendicular Altitude.

This is alſo confirmed by Experiment. For, removing the *Torricellian* Tube to a more elevated Place, where the incumbent Column of *Air* is ſhorter; or proportionably ſhorter Column of Mercury is ſuſtained; it being found to deſcend at the Rate of one Fourth of an Inch for every hundred Foot of Aſcent.

From hence alſo it follows, that the Air, like all other Fluids, muſt paſs equally every Way.—This is confirmed by what we obſerve of ſoft Bodies ſuſtaining this Preſſure, without any Change of Figure; and brittle Bodies, without their breaking, though the Preſſure upon them be equal to that of a Column of Mercury, thirty Inches high, or a Column of Water of thirty-two Feet. It is obvious, that no other Cauſe can preſerve ſuch Bodies unchanged, but the equal Preſſure on all Sides, which reſiſts as much as it is reſiſted. And hence, upon removing, or diminiſhing the Preſſure on one Side only, the Effect of the Preſſure is ſoon perceived on the other.

To diſcover the Quantity and Effect of this Preſſure on the human Body; we muſt know that our Bodies are equally preſſed on by the incumbent Atmoſphere; and the Weight they ſuſtain is equal to a Cylinder of Air, whoſe Baſe is equal to the Superficies of our Bodies. Now a Cylinder of *Air*, of the Height of the Atmoſphere, is equal to a Cylinder of Water of the ſame Baſe, and thirty-five Foot high; or a Cylinder of Mercury, twenty-nine Inches high; as appears from the *Torricellian* Experiment; as alſo from the Height to which Water aſcends in Pumps, Siphons, *&c.*

Hence it follows, that every Foot ſquare of the Superficies of our Bodies, is preſſed upon by a Weight of Air, equal to thirty-five cubical Feet of Water; and a cubical Foot of Water, being found by Experiment to weigh ſeventy-ſix Pound Troy Weight, therefore the Compaſs of a Foot ſquare upon the Superficies of our Bodies, ſuſtains a Quantity of Air equal to 2260 Pound: For $76 + 35 = 2660$; and ſo many Foot ſquare, as the Superficies of our Body contains, ſo many Times 2660 Pound that Body bears.

Hence, if the Superficies of a Man's Body contain fifteen ſquare Feet, which is pretty near the Truth, he will ſuſtain a Weight equal to 3990 Pounds; for $2660 + 15 = 39900$, which is above thirteen Tons for the ordinary Load.

The Difference of the Weight of the *Air*, which our Bodies ſuſtain at one Time more than at another, is alſo very great. The whole Weight of *Air* which preſſes upon our Bodies, when the Mercury is higheſt in the Barometer, is equal to 39900 Pounds. When the Difference between the greateſt and leaſt Preſſure of *Air* upon our Bodies, may be proved to be equal to 3982 Pounds.

The Difference of the *Air*'s Weight at different Times, is meaſured by the different Height to which the Mercury is raiſed in the Barometer; and the greateſt Variation of the Height of the Mercury being three Inches, a Column of *Air* of any aſſignable Baſe, equal to the Weight of a Cylinder of Mercury of the ſame Baſe, and of the Altitude of three Inches, will be taken off from the Preſſure upon a Body of an equal Baſe, at ſuch Time as the Mercury is three Inches lower in the Barometer; ſo that every Inch ſquare of the Surface of our Bodies, is preſſed upon at one Time more than another, by a Weight of *Air*, equal to the Weight of three cubical Inches of Mercury. Now a cubical Foot of Water being ſeventy-ſix Pounds; a cubical Foot of Mercury is 1064 Pounds = 102144 Drachms; and as 102144 Drachms is to a cubical Foot, or, which is all one, 1728 cubical Inches, ſo is $59\frac{192}{1728}$ Drachms, to one cubical Inch. So that a cubical Inch of Mercury being very near = 59 Drachms; and there being 144 ſquare Inches in a Foot ſquare, therefore a Maſs of Mercury of a Foot ſquare = 144 ſquare Inches, and if three Inches high, muſt contain 432 cubical Inches of Mercury, which + 59 (the Number of Drachms in a cubical Inch of Mercury) makes 25488 Drachms. And this Weight was a Foot ſquare of the Surface of our Bodies, ſuſtained at one Time more than at another.

Suppoſe, again, the Superficies of an human Body = 15 Feet ſquare; then would the Body ſuſtain at one Time more than at another, a Weight = 15 + 25488 = 382230 Drachms (= 47790 Ounces) = 3890¼ Pounds Troy.

Hence it is ſo far from being a Wonder, that we ſometimes ſuffer in our Health, by a Change of Weather; that it is the greateſt Wonder we do not always do ſo.—For when we conſider, that our Bodies are ſometimes

preſſed upon by near a Ton and a half Weight more than at another, and that this Variation is often very ſudden; it is ſurprizing that every ſuch Change does not entirely break the Frame of our Bodies to Pieces.

In Effect, the Veſſels of our Bodies being ſo much ſtraitened by an increaſed Preſſure, would ſtagnate the Blood up to the very Heart, and the Circulation would quite ceaſe, if Nature had not wiſely contrived, that when the Reſiſtance to the circulating Blood is greateſt, the Impetus, by which the Heart contracts, ſhould be ſo too. For, upon an Increaſe of the Weight of the Air, the Lungs will be more forcibly expanded, and thereby the Blood more intimately broken and divided, ſo that it becomes fitter for the more fluid Secretions, ſuch as that of the nervous Fluid, by which the Heart will be more ſtrongly contracted. And the Blood's Motion towards the Surface of the Body being obſtructed, it will paſs in greater Quantity to the Brain, where the Preſſure of the Air is taken off by the Cranium; upon which Score alſo more Spirits will be ſeparated, and the Heart on that Account too, be more enabled to carry on the Circulation, through all paſſable Canals, whilſt ſome others towards the Surface are obſtructed.

The moſt conſiderable Alteration made in the Blood, upon the Air's greater or leſſer Preſſure on the Surface of our Bodies, is its rendring the Blood more or leſs compact, and making it crowd into a leſs, or expand into a greater Space in the Veſſels it enters. For the *Air* contained in the Blood, always keeps itſelf in Æquilibrio with the external Air that preſſes upon our Bodies, and this it does by a conſtant Niſus to unbend itſelf, which is always proportionable to the compreſſing Weight by which it was bent: So that if the Compreſſion or Weight of the circumambient *Air* be ever ſo little abated, the *Air* contained within the Blood unfolds its Spring, and forces the Blood to take up a larger Space than it did before.

The Reaſon we are not ſenſible of this Preſſure, is well explained by *Borellus*.—After ſhewing that Sand perfectly rammed in a hard Veſſel, is not capable by any Means of being penetrated or parted, nor even by a Wedge; and likewiſe that Water, contained in a Bladder compreſſed equally on all Sides, cannot yield or give Way in any Part; he proceeds, 'In like Manner 'within the Skin of an Animal, are contained a Diverſity 'of Parts, ſome hard as Bones, others ſoft as Muſcles, 'Nerves, Membranes, *&c.* others fluid as Blood, 'Fat, *&c.* Now it is not poſſible the Bones ſhould be 'broke or diſplaced in the Body, unleſs the Weight 'lay heavier on one Part than on the other, as we 'ſometimes ſee in Porters. If the Preſſure be ſub-'divided, ſo that it lay equally all around, upwards, 'downwards, and Sideways, and no Part of the Skin 'be exempt therefrom, it is evidently impoſſible any 'Fracture or Luxation ſhould follow. The ſame may 'be obſerved of the Muſcles and Nerves; which, tho' 'ſoft, yet being compoſed of ſolid Fibres, do mutually 'ſuſtain each other, and reſiſt the common Weight. The 'ſame holds of Blood, and the other Humours; and 'as Water does not admit any manifeſt Condenſation, 'ſo the animal Humours contained in their Veſſels, 'may ſuffer an Attrition from an Impulſe made in one 'or more particular Places, but can never be forced out 'of their Veſſels by an univerſal Compreſſion. It fol-'lows, that as none of the Parts undergo either Sepa-'ration, Luxation, Contuſion, or any other Change of 'Situation; it is impoſſible any Senſe of Pain ſhould 'enſue, which can only be the Effect of a Solution of 'Continuity.' This is confirmed by what we ſee in divers, *&c.*

The ſame is further confirmed by Mr. *Boyle*; who including a young Frog in a Veſſel full of Water, and intruding ſo much *Air*, as that the Water may ſuſtain eight Times the Weight it otherwiſe would; yet the Animalcule, notwithſtanding the great Tenderneſs of its Skin, did not ſeem to be at all affected thereby.

To meaſure the Weight of the *Air* or Atmoſphere, and the Variations therein, in order chiefly to determine the Changes of the Weather, an Inſtrument was invented, called *Barometer*, from βαρος, Weight; and μετρον, Meaſure; the Deſcription and Phænomena thereof come very a propos under this Article of the Weight of the Air; leſt, if we ſhould poſtpone it, the Reader ſhould have forgot what we have ſaid here on that Subject, before he could be able to reduce it to Practice; therefore,

The BAROMETER, is founded on the Torricellian Experiment, as it is called from its Inventor *Torricelli*, which is no more than a Glaſs Tube filled with Mercury, hermetically ſealed at one End; the other open, and immerged in a Baſon of ſtagnant Mercury. Now as the Weight of the Atmoſphere diminiſhes, the Mercury in the Tube will here deſcend; on the contrary, as it increaſes, the Mercury will again aſcend: The Column of Mercury ſuſpended in the Tube being always equal to the Weight of the incumbent Atmoſphere.

There are ſeveral Kinds of *Barometers*, viz. the *common*, *horizontal*, *diagonal*, *wheel*, *marine*, *ſtatical*, and *portable Barometers*.

The Conſtruction of a *common Barometer* is as follows:—A Glaſs Tube A B (fig. 1. *Pneumatick Table*) hermetically ſealed in A, having its Diameter about $\frac{1}{10}$ of an Inch, and its Length at leaſt thirty-one Inches, is filled with Mercury ſo juſtly, as not to have any Air over it, nor any Bubbles adhering to the Sides of the Tube; which is beſt done by means of a Glaſs Funnel, with a capillary Tube. The Orifice of the Tube filled after this Manner, ſo as to overflow, is cloſely preſſed by the Finger, ſo as to exclude any Air between it and the Mercury, and thus immerged in a wooden Veſſel of a convenient Diameter; ſo however, as not to touch the Bottom: At the Diſtance of twenty-eight Inches from the Diſtance of the Mercury, are fixed two Plates, C E and D F, divided into three Inches, and theſe again ſubdivided into any Number of ſmaller Parts. Laſtly, the Tube is encloſed in a wooden Frame to prevent its being broke; and the Baſon, though open to the Air ſecured from Duſt, and the *Barometer* is compleat.

Many Attempts have been made to render the Changes of the Barometer more ſenſible, and ſo to meaſure the Atmoſphere more accurately; which has given Riſe to the following *Barometers* of different Structure.

Des Cartes, and after him *Huygens*, uſed a Tube A B, (fig. 2.) having a cylindrick Veſſel C D; one half of which Veſſel, together with the upper Part of the Tube, were filled with Water; the other half of the Veſſel, and the lower Part of the Tube with Mercury. But here, though the Column ſuſpended was longer, and conſequently the Variation greater, yet the Air impriſoned in the Water getting looſe by Degrees, filled the wide Space in the Top, and ſo ruined the Machine.

Huygens then bethought himſelf of placing the Mercury at Top, and the Water at Bottom, in the Manner following: A D G (fig. 3.) is a bent Tube hermetically ſealed in A, and open in G; the cylindrick Veſſels B C and F E are equal, and about twenty-nine Inches a-part; the Diameter of the Tube is about a Line, that of each Veſſel fifteen Lines, and the Depth of the Veſſels about ten; the Tube is filled with Mercury (the common *Barometer* ſtanding about twenty-nine Inches) which will be ſuſpended between the Middle of the Veſſel F E, and that of the Veſſel B C; the remaining Space to A being void both of Mercury and Air: Laſtly, common Water, tinged with a ſixth Part of Aqua regis, to prevent its freezing, is poured into the Tube F G, till it riſes a Foot above the Mercury in D F.

When then the Mercury riſing above the Level of that contained in F E, through the Tube A D, becomes a Balance to the Weight of the Atmoſphere; as the Atmoſphere increaſes, the Column of Mercury will increaſe, conſequently the Water will deſcend; as the Atmoſphere again grows lighter, the Column of Mercury will deſcend, and the Water aſcend. This *Barometer* therefore, which is the ſame with that of Dr. *Hook*, will diſcover much minuter Alterations in the Air than the common one: For, inſtead of two Inches, the Fluid will here vary two Feet; and by enlarging the Diameters of the Cylinders, that Variation may be ſtill increaſed: But it has this Inconvenience, that the Water will evaporate, and ſo render the Alterations precarious; though the Evaporation be in ſome meaſure prevented by a Drop of Oil of Sweet Almonds ſwimming a top.

On account of this Defect, others have had Recourſe to a *horizontal* or *rectangular Barometer* A B C D (fig. 4.) the Tube whereof is bent in form of a Square B C D, a top

a top of its perpendicular Leg it is joined to a Vessel or Cistern A B; and its Variation accounted on the horizontal Leg C D.

Now here, the Interval or Space of Variation, may be made of any Extent at Pleasure, and so the minutest Change in the Air become sensible. For the Diameter of the Tube C D being given, it is easy to find the Diameter of the Vessel A B, so as that the Scale of Descent in the Tube D C shall have any given Proportion to the Scale of Ascent, in the Vessel A B; the Rule being, that the Diameter of the Vessel is to that of the Tube in a subduplicate reciprocal Ratio of their Scales.

The Diameters then of C D and A B being given, together with the Scale, or Ascent of the Mercury in the Vessel, the Scale of Mercury in the Tube is found thus: As the Square of the Diameter of the Tube, is to the Square of the Diameter of the Vessel, so reciprocally is the Scale of Mercury in the Vessel, to the Scale of Mercury in the Tube.

This, and the preceding Contrivance of *Huygens*, are founded on a Theorem in Hydrostaticks, *viz.* that Fluids having the same Base, gravitate according to their perpendicular Altitude, not according to the Quantity of their Matter; whence the same Weight of the Atmosphere supports the Quicksilver that fills the Tube A D, and the Cistern B as would support the Mercury in the Tube alone.

This last, however, with its Virtues, has great Defects; for, by Reason of the Attraction between the Parts of the Glass and of the Mercury (which Dr. *Jurin* has shewn to be considerable) with the Length of the Scale, (consequently the Quantity of Motion) and the Attrition against its Sides, especially in sudden Rises and Descents, the Mercury breaks, some Parts of it are left behind, and the Equability of its Rise and Fall ruined.

Some therefore prefer the *Diagonal Barometer*, where the Space of Variation is considerably larger than in the common one, and yet the Rise and Fall more regular than in the others. Its Foundation is this: That in a *Torricellian* Tube B C, (fig. 5.) inclined at any Angle to the Horizon, the Cylinder of Mercury, equivalent to the Weight of the Atmosphere, is to a Cylinder of Mercury, equivalent to the same placed in a vertical Tube, as the Length of the Tube B C, to the perpendicular Height D C. Hence if the Height D C be subtriple, subquadruple, *&c.* of the Length of the Tube, the Changes in the Diagonal Barometer will be double, or triple, *&c.* of the Changes in the common Barometer.— This Barometer will scarce allow its Tube to be inclined to the Horizon, at a less Angle than 45 Degrees, without undergoing the Inconveniency of the horizontal one.

The *Wheel Barometer* is a Contrivance of Dr. *Hook*, to make the Alterations in the Air more sensible; the Foundation of this is the common vertical Barometer, with the Addition of a Couple of Weights A and B (fig. 5.) hanging in a Pulley, the one playing at Liberty in the Air, the other resting on the Surface of the Mercury in the Tube, and rising and falling with it. Thus is the Motion of the Mercury communicated, by Means of the Pulley, to an Index which turns around a graduated Circle; and thus the three Inches of vertical Ascent, are here improved to five or six, or more, at Pleasure.— But the Friction of the Parts, in the Pully and Index, is so considerable, that unless the Machine be made with a great deal of Accuracy, it does not answer.

The *Pendant Barometer* is a Machine rather pretty and curious, than useful. It consists of a conical Tube, placed vertically; its upper and smaller Extreme hermetically sealed; it has no Vessel or Cistern, its conical Figure supplying that Defect: For when filled, like the rest, there will be as much Mercury sustained, as is equivalent to the Weight of the Atmosphere; and as that varies, the same Mercury takes up a different Part of the Tube, and so becomes of a different Weight.

Thus, when the Weight of the Atmosphere is increased, the Mercury is driven up into a narrower Part of the Tube, by which Means its Column is lengthen'd, and for the Reason just given, its Weight increased. Again, the Atmosphere decreasing, the Mercury sinks into a wider Part of the Tube, by which Means its Column is shorten'd, and its Pressure accordingly weaken'd. Thus the same Mercury is still a Ballance to the Atmosphere under all its Variations.

The Inconvenience of this Barometer, is, that to prevent the Mercury and Air from changing Places, the Bore of the Tube must be very small; which Smallness of the Bore renders the Friction so sensible, as to impede its playing.

The *Marine Barometer* is likewise a Contrivance of Dr. *Hook*, to be used at Sea, where the Motion of the Waves render the others impracticable. It is nothing more than a double Thermometer, or a Couple of Tubes half filled with Spirit of Wine; the one hermetically sealed at both Ends with a Quantity of common Air inclosed; the other sealed at one End, and open at the other.

Now the Air, we know, is able to act on the Spirit of Wine, and raise it two Ways, the one by its Gravity, as in the *Torricellian* Tube; the other by its Heat, as in the Thermometer. If then the two Tubes be graduated, so as to agree with each other at the Time when the Air is inclosed, it will easily follow, that wherever the two agree afterwards, the Pressure of the Atmosphere is the same, as at the Time when the Air was inclosed. If in the Thermometer, open to the Air, the Liquor stand higher, considering withal how much the other is risen or fallen, from the other Cause of Heat or Cold, the Air is heavier; on the contrary, when it is lower, compared with the other, the Air is lighter than at the Time when the Instrument was graduated.

Here the Spaces answering to an Inch of Mercury, will be more or less, according to the Quantity of the Air inclosed, and the Smallness of the Tubes; and may be increased almost in any Proportion.

But it must be remember'd, that the Density and Rarity of the Air, on which this Machine is founded, do not only depend on the Weight of the Atmosphere, but also on the Action of Heat and Cold. This, therefore, can never be a just Barometer, but may properly enough be called a *Manoscope*, an Instrument to shew the Density of the Air.

Nevertheless, the Instrument is said to be of good Use in giving Notice of all bad Weather at Sea, also of variable Winds.

The *Statical Barometer*, or *Baroscope*, used by Mr. *Boyle*, *Otto de Guerick*, &c. is fallacious and liable to be acted on by a double Cause. It consists of a large Glass-Bubble, ballanced by a Brass Weight, in a nice Pair of Scales: For these two Bodies being of equal Gravity, but unequal Bulk, if the Medium in which they equiponderate be changed, there will follow a Change of their Weight; so that if the Air grows heavier, the greater Body being lighter in Specie, will lose more of its Weight than the lesser, and more compact; but if the Medium grows lighter, then the bigger Body will outweigh the less.

The most accurate Barometer yet invented, seems to be that of Mr. *Caswell*; the Structure whereof he describes as follows: Suppose A B C D (fig. 6.) a Bucket of Water, wherein is the Barometer *x*, *r*, *e*, *z*, *y*, *o*, *f*, *m*, consisting of a Body *x r f m*, and a Tube *e z y o*; the Body and Tube are both concave Cylinders made of Tin, or rather Glass, and communicating with each other. The Bottom of the Tube *z y*, has a Lead Weight to sink it, so as the Top of the Body may may just swim even with the Surface of the Water, by the Addition of some Grain Weights a-top. The Water, when the Instrument is forced with its Mouth downwards, gets up into the Tube to the Height *y o*. There is added on the Top a small concave Cylinder, which we call the Pipe, to distinguish it from the other at Bottom, which we call the Tube: This Pipe is to sustain the Instrument from sinking to the Bottom. In *d* is a Wire, in S, *d e*, two Threads oblique to the Surface of the Water, performing the Office of Diagonals. Now, while the Instrument sinks more or less, by the Alteration of the Gravity of the Air; there, where the Surface of the Water cuts the Thread, is formed a small Bubble, which ascends up the Thread, as the Mercury of the common Barometer ascends, and *vice versa*.

This Instrument, as appears from a Calculation which the Author gives, shews the Alterations in the Air more accurately than the common Barometer, by 1200 Times. He observes, that the Bubble is seldom known to stand still a Minute; that a small Blast of Wind that cannot be heard in a Chamber, will make it sink sensibly; that a Cloud always makes it descend, *&c.*

A *Portable Barometer*, is a Barometer so contrived, as that

that it may be carried from Place to Place without being disorder'd.

A *Portable Barometer* was once an extraordinary Thing; at present they are made portable of all Sorts; being so contrived, as that the Mercury may be screwed quite up to the sealed End of the Tube; by which Means it is secured from swagging, and so endangering the Breaking of the Tube. A Contrivance for which we are indebted to Mr. *Patrick*.

The Phænomena of the Barometer are various; and the Causes assigned for them by several Authors, widely different; nor is its Use in predicting the Weather yet perfectly ascertained.

On the Top of *Snowdon-Hill*, 1240 Yards high, Dr. *Halley* found the Mercury lower by three Inches eight-tenths, than at the Foot thereof; whence it appears, that at every thirty Yards the Mercury sinks one-tenth of an Inch. Mr. *Derham*, from some Experiments he made at the Top and Bottom of the *Monument*, allows 32 Yards perpendicular Ascent, to a Fall of the Mercury of $\frac{1}{10}$ of an Inch; whence we have not only a Foundation for determining the Height of the Atmosphere, which on this Foundation (were it equally dense every where) would not be found more than 5 Miles and $\frac{1}{10}$; but also a very accurate Method of measuring the Height of Mountains. Thus, if on the Surface of the Earth the Mercury be at 30 Inches, at 1000 Foot high, it will be at 28, 91 Inches; at 2000 Foot, 27, 86; at 3000, 26, 85; at 4000, 25, 87; at 5000, 24, 93; at one Mile, 27, 67; at 2 Miles, 20, 29; at 5 Miles, 11, 28; at 10 Miles, 4, 24; at 15 Miles, 1, 16; at 20 Miles, 0, 95; at 30 Miles, 0, 08; at 40 Miles, 0, 012; tho' it must be observed, that this is on a Supposition, that the Atmosphere is equally dense every where.

The greatest Height the Mercury has been known to stand at in the Barometer, at *London*, is 30 Inches $\frac{3}{8}$, its least 28 Inches. Its greatest Height at the Observatory at *Paris*, has been found 28 Inches $\frac{4}{10}$; and its least $26\frac{4}{10}$, of the *Paris* Foot, which exceeds the *London* Foot by $\frac{9}{144}$. And with these Observations agree others made at *Hall* in *Saxony*, by *Wolfius*. At *Algiers* it rises to 30 Inches $\frac{2}{10}$ or $\frac{3}{10}$, with a northerly Wind, though attended with the greatest Rains and Tempests.

It is true, there is an Experiment wherein the Height of the Mercury is found surprizingly to exceed these Numbers; Mercury, perfectly purged, being suspended in a Tube, in the *Torricellian* Way, at the Height of 75 Feet; though by the least Shake it falls down to the ordinary Height.

The Phænomena of the Barometer, Mr. *Boyle* observes, are so very precarious, that it is exceedingly difficult to form any general Rules about the Rise or Fall thereof. Even that which seems to hold most universally, *viz.* that when high Winds blow, the Mercury is the lower, sometimes fails.

Dr. *Halley* gives us the following Observations: That in calm Weather, when the Air is inclined to Rain, the Mercury is commonly low; in serene, good settled Weather, high.

That on great Winds, though unaccompanied with Rain, the Mercury is the lowest of all, with Regard to the Point of the Compass the Wind blows on. That *Cæteris paribus*, the greatest Height of the Mercury, are on Easterly and North-Easterly Winds. That after great Storms of Wind, when the Mercury has been low, it rises again very fast.

That in calm frosty Weather it stands high.

That the more northernly Places find greater Alterations than the more southern; and that within the Tropicks, and near them, there is little or no Variation of the Height of the Mercury at all.

Dr. *Beal* observes, that *Cæteris Paribus*, the Mercury is higher in cold Weather than in warm, and usually in the Morning and Evening than at Mid-day.

That in settled and fair Weather, the Mercury is higher than either a little before or after, or in the Rain; and that it generally descends lower after Rain than it was before it. If it chance to rise higher after Rain, it is generally followed by a settled Serenity.

That there are frequently great Changes in the Air, without any perceptible Alteration in the *Barometer*.

For the Use of Barometers, an ingenious Author observes, that by their Means we may regain the Knowledge which still resides in Brutes, and which we forfeited by not continuing in the open Air, as they generally do; and by our Intemperance, corrupting the Crasis of the Organs of Sense.

As to the Predictions from *Barometers*, Dr. *Halley* has found that the rising of the Mercury forebodes fair Weather after foul, and easterly or north-easterly Wind.

That the falling thereof portends southerly or westerly Winds with Rain, or stormy Wind, or both.

That in a Storm, the Mercury beginning to rise, is a pretty sure Sign that it begins to abate.

Mr. *Patrick* observes, that in hot Weather, the falling of the Mercury presages Thunder; that when foul Weather happens soon after the Fall of Mercury, it seldom holds long: And the same is observed, if fair Weather succeed presently after its Rise.

Lastly, Mr. *Derham*, from a long Series of *Barometrical Observations* made by Dr. *Scheucher*, at *Zurich*, compared with others made at the same Time by himself at *Upminster*, observes, that throughout the whole Year the Mercury was lower at the former Place than at the latter, by sometimes one, and sometimes two Inches; though the Difference at a Medium he computes to be about half an Inch; and thence concludes the Situation of *Zurich* to be near $\frac{1}{4}$ of an *English* Mile higher than that of *Upminster*. He found however, a considerable Harmony between the two; the one usually rising and falling, and that much or little, as the other did; tho' this Harmony is not so compleat as has been observed in *Barometers* nearer Home, as at *London*, *Paris*, *Lancashire*, &c.

These are the chief *Phænomena of the Barometer*, to account for which, the Hypothesis that have been framed are almost infinite. Indeed as the Weight of the Atmosphere is generally allowed to be the Foundation of the *Barometer*, so it is generally granted, that the Alterations in the Weight of the Air, are the Occasion of those in the *Barometer*; and yet even this does not obtain universally. Dr. *Lister*, for Instance, accounts for the Changes of the *Barometer* from the Alterations of Heat and Cold. This, he says, he has often observed, that in Storms, &c. when the Mercury is at the lowest, it breaks and emits small Particles, which he calls a kind of *Fretting*; and argues that in all Times of its descent, it is more or less on the Fret. In this Disorder, he thinks, its Parts are contracted and brought closer together, and for that Reason descend: Besides, in the fretting, they let go little Particles of Air, before inclosed in them; and those rising into the Top of the Tube, the Mercury must sink, both from the Column being shortned by their Escape, and by their laying upon it. Mercury therefore, he adds, rises either in very hot or very cold Weather, between the Tropicks, &c. as being in its natural State; and again, in the intermediate Degrees of Heat and Cold it falls, as being contracted, and as it were convulsed and drawn together. But this Account, however pretty, comes far short of accounting for the Phænomena; nay, in some Respects contradicts them.

The Changes in the Weight of the Atmosphere therefore, must be laid down as the Cause of those in the *Barometer*; but then for the Cause of that Cause, or whence those Alterations arise in the Atmosphere, will be no easy Matter to determine; there being perhaps no one Principle in Nature that will account for such a Variety of Appearances, and those too so irregular. It is probable the Winds, as driven this or that Way, have a great Share in them; some Share too, Vapours and Exhalations, rising from the Earth, may have; some the Changes in the Air of the neighbouring Regions, and some the Flux and Reflux occasioned in the Air by the Moon.

Dr. *Halley* thinks the Winds and Exhalations sufficient; and on their Footing gives us a rational Description of the Barometer: The Substance of what may be said on that Head is as follows.

1. Then, the Winds must necessarily alter the Weight of the Air in any particular Country; and that either by bringing together and accumulating a greater Quantity of Air, and so loading the Atmosphere of any Place; which will be the Case as often as two Winds blow at the same Time from opposite Points towards the same Point; or by

by sweeping away Part of the Air, and removing some of the Load, and thus giving Room for the Atmosphere to expand itself; which will be the Case, when two Winds blow at the same Time, and from the same Point, opposite Ways: Or lastly, by cutting off the perpendicular Pressure of the Atmosphere; which happens as often as any single Wind blows briskly any Way, it being found by Experiment, that a strong Blast of Wind, even made by Art, will render the Atmosphere lighter; and accordingly, the Mercury in the Tube under which it passes, as well as in another at a Distance from it, subsides considerably.

2. The cold nitrous Particles, and even Air itself condensed in the northern Parts, and driven elsewhere, must load the Atmosphere, and increase its Pressure.

3. Heavy dry Exhalations from the Earth must increase the Weight of the Atmosphere, and heighten its elastick Force, as we find the specifick Gravity of Menstruums, increased by dissolved Salts and Metals.

4. The Air being rendered heavier from these and the like Causes, is thereby the more able to support the Vapours; which being likewise intimately mixed with it, and swimming every where equally throughout it, make the Weather serene and fair; again the Air being made lighter by contrary Causes, it becomes unable to support the Vapours wherewith it is replete; these therefore precipitating are gathered into Clouds, and those in their Progress coalesce into Drops of Rain.

These Things observed, say those who espouse Dr. *Halley*'s Sentiment, it appears pretty evident, that the same Causes which increase the Weight of the Air, and make it more able to support the Mercury in the *Barometer*, do likewise make a serene Sky, and a dry Season; and the same Causes which render the Air lighter, and less able to support the Mercury, do likewise generate Clouds and Rain.

Hence, 1. When the Air is lightest, and the Mercury in the *Barometer* lowest, the Clouds are very low, and move swiftly; and when after Rain the Clouds break, and a calm Sky again shines forth, being purged of the Vapours, it appears exceedingly bright and transparent, and affords an easy Prospect of remote Objects.

2. When the Air is heavier, and the Mercury stands higher in the Tube, the Weather is calm, though somewhat less clear by reason the Vapours are dispersed every where equally; if any Clouds now appear, they are very high, and move slowly. And when the Air is heaviest of all, the Earth is frequently found enveloped in pretty thick Clouds, which appear to be formed out of the grosser Exhalations, and which the Air is then able to sustain, though a lighter Atmosphere could not.

3. Hence it is, that the Mercury stands highest in the coldest Seasons, and when the Wind blows from the North, or north-east Corner; for in that Case there are two Winds blowing towards us at the same Time, and from opposite Corners; there being a constant West Wind found in the *Atlantick Ocean*, as the Latitude corresponding to ours. To which we may add, that in a North Wind, the cold condensed Air of the northern Parts is brought hither.

4. Hence, in the northern Regions, the Variation of the Mercury is more sensible than in the southern ones, the Winds being found both more strong, more frequent, more various, and more opposite to each other in the former than in the latter.

Lastly, hence it is, that between the Tropicks, the Variation of the Mercury is scarce sensible; the Winds there being extremely gentle, and usually blowing the same Way.

Now this Account, however well adapted, as pretended, to many of the particular Cases of the *Barometer*, seems to come short of some of the principal, and most obvious ones, and is besides liable to several Objections.

For, 1. If the Wind were the sole Agent in effecting these Alterations, we should have no Alterations without a sensible Wind, nor any Wind without some Alteration of the Mercury, both which are contrary to Experience.

2. If two Winds be supposed blowing from the same Place, *viz.* *London*, opposite Ways, *viz.* N. E. and S. W. there will be two others, blowing from opposite Points, *viz.* N. W. and S. E. to the same Place; which two last will ballance the first, and bring as much Air towards the Point, as the others swept from it. Or thus, in Proportion as the Air is carried off N. E. and S. W. the adjacent Air will crowd in from the other Points, and form a couple of new Currents in the Direction N. W. and S. E. to fill up the Vacancy, and restore the Equilibrium. This is a necessary Consequence from the Laws of Fluids.

3. If the Wind were the sole Agent, the Alterations in the Height of the Mercury would only be relative or topical; there would be still the same Quantity supported at several Places taken collectively: Thus what a Tube at *London* lost, another at *Paris*, or at *Pisa*, or at *Zurich*, &c. would at the same Time gain. But we find the very contrary true in fact; for from all the Observations hitherto made, the *Barometers* in several Parts of the Globe, rise and fall together; so that it must be some Alteration in the absolute Weight of the Atmosphere that accounts for the Rise and Fall of the Mercury.

Lastly, setting aside all Objections, the popular Phænomena, the Mercury's Fall before, and Rise after Rain, seem to be inexplicable on the Foot of this Hypothesis: For, suppose two contrary Winds sweeping the Air from over *London*; we know, that few, if any, of the Winds reach above a Mile high; all therefore they can do will be to cut off a certain Part of the Column of Air over *London:* If the Consequence of this be the Fall of the Mercury, yet there is no apparent Reason for the Rain following it; the Vapours indeed may be let lower, but it will only be till they come into an Air of the same specifick Gravity with themselves, and there they will stick as before.

M. *Leibnitz* endeavours to supply the Defects of this Hypothesis, with a new one of his own. He asserts that a Body immerged in a Fluid, only weighs with that Fluid while it is sustained thereby; so that when it ceases to be sustained, *i. e.* to fall, its Weight ceases to make a Part of that of the Fluid, which by this Means becomes lighter. Thus, adds he, the watery Vapours, while sustained in the Air, increase its Weight; but when let fall cease to weigh along with it: Thus the Weight of the Air is diminished; and thus the Mercury falls, and Rain ensues.

But M. *Leibnitz*'s Principle, notwithstanding the Experiment he brings to confirm, is false, as has been made appear by a Counter-experiment of Dr. *Desaguliers*. For a Body, whether specifically equal or lighter, or heavier than a Fluid, while it is immerged in it, whether it be at Rest or in Motion, adds to the Fluid a Weight equivalent to that of an equal Bulk of the Fluid, as follows from that Law in Hydrostaticks, that Fluids gravitate according to their perpendicular Altitudes. However, were M. *Leibnitz*'s Principle true, yet it is defective; and that in the same Respect with Dr. *Halley*'s: Nor would it account for the Phænomena more than the other. For, supposing the Vapours by being condensed to be put in a Motion downwards, and so causing to gravitate with the Atmosphere; they will therefore fall, till they reach a Part of the Atmosphere of the same specifick Gravity with themselves; and there they will hang as before. If the Mercury falls, it will only be during the Time of that Descent; for these once fixed, the former Gravity is retrieved; or, were it not retrieved, yet no Rain would ensue the Fall of the Mercury.

Some of the most modern Authors speak, on the *Causes of the Phænomena of the Barometer*, in the following Manner.—Suppose, say they, any Number of watery Vesicles floating in any Part of the Atmosphere over any determinate Portion of the Globe, for Instance, over A B (fig. 21.) if the upper Vesicles be condensed by the Cold of the superior Regions, their specifick Gravity will be increased, and they will descend; the horizontal Class, 1, *v. gr.* to 2, 2 to 3, *&c.* where meeting with other Vesicles not yet precipitated, they will coalesce or run into larger Vesicles, by the known Laws of Attraction. Or if we rather chuse to have the Wind act, let it drive either horizontally or obliquely; in the former Case the Vesicles, Class 8, will be driven against 9; those against 10, *&c.* or the oblique Class A 7, driven against 5, 8 against 4, *&c.* by which Means likewise will the Particles coalesce, and form new and larger Vesicles,

ſicles, as before; ſo that their Number, which before was ſuppoſed a Million, will now be reduced, *v. gr.* to a hundred Thouſand.

But by the ſame Coalition, whereby their Number is diminiſhed, their ſpecifick Gravity, if we may ſo call it, is increaſed, *i. e.* they come to have more Matter in the ſame Space, or under an equal Surface; as may be eaſily proved from Principles of Geometry. For in augmenting the Maſs of any homogeneous Body, the Increaſe of Surface does not keep Pace with that of the Solidity; but that of the former, is as the Square of the Diameter; and that of the latter, as the Cube of the ſame.

But ſince the ſame Quantity of Matter is now in a leſs Space, or under leſs Dimenſions, it will loſe leſs of its Weight by the Reſiſtance of the Medium. This is evident, for a Body immerged in a Fluid, loſes nothing of its Weight but by the Friction of its Parts againſt thoſe of the Fluid; but the Friction is evidently as the Surface, therefore where the Surface is leſſen'd, the Reſiſtance muſt be ſo too, conſequently the Veſicles, whoſe Gravity before the Coalition was equal to the Reſiſtance of the Medium, now the Reſiſtance is diminiſhed, will deſcend; and that with a Velocity, in the Ratio of the Increaſe of the Maſs, to the Increaſe of the Surface.

In their Deſcent, as they arrive at denſer Parts of the Atmoſphere, *v. gr.* at 4, 5, *&c.* their Maſs and Surface again will be increaſed by new Coalitions; and thus by conſtant freſh Acceſſions, more than equal to the conſtant Reſiſtances, they will be enabled to purſue their Journey, through all the Stages of the Air, till they reach the Earth; their Maſſes exceedingly magnified; and in the Form of Rain.

Now, that the Vapours are got down, let us conſider, add they, how the Barometer muſt have been affected in their Paſſage, ere any of the Veſicles began to ſubſide, either from the Action of the Cold, or of the Wind, they all floated in the Portion of the Atmoſphere A B C D, and all gravitated towards the Center E. Here now, each reſpectively reſiding in a Part of the Medium of the ſame ſpecifick Gravity with itſelf, will loſe as much of its Weight, as is equal to that of a Part of the Medium of the ſame Bulk with itſelf, *i. e.* each will loſe all its Weight. But then whatever Weight each loſes, it communicates to the Medium, which now preſſes on the Surface of the Earth A B, with its own Weight, and that of the Veſicles conjointly. Suppoſe, then, this united Preſſure keeps up the Mercury in the Barometer, at thirty Inches: By the Coalition of the Veſicles from the Cauſes aforeſaid, their Surfaces, and conſequently their Friction, is leſſen'd: They will therefore communicate leſs of their Weight to the Air, *i. e.* leſs than the whole; and conſequently will deſcend with the Acceſs, *i. e.* with a Velocity equal to the Remainder, as before obſerved. Now, as the Veſicles can act no otherwiſe on the Surface of the Earth A B, but by the Mediation of the interjacent Air; in Proportion as their Action on the Medium is leſs, their Action on the Earth will be leſs. It is alſo evident, that the Surface of the Earth A B, muſt be now leſs preſſed than before: And that in Proportion as the Veſicles reſerve more of their Weight uncommunicated to the Medium, to promote their own Deſcent, *i. e.* in proportion to the Velocity of their fallen Veſicles; which is again in proportion to their Bulks. Thus, as the Veſicles deſcend, the Bulks continually increaſing the Friction, and therefore their Preſſure on the Earth, and laſtly the Height of the Mercury will continually decreaſe, during the whole Time of the Fall. Hence we ſee both why the Veſicles, when once beginning to fall, perſevere; why the Mercury begins to fall at the ſame Time; and why it continues and ceaſes to fall together with them; which were the great *Deſiderata* in the Philoſophy of the Barometer.

The Aſſerters of this Theory ſay, that they ſee but one Objection that lies againſt it; which is this, that the Veſicles being put in Motion, and ſtriking againſt the Particles of the Medium, and one another with ſome Moment, will meet with a conſiderable Reſiſtance from the *Vis inertiæ* thereof; by which Means their Deſcent will be retarded, and the Preſſure of the Atmoſphere retrieved; the Impetus of the moving Veſicles being ſuppoſed to compenſate for their Loſs of Force. Thus a heavy Body ſuſtained in a Fluid by a Hair, and moved up and down therein, preſſes more on the Bottom, than when held at Reſt; which additional Preſſure will be the greater, as the Velocity of the falling Veſicles is greater; a greater Impulſe being required to break thro' the *Vis inertiæ* of the contiguous Particles, in a leſs Time, than in a larger.

But they pretend, that they have both Reaſon and Experiment againſt this Objection: For beſides that, the Velocity of the Veſicles, in theſe Circumſtances, muſt be very ſmall, and their Impulſe inconſiderable; beſides that, the *Vis inertiæ* of the Air muſt be very weak, by Reaſon of its extreme Subtility; and that it muſt be a very improper Vehicle to convey an Impulſe to a Diſtance, by Reaſon of its Elaſticity: We find, that even in Water (a groſs unelaſtick Medium) and a Piece of Lead, (a ponderous Body which falls with a great Moment) that even here the Body, in its Deſcent through the Fluid, gravitates conſiderably leſs than when ſuſtained at Reſt therein: In which the ſeveral Experiments of *Reaumur*, *Ramarzini*, and *Deſagulier*, all agree.

III. *Elaſticity.* — A Power of yielding to an Impreſſion, by contracting its Dimenſions; and upon removing or diminiſhing the impulſive Cauſe, returning to its former Space or Figure. This elaſtick Force is accounted the diſtinguiſhing Property of the Air; the other Properties hitherto enumerated, being common to it with other Fluids.

Of this Power we have numerous Proofs. Thus a blown Bladder being ſqueezed in the Hand, we find the included Air ſenſibly reſiſt; ſo as upon ceaſing to compreſs, the Cavities or Impreſſions made in its Surface, are readily expanded again, and filled up.

On this Property of Elaſticity, the Structure, and Office of the Air-Pump depends; which is a Machine, which elucidates all the Experiments made to prove the Elaſticity of the Air.

The Invention of this noble Inſtrument, to which the preſent Age is indebted for ſo many fine Diſcoveries, is aſcribed to *Otto de Guerick*, the celebrated Conſul of *Magdebourg*; who exhibited his firſt publick Experiments therewith, before the Emperor and the States of *Germany*, at the breaking up of the Imperial Diet at *Ratiſbon*, in the Year 1654.

Dr. *Hook*, and M. *Du Hamel*, indeed, aſcribe the Invention to Mr. *Boyle*; and it is ſtill called in *France*, *Boyle's Machine*; but that illuſtrious Author frankly confeſſes *De Guerick* to have been before-hand with him: Some Attempts, he aſſures us, he had made upon the ſame Foundation, before he knew any Thing of what had been done abroad: But the Information he afterwards received from *Schottas's Machina Hydraulico-Pneumatica*, publiſhed in 1657, wherein was an Account of *Guerick*'s Experiments, firſt enabled him to bring his Deſign to any Thing of Maturity. From hence, with the Aſſiſtance of Dr. *Hook*, after two or three unſucceſsful Trials, aroſe a new Air-Pump; more eaſy and manageable than the *German* one: And hence, or rather from the great Variety of Experiments, that celebrated Author applied it to, the Engine came to be denominated *Machina Boyleana*, the Machine of *Boyle*.

As to the Structure and Uſe thereof; its Baſis or eſſential Part, is a metalline Tube, anſwering to the Barrel of a common Pump or Syringe; having a Valve at the Bottom opening upwards, and a moveable Piſton or Embolus, anſwering to a Sucker of a Pump, furniſhed, likewiſe, with a Well opening upwards: The whole fitted to a Veſſel, as a Recipient.

The reſt being only Circumſtances chiefly reſpecting Conveniency, has been diverſified and improved from Time to Time, according to the ſeveral Views and Addreſs of the Makers. That of *Otto de Guerick* being leſs artful, labours under ſeveral Defects, in Reſpect of the Force neceſſary to work it, which was very great; and the Progreſs very ſlow: Beſides that it was to be kept under Water; and allowed of no Change of Subjects for Experiments.

Mr. *Boyle*, by Degrees, removed ſeveral of theſe Inconveniencies, and alleviated others: But ſtill the making of his Pump was laborious, by Reaſon of the Preſſure of the Atmoſphere, a great Part of which was to be removed at every Exſuction, after a Vacuum, as they are pleaſed to call it, was nearly arrived at it. But this Inconvenience has been ſince removed by Mr. *Hawkſbee*, who, by adding a ſecond Barrel and Piſton to the former,

mer, to rise, as the other fell, and fall as it rose; made the Pressure of the Atmosphere on the descending one, of as much Service, as it was of Disservice in the ascending one.

Some of the *Germans* have also brought the *Air-Pump* to do the opposite Office of a Condenser: But this is not to make the Instrument so much the better, or more complex.

The *Air-Pump*, as it is now made among us with all its Advantages (fig. 16.) consists of two brazen Barrels or Cylinders represented by *a a a a*; which communicates with each other by a Canal passing between them at *d d*, and with a Receiver *o o o*, by means of a hollow Wire *b b*, one End whereof opens into the Canal of Communication, and the other into a like Canal *n n*, which penetrating the Plate *i i i i*, opens into the Receiver.

Within the Cylinder are two Emboli, or Suckers, made of Brass, and fitted with Cork and Leather to the Cavities of the Barrels, so as exactly to fill the same; each being furnished with its Valve, and terminating at Top in a Rack *c c*, by which it is to be worked.

At the Bottom of either Barrel is another Valve; by which the Air may pass out of the communicating Canal *a d*, and consequently out of the hollow Wire, and the Receiver itself, into the Cylinder below the Piston; from whence by the Valves of the Piston it may proceed into the upper Space of the Cylinder, and thus into the open Air.

For the *Application* of this Mechanism, the Winch *h h* being turned upwards and downwards, its Spindle *f* catching by its Teeth into the Racks, will rise and depress the two Pistons alternately. Now, the Consequence of depressing a Piston is, that the Air before inclosed between it and the Bottom of the Cylinder, being thus crowded into a less Compass, will, by its elastick Force, which now exceeds the Pressure of the Atmosphere, push up the Valve of the Piston, and thus escape, till what little Remains be of the same Density with the external Air incumbent on the Valve.

This done, and the same Piston being again raised in its Turn, from the Bottom of the Cylinder to the Top; the little Air before left will of Necessity expand itself, so as to possess the whole Space of the Cylinder thus deserted by the Piston: Upon which its Force or Pressure upon the Valve at the Bottom of the Cylinder being now inconsiderable; the other denser Air of the Receiver, hollow Wire, and Canal of Communication, by their superior elastick Force, will lift up the Valve, and thus pass into the Cylinder of rarified Air, till both be of the same Degree of Density.

And thus is the Air in the Receiver diminished at each Elevation of the Piston, by the Quantity of a Cylinder-full; abating for what little remained between the depressed Piston and the Bottom. So that by thus repeating the Operation again and again; the Air in the Receiver is at length rarified to such a Degree, that its Density does not exceed the thin Air remaining in the Cylinder when the Piston is raised: Which done, the Effect of the *Air-Pump* is at an End; the Valve cannot now be opened, or if it could, no Air would pass it; there being a just Equilibrium between the Air on each Side.

To judge of the Degree of Exhaustion, there is added a Gage *l l*, consisting of a Tube, whose upper Orifice communicates with the Receiver; the lower being immerged in a Bason of Mercury *m m*. Hence the *Air* in the Tube rarifying as fast as that in the Receiver; in Proportion as the Exhaustion advances, the Mercury will be raised by the Pressure of the Column of external *Air*, prevailing over that of the Column of *Air* included, till the Column of *Air*, and Mercury together, become a Ballance to that of the external *Air*. When the Mercury is thus risen to the same Height as it stands in the Barometer, which is indicated by the Scale of Inches added to the Gage; the Instrument is a just torricellian Tube; and the Vacuum, say those who admit such Things, may be concluded to be as perfect as that in the upper End of the Barometer.

To let *Air* again into the exhausted Receiver, the Cock *n* is to be turned; which makes a Communication with the external *Air*; upon which the *Air* rushing impetuously in, the Mercury in the Gage immediately subsides into the Bason.

To the *Air-Pump* belongs a large Apparatus of other Vessels, accommodated to the divers Kinds of Experiments.

The Laws of Rarefaction in the *Air-Pump* are as follows.—1. For the Proportion of *Air* remaining at any Time in the Receiver, we have the following Theorem. —In a Vessel exhausted by the *Air-Pump*, the primitive or natural *Air* contained therein, is to the *Air* remaining, as the Aggregate of the Capacity of the Vessel of the Pump (*i. e.* the Cylinder left vacant in an Elevation of the Piston, with the Wire and other Parts between the Cylinder and the Receiver) raised to a Power whose Exponent is equal to the Number of Strokes of the Piston, to the Capacity of the Vessel alone raised to the same Power.

M. *Varignon* gives us an algebraical Demonstration of this Theorem, in the Memoirs of the Royal Academy of the Sciences; but it may be also demonstrated pneumatically, thus:—Calling the *Air* remaining after the first Stroke, the *first Residual*; that after the second, the *second Residual*, &c. and remembring that the *Air* in the Receiver is of the same Density as that in the Cylinder, when the Piston is raised: It is evident, that the Quantity of *Air* in the Receiver, is to the Quantity of *Air* in the Cylinder, Wire, *&c.* as the Capacity of the Receiver to that of the Cylinder, *&c.* and consequently the Aggregate of the *Air* in the Receiver and the Cylinder, *i. e.* the whole primitive *Air* is to the *Air* of the Vessel alone, *i. e.* to the first residual *Air*, as the Aggregate of the Capacity of the Receiver and the Cylinder, to the Capacity of the Receiver alone. After the same Manner may it be proved, that the Quantity of the first residual *Air*, is to the second Residual, as the Aggregate of the Capacity of the Receiver and Cylinder to the Capacity of the Vessel alone. And the same Proportion does the second Residual bear to the third, and so of the rest. Hence the Product of the primitive *Air* into the first, second, third, fourth, *&c.* Residuals, is to the Product of the first Residual into the second, third, fourth, fifth, *&c.* as the Product of the Capacity of the Receiver and Cylinder together, multiplied as oft into itself as the Number of Strokes of the Piston contains or emits, is to the Factum arising from the Capacity of the Receiver alone, multiplied so often by itself; that is, as the Power of the Aggregate of the Capacity of the Receiver and Cylinder together, whose Exponent is the Number of Strokes of the Piston, to the Capacity of the Vessel alone, raised to the same Power. Consequently the primitive *Air* is to the last Residual, in the Ratio of those Powers, Q. E. D.

2. The Number of Strokes of the Piston, together with the Capacity of the Receiver and Cylinder, with the Wire, *&c.* being given, to find the Ratio of the primitive *Air* to the *Air* remaining; substract the Logarithm of the Capacity of the Receiver, from that of the Sum of the Capacity of the Receiver, and the Cylinder; then the Remainder being multiplied by the Number of Strokes of the Piston, the Product will be a Logarithm, whose natural Number shews how oft the primitive *Air* contain the Remainder required.

Thus if the Capacity of the Receiver be 460, that of the Cylinder 580, and the Number of Strokes of the Piston 61, the primitive *Air* will be found to the remaining *Air*, as $146\frac{4}{10}$ to 1.

For suppose the Capacity of the Vessel $= v$; that of the Cylinder and Vessel $= a$; the Number of Strokes of the Piston $= n$; and the remaining *Air* $= 1$. Since the primitive is to the remaining *Air* as $a^n v^n$; the primitive *Air* will also be to the remaining *Air* as $a^n v^n$ to 1. consequently if the remaining *Air* be 1, the Logarithm of the primitive *Air* is $a - v + n$.

3. The Capacity of the Receiver and the Barrel being given, to find the Number of Strokes of the Piston required, to rarify the *Air* to a given Degree.

Substract the Logarithm of the remaining *Air* from the Logarithm of the primitive *Air*; and the Logarithm of the Capacity of the Receiver, from the Logarithm of the Aggregate of the Capacity of the Receiver and Cylinder; then dividing the former Difference by the latter, the Quotient is the Number of Strokes required.

Thus if the Capacity of the Cylinder be supposed 580, that

that of the Receiver 460; and the primitive *Air* to the remaining *Air*, as 1464 to 10; the Number of Strokes required, will be found to be 6.

As to the Effects and Phænomena of the *Air-Pump*; it is pretended by the Asserters of the *Vacuum Boyleanum*, that we arrive at it by Means of the *Air-Pump*.—Thus any Thing put in a Receiver so exhausted, is said to be put *in vacuo*; and some of the principal Phænomena thereof to be, that the heaviest and lightest Bodies as a Guinea, and a Feather, falls here with equal Velocity.—That Fruits, as Grapes, Cherries, Apples, *&c.* kept for any Time *in vacuo*, retain their Nature, Freshness, Colour, *&c.* and those wither'd in the open Air, recover their Plumpness *in vacuo*.—All Light, and Fire becomes immediately extinct *in vacuo*.—The Coalition of Flint and Steel *in vacuo*, produces no Sparks.—No Sound is heard, even from a Bell rung *in vacuo*.—A square Viol, full of common Air, well closed, breaks *in vacuo*; a round one does not.—A Bladder half full of Air will heave up forty Pounds Weight *in vacuo*.—Cats, and most other Animals readily expire *in vacuo*.

By Experiments made in 1704, Mr. *Derham* found, that Animals which have two Ventricles, and no Foramen ovale, as Birds, Dogs, Cats, Mice, *&c.* die in less than half a Minute; counting from the first Exsuction: A Mole died in one Minute, a Bat lived seven or eight. Insects, as Wasps, Bees, Grashoppers, *&c.* seemed dead in two Minutes; but being left *in vacuo* twenty-four Hours, came to Life again in the open Air: Snails continued twenty-four Hours *in vacuo*, without appearing much concern'd.

Seeds planted *in vacuo* do not grow.—Small Beer dies, and loses all its Taste *in vacuo*.—Lukewarm Water boils very vehemently *in vacuo*.—Air, rushing through Mercury into a Vacuum, throws the Mercury in a Kind of Shower upon the Receiver, and produces a great Light in a dark Room.

The *Air-Pump* can never produce a precise Vacuum, if even such a Thing was possible; as is evident from its Structure, and the Manner of its Working: In effect, every Exsuction only takes a Part of the Air: So that there will still be some left after any finite Number of Exsuctions.—Add, that the *Air-Pump* has no longer any Effect, than while the Spring of the Air remaining in the Receiver, is able to lift up the Valves: When the Rarefaction is come to that Degree, you can come no nearer to a Vacuum. Sir *Isaac Newton* observing that a Thermometer suspended *in vacuo*, and in that State removed to a warm or a cold Room, receives the Heat or Cold, rises or falls almost as soon as another in open Air; takes thence occasion to suspect, that the Heat of the warm Room is conveyed through the Vacuum, by the Vibrations of a much subtler Medium than Air, which remained in the Vacuum, after the Air was drawn out.

The other Effects and Phænomena of the *Air-Pump*, are as follow: The Flame of a Candle *in vacuo*, usually goes out in a Minute, though sometimes it lasts two; but the Wick thereof continues ignited after; and even emits a Smoak, which ascends upwards.—A kindled Charcoal is totally extinguished in about five Minutes, though in open Air it remains alive half an Hour; it goes out by Degrees, beginning from the Top and the Outsides.—Red-hot Iron is not affected by the Absence of the Air; and yet Sulphur or Gunpowder will not be lighted thereby, but only fused.—A Match, after lying seemingly extinct *in vacuo*, a long Time; revives again upon the Re-admission of the Air.—A Flint and Steel strikes Sparks of Fire as copiously *in vacuo* as out of it; and the Sparks move in all Directions, upwards, downwards, *&c.* here, as in the Air.—Magnets and magnetick Needles, are the same *in vacuo*, as in the Air.—Smoak, in an exhausted Receiver, the Luminary being extinct, gradually settles to the Bottom in a darkish Body, leaving the upper Part clear and transparent; and inclining the Vessel sometimes on one Side, and sometimes on another, the Fume keeps its Surface horizontal, after the Nature of other Fluids.—The Syphon does not run *in vacuo*.—Water freezes *in vacuo*.—Heat may be produced by Attrition in the exhausted Receiver.—Camphire will not take Fire *in vacuo*; and Gunpowder, though some Grains of a Heap be kindled by a Burning-Glass *in vacuo*, will not give Fire to the contiguous Grains.—Glow-Worms lose their Light, in Proportion as the Air is exhausted, and at length become totally obscure: But upon the Re-admission of Air, presently recover it all.—Vipers and Frogs swell much *in vacuo*, but will live an Hour and a half, or two Hours; and though seemingly stark dead in that Time, come to life again in some Hours in the Air.—Snails survive ten Hours, and Effs or Slow-Worms, two or three Days; Leaches five or six.—Oysters will remain alive *in vacuo* 24 Hours without Harm.—The Heart of an Eel taken out of the Body, continues to beat *in vacuo*, more nimbly than in Air; and this for a good Part of an Hour.—Warm Blood, Milk, Gall, *&c.* undergo a considerable Intumescence and Ebullition *in vacuo*.—A Mouse, and other Animals, may be brought, by Degrees, to survive longer in a rarified Air, than naturally it does.—Air may retain its usual Pressure, after it is become unfit for Respiration.—Silk-worms Eggs will hatch *in vacuo*, &c. all which Experiments were made by Mr. *Boyle*.

This Nisus, or Endeavour to expand every Particle of Air always exerts, and thus strives against an equal Endeavour of the ambient Particles; whose Resistance happening by any Means to be weaken'd, it straight diffuses into an immense Extent.—Hence it is, that thin Glass Bubbles, or Bladders full of Air, and exactly closed, being included in the exhausted Receiver of the *Air Pump*, burst by the Force of the inclosed Air. So a Bladder quite flaccid, containing only the smallest Quantity of Air, swells in the Receiver, and appears quite full.

This Power of Elasticity does not seem to have any Limits assigned it; nor does it appear capable, by any Means whatever, of being destroyed or diminished.—Mr. *Boyle* made several Experiments with a View to discover how long Air, brought to the greatest Degree of Expansion he could reduce it to in his *Air-Pump*, would retain its Spring, and could never observe any sensible Diminution; even though this thin Air was clogged some Months with a Weight which one would wonder how it should support a Moment.

Yet Mr. *Hawksbee*, by a later Experiment, has shewn, that the Spring of the Air may be so disturbed by a violent Pression, as to require some Time to return to its natural Tone.

The Weight or Pressure of the Air, it is obvious has no Dependance on its Elasticity; but would be the same whether the Air had such Property or not.—But the Air in being elastick, is necessarily affected by the Pressure, which reduces it into such a Space, as that the Elasticity which re-acts against the compressing Weight, is equal to that Weight.

In effect, the Law of this Elasticity, is, that it increases as the Density of the Air increases; and the Density increases, as the Force increases wherewith it is pressed. Now there must necessarily be a Ballance between the Action and Re-Action, *i. e.* the Gravity of the Air which tends to compress it, and the Elasticity of the Air, which endeavours to expand it, must be equal.

Hence the Elasticity increasing, or diminishing universally as the Density increases or diminishes, *i. e.* as the Distance between the Particles diminishes or increases; it is no Matter whether the Air be compressed and retained in such Space by the Weight of the Atmosphere, or by any other Means: It must endeavour in either Case, to expand with the same Force. And hence, if Air near the Earth be put up in a Vessel, so as to cut off all Communication with the external Air; the Pressure of the inclosed Air will be equal to the Weight of the Atmosphere. Accordingly we find Mercury sustained to the same Height, by the elastick Force of Air, inclosed in a Glass Vessel, as by the whole atmospherical Pressure.

Hence the Structure of the *Wind-Gun*, which is a Machine serving to explode Bullets, and other Shot with great Violence, by the Force of the Air.

This Sort of Arm charged with Air, has an Effect scarce inferior to that of a common Fire-Arm charged with Gunpowder; but it discharges itself with a much less Report; and it is this, which in all Probability gave Occasion to the Fable of white Gunpowder.

There are *Wind-Guns* of divers Contrivances; the most easy and portable one, and the most in Use is represented (*Tab. Pneum. fig.* 14.) it consists of a round metalline Tube 3, 3, open at the End *c*, *c*, and exactly stopped at the other End *a*, like the Barrel of other Guns: 1, 1, 1, 1, is another larger Metal Tube, wherein the former is disposed, so as to leave a Space between them 4, 4, wherein Air may be inclosed.—The two Tubes are joined together at the common Aperture *c c*, by a circular Plate exactly solder'd to both, so as to prevent the Air from escaping out of the Space 4, 4, *&c.* At 8 is a Spring Valve, which opening inwardly, let the Air pass through from 2 into the Space 1, but prevents its Return from 1 to 2. Near the close End of the inner Tube are two Holes 6 and 5; by the first, the Space 1, and the inner Tube communicate, so that the Air would pass out of that into this, but that the Passage is stopped by a Valve opening outwardly; by the latter there is a Communication between the open Air, the Space 4, and the inner Barrel; only the Air pent up in the Space, cannot escape at this Hole, by Reason of a little Tube exactly solder'd to both Barrels, which stops the Communication: Nor can Air escape out of the inner Barrel through this little Tube, by Reason of a little moveable Pin, which exactly fills the Cavity of the Tube.

Lastly, the Part 2, 2, 2, 2, represents the Body of a Syringe, or Sucking-Pump; by which as much Air as possible is to be intruded into the Space 4, 4, *&c.* After which a Bullet being put into a Cavity of the inner Barrel, as high as the little Tube 5, the Gun is charged.

Now to discharge it, the little Valve 6, is pushed up by Means of the Pin that plays in the little Tube 5. Upon this, the compressed Air in the Cavity of the outer Barrel 4, rushing through the Hole 6, into the Cavity of the inner Barrel, expels the Bullet with a vast Force, sufficient to penetrate a thick Board.

To give the Machine a greater Resemblance of a Fire-Arm, the Part 2, 2, 2, 2, is usually fashioned like the But-End of a Musket; and on the Part 2, 8, 2, 8, is fitted a Lock; by turning the Trigger of which, the Pin 5 is made to push back the Valve, and so discharge the Piece. By the Lock it is contrived, that either the whole Charge of Air may be spent by Explosion, or only Part of it, and the rest reserved for fresh Bullets. By this Piece of Mechanism we can have half a Dozen good effective Shoots, with one Charge of Air.

Dr. *Halley* asserts, in the *Philosophical Transactions*, that from the Experiments made at *London*, and by the Academy *del Cimento* at *Florence*, it may be safely concluded, that no Force whatever is able to reduce Air into eight hundred Times less Space than it naturally possesses on the Surface of our Earth. In answer to which M. *Amontons*, in the Memoirs of the *French* Academy, maintains, that there is no fixing any Bounds to its Condensation; that greater and greater Weights will still reduce it into less and less Compass; that it is only elastick in virtue of the Fire it contains; and that as it is impossible ever absolutely to drive all the Fire out of it, it is impossible ever to make the utmost Condensation.

The Dilatation of the Air by reason of its elastick Force, is found to be very surprizing; and yet Dr. *Wallis* suggests, that we are far from knowing the utmost it is capable of. In several Experiments made by Mr. *Boyle*, it dilated first into nine Times its former Space; then into 10,000; and even at last into 13679 Times its Space; and all this by its own expensive Force, without any Help of Fire.

On this depends the Structure and Use of the *Monometer*, which is an Instrument to shew or measure the Alterations in the Rarity or Density of the Air.

The MONOMETER, differs from the Barometer, in that the latter only measures the Weight of the Atmosphere, or of the Column of Air over it; but the former the Density of the Air in which it is found: Which Density depends not only on the Weight of the Atmosphere, but on the Action of Heat and Cold, *&c.* Authors, however, generally confound the two together, and Mr. *Boyle* himself gives us a very good *Manometer* of his Contrivance, under the Title of a *statical Barometer*, the Structure whereof is given under the Article Barometer.

Hence it appears, that the Air we breathe, near the Surface of the Earth, is compressed by its own Weight into at least the 13679th Part of the Space it would possess *in vacuo*. But if the same Air be condensed by Art, the Space it will take up when most dilated, on that it possesses when condensed, will be, according to the same Author's Experiment, as 55,000 to 1.

Hence we see how wild and erroneous was that Observation of *Aristotle*, that *Air* rendered ten Times rarer than before, changes its Nature, and becomes Fire.

M. *Amontons* and others, we have already observed, take the Rarefaction of *Air* to arise wholly from the Fire contained in it; and hence, by increasing the Degree of Heat, the Degree of Rarefaction may be carried still further than its spontaneous Dilatation.

On this Principle depends the Structure and Office of the *Thermometer*, which is an Instrument shewing, or rather measuring the Increase and Decrease of the Cold and Heat of the *Air*.

THERMOMETER, and *Thermoscope*, are ordinarily accounted the same Thing; *Wolfius*, however, makes a Difference; but shews withal, that what we call *Thermometers* are, in Reality, no more than *Thermoscopes*.

There are various Kinds of *Thermometers*, the Constructions, Defects, Theory, *&c.* whereof are as follow.

For the *Construction of a Thermometer depending on the Rarefaction of the Air*; in a Tube B C (fig. 3. n. 2.) to which is fastened a Glass Ball A B, is put a Quantity of common Water mixed with Aqua Regia, to prevent its freezing; and the Mixture tinged with a Solution of Vitriol, to give it a Greeness. In filling the Tube, Care is taken that there be so much *Air* left in the Ball and the Tube, as that when at its greatest Condensation in the Middle of Winter, it may just fill the Ball; and yet in its greatest Rarefaction in Summer, may not drive all the Liquor out of the Tube. To the other Extreme of the Tube is fastened another Glass Ball C D, open to the *Air* at D: On each Side the Tube is applied the Scale E F, divided into any Number of equal Parts.

Now, as the ambient *Air* becomes warmer, the *Air* in the Ball and the Top of the Tube expanding, will drive the Liquor into the lower Ball; and consequently its Surface will descend: On the contrary, as the ambient Air grows colder, that in the Ball becoming condensed, the Liquor will ascend.

For the *Construction of a mercurial Thermometer*; in the same Manner, and with the same Caution as before, put a little Quantity of Mercury, not exceeding the Bigness of a Pea, into a Tube B C (fig. 4. n. 2.) thus bent in Wreaths, that taking up the less Height, it may be the more manageable, and less liable to Harm; divide this Tube into any Number of equal Parts to serve for a Scale.

Here the Approaches of the Mercury towards the Ball A will shew the Increases of the Degrees of Heat. The Reason is the same as in the former.

The Defect of both these Instruments consists in this, that they are liable to be acted on by a double Cause: For, not only a Decrease of Heat, but also an Increase of Weight of the Atmosphere will make the Liquor rise in the one, and the Mercury in the other; and on the contrary, either an Increase of Heat, or Decrease of Weight in the Atmosphere, will make it descend.

For the *Construction of the Florentine, or common Thermometer*; the Academists *del Cimento* considering the Inconveniences of the *Thermometers* just described, attempted another, that should measure Heat and Cold by the Rarefaction and Condensation of the Spirit of Wine, though those be vastly less than of *Air*; and consequently the Alterations in the Degrees of Heat like to be much sensible.

The Structure of their *Thermometer* is this: On some little Pieces of Turmerick is poured a Quantity of rectified Spirit of Wine, which hereby receives a red Tincture; this done, the Spirit of Wine is filtrated again and again through a brown Paper, that the coarse Particles of the Root may be separated therefrom. With the Spirits thus tinged and prepared they fill a Glass Ball A B (fig. 5. n. 2.) and a Tube B C; and that all the Spirit may not descend in the Winter into the Ball, it is convenient to put the Ball into a Lump of Snow, mixed with Salt; or, if the Instrument be to be made in Summer, into Spring Water, impregnated with Saltpetre,

petre, that the condenſed Spirit may ſhew how far it will retire in the extremeſt Cold.

If it riſe to too great a Height from the Ball, Part of it is to be taken out; and that the Tube may not be made longer than need, it is convenient to immerge the Ball, filled with its Spirit, in boiling Water, and to mark the furtheſt Point, to which the Spirit then riſes.

At this Point the Tube is to be hermetically ſealed by the Flame of a Lamp; and at the Sides is to be added a Scale, as in the former *Thermometer*.

Now, Spirit of Wine rarefying and condenſing very conſiderably, as the Heat of the ambient *Air* increaſes the Spirit will dilate, and conſequently will aſcend into the Tube; and as the Heat decreaſes the Spirit will deſcend: And the Degree or Quantity of Aſcent and Deſcent will be ſeen in the Scale. Yet as the Ratio of Yeſterday's Heat to to-day's is not hereby diſcovered, this Inſtrument is not ſtrictly a *Thermometer*, no more than the former.

It is to be here obſerved, 1. That as the natural Gravity of the Liquor makes it tend downwards, ſo it reſiſts its Aſcent out of the Ball into the Tube; and that the more, as it riſes higher: For which Reaſon it were beſt to have the Tube horizontal.

2. Since there muſt of Neceſſity be ſome Air left in the void Part of the Tube over the Liquor, the Air by its Elaſticity will tend downwards, and of Conſequence will reſiſt the Riſe of the Liquor, and be compreſſed by it as it does riſe: Its Elaſticity therefore is thus increaſed.

3. Since it is found by Experience, that a leſs Degree of Heat is communicated more eaſily to the Spirit of Wine in the Ball than a greater, the Rarefactions of the Spirit of Wine are not proportionable to their producing Cauſes; eſpecially ſince a greater Degree of Heat finds more Liquor in the Tube than a leſs does, to which notwithſtanding, the Heat may be more eaſily communicated than to that ſtagnating in the Ball.

On this Account, the Florentine *Thermometer*, tho' that commonly in Uſe, is far from being an accurate Meaſure of Heat, *&c.* To which may be added what Dr. *Halley* obſerves in the *Philoſophical Tranſactions*, that he has learned from thoſe who have kept Spirit of Wine long, that it loſes Part of its expanſive Force in courſe of Time.

Another great Defect of theſe and other *Thermometers*, is, that their Degrees are not comparable with each other. They mark indeed the different Degrees of Heat and Cold, but each marks only for itſelf, and after its own Manner; for they do not proceed from any Point of Heat or Cold, that is common to them all. It is with them as with two Clocks, which for want of having been firſt ſet to the ſame Hour by the Sun, will indeed mark that one, two, or more Hours are paſſed, but not what Hour it is by the Day. Nor can we be aſſured, that when the Liquor is riſen a Degree in two different *Thermometers*, they have both received the ſame Impreſſion of an equal additional Heat: Since the Spirit of Wine may not be the ſame in both, and in Proportion as this Spirit is more or leſs rectified, it will riſe more or leſs high by the ſame Heat.

Nor is this all: For in graduating *Thermometers*, they take equal Lengths of the Tube for equal Aſcents of the Spirit; whereas, ſuppoſing the Diameters of the Tube equal throughout, which very rarely happens, there are ſo many Irregularities within-ſide, that a certain Length of Tube ſometimes requires double the Quantity of Liquor to fill it, that the ſame Length in another Tube of the ſame Diameter requires. All which ariſes from the unequal Thickneſs of the Parietes of Tubes in different Places; and from accidental Prominences and Cavities, always found in the inner Surfaces of Tubes; and eſpecially from their being almoſt always bigger at one End than the other.

Hence it is, that the Compariſon of *Thermometers* becomes ſo precarious and defective. Yet the moſt curious and intereſting Uſe of *Thermometers* is, what ought to ariſe from ſuch Compariſon. It is by this we ſhould know the Heat or Cold of another Seaſon, of another Year, another Climate, *&c.* what is the greateſt Degree of Heat or Cold that Men and other Animals can ſubſiſt in.

M. *de Reaumur* has contrived a new *Thermometer* for this Purpoſe, wherein the Inconveniences above mentioned are remedied.

Various Methods have been propoſed by various Authors, for finding a fixed Point, or Degree of Heat and Cold, from which to account the other Degrees, and adjuſt the Scale; that ſo Obſervations made at the ſame or different Times, in different Places may be compared together.

Some note the Place the Liquor is at in Winter, when Water begins to freeze; and again, that in Summer, when Butter placed near the Ball of the *Thermometers*, melts; the intermediate Space they divide into two equal Parts, the middle Point whereof anſwers, in their Graduation, to temperate Heat; and each Moiety they ſub-divide into ten Degrees, adding four other equal Degrees on each of the two Extremes. But this Method ſuppoſes the ſame Degree of Heat and Cold to anſwer to the freezing of all Water, and the melting of all Butter; as alſo that all *Thermometers* receive the ſame Impreſſions from the ſame Degree of Heat; all which are contrary to Experience.

Others adviſe the Ball of the *Thermometer* to be put in a Quantity of Snow and Salt, and the Point the Liquor is at to be noted. Thence the *Thermometer* is to be removed into a deep Cave or Cellar, where no external Air reaches; ſo that the Liquor receiving the Action of a temperate Air, may ſhew the Degree of temperate Heat. Laſtly, they divide the intermediate Space into 15, or more equal Parts, which they continue beyond each Extreme: But this Method is liable to the ſame Inconveniences as the former.

Dr. *Halley* aſſumes that for a fixed Degree of Heat, wherein Spirit of Wine begins to boil, but there is Reaſon to ſuſpect this too of being precarious: Though, after him, M. *Amontons* retains the Degree of Heat anſwering to boiling Water, for the graduating his mercurial *Thermometer*. But as the different ſpecifick Gravities of Water, argues a Difference of Maſs and Texture, it is very probable that Heat of all boiling Waters is not the ſame; ſo that the Point is yet undetermined.

M. *Amontons* firſt diſcovered that Air, the denſer it is, the more it will expand with the ſame Degree of Heat. On this Foundation he has a Diſcourſe to prove, 'that 'the Spring and Weight of the Air, with a moderate 'Degree of Warmth, may enable it to produce even 'Earthquakes, and other of the moſt vehement Com-'motions in Nature.'

According to the Experiments of this Author, and M. *de la Hire*, a Column of Air on the Surface of the Earth, 36 Fathoms high, is equal in Weight to three Lines Depth of Mercury; and it is found that equal Quantities of Air poſſeſs Spaces reciprocally proportional to the Weights wherewith they are preſſed; the Weight of the *Air* therefore, which would fill the whole Place poſſeſſed by the terreſtrial Globe, would be equal to a Cylinder of Mercury, whoſe Baſe is equal to the Surface of the Earth, and its Height containing as many Times three Lines, as the atmoſpherical Sphere contains Orbs equal in Weight to 36 Fathoms of that wherein the Experiment was made. Hence, taking the denſeſt of all Bodies, *v. gr.* Gold, whoſe Gravity is about 14630 Times greater than that of *Air* in our Orb, it is eaſy to compute that this *Air* would be reduced to the ſame Denſity as Gold by the Preſſure of a Column of Mercury 14630 Times 28 Inches high, *i. e.* 409640 Inches; ſince the Bulks of *Air* in that Caſe will be in the reciprocal Ratio of the Weights wherewith they are preſſed. This 409640 Inches therefore expreſſes the Height at which the Barometer muſt ſtand, where the *Air* would be as heavy as Gold, and the Number $\frac{1}{14630}$ Lines, the Thickneſs to which our Column of 36 Fathoms of *Air* would be reduced in the ſame Place.

Now, we know that 409640 Inches, or 43528 Fathoms, is only the 74th Part of the Semi-diameter of the Earth: And when you are paſt that, whatever Matters there be, they muſt be heavier than Gold: It is not improbable therefore, that the remaining Sphere of 6451538 Fathoms Diameter, may be full of denſe *Air* heavier, by many Degrees, than the heavieſt Bodies among us. Hence again, as it is proved, that the *Air* is compreſſed, the more the ſame Degree of Fire increaſe the Force of its Spring, and render it capable of ſo much the greater Effect; and that, for Inſtance, the Heat of boiling Water increaſes the Spring of our *Air* beyond

beyond what it ordinarily is, by a Quantity equal to one Third of the Weight wherewith it is preſſed: We may infer, that a Degree of Heat, which in our Orb can only produce a moderate Effect, may have a very violent one in ſuch lower Orb; and that as there may be ſome Degrees of Heat in Nature beyond that of boiling Water, it is probable there may be ſome, whoſe Violence, thus aſſiſted by the Weight of the *Air*, may be ſufficient to tear aſunder the ſolid Globe.

This elaſtick Power of the *Air*, is the ſecond great Source of the Effects of this important Fluid. In virtue hereof it inſinuates into the Pores of Bodies, carrying with it this prodigious Faculty of expanding; and that ſo eaſy to be excited: Whence it muſt neceſſarily put the Particles of the Bodies it is mixed withal into perpetual Oſcillations. In effect, the Degree of Heat, and the Air's Gravity and Denſity, and conſequently its Elaſticity and Expanſion, never remaining the ſame for two Minutes together; there muſt be an inceſſant Vibration, or Dilatation and Contraction in all Bodies.

This Reciprocation we obſerve in ſeveral Inſtances, particularly Plants, the Trachea or Air-Veſſels whereof do the Office of Lungs: For the contained *Air* alternately expanding and contracting, as the Heat increaſes or diminiſhes, by Turns preſſes the Veſſels, and eaſes them again, and thus promotes a Circulation of their Juices.

Hence, we find, that no Vegetation or Germination will proceed *in vacuo*. Indeed, Beans have been obſerved to grow a little tumid therein; which has led ſome to attribute that to Vegetation, which was really owing to no other than the Dilatation of the *Air* within them.

From the ſame Cauſe it is, that the *Air* contained in the Bubbles in Ice, by its continual Action, burſts the Ice: And thus Glaſſes and other Veſſels frequently crack, when their contained Liquors are frozen. Thus alſo entire Columns of Marble ſometimes cleave in the Winter-time, from ſome little Bubbles of included *Air* acquiring an Increaſe of Elaſticity.

From the ſame Principle ariſe all Putrifaction, and Fermentation; neither of which will proceed, even in the beſt diſpoſed Subjects, *in vacuo*.

In this we have a ſingular Inſtance of the Efficacy of the *Air*, that it can change the two Kingdoms, and convert vegetable Subſtances into animal, and animal into vegetable.

In effect, all natural Corruption and Alteration ſeems to depend on *Air*; and Metals, particularly Gold, only ſeem to be durable and incorruptible, in virtue of their not being pervious to *Air*. Accordingly Names ſlightly wrote on the Sand, or Duſt, on the Top of high Mountains, have been known to remain 40 Years, without being in the leaſt altered or effaced.

Of the *Elaſticity* of the Air, depends alſo the *Height of the Atmoſphere*; for had not the Air an elaſtick Power, but were every where of the ſame Denſity, from the Surface of the Earth to the extreme Limit of the *Atmoſphere*, like Water, which is equally denſe at all Depths; it being heretofore obſerved, that the Weight of the Column of Air, reaching to the Top of the Atmoſphere, is equal to the Weight of the Mercury contained in the Barometer; and the Proportion of Weight likewiſe being known between equal Bulks of Air and Mercury, it were eaſy to find the Height of ſuch Column, and conſequently of the Atmoſphere itſelf.—For a Column of *Air* one Inch high, being equal to a Column of Mercury, as 1 to 10800; it is evident that 10800 ſuch Columns of *Air*, that is a Column 900 Feet high, is equal in Weight to one Inch of Mercury: And conſequently the 30 Inches of Mercury ſuſtained in the Barometer, require a Column of *Air* 27,000 Foot high; on which Footing the Height of the Atmoſphere would only be 27,000 Foot, or little more than five *Engliſh* Miles high.

But the Air by its elaſtick Property being liable to expand and contract; and it being found by repeated Experiments, in *England*, *France*, and *Italy*, that the Spaces it takes up, when compreſſed by different Weights, are reciprocally proportional to theſe Weights themſelves, or that the *Air* takes up the leſs Space, the more it is preſſed; it follows, that the *Air* in the upper Regions of the *Atmoſphere*, where the Weight is ſo much leſs, muſt be much rarer than nearer the Surface of the Earth; and conſequently that the Height of the *Atmoſphere* muſt be much higher than is heretofore aſſigned.

If we ſuppoſe the Height of the whole *Atmoſphere* divided into innumerable equal Parts; the Denſity of the *Air* in each of the ſaid Parts being as its Quantity, and the Weight of the Atmoſphere being alſo as the Quantity of the whole incumbent *Air*; it is evident the Weight of the incumbent *Air* is every where as the Quantity of *Air* contained in the ſubjacent Part, which makes a Difference between each two contiguous Parts of incumbent *Air*. Now we have a Theorem in Geometry, that where the Differences of Magnitudes are geometrically proportionable to the Magnitudes themſelves, thoſe Magnitudes are in continual arithmetical Proportion: Wherefore, if according to the Suppoſition, the Altitude of the *Air*, by the continual Addition of the new Parts into which it is divided, do increaſe in a continual arithmetical Proportion; its Denſity will be diminiſhed, or which amounts to the ſame, its Gravity increaſed in continual geometrical Proportion.

From ſuch a Series it is eaſy, by making two or three barometrical Obſervations of the Rarity of the *Air* at two or three different Heights, to find its Rarity at any other Height, or the Height correſponding to any Rarity; and conſequently the Altitude of the whole *Atmoſphere*; ſuppoſing the utmoſt Degree of Rarity known, beyond which the *Air* cannot go.

It muſt not be here omitted, that ſome Obſervations made by *Caſſini* and his Aſſociates ſeem to render this Method precarious. In continuing the meridian Line of the Obſervatory at *Paris*, they meaſured the Altitudes of ſeveral Mountains with great Accuracy, noting the Height of the Barometer at the Top of each; and found, that the Rarefactions of the *Air* as you aſcend from the Level of the Earth, are much greater than they ought to be, according to this Proportion.

Suſpecting therefore the Juſtneſs of the Experiments, the Royal Academy made divers others, under great Dilatations of *Air*, far exceeding the Rarities found on the Tops of the Mountains; the Reſult whereof was, that they all exactly anſwered the Proportion of the incumbent Weights. Whence it ſhould follow, that the higher *Air* about the Tops of Mountains, is of a different Nature, and obſerves a different Law from that near the Earth.

The Reaſon whereof may be owing to the great Quantity of groſs Vapours, and Exhalations here, more than there; which Vapours being leſs elaſtick, and not capable of ſo much Rarefaction as the pure Air above: The Rarefactions of the pure *Air* increaſe in greater Ratio than the Weights diminiſh. M. *Fontenelle* however, from ſome Experiments of M. *de la Hire*, accounts for the Phænomenon in a different Manner; alledging that the elaſtick Power of *Air* is increaſed by the Admixture of the Humidity therewith, and conſequently that the *Air* near the Tops of Mountains, being moiſter than that below, becomes thereby more elaſtick, and rarifies in a greater Ratio than naturally and in a drier State it would. Dr. *Jurin* ſhews, that the Experiments produced to ſupport this Syſtem, are by no Means concluſive.

Be this as it will, the Rarities of the *Air* at different Heights proving not to bear any conſtant Proportion to the Weights wherewith they are preſſed; Experiments made with Barometers at the Feet and Tops of Mountains, cannot give the Height of the *Atmoſphere*: Since our Obſervations are all made near the Earth; whereas the greater Part of the *Atmoſphere* is far beyond; and the further from us, the further does it ſeem to recede from the Nature and Laws of ours. M. *de la Hire* therefore, after *Kepler*, has Recourſe to the more antient, ſimple and ſecure Way of aſcertaining the Height of the *Atmoſphere*, viz. from the Conſideration of the Crepuſcula.

It is allowed by Aſtronomers, that when the Sun is in 18° below the Horizon, we begin, or ceaſe to ſee the Twilight: Now the Ray whereby we do it can be no other than a horizontal Line, or a Tangent to the Earth in the Place where they obſerve it. But this Ray cannot come directly from the Sun, which is in the Horizon; and

and muſt therefore be a Ray reflected to us, by the laſt inner and concave Surface of the Atmoſphere. We are to ſuppoſe, that the Sun when 18° below the Horizon, emits a Ray, which is a Tangent to the Earth, and ſtrikes upon this laſt Surface of the Atmoſphere, and is thence reflected to our Eye, being ſtill a Tangent, and horizontal. If there were no Atmoſphere, there would be no Crepuſculum; and conſequently if the Atmoſphere were not ſo high as it is, the Crepuſculum would begin and end, when the Sun is at a leſs Diſtance from the Horizon than 18°, and contrariwiſe.—Hence we gather that the Largeneſs of the Arch by which the Sun is depreſſed when the Crepuſculum begins or ends, determines the Height of the Atmoſphere. We are to note, however, that 32′ muſt be ſubſtracted from the Arch of 18°, for the Refraction, which riſes the Sun ſo much higher than he would be; and 16′ more for the Height of the upper Limb of the Sun, which is ſuppoſed to ſend the Ray above its Centre, which is ſuppoſed to be 18° low. The remaining Arch, therefore, which determines the Height of the Atmoſphere, is only 17° 12′.

Two Rays, one direct, and the other reflected, but both Tangent to the Earth, muſt neceſſarily meet in the Atmoſphere, at the Point of Reflection, and comprehend an Arch between them of 17 Deg. 12 Min. whereof they are Tangents. Hence it follows from the Nature of the Circle, that a Line drawn from the Centre of the Earth, and cutting the Arch in two, will go to the Point of Concurrence of thoſe two Rays; and as it is eaſy finding the Exceſs of this Line above the Semi-diameter of the Earth, which is known, it is eaſy to find the Height of the Atmoſphere, which is only that Exceſs. On this Principle, M. *de la Hire* diſcovers the Height of the Atmoſphere to be 37223 Fathoms, or near 17 *French* Leagues. The ſame Method was made Uſe of by *Kepler*, who only rejected it, becauſe it gave the Height of the Atmoſphere, 20 times greater than he otherwiſe allowed it.

It muſt be added, that in this Calculus, the direct and reflected Rays are ſuppoſed to be right Lines; whereas in fact they are Curves, formed by the perpetual Refraction the Rays undergo in preſſing through a Series of different Denſities of Air. Computing then upon them as two ſimilar Curves; or rather as a ſingle Curve, one Extreme whereof is a Tangent to the Earth: Its Vertex equally diſtant from both the Extremes, determines the Height of the Atmoſphere; which, therefore, will be found ſomewhat lower than in the former Caſe; the Point of Concurrence of two right Lines, which are here only Tangents to the Curve, the one at one End, and the other at the other, being higher than the Vertex of the Curve. On this Footing M. *de la Hire* finds the Atmoſphere 35362 Fathoms, or 16 Leagues.

Air not only acts by its common Properties of Gravity, and Elaſticity, but there are numerous other Effects ariſing from the peculiar Ingredients whereof it conſiſts.

Thus, 1. It not only diſſolves and attenuates Bodies by its Preſſure and Attrition, but as a Chaos containing all Kinds of Menſtruums, and conſequently having wherewithal to diſſolve all Kinds of Bodies.

It is known, that Iron and Copper readily diſſolve, and become ruſty in Air, unleſs well defended with Oil. *Boerhaave* aſſures us, he has ſeen Pillars of Iron ſo reduced by Air, that one might crumble them to Duſt between the Fingers; and for Copper, it is converted by the Air into a Subſtance much like the Verdigreaſe produced by Vinegar.

Mr. *Boyle* relates, that in the ſouthern *Engliſh* Colonies, the great Guns ruſt ſo faſt, that after a few Years lying in the Air, large Cakes of Crocus Martis may be eaſily beat off them. *Acoſta* adds, that in *Peru* the Air diſſolves Lead, and conſiderably increaſes its Weight.—Yet Gold is generally eſteemed indiſſoluble by Air, being never found to contract Ruſt, though expoſed ever ſo long. The Reaſon whereof is, that Sea Salt, which is the only Menſtruum capable of acting in Gold, being very difficult to volatilize; there is but a ſmall Proportion of it in the Atmoſphere. In the Chymiſt's Laboratory, where Aqua Regia is preparing; the Air becoming impregnated with an unuſual Quantity of this Salt, Gold contracts a Ruſt like all other Bodies.

Stones, alſo, undergo the common Fate of Metals.—Thus *Purbeck* Stone, whereof *Saliſbury* Cathedral is built, is obſerved gradually to become ſofter, and moulder away in the Air, and the like Mr. *Boyle* relates of *Blackington* Stone.—He adds, that Air may have a notable Operation on Vitriol, even when a ſtrong Fire could act no further on it. The ſame Author has even found the Fumes of a ſharp Liquor to work more ſuddenly and manifeſtly on a certain Metal, when ſuſtained in the Air, than the Menſtruum itſelf did, which emitted Fumes on thoſe Parts of the Metal it cover'd.

2. Air volatilizes fixed Bodies. Thus Sea Salt being calcined and fuſed by the Fire, and when fuſed, expoſed to the Air to liquify; when liquified ſet to dry again, then fuſed again; and, the Operation thus repeated, will by Degrees be almoſt wholly evaporated; nothing remaining but a little Earth behind.

Helmont mentions it as a mighty Arcanum in Chymiſtry, to render fixed Salt of Tartar volatile: But the Thing is eaſily effected by Air alone; for if this Salt be expoſed to the Air, in a Place replete with acid Vapours, the Salt draws the Acid to itſelf, and when ſaturated therewith is volatile.

3. Air alſo fixes volatile Bodies. Thus, tho' Nitre or Aqua fortis readily evaporate by the Fire; yet, if there be any putrified Urine near the Place, the volatile Spirit will be fixed, and fall down in Form of Aqua ſecunda.

4. Add that Air brings many quieſcent Bodies into Action, *i. e.* excites their latent Powers. Thus, if an acid Vapour be diffuſed through the Air, all the Bodies whereof, that is a proper Menſtruum, being diſſolved thereby, are brought into a State proper for Action.

In Chymiſtry, not only the Preſence or Abſence of the Air, but even its being barely open or incloſed, is of great Conſequence. Thus Camphire fired in a cloſe Veſſel runs wholly into Salts; whereas, if during the Proceſs the Cover be removed, and a Candle applied, the whole flies off in Fume. So to make Sulphur inflammable, it requires a free Air: In a cloſe Cucurbite it may be ſublimated a thouſand Times without kindling. Sulphur being put under a Glaſs Bell, and a Fire applied, riſes into Spirit of Sulphur *per Campanam*. But if there be the leaſt Chink, whereby the included Air communicates with the Atmoſphere, it immediately kindles. So an Ounce of Charcoal, incloſed in a Crucible well luted, will remain without Loſs for fourteen Days in the intenſeſt Heat of a melting Furnace; though the thouſandth Part of the Fire in an open Air, will preſently turn it into Aſhes. *Helmont* adds, that the Charcoal remains all that while without any Alteration of its black Colour; but the minute Air being let in, it falls inſtantly into white Aſhes. The ſame holds of the Parts of all Animals and Vegetables, which can only be calcined in open Air: In cloſe Veſſels they never become any other than black Coals.

The Air is liable to Abundance of Alterations, not only in Reſpect of its mechanical Properties, Gravity, Denſity, *&c.* but alſo in Reſpect of the Ingredients it conſiſts of. Thus in Places abounding with Marcaſites, a fretting vitriolick Salt is obſerved to predominate in the Air, which rots the Hangings, and is often ſeen lying on the Ground in a whitiſh Efflorescence. At *Faſblun* in *Sweden*, noted for Copper-Mines, the Mineral Exhalations affect the Air ſo ſenſibly, that their Silver Coin is frequently diſcolour'd in their Purſes, and the ſame Effluvia change the Colour of Braſs. Mr. *Boyle* was aſſured by a Gentleman who poſſeſſed ſome Ground wherein there were ſeveral Veins of Metals, and other Minerals, that he had frequently ſeen Pillars of Fumes aſcending thence; ſome having no Scent, ſome an ill one, and ſome few a good one. In *Carniolia*, *Campania*, &c. where there are Mines of Sulphur, the Air at Times becomes very unwholſome; whence frequent epidemick Diſeaſes, *&c.* It is added, that the Mines near the Cape of *Good Hope*, emits ſuch horrible Fumes from the Arſenick that abounds there, that no Animal can live near them; ſo that ſuch as have at any Time been opened, were obliged to be immediately cloſed again.

The Effluvia of Animals alſo have their Effect in varying the Air; as is evident in contagious Diſeaſes, Plagues, Murrains, and other Mortalities which ſpread by the Air.

The

The like is obſerved in Vegetables.—Thus a good Part of the Clove-Trees, which grew ſo plentifully in the Iſland of *Ternate*, being felled at the Sollicitations of the *Dutch*, in order to heighten the Value of that Fruit; ſuch a Change enſued in the *Air*, as ſhewed the ſalutary Effect of the Effluvia of the Clove-Trees, and their Bloſſoms: The whole Iſland, ſoon after they were cut down, becoming exceeding ſickly. This, a Phyſician who had been upon the Spot, and from whom Mr. *Boyle* had the Relation, attributed to the noxious Steams of a Volcano there; the ill Qualities thereof had been corrected by the aromatick Effluvia of thoſe ſpicy Bloſſoms.

The *Air* is alſo liable to Alterations from the Seaſons of the Year. Thus few ſubterraneous Effluvia are emitted in the Winter; by reaſon the Pores are locked up by the Froſt, or covered by the Snow, the ſubterraneous Heat being all the while at work, and preparing a Fund to be diſcharged the enſuing Spring. Hence it is, that if the ſame Seed be ſown in the ſame Soil, in Autumn and Spring, and the Degree of Heat be the ſame, a very different Effect will be found; and for the like Reaſon, Rain-Water gathered in the Spring, is found to have a peculiar Virtue in reſpect of Corn; which being ſteeped therein, affords a much larger Quantity of Spirits than otherwiſe. Hence alſo, we ſee why a very ſevere Winter is uſually followed by a wet Spring and fruitful Summer, and *vice verſâ*.

Again, from the Winter's Solſtice to the Summer's, the Sun's Rays growing ſtill more and more perpendicular; their Impulſe on the Earth's Surface becomes more and more powerful; by which the Glebe or Soil is more and more relaxed, ſoftened and putrified; till he arrives at the Tropick: Where with the Force of a chymical Agent, he diſſolves the ſuperficial Parts of the Earth into their Principles, Water, Oil, Salts, *&c.* which are all ſwept into the *Atmoſphere*.

And hence we conceive the Nature of Meteors, which are either Collections of ſuch Effluvia, or Diſperſions thereof.—There Meteors too, have conſiderable Effects on the *Air*; and thus Thunder is known to put Liquors upon fermenting afreſh.

In effect, whatever alters the Degree of Heat, will make a proportionable Alteration in the Matter of the *Air*. Mr. *Boyle* ſuggeſts ſomething further on this Head, *viz.* that the Salts, *&c.* which in a warm State of Weather were kept in a Fluor, and mixed together, ſo as to be in a Condition to act conjunctly; upon a Remiſſion of the Warmth, may loſe their Fluidity and Motion, ſhoot into Cryſtals, and thus ſeparate again.

The Height or Depth of the *Air* makes a further Alteration, the Exhalations being few of them able to aſcend above the Top of high Mountains, as appears from thoſe Plagues, where the Inhabitants of one Side of a Mountain have all periſhed, without the leaſt Diſorder on the other Side.

Nor muſt Draught and Moiſture be denied their Share, in varying the State of the *Atmoſphere*. In *Guinea* the Heat with the Moiſture conduce ſo much Putrifaction, that the pureſt white Sugars are often full of Maggots; and their Drugs ſoon loſe their Virtue, and many of them grow verminous. It is added, that in the Iſland of St. *Jago*, they are obliged to expoſe their Sweetmeats daily to the Sun, to exhale the Moiſture they had contracted in the Night, which would otherwiſe occaſion them to putrify.

On this Principle depends the Structure and Office of the *Hygrometer*, which is a Machine or Inſtrument, whereby to meaſure the Degrees of Dryneſs, or Moiſture of the Air.

There are divers Kinds of *Hygrometers*; for whatever Body either ſwells or ſhrinks by Dryneſs or Moiſture, is capable of being formed into an *Hygrometer*. Such are Wood of moſt Kinds, particularly Aſh, Deal, Poplar, *&c.* ſuch alſo is Catgut, the Beard of a wild Cat, *&c.*

The beſt and moſt uſual Contrivances for this Purpoſe are as follows:

Stretch a hempen Cord, or a Fiddle-ſtring, as A B C (fig. 7.) along a Wall, bringing it over a Struckle, or Pully B; and to the other Extreme D, tie a Weight E, into which fit a Style or Index F G. On the ſame Wall fit a Plate of Metal H I, divided into any Number of equal Parts; and the *Hygrometer* is compleat.

For it is Matter of undoubted Obſervation, that Moiſture ſenſibly ſhortens the Length of Cords and Strings; and that as the Moiſture evaporates, they return to their former Length; and the like may be ſaid of a Fiddle-ſtring. The Weight therefore, in the preſent Caſe, upon an Increaſe of the Moiſture of the *Air*, will aſcend; and upon a Diminution of the ſame deſcend.

Hence as the Index F G will ſhew the Spaces of Aſcent and Deſcent; and thoſe Spaces are equal to the Increments and Decrements of the Length of the Cord, or Gut, A B D; the Inſtrument will diſcover, whether the Air be more or leſs humid now than it was another given Time.

Or thus:—If a more ſenſible and accurate *Hygrometer* be required; ſtrain a Whipcord or Fiddle-ſtring over ſeveral Truckles, or Pulleys, A, B, C, D, F, and G (fig. 8.) and proceed with the reſt as in the former Example. Nor does it matter whether the ſeveral Parts of the Cord, A B, B C, C D, D E, E F, and F G, be parallel to the Horizon, as expreſſed in the preſent Figure, or perpendicular to the ſame.

The Advantage of this above the former *Hygrometer*, is, that we have a greater Length of Cord in the ſame Compaſs: And the longer the Cord, the greater its Contraction or Dilatation.

Or thus:—Faſten a hempen Cord or Fiddle-ſtring A B (fig. 9.) to an Iron Hook; and let the other End B, deſcend upon the Middle of an horizontal-Board or Table E F; near B hang a leaden Weight of a Pound C, and fit an Index C G; laſtly, from the Center B deſcribe a Circle, which divide into any Number of equal Parts.

Now, it is Matter of Obſervation, that a Cord or Gut twiſts itſelf as it is moiſtened, and untwiſts again as it dries. Mr. *Molyneux*, Secretary of the *Dublin* Society, writes, that he could perceive this alternately twiſting and untwiſting in a Cord, by only breathing on it eight or ten Times, and then applying a Candle towards it. Hence upon an Increaſe or Decreaſe of the Humidity of the *Air*, the Index will ſhew the Quantity of twiſting or untwiſting; and conſequently, the Increment or Decrement of Humidity, or Siccity.

Or thus:—Faſten one End of a Cord, or Fiddle ſtring H I (fig. 10.) to a Hook H; and to the other End faſten a Ball K, of a Pound Weight. Draw two concentrick Circles on the Ball, and divide them into any Number of equal Parts. Fit a Style or Index N O, into a proper Support N, ſo as the Extremity O may almoſt touch the Diviſions of the Ball.

Here the Cord or Gut twiſting and untwiſting, as in the former Caſe, will indicate the Change of Moiſture, *&c.* by the ſucceſſive Application of ſeveral Diviſions of the Circle to the Index.

Or thus:—Provide two wooden Frames, A B, and C D (fig. 11.) with Grooves therein; and between thoſe Grooves fit two thin Leaves of Aſh, A E F C, and G B D H, ſo as they may eaſily ſlide either Way: At the Extremes of the Frame A, B, C, D, confine the Leaves with Nails, leaving between them the Space E G H F, about an Inch wide. On I faſten a Slip of Braſs dented, I K; and in L a little dented Wheel, upon whoſe Axis, on the other Side of the Machine, an Index is to be put. Laſtly, from the Center of the Axis, on the ſame Side, draw a Circle, and divide it into any Number of equal Parts.

Now, it being found by Experience, that Aſh-Wood readily imbibes the Moiſture of the *Air*, and ſwells therewith; and as that Moiſture ſlackens ſhrinks again; upon any Increaſe of the Moiſture of the *Air*, the two Leaves A F and B H growing turgid, will approach nearer each other: And again, as the Moiſture abates, they will ſhrink, and again recede. Hence as the Diſtance of the Leaves can neither be increaſed nor diminiſhed, without turning the Wheel L, the Index will point out the Changes in reſpect of Humidity and Siccity.

Or thus:—It is to be noted that all the Hygrometers above deſcribed become ſenſibly leſs and leſs accurate; and at length undergo no ſenſible Alteration at all from the Humidity of the *Air*, the following one is much more laſting.

Take a *Monoscope*, and instead of the exhausted Ball E (fig. 12.) substitute a Spunge, or other Body, which easily imbibes Moisture. To prepare the Spunge it may be necessary, first, to wash it in Water; and when dry again, in Water and Vinegar, wherein Sal Armoniack, or Salt of Tartar has been dissolved, and let it dry again.

Now, if the Air become moist, the Spunge growing heavier will ponderate; if dry, the Spunge will be hoisted up; and consequently the Index will shew the Increase or Decrease of the Humidity of the *Air*.

In the last mentioned *Hygrometer*, Mr. *Gould*, in the *Philosophical Transactions*, instead of a Spunge recommends Oil of Vitriol, which is found to grow sensibly lighter or heavier, in proportion to the greater or lesser Quantity of Moisture it imbibes from the *Air*; so that being satiated in the moistest Weather, it afterwards retains or loses its acquired Weight, as the *Air* proves more or less moist. The Alteration is so great that in the Space of fifty-seven Days, it has been known to change its Weight from three Drachms to nine; and has shifted an Index or Tongue of a Ballance 30 Degrees. A single Grain, after its full Increase, has varied its Æquilibrium so sensibly, that the Tongue of a Ballance, only an Inch and a half long, described an Inch, one Third of an Inch in Compass; which Arch would have been almost three Inches, if the Tongue had been one Foot, even with so small a Quantity of Liquor; consequently, if more Liquor expanded over a large Surface were used, a Pair of Scales might afford as nice a *Hygrometer* as any yet invented. The same Author suggests, that Spirit of Sulphur per campanam, or Oil of Tartar per deliquium, or the Liquor of fixed Nitre, might be substituted in lieu of Oil of Vitriol.

This Ballance may be contrived two Ways, by either having the Pin in the Middle of the Beam, with a slender Tongue, a Foot and a half long, pointing to the Divisions on an arched Plate, as represented in fig. 12.

Or, the Scale with the Liquor may be hung to the Point of the Beam near the Pin, and the other Extreme be made so long, as to describe a large Arch on a Board placed for the Purpose, as represented fig. 13.

From a Series of hygroscopical Observations, made with an Apparatus of Deal Wood, described in the *Philosophical Transactions*, Mr. *Coniers* concludes, 1. That the Wood shrinks most in Summer, and swells most in Winter; but is most liable to change at Spring and Fall. 2. That this Motion happens chiefly in the Day-time, there being scarce any Variation in the Night. 3. That there is a Motion even in dry Weather; the Wood swelling in the Forenoon, and shrinking in the Afternoon. 4. The Wood by Night, as well as Day, usually shrinks when the Wind is in the North, North-East, and East, in Winter and Summer. 5. By constant Observation of the Motion and Rest of the Wood, with the Help of a Thermometer, one may tell the Situation of the Wind, without a Weather-cock.

He adds, that the Time of the Year may be known by it; for in the Spring it moves quicker, and more than in Winter; in Summer it is more shrunk than in Spring; and has less Motion in Autumn than in Summer.

These Diversities in the *Air*, are found to have an Influence on the Operation, Experiments, *&c.* of Philosophers, Chymists, and other Operators.

Thus, it is very difficult to procure Oil of Sulphur per Campanam, in a clear dry Atmosphere, its Parts being then so ready to escape into the *Air*; but in a thick moist *Air* the Oil comes in Abundance. So all Salts melt easiest in a cloudy *Air*; and which melted out most forcibly; and all Separations succeed best in such Weather. If Salt of Tartar be exposed in a Place where any acid Spirit is floating in the *Air*, it will imbibe the same; and of fixed become volatile. Hence the Experiments made of Salts at *London*, where the *Air* is plentifully impregnated with Sulphur exhaled from Sea-coal, prove different from those made on the same Subjects in other Parts of the Kingdom, where Wood, Turf, *&c.* are the usual Fuel. Hence also metalline Utensils, *&c.* rust much sooner at *London* than in other Parts, where there are fewer acid corrosive Corpuscles in the *Air*; and Fermentation, which is easily raised and carried on in a Place free of Sulphur, is impracticable in a Place where sulphurous Exhalations abound. If pure well-fermented Wine be carried in a Place where the *Air* is replenished with the Fumes of new Wind then fermenting; it will begin to ferment afresh. So Salt of Tartar swells, and as it were ferments, when carried into a Place where Spirit of Nitre, Vitriol, or Sea-Salt is preparing. It is Matter of common Observation among Brewers, Distillers, Vinegar-Makers, *&c.* that at the Time when the several Plants used to be in Flowers, the respective Juices ferment, and the Process succeeds the best. Add, that Stains caused by vegetable Juices, are observed to be best taken out of Linnen, at the Time when the several Plants that afford them are in their Prime. This, Mr. *Boyle* observes, has been experienced in the Stains of Juice of Quinces, Hops, *&c.* one of which latter, eluding all the Endeavours that could be used to get it out, has vanished of itself the next Hop-Season.

After all, some of our more curious and penetrating Naturalists, have observed certain Effects of *Air*, which do not appear to follow from any of the Properties, nor the Materials above recited. On this View Mr. *Boyle* has composed an express Treatise of *Suspicions about some unknown Properties of the Air*. The Phænomena of Fire and Flame, *in vacuo* (as they call it) seem, according to him, to argue some odd unknown vital Substance diffused through the *Air*, on account whereof that Fluid becomes so necessary to the Substance of Flame: But whatever this Substance be, it should seem by its sudden wasting or spoiling, that the Quantity thereof is very inconsiderable, in Proportion to the Bulk of *Air* it impregnates with its Virtue, in regard, when the Flame can no longer subsist in it, the Air upon Examination is not found to have undergone any Alteration in any of its Properties.

Other Instances to countenance such Suspicions, are, the Appearance and Growth of Salts in many Bodies, which either afford them not at all, or not in that Plenty, unless exposed to the Air. Mr. *Boyle* mentions some Marcassites, dug from under Ground, which being kept in a dry Room, were soon cover'd over with a vitriolick Efflorescence; and in a little Time, by the Operation of the Air on them, were in great Part crumbled into a Powder, exceeding rich Copperas; though they had probably lain many Ages entire under Ground: So the Earth, or Ore of Allum, and many other *Animals*, robbed of their Salt, Metals, or the like, *will in Tract of* Time recover them; and the like is observed of the Cynders of Sea-Coal at the Iron Works.

Mr. *Boyle* adds, that some Lime in old Walls, has in Time gained a large Efflorescence of a nitrous Nature, from which Salt-petre was procurable. Add, that the Colcothar of Vitriol is not naturally corrosive, nor can any Salt be procured from it, even by its Dissolution in Water; but being exposed a while to the Air, it yields a Salt plentifully.

The Existence of such hidden Properties, is also argued from the Access of the Air rendering antimonial Medicines emetick, and disposed to produce Faintings and Heart-Burnings; and from its speedy corrupting and mouldering of Trees, drawn from under Ground, which had for Ages remained firm, and almost impervious to the Axe.

To say no more, the Silks in *Jamaica*, if exposed to the Air, soon rot; even while they preserve their Colour; whereas, if kept from the Air, they hold their Firmness and Dye: And the fable Taffety worn at *Brasil*, becomes in a few Days of an Iron grey Colour in the Air; but in the Shops preserve its Hue: And some Leagues beyond *Paraguay*, white People soon grow tawny; but as soon recover their native Colour, upon removing out of that Quarter. These, out of a great Number of Instances tending the same Way, may convince us, that notwithstanding all the Discoveries hitherto made concerning Air, there still remain a Field for future Inquiries.

Wind being only Air in Motion, is also as such of this Province *Pneumaticks*; and the Force thereof is determined experimentally, by a peculiar Machine, called *Anemometer*.

The *Anemometer* is variously contrived: In the *Philosophical Transactions* we have one described, wherein the Wind

Wind being ſuppoſed to blow directly againſt a flat Side, or Board that moves along the graduated Limb of a Quadrant; the Number of Degrees it advances, ſhews the comparative Force of the Wind.

Wolfius give the Structure of another, which is moved by Means of Sails A B C D (fig. 17.) like thoſe of a Wind-mill; which raiſe a Weight L, that, ſtill the higher it goes receding further from the Centre of Motion, by ſliding along an hollow Arm K M, fitted to the Axis of the Sails, becomes heavier and heavier, and preſſes more and more on the Arm, till being a Counterpoiſe to the Force of the Wind on the Sails, it ſtops the Motion thereof. An Index, then, M N, fitted upon the ſame Axis at right Angles with the Arm, by its riſing or falling, points out the Strength of Wind, on a Plane divided like a Dial-Plate into Degrees.

M. *d'Onſenbray*, has invented a new *Anemometer*, which of itſelf expreſſes on Paper, not only the ſeveral Winds that have blown during the Space of 24 Hours, and what Hour each began, and ended, but alſo the different Strengths or Velocities of each.

WIND-MILLS being Machines which receive their Motion from the Impulſe of the Wind, come alſo under this Article.

The *Wind-Mill*, though a Machine common enough, has yet ſomewhat in it more ingenious than it is uſually imagined. — Add, that it is commonly allowed to have a Degree of Perfection, which few of the popular Engines have attained to, and which the Makers are but little aware of. Though the new Geometry has furniſhed ample Matter for its Improvement.

The internal Structure of the *Wind-Mill* is much the ſame with that of Water-Mills. The Difference between them lies chiefly in an external Apparatus, for the Application of the Power.

This Apparatus conſiſts of an Axis E F (fig. 15.) through which paſs two Arms, or Yards, A B and C D, interſecting each other at right Angles in E, whoſe Length is uſually about 32 Feet: On theſe Yards are formed a Kind of Sails, Vanes, or Flights, in the Figure of the Trapeziums, with parallel Baſes, the greater whereof H I, is about ſix Feet, and the leſs F G, determined by Radii drawn from the Centre E, to I and H.

Theſe Sails are to be capable of being always turned to the Wind, that they may receive its Impreſſions: In order to which there are two different Contrivances, which conſtitute the two different Kinds of *Wind-Mills* in Uſe.

In the one, the whole Machine is ſuſtained upon a moveable Arbor or Axis, perpendicular to the Horizon, on a Stand or Foot; and turn'd occaſionally this Way or that by Means of a Lever.

In the other, only the Cover or Roof of the Machine, with the Axis and Sails, turn round. In order to which the Cover is built Turret-wiſe, and the Turret encompaſſed with a wooden Ring, wherein is a Groove, at the Bottom whereof are placed, at certain Diſtances, a Number of Braſs Truckels, and within the Groove is another Ring, upon which the whole Turret ſtands. To the moveable Ring are connected Beams *a b* and *f c*; and to the Beam *a b* in *b* is faſtened a Rope, which, at the other Extream thereof is fitted to a Windlaſs, or Axis in Peritochio: This Rope being drawn through the Iron Hook G, and the Windlaſs turned, the Sails will be moved round, and put in the Direction requir'd.

As for the Theory of the Motion of a *Wind-Mill*, with the Poſition of the Sails, or Vanes thereof. — The Angle the Sails are to make with their common Axis, ſo as the Wind may have the greateſt Effect, is a Matter of nice Enquiry, and has employed the Thoughts of Mathematicians.

To conceive why a *Wind-Mill* moves at all, the Theory of compound Motions muſt be ſuppoſed. A Body moving perpendicularly againſt any Surface, ſtrikes it with all its Force. If it moves parallel to the Surface, it does not ſtrike it at all: And if it moves obliquely, its Motion being compound of the parallel and perpendicular Motion, only acts on the Surface, conſider'd as it is perpendicular, and only drives it in the Direction of the Perpendicular. So that every oblique Direction of a Motion, is a Diagonal of a Parallelogram, whoſe perpendicular and parallel Directions, are the two Sides.

Add, that if a Surface, which being ſtruck obliquely, has only received the perpendicular Direction, be faſtened to ſome other Body, ſo as it cannot purſue its perpendicular Direction, but muſt change it for ſome other, in that Caſe the Perpendicular itſelf becomes the Diagonal of a new Parallelogram, one of whoſe Sides is the Direction the Surface may follow, and the other that it cannot.

Thus a Rudder faſten'd obliquely to the Keel of a Veſſel, being ſtruck by the Current of Water parallel to the Keel, and of Conſequence obliquely with Regard to itſelf; it will appear, by drawing the Line of perpendicular Impulſe, that it tends to tear the Rudder from the Keel, and to carry it away: And that this Direction perpendicular to the Rudder, is oblique to the Keel. — The Rudder then would be carried off in an oblique Direction: But as in Reality it is ſo ſecured, that it cannot be torn or carried off; we are only to conſider in this compound Motion, that of the two Directions, wherewith it can move without being torn from the Keel; and leave the other, which would tear it off as uſeleſs.

Now the Direction in which it can move without parting from the Keel, is that which carries it circularly about its Extremity, as a Centre. So that the Effect of the oblique Impulſe of the Water on the Rudder, is reduced firſt to a perpendicular Impreſſion, which is again reduced to the mere turning the Rudder round; or, if the Rudder be immoveable, to the turning of the Veſſel.

Now in an oblique and compound Motion, where only one of the Directions is of Service; the greater Ratio the other has thereto, the leſs Effect will the Motion have, and *vice verſa*. — In examining the compound Motions of the Rudder, we find that the more oblique it is to the Keel, the Ratio of the Direction that ſerves to turn it to the other, is the greater. But, on the other Hand, the more oblique it is to the Keel, and of Conſequence to the Courſe of the Water which is ſuppoſed parallel thereto, the more weakly it ſtrikes. The Obliquity of the Rudder, therefore, has, at the ſame Time, both an Advantage and a Diſadvantage, but as thoſe are not equal, and as each of them is ſtill varying with every different Poſition of the Rudder, they become complicated variouſly, ſo that ſometimes the one prevails and ſometimes the other.

It has been a Point of Enquiry to find the Poſition of the Rudder, wherein the Advantage ſhould be the greateſt. M. *Renau*, in his famous Theory of the working of Ships, has found, that the beſt Situation of the Rudder is, when it makes an Angle of 55 Degrees with the Keel.

If now a *Wind-Mill*, expoſed directly to the Wind, ſhould have its four Sails perpendicular to the common Axis, wherein they are fitted, they would receive the Wind perpendicularly; and it is viſible that Impulſe would only tend to overturn them. There is a Neceſſity therefore to have them oblique to the common Axis, that they may receive the Wind obliquely.

For the greater Eaſe, let us only conſider one vertical Sail. The oblique Impulſe of the Wind on this Sail, is reducible to a perpendicular Impulſe: And that Direction, as the Sail cannot abſolutely keep it, is compounded of two; one whereof tends to make it turn on its Axis, and the other to fall backwards. But it is only the firſt of theſe Directions can be obeyed. Of Conſequence, the whole Impulſe of the Wind on the Sail has no other Effect, but to make it turn from right to left, or from left to right, as its acute Angle turns this Way or that. And the Structure of the Machine is ſo happy, that the three other Sails are determined from the ſame Reaſons to move the ſame Way.

The Obliquity of the Sails, with regard to their Axis, has preciſely the ſame Advantage and Diſadvantage, with the Obliquity of the Rudder to the Keel; and Mr. *Parent*, ſeeking by the new Analyſis, the moſt advantageous Situation of the Sails on the Axis, finds it preciſely the ſame Angle of 55 Degrees. Yet in Practice this Rule is very little obſerv'd, as indeed being little known. The Sails are uſually fixed at an Angle of about 60 Degrees, which is very much out of the Way.

M. *Parent* conſiders further (whence an *elliptical Wind-Mill*) what Figure the Sails of a *Wind-Mill* ſhall have,

to receive the greateſt Impulſe from the Wind; and he determines it to be a Sector of an Ellipſis, whoſe Center is that of the Axis or Arbor of the Mill; and the little Semi-axis, the Height of thirty-two Feet; as for the greater, it follows neceſſarily from the Rules that direct the Sail to be inclined to the Axis in an Angle of 55 Degrees.

On this Foot he aſſumes four ſuch Sails, each whereof is one Fourth of an Ellipſis; which, he ſhews, will receive all the Wind, and loſe none, as the common ones do. Theſe four Surfaces multiplied by the Lever, with which the Wind acts on one of them, expreſs the whole Power the Wind had to move the Machine, or the whole Power the Machine has when in Motion.

The ſame Manner of reaſoning, applied to a common *Wind-Mill*, whoſe Sails are rectangular, and their Length about five Times their Breadth; ſhews that the *elliptick Wind-Mill* has above ſeven Times the Power of the common one. A prodigious Advantage! and worthy ſure, to have the common Practice ſet aſide for, could ſo common a Practice be eaſily changed.

A *Wind-Mill*, with ſix elliptick Sails, he ſhews, would ſtill have more Power than one with four.—It would only have the ſame Surface with the Four; ſince the Four contain the whole Space of the Ellipſis as well as the Six. But the Force of the Six would be greater than that of the Four, in the Ratio of 245 to 231. If it were deſired to have only two Sails, each being a Semi-ellipſis, the Surface would be ſtill the ſame, but the Power would be diminiſhed, by near one Third of that with ſix Sails; by reaſon the Greatneſs of the Sectors would much ſhorten the Levers with which the Wind acts.

But as the elliptical Sails would be ſomething ſo new, that there is little Room to expect they will come into common Uſe; the ſame Author has conſider'd which Form, among the rectangular ones, will be the moſt advantageous, *i. e.* which, the Product of whoſe Surface, by the Lever of the Wind, will be the greateſt. And by the Method *De maximis & minimis* (explained in my Treatiſe of *Mechanicks*, under the Letter *M*) he finds it very different from the common ones.

The Reſult of his Enquiry is, that the Width of the rectangular Sail, ſhould be nearly double its Length; whereas the Length is uſually made almoſt five times the Width. Add, that as we call Height or Length, the Dimenſion which is taken from the Centre of the Axis; the greateſt Dimenſion of the new rectangular Sail will be turned towards the Axis, and the ſmalleſt from it; quite contrary to the Poſition of the common Sails.

The Power of a *Wind-Mill*, with four of theſe new rectangular Sails, M. *Parent* ſhews, will be to the Power of four elliptick Sails, nearly as 13 to 23; which leaves a conſiderable Advantage on the Side of the elliptick ones: Yet will the Force of the new rectangular Sails be conſiderably greater than that of the common ones.

M. *Parent*, likewiſe, conſiders what Number of the new Sails will be the moſt advantageous, and finds that the fewer Sails the more Surface there will be, but the leſs Power. The Ratio of the Power of a *Wind-Mill* with ſix Sails, will be to another with four, nearly as 14 to 13: And the Power of another with two, will be to that with four, nearly as 13 to 9.

As to the common *Wind-Mill*, its Power ſtill diminiſhes as the Breadth of the Sails is ſmaller, in proportion to the Length. The uſual Proportion, therefore, of 5 to 1, is exceedingly advantageous.

The Uſes of this new Theory of *Wind-Mills* are very obvious.—The more Power a *Wind-Mill* has, the ſwifter it turns, the more it diſpatches, and the leſs Wind it needs. Add, that on this Theory one may have a *Wind-Mill*, whoſe Sails ſhall be a deal ſhorter, and yet the Power greater than the common one.

POETRY.

POETRY, or *Poeſy*, is an Art founded on a natural Genius of compoſing Poems, or other Pieces in Verſe.

Poetry, is an Art, becauſe there are certain Rules peculiar to it.—That Art is founded on a natural Genius; for though a Perſon ſhould know perfectly all theſe Rules; he can never be called a Poet, unleſs he has a natural Genius for Poetry; or he be, according to the common Phraſe, *born a Poet*. And conſiſts in compoſing Pieces in Verſe; wherefore we muſt inform ourſelves, previouſly to any Thing elſe, what is underſtood by Verſe.

VERSE, *Verſus*, or *Carmen*, is a Line or Part of a Diſcourſe, conſiſting of a certain Number of long or ſhort Syllables, which run with an agreeable Cadence; the like being alſo reiterated in the Courſe of the Piece.

This Repetition, according to F. *Boſſu*, is neceſſary to diſtinguiſh the Notion of *Verſe* from that of Proſe: For in Proſe, as well as *Verſe*, each Period and Members are Parts of Diſcourſe, conſiſting of a Number of long and ſhort Syllables; only Proſe is continual diverſifying its Meaſures and Cadences; and *Verſe* repeat them.

This Repetition of the Poets, appears even in the Manner of Writing, for one *Verſe* being finiſhed, they return to the Beginning of another Line to write the *Verſe* following; and it is to this Turn, that *Verſe* owes its Name; *Verſus* coming from *vertere*, to *turn*, or *return*.

The *Greek* and *Latin* Verſes (which are the only ones learned in the Schools) conſiſt of a certain Number of Feet, diſpoſed in a certain Order.

Verſes are of various Kinds; ſome denominated from the Number of Feet whereof they are compoſed; as the *Monometer*, *Dimeter*, *Trimeter*, *Tetrameter*, *Pentameter*, *Exameter*, &c. ſome from the Kinds of Feet uſed in them; as the *Pyrrhichian*, *Proceleaſmatick*, *Iambick*, *Trochaick*, *Dactylick*, *Anapeſtick*, *Spondaick*, *Chor-Iambick*, *Rimbi-Dactylick*, and *Dactylotrochaick*.—Sometimes from the Names of the Inventor, or the Authors who have uſed them with more Succeſs: As the *Anacreontick*, *Archilochian*, *Hipponactick*, *Pheredratiam*, *Glyconian*, *Alcmanian*, *Aſclepiadean*, *Alcaick*, *Steſichorian*, *Phaliſcan*, *Ariſtophanian*, *Callimachian*, *Galliambick*, *Phalecian*, and *Sapphick*. Sometimes from the Subject, or the Circumſtances of the Compoſition; as the *Heroick*, *Elegiack*, *Adonick*, &c.

The *Verſes* moſt commonly uſed in the *Latin* Poetry, are the *Hexameter*, *Pentameter*, *Iambick*, and *Saphick*; and almoſt the only ones learned in the Schools.

The HEXAMETER is a Verſe conſiſting of ſix Feet, the firſt four thereof may be indifferently Dactyls, or Spondees; but the fifth muſt be always a Dactyle, and the laſt a Spondee: Though when the four firſt Feet are alternately a Dactyle and a Spondee, the Verſe cadences better, and ſounds much better to the Ear.

This Sort of *Verſe* is uſed both in the *Greek* and *Latin* Poetry; ſuch is that of *Homer*, for the *Greek*.

Εις υδωρμ ερριψας, εχει Θεος εκδικον ομμα.

And that of *Virgil*, for the *Latin*:

Diſcite Juſtitiam moniti, & non temnere Divos.

Hexameter Verſes, are divided into Heroick; which are to be grave and majeſtical, ſuitable to the Dignity of heroick *Poetry*; and ſatyrical, which may be more looſe and negligent; as thoſe of *Horace*.

Epick Poems, as the Iliad, Odyſſee, Æneid, and all the other Works of *Virgil*, conſiſt of *Hexameter* Verſes alone: Elegies and Epiſtles ordinarily conſiſt alternately of Hexameters and Pentameters.

But what do we mean by thoſe Feet, whereof the Hexameter and all other Kinds of Verſes are compoſed?

A *Foot*, in the *Greek* and *Latin* Poetry, is a Meaſure compoſed of a certain Number of long and ſhort Syllables; and conſequently depends entirely on Quantity or Meaſure; which Quantity denotes the Meaſure or Magnitude of the Syllables, or that which determines them to be called long or ſhort.

The

The *Quantities* are used to be distinguished by the Characters ⏑ short, and — long.

The Proportion between the *long* and short Syllables may be generally fixed in the same as between the Crotchet and Quiver in Musick, *viz.* as 2 to 1.

In most Languages there are some Syllables whose *Quantities* vary, as the Measure requires, as in the English *Rĕcŏrd* and *Rĕcōrd*.

Some Authors confound the *Quantities* with the Accent; but the Difference is glaring; the former being the Length or Shortness of a Syllable, the latter the raising or falling of the Voice.

The *English* Tongue admits of no Feet above two Syllables, though both the *Latin* and *Greek* allow six.

The heroick *English* Verses consist of five long and five short Syllables intermixed alternately; though not so strictly but that the Order may be dispensed withal. *Dryden* varies them with great Beauty; sometimes his heroick Verse begins with a long Syllable followed by two short ones. But to return to our *Feet*.

There are different Kinds of Feet, — *viz.* the *Spondee*, *Iambic*, *Trochee*, and *Pyrrich*, which consist of two Syllables each. — The *Dactyl*, *Anapæst*, *Molossus*, *Tribrach*, *Bacchius*, *Anti-bacchius*, *Amphibrachys*, and *Creticus*; consisting of three Syllables each. — The *Proceleusmaticus*, *Choriambus*, and *Epitrite*, which are of four Syllables each.

The SPONDEE, *spondæus*, in the *Greek* and *Latin* Prosody, is a Foot of Verse, consisting of two long Syllables. — As *Vĕrtūnt*. — The *Spondee* is a Grave Measure; all *Greek* and *Latin Hexameters*, as already observed, regularly ending with a *Spondee*.

The IAMBIC, or IAMBUS, is a Foot consisting of a short Syllable, followed by a long one; as in

Dĕī, mĕās.

We also call the *Iambus* a swift rapid Foot, *pes Citus*.

The PYRRICHIUS, or PYRRICH, is a Foot consisting of two Syllables, both short; — as *Dĕcĕs*. — Among the Antients this Foot is called *Periambus*; by others *Hegemona*.

The DACTYL, is a Foot consisting of a long Syllable, followed by two short ones: — As, *Cārmĭnĕ*, &c.

The *Dactyl* is said to have been the Invention of *Dionysius* or *Bacchus*, who deliver'd Oracles in this Measure at *Delphos*, before *Apollo*. — The *Greeks* call it πολίτικος.

The *Dactyl* and *Spondee*, are the most considerable of the poetical Feet; as being Measures used in heroick Verses by *Homer* and *Virgil*, &c. these two are of equal Times, but not of equal Motion. The Spondee has an even, strong, and steady Pace like a Trot: The *Dactyl* resembles the nimbler Strokes of a Gallop.

ANAPÆST, *Anapæstus*, is a Foot, consisting of two short, and one long Syllable.

Such are these Words, *Lĕgĕrēnt*, *Sāpĭēns*.

The MOLOSSUS is a Foot, consisting of three long Syllables: — As *Audīrī*, *Cāntābānt*, *Vīrtūtēm*.

It takes its Name, either from a Dance in Use among the People called *Molossi*, or *Epirotæ*; or from the Temple of *Jupiter Molossus*; where Odes were sung, in which this Foot had a great Share; or because the March of the *Molossi* when they went to the Combat, was composed of these Feet, or had the Cadence thereof. The same Foot was also called among the Antients, *Fatumnius*, *Extensipes*, *Hippius*, and *Chanius*.

The TRIBRACH, is a Foot consisting of three Syllables, and those all short: — As, *Mĕlĭŭs*. Some of the Antients call this Foot *Trochæus*.

The BACCHIUS, is a Foot consisting of three Syllables; whereof the first is short, and the others long: — As, *ĕgĕstās*.

The *Bacchius* is the Reverse of a *Dactyl*, and takes its Name from that of *Bacchus*, because frequently used in the Hymns composed in his Honour. — It was also called among the Antients, *Æolrius*, *Tripodius*, *Saltans*; and by the *Greeks* παριαμβος.

The ANTIBACCHIUS, is a Foot consisting of three Syllables; the two first whereof are long, and the third short.

Such are the Words *Cāntāmĕ*, *Vīrtūtĕ*.

It is so called, as being contrary to the *Bacchius*. — Among the Antients this Foot is also denominated *Palimbacchius*, and *Saturnius*; by some *Propontiacus* and *Thessaleus*.

The AMPHIBRACHYS, is a Foot consisting of three Syllables, the first and last whereof are short, and that in the Middle long.

Such are the Words *ămārĕ*, *ălĭrĕ*, *pătĕrnŭs*.

The CHORIAMBUS, is a Foot compounded of a Choræus, or Trochæus, and an Iambus. — It consists of four Syllables; of which the first and last are long; and the two middle ones short: — As *Filiōlūs*.

The EPITRITE, is a Foot consisting of four Syllables, three long, and one short.

Grammarians reckon four Species of *Epitrites*; the first consisting of an Iambus and Spondee: As *Sālūtāntēs*. — The second of a Trochee and Spondee: As *Cōncĭtātī*. — The third of a Spondee and an Iambus: As *cōmmūnĭcāns*. — And the fourth of a Spondee and Trochee: As *īncāntārĕ*.

The PROCELEUSMATICUS, is a Foot consisting of four short Syllables: As *ărĭĕtăt*.

Having thus far given a particular Account of all the different Feet which can enter the Composition of all the different Kinds of Verses; I'll proceed on the Description of those Kinds of Verses; and having already began by that of the *Hexameter*, the next in order is the *Pentameter*.

The PENTAMETER, is a Kind of Verse, consisting of five Feet, or Metres. — The two first Feet may be either Dactyls or Spondees; the third always a Spondee; and the two last Anapæst: Thus;

Sic vos, non vobis, fertis aratra Boves.

It is usually joined to *Hexameters*, in Elegies, Epistles, Epigrams, and other little Pieces. But there is no Works of *Pentameters* alone.

Note, That in all Kinds of Verse, but more particularly in *Hexameters* and *Pentameters*, the Poet should take great Care to mark well the *Cæsures*, which is a certain agreeable Division of the Words between the Feet of a Verse, whereby the last Syllable of a Word becomes the first of a Foot.

As in — *arma virumq; cano Trojæ qui primus ab oris*. Where the Syllables *no* and *jæ* are Cæsures.

Cæsure, in the modern Poetry, denotes a Rest or Pause towards the Middle of a long *Alexandrine* Verse; by which the Voice and Pronunciation are aided, as the Verse is, as it were, divided into two Hemisticks.

In *Alexandrine* Verses of 12 or 13 Syllables, the *Cæsure* must always be on the sixth; in Verses of 10, on the fourth; and in those of 12, on the sixth; Verses of eight Syllables, must not have any Cæsure.

IAMBICK *Verse* are a Kind of Verse, consisting only, at least in great Part, of *Iambick* Feet

Iambick Verses may be consider'd, either with Regard to the Diversity, or the Number of their Feet; under each of which Head, there are distinct Kinds which have different Names. — 1. Pure *Iambicks*, or those which consist entirely of *Iambus*'s; as the fourth Piece of *Catule*, made in Praise of a Ship.

Phaselus ille, quem videtis Hospites.

The second Kind are those called simply *Iambicks*. — These have no *Iambus*'s, but in the even Feet; though there are sometimes *Tribachys's* added to them, excepting to the last, which is always an *Iambus*; and in the uneven Feet they have Spondees, *Anapæsts*, and even a Dactyl in the first; such is that of *Medea* in *Ovid*:

Servare potui, perdere an possim rogas?

The third Kind are the free *Iambick* Verses, in which it is not absolutely necessary there should be any *Iambus*, excepting in the last Foot; of which Kind are all those of *Phædrus*:

Amittit meritò proprium, qui alienum appetit.

In Comedies, the Authors seldom confine themselves more, frequently less, as we may observe in *Plautus* and *Terence*; but the sixth is always indispensibly an *Iambus*.

As to the Varieties occasioned by the Number of Syllables; — *Dimeter Iambick*, is that which has but four Feet:

Quærantur in Sylvis aves.

Those which have six are called *Trimeters*: These are the most beautiful, and are used principally for the Theatre; particularly in Tragedy; wherein they are vastly preferable to the Verses, often ten or twelve Feet, used in the modern Drama; in Regard they come nearer to the Nature of Prose, and savour less of Art and Affectation.

Dii conjugales, tuque genialis tori
Lucina Custos, &c.

Those with eight are called *Tetrameters*, and are only used in Comedies:

Pecuniam in loco negligere, maximum est lucrum. Terent.

Some add an *Iambick Monometer*, with two Feet,

Virtus beat.

They are called *Monometers*, *Dimeters*, *Trimeters*, and *Tetrameters*; that is, of one, two, three, and four Measures, because a Measure consisted of two Feet; the *Greeks* measuring their Verses, two Feet by two Feet, or by Dipodys, or Epitrites, joining the Iambus and Spondee together.

All the *Iambicks* hitherto mentioned are *perfect*; they have their just Number of Feet, without any Thing either deficient or redundant.—The *imperfect Iambicks* are of three Kinds; the *Catalectick*, which wants a Syllable:

Musæ Jovem canebant.

The *Brachycatalectick*, which wants an entire Foot:

Musæ Jovis gnatæ.

The *Hypercatalectick*, which have either a Foot or a Syllable too much:

Musæ sorores sunt Minervæ,
Musæ sorores Palladis lugent.

Many of the Hymns and Anthems used in the Church are *Dimeter Iambicks*, that is, consisting of four Feet.

The SAPPHICK, is a Kind of Verse much used by the *Greeks* and *Latins*, denominated from the Inventress *Sappho*.

The *Sapphick* Verse consists of eleven Syllables, or five Feet; whereof the first, fourth, and fifth, are Trochees, the second a Spondee, and the third a Dactyle, as in,

Integer vitæ, scelerisque; purus,
Non eget Mauri jaculis nec arcu. Hor.

Three Verses of this Kind closed with an *Adonick* Verse, consisting of a Dactyl and Spondee, usually make a Strophe.—Though we have some Chorus's in the antient Tragick Poets, containing a much greater Number, of *Sapphicks* successively. They generally run rough, unless they have the Cæsure after the second Foot.

The ADONICK, is a short Kind of Verse, consisting of a Dactyl, and a Spondee, or a Trochee.—As *Rara Juventus.*

It takes its Name from *Adonis*; as having been originally used in the Threne, or Lamentations for that Favourite.

The chief Use of the *Adonick* is at the End of each Strophe of Sapphick Verse; or among Aristophanick Anapæsts in the antient Tragedy.

But to make a Verse, it is not enough, that the Measures and Quantities of Syllables be observed, and such a Number of Feet put one after another in the same Line; there are further required certain agreeable Cadences; and a certain Harmony in the Order, Quantities, *&c.* of the Feet, and Syllables; which make the Piece musical to the Ear, and fit for Singing; for which all the Verses of the Antients were intended: And this is called *Numbers* in Poetry.

It is of these *Numbers Virgil* speaks in his fourth Eclogue.

—— *Numeros meminisse, si verba tenerem.*

And again in the sixth Eclogue:

Tum vero in Numerum Faunosque ferasque videres
Ludere ——

The *Numbers* are what constitute the Air and Character of a Verse; and denominate it either *smooth*, *soft*, *low*, *rough*, or *sonorous*.—The following Lines of *Milton* furnish an Instance of soft easy *Numbers*:

Then feed on Thoughts, which voluntary move
Harmonious Numbers; *as the tuneful Bird*
Sings darkling, and in shadiest Covert hid,
Tunes her nocturnal Note:

How different from the *Numbers* of those:

Arms meet with Arms, Gauntlets with Gauntlets clash,
And Sparks of Fire, struck out from Armour, flash.

But what is chiefly required in making *Verses*, is an elevated, bold, figurative Manner of Diction: This Manner is a Thing so peculiar to this Kind of Writing, that without it the most exact Arrangement of Longs and Shorts, does not constitute Verse so much as a Sort of measured Prose.

Vossius is very severe on the modern *Verse*, and makes it altogether unfit for Musick: Our *Verses*, says he, run all, as it were, on one Foot; without Distinctions of Members or Parts, and without regard to the natural Quantities of Syllables. We have no Rhythmus at all, and we mind nothing, but to have a certain Number of Syllables in a Verse, of whatever Nature, and in whatever Order.

The *Rithm* required by *Vossius* in this Place, is such as expresses the very Forms and Figures of Things.

Mr. *Malcom* vindicates our Verse from that Author's Imputation. It is true we do not follow the metrical Composition of the Antients, as *Wolfius* would have us do; yet we have such a Mixture of strong and soft, long and short Syllables, as make our Verses flow, smooth or rumbling, slow or rapid, according to the Subject.—Instances of which we have in the following Lines.

Soft is the Strain when Zephyr gently blows.
The hoarse rough Verse shall like the Torrent roar.
The Line too labours, and the Words move slow.
Flies over the unbended Ears, and skims along the Main.

By making a small Change or Transposition of a Word or Syllable, in any of those *Verses*, any Body who has an Ear will find, that we make a great Matter of the Nature and Order of the Syllables.

Wolfius adds, that the antient Odes were sung, as to the Rhythmus, in the same Manner as we scan them; every *Pes* being a distinct Bar, or Measure, separated by a distinct Pause; though, in Reading, that Distinction was not accurately observed.

Lastly, he observes, that their Odes had a regular Return of the same Kind of *Verse*; and the same Quantity of Syllables, in the same Place of every *Verse*: Whereas in the modern Odes, to follow the natural Quantity of our Syllables, every Stanza would be a distinct Song.

It is next to impossible to write Prose without sometimes intermixing *Verse* with it; so that *Vaugelas*'s Rule, which enjoins to avoid them, is next to impracticable.—This may be further said that for short *Verses*, they are so little perceived, that it is scarce worth while to strain oneself to avoid them; and as to long *Verses*, they are chiefly to be avoided in the Ends of Periods; for in the Middle they are scarce felt. In general, Rules of this Kind must be considered, as principally regarding numerous *Verses*, and such as are readily distinguished by their Cadence: Thus, in *Latin*, it is scarce possible to avoid Iambick Verses; but Hexameters must, by all Means be avoided, their Cadence being more sensible and more studied.

When we have made a *Verse*, the next Thing we must do, to know if it be a good one, is to scan it, *i. e.* measure it, to see what Number of Feet and Syllables it contains, and whether or no the Quantities, that is, the long and short Syllables, be duly observed.

This is chiefly done with regard to *Greek* and *Latin* Verses; the Quantities not being well settled and observed in the Verses of the modern Languages; observing above all Things that they cadance well.

Thus far we laid down the Rules of *Poetry*, or of versifying, which are taught in the Schools, and acquired by Study: We have discovered the *Matter* and Form thereof; the *Matter*, which is long and short Syllables, and Feet composed hereof, with Words furnished from Grammar; and the *Form*, consisting in the Arrangement of all these Things in just and agreeable Verse, expressing the Thoughts and Sentiments of the Author.

But after all, how narrow are these Bounds, if we consider *Poetry*, in the Light wherein the Works of *Homer* and *Virgil* have set it? What is here laid down pretends to no Praise, which a mere Translator may not arrise to, and which the War of *Catiline* might not merit, if turned out of the Prose of *Sallust*. It is with Reason therefore, that we distinguish the *low* and *simple* from the

the *greater Poetry*; by giving the former the Title of *Versification*: And then we make *Poetry* and *Versification* two distinct Arts. In effect, there is not more Difference between Grammar and Rhetorick, than between the Art of making Verses, and that of inventing Poems.

The *greater Poetry* then consists principally in Fiction, or the Invention of Fables; in the expressing of Things by Allegories and Metaphors; and in the inventing of Actions, under which the Truths which the Poet has to teach, may be agreeably disguised.

In this View scarce any Poems retain the Nature and Essence of the grand *Poetry*, but the *Epopœia*, *Tragedy*, and *Comedy*.—The rest, be they *Elegies*, *Satires*, *Song*, or what they will, come under Versification.

Before I enter into a particular Detail of those two Kinds of *Poetry*, we must inform ourselves of what is understood by *Poem*; which is the Base of the grand *Poetry*; though taken in its general Sense it is appropriated to all Kinds of *Poetry* indifferently. For,

A POEM, is a Composition in Verse, of a due Length and Measure.

There are *Poems* of various Kinds; some denominated from the Persons who first invented, or most used them, as the *Archilochia*, *Sapphick*, &c.—Others from their Composition, as the *Monocolon*, consisting of one Kind of Verse; *Dicolon*, of two; and *Tricolon*, of three Kinds.—Others from their Entireness or Deficiency; as *Brachycatalectus*, which wants two Syllables; *Catalectus*, which wants one; *Acatalectus*, none; and *Hypercatalectus*, which has a Syllable too much, which if cut off at the Beginning of the next Verse, the Verse is said to be *hypermeter*.—Others are denominated from the Subject-Matter; as the *Apobaterion*, *Epibaterion*, *Epinicion*, *Epithalamium*, *Genethliack*, *Propemptick*, *Elegiack*, *Satirick*, *Epicedion*, *Epitaph*, *Threnas*, or *Lamentation*, *Encomiastick*, *Panegyrick*, *Soterick*, *Lyrick*, *Pastoral*, &c. Others from the Manner of Narration; as *Exegetick*, which relates a Thing under the Author's own Person, *Dramatick* and *Epick*.

The APOBATERION, among the Antients, was a farewell Speech, or Poem, made by a Person on his Departure out of his own Country, or some other Place where he had been kindly received and entertained.

Such is that of *Æneas* to *Helenus*, and *Andromache*, *Æn. lib.* III.

The EPILATERION, is a poetical Composition in Use among the antient *Grecks*. When any Person of Condition and Quality returned home after a long Absence or Journey, into another Country, he called together his Friends and Fellow-Citizens, and made them a Speech, or rehearsed them a Copy of Verses, wherein he returned solemn Thanks to the immortal Gods for his happy Return, and ended with an Address, by way of Compliment, to his Fellow-Citizens.

These Verses made what the *Grecks* call επιβαλητριον, *Epilaterium*, of επιβαινω, *I go abroad*.

The EPINICION, was a Poem or Composition, on occasion of a Victory obtained. *Scaliger* treats expressly of the *Epinicion*, in his Poeticks. *l.* 1. *c.* 44.

The EPITHALAMIUM, is a nuptial Song, or a Composition, usually in Verse, on Occasion of a Marriage between two Persons of Eminence.

The Topicks it chiefly consists on, are the Praises of Matrimony, and of the married Couple; with the Pomp and Order of the Marriage Solemnity: It concludes with Prayers to the Gods for their Prosperity, their happy Offspring, *&c.*—*Catullus* exceeded all Antiquity in his *Epithalmiums*; and the Chevalier *Marino* all the Moderns.

But all these and all those which follow are not properly to be called Poems, and do not all belong to the grand Poetry; since of all Pieces of *Poetry*, the Epick and Dramatick deserve that Name by way of Eminence.

The EPICK, is an heroick Poem, or a Poem reciting some great and signal Transaction of a Hero; called also *Epopœia*.

Such are the *Iliad* and *Odyssee* of *Homer*, the *Æneid* of *Virgil*, the *Gierusaleme* of *Tasso*, and the *Paradise Lost* of *Milton*; which are the principal Poems of the *Epick* Kind.

An *epick Poem*, according to Sir *R. Blackmore*, is a probable marvellous Narration of an important Enterprize, or great Sufferings of some illustrious Person, related with Dignity, in Verse of the sublime Style, to give Delight and Instruction.

The *epick Poem* is more accurately and scientifically defined by *Bossu*, a Discourse invented with Art, to form the Manners, by Instructions disguised under the Allegory of an important Action, related in Verse, in a probable, entertaining and surprizing Manner.

The *epick* Poem is distinguished from Comedy, in that the Action of the latter is not important, nor is related by the Poet, but acted by the Persons introduced for that Purpose; which Circumstance likewise distinguishes it from Tragedy.

Nor is it a philosophical Poem, as that of *Lucretius*, or the Creation of Sir *R. Blackmore*; nor a Treatise of Agriculture, or the like, as the Georgics of *Virgil*; those Poems not being intended to form the Manners: Besides, that the Instructions they contained are naked, simple, and direct, without any Disguise or Allegory. Which second Circumstance likewise distinguishes it from a Treatise of Morality, wrote in Verse: Or a simple History in Verse, as the Pharsalia of *Lucan*; the Punick War of *Silius*; or the Civil Wars of *Sam. Daniel*: Add, that its being confined to one important Action, distinguishes it from a Poem which relates all the Actions of a Person's Life; as the *Theseid* and *Achilleid* of *Statius*, which are what we properly call *heroick Poems*.

M. *de la Motte*, indeed, in his Controversy with Madam *Dacier*, on the Subject of *Homer*, maintains, that the whole Life of a Hero may justly be made the Subject of an epick Poem; and even that the *Lutrin* of M. *Boileau*, might pass for an epick Poem: But he seemed afterwards to return to the common Sentiment. In effect, the Question is not as to the Sense, which may be annexed to the Words *epick Poem*, but the Sense which Custom has actually annexed to them.

If we had only regard to the Etymology of the Word *epick* (of επος, *Verse*, *Poetry*, for ειπω, *dico*, *I speak*, *relate*,) all Poems wherein the Poet speaks, or rehearses Things himself, without making the Persons speak, except at second Hand, as he relates what they spoke on this and that Occasion, would be epick Poems; and so there is not an Epigram, Sonnet, or Madrigal, but would come under this Denomination. But this were wild.

In effect, the Term *epick* Poem, is only attributed to a Composition, whose Subject is great, instructive, and serious; that only comprehends one single principal Event to which all the rest refer; which principal Action is to be terminated in a certain Space of Time, ordinarily about a Year. It is true all this is arbitrary; but the Sense of all Words is so too: And in Matters of Language, we must be guided by Custom.

If M. *de la Motte* had only pretended, that one might make a fine instructive Poem on the whole Life of a Hero; or an agreeable and diverting Poem, on some humorous Adventure; all the World would have been of his Side. But it is enough that Custom has not thought good to apply the Term *Epick*, either to Subjects of too much Extent, and that are stuffed with too many Incidents no ways connected together; nor to burlesque Poems, as the *Batrachomyomachia* of *Homer*; the *Secchia Rapita* of *Tassoni*; the *Defaite de Dulet*; the *Lutrin* of *Boileau*; the *Hudibras* of *Butler*; the *Rape of the Lock* of *Pope*; or the *Dispensary* of Dr. *Garth*.

The *Epic* Poem then, as appears from what was above observed, bears a Relation, or Analogy, to four Things; History, Morality, Fable, and Poetry.

To *History*, as both of them relate one or more Actions; but then the Actions of History are singular: So that the *Epopœia* is no History, nor Kind of History.

To *Moral Philosophy*, as both of them consist of Instructions for forming the Manners; but the Action and Allegories distinguish it herefrom.

But it relates entirely to Poetry and Fable, as being strictly a Poem, and a Fable.

The Nature of the *Epic* Poem is finely drawn by the great Critick abovementioned: The *Epic* Poets, says Father *Bossu*, have done thus with regard to Morality, which the ancient Heathen Divines did with regard to the Divinity. The too great Diversity of divine Actions and Perfections, so very disproportionate to our Com-

Comprehension, obliged the latter to divide a single Idea of a simple Essence, God, into several Persons; to whom they attributed several Names, *Jupiter*, *Juno*, *Neptune*, &c.

And, on the contrary, the Nature of moral Philosophy, which never prescribes Rules for particular Things, led the Poets to collect into one single Idea, one and the same Person, and one apparently singular Action, whatever of that Kind was found in different Persons, and different Actions.

Thus *Aristotle*, Ου τοχαζεται η Ποιησις ονομαστα, &c. *Poetry*, says he, teaches moral Philosophy, not by relating only, in Manner of an Historian, what *Alcibiades*, for Instance, did or suffer'd; but by proposing what some Person, named as the Poet thinks fit; would, probably, or necessarily have done on the like Occasion. And thus it is that he shews either the unhappy Consequences usually attending imprudent Schemes or ill Actions; or the Reward of good Actions, and the Satisfaction resulting from a Design laid in Virtue, and conducted with Prudence. So that the *Epick* Poem, according to *Aristotle*'s Sentiment, the Persons and Actions however named, are all feigned, allegorical and universal, not historical and singular.

But the Poets thus taking on them the Office of moral Philosophers, did not cease to be Divines. On the contrary, their Morality itself frequently obliges them to introduce the Deity in their Works; as the Knowledge, Fear, and Love of God, are the first, and most solid Foundations of all Morality. The Presence of the Divinity, and the Share so august a Personage was supposed to have in the Action, obliged the Poet to make the Action great and important, and to have it transacted by Kings and Princes. The same, likewise, obliged them to think and speak in a Manner elevated above the common Pitch of Men; and equal, in some Measure, to the Dignity of the divine Persons introduced. To which End serves the poetick and figurative Language, with the Majesty of heroick Verse. Add, that as so much of the divine and miraculous might ruin the Probability, they were hereby obliged to have Recourse to several Rules to maintain the same.

Thus much the Poets were driven to by the Substance of the Things they had chose, for the Matter of their Poems and Instructions. The Manner of delivering them usefully and methodically, obliged them to several other Rules.

The *Epick* Poem is intended more for the Manners and Habits, than for the Passions. These latter rise all at once, and their Violence is but of short Duration; but the Habits are more calm and impressed, or quitted more leisurely. Consequently the *Epick* Action could not be included in the Space of a Day, as that of a theatrical. A longer Time was necessary than is required for a Tragedy, which is altogether for the Passions.

This Distinction has introduced a World of Difference between Tragedy and *Epick Poetry*. The tragick Violence requires a more lively and animated Representation, than a mere Recital. Accordingly it is wholly thrown into Action, and the Poet never speaks at all, as he does in the *Epopœia*, where there are no Actors.

The Critick's lay down four Qualifications, as necessary to the *Epick* and Tragick Action. The first *Unity*; the second *Integrity*; the third *Importance*; and the fourth *Duration*; to which some add a fifth, *Integrity*.

The *Unity* of the *Epick* Action, M. *Dacier* observes, does not consist in the *Unity* of the Hero, or in the *Unity* of his Character and Manner. Though these be Circumstances necessary thereto. The *Unity of Action* requires that there be but one principal Action, of which all the rest are to be Incidents or Dependencies.

F. *Bossu* assigns three Things requisite thereto. The first, that no Episode be used, but what is fetched from the Plan and Ground of the Action, and which is a natural Member of that Body: The second, that these Episodes and Members be well connected with each other: The third is not to finish any Episode, so as it may appear a whole Action; but to let each be always seen in its Quality of Member of the Body and an unfinished Part.

The same excellent Critick examines the *Æneid*, *Iliad*, and *Odyssee*; with Respect to these Rules, and finds them strictly observed. Indeed it was [illegible] Conduct of those divine Poems, that he took the [illegible] of the Rules themselves. Instances wherein these [illegible] are all neglected, he gives us in the *Statius's Thebaid*.

As for the *Unity* of Time it is not very well established; for there is no fixing the Time of the Duration of an *Epick* Poem; in Regard, the warmer and more violent the Action is, the less must be its Continuance. Whence it is that the *Iliad*, representing the Anger of *Achilles*, only contains forty-seven Days at most; whereas the Action of the *Odyssee*, holds eight Years and a half; and that of the *Æneid* almost seven Years.

But the Length of the Poem *Aristotle* gives us a Rule for; which is, that it be such, as it may be read over in one Day, pretending, that if it exceeds that Compass, the Sight will be bewilder'd in it, and that one cannot see the End, without having lost the Idea of the Beginning.

As to the Importance of the *Epick* Action, there are two Ways of providing for it: The first by the Dignity and Importance of the Persons. This Way alone *Homer* makes use of; there being otherwise nothing great and important in his Models, but what might have happen'd to ordinary Persons. The second by the Importance of the *Action* itself, such as the Establishment or Downfal of a Religion, or a State; which is *Virgil*' Action, and in which he has much the Advantage of *Homer*.

Bossu mentions a third Way of making the Action important, *viz.* by giving a higher Idea of the Personages, than what the Reader conceives of all that is great among Men.—This is done by comparing the Men of the Poem with the Men of the present Time.

The Action of the *Epick Poetry* is like that of the Drama, susceptible of *Oratorial Narration*, which constitutes its Species; the Qualities thereof are, that it be agreeable, probable, moving, surprizing, and active.

Horace speaks of the *Utile* and *Dulce*, as on the same Footing. *Bossu* looks on the *Utile*, as an essential Property; and the *Dulce* as no more than an additional Quality.

Boileau gives the following Rules for the *Epick Poem*.

1. He advises the Poet to chuse a Hero, deserving the Attention of the Reader, and capable to flatter his Curiosity, and engage him to proceed further, without being tired of reading; such a Hero, as his great Valour, rare Virtues, and even his Imperfections, may deserve to be admired; and high Feats worthy of being heard; such as *Alexander*, *Cæsar*, &c. And not such as *Polynice* and his perfidious Brother, for one is soon tired with the Deeds of a common Conqueror.

2. He forewarns him against loading his Subject with too many Incidents; since often, says he, a too great Abundance, impoverish the Matter.

3. He ought to be lively and quick in his Narrations; rich and pompous in his Descriptions; without ever introducing into them low or mean Circumstances.

4. The Beginning of his Poem should be simple, and without Affectation; without promising more at first than he can perform in the Sequel.

5. His Work must be diversified with a great Number of Figures; mixing, as we have already observed, the agreeable with the useful; since a too tedious, and heavy sublime, is always hateful.

The DRAMA is a Piece or Poem, composed for the Stage.

Our *Drama's* are *Tragedies* and *Comedies*.

The *primary Parts* of the *Drama*, as divided by the Antients, are the *Protasis*, *Epitasis*, *Catastasis*, and *Catastrophe*.

The *secondary Parts* are the *Acts* and *Scenes*.

The *accessary Parts* are the *Argument* or *Summary*, the *Prologue*, *Chorus*, *Mimes*, *Satura*, and *Atellana*.

Lastly, the *Epilogue*, which pointed out the Use of the Piece, or conveyed some other Notice to the Audience, in the Poet's Name.

Now let's explain every one of those Parts in particular, beginning by the *primary Parts*.

The PROTASIS, in the antient Drama, was the first Part of a comick and tragick Piece; wherein the several Persons of the Play are shewn; their Characters and Manners intimated, and the Action, which is to make the Subject of the Piece, proposed, and entered upon. The

The antient *Protasis* might go about as far as our two first Acts. — Where the *Protasis* ended, the *Epitasis* commenced.

The EPITASIS, was the second Part or Division of a Dramatick Poem; wherein the Plot or Action propos'd, and enter'd upon in the first Part or Protasis, was carried on, heighten'd, warmed, and worked upon, till it arrived at its State or Height, called the *Catastasis*.

The CATASTASIS, was the third Part of the antient Drama; being that wherein the Intrigue or Action set on Foot on the Epitasis, is supported, carried on, and heighten'd, till it be ripe for the unravelling in the Catastrophe.

The CATASTROPHE made the fourth and last Part in the antient Drama; or that immediately succeeding the Catastasis.

The *Catastrophe* is the Change or Revolution of a Dramatick Poem; or the Turn which unravels the Intrigue, and terminates the Piece.

The *Catastrophe* is either *simple* or *implex*, whence also the Fable and Action are denominated.

In the first there is no Change in the State of the principal Persons, nor any Discovery or Unravelling; the Plot being only a mere Passage out of Agitation to Quiet and Repose. This *Catastrophe* is rather accommodated to the Nature of the Epopœia, than of Tragedy. Indeed we meet with it in some of the Antients, but it is out of Doors among the Moderns. In the second, the principal Person undergoes a Change of Fortune, sometimes by Means of a Discovery, and sometimes without.

The Qualifications of this Change, or Peripetia are, that it be probable and necessary: In order to be probable, it is required it be the natural Result or Effect of the foregoing Actions, *i. e.* it must spring from the Subject itself, or take its Rise from the Incidents; and not be introduced merely to serve a Turn. The Discovery in the *Catastrophe* must have the same Qualifications as the *Catastrophe* itself, whereas it is a principal Part: It must be both probable and necessary. To be probable, it must spring out of the Subject itself; not be effected by Means of Marks, or Tokens, Rings, Bracelets, or by a mere Recollection, as is frequently done both by the Antients and Moderns. To be necessary, it must never leave the Persons it concerns, in the same Sentiments they had before, but still produce either Love or Hatred, *&c.* Sometimes the Change consists in the Discovery; sometimes it follows at a Distance, and sometimes results immediately from it, which is the most beautiful Kind: And thus it is in *Œdipus*.

Dryden thinks a *Catastrophe*, resulting from a mere Change in the Sentiments, and Resolutions of a Person, without any farther Machinery, may be so managed as to become exceedingly beautiful, nay preferable to any other. It is a Dispute among the Criticks, whether the *Catastrophe* should always fall out happily and favourably on the Side of Virtue, or not? *i. e.* whether Virtue is always to be rewarded, and Vice punished in the *Catastrophe?* But the Reasons on the negative Side seem the strongest. *Aristotle* prefers a shocking *Catastrophe* to a happy one; in Regard the moving of Terror and Pity, which is the Aim of Tragedy, is better effected by the former than the latter.

Bossu divides the *Catastrophe*, at least, with Regard to the Epopœa, into the Unravelling or *Denouement*; and the *Achevement*, or finishing; the last of which he makes the Result of the first; and to consist in the Hero's Passage out of a State of Trouble and Agitation, to Rest and Quiet. This Period is but a Point, without Extent or Duration; in which it differs from the first, which comprehends every Thing after the Knot or Plot laid. He adds, that there are several Unravellings in the Piece; in regard there are several Knots which beget one another: The finishing is the End of the last Unravelling.

As to the secondary Parts, *viz. Acts* and *Scenes*.

The ACTS are certain Divisions or principal Parts in a Dramatick Poem, contrived to give a Respite or breathing Time both to the Actors and Spectators.

In the Interval between the Acts, the Theatre remains empty, and without any Action visible to the Spectators; though it is supposed all the while there is one passing out of Sight.

It is not, however, purely for the Sake of the Respite, that these Acts are observed; but to give Affairs a greater Degree of Probability, and render the Intrigue more affecting. For the Spectator, who sees the Action prepared, that is to pass in the Interval, cannot forbear acting in his Imagination, the Part of the absent Actors; by which Means he is the more agreeably surprized with a new Act coming upon the Stage, he sees the Effects of that Action, which before he could but guess at.

To this it may be added, that Authors contrive to have the most dry or difficult Parts of the Drama transacted between the Acts; that the Spectators may have no Notion of these, excepting what their Fancy presents them with at a Distance; and that nothing may appear upon the Stage but what is natural, probable, and entertaining.

The antient *Greek* Poets were acquainted with this Division of a Play into Acts; though their Episodes or Chorus's served almost the same Purpose.

It is true they consider'd their Pieces as consisting of those Parts or Divisions above-mention'd; but there were no real Divisions or Interruptions answering to them in the Representation.

It was the *Romans* who first introduced Acts into the Drama; and in *Horace*'s Time the five Acts were grown into a Law, as appears by the Verse:

Neu brevior quinto; neu sit productior, Actu.

This Law stands unrepealed to this Day; though it seems to draw its Force from the Authority of *Horace*, rather than that of Reason, or Nature. — All Plays are held irregular, that have either more or less than five Acts.

Some indeed have asserted, that every just Action consists of five distinct Parts: And have undertaken to mark out the precise Share of the Action, which each of the five Acts ought to bear.

The first, say they, is to propose the Matter or Argument of the Fable, and to shew the principal Characters.—The second to bring the Affair or Business upon the Carpet.—The third, to furnish Obstacles and Difficulties.—The fourth either points a Remedy for those Difficulties, or finds new in the Attempt.—The fifth puts an End to all by a Discovery.

Be this as it will, some are of Opinion, that, on the Principles of that great Master of the Drama, *Aristotle*, we may have a just and regular Play, though only divided into three Acts.

The *Acts* are subdivided into *Scenes*.

A SCENE, is a Part or Division of a Dramatick Poem, determin'd by a new Actor's entering.

In most of our printed Plays, a new *Scene* is never expressed to begin, but when the Place is supposed to be changed by shifting or drawing the moveable *Scenes*; but this must be esteemed an Oversight, since on our Stage, the *Scene* is properly the Persons present at, or concerned in the Action of the Stage, at such Time.— Whenever, therefore, a new Actor appears, or an old one disappears, the Action is changed into other Hands, and therefore a new *Scene* then commences.

It is one of the Laws of the Stage, that the *Scenes* be well connected: That is, that one succeed another in such Manner, as that the Stage is never quite empty till the End of the Act.

The Antients did not allow of above three Persons on the Stage at the same Time, excepting in the Chorus's, where their Number was not limited: The Moderns have but little Regard to this Restriction.

As to the accessory Parts. — The ARGUMENT or *Summary*, was an Abridgment of the whole Play; which, at present, is almost out of Use.

The PROLOGUE is a Discourse addressed to the Audience, before the Drama or Play begins.

The original Intention of the *Prologue*, was to advertise the Audience of the Subject of the Piece, and to prepare them to enter more easily into the Action; and sometimes to make an Apology for the Poet.

This last Article seems to have almost excluded the two former in the *English* Drama; and to be in sole Possession of the *Prologue*.

The *Prologue* is of a much more antient Standing than the *Epilogue*. — The *French* have left off the Use of *Prolog*

logues; those few they now and then make, retaining still a great deal of the genuine Prologue; though a malicious and partial Author I have now before me, asserts falsely, that the *French Prologues*, are nothing but *Flourishes* and Harangues in Praise of the King, *&c.* tho' if it was, it is much more becoming a good Subject to praise the King than *abuse him.*

In the antient Theatre, the *Prologus* was properly the Actor who rehearsed the *Prologue:* The *Prologus* was esteemed one of the *Dramatis Personæ*, and never appeared in the Piece in any other Character: So that the Learned are surprised to find *Mercury* in *Plautus*'s *Amphytrio*, speaking the *Prologue*, and yet acting a considerable Part in the Play afterwards.

The *Prologue*, therefore, among them, was a Part of the Piece; indeed not an essential, but, as already observed, an accessory Part.—With us the *Prologue* is no Part at all; but something entirely distinct and separate: With them the Drama was opened with the Appearance of the *Prologue*; with us it is not opened till after the *Prologus* is retired: With us, therefore, the Curtain is kept close till after the *Prologue*; with them it must have been withdrawn before.

Hence proceeds a still more considerable Difference in the Practice of the *Prologue:* For with the *English*, the *Prologus* speaks in his real or personal Character: It was Mr. *Booth*, or Mrs. *Oldfield* spoke, not *Cato* or *Andromache:* With them the *Prologus* spoke in his Dramatick Character, not as *Turpius* or *Attilius*, but as *Prologus.* With us, he directs his Speech to the Audience, considered as in a Play-House; to Pit, Box, and Gallery: With them, he ought in Propriety to have spoken as to a Chorus of By-standers, or Persons to be present at the real Action: But this being in good Measure inconsistent with the Design of the *Prologue*; their Persons spoke in their dramatick Capacity to the Audience in its personal Capacity; which was an Irregularity that either the good Fortune, or the good Sense of the Moderns, have freed them from.

They had three Kinds of *Prologues*; the first ὑποθετικὸν, wherein the Poet delivered the Argument of the Piece; the second ἐυστατικὸν, wherein the Poet recommended himself or his Piece to the People; the third ἀναφορικὸν, wherein Objections were obviated, *&c.*

The CHORUS, was one, or more Persons, present on the Stage during the Representation, and supposed to be By-standers thereto, without any particular Share or Interest in the Action.

Tragedy in its Origin, M. *Dacier* observes, was no more than a single *Chorus*, who trod the Stage alone, and without any other Actors; singing Dithyrambicks, or Hymns in Honour of *Bacchus.*

Thespis, to relieve the *Chorus*, added an Actor, who rehearsed the Adventures of some of their Heroes. *Æschylus*, finding a single Person too dry an Entertainment, added a second; and at the same Time reduced the Singing of the *Chorus*, to make more room for the Recitation. Every Thing introduced between the four Songs of the *Chorus*, they called by the Term *Episode*; and these four Songs made the four Intervals, or Acts of the Piece.

But when once Tragedy began to be formed, those Recitations or *Episodes*, which at first were only intended as accessory Parts to give the *Chorus* a breathing Time, became now the principal Parts of the Tragedy: And whereas, before, they were taken from various Subjects, they were now all drawn from one and the same.

The *Chorus*, by Degrees, became inserted, and incorporated into the Action, to which it was only intended as an Addition or Ornament. Sometimes the *Chorus* was to speak, and then their Chief, whom they called *Coryphæus*, spoke in Behalf of all the rest: The Singing was performed by the whole Company; so that when the *Coryphæus* struck into a Song, the *Chorus* immediately joined him.

Besides the four Songs, which made the Division of the Piece, and which were managed by the *Chorus*, the *Chorus* sometimes also joined the Actors in the Course of the Representation, with their Plaints and Lamentations; on Occasion of any unhappy Accident that befel them.

But the proper Function of the *Chorus*, when Tragedy was formed, and that for which it seemed chiefly retained, was to shew the Intervals of the Acts: While the Actors were behind the Scenes, the *Chorus* engaged the Spectators; their Songs usually turned on what was just exhibited; and was not to contain any Thing but what was suited to the Subject; and had a natural Connection with it: So that the *Chorus* concurred with the Actors for advancing the Action.

It is a Fault observed in *Euripides*'s Tragedies, that his Choruses are detached from the Action, and not taken from the same Subject. There were some other Poets who to save the Pains of composing Chorus's, and adapting them to the Piece, contented themselves with invented Songs, which had no Relation to the Action. These foreign Chorus's were the less pardonable, as the Chorus was esteemed to act a Part in the Piece, and to represent the Spectators, who were looked on as interested therein; insomuch that the Chorus was not always to be mute, even in the Course of the Acts.

In the modern Tragedies the Chorus is laid aside, and the Fiddles supply its Place. M. *Dacier* looks on this Retranchment as of ill Consequence; and thinks it robs Tragedy of a great Part of its Lustre. He adds, that it is ridiculous to have a tragick Action broke, and interrupted by impertinent Flourishes from the Musick-Box: And to have the Spectators, who are supposed to be moved by the Representation, become all of a sudden calm and easy, break off at the Height of a Passion, and amuse themselves peaceably with a foreign Entertainment. The Re-establishment of the Chorus he judges necessary, not only for the Embellishment and Regularity of the Piece; but also it was one of its principal Functions, to redress and correct any Extravagancies that might fall from the Mouths of the Actors, when under any violent Passion, by prudent and virtuous Reflections.

That which occasioned the Suppression of the Chorus, was its being incompatible with certain Complots, and secret Deliberations of the Actors. For it is in no wise probable, that such Machinations should be carried on in the Eyes of Persons interested in the Action. As the Chorus therefore never went off the Stage, there seemed a Necessity of laying it aside, to give a greater Probability to these kind of Intrigues, which require Secrecy.

M. *Dacier* observes, there was a Chorus, or Grex, also in the antient Comedy; but this too is suppressed in the New; chiefly because made Use of to reprove Vices, by attacking Persons.

The Chorus in Comedy was at first no more than a single Person, who spoke in the antient Compositions for the Stage; the Poets by Degrees added to him another; then two, afterwards three, and at last more; so that the most antient Comedies had nothing but the Chorus.

Lastly, the EPILOGUE, is a Speech addressed to the Audience when the Play is over, by one of the principal Persons or Actors therein; containing usually some Reflections on certain Incidents in the Play, particularly those of the Parts of the Person who speaks it.

In the modern Tragedy, the *Epilogue* has usually somewhat of Pleasantry; intended, we suppose, to compose the Passions raised in the Course of the Representation, and send away the Audience in good Humour: Though how far that Design is good and laudable will bear some Dispute: An ingenious Author, in the *Spectator*, compares it to a merry Jig on the Organ, after a good Sermon, to wipe away any Impressions that might have been made thereby, and send the People away just as they came.

In effect, though the *Epilogue* in this Sense, may seem an Abuse, yet it has the Countenance of Antiquity: The *Romans* had something of the same Nature, though under another Name. Their Exordium was a kind of Farce, brought on the Stage when the Tragedy was over; *ut quicquid Lacrymarum ac Tristitiæ excussit ex tragicis affectibus, hujus spectaculi risus detergeret*, says the Scholiast of *Juvenal.*

The *Epilogue* is but of modern Date, much later than the Prologue. Many indeed have taken the Exodium of the antient *Greek* Drama, for an *Epilogue*; by reason *Aristotle* defines it to be a Part rehearsed after the Chorus had sung for the last Time: But in Reality, it was of a quite different Nature. The Exodium was the last of the four Parts of the Tragedy, containing the unravelling

ſing and Cataſtrophe of the Plot, and anſwering to our laſt or fifth Act.

Having thus explained all the different Parts which enter the Compoſition of a *Tragedy* or *Comedy*, both antient and modern, we'll examine next the whole Compoſition, beginning by the *Tragedy*.

The TRAGEDY is a Dramatick Poem, repreſenting ſome ſignal Action performed by illuſtrious Perſons, and which has frequently a fatal Iſſue or End.

Ariſtotle more ſcientifically defines *Tragedy*, the Imitation of one grave and entire Action, of a juſt Length, and which, without the Aſſiſtance of Narration, by raiſing of Terror and Compaſſion, refines and purges our Paſſions.

This Definition has given the Criticks ſome Perplexity, and *Corneille* declares, he cannot reconcile *Ariſtotle* with himſelf: The Inſtances *Ariſtotle* cites, he thinks ruin his own Definition. He even denies the purging our Paſſions to be the End of *Tragedy*.

Tragedy, in its Original, M. *Hedelin* obſerves, was only a Hymn ſung in honour of *Bacchus* by ſeveral Perſons, who, together, made a Chorus of Muſick with Dances and Inſtruments.

As this was long and might fatigue the Singers, as well as tire the Audience, they bethought themſelves to divide the Singing of the Chorus into ſeveral Parts, and to have certain Recitations in the Intervals, as already obſerved.

Accordingly *Theſpis* firſt introduced a Perſon on the Stage with this View: *Æſchyllus* finding one Perſon inſufficient, introduced a ſecond to entertain the Audience more agreeably by a Dialogue: He alſo cloathed his Perſons more decently, and firſt put on them the Buſkin.

The Perſons who made theſe Recitations on the Scene, were called Actors; ſo that *Tragedy* at firſt was without Actors. And what they thus rehearſed, being Things added to the Singing of the Chorus, whereof they were no neceſſary Part, were called *Epiſodes*.

Sophocles found that two Perſons were not enough for the Variety of Incidents, and therefore introduced a third. And here the *Greeks* ſeem to have ſtopped; at leaſt it is very rare that they introduce four Speakers in the ſame Scene.

Tragedy and *Comedy*, were at firſt confounded with each other, but they were afterwards ſeparated; and the Poets applied themſelves to the cultivating of *Tragedy*, neglecting *Comedy*.

When *Tragedy* was got into a better Form, they changed the Meaſure of its Verſe, and endeavoured to bring the Action within the Compaſs of a Day.

The ſeveral Parts of the modern *Tragedy*, are the *Act*, *Scene*, *Fable*, *Characters*, *Manners*, we have already explained the two firſt Parts, *viz.* the *Act* and the *Scene*; therefore we'll only take Notice of the other Parts, *viz.* the *Action*, *Fable*, &c.

The ACTION, in the Tragedy, requires the ſame four Qualifications, enumerated in that of the Epick Poem, *viz. Unity*, *Integrity*, *Importance*, and *Duration*.

In the Drama, there are three Unities to be obſerv'd; the *Unity* of *Action*, that of *Time*, and that of the *Place*.

The *Unity* of the Dramatick Action, conſiſts, in Tragedies, in the Unity of the Danger; and, in Comedies, in that of the Intrigue; and this not only in the Plan of the Fable, but alſo in the Fable extended, and filled with Epiſodes.

The Epiſodes are to be worked in without corrupting the *Unity*, or forming a double Action; and the ſeveral Members are to be ſo connected together, as to be conſiſtent with that Continuity of Action, ſo neceſſary to the Body, and which *Horace* preſcribes, when he ſays, *Sit quodvis ſimplex dumtaxat & unum.*

To the *Unity of Time*, it is required in the Drama, that the Action be included in the Space of a Day.— *Ariſtotle* ſays expreſly it muſt not exceed the Time the Sun employs in making one Revolution, which is a natural Day, under Pain of Irregularity: Some Criticks will even have it included in the Space of twelve Hours, or an artificial Day.

Indeed, the antient tragick Poets, ſometimes diſpenſed with this Rule, and the modern *Engliſh* ones, many of them diſallow it: Few of them practiſe it.

As to the *Unity of Place*, and *Scene*, neither *Horace* nor *Ariſtotle* gives us any Rules relating thereto.—It were to be wiſhed, indeed, that what is preſented to the Audience on the ſame Stage, which is never ſhifted, might be ſuppoſed to have paſſed in the ſame Houſe, and the ſame Apartment. But as ſuch a Conſtraint would cramp the Poet too much; and as ſuch an Uniformity would ſuit very ill with Abundance of Subjects; it has been agreed, that what paſſes any where in the ſame Town or City ſhall be allowed for *Unity of Place*.—At leaſt if two different Places be unavoidable; yet the Place is never to be changed in the ſame Act.

In order to the *Integrity of the Action*, it is neceſſary, according to *Ariſtotle*, that it have a Beginning, Middle, and End.—If the three Parts of a Whole, ſeem to be generally denoted by the Words *Beginning*, *Middle*, and *End*; *Boſſu* interprets them more expreſly, thus: The Cauſes and Deſigns of a Man's doing an *Action*, are the Beginning; the Effects of theſe Cauſes, and the Difficulties met withal in the Execution of thoſe Deſigns, are the Middle of it; and the unravelling and extricating of thoſe Difficulties, the End of the *Action*.

The Poet, ſays *Boſſu*, ſhould ſo begin his *Action*, that on one Hand, nothing ſhould be wanting for the Underſtanding of what he afterwards delivers; and, on the other, that what thus begins, requires after it a neceſſary Conſequence. The End is to be conducted after the like Manner, only with the two Conditions tranſpoſed; ſo that nothing be expected after it, and that what ends the Poem be a neceſſary Conſequence of ſomething that went before it. Laſtly, the Beginning is to be joined to the End by a Middle, which is the Effect of ſomething that went before it, and the Cauſe of what follows.

In the Cauſes of an *Action*, one may obſerve two oppoſite Deſigns; the firſt and principal is that of the Hero: The ſecond comprehends all their Deſigns, who oppoſe the Pretenſion of the Hero. Theſe oppoſite Cauſes do alſo produce oppoſite Effects, *viz.* the Endeavours of the Hero to accompliſh his Deſign, and the Endeavours of thoſe that are againſt it. As the Cauſes and Deſigns are the Beginning of the *Action*; ſo thoſe contrary Endeavours are the Middle of it; and form a Difficulty, Plot, or Intrigue, which makes the greateſt Part of the Poem.

The Solution or clearing up of this Difficulty, makes the Unravelling.

The Unravelling of the Plot, or Intrigue, may happen two Ways, either with a Diſcovery or without.

The ſeveral Effects which the Unravelling produce, and the different States to which it reduces the Perſons, divides the *Action* into ſo many Kinds. If it changes the Fortune of the principal Perſon, it is ſaid to be with a Peripetia; and the *Action* is denominated *implex*, or *mixed*: If there be no Peripetia, but the Unravelling be a mere paſſing from *Action* to Repoſe, the *Action* is *ſimple*.

The FABLE is uſed for the Plot of an Epick or Dramatick Poem; or the Action which makes the Subject of ſuch Poem or Romance.

The *Fable*, according to *Ariſtotle*, is the principal Part, and, as it were, the Soul of a Poem. It muſt be conſider'd as the firſt Foundation of the Compoſition; or the Principle which gives Life and Motion to all the Parts. In this Senſe the *Fable* is defined, *A Diſcourſe invented with Art, to form the Manners by Inſtructions diſguiſed under the Allegory of an Action.*

The Epick Fable, according to *Boſſu*, is confined to the rational Kind, *i. e.* the Actors and Perſons are to be Gods and Men. And yet it admits of a deal of Latitude: It may be either grave, illuſtrious and important; or low and popular; either whole or defective; in Verſe or in Proſe, much epiſodiſied, or Brief; rehearſed by an Author, or repreſented by Actors on the Scene; all which are only ſo many Circumſtances, which do not make any Alteration in the Nature and Eſſence of the *Fable*.

The Characters that ſpecify the Epick *Fable*, are theſe: It is rational and probable; it imitates a whole, and an important Action; and it is long, and related in Verſe. None of which Properties affect the Nature of the *Fable*; or make it leſs a Fable than thoſe of *Æſop*.

The *Fable*, according to *Ariſtotle*, conſiſts of two eſſential Parts, *viz.* Truth, as its Foundation; and Fiction which diſguiſes the Truth, and gives to it the Form

Form of a *Fable*. The Truth is the Point of Morality intended to be inculcated; the Fiction is the Action, or Words the Instruction is covered under.

To make a Plot or *Fable*; the first Thing, according to the great Critick just mentioned, is to pitch on some moral Instruction to be exemplified.

The Fiction may be so disguised with the Truth of History, that there shall not appear any Fiction at all. To effect this the Poet looks back into History, for the Names of some Persons to whom the feigned Action either really or probably did happen; and relates it under those known Names, with Circumstances which do not change any Thing of the Ground of the *Fable*.

The CHARACTERS, is the *Epopœia* and *Drama*, is the Result of the Manners, or that which each Person has singular and peculiar in his Manners, whereby he is distinguished from others.

The poetical *Character*, *Bossu* observes, is not properly any Virtue, or Quality in particular; but a Composition of several mixed, and combined in various Degrees, according to the Occasions of the Fable, and the Unity of the Action. All the simple Qualities that enter this Compound, must not have the same Rank, nor be equal to each other: Since in that Case, one prevailing on one Occasion, and another on another, the *Character* will appear changeable; and the Poem, as well as the Hero, animated with several Souls.

There must therefore be one to reign over all the rest; and this must be found in every Part: Just as the same Hero, in several Paintings, should have the same Lines and Features, how different soever his Postures and Passions may be.

This first Quality, in *Homer*'s *Achilles*, is Wrath; in *Ulysses* Dissimulation; and in *Virgil's Æneas*, Mildness: Each of which may, by way of Eminence, be called the *Character* of these Heroes.

These are never to go alone, but always to be accompanied with others, to give them the greater Lustre, either by hiding their Defects, as in *Achilles*, whose Anger is palliated by a World of Courage: Or by making them center in some solid Virtue, as in *Ulysses*, whose Dissimulation makes a Part of his Prudence; and *Æneas*, whose Mildness is chiefly employed in a Submission to the Will of the Gods.

These secondary Qualities of Courage, Prudence, and Submission, make the Goodness of the *Character* of those Heroes, and even of the Poems.

Bossu adds, that the Quality of Courage must always have a Share in the Quality of a Hero, to serve as a Support to the rest: The heroick *Character* therefore, he makes a compound of three Kinds of Qualities. Those of the first Kind are necessary and essential to the Fable; those of the second are the Supplements or Embellishments of the first; and Courage, which sustains the other two, makes the third.

The first, which is the chief, to be some universal Quality, to have Place on all Occasions, and to distinguish the Hero wherever he is found.

For the Unity of *Character*, we have *Horace*'s express Command, *sit quodvis simplex, duntaxat & unum*. *Bossu* adds, that the *Character* is not less the Soul of the Hero and the whole Action, than the Fable is of the Poem; and of Consequence the Unity must be as exact in the one as the other: Which accordingly we find observed both by *Homer* and *Virgil*.

The Unity of *Character* is somewhat different from that of the Manners: In the latter, the Unity or Quality consists in not giving contrary Sentiments to the same Person; which is not sufficient to the Unity of the *Character*; but to this Method must be added, that the same Spirit must always appear on all Occasions, whether contrary or otherwise: Thus *Æneas* shewing a deal of Goodness in the first Part of the Poem, and a World of Valour in the second, but without discovering any of his former Piety and Gentleness; there had been no Offence against the Evenness of the Manners, but to the Unity of the *Character* there had.

So that besides the Qualities, which have their particular Place on different Occasions, there must be one to have Place throughout, and to reign over all the others; without this there is no *Character*: As would be the Case, should a Poet give his Hero the Piety of *Æneas*, and the Courage of *Achilles*; without considering the Severity of the one, and the Mildness of the other.

A Hero, it is true, may be made as brave as *Achilles*, as mild or pious as *Æneas*, and if one will as prudent as *Ulysses*; but it would be a mere Chimera to imagine a Hero with the Courage of *Achilles*, the Piety of *Æneas*, and the Prudence of *Ulysses* at the same Time.

The Unity of *Character* is not only to be kept in the Hero, and the several other Persons of the Piece, but also in that of the Poem itself: That is, all the *Characters*, how opposite soever, must center and reunite in that of the Hero; and be so swayed by it, as that this alone may seem to govern throughout the whole. Thus *Homer* makes Wrath prevail throughout the whole *Iliad*; and Artifice and Dissimulation throughout the *Odyssee*: The Hero's *Character* is perceived every where, has its full Swing, and is favoured by the Similitude of the *Characters*, of some of the other Persons. *Virgil* has a great Difficulty to grapple with to preserve this Unity; in regard of the direct Opposition between the Humours of his Hero, and those of some other of his Persons, as *Turnus*, *Mezentius*, *Dido*, &c. he therefore takes Care not to carry those opposite *Characters* to their full Length, but moderates and restrains them: And as that Moderation could not flow naturally from the Persons themselves, it is produced either by some Passion, as in *Dido*; or some Dependance, as in *Turnus* and *Mezentius*. To this Artifice he adds *Episodes*, accommodated to the general *Character*, by which he interrupts the particular Actions which require an opposite *Character*.

Claudian's Conduct, in this Respect, is unpardonable; from the horrible *Characters* of *Pluto* and the Furies, with all the Terrors of Hell, he passes to the Gaiety and Pleasures of the Graces, gilded Palaces, flowery Fields, *&c.* He has as many different prevailing *Characters* in his three Books, as *Homer* and *Virgil* in their sixty.

The MANNERS, denotes the Inclinations, Genius, and Humour, which the Poet gives to his Persons, and whereby he distinguishes his Character.

Aristotle defines *Manners*, to be that which discovers the Inclination of him who speaks, and shews what he will resolve upon, or what reject, before he has actually determined: Whence he concludes, that *Manners* are not always, and in all Kinds of Discourses: *Non quælibet Oratio est morata.*

One Instance will make this Definition clear. In the First Book of *Virgil*, *Æneas* is represented extremely pious, and determined to execute the Will of the Gods at all Adventures. In the Fourth Book, he has a difficult Choice proposed; being engaged, on the one hand, out of a Principle of Love, Gratitude, and Honour, not to quit *Dido*; and having, on the other hand, an express Order from the Gods to depart for *Italy*.—Now before it appears on which Side he has determined, what he has before said, should shew his Will and Inclinations, and which Party he will take.—And these preceding Discourses, which discover his future Resolution, make what we call the *Poetical Manners*.

Those make it past Doubt he will abandon *Dido*, to obey the Gods: This he does in Effect; the *Manners* therefore are good, and well conducted.—Had he disobeyed the Orders of *Jupiter*, to stay with *Dido*, the *Manners* had been ill; in regard they would have foretold a Resolution contrary to what he was really to take.—But had there been nothing to make us foresee any Resolution of *Æneas* at all, neither that which he actually took, nor the contrary, in that Case there had been no *Manners* at all.

It is the *Manners*, as before observed, that distinguish the Characters: And unless the *Manners* be well expressed, we shall never be acquainted with the Persons at all; nor consequently shall once be either terrified with foreseeing their Dangers, nor melted into Pity by seeing their Sufferings.

The *Manners* should have four Qualities; they should be *good*, *like*, *suitable*, and *equal*.

The *Manners* are good when they are well marked, or expressed; that is, when the Discourse of the Persons makes us clearly and distinctly see their Inclinations, and what good or evil Resolutions they will take.—Likeness of *Manners* only relates to known and publick Persons, whose Characters are in History, with which the Poetick

Poetick Characters muſt agree; that is, the Poet muſt not give a Perſon any Quality contrary to any of thoſe which Hiſtory has given him. And here it may be obſerved, that the evil Qualities given to Princes and great Men, ought to be omitted by the Poets, if they be contrary to the Character of a Prince, *&c.* but the Virtues oppoſite to thoſe known Vices ought not to be impoſed, by making him generous and liberal in the Poem, who was avaricious in the Hiſtory.

The *Manners* muſt likewiſe be ſuitable; that is, they muſt be agreeable to the Age, Sex, Rank, Climate, and Condition of the Perſon that has them. Again, the *Manners* muſt be *equal*; that is, they muſt be conſtant, or conſiſtent through the whole Character; or the Variety or Inequality of the *Manners*, as in Nature, ſo in the *Drama* muſt be equal. The Fearful muſt never be brave, nor the Brave timorous; the Avaricious muſt never be liberal, nor *vice verſâ*. In this Part *Shakeſpear*'s *Manners* are admirable.

Beſides theſe four Qualities above-mentioned, there is a fifth eſſential to their Beauty; which is, that they be neceſſary, that is, that no vicious Quality, or Inclination, be given to any poetick Perſon, unleſs it appears to be abſolutely neceſſary, or requiſite to the carrying on of the Action.

Note, That what I have ſaid of the *Fable*, *Characters* and *Manner*, regards both the Epick Poem and the Drama.

Note, alſo, That *Boileau* gives the following Rules for the *Tragedy*.

1. He will have the Poet propoſe to himſelf, for the chief and principal End of his Piece, the awaking gently the moſt noble of our Paſſions, by moving gently the Heart; or to ſpeak, in a more conciſe Manner, he muſt uſe all his beſt Endeavours to pleaſe and move; otherwiſe it is in vain, that he has wrote his Piece according to the beſt Rules of the Art, and in the moſt elegant Manner.

2. The firſt Verſes of the Piece ſhould give an Idea of the Subject, without keeping the Mind of the Audience in Suſpence, by a long Rigmarole of Verſes, which is much more fatiguing than entertaining; ſince the Subject is never too ſoon explained.

3. The Scene ſhould be fixed and marked, *i. e.* a ſingle Fact done in one Place, and in one Day, fill the Theatre, from the Beginning to the End of the Piece.

4. Nothing incredible ſhould be offered to the Spectator, ſince a ſurprizing Abſurdity has no Charms; and the Mind is never moved by what it cannot believe.

5. What is not to be ſeen muſt be told, though it would be perhaps more intelligible if it was expoſed to our Sight; but there are Objects which the judicious Art muſt offer to the Ear, and hide from the Sight.

6. The Trouble increaſing always from Scene to Scene, being arrived to its Period, muſt be eaſily unfolded; for the Mind is never more effectually touched, than when in a Subject diverſified with Intrigues, the Truth of a Secret, known all on a ſudden, changes all, and gives to the whole an unforeſeen Face.

7. If the Poet wants to repreſent Heroes ſuſceptible of Love, he muſt not paint them with the ſame Colours he would do a Shepherd ſubject to the ſame Paſſion; for *Achilles* muſt love in another Manner than *Thyrſis* does. He muſt avoid, as a great Imperfection, the ridiculous Love, and other low Paſſions, of the Heroes of Romances; tho' he may ſometimes allow ſome Weakneſs to the moſt noble Hearts. *Achilles* would diſpleaſe, was he leſs hot and paſſionate; he pleaſes when he is ſeen ſhedding Tears for an Affront, at thoſe ſmall Imperfections, marked in his Picture, the Mind diſcovers eaſily Nature's Weakneſs. Let *Agamemnon* be proud, haughty, and intereſted, and *Æneas* religious; preſerving to each his proper Character, and ſtudying the Manners of the Ages and Countries, never giving the Air and Genius of a Nation to another, particularly of the Moderns to the Antients.

The *Engliſh* confeſs that they received the firſt Plan of their Drama from the *French*, among whom it had its firſt Riſe towards the End of the Reign of *Charles* V. under the Title of *Chant-Royal*, which conſiſted of Pieces in Verſe, compoſed in Honour of the Virgin, or ſome of the Saints, and ſung on the Stage: They were called by the Title of *Chant-Royal*, becauſe the Subject was given by the King of the Year, or the Perſon who had bore away the Prize the Year preceding.

The Humour of theſe Pieces ran wonderfully among the People, inſomuch that in a little Time there were formed ſeveral Societies, who began to vie with each other: One of theſe, to engage the Town from the reſt, began to entertain it with various Incidents or Epiſodes, which they diſtributed into *Acts*, *Scenes*, and as many different Perſons as were neceſſary for the Repreſentation. Their firſt Eſſay was in the Bourg St. *Maur*, and their Subject the Paſſion of our Saviour. The Prevot of *Paris* prohibiting their continuing of it, they made Application to Court; and to render it the more favourable to them, erected themſelves into a Friary or Fraternity, under the Title of the *Brothers of the Paſſion*; which Title has given ſome Occaſion to ſuſpect them to have been an Order of Religious.

The King on ſeeing and approving ſome of their Pieces, granted them Letters of Eſtabliſhment in 1402; upon which they built a Theatre, and for an Age and a half acted none but grave Pieces, which they called *Moralities*; till the People growing weary of them, they began to intermix Farces or Interludes taken from prophane Subjects.

This Mixture of Farce and Religion diſpleaſing many, they were eſtabliſhed by an Arret of Parliament in 1548, on Condition of their acting none but prophane, lawful, and decent Subjects, without intermedling with any of the Myſteries of Religion; and thus were the Brothers of the Paſſion deſpoiled of their religious Character: Upon which they mounted the Stage no more in Perſon, but brought up a new Set of Comedians, who acted under their Direction.

Thus was the Drama eſtabliſhed, and on this Foundation arrived in *England*. In proceſs of Time as it was improved, it became divided into two Branches, agreeable to the Practice of the Ancients, and the Nature of Things, *viz.* into *Tragedy*, and *Comedy*, properly ſo called; and this laſt again was ſubdivided into pure *Comedy* and *Farce*.

The Comedy, in its proper Senſe, is a dramatick Piece repreſenting ſome agreeable and diverting Tranſaction: Or an allegorical Repreſentation of ſomething in private Life; for the Amuſement and Inſtruction of the Spectator. In this Senſe *Comedy* is oppoſed to the *Tragedy*, the Subjects whereof are grave and violent, and Perſons of the firſt Rank, as may be ſeen by what we have ſaid on that Subject.

Scaliger defines *Comedy* a dramatick Poem, very buſy, pleaſant in the Concluſion, and written in a popular Style. *Ariſtotle* calls it an Imitation of the worſt, or rather of the loweſt Claſs of Perſons, by way of Ridicule: This Definition *Corneille* finds Fault with, and maintains that the Actions of Kings themſelves may enter *Comedy*, provided they be ſuch as are not very momentous, nor attended with any conſiderable Danger. He adds, that a Poem, wherein the greateſt Peril is the Loſs of a Miſtreſs, has no Right to any higher Appellation than that of *Comedy*: But then he makes a Diſtinction in *Comedies*; and dignifies thoſe where great Perſonages are introduced, with the Epithet of *heroick Comedies*, to diſtinguiſh them from ordinary ones.

Mr. *Congreve* ſeems pretty much of the ſame Sentiment: He underſtands *Ariſtotle*'s Definition as meant of the Workmen; on which Bottom it is ſufficient to conſtitute a *Comedy*, that the Action repreſented be that of ſome ill Man brought on the Stage to be expoſed.

M. *Dacier* is of a contrary Opinion: He maintains, that *Comedy* allows of nothing grave or ſerious, unleſs it be turn'd to Ridicule; and that Raillery and Ridicule are its only proper and genuine Characteriſticks: In which Opinion he is warmly ſeconded by Mr. *Dennis*.

Thus different are Criticks and comick Authors on the Nature of *Comedy*: Some diſtinguiſh it from Tragedy by the Lowneſs of the Subject, others by the ridiculous Light it is ſet in.

The accurate Father *Boſſu* fixes the Notion of *Comedy* much better: According to that Critick, *Comedy* differs from Tragedy in this, that the comick Writer invents both the Names of his Perſons, and the Action he repreſents

ſents; whereas the tragick Writers only invents the latter; the former they are to take from Hiſtory.

Upon the whole, *Comedy* may be defined an Image or Repreſentation of the ordinary Life of Men: It exhibits their common Actions and Paſſions; expoſes, and ridicules their Failings, to preſerve the Spectators from them, or to correct them. *Cicero* defines it the Imitation of Life, the Mirror of Cuſtom, and the Image of Truth.

There is a Diſpute among Criticks, whether a *Comedy* be a Poem or a mere Converſation? They who maintain the latter, do it on the Foot of this general Opinion, that a Poem is a Diſcourſe in Verſe: F. *Boſſu* inſiſts on the former, and ſhews, that as a *Comedy* has the Fable or Allegory, it has every Thing eſſential to *Poetry*.

Comedy and Tragedy were, as already obſerved, originally one and the ſame Thing; having ſhewn their common Origin, when I ſpoke of Tragedy. M. *Boileau* ſays *Comedy* took its Riſe at *Athens*, from the happy Iſſues or Concluſions of Tragedies. On this Principle, the Cataſtrophe ſhould have been the proper Criterion, or diſtinguiſhing Mark between Tragedy and *Comedy*; and all other Differences only accidental.

Des ſuccès Fortunes du Spectacle Tragique
Dans Athenes *naquit la Comedie antique.*

After the grave and ſerious became ſeparated from the ridiculous, and *Tragedy* and *Comedy* were become two diſtinct Arts; People applied themſelves to cultivate the former, and neglected the latter: So that *Comedy* continued in its Infancy with little Improvements, while *Tragedy* grew up to a perfect Art; this once arrived at its Height, they began to think of cultivating *Comedy*.

With Regard to the various Changes and Revolutions *Comedy* has undergone, it is commonly diſtinguiſhed into three Kinds, *viz.* the *antient*, wherein there was nothing feigned; the *middle*, where the Subject was real, but the Names fictitious; the *new*, where both Names and Things are fictitious.

The *antient* was the firſt in Uſe, when the ſupreme Power was in the Hands of the People; and when, on that Account, the Poets were at their full Liberty to ſay what they pleaſed, and of whom they pleaſed; by Name to rail at People in Authority, and openly charge Magiſtrates with Crimes; ſparing no Age, Sex, or Quality.

This is very obſervable in the Frogs, and the Clouds of *Ariſtophanes*; where it is to be noted, that though the railing Part was occaſionally diſtributed among all the Actors, yet the chief was laid on the Chorus.

When the *Athenian* Liberties became ſunk up in the Tyranny of a few, it was no longer ſafe for the Poets to uſe their old Licenſe. Men of Office being now to be ſkreen'd from Reproach. The Chorus, therefore, became uſeleſs, and was therefore dropped; and thence commenced what we call *Comœdia media*, μεση, or the *middle Comedy*.

Under this, the Poets were not allowed to name the Perſons, and therefore Names were to be invented: But then the Perſons were ſo well pointed out, that it was no difficult Matter to know them.

At length, however, they were obliged to repreſs even this Licenſe: And this Reform gave Occaſion to the *new Comedy*; which only brought upon the Stage feigned Adventures, and imaginary Names.

This laſt Kind alone was received among the *Romans*; who yet made a new Subdiviſion thereof, into *antient*, *middle*, and *new*; according to the various Periods of the Common-wealth. Among the antient *Comedies* were ranked thoſe of *Livius Andronicus*; among the *middle*, thoſe of *Pacuvius*; and among the *new* ones, thoſe of *Terence*.

Comedy, as well as *Tragedy*, has its eſſential, and its integrant Parts. Its eſſential Parts, in the Language of the Antients, are the *Protaſis*, *Epitaſis*, *Cataſtaſis*, and *Cataſtrophe*, heretofore explained.

The *Protaſis*, as already obſerved, is the Beginning or Opening; where the Subject is juſt enter'd upon, the Character of the Perſons ſhewn, and the Intereſt or Part each has in the Action.

In the *Epitaſis*, the Intrigues begin: They are carried on, and heighten'd in the *Cataſtaſis*, and unravelled in the *Cataſtrophe*.

The integrant Parts are the five Acts into which the *Comedy* is divided, agreeable to that Precept of *Horace*:

Neu minor quinto neu ſit productior actu.

The Acts are divided into Scenes; the Number whereof is not fixed, either by Reaſon or Experience, but depends on the Buſineſs to be done in each Act, and the Number of Perſons to be employed.

Among the antient *Romans*, *Comedies* were diſtinguiſhed according to the Quality of the Perſons repreſented, and the Dreſs they wore, into *Logatæ*, *Pretextæ*, *Trabeatæ*, and *Tabernariæ*; which laſt were thoſe where the Scene lay in Colleges, or among People of the loweſt Rank, agreeing pretty nearly with our Farces.

In the Repreſentation, *Comedy* was diſtinguiſhed from *Tragedy* by the Sack wore in the former; and the Buſkin in the latter.

Among us, *Comedy* is diſtinguiſhed from *Farce*, in that the former repreſents Nature as ſhe is; the other diſtorts or overcharges her. They both paint from the Life, but with different Views: The one to make Nature known; the other to make it ridiculous.

Boileau gives the following Rules for the *Comedy*.

1. He will have Nature to be the whole Study of an Author who writes *Comedies*; and ſays, that whoever ſees very well Man; and with a profound Genius has penetrated the Bottom of ſo many hidden Hearts; who knows very well what a Prodigal, an avaricious, an honeſt Man, a Coxcomb, a jealous Man, *&c.* are, can bring them on the Stage, and make them act and ſpeak before us.

2. He will have the Repreſentations true, without Diſguiſe, and painted with the moſt lively Colours.

3. He forewarns the Author againſt making his Actors ſpeak at Random, a young Man like an old Man, or *vice verſâ*.

4. He adviſes him to ſtudy the Court, and know the Town; both being always fertile in Models.

5. He ſays that the Comick being an Enemy of Sighs and Tears; does not admit in its Verſes tragical Pains; neither does it allow, that an Actor with obſcene Expreſſions ſhould divert the Mob; but only joke in a noble Manner.

6. This Plot well formed, muſt unravel itſelf eaſily; leſt the Action, for Want of being guided by Reaſon, ſhould loſe itſelf in an empty Scene.

7. His Diſcourſes every where fruitful in witty Sayings, muſt be full of Paſſions curiouſly handled; and the Scenes always well concerted together.

8. He muſt avoid all Sorts of Jokes, which are contrary to good Senſe, and never deviates from Nature.

9. He concludes by ſaying, that he loves on the Theatre an agreeable Author, who, without diſgracing himſelf to the Eyes of the Spectators, pleaſes by Reaſon alone.

A Farce was originally a Droll, Petti-Shew, or Entertainment, exhibited by Charletans, and their Buffoons in the open Street, to gather the Crowd together.

At preſent, *Farce* is of a little more Dignity. It is removed from the Street to the Theatre; and inſtead of being perform'd by Jack-Puddings to amuſe the Rabble, is now acted by our Comedians, and become the Entertainment of the politeſt Audiences.

The Poets have reformed the Wildneſs of the primitive *Farces*; and brought them to the Taſte and Manner of Comedy. The Difference between the two on our Stage, is, that the latter keeps to Nature and Probability; and in order to that, is confined to certain Laws, Unities, *&c.* preſcribed by the antient Criticks.

The former diſallows of all Laws, or rather ſets them aſide on Occaſion. Its End is purely to pleaſe or make merry: And it ſticks at nothing which may contribute thereto, however wild and extravagant. Hence the Dialogue is uſually low, the Perſons of inferior Rank, the Fable or Action trivial or ridiculous; and Nature, and Truth every where heighten'd and exaggerated to afford the more palpable Ridicule.

There is another Kind of Dramatick Piece, called *Tragi-Comedy*, repreſenting ſome Action, paſſed among eminent Perſons, the Event whereof is not unhappy or bloody, and wherein is ſometimes admitted a Mixture of leſs ſerious Characters.

The Antients, Mr. *Dacier* obſerves, knew nothing of ſuch

such Compositions, wherein the Serious and Comick are blended; nor does the Epithet M. *Corneille* gives them of heroick Comedies, excuse their Irregularity.

Their Foundation is certainly bad; for, endeavouring both to make us laugh and cry in their Turns, they endeavour at contrary Emotions, which the Heart can never undergo; every Thing that disposes for the one indisposing for the other.

The *Tragi-comedy* was formerly very common on the *English* Stage: Scarce such a Thing in the 17th Century as a pure Tragedy, without a Spice of Comedy or Farce to make the People laugh. Now, that the Stage and our Tastes are brought nearer to the Model of Nature, and the Ancients, the *Tragi-comedy* is disused.

The *Tragi-comedy* is the only Case, wherein Comedy is allowed to introduce Kings and Heroes.

Note, That Tragedies, Comedies, Farces, *&c.* are represented in a Theatre, by Persons who have seldom any other Occupation, called Actors. We have seen under the Article Tragedy, how they have been introduced by Degrees on the Stage. A Play owes the greatest Part of its Success to the Goodness of the Actors; which Goodness consists in a distinct Pronunciation and Articulation, an agreeable Voice, and the Regularity of the Gestures; which must be natural, without the least Affectation, and very well appropriated to the Expression of the Passions, avoiding above all Things a Tautology, and a certain whining or canting Tone, which is but too common on the Stage.

Note, also, That a *Theater* or *Theatre*, among the Ancients, was a publick Edifice, for the exhibiting of Scenick Spectacles, or Shews to the People. Under the Word *Theater* was comprehended not only the Eminence whereon the Actors appeared, and the Action passed; but also the whole Area, or Extent of the Place common to the Actors and Spectators. In this Sense the *Theater* was a Building encompassed with Portico's, and furnished with Seats of Stone disposed in Semi-circles, and ascending gradually over one another; which encompassed a Space called the *Orchestra*, in the Front whereof was the Proscenium or Pulpitum, whereon the Actors performed, and which is what we properly call the *Theater*, or Stage. On the Proscenium stood the Scene, a large Front, adorned with Orders of Architecture, behind which was the Poscenium, or Place where the Actors made themselves ready, retired, *&c.* so that the Scena, in its full Extent, comprehended all the Parts belonging to the Actors. In the *Greek* Theatres the Orchestra made a Part of the Scena; but in the *Roman* Theatres, none of the Actors ever descended into the Orchestra; which was taken up by the Seats of the Senators. At *Athens* are still seen the Remains of the Temple of *Bacchus*, which was the first *Theatre* in the World, and a Master-piece of Architecture. All *Theatres* were consecrated to *Venus* and *Bacchus*.

Theatre, among the Moderns, more particularly denotes the Stage, or Place whereon the Drama or Play is exhibited; answering to the Proscenium of the Antients. In its full Latitude, however, the *Theatre* includes the whole Playhouse: In which Sense it is a spacious Room or Hall, Part whereof is taken up by the Scena, which comprehends the *Stage*, the *Decorations* and the Machines; and the rest distributed into a Space, called the *Pit*, or *Parterre*, which is covered with Seats, Boxes, *&c.* and terminated with an Elevation of one or two Galleries, disposed into Benches ascending over one another.

Having thus far explained all that is understood by *grand Poetry*, we'll proceed to *simple Poetry*, or *Versification*, which consists in *Elegies*, *Satires*, *Odes*, *Songs*, *Pastorals*, *Epitaphs*, *Sonnets*, *Madrigals*, &c.

An ELEGY, is a mournful and plaintive Kind of Poem.

The first Inventor of the *Elegy* is not known: Some say it was one *Theocles* of *Naxus*, or, according to others, of *Eretria*, who, in the Heat of his Phrenzy first produced this Kind of Composition. But no Wonder we are in the Dark as to the Matter: *Horace* assures us it was a Point not settled among the Grammarians, even in his Time, who the Authors were.

Quis tamen exiguos Elegos emiserit auctor
Grammatici certant & adhuc sub Judice lis est.

The chief Writers of *Elegy* among the *Greeks*, were *Callimachus*, *Parthenius*, and *Euphorion*: And among the Latins, *Ovid*, *Catullus*, *Tibullus*, and *Propertius*.

The *Flemish* have distinguished themselves among the Moderns for this Kind of *Latin* Verse: The Elegies of *Bildermann*, *Grotius*, and especially *Sedronius* and *Vailius*, seem worthy of the purest Antiquity. The Countess *de la Suze* has distinguished herself for *Elegies* in the *French* Tongue.

In the *English* there is nothing considerable of the elegiack Kind but what is in *Milton*. The *English* and *French* Elegies are chiefly in *Alexandrine* Verses.

In Process of Time, *Elegy* degenerated from its original Intention, and not only Matters of Grief, but also Joy, Wishes, Prayers, Expostulations, Reproaches, and almost every Subject, were admitted into *Elegy*.

The Office of *Elegy* is well delivered by M. *Boileau*.

La plaintive Elegie en longs habits de deuil,
Scait, les cheveux epars, gemir sur un Corcueil:
Elle peint des Amans la Joye, & la Tristesse;
Flatte, menace, irrite, appaise une maitresse.

In mourning Weeds sad *Elegy* appears,
Her Hair dishevell'd, and her Eyes in Tears.
Her Theme, the Lover's Joys, but more his Pains;
By Turn she sings, sooths, threatens and complains.

The Diction of *Elegy* ought to be clean, easy, perspicuous, expressive of the Manners, tender and pathetick; not oppressed with Sentences, Points, *&c.* No Apostrophe's are allowed; and the Sense to be generally closed in every Distich, or two Lines; at least in *Latin* Compositions.

A SATYR, is a Poem wherein Men's Follies and Vices are wittily exposed, in order to their Reformation.

Satyr bears a near Affinity to Raillery, Ridicule, Lampoon, Libel, *&c.* and stands opposed to Panegyrick. The Reason why *Satyrs* generally please, and Panegyricks tire the Readers, seems to be because the former are commonly true, and the latter false.

Horace calls his two Books of *Satyrs*, indifferently either *Sermones*, or *Satyræ*, two Words which at first Sight present two very different Ideas.

The chief *Satyrists* among the Antients are, *Horace*, *Juvenal*, and *Persius*:—Among the Moderns *Regnier* and *Boileau*, in *French*; and *Dryden*, *Oldham*, *Rochester*, *Buckingham*, *Pope*, *Swift*, *Young*, *Paul Whitehead*, &c. among the *English*.

A *Satyr* ought to be lively, pleasant, moral, and full of Variety, wherein *Juvenal* and *Horace* excelled, though their *Satyrs* ought not to be read without Caution. Among the Qualifications requisite in a *Satyrist*, one of the most essential is Good-nature: All the Sentiments which are beautiful in this Way of Writing must proceed from that Quality in the Author. It is Good-nature produces that Disdain of all Baseness, Vice and Folly, which prompts the Poet to express himself with Smartness against the Errors of Men, but without Bitterness towards their Persons. It is that Quality keeps the Mind in Equanimity, and never lets an Offence unseasonably throw a Man out of his Character. When *Virgil* said, he that did not hate *Bavius* might love *Mævius*, he was in perfect good Humour, and was not so much moved at their Absurdities, as passionately to call them Sots, or Blockheads in a direct Invective, but laughed at them with a Delicacy of Scorn, without any Mixture of Anger. The best good Man, with the worst-nature Muse, was the Character of an *English* Gentleman, as famous for his Humanity, as his Wit. In Reality the ordinary Subjects for Satyr are such as incite the greatest Indignation in the best Tempers, and consequently Men of such Make are best qualified for speaking of them: Such Men can behold Vice and Folly, when they injure Persons with whom they are wholly unacquainted, with the same Severity as others resent the Ills they feel themselves. In all the Writings of *Horace* and *Juvenal*, there is not an ill natur'd Expression; not one Sentence of Severity which does not apparently proceed from the contrary Disposition.

But this Character is seldom found among our modern

Satyrists,

Satyrists, and it may be said, that the *English* Gentleman above-mention'd, was a Phænix among them. The Pen of our famous *French* Satyrist, *Boileau*, for Instance, distilled a Venom, which flowed from a Source infected, with Spite, Malice, and Jealousy, as it appears at his chusing so often the same Persons for Subjects of his *Satyrs*, and naming them in the most scandalous Manner. He even censured sometimes as good Poets as himself, viz. *Santueil*, Canon of St. *Victor*, who has wrote *Latin* Verses, which equal in Beauty those of *Virgil* himself; and Persons of an irreproachable Conduct. Mr. *Pope* is accused by some of the same Fault.

Satyr, may be divided with regard to the Measure, and kind of Verse, as well as the Manner of the Poem, and the Character, into *narrative*, *dramatick*, *mixt*, &c.

Narrative, is a simple Narration, or Recital of Abuses in the Poet's own Person.—Such is the first of *Juvenal*.

Dramatick, is that wherein several Persons discourse together, whether they be nameless, as in the first of *Persius*; or have Names, as of *Cassius* and *Damasypus*.

Mixt is compounded of both the former; as that fine one of *Horace*, *Ibam forte via sacra*.

Grave, and animated, which inveigh with Warmth and Earnestness, against Corruption and Vice in every Shape.—As those of *Juvenal* and *Persius*.

Sportive, and lighter, which seems to play with Men's Folly; but in playing, omit no Opportunity of making them feel the Lash.—Such are those of *Horace*.

The *grave* Sort brandishes a naked Sword; the *sportive* presents a *Thyrsus*, like that of the antient *Satyrs*, surrounded with Vine-Leaves, with which it stabs unawares. The Heat of the former sometimes degenerates into Fury and Indignation; and the Calmness of the latter sometimes sinks to mere Raillery. But between the two Extremes are a great Number of intermediate Species and Degrees. The former, especially when dictated by Passion, is much easiest: Nothing is more difficult than to make People of Taste laugh, even at the Expence of others. The attaining of this must be the Fruit of Genius and Talents, rather than Rules: Perhaps it may be unnecessary to explain either; since Vanity, Self-Love, and even Malice, are Masters more than sufficient for a Poet, who wants not Wit and Judgment. Thus *Juvenal*, *Si natura negat, facit indignatio versum*: And *Boileau*, *La Colere suffit, & vaut un* Apollon.

In perusing the Writings of the two Leaders of the two Sorts of *Satyrs* last mentioned, it may not be unnecessary to consider, that they lived in very different Times: *Horace* was intimate with a Prince of the greatest Goodness and Humanity; and his Court was formed after his Example: Therefore the Faults that Poet falls upon were little Inconsistencies in Behaviour; false Pretences to Politeness, or impertinent Affectations of what Men were not fit for. Vices of a coarser Sort could not come under his Consideration, or enter the Palace of *Augustus*.—*Juvenal*, on the other Hand, lived under *Domitian*, in whose Reign every Thing great and noble was banished the Habitations of the Men in Power. Therefore he attacks Vice as it passes by in Triumph, not as it breaks into Conversation. The Fall of Empires, Contempt of Glory, and a general Degeneracy of Manners, are before his Eyes in all his Writings.—In the Days of *Augustus* to have talked like *Juvenal* had been Madness, or in those of *Domitian*, like *Horace*. Morality and Virtue are every where recommended in *Horace*, as become a Man in a polite Court, from the Beauty, Propriety, and Convenience of pursuing them: Vice and Corruption, are attacked by *Juvenal*, in a Style which denotes he fears he shall not be heard, unless he calls to them in their own Language, with a bare-faced Mentioning of the Villanies and Obscenities of his Contemporaries.

The *Italians* divide *Satyr* into *serious*, as that in common Use, and *Jocose giocosa*; which they also call *Bernesca*, and we *Burlesque*.

Their chief *Satyrists* in the serious Way are, *Dante* (whom they particularly call *Principe Sirico*) *Ariosto*, *Aretine*, *Errole*, *Bentivoglio*, *Lecigi Alacnanni*, *Jacobo Soldani*, *Lorenzo Azzolino*, *Salvator Rosa*, *Lud. Adimari*, and *Benedetto Menzini*.—Those who have excelled in the *Jocose* Kind are, *Francesco Berni* (the Inventor of it) *Mauro*, *Firenzuola*, *Casa*, *Coppotta*, *Varachi Lasca*, *Corporali*, &c.

Satyr is divided into *general*, which is levelled at common Abuses, wherein Numbers are equally interested.—And *personal*, which points out and exposes particular Characters.—Which last, as it affects Men's Reputation, on which their Interest greatly depends, is scarce distinguishable from Defamation and Scandal.

To this last Class belong most of those which bear the Title of *Anti*; as the *Anti-Baillet* of *Menage*, with which Mr. *Baillet* was so stung, that he composed a Treatise on *Personal Satyrs*, which bears the Title *Anti*; to shew the Immorality and Unlawfulness of them, and their Contrariety to the Precept of the Gospel.

It is further objected to this Kind of *Satyr*, that a publick Detection, far from producing the Effect it is designed for, Reformation, is apt to drive Men to Despair, and harden them in their Course. The excellent Author of the Treatise *Of the Government of the Tongue*, speaking of uncharitable Truths, says, a Discovery of this Kind serves not to reclaim, but enrage the Offender, and precipitate him into further Degrees of ill. Modesty and Fear of Shame is one of those natural Restraints which the Wisdom of Heaven has put on Mankind: And he who once stumbles, may yet by a Check of that Bridle recover himself again. But when by a publick Detection he is fallen under the Infamy he feared, he will then apt to be discard all Caution, and to think he owes himself the utmost Pleasures of Vice at the Price of his Reputation. Nay, perhaps, he advances further, and sets up for a Reverse Sort of Fame, by being eminently wicked: Thus he who was before a clandestine Disciple, becomes a Doctor of Impiety. Doubtless it was this Sort of Reasoning that induced the wise *English* Legislators to repeal the Law which put the Brand of Infamy in the Face of Felons.—In effect, were Crimes enormous, the Delinquent deserve little Pity, yet the Reporter may deserve less.

Casaubon makes a Distinction between the *satyrical* Poetry of the *Greeks*, and the *Satyr* of the *Romans*, which he maintains was peculiar to themselves; in which, also, he seems to be justified by *Quintilian*, *Satyra quidem tota nostra est, in qua primus insignem laudem adeptus Lucilius*. Which said *Lucilius* is also expressly said by *Horace* to have been the first *satyrical* Poet.

——— *est Lucilius ausus*
Primus in hunc operis componere carmina morem.

For a like Reason *Horace* calls *Satyr*, *Græcis intactum carmen*, a Sort of *Poetry* unknown to the *Greeks*. *Spanheim*, in his Preface to the *Cæsars* of the Emperor *Julian*, has shewn five or six Differences between those two Poems. The *Greeks* chiefly represented Vice, &c. in their Drama; though they had also a Sort of narrative Poems, called *Silli*, like the *Roman*, and our *Satyrs*. These *Silli* were cutting or sarcastick Poems, as may be easily seen by the Fragments of *Timon*'s *Silli*; with this Difference, that the *Greek Silli* were Paradoxes from one End to the other, which cannot be said of the *Roman Satyr*. Or if we find sometimes a Paradox, it is what the Poet did not design, and consequently the Paradox does not make the Essence of the *Satyr*, as it does that of the *Silli*.

Scaliger, notwithstanding all this, followed by some of the latest and best Critics, scruples not to derive the *satyrical* Poetry of the *Latins*, from that of the *Greeks*. According to those Authors, *Satyr* in its Origin was a Sort of Interlude in Tragedy, wherein Goat-footed *Satyrs*, were introduced to alleviate the Distress, and with their Jests and Humours diversify the Solemnity of the tragick Scene: Much like the Manes in Comedies, and the Fetiannines in the *Atellan* Sports.

At first it was only in the Tragedies exhibited in the Feasts of *Bacchus*, that *Satyrs*, the supposed Companions and Priests of that God, were introduced: But afterwards they made a Part in the Solemnities of the other Deities. So that *Satyr*, in its first Institution, was wholly Dramatick.

Dacier, after *Casaubon*, traces the Institution of the *Roman Satyr* very minutely; and distinguishes three Species or States of it: The first *Dramatick*, the second *Narrative*,

Narrative, the third, that called the *Varronian*, or *Menippean Satyr*.

The antient *Romans* had been without scenical Entertainments for almost 400 Years; till Chance and Merriment in one of their Festivals, gave Rise to the saturnine and fascennine Verses, which for some Years supplied the Place of theatrical Performances. These Verses were rude, and without any Measure, being extemporary, and the Productions of a savage People, who had no other Instructors than the Fumes of Wine. Accordingly they were stuffed with gross Railleries, and accompanied with Gesticulations and Dances. An Idea of them may be formed by conceiving a Knot of Country-Fellows, dancing in a hobling Manner, tossing about their home-spun Jokes, like the Rabble in the Streets of *London*, and exposing each other's Failings. Thus *Horace*, *Epist.* 1. *Lib.* 2.

Fascennina per hunc inventa licentia morem
Versibus alternis opprobria rustica fudit.

The antient *Roman Satyrs*, then, were a Sort of innocent Farces, where Spectators and Actors were indifferently rallied.—And thus they continued till the Time of *Livius Andronicus*, who first attempted to write Plays in Imitation of the *Greeks*. This new Entertainment appearing more noble and perfect, drew Crouds of Spectators, which occasioned the *Satyrs* to be neglected for some Time; but they were afterwards re-assumed, and tacked to the End of Comedies, much like the modern Farces. They were annexed more peculiarly to the *Atellan* Pieces, and on this Occasion changed their Name *Satyrs* for that of *Exodia*, which they ever after retain'd.

After *Livius Andronicus*, *Ennius* having observed the Eagerness of the *Romans* for *Satyrs*, imagined that Poems not accommodated to the Theatre, but retaining the Gall, Raillery, and Pleasantry of theatrical *Satyr*, would not fail of Success. Accordingly, he wrote Discourses under the Title of *Satyrs*, in which he took the Liberty of mixing several Sorts of Verses together, as Hexameters with *Iambick* Trimeters, and trocharick Tetrameters. In these Pieces were found the same Variety, Raillery, Allusions, Fables, and even Dialogues; in a Word, every Thing that constituted the Character and Beauty of the first *Satyrs*, except the Dancing and Musick. *Pacuvius* succeeded, who also writ *Satyrs* in Imitation of his Uncle, or according to others, his Grandfather *Ennius*. When *Pacuvius* was in his Prime, *Lucilius* was born; who also composed *Satyrs*, somewhat of a new Turn, endeavouring to imitate the Character of the antient *Greek* Comedy, of which the *Romans* had but an imperfect Image in their own *Satyrs*. This seems to be what *Horace* meant when he said, *Sat.* 1. *Lib.* 2.

——— *quid, cum est Lucilius ausus*
Primus in hunc operis componere carmina morem.

He could not mean that the *Romans* had no *Satyrs* before *Lucilius*, since that Poet was preceded by *Ennius* and *Pacuvius*, whom he imitated. *Horace*'s Design was only to hint, that *Lucilius*'s Manner and Turn was new, that he had embellished this Poem, insomuch that he might be looked upon as its first Author. But in fact, *Lucilius* only added to it a little more Politeness and Salt, without other Alteration. And though like *Ennius* he did not mix together several Sorts of Verse in the same Piece, yet he composed different Poems, some of which were entirely Hexameter, others Iambick, and others Trochaick, as appears from his Fragments.

The third Kind of *Satyr* was the *Varronian* or *Menippean*, so called from its Author *Varro*, the most learned of the *Romans*, and because in this he imitated the Manner of *Menippus* the *Gadarenian*, a *Cynick* Philosopher.

This *Satyr* was not only a Miscellany of different Sorts of Verse, but was also interlarded with Prose, and *Greek* and *Latin*. *Seneca*'s Poem on the Death of *Claudius*, *Petronius*'s Satyricon, *Lucian*'s Dialogues, the Golden Ass of *Apuleius*, and the *Cæsars* of the Emperor *Julian*, are so many *Satyrs* in the *Varronian* Taste.—To the same Head may also be referred the Catholicon of *Spain*, the *Moriæ Encomium* of *Erasmus*, the Don *Quixote* of *Cervantes*, the *Advertissemens* from *Parnassus* of *Boccalini*, the *Lutrin* of *Boileau*, the Tale of a Tub, by Dr. *S*—, &c.

Note, That we call *satyrical*, any Thing that relates to, or partakes of the Nature of *Satyr*.—We have *satyrical* Poets; *satyrical* Preachers, as *South*; *satyrical* Historians, as *Mezeray* and *Burnet*; *satyrical* Philosophers, as *Apuleius* and *Montaign*; *satyrical* News-Writers. In the Heathen Theology we find a *satyrical* God, *viz. Momus*. *Homer*, in his *Thersites*, gives the Character of a *satyrical* Courtier, such as *Rochester* was. The *Dutch* have been charged with *satyrical* Prints and Medals, and particularly against the late King of *France*, *Louis* XIV. which have sometimes cost them dear. The *satyrical* Shews of the *Greeks* were thorough Masquerades: The Actors herein were disguised variously, some in the Habits of *Satyrs*, *Sileni*, *Centaurs*, *Mænades*, and other of *Bacchus*'s Men; while others personated Giants, Cyclops, Monsters, and even Beasts; the whole making a Medley more romantick and extravagant than any Thing on the modern Stage, unless, perhaps, some of our late grotesque Pantomime Entertainments, in which the famous Mr. *Rich* has excelled all the Antiquity.

The ODE, from the *Greek* ωδη, *Cantus*, Song, or Singing, in the antient Poetry, is a Song, or a Composition proper to be sung, and composed for that Purpose; the Singing usually accompanied with some musical Instruments, chiefly the Lyre.

Ode, in the modern Poetry, is a lyrick Poem, consisting of long and short Verses, distinguished into Stanza's or Strophes, wherein the same Measure is preserved throughout.

Note, That lyrick Poems were originally employed in celebrating the Praises of Gods and Heroes; tho' it was afterwards introduced into Feasts and publick Diversions: It is a Mistake to imagine *Anacreon*, as the *Greeks* do, the Author of lyrick Poetry; since it appears from Scripture to have been in Use about a thousand Years before that Poet. The Characteristick of lyrick Poetry, which distinguishes it from all others, is *Sweetness*. As *Gravity* rules in heroick Verse; *Simplicity* in Pastorals; *Tenderness* and *Softness* in Elegy; *Sharpness* and *Poynancy* in *Satyr*; *Mirth* in Comedy; the *Pathetick* in Tragedy; the *Point* in Epigram; so in the *Lyrick*, the Poet applies himself wholly to sooth the Mind of Men, by the Sweetness and Variety of the Verse, and the Delicacy of the Words, and Thoughts; the Agreeableness of the Numbers; and the Description of Things most pleasing in their own Nature.

Note also, That the Word *Strophe*, is *Greek* στροφη, formed from στρεφω, I turn; because at the End of the *Strophe*, the same Measures returns again; or rather as the Term related principally to the Musick or Dancing, because at first coming in, the Chorus, or the Dancers turned to the left, and that Measure ended, they turned back again to the right. What the Couplet is in Songs, and the Stanza in Epick Poetry, *Strophe* is in *Odes*.

The *Odes* of the Antients, *Vossius* observes, had a regular Return of the same Kind of Verse, and the same Quantity of Syllables in the same Place of every similar Verse: *But there is nothing*, says he, *but Confusion of Quantities in the modern Odes; so that to follow the natural Quantity of our Syllables, every Stanza will be a different Song.*

He should have observed, however, that all the antient *Odes* were not of such Kind. But he proceeds: *The Modern have no Regard to the natural Quantity of the Syllables, and have introduced an unnatural and barbarous Variety of long and short Notes, which they apply without any Regard to the natural Quantity of the Syllables; so that it is no Wonder our vocal Musick has no Effect.*

Among the Antients, *Ode* signified no more than a Song; with us they are different Things. The antient *Odes* were generally in honour of their Gods, as many of those of *Pindar* and *Horace*. Sometimes on other Subjects, as those of *Anacreon*, *Sappho*. The *English* Odes are generally composed in Praise of Princes and Heroes; as those of *Dryden*, *Prior*, &c.

The distinguishing Character of *Odes* is *Sweetness*: The Poet is to sooth the Mind of his Readers by the Variety

Satyrists, and it may be said, that the *English* Gentleman above-mention'd, was a Phænix among them. The Pen of our famous *French* Satyrist, *Boileau*, for Instance, distilled a Venom, which flowed from a Source infected, with Spite, Malice, and Jealousy, as it appears at his chusing so often the same Persons for Subjects of his *Satyrs*, and naming them in the most scandalous Manner. He even censured sometimes as good Poets as himself, viz. *Santueil*, Canon of St. *Victor*, who has wrote *Latin* Verses, which equal in Beauty those of *Virgil* himself; and Persons of an irreproachable Conduct. Mr. *Pope* is accused by some of the same Fault.

Satyr, may be divided with regard to the Measure, and kind of Verse, as well as the Manner of the Poem, and the Character, into *narrative*, *dramatick*, *mixt*, &c.

Narrative, is a simple Narration, or Recital of Abuses in the Poet's own Person.—Such is the first of *Juvenal*.

Dramatick, is that wherein several Persons discourse together, whether they be nameless, as in the first of *Persius*; or have Names, as of *Cassius* and *Damasypus*.

Mixt is compounded of both the former; as that fine one of *Horace*, *Ibam forte via sacra*.

Grave, and animated, which inveigh with Warmth and Earnestness, against Corruption and Vice in every Shape.—As those of *Juvenal* and *Persius*.

Sportive, and lighter, which seems to play with Men's Folly; but in playing, omit no Opportunity of making them feel the Lash.—Such are those of *Horace*.

The *grave* Sort brandishes a naked Sword; the *sportive* presents a *Thyrsus*, like that of the antient *Satyrs*, surrounded with Vine-Leaves, with which it stabs unawares. The Heat of the former sometimes degenerates into Fury and Indignation; and the Calmness of the latter sometimes sinks to mere Raillery. But between the two Extremes are a great Number of intermediate Species and Degrees. The former, especially when dictated by Passion, is much easiest: Nothing is more difficult than to make People of Taste laugh, even at the Expence of others. The attaining of this must be the Fruit of Genius and Talents, rather than Rules: Perhaps it may be unnecessary to explain either; since Vanity, Self-Love, and even Malice, are Masters more than sufficient for a Poet, who wants not Wit and Judgment. Thus *Juvenal*, *Si natura negat, facit indignatio versum*: And *Boileau*, *La Colere suffit, & vaut un* Apollon.

In perusing the Writings of the two Leaders of the two Sorts of *Satyrs* last mentioned, it may not be unnecessary to consider, that they lived in very different Times: *Horace* was intimate with a Prince of the greatest Goodness and Humanity; and his Court was formed after his Example: Therefore the Faults that Poet falls upon were little Inconsistencies in Behaviour; false Pretences to Politeness, or impertinent Affectations of what Men were not fit for. Vices of a coarser Sort could not come under his Consideration, or enter the Palace of *Augustus*.—*Juvenal*, on the other Hand, lived under *Domitian*, in whose Reign every Thing great and noble was banished the Habitations of the Men in Power. Therefore he attacks Vice as it passes by in Triumph, not as it breaks into Conversation. The Fall of Empires, Contempt of Glory, and a general Degeneracy of Manners, are before his Eyes in all his Writings.—In the Days of *Augustus* to have talked like *Juvenal* had been Madness, or in those of *Domitian*, like *Horace*. Morality and Virtue are every where recommended in *Horace*, as become a Man in a polite Court, from the Beauty, Propriety, and Convenience of pursuing them: Vice and Corruption, are attacked by *Juvenal*, in a Style which denotes he fears he shall not be heard, unless he calls to them in their own Language, with a bare-faced Mentioning of the Villanies and Obscenities of his Contemporaries.

The *Italians* divide *Satyr* into *serious*, as that in common Use, and *Jocose giocosa*; which they also call *Bernesca*, and we *Burlesque*.

Their chief *Satyrists* in the serious Way are, *Dante* (whom they particularly call *Principe Sirico*) *Ariosto*, *Aretine*, *Errole*, *Bentivoglio*, *Lecigi Alamanni*, *Jacobo Soldani*, *Lorenzo Azzolino*, *Salvator Rosa*, *Lud. Adimari*, and *Benedetto Menzini*.—Those who have excelled in the *Jocose* Kind are, *Francesco Berni* (the Inventor of it) *Mauro*, *Firenzuola*, *Casa*, *Coppetta*, *Varachi Lasca*, *Corporali*, &c.

Satyr is divided into *general*, which is levelled at common Abuses, wherein Numbers are equally interested.—And *personal*, which points out and exposes particular Characters.—Which last, as it affects Men's Reputation, on which their Interest greatly depends, is scarce distinguishable from Defamation and Scandal.

To this last Class belong most of those which bear the Title of *Anti*; as the *Anti-Baillet* of *Menage*, with which Mr. *Baillet* was so stung, that he composed a Treatise on *Personal Satyrs*, which bears the Title *Anti*, to shew the Immorality and Unlawfulness of them, and their Contrariety to the Precept of the Gospel.

It is further objected to this Kind of *Satyr*, that a publick Detection, far from producing the Effect it is designed for, Reformation, is apt to drive Men to Despair, and harden them in their Course. The excellent Author of the Treatise *Of the Government of the Tongue*, speaking of uncharitable Truths, says, a Discovery of this Kind serves not to reclaim, but enrage the Offender, and precipitate him into further Degrees of ill. Modesty and Fear of Shame is one of those natural Restraints which the Wisdom of Heaven has put on Mankind: And he who once stumbles, may yet by a Check of that Bridle recover himself again. But when by a publick Detection he is fallen under the Infamy he feared, he will then apt to be discard all Caution, and to think he owes himself the utmost Pleasures of Vice at the Price of his Reputation. Nay, perhaps, he advances further, and sets up for a Reverse Sort of Fame, by being eminently wicked: Thus he who was before a clandestine Disciple, becomes a Doctor of Impiety. Doubtless it was this Sort of Reasoning that induced the wise *English* Legislators to repeal the Law which put the Brand of Infamy in the Face of Felons.—In effect, were Crimes enormous, the Delinquent deserve Little Pity, yet the Reporter may deserve less.

Casaubon makes a Distinction between the *satyrical* Poetry of the *Greeks*, and the *Satyr* of the *Romans*, which he maintains was peculiar to themselves; in which, also, he seems to be justified by *Quintilian*, *Satyra quidem tota nostra est, in qua primus insignem laudem adeptus Lucilius*. Which said *Lucilius* is also expressly said by *Horace* to have been the first *satyrical* Poet.

——— *est Lucilius ausus*
Primus in hunc operis componere carmina morem.

For a like Reason *Horace* calls *Satyr*, *Græcis intactum carmen*, a Sort of *Poetry* unknown to the *Greeks*. *Spanheim*, in his Preface to the *Cæsars* of the Emperor *Julian*, has shewn five or six Differences between those two Poems. The *Greeks* chiefly represented Vice, &c. in their Drama; though they had also a Sort of narrative Poems, called *Silli*, like the *Roman*, and our *Satyr*. These *Silli* were cutting or sarcastick Poems, as may be easily seen by the Fragments of *Timon*'s *Silli*; with this Difference, that the *Greek Silli* were Paradoxes from one End to the other, which cannot be said of the *Roman Satyr*. Or if we find sometimes a Paradox, it is what the Poet did not design, and consequently the Paradox does not make the Essence of the *Satyr*, as it does that of the *Silli*.

Scaliger, notwithstanding all this, followed by some of the latest and best Criticks, scruples not to derive the *satyrical* Poetry of the *Latins*, from that of the *Greeks*. According to those Authors, *Satyr* in its Origin was a Sort of Interlude in Tragedy, wherein Goat-footed *Satyrs*, were introduced to alleviate the Distress, and with their Jests and Humours diversify the Solemnity of the tragick Scene: Much like the Manes in Comedies, and the Fescennines in the *Atellan* Sports.

At first it was only in the Tragedies exhibited in the Feasts of *Bacchus*, that *Satyrs*, the supposed Companions and Priests of that God, were introduced: But afterwards they made a Part in the Solemnities of the other Deities. So that *Satyr*, in its first Institution, was wholly Dramatick.

Dacier, after *Casaubon*, traces the Institution of the *Roman Satyr* very minutely; and distinguishes three Species or States of it: The first *Dramatick*, the second *Narrative*,

...rative, the third, that called the *Varronian*, or *Menippean Satyr*.

The antient *Romans* had been without ſcenical Entertainments for almoſt 400 Years; till Chance and Merriment in one of their Feſtivals, gave Riſe to the ſaturnine and faſcennine Verſes, which for ſome Years ſupplied the Place of theatrical Performances. Theſe Verſes were rude, and without any Meaſure, being extemporary, and the Productions of a ſavage People, who had no other Inſtructors than the Fumes of Wine. Accordingly they were ſtuffed with groſs Railleries, and accompanied with Geſticulations and Dances. An Idea of them may be formed by conceiving a Knot of Country-Fellows, dancing in a hobling Manner, toſſing about their home-ſpun Jokes, like the Rabble in the Streets of *London*, and expoſing each other's Failings. Thus *Horace*, *Epiſt.* 1. *Lib.* 2.

Faſcennina per hunc inventa licentia morem
Verſibus alternis opprobria ruſtica fudit.

The antient *Roman Satyrs*, then, were a Sort of innocent Farces, where Spectators and Actors were indifferently rallied. — And thus they continued till the Time of *Livius Andronicus*, who firſt attempted to write Plays in Imitation of the *Greeks*. This new Entertainment appearing more noble and perfect, drew Crouds of Spectators, which occaſioned the *Satyrs* to be neglected for ſome Time; but they were afterwards re-aſſumed, and tacked to the End of Comedies, much like the modern Farces. They were annexed more peculiarly to the *Atellan* Pieces, and on this Occaſion changed their Name *Satyrs* for that of *Exodia*, which they ever after retain'd.

After *Livius Andronicus*, *Ennius* having obſerved the Eagerneſs of the *Romans* for *Satyrs*, imagined that Poems not accommodated to the Theatre, but retaining the Gall, Raillery, and Pleaſantry of theatrical *Satyr*, would not fail of Succeſs. Accordingly, he wrote Diſcourſes under the Title of *Satyrs*, in which he took the Liberty of mixing ſeveral Sorts of Verſes together, as Hexameters with *Iambick* Trimeters, and trocharick Tetrameters. In theſe Pieces were found the ſame Variety, Raillery, Alluſions, Fables, and even Dialogues; in a Word, every Thing that conſtituted the Character and Beauty of the firſt *Satyrs*, except the Dancing and Muſick. *Pacuvius* ſucceeded, who alſo writ *Satyrs* in Imitation of his Uncle, or according to others, his Grandfather *Ennius*. When *Pacuvius* was in his Prime, *Lucilius* was born; who alſo compoſed *Satyrs*, ſomewhat of a new Turn, endeavouring to imitate the Character of the antient *Greek* Comedy, of which the *Romans* had but an imperfect Image in their own *Satyrs*. This ſeems to be what *Horace* meant when he ſaid, *Sat.* 1. *Lib.* 2.

——— *quid, cum eſt Lucilius auſus*
Primus in hunc operis componere carmina morem.

He could not mean that the *Romans* had no *Satyrs* before *Lucilius*, ſince that Poet was preceded by *Ennius* and *Pacuvius*, whom he imitated. *Horace*'s Deſign was only to hint, that *Lucilius*'s Manner and Turn was new, that he had embelliſhed this Poem, inſomuch that he might be looked upon as its firſt Author. But in fact, *Lucilius* only added to it a little more Politeneſs and Salt, without other Alteration. And though like *Ennius* he did not mix together ſeveral Sorts of Verſe in the ſame Piece, yet he compoſed different Poems, ſome of which were entirely Hexameter, others Iambick, and others Trochaick, as appears from his Fragments.

The third Kind of *Satyr* was the *Varronian* or *Menippean*, ſo called from its Author *Varro*, the moſt learned of the *Romans*, and becauſe in this he imitated the Manner of *Menippus* the *Gadarenian*, a *Cynick* Philoſopher.

This *Satyr* was not only a Miſcellany of different Sorts of Verſe, but was alſo interlarded with Proſe, and *Greek* and *Latin*. *Seneca*'s Poem on the Death of *Claudius*, *Petronius*'s Satyricon, *Lucian*'s Dialogues, the Golden Aſs of *Apuleius*, and the *Cæſars* of the Emperor *Julian*, are ſo many *Satyrs* in the *Varronian* Taſte.— To the ſame Head may alſo be referred the Catholicon of *Spain*, the *Moriæ Encomium* of *Eraſmus*, the Don *Quixote* of *Cervantes*, the *Advertiſſemens* from *Parnaſſus* of *Boccalini*, the *Lutrin* of *Boileau*, the Tale of a Tub, by Dr. *S*—, &c.

Note, That we call *ſatyrical*, any Thing that relates to, or partakes of the Nature of *Satyr*. — We have *ſatyrical* Poets; *ſatyrical* Preachers, as *South*; *ſatyrical* Hiſtorians, as *Mezeray* and *Burnet*; *ſatyrical* Philoſophers, as *Apuleius* and *Montaign*; *ſatyrical* News-Writers. In the Heathen Theology we find a *ſatyrical* God, *viz. Momus*. *Homer*, in his *Therſites*, gives the Character of a *ſatyrical* Courtier, ſuch as *Rocheſter* was. The *Dutch* have been charged with *ſatyrical* Prints and Medals, and particularly againſt the late King of *France*, *Louis* XIV. which have ſometimes coſt them dear. The *ſatyrical* Shews of the *Greeks* were thorough Maſquerades: The Actors herein were diſguiſed variouſly, ſome in the Habits of *Satyrs*, *Sileni*, *Centaurs*, *Mænades*, and other of *Bacchus*'s Men; while others perſonated Giants, Cyclops, Monſters, and even Beaſts; the whole making a Medley more romantick and extravagant than any Thing on the modern Stage, unleſs, perhaps, ſome of our late groteſque Pantomime Entertainments, in which the famous Mr. *Rich* has excelled all the Antiquity.

The Ode, from the *Greek* ωδη, *Cantus*, Song, or Singing, in the antient Poetry, is a Song, or a Compoſition proper to be ſung, and compoſed for that Purpoſe; the Singing uſually accompanied with ſome muſical Inſtruments, chiefly the Lyre.

Ode, in the modern Poetry, is a lyrick Poem, conſiſting of long and ſhort Verſes, diſtinguiſhed into Stanza's or Strophes, wherein the ſame Meaſure is preſerved throughout.

Note, That lyrick Poems were originally employed in celebrating the Praiſes of Gods and Heroes; tho' it was afterwards introduced into Feaſts and publick Diverſions: It is a Miſtake to imagine *Anacreon*, as the *Greeks* do, the Author of lyrick Poetry; ſince it appears from Scripture to have been in Uſe about a thouſand Years before that Poet. The Characteriſtick of lyrick Poetry, which diſtinguiſhes it from all others, is *Sweetneſs*. As *Gravity* rules in heroick Verſe; *Simplicity* in Paſtorals; *Tenderneſs* and *Softneſs* in Elegy; *Sharpneſs* and *Poynancy* in *Satyr*; *Mirth* in Comedy; the *Pathetick* in Tragedy; the *Point* in Epigram; ſo in the *Lyrick*, the Poet applies himſelf wholly to ſooth the Mind of Men, by the Sweetneſs and Variety of the Verſe, and the Delicacy of the Words, and Thoughts; the Agreeableneſs of the Numbers; and the Deſcription of Things moſt pleaſing in their own Nature.

Note alſo, That the Word *Strophe*, is *Greek* στροφη, formed from στρεφω, I turn; becauſe at the End of the *Strophe*, the ſame Meaſures returns again; or rather as the Term related principally to the Muſick or Dancing, becauſe at firſt coming in, the Chorus, or the Dancers turned to the left, and that Meaſure ended, they turned back again to the right. What the Couplet is in Songs, and the Stanza in Epick Poetry, *Strophe* is in *Odes*.

The *Odes* of the Antients, *Voſſius* obſerves, had a regular Return of the ſame Kind of Verſe, and the ſame Quantity of Syllables in the ſame Place of every ſimilar Verſe: *But there is nothing*, ſays he, *but Confuſion of Quantities in the modern Odes; ſo that to follow the natural Quantity of our Syllables, every Stanza will be a different Song.*

He ſhould have obſerved, however, that all the antient *Odes* were not of ſuch Kind. But he proceeds: *The Modern have no Regard to the natural Quantity of the Syllables, and have introduced an unnatural and barbarous Variety of long and ſhort Notes, which they apply without any Regard to the natural Quantity of the Syllables; ſo that it is no Wonder our vocal Muſick has no Effect.*

Among the Antients, *Ode* ſignified no more than a Song; with us they are different Things. The antient *Odes* were generally in honour of their Gods, as many of thoſe of *Pindar* and *Horace*. Sometimes on other Subjects, as thoſe of *Anacreon*, *Sappho*. The *Engliſh* Odes are generally compoſed in Praiſe of Princes and Heroes; as thoſe of *Dryden*, *Prior*, &c.

The diſtinguiſhing Character of *Odes* is *Sweetneſs*: The Poet is to ſooth the Mind of his Readers by the Variety

Variety of the Verſe, and the Delicacy of Words, the Beauty of Numbers, and the Deſcription of Things moſt delightful in themſelves. Variety of Numbers is eſſential to the *Ode*.

At firſt, indeed, the Verſe of the *Ode* was but of one Kind; but for the Sake of Pleaſure, and the Muſick to which they were ſung, they by Degrees ſo varied the Numbers and Feet, that their Kinds are now almoſt innumerable. One of the moſt conſiderable is the *Pindarick*, diſtinguiſhed by the Boldneſs and Rapidity of its Flights, the Suddenneſs and Surprizingneſs of the Tranſitions, and the ſeeming Irregularity, Wildneſs, and Enthuſiaſm of the whole.

Pindar, whence the Manner takes its Name, was of *Thebes*; he flouriſhed about 478 Years before *Chriſt*; and was Contemporary with *Æſchylus*; what we have remaining of his, is a Book of *Odes*, all in Praiſe of the Victors at the *Olympian*, *Pythian*, *Nemæan*, and *Iſthmian* Games; whence the firſt is entitled the *Olympians*, the ſecond the *Pythians*, the third the *Nemæans*, and the fourth the *Iſthmians*.

Pindar is full of Force and Fire; his Thoughts ſententious, his Style impetuous; his Sallies daring, and frequently running, as it were, at Random: He affects a beautiful Diſorder, which yet is ſaid to be the Effect of the greateſt Art.

The ſuppoſed Irregularity of his Numbers has made ſeveral of his Imitators imagine themſelves *Pindarick* Poets, by the mere Wildneſs and Irregularity of their Verſes. None of the *Engliſh* Writers ſeem to have ſucceeded better in the *Pindarick* Character, than *Cowley*.

In a *Pindarick Ode*, the Plan of the whole is to be drawn firſt, and the Places marked out where the elegant Sallies and Wanderings may be beſt, and how the Returns may be juſtly made to the Subject.

The antient *Ode*, had originally but one Stanza, or Strophe; but was at laſt divided into three Parts, *Strophe*, *Antiſtrophe*, and *Epode*. The Prieſts going round the Altar, ſinging the Praiſes of the Gods, called their firſt Entrance *Strophe*, i. e. turning to the left: The ſecond, turning to the right, they called *Antiſtrophe*, q. d. returning. Laſtly, ſtanding ſtill before the Altar, they ſung the Remainder, which they called *Epode*.

The Epode, was not confined to any preciſe Number, or Kind of Verſes; as the Strophe and Antiſtrophe were. But when the *Ode* contained ſeveral *Epodes*, *Strophes*, &c. they were all alike.

As the Word *Epode* then properly ſignifies the End of the Song, and as in *Odes*, what they called the *Epode* finiſhed the Singing: It became cuſtomary, as M. *Dacier* ſhews, for a little Verſe, which being put after another, cloſed the Period, and finiſhed the Senſe which had been ſuſpended in the firſt Verſe, to be called *Epode*, ἐπῳδός.

And hence it is, that the VIth Book of *Horace*'s Odes, is entitled *Liber Epodon*, Book of *Epodes*, by Reaſon the Verſes thereof are alternately long and ſhort; and that the ſhort ones generally, tho' not always, cloſes the Senſe of the long one.

But the Signification of the Word is extended ſtill further; *Epode* being become a general Name for all Kinds of ſhort Verſes, that follow one, or more long ones, of what Kind ſoever they be: And in this Senſe a Pentameter is an *Epode*, after an Hexameter, which in Reſpect thereof is a *Pro-Ode*.

There is another Sort of *Ode*, called *Alcaick*, which conſiſts of four Strophes, each of which contains four Verſes; the two firſt are *Alcaick* Verſes of the firſt Kind, the third an Iambick Dimeter Hypercate-latick, *i. e.* of four Feet and a long Syllable: As,

Sors exitura, & nos in Æternum.

The fourth is an *Alcaick* of the ſecond Kind. — The entire *Alcaick* Strophe is as follows:

Omnes eodem cogimur, omnium.
Verſatur urna, ſerius, ocius
Sors exitura, & nos in Æternum
Exilium impoſitura Cymbæ.

The Paſtoral, is a Compoſition, the Subject whereof is ſomething in the *Paſtoral*, at leaſt rural Life, and the Perſon Shepherds, at leaſt Ruſticks.

Moſt Authors, except the *Engliſh*, eſteem *Paſtoral* to the Dramatick Kind; and define it a Dramatick Piece, wherein the Perſons are clad like Nymphs and Shepherds, and act their own Amours.

The Scene is always in the Fields or the Woods; whence *Taſſo* calls *Paſtoral*, *Favola Boſcareccia*.

Such are the *Paſtor Fido* of *Guarini*, the *Aminta* of *Taſſo*, the *Sylvia* of *Mairet*, the *French* Poet, the *Comus* of *Milton*, &c.

Taſſo aſſumes to himſelf the Honour of having invented *Paſtoral*; but the firſt Idea of this Kind of Drama ſeems to be *Baccari's Due*, who made the firſt Attempt of this Kind 1552. But *Taſſo*'s *Aminta*, which did not appear till the Year 1573, effacing what had been done by *Baccari*, the firſt Author was forgot, and *Taſſo* left the Inventor.

It is certain, this Kind of *Paſtoral* Fable, compoſed according to the Rules of the Stage, was unknown among the Antients. The *Greeks* and *Latins* have indeed introduced Shepherds in their Eclogues; but theſe Eclogues had nothing theatrical in them, nor were the Shepherds ever brought upon the Stage.

This Kind of Dramatick *Paſtoral*, is ſtill but little known among *Engliſh* Authors, nor have they any Thing conſiderable under the Title of *Paſtorals*, but Country-Pieces after the Manner of the Eclogues, or Idyllians of the Antients.

Every *Paſtoral*, even in this laſt View, ſhould have a little Plot or Fable, which may deſerve the Title of a *Paſtoral Scene*. It muſt be ſimple, and but one; yet not ſo as to refuſe all Digreſſions, provided they be but ſhort. This Rule of the Plot is every where obſerved by *Virgil*.

The Eclogue, is a Kind of Paſtoral Compoſition, wherein Shepherds are introduced converſing together.

The *Eclogue* is properly an Image of the Paſtoral Life: Nor do we ſee what End it was that determined *Sannazarius* to put Fiſhermen inſtead of Shepherds, who had been Time out of Mind in Poſſeſſion of the *Eclogue*.

The Beauty of the *Eclogue*, M. *Fontenelle* obſerves, is not attached to what is rural, but rather to what is calm and eaſy in the rural Life. Shepherds being agreeable Perſonages, the Poets abuſe them; and provided they do but talk a little about Reeds and Herbage; they conclude of Courſe it is an *Eclogue*.

There are *Eclogues* in *Theocritus* of a loſty Character, and *Virgil* has ſome in the ſublime Style: The *Eclogue*, therefore, occaſionally raiſes its Voice. Yet M. *Fontenelle* eſteems it a Fault in ſome modern Poets, to have put Matters of high Concerns in their *Eclogues*; and to have made their Shepherds ſing the Praiſes of Kings and Heroes. *Ronſard*, in particular, has made himſelf ridiculous by making the *Eloge* of *Budæus* and *Vatable* in his firſt *Eclogue*, by the Shepherd *Margot*. Such Folks ſhould have been above the Knowledge of ſimple *Margot*. The Sentiments in *Eclogues*, the ſame Author obſerves, ſhould be finer, and more delicate than thoſe of real Shepherds; only their Form ſhould be as ſimple and Country-like as can be. But this Simplicity excludes none but glaring and exceſſive Ornaments.

Since the Eſtabliſhment of the Academy or Aſſembly of *Arcadians* at *Rome*, about the Year 1690, thoſe Gentlemen, who are the Flower of the Wits of *Italy*, take the Name of Shepherds of *Arcadia*, and will not allow their Aſſembly to be treated as an Academy. They have each of them a poetical Name, which is always that of ſome Shepherd; and apply themſelves particularly to *Eclogues*, as Pieces more proper to their Profeſſion.

The learned Signior *Creſumbini*, one of the Founders of the Aſſembly, who had long been Cuſtos, *i. e.* Preſident thereof, and bore the Name of *Alpheſeboeo Cario*, has wrote the Laws and Eſtabliſhment of the Society, with the Names of all who had been admitted thereof, at the End of his Book, entitled, *La Bellezza de la volgar Poeſie*.

The Word *Eclogue* is formed from the *Greek* ἐκλογὴ, *Choice*. So that according to the Etymology of the Word, *Eclogue* ſhould be no more than a ſelect or choice Piece; but Cuſtom has determined it to a further Signification, *viz.* a little elegant Compoſition, in a ſimple, natural Style and Manner.

Idyllion and *Eclogue*, in their primary Intention, are the

the ſame Thing: Thus the *Idyllia* of *Theocritus* are Pieces wrote perfectly in the ſame Vein with the *Eclogæ* of *Virgil*.

But Cuſtom has made a Difference between them, and appropriated the Name *Eclogue* to Pieces wherein Shepherds are introduced ſpeaking; Idyllion to thoſe wrote like the *Eclogue*, in a ſimple natural Style, but without any Shepherds in them.

Some imagine the Name *Eclogue* to have been originally attributed to ſuch Poems as were wrote in Imitation of others, ſuch as the *Eclogues* of *Virgil*, which are only Imitations of *Theocritus*.

Others are of Opinion, the Word was firſt formed from αιξ, αιγος, *Goat*, and λογος, *Diſcourſe*, q. d. a Converſation or Diſcourſe of Goats, or Goat-Herds. But *Ruæus*, in his Notes on *Virgil*, thinks they would then have made it Αιγολογια, *Ægology*, rather than *Eclogue*; or at leaſt the Word would have been wrote in *Greek* with αυ, and in *Latin* by *æ*, not *e*.

Barthius advances another Opinion, *viz.* that the Name *Eclogue*, was given to all poetical Compoſitions that were of a moderate Length, though too ſhort to give them the Name of Books; and hence it is that *Statius*, in the Epiſtle at the Head of the 3d Book of his *Sylva*, and in the Preface to his fourth Book, calls his Poems *Eclogues*; though he had not called them ſo in the Title.

Auſonius, in his Preface to his *Cupid crucified*, calls alſo his Idylles *Eclogues*. Add, that *Cruquius*, in his Comment on *Horace*, declares to have ſeen very ancient Manuſcripts, wherein the Satyrs of the Poet are called *Eclogues*; in which he is ſeconded by the learned Mr. *Baxter*.

The IDYLLION, is a little gay Poem, containing the Deſcription, or Narration of ſome agreeable Adventures.

Theocritus is the oldeſt Author who has written *Idylles*. The *Italians* imitate him, and have brought the Idyllion into modern Uſe.

The *Idyls* of *Theocritus* have a World of Delicacy; they appear with a clowniſh, ruſtick Kind of Simplicity, but are full of the moſt exquiſite Beauties; they ſeem drawn from the Breaſt of Nature itſelf, and to have been dictated by the Graces.

The *Idyllion*, is a Kind of *Poetry*, which paints the Objects it deſcribes; whereas the Epick Poem relates them, and the Dramatick acts them. The modern Writers of *Idylles* do not keep up to the modeſt Simplicity obſerved by *Theocritus*; the People of our Days would not bear an amorous Fiction, reſembling the clumſy Gallantries of our Peaſants.

Boileau preſcribes the following Rules for the Compoſition of *Idyls* and *Eclogues*.

1. As a Shepherdeſs, ſays he, in the greateſt Holiday, does not load her Head with precious Stones, and Gold, but gathers in the neighbouring Fields her fineſt Ornaments; thus an elegant *Idyllion*, amiable in its Air, and humble in its Style, muſt ſhine without Pomp: Its Turn ſimple and natural, hate the Pomp and Pride of a preſumptuous Verſe. Its Sweetneſs muſt flatter, tickle, and awake, but never fright the Ear with great Words.

2. Neither ought the *Idyl* to be compoſed in a mean and low Style, and the Author make his Shepherds ſpeak a clowniſh Dialect; but follow a Road between the two Extremes, imitating in it *Theocritus* and *Virgil*.

The EPIGRAM, is a ſhort Poem, or Compoſition in Verſe, treating of one only Thing, and ending with ſome Point or lively ingenious Thought.

Epigrams then originally ſignify *Inſcriptions*, and derive their Origin from thoſe Inſcriptions placed by the Antients on their Tombs, Statues, Temples, triumphal Arches, *&c.*

Theſe at firſt were only ſimple Monograms, afterwards increaſing their Length, they made them in Verſe, to be the more eaſily retained: *Herodotus*, and others have preſerved us ſeveral of them.

Such little Poems retained the Name of *Epigrams*, even after the Deſign of their firſt Inſtitution was varied, and People began to uſe them, for the relating of little Facts and Accidents, the characterizing of Perſons, *&c.*

The *Greeks* confine their Epigrams to a very narrow Compaſs; for though in the Anthology we here and there meet with a very long one; ordinarily, they do not exceed ſix, or at moſt eight Verſes. The *Latins* were not always ſo ſcrupulous, and the Moderns much leſs, as to theſe Bounds.

M. *le Brun*, in the Preface to his *Epigrams* defines an *Epigram* a little Poem, ſuſceptible of all Kinds of Subjects, and ending with a lively, juſt, and unexpected Thought: Which are three Qualifications eſſential to the *Epigram*, particularly the firſt and laſt of them, *viz.* Brevity, and the Point or Cloſe of the *Epigram*.

To attain Brevity, only one Thing is to be aimed at in the Poem, and that to be purſued in the conciſeſt Terms poſſible. Authors are much divided as to the Length the *Epigram* is to be confined to: The ordinary Limits are from two to twenty Verſes; though we have Inſtances both among the Antients and Moderns, where they extend to fifty. But ſtill it is allowed that the ſhorter the better, and more perfect, as it partakes more of the Nature and Character of this Kind of Poem.

The Point or Turn is a Quality moſt inſiſted on by Criticks, who require the *Epigram* conſtantly to cloſe with ſomething poignant and unexpected, to which all the reſt of the Compoſition is only preparatory. Others there are who exclude the Point, and require the Thought to be equally diffuſed throughout the whole Poem, without laying the whole Streſs on the Cloſe: The former is uſually *Martial*'s Practice, and the latter that of *Catullus*. Which is the moſt beautiful and perfect Manner is diſputed by a third Claſs of Criticks.

The *Greek* Epigrams have ſcarce any Thing of the Point or Briſkneſs of the *Latin* ones: Thoſe collected in the Anthology have moſt of them a certain Air of Eaſe and Simplicity, attended with ſomething juſt and witty; ſuch as we find in a ſenſible Peaſant, or a Child that has Wit. They have nothing that bites, but ſomething that tickles. Though they want the Salt of *Martial*, yet, to a good Taſte they are not inſipid; except a few of them which are quite flat and ſpiritleſs. However, the general Faintneſs and Delicacy of the Pleaſantry in them, has given Occaſion for a *Greek Epigram*, or *Epigram a la greque*, to denote among the *French*, an *Epigram* void of Salt or Sharpneſs.

It is principally the Point that characteriſes the *Epigram*, and diſtinguiſhes it from the Madrigal.

In the modern Verſification, as obſerved by Father *Mourgues*, the *Epigram* and Madrigal are diſtinguiſhed by the Number of Verſes, and the Cloſe. 1. By the Number of Verſes, which in the modern *Epigram* does not go beyond eight, nor in the modern Madrigal comes ſhort of ſix: And 2. In that the Cloſe, or Period of the *Epigram* has always ſomething more lively and ſtudied than that of the Madrigal.

The *Epigram* is the loweſt, and leaſt conſiderable of all the Productions of *Poetry*; and is rather an Effect of good Luck, than of Art to ſucceed therein. The Fineſſe and Subtility of the *Epigram*, M. *Boileau* obſerves, ſhould turn on the Words rather than the Thought; which ſeems very little to the Credit of this Kind of Compoſition, as it reduces it to the Nature of the Pun, or Equivoque. F. *Bohours* confirms the Hint, in adding, that the Equivoque is what uſually ſhines the moſt in the *Epigram*.

One great Beauty of the *Epigram*, is to leave ſomething for the Reader to gueſs, or ſupply. Nothing pleaſes the Mind ſo much, as to find ſomething of itſelf in the Objects preſented to it; nor does any Thing diſguſt it more than to preclude it from ſhewing and exerciſing a Faculty it values itſelf for.

M. *B. L. M.* the Author of a new Collection of French *Epigrams*, in the Year 1720, has a deal of good Obſervations on the Nature of *Epigrams*. He defines it an ingenious Thought delivered in a few Verſes, and conceives it as a generical Name, including under it divers Kinds of ſhort lively Poeſies, as the *Sonnet*, *Rondeau*, *Madrigal*, and little *Tales*, which only turn on ſome merry Thought. Epitaphs and Inſcriptions, he thinks, may be alſo reduced to the Head of *Epigrams*.

The *Epigram* admits of great Variety of Subjects: Some are made to praiſe, and others to ſatyrize, which laſt are much the eaſieſt; ill Nature ſerving inſtead of Point and Wit. *Boileau*'s Epigrams are all Satyrs on one or another. Thoſe of *Des Reaux* are all made in honour of his Friends. And thoſe of Madam *Scudery* are ſo many Eloges,

Eloges. The *Epigram* being only a single Thought, it would be ridiculous to express it in a great Number of Verses; it must have its Unity like the Drama. The Comedy has an Action for its Subject; and the Epigram a Thought.

A MADRIGAL, in the modern *Italian*, *Spanish*, and *French* Poetry, is a little amorous Piece, containing a certain Number of free unequal Verses, not tied either to the scrupulous Regularity of the Sonnet, or the Subtlety of an Epigram, but consisting of some tender, delicate, yet simple Thought, suitably expressed.

The *Madrigal*, according to M. *le Brun*, is an Epigram without any Thing very brisk and sprightly in its Fall or Close: Something very tender and gallant is usually the Subject of it; and a certain beautiful, noble, yet chaste, Simplicity forms its Character.

The *Madrigal*, is usually looked on as the shortest of all the lesser Kinds of Poems, and may consist of few Verses, than either the Sonnet or Rondeau. There is no other Rule regarded in mingling the Rhimes and Verses of different Kinds, but the Fancy and Convenience of the Author. This Poem, however, really allows of less Licence than any other; whether we regard the Rhimes, the Measures, or the Purity of the Expression.

A SONNET, is a Kind of Composition contained in fourteen Verses, *viz.* two Stanza's or Measures, of four Verses each, and two of three; the eight four Verses being all in two Rhimes.

The *Sonnet* is of *Italian* Origin; and *Petrarch* is allowed to be the Father: It is held the most difficult and artful of all poetical Compositions, as requiring the last Accuracy and Exactness. It is to end with some pretty ingenious Thought: The Close to be particularly beautiful, or the *Sonnet* is naught.

In *Malherb*, and some other *French* Poets, we meet with *Sonnets*, where the two first Stanza's are not in the same Rhime; but they are held irregular; and, in effect, great Part of the Merit of those Pieces consist in a scrupulous Observation of the Rules.

Ronsard, *Malherb*, *Maynard*, and *Gombaut*, have composed Abundance of *Sonnets*; but among two or three thousands, there are scarce two or three worth much.

Pasquier observes, that *du Bellay* was the first who introduced *Sonnets* in *France*. But *du Bellay* himself says, that *Melin de St. Gelais*, first converted the Italian *Sonnets* into *French*.

A SONG, is a little Composition, consisting of simple, easy, natural Verses, set to a Tune in order to be sung. Each Stanza of a Song, is called a Couplet.

The *Song* bears a deal of Resemblance to the Madrigal, and more to the Ode; which is nothing but a *Song*, according to the antient Rules.

Its Object is usually Wine, or Love; whence M. *le Brun* defines a modern *Song* to be either a soft and amorous, or a brisk and bachic Thought, expressed in a few Words.

Indeed this is to restrain it to too narrow Bounds; for we have *devout Songs*, *satyrical Songs*, and *panegyrical Songs*.

But let the *Song* be what it will, the Verses are to be easy, natural, flowing, and to contain a certain Harmony, which neither shocks the Reason nor the Ear; and which unite Poetry and Musick agreeably together.

Anciently the only Way of preserving the Memory of great and noble Actions, was, by recording them in Songs; and in *America* there are still People who keep their whole History in *Songs*.

The FABLE, is a Tale, or feigned Narration, designed either to instruct or divert; or as M. *de la Motte* defines it, an Instruction disguised under the Allegory of an Action.

Fable seems the most antient Way of teaching: The principal Difference between the Eloquence of the Antients and that of the Moderns, consists, according to *Pere Bossu*, in this, that our Manner is simple and proper, and theirs full of Mysteries and Allegories. The Truth was usually disguised under those ingenious Inventions, called by the Way of Excellence, Μυθοι, *fabulæ*, *Fables*, that is Words; as intimating that there was the same Difference between those *fabulous* Discourses of the Learned, and the common Language of the People, as between the Words of Men, and the Voices of Beasts.

At first, *Fables* were only employed in speaking of the divine Nature, as then conceived: Whence the ancient Theology was all Fable. The Divine Attributes were separated as into so many Persons; and all the Œconomy of the God-head laid down in the feigned Relations and Actions thereof; either by reason the human Mind could not conceive so much Power and Action, in a single and indivisible Being; or perhaps they thought such a Thing too great and high for the Knowledge of the Vulgar. And as they could not well speak of the Operations of this Almighty Cause, without speaking likewise of its Effects; natural Philosophy, and at length human Nature, and Morality itself, came thus to be veiled under the same *fabulous* allegorical Expression; whence the Origin of *Poetry*, and particularly of epick Poetry.

The Criticks, after *Aphthonius* and *Theon*, reckon three Kinds of *Fables*, rational, moral, and mixed.

Rational FABLES, called also Parables, are Relations of Things supposed to been said and done by Men; and which might possibly have been said or done, tho' in Reality they were not. Such in the sacred Writings are those of the ten Virgins; of *Dives* and *Lazarus*; the prodigal Son, *&c.* of these rational *Fables* we have likewise about a Dozen in *Phædrus*.

Moral FABLES, called also Apologues, are those wherein Beasts are introduced as Actors, Speakers, *&c.* these are also called *Æsopick Fables*; not that *Æsop* was their Inventor, for they were in Use long before him, *viz.* in the Times of *Homer* and *Hesiod*; but because he excelled therein. In this Kind, not only Beasts, but even Trees, Hammers, *&c.* are supposed to speak.

The rational differ from the moral *Fables* in this; that the former, though it be feigned, might be true; but the latter is impossible, as it is impossible for Beasts or Stocks to speak.

Mixed FABLES, are those composed of both Sorts, rational and moral; or wherein Men and Brutes are introduced conversing together. Of this we have a fine Instance, in *Justin*, *lib.* xxxiii. *c.* 4. made by a petty King, to alarm the antient *Gauls* against the *Massilians*, who arriving out of *Asia* in *Spain*, charmed with the Place, begged Leave of the Inhabitants to build a City: To this Effect,

A Bitch big with Young, begged of a Shepherd a Place to lay her Whelps in; which when she had obtained, she begged further for Leave to rear them in the same. At length the Whelps being now grown up; depending on the Strength of her own Family, she claimed the Property of the Place.—So the *Massilians*, who are now only Strangers, will hereafter pretend to be Masters of the Country.

As to the Laws of *Fables*; the principal are, 1st, That to every *Fable* there be some Interpretation annexed, to shew the moral Sense, or Design thereof. This Interpretation, if it be placed after the *Fable*, is called *Assabulatio*; if before it, *Præfabulatio*.—2dly, That the Narration be clear, probable, short and pleasant. To preserve this Probability, the Manners must be expressed, and closely kept to, as in *Poetry*.

M. *de la Motte* has some fine Remarks on the Subject of *Fables*, at the Beginning of his *Fables nouvelles dediées au Roy*, 1719. A *Fable*, according to this polite Writer, is a little Epick Poem; differing in nothing from the great one but in Extent, and in that being less confined as to the Choice of its Person; it may take in all Sorts at Pleasure, as Gods, Men, Beasts, or Genii; or even if Occasion be, great Persons, *i. e.* personify Virtues, Vices, Rivers, Trees, *&c.* Thus M. *de la Motte* very happily introduces Virtue, Talent, and Reputation, as Persons making a Voyage together.

That Author suggests two Reasons why *Fables* have pleased in all Ages and Places. The first is, that Self-love is spared in the Instruction. The second, that the Mind is exercised by the Allegory. Men do not love direct Precepts; too proud to condescend to those Philosophers who seem to command what they teach, they will need be instructed in a more humble Manner: They would never amend, if they thought that to amend were

were to obey. But that there is a Sort of Activity in the Mind, which must be humoured. It pleases itself in a Penetration, which discovers more than is shewn; and in apprehending what was hid under a Veil fancies himself in some measure the Author of it. The *Fable* must always imply or convey some Truth. In other Works Delight alone may suffice; but the *Fable* must instruct. Its Essence is to be a Symbol, and of Consequence to signify somewhat more than is expressed by the Letter. This Truth should for the Generality be a moral one; and a Series of Fictions conceived and composed in this View, would form a Treatise of Morality preferable to any more direct and methodical Treatise: Accordingly *Socrates*, we are told, had a Design to compose a Course of Morality in this Way. This Truth should be concealed under the Allegory; and in Strictness it ought not to be explained, either at the Beginning or End.

The Truth, or Idea intended, should arise up in the Reader's Mind from the *Fable* itself. However, for the Conveniency of the less discerning Readers, it may be a good Way to point out the Truth or Moral in precifer Terms. To have the Moral at the End of the *Fable* seems much better than at the Beginning: The Mind is apt to be forestalled in the latter Case; I carry the Key all along with me, so that there is no Room to exercise my Mind in finding any Thing myself.

The Image, M. *de la Motte* observes, must be just, and express the Thing intended directly, and without any Equivocation: It must be one, that is, all the Parts must be visibly accessory to one principal End; and it must be natural, that is, founded on Nature, or at least on Opinion.

The Writers of *Fables* are not many. If there were any before *Æsop*, his Success has quite effaced their Memory; and even occasioned all the good Things of that Kind to be ascribed to him. His Life, as wrote by *Planudes*, is itself a thorough *Fable*. It must be owned to be very happily imagined, to make the Inventor of *Fables* a Slave, and his Master a Philosopher. The Slave has his Master's Pride and ill Humour to deal withal throughout. His Lessons were all contained in the Fables themselves; and the Readers were left to the Pleasure of picking them out themselves.

It is generally allowed among the Learned, that tho' the Matter and Invention of the *Fables* be *Æsop*'s, the Turn and Expression is not. The *Greek* is of *Planudes*, and bad *Greek* it is in the Judgment of Father *Vavassor*, *de Ludicru Dict.* Some Authors will have *Socrates* the Author of the *Fables* of *Æsop*; others attribute them to *Solomon*, and others to *Homer*.

Phædrus was a Slave too, and a freed Man; but he had the Advantage over *Æsop* in Education. He is only a Fabulist, as he translates and copies. Though his *Fables* be generally short, yet is he prolix, compared to his Author. His Style, however, is always florid, Descriptions concise, and his Epithets suitable: He frequently adds Graces never dreamt of by the Inventor; and every where enriches the Simplicity of *Æsop* in the most delicate Manner.

Pilpay, another Fabulist, governed *Indostan* a long Time under a powerful Emperor: But he was not the less a Slave; for the Prime Ministers of such Princes are always more so than the meanest Subjects. *Pilpay* comprized all his Politicks in his *Fables*; and accordingly his Work long continued the Book of State, or the Discipline of *Indostan*. It was translated into *Persian* and *Arabick*, and since into the modern Languages. His *Fables*, M. *de la Motte* observes, are rather famous than good: But he is the Inventor, and the Merit of the Invention will always compensate for a deal of Faults. His *Fables* are often mild, and artless; and the Collection is a sort of romantick Assemblage of Men and Genii, composed in its Kind like *Cyrus* or *Orlando*; where the Adventures are continually thwarting and clashing with each other.

We say nothing of the *Fables* of *Gabrias*, or *Babrias*, *Avianus*, *Abstemius*, &c.

Amongst the Moderns we have none that deserve to be seen in the Company above-mentioned, except M. *de la Fontaine* and *de la Motte*, the first of whom has picked out all the best Things in *Æsop*, *Phædrus*, and *Pilpay*, and given them a-new in *French* with a Delicacy and Simplicity peculiar to himself; and which, in the Judgment of his Countrymen, sets him even above *Phædrus*.

The latter, rather than take up with what *de la Fontaine* has left, chose to be an Inventor himself. He has succeeded. His *Fables* are many of them very happy, though some think them too full of Thought and Reasoning. His Versification is infinitely more correct than that of *la Fontaine*; and more suitable to the Subject than that of *le Noble*.

An Epitaph, is a monumental Inscription, in Honour or Memory of a Person defunct; or an Inscription engraven, or cut on a Tomb, to mark the Time of a Person's Decease, his Name, Family, and usually some Eloge of his Virtues, or good Qualities.

The Style of *Epitaphs*, is a Kind of Medium between Prose and Verse; the Jejune and the Brilliant are here equally to be avoided. The Style of *Epitaphs*, which was last with the antient Monuments, has been retrieved at the Beginning of this Age, by Count *Emanuel Tesoro*; it is now used various Ways at the Beginning of Books, and even Epistles dedicatory are composed in it, whereas we have no Example among the Antients.

Bouts-Rimez, are certain Rhimes in the *French* Poetry, disposed in Order, and given to a Poet, together with a Subject, to be filled up with Verses ending in the same Words, and in the same Order.

The Invention of the *Bouts-rimez*, is owing to one *du Lot*, a Poet, in the Year 1649, in fixing the *Bouts*, it is usual to chuse such as seem the remotest, and have the least Connexion. Some good Authors fancy that these Rhimes are of all others the easiest, that they assist the Invention, and furnish the most new Thoughts of all others. *Sarrasin* has a Poem on the Defeat of the *Bouts-rimer*.

All the Verses of all Kinds of Poetry soever, in the modern Languages, the *English* excepted, which admits of Verses without Rhimes, end in a Rhime; which is a Similitude of Sound, between the last Syllable, or Syllables of one Verse, and the last Syllable, or Syllables of a Verse succeeding either immediately, or at a Distance of two or three Lines.

Rhime is a modern Invention, the Product of a Gothick Age; *Milton* calls it the *modern Bondage*; yet some Authors will have it, that the *English*, *French*, &c. borrow their *Rhime* from the *Greeks* and *Latins*. The *Greek* Orators, say they, who endeavoured to tickle the Ears of the People, affected a certain Cadence of Periods, which ended alike, and called them ομοιοτελευτα. The *Latins*, who imitated them, called these chiming Terminations, *similiter desinentia*.

This Affectation increased as the *Latin* Tongue declined; so that in the later *Latin* Writers scarce any Thing is more common than rhyming Periods.

The *French*, and from them the *English*, adopted this Cadence of *Rhime*, which seemed to them more pretty and agreeable than the metrical Verses of the *Greek* and *Roman* Poets.

This Kind of *Latin* Poetry in *Rhime* was much in Vogue in the 12th Century; and the Verses thus running were called, the *leonine Verses*; for what Reason *Camden* owns he does not know, (for a Lion's Tail, says he, does not answer to the middle Parts as those Verses do) but doubtless they had their Name from a Canon called *Leoninus*, who first composed them with Success, and of whom we have several Pieces remaining, addressed to Pope *Adrian* IV. and *Alexander* III.

Camden has given us a Collection of Latin *Rhimes* of the ancient *English* Writers, among whom *Walter de Mapes*, Archdeacon of *Oxford*, in the Time of *Henry* II. makes a principal Figure; especially for two Pieces, the one in praise of Wine, the other against the Pope, forbidding the Clergy to have Wives.

Since the Restoration of Learning, in the 16th Century, Attempts have been made to banish *Rhime* out of the modern Poetry, and to settle the *English* and *French* Verses, on the Footing of the antient *Greek* and *Latin* ones, by fixing the Quantities of the Syllables, and trusting wholly to those, and the Number of Measures.

This *Milton* has done with great Success, in his *Paradise*

dise Lost, and other Pieces; and after him, *Philips*, *Addison*, and some others. Verses of this Kind, the *English* call *Blank Verses*.

The *French* have attempted the same, but not with the same Success. *Jodelet* made the first Essay, and after him *Pasquier*; but they failed. *Paserat* and *Rapin* follow'd them, and failed like them. Their Hexameter and Sapphick Verses were neither imitated nor approved; and the Cadence of *Rhyme* was preferred to Quantity, or the Use of long, and short Syllables. *Des Portes*, likewise, made some Essays of Verses, constructed of long and short Verses, without *Rhymes*, but the Attempt only served to convince the World, that this Kind of Measure is inconsistent with the Genius of the *French* Tongue.

To succeed in such Kind of Verses, there must be a Liberty of varying the Order of the Words, or of changing their Situation as may best suit the Occasions of the Poet; of making the Substantive either go before, or follow after the Verb, as the Verse requires, *&c.* Now none of the modern Tongues admit of such an arbitrary Situation of the Words, equally with the Antients; yet none more than the *English*, nor less than the *French*.

Rhymes are either *simple* or *double*, or *triple*; though the two last are now disused.

Single RHYMES are divided into perfect or whole *Rhymes*, and imperfect or half *Rhymes*.

A *whole* or *perfect* RHYME, is where there is a Similitude of Sound, without any Difference; or where a thorough Identity or Sound appears in the Pronunciation of the two Syllables, notwithstanding that there may be some Difference in the Orthography.

An *imperfect* or *half* RHYME, is where there is a Similitude with a Difference, either in Respect of the Pronunciation, or the Orthography; but chiefly the former.

In the Time of St. *Louis*, the *French* began to be more exact in their Versification, and to distinguish their *Rhymes* into *Masculine* and *Feminine*; and to observe a regular Mixture of the two, in their Verses.

The *Feminine* RHYME, is that where the last Syllable of the *Rhyme* ends with an *e* mute, or quiescent: As in *Doree*, *Belle*, &c.

Masculine RHYMES are those of all other Words.

Manage observes, that *Masculine Rhymes* close the Periods better: But that the *Feminines* being the softer and more languishing, are more agreeable, especially in mournful Subjects.

Double RHYMES, by the *French* called *rich Rhymes*, are those where the two Words terminate alike through the whole two last Syllables, as *Squabble*, and *Rabble*, &c.

Plain RHYMES are those where the two *Rhyming* Verses succeed immediately to each other.

Cross RHYMES, those where the Verses are so disposed, as that the first *rhymes* with the third, and the second with the fourth, *&c.*

Assonant RHYMES is a Term particularly applied to a Kind of Verses common among the *Spaniards*, where a Resemblance of Sound serves instead of a natural *Rhyme*.

Thus *Ligiera*, *Cubierta*, *Tierra*, *Mesa*, may answer each other in a Kind of *Assonant Rhyme*, in Regard they have each an *e* in the penultimate Syllable, and an *a* in the last.

There is also a jocose Kind of Poetry, called *Burlesque*, chiefly used in the Way of Drollery and Ridicule, to deride Persons and Things.

The Word, and the Thing too, seem to be both modern: F. *Vavassor* maintains, in his Book *De ludicra dictione*, that Burlesque was absolutely unknown to the Antients; against the Opinion of some others, that one *Raintovius*, in the Time of *Ptolemy Lagus*, turned the serious Subjects of Tragedy into Ridicule; which perhaps is a better Play for the Antiquity of Farce, than of *Burlesque*.

The *Italians* seem to have the justest Claim to the Invention of *Burlesque*. The first in this Kind was *Bernia*; he was followed by *Lalli*, *Caporali*, &c. From *Italy* it passed into *France*, and became there so much the Mode, that in 1649, appeared a Book under the Title of the Passion of our Saviour, in *Burlesque* Verses. Thence it came into *England*.

The best Work we have of that Taste in *French*, is the *Virgil Travestey* of *Scarron*; which was also done in *English* by *Cotton* and *Philips*; for which poor *Cotton* paid very dear, for having dressed *Dido* in the antique Manner of his old Aunt, and named her as an Original, she resented it so much, as to carry her Resentment so far as to disinherit him.

The MACARONICK, or MACARONIAN, is a Kind of the *Burlesque* Poetry, and consists of a Jumble of Words of different Languages, with Words of the vulgar Tongue latinized, and *Latin* Words modernized.

Theoph. Folingius, a *Benedictine* Monk of *Mantua*, was the first who invented, or at least cultivated, this Kind of Verse: For though we have a *Macaronea Ariminensis*, in a very old Letter, beginning *Est Author Typhis Leonicus atque Paransus*; yet it seems to have been the Work of *Guarinus Capellus Sarsinas*, who in the Year 1526, printed six Books of *Macaronick* Poetry, *in cabrinum Gegamogæ Regem*: But as both these came out after the first Edition of *Folingius*, which was published under the Name of *Merlinus Coccajus* in 1520; so were they likewise much inferior to both in the Style, Invention, and Episodes, wherewith he has enriched the History of *Baldus*; which makes the Subject of his Poem.

The famous *Rablais* first transferred the *Macaronick* Style out of the *Italian* Verse into *French* Prose, and on the Model thereof formed some of the best Things in his *Pantagruel*.

Merlin Coccajus met with so much Success in his new Way, that he composed another Book, partly in *Macaronick* Style, called *Il Chars del tri per uno*; but with very different Success.—After this appeared in *Italy*, *Macaronica de Syndicatu, & Condemnatione Doctoris Samsonis Lembi*, a low Performance; and *Macaronis Forza*, an excellent one, by *Stesonio* a Jesuit.—In 1620, *Bajani* published a *Carnavale Tabula Macaronea*. The last *Italian* who wrote in this Way, was *Cæsar Ursinius*, to whom we owe *Capricia Macaronica magistri stopini Poetæ Pouzanensis*, printed in 1636.

The first who succeeded in the *Macaronick* Stile among the *French*, was *Antonius de Arena Provensalis de Bragardissima villa de Soleriis*, in two Poems, which he has left us, *De arte dansandi, & de guerra Neapolitana Romana & Genuensi*. He was followed by another Lawyer, who wrote *Historia bravissima Caroli V. Imperat. a Provincialibus Paysanis triumphanter fugati*. Some Time after, *Remi Belleau*, among his other *French* Poesies, printed *Dictamen metrificum de bello Hugonotico, & rusticorum pigliamine ad sodales*, a Piece much valued. This was succeeded by *Cacasanga Reestro suisso Lans quenotorum per M. I. B. Lichiardum recatolicatum, spaliporcinum Poetam*; to which *Stephen Tabouret* returned an Answer in the same Strain. *Moliere*'s Ceremony of the Reception of a Physician, is one of the best Pieces of the Kind.

We have little in *English* in the *Macaronian* Way; nothing scarce but some little loose Pieces, collected in *Camden*'s Remains.

But the *Germans* and *Netherlanders* have their *Macaronick* Poets; witness the *Certamen Catholicum cum Calvinistis*, of one *Martinius Hamconius frisius*, which contains about twelve hundred Verses, all the Words whereof begin with the Letter *C*.

As to *Poetry* in general, it is observed, that the antient Eloquence was full of Mysteries and Allegories. The Truth was by them usually disguised under those ingenious Inventions, called μυθοι, Fables, *q. d.* Words; as if there were as much Difference between these fabulous Discourses of the Learned, and the common Language, as between the Speech peculiar to Man, and the Voice of Brutes.

At first Fables were chiefly used in treating of the divine Nature, after the Manner they then conceived it: This occasioned the first Poets to be called *Divines*, and Poetry, the *Language of the Gods*.—The divine Attributes they separated into a Number of Persons; by Reason the Weakness of the human Mind could not conceive so much Power, and so much Action, in a Simplicity so strict and indivisible as that of God.

Nor could they speak of the Operation of this Almighty Cause, without speaking likewise of its Effects.—They therefore added Physicks to their Theology, handling both after the same Manner, without quitting their Veils or Allegories.

Now

Now Man being the moſt conſiderable of all the Works of the Deity, and there being nothing ſo proper for Poets, or of ſuch general Uſe to Mankind; as ſuch a Subject; they therefore added Ethicks to the former, and treated the Doctrine of Manners in the ſame Way as they had done Divinity and Phyſiology. And hence aroſe the *Epopœia*, or Epick Poem.

The Epick Poets have done with Regard to Morality, juſt the contrary of what the divine Poets did for their Theology. As the too great Diverſity of the divine Actions and Perfections, ſo little proportionate to our Underſtanding, occaſioned the latter to divide the ſingle Idea of the ſimple Eſſence of God, into ſeveral Perſons under different Names; as *Jupiter*, *Juno*, *Neptune*, &c. ſo on the contrary, the Nature of moral Philoſophy, which never gives any Rule for particular Things, occaſioned the Epick Poets to unite in one ſingle Idea, in the ſame Perſon, and even in a ſingle Action, whatever of the like Kind occurs in different Perſons and different Actions.

Thus, ſays *Ariſtotle*, Poetry teaches moral Philoſophy, not by reciting hiſtorically what *Alcibiades* has done or ſuffer'd; but by propoſing what ſuch a Perſon, whom the Poet calls by any Name he pleaſes, would neceſſarily or probably have done or ſaid on the like Occaſion. It is in this Manner he repreſents either the unhappy Conſequences of Deſigns ill-concerted, of wicked Actions, *&c.* or the Reward of good Actions, and the Pleaſure reaped from a Deſign laid in Virtue, and conducted by Prudence.

Thus, according to our Critick, the poetical Actions and Perſons are all feigned, allegorical, and univerſal; not hiſtorical and ſingular. — This is, likewiſe, the Sentiment of *Horace*, who adds, that Poets teach Morality, as well as Philoſophy; but the Preference herein he gives to *Homer*.

This Advantage of the Poets over mere Philoſophers, ariſes hence, that all Poetry is an Imitation. Now Imitation is a Thing extremely natural, and hence this Manner of propoſing Things becomes better fitted to engage the Auditors. Again, Imitation is an Inſtruction given by Examples; and Examples are the more proper to perſuade, in Regard they prove the Thing poſſible. — In effect, Imitation is ſo much the Nature of Poetry, that *Ariſtotle* tells us, it is to this the Art owes its Riſe.

But the Poets, by becoming Philoſophers, did not ceaſe to be Divines; on the contrary, the Morality they taught, obliged them frequently to introduce the Deity in their Works; and the Share ſo auguſt a Being had in the Action, obliged the Poet to make it grand, important, and conducted by Perſons of Kings and Princes.

Add to this, that it likewiſe obliged the Poet to think and ſpeak after a Manner elevated above the common Pitch of Men; and to equal, in ſome Meaſure, the divine Perſons he introduced; and to this Purpoſe, ſerved the poetical, figurative Language, and the Majeſty of heroick Verſe.

To convey their Truths to the beſt Advantage, and adapt them the particular Purpoſes they were intended for; Poets found out Forms. Hence the Epopœia and Drama.

Epick Poetry is more for the Manners and Habits than the Paſſions; theſe laſt riſe all at once, and their Violence is but of a ſhort Duration; but the Habitudes are cooler and more gentle, and riſe and fall more ſlowly.

The Epick Action, therefore, could not be reſtrained to a Day or two, as that of the Drama; a longer and a more juſt Space was required for this, than for the Tragedy, which is only for the Paſſions. And hence aroſe a ſtill greater Difference between Tragedy and the Epopœia.

For the tragick Violence required a ſtronger and more lively Repreſentation than the Epick; and accordingly it conſiſts wholly in the Action, the Poet never ſpeaking as he does in the Epopœia, where there are no Actors.

Auguſtus's Reign, M. *de St. Evremont* obſerves, was that of the excellent Poets; but it does not follow hence, that it was that of the beſt Genius's; ſince Poetry requires a particular one, which is not always agreeable to good Senſe: Sometimes it is the Language of the Deities, and ſometimes that of mad People; ſeldom that of a Man of Merit. It delights, as already obſerved, in Fictions, Figures, and always foreign to the Reality of Things; tho' that Reality be ſole capable to ſatisfy a ſound Underſtanding.

Not but that there is ſomething gallant, in making Verſes well, but we ſhould be very great Maſters of our Genius, otherwiſe the Mind is poſſeſſed with ſomething foreign, which does not allow it to diſpoſe eaſily enough of itſelf.

Cicero relates it as a Saying of *Democritus* and *Plato*, that there could be no good Poet, *Sine afflatu furoris*, without a Tincture of Madneſs; and *Ariſtotle* calls Poets expreſly *Maniaci*, Maniacks, Madmen.

M. *Spanheim* tells us, that the *Arab* Authors are more poetically given than thoſe of any other People; and adds, that there are more Verſes among the *Arabians*, than among all the other Nations put together.

The *Greek* Word ποιητης, *Poet*, ſignifies *Maker*, from ποιεω, *facio*, *I make*; whence the Poets were alſo antiently called *Fatiſts*. The Name they were properly denoted by among the *Romans*, was *Vates*, which ſignifies *Prophet*.

By a Law of the Emperor *Philip*, inſerted in the *Code*, *lib.* 10. *tom.* 52. Poets are expreſly excluded from the Immunities granted the Profeſſors of all other Sciences.

Homer, *Virgil*, *Taſſo* and *Milton*, are the chief, and almoſt the only Epick Poets; tho' *Boileau* cenſures ſeverely the two laſt.

Of *Toſſo*, he ſays, that his Books had not been ſo much in Vogue, if his Heroes, always in Prayer, had done nothing elſe but to bring Satan to Reaſon.

Sophocles, *Euripides*, *Shakeſpear*, *Otway*, *Corneille*, and *Raune*, are the beſt tragick Poets. *Ariſtophanes*, *Menander*, *Plautus*, *Terence*, *Fletcher*, *Ben Johnſon*, &c. the chief comick Poets. *Horace*, *Malherb*, and *Cowley*, excelled as Lyrick Poets. *Juvenal*, *Reignier*, *Boileau*, *Dryden*, *Oldham*, *Pope*, *Swift*, *Paul Whitehead*, &c. as Satyrick Poets.

APPENDIX.

Of Romances.

As M. *Fontenelle* calls *Romance* Poems in Proſe, and *Boſſu* is not averſe to their being admitted as poetical Pieces, I'll place them here, and ſay, that a *Romance*, antiently *Romaunt*, and *Romant*, is a fabulous Relation of certain Intrigues and Adventures in the Way of Love or Gallantry, invented to entertain and inſtruct the Readers.

The juſt Notion therefore of a *Romance* is, that it is a Diſcourſe invented with Art to pleaſe and improve the Mind, and to form or mend the Manners, by Inſtructions diſguiſed under the Allegory of an Action, or Series of Actions, related in Proſe, in a delightful, probable, yet ſurprizing Manner.

A juſt *Romance* conſiſts of two Parts, *viz.* a moral, as its Foundation and End; and a Fable or Action, as the Superſtructure and Means. It muſt alſo have the Manners, that is, the Characters muſt be diſtinguiſhed, and the Manners muſt be neceſſary, and have all the other Qualities of poetical Manners.

The Incidents muſt be delightful, and to that End rightly diſpoſed and ſurprizing. The Sentiments fall under the ſame Rules as the Drama. But the Diction is allowed to be more loſty and figurative, as being a Narration; and not having Terror or Pity, but Admiration for its End.

As Compoſitions of this Kind have a long Time been little elſe but Hiſtories of amorous Adventures, and Feats of Knight-Errantry: The Origin of *Romances* is referred to that of Love-Hiſtories: And accordingly *Dearchus*, a Diſciple of *Ariſtotle*, who firſt wrote of thoſe Matters, is uſually eſteemed the Author of *Romances*. Tho' *Photius* is of Opinion, that *Antonius Diogenes*'s Book on the Errors and Amours of *Dinias* and *Dercyllis*, gave Birth to moſt of the Works of this Kind. Be this as it will, it is certain, the Antients have had their *Romances* as well as we. Such are the Amours of *Rhodanis* and *Sinonides*, deſcribed in Iambicks: Such is the *Romance* of *Leucippe* and *Clitophon*, compoſed by *Achilles Tatius*, a *Greek* Writer, afterwards a Biſhop: Such are the four Books of incredible Things, wrote by *Damaſius*: Such are the *Ethiopicks* of *Heliodorus*, wherein he relates the Amours of *Theogenes* and *Chariclea*. — Laſtly, under the

the ſame Claſs may be ranked the Fables of *Parthenius Nicenus*, of *Athenagoras*, *Theodorus Prodranus*, *Euſtathius* and *Longus*. Indeed Antiquity could ſcarce be reconciled to ſuch Pieces, and always looked on them as Abuſes. *Photius* in his *Bibliotheca*, *cod.* 87. gives a frightful Account of that of *Tatius*; and the Ethiopicks of *Heliodorus*, though one of the moſt modeſt and reſerved Pieces of the Kind, met with very ſevere Treatment. That Author was Biſhop of *Tinea* in *Theſſalia* in the fourth Century. *Nicephorus* tells us, that a Synod conſidering the Danger which might accrue to Youth for reading his *Romance*, authorized as it was, by the Dignity of its Author, propoſed it to him, either to ſuppreſs his Book, or renounce his Biſhoprick; and that he choſe the latter. But this Hiſtory is a little apocryphal.

Be this as it will, *Heliodorus* has ſerved as a Model to all the *Romances* wrote ſince; the Marriage of *Theagenes* and *Chariclea*, has produced a very numerous Iſſue; even all the *Romances* now extant in the World.

In Imitation of the Archbiſhop *Turpinus*, who paſſed for Author of the *Romance* of the Feats of *Charlemagne*, and *Orlando*, a great Number of Hiſtories of the like Kind were wrote in *France* during the Time of *Philip the Fair*; the Authors whereof ſeem to improve on each other, contending who ſhould go furtheſt in the Merveilleux. Theſe Books being intended for the polite People, were wrote in the Court Language of that Age; which was called the *Romans*, *romant*, or *romanic*; whence the Books themſelves were called by thoſe Names: And thus by Degrees *Romans*, &c. became the general Name of all Books of this Kind; whence at length the *Engliſh*, *Romance*.

Others derive the Word from the Spaniſh *romanſero*, I invent, as intimating *Romances* to be meer Fictions. And hence it is that the ancient Poets of *Provence*, who were the firſt great Dealers in *Romances*, are called *Troubadours*, q. d. Finders or Inventors.

The *French*, above all other Nations, have applied themſelves to this Kind of Writing; which is owing in part to the Freedom, *&c.* wherewith they converſe with Women. They began chiefly with *Romances* of Chivalry; hence our *Amadis*, in 24 Volumes; *Palmerin d'Oliva*, King *Arthur* of *England*, &c. whereof we have an agreeable Critick in Don *Quixot*.

The later *Romances* are much more polite; the beſt of which are the *Aſtrea d'Urfé*, the *Cyrus* and *Clelia* of Mademoiſelle *de Scuderi*; the *Caſſandre* and *Cleopatre* of *la Calprenede*; the *Ariane* of *Des Maretz*; *Francion*, &c. which M. *Boileau*, in that dreadful Combat between the Canons and Chanters of the *St. Chapelle*, ſignalized in his *Lutrin*. The moſt celebrated *Romance* wrote in *French*, and which is worth all other Romances wrote in any Language whatever, and which till now has been inimitable, is the Adventures of *Telemachus*, by M. *de Fenelon*, Archbiſhop of *Cambray*.

The *Germans* too have their *Romances*, eſpecially *Hercules* and *Herculiſcus*; the *Aromena*, *Octavia*, *Arminius*, *Otbert*, &c.

The *Italians* have their Fromena by *Biondi*; the Works of *Leredano*, *Marino*, *&c.* The *Spaniards* their *Diana*, and Don *Quixot*. The *Engliſh* their *Arcadia*, &c. the Argenis of *Barclay*, is rather a Satyr than a *Romance*.

Romances, whether they have Knight errantry, or Love for Objects, are always very dangerous Reading for Youth, for as their Mind then is like a new Canvas ſuſceptible of all Sorts of Impreſſions, which are rather ſtrengthned than weakned by the Time, it is dangerous to trace upon it, depraved, vicious, or fantaſtical ones. The vicious ones prove to be in Proceſs of Time a Source of Luxury or Debauchery, which their natural Inclinations, make flow with greater Impetuoſity, in Proportion as they grow ſtronger; and the Fantaſtical render themſelves ſo abſolute Maſters of their Imagination, eſpecially if it be a weak one, that it is morally impoſſible to root them out afterwards; whereof *Cervantes* gives us ſeveral Inſtances in the Conduct of his Hero Don *Quixot*. To make a young Nobleman deſigned for the Army, read *Charlemagne*, or *Amadis*, &c. under Pretence of inſpiring him with Bravery, or Courage, and making him thereby a good Soldier, is running the Riſk of making him rather a Madman; the Hiſtories of our modern Heroes, which have nothing of the Fable in them, and conſiſts on real Facts, ſome of which can even be witneſſed by our Contemporary, are far preferable to thoſe Fables, and much more capable to produce the deſired Effect; beſides that, the modern military Art and Diſcipline is quite different from what the Fable is pleaſed to entertain us with of thoſe dark Times; the moſt ſenſible Part of Mankind doubting, even with very great Reaſon, if ſome of thoſe antient Heroes ſo much vaunted, had ever any Exiſtence but in the Brain of the Romancers.

The Prolixity of *Romances* having rendered them tedious, and the Multitude of incredible Incidents they are ſtuffed with, uncapable to pleaſe or entertain a judicious Mind, having entirely diſcredited them in the polite World, ſome Authors have invented in our Time, ſhort *Romances*, wrote in a more eaſy and natural Style, agreeably diverſified of modern Incidents, better appropriated to our Manner of conceiving Things; which modern *Romances* they have alſo diſtinguiſhed from the Antients, by the Title of Novels. We have a great many *Romances* of this Kind wrote both in *French* and *Engliſh*; very proper to entertain the moſt judicious Mind at his leiſure Hours. Tho' as the beſt Things are often corrupted by the Depravation of our Imagination; there are ſome Works of this Kind, as much calculated to debauch Morals, and flatter the moſt vicious Inclinations, as others are either to inſpire us with Virtues, noble and generous Principles, or to reform our Manners. Nothing ſhocks me more than to ſee thoſe poiſonous Sources of Debaucheries flowing from the Pen of a female Author, eſpecially when I conſider that it has always been the common Opinion, that Modeſty was a Quality eſſential to the Fair Sex. They cannot be excuſed by alledging, that it is the Taſte of the Age, ſince the Age owe that Taſte to thoſe debauched Authors who make Uſe of their Talents to flatter it.

POTTERY.

POTTERY, is the Art of making earthen Pots and Veſſels; which Art is as much ſubject to Improvements as any other mechanical Art.

The chief, and almoſt the only Tools, or Inſtruments uſed in *Pottery*, are the *Wheel* and the *Lathe*; the greateſt Perfection and Beauty of the Work, depending chiefly on the Dexterity of the Workman's Hands.

The *Wheel*, conſiſts of a Nut, which is a Beam or Axis, the Foot or Pivot thereof plays perpendicularly on a free-ſtone Sole or Bottom. From the four Corners a-top of this Beam, which does not exceed two Feet in Height, ariſe four Iron Bars, called the *Spokes* of the Wheel, which forming diagonal Lines with the Beam, deſcend, and are faſtened at Bottom to the Edges of a ſtrong wooden Circle, four Feet in Diameter, perfectly like the Felloes of a Coach-Wheel, except that it has neither Axis nor Radii; and is only joined to the Beam, which ſerves it as an Axis, by the Iron Bars. The Top of the Nut is flat, of a circular Figure, and a Foot in Diameter. On this is laid a Piece of the Clay or Earth, to be turned and faſhioned.

The *Wheel* thus diſpoſed, is encompaſſed with four Sides of four different Pieces of Wood, ſuſtained on a wooden Frame: The hind Piece, which is that whereon the Workman ſits, is made a little inclining towards the Wheel: On the fore Piece are placed the Pieces of prepared Earth. Laſtly, the Side-Pieces ſerve the Workman to reſt his Feet againſt; and are made inclining to give him more or leſs Room, according to the Size of the Veſſel to be turned. By his Side is a Trough of Water,

Water, wherewith from Time to Time he wets his Hands, to prevent the Earth sticking to them.

The Potter having prepared his Clay or Earth, and laid a Piece of it suitable to the Work he intends, on the Top of the Beam, sets down; his Thighs and Legs much expanded, and his Feet rested on the Side-Pieces, as is most convenient.

In this Situation he turns the Wheel round, till it has got the proper Velocity; when, wetting his Hands in the Water, he bores the Cavity of the Vessel, continuing to widen it from the Middle; and thus turns it into Form, turning the Wheel afresh, and wetting his Hands from Time to Time.

When the Vessel is too thick, they use a flat Piece of Iron with a Hole in the Middle, and somewhat sharp on one Edge, to pare off what is redundant. Lastly, when the Vessel is finished, they take it off from the circular Head by a Wire passed underneath the Vessel.

The Potter's *Lathe*, is also a Kind of Wheel, but simpler, and slighter than the former. Its three chief Members, are an Iron Beam or Axis, three Feet and an half high, and two Inches in Diameter; a little wooden Wheel all of a Piece, an Inch thick, and seven or eight in Diameter, placed horizontally a-top of the Beam, and serving to form the Vessel on; and another larger wooden Wheel, all of a Piece, three Inches thick, and two or three Feet broad, fastened to the same Beam at Bottom, parallel to the Horizon. The Beam or Axis turns, by a Pivot at Bottom on an Iron Stand.

The Workman gives the Motion to the *Lathe* with his Feet, by pushing the great Wheel alternately with his Foot; till giving it a greater or lesser Degree of Motion, as his Work requires.

They work with the *Lathe*, with the same Instruments and after the same Manner as with the Wheel; but neither the one nor the other serves for any more than forming the Body of the Vessel, *&c.* The Feet, Handle, and Ornaments, if there be any, besides the Mouldings being to be made, and set on by hand; if there be any Sculpture in the Work, it is usually done in earthen or wooden Moulds, prepared by a Sculptor, unless the Potter has Skill enough to do it himself, which is very rare.

The Piece of earthen Ware being done, it is put to dry, to a certain Degree; and from thence carried to the Oven to be baked. As to the glazing, or varnishing of it, it is usually done with Sand, Litharge or Lead-Ashes, Wood-Ashes, and Smalt, melted into a Cake.

But the most curious Operation of this Kind, is that of making *Porcelain*; the Process thereof is as follows.

In the Manufacture of *Porcelain*, there are four Principal Things to be considered, *viz.* the Matter it is made of, the Art of forming the Vessels, and other Works; the Colours wherewith it is painted; and lastly, the Baking, or giving it the proper Degree of Fire.

There are two Kinds of Earths, and as many Kinds of Oils or Varnishes used in the Composition of *Porcelain*, vulgarly called *China*. The first Earth, called *Kaulin*, is beset with glittering Corpuscles; the second, called *Betanse*, is a plain White, but exceeding fine, and soft to the Touch. They are both found in Quarries twenty or thirty Leagues from *Kingtecbing*; and hither these Earths, or rather Stones, are brought in an infinite Number of little Barks, incessantly passing up and down the River *Jauchen* for that Purpose. The *Petunses* are brought in Form of Bricks, having been so cut out of the Quarries, where they are naturally Pieces of a very hard Rock. The White of the best Petunse is to border a little on Green.

The first Preparation of these Bricks, is to break and pound them first, into a coarse Powder with Iron Mallets, then in Mortars with Pestles, that have Stone Heads, armed with Iron, and wrought either with the Hand or with Mills.

When the Powder is rendered almost impalpable, they throw it in a large Urn full of Water, stirring it briskly about with an Iron Instrument. After the Water has rested a little while, they skim off from the Top a white Substance formed there, of the Thickness of four or five Fingers, and dispose this Scum or Cream in another Vessel of Water. They then stir again the Water of the first Urn, and again skim it, and thus alternately, till there remain nothing but the Gravel of the *Petunses* at Bottom; which they lay afresh under the Mill for a new Powder.

As to the second Urn, wherein are put the Skimmings of the first; when the Water is well settled and become quite clear, they pour it off; and with the Sediment collected at Bottom in form of a Paste, fill a kind of Moulds: Whence, when almost dry, they take it out, and cut it into Pieces, which are what they properly call *Petunses*; reserving them to be mixed with the Kauling, in the Proportion hereafter assigned.

These Squares are sold by the Hundred, but it is very rare to meet with them unfalsified. The Workmen, who like the rest of the *Chinese*, are errant Knaves in their Dealings, usually mixing Refuse along with them; so that they are commonly obliged to purify them as they can be employed.

The *Kauling*, which is the other Earth used in *Porcelain*, is much softer than the *Petunse* when dug out of the Quarry; yet it is this, which by its Mixture with the other gives the Strength and Firmness to the Work. F. *Dentrecolles* (who learn'd in *China* the Secret of making *Porcelain*, and has communicated this and all the following Process to us) observes, that some *English* or *Dutch*, having procured some *Petunses* to be brought privately, upon their attempting to make *Porcelain*, at their Return into their own Country, could not succeed for want of taking *Kauling* along with it; which the *Chinese* being apprized of, said, 'that the *Europeans* 'were wonderful People to go about to make a Body, 'whose Flesh was to sustain itself without Bones.'

The Mountains whence the *Kauling* is dug, are covered without-side with a reddish Earth. The Mines are deep; and the Matter is found in Glebes or Clods, like the Chalk in ours. The Author is of Opinion, that the white Earth of *Malta* is not much different from the *Kauling*, except that it wants the silvered Particles. The Preparation of *Kauling* is the same with that of the *Petunses*, except that the Matter being less hard, less Labour is required.

The Oil or Varnish, which makes the third Ingredient in *Porcelain*, is a whitish liquid Substance, drawn from the hard Stone whereof the Petunses are formed; that which is whitest, and whose Stains are the greenest, being always chosen for this Purpose.

The Manner of preparing the Oil is thus: The Petunses being washed, undergo the same Preparations as for making the Squares, excepting that the Matter of the second Urn is not put in Moulds, but the finest Part of it taken to compose the Oil. To an hundred Pounds of this Matter they cast a mineral Stone called *Shekau*, resembling our Alum: This Stone is first heated red-hot, and thus reduced in a Mortar into an impalpable Powder; and serves to give the Oil a Consistence; which however is still to be kept liquid.

The Oil of Lime makes the fourth Ingredient; the Preparation whereof is much more tedious and circumstantial. They first dissolve large Pieces of quick Lime, and reduce it to a Powder, by sprinkling Water on it; on this Powder they lay a Couch of dry Fern, and on the Fern another of slacked Lime, and thus alternately, till they have got a moderate Pile; which done, they set Fire to the Fern: The whole being consumed, they divide the Ashes that remain on new Couches of dry Fern, setting them on Fire as before. And this they repeat five or six Times successively, or even more; the Oil being still the better, as the Ashes are oftner burnt.

In the Annals of *Feuliang*, 'tis said, instead of Fern they antiently used the Wood of a kind of Medlar-tree; and that 'twas this gave the antient *Porcelains* that admirable Hue, which the Moderns cannot come up to for want of that Wood. 'Tis certain, however, the Quality of the Fern and Lime contribute very much to the Goodness of the Oil.

A Quantity of these Ashes of Fern and Lime are now thrown into an Urn full of Water; and to an hundred Pounds of Ashes is added a Pound of *Shekau*, which dissolves therein. The rest being performed after the same Manner as in preparing the Earth of the Petunses; the Sediment found at the Bottom of the second Urn, and which is to be kept liquid, is what they call the

Oil of Lime; which the *Chinese* esteem as the Soul of the former Oil, and which gives the *Porcelain* all its Lustre. This Oil is easily sophisticated by adding Water to increase the Quantity; adding, at the same Time, proportionable of the same Shekau to maintain the Consistence. Ten Measures of Oil of Petunse usually go to one of Lime. To have the Mixture just, the two Oils should be equally thick.

Now to form Vessels of these Materials:—The first Thing is, to purify the *Petunse* and *Kauling*; which, for the first, is done after the Manner already describ'd in preparing the Squares. For the second, as its Softness makes it dissolve easily, 'tis sufficient, without breaking it, to plunge it in an Urn full of Water in an open Basket. The Dregs that remain are perfectly useless, and are emptied out of the Workhouse, when a Quantity is got together.

The Workhouses are properly great Yards walled round, with Sheds, and other Conveniencies for the Workmen to work under; as well as other Buildings for them to live in. It is almost inconceivable what Numbers of Persons are employed in these Works; there being scarce a Piece of *Porcelain* but passes through above twenty Hands, ere it comes to the Painter's Workhouse; and above sixty ere it be brought to Perfection.

To make a just Mixture of Petunse and Kauling, Regard must be had to the Fineness of the *Porcelain* to be made: For the finer *Porcelains*, they use equal Quantities; four Parts of Kauling to six of Petunse, for moderate ones; and never less than one of Kauling to three of Petunse for the coarsest.

The hardest Part of the Work is the kneading and tewing the two Earths together; which is done in a kind of large Basons, or Pits, well paved and cemented, wherein the Workmen trample continually with their Feet, relieving one another, till the Mass be well mixed, growing hard, and becomes of the Consistence required to be used by the Potter.

The Earth, when taken out of the Basons, is kneaded a second Time by Piece-meal, and with the Hands on large Slates for that Purpose; and on this Preparation, in effect, it is that the Perfection of the Work depends; the least heterogenous Body remaining in the Matter, the least Vacuity that may be found in it, being enough to spoil the whole. The smallest Grain of Sand, nay sometimes a single Hair, shall make the *Porcelain* crack, splinter, run, or warp.

The *Porcelain*, is formed or fashioned, either with the Wheel, like Earthen-ware, or in Moulds. Smooth Pieces, as Cups, Urns, Dishes, *&c.* are made with the Wheel. The rest, *i. e.* such as are in Relievo, as Figures of Men, Animals, *&c.* are formed in Moulds, but finished with the Chissel.

The large Pieces are made at twice; one half of the Piece is raised on the Wheel by three or four Workmen, who hold it till it has acquired its Figure; which done, they apply it to the other Half, which has been formed in the same Manner; uniting the two with Porcelain Earth, made liquid by adding Water to it, and polishing the Juncture with a kind of Iron Spatula.

After the same Manner it is that they join the several Pieces of *Porcelain* formed in Moulds, or by the Hand; and after the same Manner they add Handles, *&c.* to the Cups, and other Works formed with the Wheel.

The Moulds are made after the Manner of those of our Sculptors, *viz.* divers Pieces, which separately give their respective Figure to the several Parts of the Model to be represented; and which are afterwards united to form a Mould for an entire Figure. The Earth they are made of is yellow and fat, dug out of its proper Quarries, whereof there are Abundance about *Kingteching*. It is kneaded like Potters Earth, and when sufficiently mellow, fine, and moderately dry, beating it stoutly, they form it into Moulds, according to the Works required, either by Hand, or on the Wheel; these Moulds are sold very dear, but last a long Time.

All these Works made in Moulds are finished by the Hand, with several Instruments proper to dig, smooth, polish, and to touch up the Strokes that escape the Mould; so that it is rather a Work of Sculpture than of *Pottery*. There are some Works whereon Relievo's are added, ready made, as Dragons, Flowers, *&c.* Others that have Impressions in Creux; which last are engraven with a kind of Puncheons. In general, all *Porcelain* Works are to be sheltered from the Cold; their natural Humidity making them liable to break when they dry unequally.

To conceive the Number of Hands each Piece of *Porcelain* passes through ere perfect, we shall close this Article with what F. *d'Entrecolles* instances of a common Tea-cup, ere it be fit for the Painter.—The Cup begins with the Potter, who has the Management of the Wheel, where it acquires its Form, Height, and Diameter. This Operator has not a Farthing Sterling for a Plate furnished with twenty-six Cups; accordingly they go out of his Hands exceedingly imperfect, especially towards the Feet, which are only unformed Lumps of Earth to be afterwards cut with the Chissel when the Cup is dry. When it comes from the Wheel the Cup is received by a second Workman, who fits it to its Base; a third takes it immediately from him, and applies it on a Mould to bring it to its true Form. This Mould is on a kind of Lathe. A fourth Workman polishes the Cup with a Chissel, especially about the Edges, and brings it to the Thinness necessary to make it transparent; in doing which he moistens it from Time to Time, lest its Dryness should make it break. When of its proper Thickness, another Workman turns it gently on a Mould, to smooth its Inside, taking a deal of Care it be done equably, lest any Cavity be formed, or it warps. Other Workmen add some Ornaments in Relievo; other Impressions in Creux; others only Handles, as the Quality of the Cup requires. At last they round and hollow the Foot on the Inside with a Chissel, which is the Function of a particular Artist, who does nothing else.

This Multiplicity of Workmen, so far it is from retarding the Work, that it is found by Experience to go on the faster for it, as well as to be the better done; each Workman by a continual Attention to the same Thing, becoming very dexterous at it; besides saving the Time of changing Instruments, *&c.*

As to the *Painting of Porcelain*; the *Chinese* Painters, especially those that meddle with human Figures, our Author observes, are all sorry Workmen: He adds, that the Defect is scarce any where so sensible as in the whapey, or *Porcelain* Painters, among whom, setting aside Flowers and Landskips, which are sometimes tolerable, the greatest Masters are not to be compared to ordinary Apprentices among the *Europeans*, for the Beauty and Justness of Design. But it is otherwise with the Colours these Whapey use; which are so exceeding lively and brilliant, that there are but little Hopes our Workmen should ever come to vie with them.

The Painting Work is distributed among a great Number of Workmen, in the same Laboratory: To one it belongs to form the coloured Circle about the Edges of the *Porcelain*; another traces out Flowers, which another paints: This is for Waters and Mountains alone; that for Birds and other Animals, and a third for human Figures.

There are *Porcelains* made of all Colours, both with regard to the Grounds, and to the Representations thereon. As to the Colours of Landskips, *&c.* some are simple; such are all Blues, which are those most usually seen in *Europe*; others are mixed up of several Teints, and others again heightened with Gold.

The Blue is made of Lapis Lazuli, prepared by burning it the Space of twenty-four Hours in a Kiln, where it is buried up in the Gravel, to the Height of half a Foot; when burnt, they reduce it into an impalpable Powder in *Porcelain* Mortars not varnished, and with Pestles of the same Matter.

For the Red, they use Copperas, which they call *Saufan*; a Pound of this they put in a covered Crucible, in the Lid whereof is left a little Aperture, through which the Matter on Occasion may be seen. The Crucible is heated with a reverberatory Fire, till the black Smoak ceases to ascend, and a fine red one succeeds it. A Pound of Copperas yields four Ounces of red Liquor, which is found at the Bottom of the Crucible, though the finest Part is that usually adhering to the Lid and Sides of the Crucible.

The Powder of Flint is likewise an Ingredient in most of

of the other Colours, *e. gr.* for green; to three Ounces of Tonghapeen, or Scoria of beaten Copper, they use half an Ounce of Powder of Flint, and an Ounce of Ceruse. Violet is made by adding a Dose of white to the green already prepared; the more green is added, the deeper is the Violet. For yellow, they use seven Drachms of white, and three of the Copperas red.

Most of these Colours are mixed up with Gum-Water, for Application; a little Salt-petre, sometimes Ceruse or Copperas, but more usually Copperas alone, being first dissolved in the Water. Indeed, for *Porcelains* that are to be quite red, the Colour is usually applied with Oil, *i. e.* with the common Oil of the *Porcelain*, or another made of the white Flints.

There is also another red, called *blown red*, because in Reality applied by blowing with a Pipe, one of whose Orifices is cover'd with a very fine Gauze. The Bottom of this Tube is lightly applied to the Colour wherewith the Gauze is smear'd; when blowing against the *Porcelain*, it becomes all sprinkled over with little Points. This *Porcelain* is very rare, and of great Price.

Black *Porcelain*, which they call *Umian*, has likewise its Beauty. This Colour has a leady Cast, like our Metal burning Mirrors; and is usually heighten'd with Gold. It is made of three Ounces of Lapis Lazuli, with seven of the common Oil of Stone; though that Proportion is varied, as the Colour is designed to be more or less deep. The black is not given the *Porcelain* till it be dry, nor must the Work be put to the Fire till the Colour be dry.

The Gold is not applied till after the Baking, and is rebaked in an Oven for the Purpose. To apply the Gold, they break and dissolve it in Water at the Bottom of a *Porcelain*, till a thin gilded Cloud arise on the Surface: It is used with Gum-Water, and to give it a Body they add three Parts of Ceruse to thirty of Gold.

There is likewise a Kind of *marbled Porcelain*, which is not made by applying the Marbling with the Pencil, but for Oil to varnish it withal, using that of white Flints, which hatches and cuts the Work with a thousand humourous Strokes, in Manner of Mosaick Work. The Colour this Oil gives, is a white, somewhat ashy. This *Porcelain* is called *Tswiki*.

There are several Kinds of *Porcelain*; but they are such as are rather for Curiosity than Use: The prettiest are the magick *Porcelains*, whose Colours only appear when filled with some Liquor. These are made double; the Outside is white, and all laid out in Compartiments; the Inside is a solid Cup, of colour'd *Porcelain*; though the Cup is sometimes of Glass, which has a better Effect than *Porcelain*. The Secret of those magick *Porcelains*, which the *Chinese* call *Kiatsim*, is almost lost; yet Father *d'Entrecolles* has furnished us with a following Account.

The *Porcelain* to be painted thus, must be very thin; and the Colours, which in other *Porcelains* are applied on the Outside, are here applied on the Inside. When the Colour is dry, they lay over it a light Couch of a Size made of the *Porcelain* Earth; by which Means the Colour is inclosed between two earthen Laminæ. When the Size is dry, they throw Oil within the *Porcelain*; and when it has enough, they return it to the Mould, and the Wheel, to render it as thin, and transparent as possible. When dry it is baked in the common Furnace: The Colours here used are always the finest, and the Figures painted are Fishes; as most suitable to the Liquor put within them, and in which they seem to swim.

The several Kinds of *Porcelains* above-mention'd, being quite painted, with their several Colours, and all the Colours dry, are to be polished to prepare them to receive the Oil, or Varnish; which is done with a Pencil of very fine Feathers, moisten'd with Water, and passed light over, to take off even the smallest Inequalities.

The Oiling or Varnishing, is the last Preparation of *Porcelain*, before it be carried to the Oven: This is applied more or less thick, and seldomer or oftener repeated, according to the Quality of the Work. For thin, fine *Porcelains*, they give two very thin Couches; to others one, but that one equivalent to the other two. — There is a great deal of Art in applying the Varnish; both that it be done equally, and not in too great Quantity. The Couches on the Inside are given by Aspersion, *i. e.* by casting in as much Varnish as is necessary. Those on the Outside, by Immersion, or by plunging the Pieces in a Vessel of Oil.

It must be observed, that the Foot is not yet formed, but continues in a mere Mass, till the Work has been varnished: It is at length finished on the Wheel; and when hollowed, a little Circle is painted in it, and sometimes a *Chinese* Letter. This Painting being dry, the Foot is varnished, and the Work now carried to the Oven to be baked.

Our curious Author omits nothing; not even the Dexterity of the People who carry the *Porcelain* to the Bake-house. He has been frequently surprized, he tells us, to see a Man pass through several Streets full of People, with two very long narrow Boards, ranged with *Porcelain* on his Shoulders, still preserving the Equilibrium so accurately, as not to do any Damage to so frail a Commodity.

There are two Kinds of Ovens used in Baking, or Kealing of *Porcelain*; large ones, for Works that are only to come to the Fire once, which is the common Way; and small ones for such as require a double baking. The large ones are two *Chinese* Fathoms deep, and almost four wide. They are formed of a Mixture of three Earths; one whereof yellow, and common, makes the Basis; the two others are scarcer, and dug out of deep Mines, wherein People can only work in Winter. One of them called *Lautou*, is a very strong, stiff Earth; the other *Youto*, oily.

The Sides and Roof of the Ovens are so thick, that one may lay the Hand on them, when the Fire is at its Height, without Danger of Burning. At the Top of the Dome, which is in Form of a Tunnel, is a large Aperture, to give Vent to the Flames and Smoke, which mount up incessantly, as soon as Fire is once set to the Oven. Beside the principal Aperture, there are four or five small ones around; which, by being open'd and shut, serve to augment or diminish the Heat: Like the Holes in the Chymists Furnaces, called *Registers*. The Earth, which takes up the whole Breadth of the Oven, is placed in Front, precisely against the Opening of the Door, and is two or three Feet deep, and two broad; People passing over it on a Plank, to go into the Furnace to range the *Porcelain*.

As soon as the Fire is lighted, the Door is walled up; only leaving an Aperture for the Conveyance of Wood. Lastly, the Bottom of the Oven is cover'd with Sand, wherein Part of the first *Porcelain* Cases are buried. The Oven itself is usually placed at the Extremity of a long, narrow Vestible, which serves in lieu of Bellows, the cold Air being thus driven directly in the Face of each Oven.

Each Piece of *Porcelain*, of any Note, is disposed in the Furnace in its separate Case or Coffin. Indeed, as to the Tea-Dishes, *&c.* the same Case serves for several. The Cases are all of the same Matter with the Oven: They have no Lids, but serve each other mutually, the Bottom of the second Case fitting into the Aperture of the first; and *thus* successively to the Top of each Column. Each Coffin, which is usually of a cylindrical Form, that the Fire may communicate itself more equally to the *Porcelains* inclosed, has at Bottom, a little Lay of very fine Sand, cover'd over with Dust of Kauling, that the Sand may not stick to the Work, and Care is taken that the *Porcelain* may not touch the Sides of the Case. In the larger Cases which hold the small Pieces, they leave the Middle vacant, in regard *Porcelain* placed there would want the necessary Heat. Each of these little Pieces is mounted on a little Massive of Earth, the Thickness of two Crowns cover'd with Powder of Kauling.

F. *d'Entrecalles* observes, that the *Porcelains* are put in Cases to prevent any Diminution of Lustre from the too violent Effect of a naked Fire; adding, that it is owing to these thick Veils, that the Beauty, or as he calls it, the Complection of the *Porcelain* is not tanned by the Heat of the Fire.

As fast as the Cases are filled, a Workman ranges them in the Cavity of the Furnace; forming them into Piles or Columns, whereof those in the Middle are at least seven Feet high: The two Cases at the Bottom of each Column are left empty; because being partly sunk in

in the Sand, the Fire has the less Effect on them; and for the same Reason, the uppermost one is left empty. In this Manner is the whole Cavity of the Oven filled with Columns, excepting that Part precisely under the grand Aperture.

In ranging the Cases, they observe always to place the finest Pile of *Porcelain* in the Centre; the coarsest at the Bottom; and those that are high-colour'd, and consist of as much Petunse as Kauling, and wherein the waste Oil is used, at the Mouth.

These Piles are all placed very near one another, and are bound together at Top, at Bottom, and in the Middle, by Pieces of Earth; in such Manner as that the Flame may have a free Passage among them, and insinuate equally on all Sides: In which a great Part of the Workman's Art lies, and on which the Perfection of the *Porcelain* much depends. Another Thing to be observ'd is, that an Oven must never be set all together with new Coffins; but half one, half the other; the old ones at the Botoms and Tops of the Piles, and the new ones in the Middle. Indeed it were better to have all burnt in an Oven a-part, ere they come to be used for *Porcelain*; as was antiently done. The Cases, our Author observes, are brought ready prepared from a large Village on the River, a League distant from *Kingteching*. Ere burnt, they are yellow; and afterwards of a dark red.

When the Oven is filled, they wall up the Door; only leaving a little Aperture for the throwing in little Pieces of Wood, a Foot long, but very slender to keep up the Fire. It is then heated by Degrees, for the Space of a Day and Night; after which two Men, who relieve one another, continue to throw in Wood without any Interruption. To know when the *Porcelain* is baked enough, they open one of the lesser Holes of the Oven, and with a Pair of Tongs take off the Lids of one of the Piles. If the Fire appears very brisk and clear, and the Piles equally inflamed; and especially if the Colours of the *Porcelains* that are uncover'd, dart forth a noble Lustre; the Action is sufficient, they discontinue the Fire, and wall up what remained of the Door of the Furnace.

If the Oven be only filled with small *Porcelains*, they take them out twelve or fifteen Hours after the Fire is extinct: If it be filled with larger, they defer opening it for two or three Days. In this the modern Practice differs from the antient; wherein the Door was not open'd till after ten Days for the large Pieces, and five for the small ones.

One Thing very surprizing, and almost inconceivable, Father *d'Entrecolles* observes, is, that there are never found any Ashes on the Hearth of the Oven, what Quantity of Wood soever is consumed. He adds another Thing, which with him passes for equally strange, that the Workmen employed about the Furnaces, slake their Thirst, by continually drinking hot Tea, with Salt dissolved in it.

The *Chinese* make another Kind of *Porcelain*, which they paint and bake twice; and for this second Baking they have a Kind of little Ovens on Purpose. When very small, they are made of Iron; otherwise of a Kind of Bricks an Inch thick, a Foot high, and half a Foot broad, made of the same Earth with the *Porcelain* Cases. The biggest of these Ovens does not exceed five Foot in Height, and three in Diameter; and being made much in Form of Bee-Hives, the Bricks are arched a little to form the Curvity the better. The Hearth is of Earth, half a Foot high, formed of two or three Ranges of Bricks, and on this Massive is the Oven built. Around the Oven, at the Distance of about half a Foot, is raised a Shell of common Bricks, joined to the Oven itself by a Kind of Arcboutant of Earth, which serves to strengthen it. They usually build four or five of these Ovens at equal Distances from each other. At the Bottom of the Shell are Holes to give Air to the Fire when lighted: At Top is an Aperture which they cover up with a Piece of the baked Earth, when the *Porcelains* are laid in the Oven.

The *Porcelains* here are not inclosed in Coffins, as in the common Ovens; the Oven itself serving that Purpose, and being so exactly closed, that they receive no other Impression of the Fire, but that of the Heat of the Charcoal disposed in the Hearth, at the Bottom of the Oven, as well as at Top of the Vault, and the Interval between the Oven and the Shell, or Brick-Wall.

To prepare the *Porcelains* for a second Baking, they must have had their Vanish in the common Manner, and have passed the great Oven. In this State they are painted with various Colours, after which, without giving them any new Varnish, they are ranged in Piles in the little Oven, setting the little ones over the larger in Form of Pyramids.

This second Baking is sometimes intended to preserve the Lustre of the Colours the better, and at the same Time to give them a Kind of Relievo. But more usually its Design is to hide defective Places, by covering them over with Colours: But the Artifice is easily found out by passing the Hand over them.

When the Workman judges his *Porcelains* enough baked, he takes off the Piece that covers the Aperture; and if the Works appear glittering, and the Colours glowing, he takes out the Charcoal; and when the Oven is cold, the *Porcelain* too.

How beautiful soever the modern *Porcelain* may be; the Taste for Antiquity, which reigns in *China*, as well as in *Europe*, gives the antient *Porcelain* a Value far above that of the modern. It must be owned, the antient seems the finer as to the Matter, more perfect as to baking, and of a more pleasant Cast, both as to the White of the Grounds, and the other Colours; yet, it is certain the most able and discerning may be deceiv'd herein: And there are Workmen who make it their Business to counterfeit the antient *Porcelain*, called *Kutong*, in the modern.

The Matter of this false *Kutong* is a yellowish Earth, found near *Kingteching*. There is nothing particular in the first Part of the Process, except that they are made thicker, and that they are varnished with an Oil drawn from the yellow Stone, mixed with the common Oil, which give them a Kind of Sea-green Hue. When taken out of the Oven, they throw it into a fatty Broth, made of Capons, in which they boil it a second Time, then bury it in the filthiest Sink they can find, for a Month or six Weeks, or more, according as they would give it the greater Appearance of Antiquity. Besides their Thickness, and their Colour, these false Antiques resemble the true ones in this, that they do not resound when struck, nor even give the least Buz, when held to the Ear.

Notwithstanding the vast Quantity of *Porcelains* made in almost all the Provinces of the Empire of *China*, they still continue very dear, though not so dear as antiently. The *Chinese* Annals tell us of Times wherein a single Urn cost ninety or an hundred Crowns on the Spot. What chiefly occasions the extraordinary Price of this Commodity, especially in *Europe*, is, besides the great Profits of the Merchants in *Europe*, and their Factors in *China*, that it rarely happens an Oven succeeds throughout; that it is frequently quite spoilt, so that upon opening it in lieu of fine *Porcelains*, is found a hard unformed Mass, into which both the *Porcelains* and their Coffins are converted; either by Excess of Heat, or some ill Qualities in the Matter.

Another Reason of the Dearness of *Porcelains* is, that the Ingredients it is made of, and the Wood wherewith it is burnt, grow more and more scarce. One may add a third Reason for the excessive Price of *Porcelains* to the *Europeans*; and it is this, that most of these sent to *Europe* are formed on new Models, frequently very capricious, and difficult to succeed in; which yet for the smallest Defects are turned on the Manufacturer's Hands; and he not being able to dispose of them to the *Chinese*, because not to their Taste, nor to their Use, is forced to charge the *Porcelain* he delivers the higher, to pay himself for those refused.

Cardan and *Scaliger* were of Opinion, that *Porcelain* was made of Eggs and Sea-Shells, beaten small, and buried under Ground for 80 or 100 Years. The Account we have given here puts that Matter out of all Question.

It is not known who was the Inventor of *Porcelain*: The *Chinese* Annals, which us'd to contain every Thing in any wise memorable, are perfectly silent about it; nor do we know much more of the Time of its Invention: Only it is certain it must have been before the Beginning of the fifth Century, the Annals of *Fuelinng* relating, that from the second Year of the Reign of the Emperor

Emperor *Tam*, about the Year of Christ 442, the Workers of *Porcelain* of that Province had alone furnished the Emperors therewith.

Porcelain, is made chiefly, some say wholly, at *Kingtching*, a large Town in the Province of *Kyangsi*. There is some indeed made in the Province of *Kanton* and *Fokyen*; but it is of little Account, being far inferior in Beauty and Value to the *Porcelain* of *Kingtching*. That of *Fokyen* is perfectly white, without either Gloss or Painting. Attempts have been made to remove the Manufacture from *Kingtching* to *Pekin*, and other Places, but in vain; the *Porcelain* made in the new Manufactories never coming up to that of the old; so that *Kingtching* has the Honour of supplying the greatest Part of the World with this Commodity. Father *Du Haldé* assures us, that even the *Japanese* come to *China* for it.

Porcelain makes a very curious Article in Commerce, and even natural History. Its Manufacture has passed, till of late Years, for a Mystery in *Europe*; and that in spite of all the Endeavours of the Jesuit Missionaries (to whom *Europe* is indebted for so many curious and useful Discoveries) to penetrate into the Secret. The Veil however, was at length drawn; and in a Letter of Father *d'Entrecolles* to Father *Orry*, from *Jauchen*, dated *September* the 1st, 1712, and afterwards published in *French*, the whole Process is described in all its Circumstances; and such as it is given here Word for Word, from the *French*.

The *French* soon made all the Use they could of this Discovery of F. *d'Entrecolles*, in attempting to imitate *Porcelain*. The first Essays made at *Rouen* succeeded tolerably well; and are now carried to such a Point in the Manufactories at *Passi* and *St. Clou*, near *Paris*, that the French *Porcelains* want nothing to make them of equal Value with the *Chinese*, but to be brought five or six thousand Leagues. In effect, for the Fineness of the Grain of the Matter, the Beauty and Turn of the Vessels, the Exactitude of the Design, and the Lustre of the Colours, the *French* are not much behind the *Chinese*.

There is also a beautiful Manufacture of *Porcelain* at *Miken*, the Capital of *Misnia*, in *Saxony*, which the Baron *de Polnitz* assures us, produces *Porcelains* painted and enamelled in such Perfection, that they are more beautiful, as well as dearer, than those of *China* itself. The Invention is owing to a poor Alchymist, who being clapped up in the Castle of *Konigstein*, by the late King of *Poland*, on a Suspicion of being Master of the Secret of the Philosopher's Stone, had Leisure enough, not indeed to make Gold, but to invent a Ware, which by the great Vent of it, considerably enriches the Country.

I am of Opinion, that the best *English* Chalk, and the whitest, well beaten, sifted very fine, to free it of all sandy, or other heterogeneous Matter, and mixed afterwards with a sixth Part of Quick-lime, the whole Mixture buried in a Hole out of which Clay has been dug, and left there to ferment, and incorporate for two or three Years, would produce a Matter very proper to imitate *Porcelain*.

Having been desired by some Friends to give them a Secret to join *Porcelain* when broke: I must inform them, that they must take the largest Snails they can find in their Shells; and take the Tail of these Snails, which they'll find at the Bottom of the Shell, white like a Roll of Fat; dissolve that fatty Matter in the best Brandy, so as to form of it a kind of thick Glue, and besmearing the Edges of the broken China with that Glue, join the Pieces, thus smear'd, together, and put them to dry from the Sun. This is a Secret, which I'm persuaded no Body knows in *England*; and *Porcelain* thus joined, appears as if it was only flawed. Flint and other Glasses, may also be joined with the same Matter, and in the same Manner.

PRINTING.

PRINTING, *Typographia*, is the Art of taking Impressions with Ink, from Characters and Figures, moveable or immoveable, upon Paper, Vellum, and Silk.

There are two Kinds of *Printing*, the one for Books; the other for Copper-Plates for Pictures. The first called *Letter-Press Printing*, the second *Rolling-Press Printing*.

The prime Difference between the two consists in this, that the Characters of the former are cast in Relievo; and those of the latter engraven in Creux.

Note, That as I have already given the Rules for *Rolling Press Printing*, in my Treatise of *Engraving*, under the Letter *E*; I'll confine myself here to speak only of *Letter-Press Printing*, which is the most curious, and most useful of the two.

To proceed with some order in this curious Treatise, we must begin by providing the Instruments necessary for *Printing*; or, to speak in the Dialect of the Art, erect, or fit up a *Printing-House*, which, when compleat, cannot be done at a small Expence; and which consists, chiefly in several Fonts of different Characters, or Types, Presses, and Cases divided into little Cells or Boxes of different Sizes, to contain the Types; *Composing Sticks*, *Galleys*, *Chases*, *Rules*, *Stones* for Imposing, *Head-Sticks*, *Gutter-Sticks*, *Side-Sticks*, *Foot-Sticks*, *Quoins*, *Plainers*, *Riglets*, *Cisterns*, *Ink*, *Paper*, &c. all which I'll describe in a more particular Manner hereafter.

The most expensive Implements of a *Printing-House*, are the *Characters* or *Types*; but as it is impossible to do without them, and we suppose ourselves capable to purchase the best, we'll have Recourse, for that Purpose, to that most celebrated Letter-Founder, Mr. *William Caslon*, where we may be sure to find some of the most beautiful in *Europe*.

Those *Characters* or *Types* have different Names, according to their Sizes or Bodies, *viz. Pearl*, *Nonpareil*, *Brevier*, *Long Primer*, *Small Pica*, *Pica*, *English*, *Great Primer*, *double Pica*, *two-lined English*, and *French Canon*, all which we should have in our *Printing-House*, together with *Hebrew*, *Saxon*, and *Greek* Types, &c.

We call a Set of any of these Sizes a *Font*, which includes current Letters, Capitals, numeral Letters, Points, Quadrats, Spaces, &c.

Besides the several Kinds of Characters and Letters above-mentioned, we must have Rules for black Lines, Borders, and Head and Tail-Pieces, accommodated to the several Kinds of Letters.

The *Rules* for blank Lines are of Brass, and made exactly the Height of the Letter; otherwise they will either hinder the neighbouring Letters from *Printing*, or will themselves be hinder'd by them. This the Compositor occasionally cuts into proper Lengths as his Work requires.

The *Borders* are a Kind of Ornaments in Form of long Bars, serving for the Divisions of Books, Chapters, &c. their Depth is proportioned to the Letter, and their Length adjusted to the Page, for being composed of several moveable Pieces, it is easy lengthening or shortening them.

The *Head* and *Tail Pieces* cut either in Wood or Pewter, are Compartiments used at the Beginnings and Endings of Books.

The initial Letters are sometimes cut in Wood and figured; sometimes cast like the other Characters.

Having purchased our *Fonts* of Letters, and sent them to our intended *Printing-House*, our next Care is to have a *Printing-Press* (represented *Tab. Miscel.*) which is a very compleat Machine: Its two principal Parts, each whereof consists of several others, are the *Body* of the *Press*, which serves to give the Pinch or Stroke for the Impression; and the Carriage, on which the Form is laid to undergo the same.

The *Body* consists of two strong Cheeks, placed perpendicularly, and joined together by four cross Pieces or Planks.

The first Plank, called the *Cap* of the *Press*, is fixed, and

in the Sand, the Fire has the less Effect on them; and for the same Reason, the uppermost one is left empty. In this Manner is the whole Cavity of the Oven filled with Columns, excepting that Part precisely under the grand Aperture.

In ranging the Cases, they observe always to place the finest Pile of *Porcelain* in the Centre; the coarsest at the Bottom; and those that are high-colour'd, and consist of as much Petunse as Kauling, and wherein the waste Oil is used, at the Mouth.

These Piles are all placed very near one another, and are bound together at Top, at Bottom, and in the Middle, by Pieces of Earth; in such Manner as that the Flame may have a free Passage among them, and insinuate equally on all Sides: In which a great Part of the Workman's Art lies, and on which the Perfection of the *Porcelain* much depends. Another Thing to be observ'd is, that an Oven must never be set all together with new Coffins; but half one, half the other; the old ones at the Botoms and Tops of the Piles, and the new ones in the Middle. Indeed it were better to have all burnt in an Oven a-part, ere they come to be used for *Porcelain*; as was antiently done. The Cases, our Author observes, are brought ready prepared from a large Village on the River, a League distant from *Kingtecbing*. Ere burnt, they are yellow; and afterwards of a dark red.

When the Oven is filled, they wall up the Door; only leaving a little Aperture for the throwing in little Pieces of Wood, a Foot long, but very slender to keep up the Fire. It is then heated by Degrees, for the Space of a Day and Night; after which two Men, who relieve one another, continue to throw in Wood without any Interruption. To know when the *Porcelain* is baked enough, they open one of the lesser Holes of the Oven, and with a Pair of Tongs take off the Lids of one of the Piles. If the Fire appears very brisk and clear, and the Piles equally inflamed; and especially if the Colours of the *Porcelains* that are uncover'd, dart forth a noble Lustre; the Action is sufficient, they discontinue the Fire, and wall up what remained of the Door of the Furnace.

If the Oven be only filled with small *Porcelains*, they take them out twelve or fifteen Hours after the Fire is extinct: If it be filled with larger, they defer opening it for two or three Days. In this the modern Practice differs from the antient; wherein the Door was not open'd till after ten Days for the large Pieces, and five for the small ones.

One Thing very surprizing, and almost inconceivable, Father *d'Entrecolles* observes, is, that there are never found any Ashes on the Hearth of the Oven, what Quantity of Wood soever is consumed. He adds another Thing, which with him passes for equally strange, that the Workmen employed about the Furnaces, slake their Thirst, by continually drinking hot Tea, with Salt dissolved in it.

The *Chinese* make another Kind of *Porcelain*, which they paint and bake twice; and for this second Baking they have a Kind of little Ovens on Purpose. When very small, they are made of Iron; otherwise of a Kind of Bricks an Inch thick, a Foot high, and half a Foot broad, made of the same Earth with the *Porcelain* Cases. The biggest of these Ovens does not exceed five Foot in Height, and three in Diameter; and being made much in Form of Bee-Hives, the Bricks are arched a little to form the Curvity the better. The Hearth is of Earth, half a Foot high, formed of two or three Ranges of Bricks, and on this Massive is the Oven built. Around the Oven, at the Distance of about half a Foot, is raised a Shell of common Bricks, joined to the Oven itself by a Kind of Arcboutant of Earth, which serves to strengthen it. They usually build four or five of these Ovens at equal Distances from each other. At the Bottom of the Shell are Holes to give Air to the Fire when lighted: At Top is an Aperture which they cover up with a Piece of the baked Earth, when the *Porcelains* are laid in the Oven.

The *Porcelains* here are not inclosed in Coffins, as in the common Ovens; the Oven itself serving that Purpose, and being so exactly closed, that they receive no other Impression of the Fire, but that of the Heat of the Charcoal disposed in the Hearth, at the Bottom of the Oven, as well as at Top of the Vault, and the Interval between the Oven and the Shell, or Brick-Wall.

To prepare the *Porcelains* for a second Baking, they must have had their Vanish in the common Manner, and have passed the great Oven. In this State they are painted with various Colours, after which, without giving them any new Varnish, they are ranged in Piles in the little Oven, setting the little ones over the larger in Form of Pyramids.

This second Baking is sometimes intended to preserve the Lustre of the Colours the better, and at the same Time to give them a Kind of Relievo. But more usually its Design is to hide defective Places, by covering them over with Colours: But the Artifice is easily found out by passing the Hand over them.

When the Workman judges his *Porcelains* enough baked, he takes off the Piece that covers the Aperture; and if the Works appear glittering, and the Colours glowing, he takes out the Charcoal; and when the Oven is cold, the *Porcelain* too.

How beautiful soever the modern *Porcelain* may be; the Taste for Antiquity, which reigns in *China*, as well as in *Europe*, gives the antient *Porcelain* a Value far above that of the modern. It must be owned, the antient seems the finer as to the Matter, more perfect as to baking, and of a more pleasant Cast, both as to the White of the Grounds, and the other Colours; yet, it is certain the most able and discerning may be deceiv'd herein: And there are Workmen who make it their Business to counterfeit the antient *Porcelain*, called *Kutong*, in the modern.

The Matter of this false *Kutong* is a yellowish Earth, found near *Kingtecbing*. There is nothing particular in the first Part of the Process, except that they are made thicker, and that they are varnished with an Oil drawn from the yellow Stone, mixed with the common Oil, which give them a Kind of Sea-green Hue. When taken out of the Oven, they throw it into a fatty Broth, made of Capons, in which they boil it a second Time, then bury it in the filthiest Sink they can find, for a Month or six Weeks, or more, according as they would give it the greater Appearance of Antiquity. Besides their Thickness, and their Colour, these false Antiques resemble the true ones in this, that they do not resound when struck, nor even give the least Buz, when held to the Ear.

Notwithstanding the vast Quantity of *Porcelains* made in almost all the Provinces of the Empire of *China*, they still continue very dear, though not so dear as antiently. The *Chinese* Annals tell us of Times wherein a single Urn cost ninety or an hundred Crowns on the Spot. What chiefly occasions the extraordinary Price of this Commodity, especially in *Europe*, is, besides the great Profits of the Merchants in *Europe*, and their Factors in *China*, that it rarely happens an Oven succeeds throughout; that it is frequently quite spoilt, so that upon opening it in lieu of fine *Porcelains*, is found a hard unformed Mass, into which both the *Porcelains* and their Coffins are converted; either by Excess of Heat, or some ill Qualities in the Matter.

Another Reason of the Dearness of *Porcelains* is, that the Ingredients it is made of, and the Wood wherewith it is burnt, grow more and more scarce. One may add a third Reason for the excessive Price of *Porcelains* to the *Europeans*; and it is this, that most of these sent to *Europe* are formed on new Models, frequently very capricious, and difficult to succeed in; which yet for the smallest Defects are turned on the Manufacturer's Hands; and he not being able to dispose of them to the *Chinese*, because not to their Taste, nor to their Use, is forced to charge the *Porcelain* he delivers the higher, to pay himself for those refused.

Cardan and *Scaliger* were of Opinion, that *Porcelain* was made of Eggs and Sea-Shells, beaten small, and buried under Ground for 80 or 100 Years. The Account we have given here puts that Matter out of all Question.

It is not known who was the Inventor of *Porcelain*: The *Chinese* Annals, which us'd to contain every Thing in any wise memorable, are perfectly silent about it; nor do we know much more of the Time of its Invention: Only it is certain it must have been before the Beginning of the fifth Century, the Annals of *Fuchiang* relating, that from the second Year of the Reign of the Emperor

Emperor *Tam*, about the Year of Christ 442, the Workers of *Porcelain* of that Province had alone furnished the Emperors therewith.

Porcelain, is made chiefly, some say wholly, at *Kingtecbing*, a large Town in the Province of *Kyangsi*. There is some indeed made in the Province of *Kanton* and *Fokyen*; but it is of little Account, being far inferior in Beauty and Value to the *Porcelain* of *Kingtecbing*. That of *Fokyen* is perfectly white, without either Gloss or Painting. Attempts have been made to remove the Manufacture from *Kingtecbing* to *Pekin*, and other Places, but in vain; the *Porcelain* made in the new Manufactories never coming up to that of the old; so that *Kingtecbing* has the Honour of supplying the greatest Part of the World with this Commodity. Father *Du Haldé* assures us, that even the *Japanese* come to *China* for it.

Porcelain makes a very curious Article in Commerce, and even natural History. Its Manufacture has passed, till of late Years, for a Mystery in *Europe*; and that in spite of all the Endeavours of the Jesuit Missionaries (to whom *Europe* is indebted for so many curious and useful Discoveries) to penetrate into the Secret. The Veil however, was at length drawn; and in a Letter of Father *d'Entrecolles* to Father *Orry*, from *Jauchen*, dated *September* the 1st, 1712, and afterwards published in *French*, the whole Process is described in all its Circumstances; and such as it is given here Word for Word, from the *French*.

The *French* soon made all the Use they could of this Discovery of F. *d'Entrecolles*, in attempting to imitate *Porcelain*. The first Essays made at *Rouen* succeeded tolerably well; and are now carried to such a Point in the Manufactories at *Passi* and *St. Clou*, near *Paris*, that the French *Porcelains* want nothing to make them of equal Value with the *Chinese*, but to be brought five or six thousand Leagues. In effect, for the Fineness of the Grain of the Matter, the Beauty and Turn of the Vessels, the Exactitude of the Design, and the Lustre of the Colours, the *French* are not much behind the *Chinese*.

There is also a beautiful Manufacture of *Porcelain* at *Miken*, the Capital of *Misnia*, in *Saxony*, which the Baron *de Polnitz* assures us, produces *Porcelains* painted and enamelled in such Perfection, that they are more beautiful, as well as dearer, than those of *China* itself. The Invention is owing to a poor Alchymist, who being clapped up in the Castle of *Konigstein*, by the late King of *Poland*, on a Suspicion of being Master of the Secret of the Philosopher's Stone, had Leisure enough, not indeed to make Gold, but to invent a Ware, which by the great Vent of it, considerably enriches the Country.

I am of Opinion, that the best *English* Chalk, and the whitest, well beaten, sifted very fine, to free it of all sandy, or other heterogeneous Matter, and mixed afterwards with a sixth Part of Quick-lime, the whole Mixture buried in a Hole out of which Clay has been dug, and left there to ferment, and incorporate for two or three Years, would produce a Matter very proper to imitate *Porcelain*.

Having been desired by some Friends to give them a Secret to join *Porcelain* when broke: I must inform them, that they must take the largest Snails they can find in their Shells; and take the Tail of these Snails, which they'll find at the Bottom of the Shell, white like a Roll of Fat; dissolve that fatty Matter in the best Brandy, so as to form of it a kind of thick Glue, and besmearing the Edges of the broken China with that Glue, join the Pieces, thus smear'd, together, and put them to dry from the Sun. This is a Secret, which I'm persuaded no Body knows in *England*; and *Porcelain* thus joined, appears as if it was only flawed. Flint and other Glasses, may also be joined with the same Matter, and in the same Manner.

PRINTING.

PRINTING, *Typographia*, is the Art of taking Impressions with Ink, from Characters and Figures, moveable or immoveable, upon Paper, Vellum, and Silk.

There are two Kinds of *Printing*, the one for Books; the other for Copper-Plates for Pictures. The first called *Letter-Press Printing*, the second *Rolling-Press Printing*.

The prime Difference between the two consists in this, that the Characters of the former are cast in Relievo; and those of the latter engraven in Creux.

Note, That as I have already given the Rules for *Rolling Press Printing*, in my Treatise of *Engraving*, under the Letter *E*; I'll confine myself here to speak only of *Letter-Press Printing*, which is the most curious, and most useful of the two.

To proceed with some order in this curious Treatise, we must begin by providing the Instruments necessary for *Printing*; or, to speak in the Dialect of the Art, erect, or fit up a *Printing-House*, which, when compleat, cannot be done at a small Expence; and which consists, chiefly in several Fonts of different Characters, or Types, Presses, and Cases divided into little Cells or Boxes of different Sizes, to contain the Types; *Composing Sticks*, *Galleys*, *Chases*, *Rules*, *Stones* for Imposing, *Head-Sticks*, *Gutter-Sticks*, *Side-Sticks*, *Foot-Sticks*, *Quoins*, *Plainers*, *Riglets*, *Cisterns*, *Ink*, *Paper*, &c. all which I'll describe in a more particular Manner hereafter.

The most expensive Implements of a *Printing-House*, are the *Characters* or *Types*; but as it is impossible to do without them, and we suppose ourselves capable to purchase the best, we'll have Recourse, for that Purpose, to that most celebrated Letter-Founder, Mr. *William Caslon*, where we may be sure to find some of the most beautiful in *Europe*.

Those *Characters* or *Types* have different Names, according to their Sizes or Bodies, *viz. Pearl*, *Nonpareil*, *Brevier*, *Long Primer*, *Small Pica*, *Pica*, *English*, *Great Primer*, *double Pica*, *two-lined English*, and *French Canon*, all which we should have in our *Printing-House*, together with *Hebrew*, *Saxon*, and *Greek* Types, &c.

We call a Set of any of these Sizes a *Font*, which includes current Letters, Capitals, numeral Letters, Points, Quadrats, Spaces, &c.

Besides the several Kinds of Characters and Letters above-mentioned, we must have Rules for black Lines, Borders, and Head and Tail-Pieces, accommodated to the several Kinds of Letters.

The *Rules* for blank Lines are of Brass, and made exactly the Height of the Letter; otherwise they will either hinder the neighbouring Letters from *Printing*, or will themselves be hinder'd by them. This the Compositor occasionally cuts into proper Lengths as his Work requires.

The *Borders* are a Kind of Ornaments in Form of long Bars, serving for the Divisions of Books, Chapters, &c. their Depth is proportioned to the Letter, and their Length adjusted to the Page, for being composed of several moveable Pieces, it is easy lengthening or shortening them.

The *Head* and *Tail Pieces* cut either in Wood or Pewter, are Compartiments used at the Beginnings and Endings of Books.

The initial Letters are sometimes cut in Wood and figured; sometimes cast like the other Characters.

Having purchased our *Fonts* of Letters, and sent them to our intended *Printing-House*, our next Care is to have a *Printing-Press* (represented *Tab. Miscel.*) which is a very compleat Machine: Its two principal Parts, each whereof consists of several others, are the *Body* of the *Press*, which serves to give the Pinch or Stroke for the Impression; and the Carriage, on which the Form is laid to undergo the same.

The *Body* consists of two strong Cheeks, placed perpendicularly, and joined together by four cross Pieces or Planks.

The first Plank, called the *Cap* of the *Press*, is fixed, and

and ſerves to keep the two Cheeks together at the due Diſtance a-top: The ſecond called the *Head* is moveable; being ſuſtained by two Iron Pins or *long Bolts*, that paſs the *Cap:* In this Plank is fixed a Female Screw, or *Worm*, with a *Braſs Nut*, ſuſtained by two *Short Bolts*, which keep it up: The third Plank called the *Shelves*, ſerves to keep ſteady a Part called the *Hoſe*, in which the Spindle (to be ſpoken of hereafter) is incloſed: The fourth Plank, called the *Winter*, is moveable; it bears the Carriage, and ſuſtains the Effort of the *Preſs* beneath, as the Head does above; each giving Way a little, the one upwards, the other downwards, to make the Pull the eaſier.

The *Spindle* is an upright Piece of Iron, pointed with Steel, of different Dimenſions, having a Male Screw, which goes into the Female of the Head, about four Inches. Through the Eye of this Spindle is rivetted the *Bar*, by which the Preſs-man works the Preſs.

The lower Part of the Spindle paſſes through the Shelves, being incloſed in a ſquare wooden Frame, called the *Hoſe*; and its Point works into the Plug, fixed in a Braſs Pan ſupplied with Oil; which Pan is fixed to an Iron Plate, let into the Top of the Platten. The Preſs-man, then, by turning or pulling the Bar fixed in the Eye by an Iron Key, preſſes upon a ſquare ſmooth Piece of Wood, called the *Platten*, and enables it to compreſs the Form cover'd with the Paper, *Tympans*, and its Blankets, which in order thereto, are brought under the *Platten*.

At each Corner of the *Hoſe* is an Iron Hook faſtened to thoſe at each Corner of the Platten, with Cords or Packthread, very exactly.

The *Carriage*, which makes the ſecond principal Member of the Preſs, is placed a Foot below the Patten, having its fore Part ſupported by a wooden Prop, called the *Fore Stay*, while the other reſts on the Winter. On this Carriage which ſuſtains the Plank, are nailed two long Iron Bars or *Ribs*; and on the Plank are nailed ſhort Pieces of Iron or Steel, called *Cramp-Irons*, equally temper'd with the Ribs, and which ſlide upon them when the Preſs is turned in or out.

Under the Carriage is fixed a ſmall Piece of Iron, called the *Spit*, with a double Wheel in the Middle, round which Leather *Girts* are faſtened, nailed to each End of the Plank. To the Outſide of the *Spit*, is fixed a Handle, or Rounce, by which the Preſsman turns the Preſs in or out at Pleaſure.

Upon the Plank is a ſquare wooden Frame or Coffin, wherein is incloſed a Marble or poliſhed Stone, for the Form to be laid on. To this Coffin are faſten'd Leather Stay Girts, one to each Side; which being again faſten'd to the Cheeks of the Preſs, prevent the Plank from running too far out, when drawn from under the Platten. On the fore Part of the Plank is a Gallows, which ſerves to ſuſtain the Tympans, when taken from off the Form.

On the Front of the Coffin are three Frames, much alike, though ſerving for different Purpoſes, *viz.* the two Tympans and Friſket: The *Tympans* are ſquare, made of three Slips of very thin Wood, and a top, of a Slip of Iron, ſtill thinner, called a *Head-Band:* That called the outward *Tympan*, is faſten'd with Iron Joints to the Coffin. They are both cover'd with Parchment; and between the two are placed Blankets, which ſerve to make the Impreſſion of the Platten, upon the Surface of the Letters more equable; as alſo to prevent the Letters from being bruiſed by the Force of the Preſs. The *Friſket* is all of Iron, very thin, faſten'd a-top to the great or outward Tympan, and ſuſtained by a Slip of Wood hanging from the Cieling, when open'd to take out the printed Sheets, and put in others. It is alſo cover'd with Parchment or Paper, cut in the neceſſary Places, that the Sheet, which is between the great Tympan and Friſket, may receive the Ink, and that nothing may hurt the Margin. On the Parchment of the great or upward Tympan it is, that the blank Sheet is laid to be printed.

To regulate the Margin, and make the Lines and Pages anſwer each other when printed on the other Side, in the Middle of the Wood, in the Sides of this Tympan, are two Iron Points, which make two Holes in the Sheet, to be placed on the ſame Pins, when the Sheet is return'd for an Impreſſion on the other Side, called the Reiteration.

This *Preſs*, thus well conditioned, we'll have fixed by a Carpenter in a proper Place, in our *Printing-Houſe*, where it may have Room enough to play, without the Preſs-man, and his Aſſiſtant being ſtraitned within a too narrow Compaſs.

Our *Preſs* thus fixed, we'll range in order the *Caſes*, which are to contain our Letters, placing two of them, one over the other; the upper one is divided into 98 Boxes, to contain the *Capitals*, *Small Capitals*, *accented Letters*, &c. and the lower one divided into 54, to contain the *common running Letters*, with the *Points*, *Comma's*, *Quadrats*, &c. placing each Caſe a little Slope, like a reading Deſk, that the Compoſitor may reach the upper Boxes the better, and be in leſs Danger of mixing the Letters by ſtretching his Arm over them.

In the Boxes of theſe Caſes, our Letters which are come from the Founder muſt be diſtributed, according to the Order of the Alphabet; together with *Spaces*, *Quadrats*, *Quotations*, &c.

The *Printing-Houſe* thus in Order, we muſt ſeek next for a good Set of Workmen, *viz. Compoſitors* and *Preſs-men*; *Compoſitors* to range and diſpoſe the Letters into Words, Lines, Pages, *&c.* according to the Copy deliver'd them by the Author: And *Preſs-men* to apply Ink upon the ſame, and take off the Impreſſion: Which two Things ſhould be well minded by the ſeveral Operators, in their different Employments; ſince nothing is more to the Diſcredit of a Printer, than to ſee Sheets come out of his *Printing-Houſe* ill printed.

We'll take Care, likewiſe, to have a good Corrector for the Preſs, entire Maſter, not only of his Mother Tongue, but alſo of ſeveral other Languages, particularly *Latin*, *Greek*, and *French*; and to engage him to diſcharge that important Truſt, on which Part of the Reputation of a Work depends, with Care and Honour, we'll allow him an honourable Sufficiency, requiſite for the Subſiſtance of a Gentleman.

Thus provided, we'll begin by ſetting our *Compoſitor* to Work, who moſt commonly works ſtanding; and who muſt place himſelf againſt the Middle of the Caſe; holding his *Compoſing-Stick*, (*Tab. Miſcel.*) uſually made of Iron, in one Hand; with the other he takes the Letters, Points, Comma's, *&c.* as he needs them, out of the Boxes; ranges them on a Slip of Braſs, called a *Rule*, in his *Compoſing Stick*; and putting a Space to make a Blank between each two Words, forms one Line after another, till the Stick being full he empties it out upon another Inſtrument, called the *Galley*; which two Inſtruments, the *Compoſing-Stick* and *Galley*, need a more particular Deſcription: Therefore;

The *Compoſing Stick*, conſiſts of a Plate or Slip of Iron, Braſs, Wood, *&c.* more or leſs broad, and contrived ſo as to be made more or leſs long, according to the Width of the Page, and the Number of Lines to be compoſed in it. From the right Side of this Plate ariſes a Ledge, about half an Inch high, running the whole Length of the Plate, and ſerving to ſuſtain the Letters, the Sides of which are to reſt againſt it; from the ſaid Plate likewiſe ariſe three other leſſer Pieces, two of which are contrived to ſlide along it, that ſo the two Pieces may be either approached or withdrawn at Pleaſure, to adjust the Length of the Line to the Meaſure intended.

Add, that where marginal Notes, References, *&c.* are required in a Work, the two ſliding Pieces are opened in the Compoſing Stick, to a proper Diſtance from each other.

Ere the Workman proceeds to compoſe, a *Rule*, or thin Slip of Braſs Plate, cut to the Length of the Line, and of the ſame Height as the Letter, is placed in the Compoſing-Stick againſt the Ledge thereof, for the Letters to bear immediately againſt.

Things thus prepared, the Compoſitor having the Copy (which is what the Author has wrote) laying before him, and the Stick in his Left Hand, with the Right he picks up the Letters, Spaces, *&c.* and places them againſt the Rule; while with the Thumb of the Left he places them cloſe to the upper Screw, or Check; and thus keeps them ſteady, while the other Hand is

constantly employed in setting in more Letters: The whole being performed with such Expedition and Address, not easy to be imagined.

A Line being thus composed, if it ends with a Word or Syllable, and fills the Measure, there needs no further Care; otherwise more Spaces are to be put between the several Words to justify the Lines, *i. e.* to make the Measure quite full, so that every one may end even; and thus he proceeds to another Line.

The *Spaces* here used are a sort of Blanks of the like Dimensions with the Letters, but less high; and whose Faces therefore, when set, do not appear, nor give any Impression. They are of several Kinds, according to the Dimensions of the Whites, or Intervals to be made by them, *viz.* Quadrats, to fill up a Break at the End of a Paragraph, or the like; *m* Quadrates, which are square, and of the Thickness of an *m*, serving to make the Distance after a Period, or between Sentence and Sentence; *n* Quadrates, of the Thickness of an *n*, to be placed after the Colons, Semi-colons, and Comma's; and thick or thin Spaces, to be used between the Words in justifying, as above.

Note, That *Quadrat* in *Printing*, is a Piece of Metal, cast like the Letters.—There are *Quadrats* of divers Sizes, as *m Quadrats*, *n Quadrats*, &c. which are respectively of the Dimensions of such Letters.

For marginal Notes, in the Spaces reserved for them, between the two sliding Pieces of the Composing-Stick, are put little quadrated Pieces of Metal, called *Quotations* (already mentioned) which are justified by other smaller Pieces; a Slip of Scaleboard being placed from the Top of the Page to the Bottom, to keep the Note and Text at a due Distance.

The first Line thus compleatly justified, the *Compositor* advances to the next; in order to which he moves the Brass Rule from behind the former, and places it before it, and thus composes another Line against it, after the same Manner as the former: And thus he goes till his Stick be full, which he empties into the *Galley* after the Manner following. Taking the Rule from behind the last Line, he places it before it; and with his two middle Fingers squeezes the Lines in the Stick close; his two fore Fingers at the same Time being applied on the Outside of the Rule: Thus he lifts them out of the Stick, and clapping his two Thumbs behind the first Line, lifts them into the Galley; taking Care to disengage his two Thumbs without breaking the Lines.

The *Compositor* having thus set the proper Number of Lines in his Stick, *viz.* four, five, six, or more, and emptied them thus out into the Galley; he again fills and empties, as before, till a compleat Page be formed, remembring at the Bottom of every Page to set a Line of Quadrats, and at the End thereof the first Word of the Page ensuing, for a Catch-word; and if it be the first Page of the Sheet, one of the Letters for a Signature.

Note, That the *Galley* is a flat wooden Instrument, in form of a long Square; of a Length and Breadth proportionable to that of the Page: It consists of two Parts, the upper called the *Slice*, whereby the Pages of large Volumes, when composed, are slidden upon the Stone; the other, called the *Coffin*, which is the Body of the *Galley*, is ledged on three Sides, to contain the Slice; the inner Ledge not to exceed half an Inch in Height, that the composed Page rising above it by one half the Height of the Letter, may be tied up or bound down, and removed without Danger.—This *Galley* is placed at the Top of the Case, and detained by a wooden Pin from sliding down the Boxes.

The Page then composed and ranged in the Galley, he ties it down therein with a Cord of Packthread, and lets it by; and proceeds to the next till the Number of Pages in the Sheet be composed: Which done, he carries them to the Imposing or Correcting-Stone, there to range them in Order in a *Chase*, which they call *Imposing*.

Note, That the *Chase* is a rectangular Iron Frame of different Dimensions, according to the Size of the Paper to be printed on; having two cross Pieces of the same Metal, called a *Long* and *Short Cross*, mortised at each End, into the Frame, so as to be taken out occasionally.—By the different Situations of these Crosses, the *Chase* is fitted for different Volumes; for Quarto's and Octavo's one traverses the Middle Lengthwise, so as to intersect in the Center; which is the most customary Situation: For Twelves and Twenty-fours, the *Short Cross* is shifted nearer to one End of the *Chase*: For Folio's, the *Long Cross* is left entirely out, and the short one placed in the Middle; and for Broadsides, or Sheets printed on one Side only, both *Crosses* are set aside. To dress the Chase, or range and fix the Pages therein, they make Use of a Set of Furniture, consisting of Riglets, or Slips of Wood of different Dimensions, and of about half an Inch high, that they may be lower than the Letters: Some of these are placed at the Top of the Pages, called *Head-Sticks*; others between them to form the inner Margin, called *Gutter-Sticks*, others at the Sides called *Side-Sticks*; and others at the Bottom, called *Foot-Sticks*.

The Pages then placed in Order on the Stone, the *Chase* is put over them, and the Riglets applied between the Letter and the Chase, in the Position above-mentioned; the whole is locked up by means of small Pieces of Wood, cut in the Wedge-form, called *Quoins*, which are driven with a Mallet and Shooting-stick, to a sufficient Tightness.

Before the Form be quite locked up, they dress down the same, by passing a smooth Piece of Wood, called the *Plainer*, over the Letters, to make their Surfaces stand flat and even; and when locked up, they shake it to see that nothing stir.

In this Condition the Work is called a Form, containing more or fewer Pages, according to the Volume.

As there are two Forms required for every Sheet, when both Sides are to be printed, it is necessary they be exactly of the same Length and Breath, *i. e.* the corresponding Riglets, Head-sticks, *&c.* are to be equal in both Forms, that the Pages may fall exactly on the Back one of another, which is called *Register*.

Note, That for the Conveniency of the Binding, the Printers had early Recourse to Signatures, *i. e.* Letters of the Alphabet, placed at the Bottom of the Sheet, which shews the Order they are to be bound in; as well as whether the Quires be compleat. The Catch-words serve nearly the same Purpose: They are the first Words of each Page, which are inserted at the Bottom of the preceding Pages. The Number of the Pages are equally serviceable to the Binder, and the Reader, to guide to References, and to warrant the Book duly bound and collated: Some Printers formerly put them at the Bottom of the Pages; but Custom has carried it for the Tops.—In the Infancy of *Printing*, they had likewise a Registrum Chartarum for the Convenience of the Binders: To draw this at the End of each Volume, they collected the Signatures, and the first Words of the four first Sheets of each Alphabet. To abridge it, they afterwards contented themselves to express the Signatures, and how oft each Letter was repeated: But the Registrum has been long disused.

The Form thus finished is committed to the Pressmen, to pull a Proof there; in order to rectify the Errors which may have slipped the Compositor's Attention; which are in a greater or lesser Number, according as the Compositor has been more or less careful in his Composition; or has a greater or lesser Capacity.

The Proof pull'd is carried to the Corrector of the Press, who ought to read it over with a great deal of Attention, and compare it carefully with the Copy, in order to rectify all the Mistakes; which is seldom done as it ought to be.

The Corrections are placed on the Margin of each Page, right against the Line where the Faults are found. There are different Characters used to express different *Corrections*, v. g. *D* or ϑ *dele*, for any Thing to be effaced or left out. When any Thing is to be inserted, the Place is marked in the Line with a Caret ʌ, and the In-

sertion added in the Margin. When a Word, Syllable, &c. is to be altered, it is erased out of the Proof, and that to come in its Room written in the Margin; always observing, if there be several in the same Line, that they be separated by little Bars or Strokes, | if a Space be omitted, its Place is marked with a Caret, and the Thing expressed in the Margin #: If a Letter be inverted, it is expressed in the Margin with ɔ: If any thing be transposed, it is marked thus; *the shortest are the Follies best*; for, *the shortest Follies are the best*: And in the Margin is added *tr* in a Circle. If *Roman* Characters are to be changed for *Italick*, or *vice versâ*, a Line is drawn under them *thus*, and *Roman* or *Italick* added in the Margin.

The *Proof* or *Sheet* corrected, is delivered back to the Compositor, that he may rectify in the Form the Mistakes marked by the Corrector; in order to which he goes with his Composing-Stick to the Case, to take the Letters he thinks necessary for this Operation; then comes to the Form, which he unlocks on the Correcting-Stone, by knocking out or loosening the Quoins; and spreading his corrected Proof so, as that the Line thereof range with the respective ones of the Metal; by running his Eye along both, he easily spies where the Corrections are to be made; according to which, he proceeds to pick out the faulty Letters, Points, &c. with a sharp-pointed Steel Bodkin, and puts others in their Places.

Where the Alterations are considerable, and particularly where Insertions or Omissions are to be rectify'd, there usually arises a Necessity of over-running; in order to which they must decompose, or return the Lines back from the Chase into the Galley, and from the Galley again into the Composing-Stick, to be new-modeled and rectified accordingly.

If, *e. gr.* one or more Words to be inserted in a Line, cannot be got in by changing the Spaces of the Line for lesser ones; Part of the Line must be put back into the Close of the preceding one, or forward into the Beginning of the subsequent one, or both, till Room is got. If the Insertion be large, several Lines will need to be over-run, either backward or forward, till a Break is arrived at; when, if it be not got in, a Line is to be driven out; and to get in that Line, the next Pages, either backward or forward, must sometimes be over-run, ere it can come in.

When an Omission is to be made, the contrary Course must be taken; if it be but little, the Compositor takes it out, and drives out the remaining Matter, by either enlarging his Spaces, or bestowing the Beginning of the following, or the Close of the preceding Line therein. If it be considerable, he may be obliged to over-run several Pages ere it can be driven out.

Some Compositors are very careless in correcting the Form, whereby several Mistakes which had been rectified by the Corrector of the Press, are left in the Form, and consequently found in the printed Sheet; which are attributed to the Author by those who know no better. Therefore there ought to be a Regulation made, that a Compositor, who through Carelessness lets Mistakes escape in the Sheet, after they have been rectified by the Corrector, should be punished, by losing some of his Pay, in Proportion to the Number of Mistakes left uncorrected: The Corrector should be treated in the same Manner; and this Regulation would be much to the Credit both of the Author and Printer.

Note, That as to the Faults which have escaped the Corrector and Compositor, they are usually noted in what we call *Errata*. The antient Editions had no *Errata*; but in lieu thereof they corrected the Faults in each printed Copy with a Pen; which was easy enough in those Days, though impracticable now. In effect, we have antiently had Printers who did not need an *Errata* of above five Articles in a Volume of five hundred Sheets: How different from some of the present Set, who might make an *Errata* of an hundred Articles in a Book of five Sheets.

The Form corrected, and locked again by the Compositor, is delivered for good to the Press-men, who is to work it off; who, to be ready for this Operation, has took Care to prepare his Ink, Press, and Paper for it.

The *Ink* for Printing is of two Kinds, Black and Red: The last occasionally used in Title-Pages, Kalendars, &c. the first for the Body of the Book.—The Composition of each, though now reckoned no Part of the Printers Business, but usually furnished them by other Hands, is as follows:

For *Black Ink*, a hundred Pounds of Nut, or Linseed Oil, being reduced by boiling, to the Consistence of a Syrup, is cleansed and purified by throwing into it two Pounds of coarse Bread, and about a dozen of Onions. They then boil thirty or thirty-five Pounds of Turpentine apart, till such Time as they find, upon its cooling on Paper, that it breaks clean, like Glass, without pulverizing; for if it pulverizes easily, it is a Sign it is burnt. The Oil and Turpentine thus prepared, the first is gently poured half cold into the latter; and the two stirred together with a Stick, till they be well mixed; after which, the Composition, which is called the Varnish, is set by to be used occasionally.

Now to proceed to make *Ink*, they take a Quantity of this Mixture, and add to it a certain Quantity of Lamp-black, working it up with a kind of wooden Mullet, or Brayer, till the whole be incorporated, and reduced into a kind of Pulp, which is the Ink for Use.

Where note, that its Thickness or Strength is always to be proportioned to that of the Paper, and the Warmth of the Weather; strong Paper, and hot Weather requiring strong Ink; and that the Strength or Weakness of the Ink depends on the greater or less Degree of Coction of the Varnish.

They use for *red Ink* the same Materials as for Black, excepting that instead of Lamp-black they add a proper Quantity of Vermillion. Some hold, that by mixing and incorporating the Bigness of a Nut of Fish-glue, or Brandy, or the White of an Egg with the Ink, the Vermillion acquires a greater Lustre.

To fit the *Paper* for Use, it must be first wet or moistened, by dipping several Sheets together in the Water: These are afterwards laid in a Heap over one another; and to make them take the Water equally, are all pressed close down with a Weight a-top. As to the Degree of Wetting, it must be according to the Quality of the Paper, and the Size of the Letter; small Letters, and stiff Paper, requiring most wetting. But the Paper ought not to be wet long before it is used, otherwise it would be covered with a great Number of yellow Specks, which are very disagreeable to the Sight in a printed Sheet; and would besides smell musty.

The Paper, being fit for Use, the Ink prepared, and the Form placed on the Stone in the Press, the Press-men goes to work: and for the greater Dispatch, sometimes three Persons are employed in this Operation, one to beat the Form with the Ink, another to lay the Blank-Sheet on the outward Tympan, and work the Press, and another to take off the Sheet, when printed; which Operator they call the *Fly*; the first Thing done is beating the Form with Ink, by means of Balls, which are a kind of wooden Funnels, the Cavities whereof are filled with Wool, covered with Leather nailed to the Wood. One of these the Operator takes in each Hand, and applying them on the Ink-Block, to charge them with Ink, he rubs them against one another to distribute the Ink equally; and at last smears over the Form, by beating or dabbing them several Times over the whole Face thereof; taking Care to do it so evenly, that no Part thereof may be left unsmeared; whence would ensue Fryars, as they call them, *i. e.* Places in the Sheet left unprinted, which is a very great Detriment to it, a Scandal to the Operator, and his Master, and a Baulk to the Reader: While he is beating the Form, the Press-man lays the white Sheet on the Tympan; and the Form smeared, he brings the Tympans and Frisket down from the Gallows upon it; and advancing the Plank under the Platten, by means of the Spit-handle or Rounce, gives two Strokes or Pulls with the Bar, and with an equal Strength, that the Sheet may be printed every where equally; and with the same Handle turned the contrary Way, brings back the Plank, so takes out the printed Sheet, and put on afresh; the Form being beaten with Ink every Time a fresh Sheet is put on; and this

this he repeats till he has taken off the full Number of Sheets the Edition is to consist of.

One Side of the Sheet being thus printed, it is remanded to the Press for the other; and so disposed, as that the Iron Points pass thro' the Holes already made in the Sheet.

Sometimes it is requir'd to cut the Frisket afresh, where the second Side is more or less full of *Printing* than the first, as is frequently the Case at the Beginning and Ending of Books, *&c.*

The Number of Sheets of the Edition being compleat, and the Form to be separated, to restore the Letters into the Cases, they first wash it in Lye to take out the Remains of the Ink, scrubbing it with a Brush, and then wash it with fair Water. This done, it is carried to a Board, on which it is unlocked, and the Furniture, *i. e.* the Sticks, *&c.* taken off to disengage it from the Chase. Then the Compositor taking up several Lines at once upon a little wooden Ruler, he replaces each Letter in its proper Box, to be again used in the Remainder of the Impression.

The most considerable *Printing-Houses* in the World, are those of the *Louvre* at *Paris*, and *Vatican* at *Rome*. The first begun under *Francis* I. was carried to its utmost Perfection under *Louis* XIII. by the Care of Cardinal *Richelieu*, and removed into the Galleries of the *Louvre*, by *Louis* XIV.

The Vatican *Printing-House*, called also the *Apostolical Printing-House*, because the Pope's Bulls, Decrees, *&c.* are printed therein, was begun by *Pius* IV. and furnished with great Magnificence by *Sixtus* V.

Out of both these *Printing-Houses* have come forth very beautiful, and splendid Editions of the antient Authors. The Vatican was the first that printed Books in the *Arabick* Language.

The *Clarendon Printing-House* at *Oxford* (so called because built, in great Measure, with the Profits arising from the Copy of Lord *Clarendon*'s History which had been given to the University) promises well; it has already furnished us with a very fine *English* Bible; and several other magnificent *Printing-Houses* could be erected in *England*, while they have one of the best Letter-Founders in the whole World, *viz.* Mr. *William Caslon*, if Arts and Sciences were more encouraged in this Kingdom.

The *Chinese* have a Manner of *Printing* quite different from ours, it is true it has some Advantage over ours in Correctness, and the Beauty of the Characters; but in other Respects it comes far short, the single Advantage of moveable Characters, making more than amends for all that is urged against us by some zealous Advocates for this oriental *Printing*.

Books are printed in *China* from wooden Planks or Blocks, cut like those used in *Printing* of Callico, Paper, Cards, *&c.* among us.

These Blocks are made of a smooth, firm, close Wood, and of the Size of the Leaf required. On the Face-Side they glue a Paper, upon which some able Penman draws out the several Letters and Characters with a *Chinese* Pen, which is a Kind of Pencil. This is the principal Part of the Work, and that whereon the Success of the rest depends.

When finished, the Block is put in the Hands of a Sculptor, or Cutter in Wood; who following the several Strokes of the Writer with his Gravers, and other sharp little Instruments, makes them all appear in Relievo on the Wood.

When the Carving, or Cutting is finished, they moisten what remains of the Paper, and rub it gently off.

The Ink they use in *Printing* is the same with the common *Chinese* Ink, wherewith they also write; and is made of Lamp-black mixed up with Oil.

Their Press resembles our Rolling-Press, much more than the Letter-Press.

As to their Paper, it is inferior to ours: It is made of the inner Bark or Rind of a Kind of Rushes, beat up with Water into a Pulp or Press, and formed in Moulds much like ours.

The Advantages of the *Chinese* Paper consists in this, that they are not obliged to take off the whole Edition at once, but print their Books as they need them; that the Blocks are easily retouched, and made to serve afresh; and that there needs no Corrector of the Press.

Its Disadvantages are, that a large Room will scarce hold all the Blocks of a moderate Volume; that the Colour of the Ink easily fades; and that the Paper is apt to tear, and is subject to Worms: Whence it is that we see so few antient Books in *China*.

The Art of *Printing* is a modern Invention: It is indeed of a very antient Standing among the *Chinese*. It must be owned, that the *European Printing*, in its Original, was much the same with the *Chinese*; yet, as there was at that Time no Commerce or Correspondence between *Europe* and *China*, the Passage into the East by the Cape of *Good Hope* being as yet undiscover'd by the *Portuguese*, there is no Room to charge the *Europeans* with borrowing their Art from the *Chinese*; but each must be own'd to have fallen on the same Thing, though at very different Times.

Father *Couplet* assures us, that *Printing* has been in Use in *China* from the Year 930. Father *le Comte* speaks more largely; saying, that it has been there from almost all Ages: He adds, that there is this Difference between theirs and ours, that whereas we have but a small Number of Letters in our Alphabets, and by the various Arangement of those, are able to form infinite Volumes; we have the Advantage, by making our Characters moveable, to print the largest Works with an inconsiderable Quantity of Letters; those that served for the first Sheet, serving over again for the succeeding ones: The *Chinese*, on the contrary, by Reason of the prodigious Number of their Letters, are precluded this Resource; and find it more easy and less expensive, to cut all their Letters on wooden Blocks; and thus to make as many Blocks as there are Pages in a Book, and these of no other Use but for that single Work.

Who the first Inventors of the *European Printing* were, in what City, and what Year it was first set on Foot, is a famous Problem long disputed among the Learned. In effect, as the *Grecian* Cities contended for the Birth of *Homer*, so do the *German* Cities for that of *Printing*.

Mentz, *Haerlem*, and *Strasbourg*, are the warmest on this Point of Honour: *Italy* also would have entered the Lists; but the Suffrages being at first divided between the first three Pretenders, they are left in Possession of the Question, which, in Reality, is not yet justly decided; though it must be owned, *Mentz* has always had the Majority of Voices.

We shall not enter into a nice Disquisition of the Merit of the Cause, but only propose the Pretensions of each. *John Mantel* of *Strasbourg*, *John Guttemberg*, and *John Fust* of *Mentz*, and *L. John Koster* of *Haerlem*, are the Persons to whom this Honour is severally ascribed, by their respective Countrymen; and have all their Advocates among the Learned.

Mantel, a Physician of *Paris*, enters the Lists in Favour of his Name-Sake of *Strasbourg*; and contends it was he first invented *Printing* in the Year 1442, and that in Consideration hereof, the Emperor *Frederick* III. gave him a Coat of Arms corresponding thereto: He adds, that *Guttemberg*, whom he had taken in as a Partner or Associate, carried it to *Mentz*, where he took in *Fust* a Partner.

The *Haerlemers*, with *Boxhornius*, *Scrivelius*, *&c.* refer the first Invention to *Laurence*, *Janzs Koster* of *Haerlem*, in the Year 1430, adding, that his Associate *Guttemberg* stole away his Tools while he was at Church, and carried them to *Mentz*, where he set up for the first Inventor; though others attribute this Theft, *&c.* to his Partner *Fust*.

Munster, *Polydore Virgil*, *Pasquier*, &c. will have *Guttemberg* or *Guttenbourg*, to have really been the Inventor of *Printing*; and add, that he took in *Fust* and *Schoeffer* for Associates.

Naude, in his *Mascurate*, espouses the Cause of *Fust*, or *Faust*, or *Faustus*; and will have him to be the first Printer in *Europe*, and that he took in *Guttenberg* for a Partner. His Reason for putting *Fust* in Possession of this Privilege, is, that the first Books that were printed, appear to have been all of his Impression. It is more than probable, had *Guttenberg* or *Koster* had a greater or an equal Share in the Invention, they would not have allowed him to attribute the whole to hand it, and his Son-

Son-in-law *Schoeffer*, as he has done, without ever offering to do the like, or in the least contradicting him, and asserting their own Right.

These Editions are, 1. The *Catholicon Januensis*, dated in 1460, and now in the King of *England*'s Library, *Fust*'s Name, indeed, is not to this; but it is perfectly like the following ones, where it is. 2. The *Latin* Bible of 1462, now in the King of *France*'s Library. 3. *Tully's Offices*, in 4to, (the rest being all Folio's) in the Year 1465, and 1466, for there are Copies in the *Bodleian*, and the Library of *C. C. College Oxon*, of both those Dates. 4. Other Bibles of 1471. 5. St. *Augustine*, *De civitate Dei*, 1473. 6. *Mercurius Trismegistus*, *De potestate & sapientia Dei*, in 1503. 7. *Titus Livius*, in 1518.

Add to this, that at the Beginning of *Livy*, is a Privilege granted by the Emperor *Maximilian* to *Schoeffer*, for the sole Power of *Printing* that Author for ten Years; and for six Years to all the other Books he should print thereafter, in Consideration of his Father-in-law *Fust*'s having invented the Art of *Printing*. This Privilege is dated 1518, and signed *Jac. Spiegel*.

Erasmus, however, in the Epistle after that Privilege, does not positively own the Fact; he only observes, that the first, or the chief Inventor of that Art is held to be *J. Fust*. In the Advertisement to the said Book, *Nic. Carbachius* speaks to the same Effect as to the Privilege, as *Erasmus*.

As to *Guttemberg*, *Mantel*, and *Koster*, *Naude* observes, the Person is not yet born that can say he has seen Books printed by any of them before, or as early as those of *Fust*. All that is urged on their Behalf, is only founded on Reports, Conjectures, Probabilities, forged Authorities, and the Jealousies of Cities against one another.

Yet *Salmuth*, in his Additions to *Pancirollus*, cites a publick Act, whereby it appears, that *Fust* having invented *Printing*, and sustained it a long Time on his own Footing; at last took in *Guttemberg* as a Partner, to contribute to the Expence; which was very great, by Reason the first Books were most of them printed on Vellum, or at least Parchment, and after the *Chinese* Way.

But the Cause is not thus decided: The Advocates for *Koster* urge divers Things, to put him in the Place here assigned to *Fust*. Mr. *Ellis*, in his *Philosophical Transactions*, fathers Books on him prior to any of those above referred to *Fust*; and even some as early as 1430, and 1432. It is certain, the *Haerlemers* shew printed Books of that Date, which agreeing so well with the Account given by *Theod. Schrevelius*, and others, leave Mr. *Ellis* little Room to doubt, whether the Honour of the Invention be his, or the other's Due. All that belongs to *Fust*, according to this Writer, is the Honour of establishing the Art in greater Lustre and Perfection at another Place many Years after.

But the Difficulty lies either in shewing whether the Practice should be at a Stand, from 1432, to the reviving of it at *Mentz* by *Fust* and *Schoeffer*, in 1465, or else in giving some Account of the Condition and Progress of this Invention during that Interval.

Now *Boxhornius*, *Schrevelius*, and other Authors, expressly affirm, that so large a Work as the *De Spiegee*, *Speculum salutis*, of *Koster*, shewn at *Haerlem* for the first printed Book, could never be his first Essay: He must have had the Art in its rougher Rudiments before, and have made many Trials on lesser Works: No doubt his first Attempt were on loose Sheets, which we may suppose are easily lost. In effect, it must be allowed no inconsiderable Argument in *Koster*'s Behalf, that the rudest and most artless Performances seem to be his: Mr. *Ellis* mentions something of this Kind without Date, which he had seen in the King of *England*'s Library at St. *James*'s, in that of *Bennet* College, and the *Bodleian* at *Oxford*, with all the Marks of the utmost Simplicity, and which might fairly bid for first Essays. There is something so aukward and coarse in them, that any Body almost might have done them; where Nature being sufficient, without any Art or Experience at all. The Ink was only common Writing-Ink unartfully spread upon wooden Blocks, very clumsily cut, *&c.*

By this Time we have traced the Art to such a State, that it may, perhaps, seem worth the contesting who it was invented it; and no doubt *Printing*, as it now stands, owes more to the Genius and Address of some of the later Improvers than it did to its first Author.

The same Consideration may make us more easy under our present Ignorance of the Inventors of most other Arts; many of which had such unmeaning Originals, that you and I should, perhaps, think it no mighty Credit to be esteemed the Authors of Inventions nothing less artful and ingenious.

The first Printers, then, whoever they were, whether *Koster*, *Fust*, *Schoeffer*, or *Guttemberg*, made their Essays on wooden Blocks, or Forms, after the *Chinese* Manner.

It is not improbable, says Mr. *Bogford*, they might take the Hint from antient Medals and Seals; but others rather imagine it to have come from the Method of making playing Cards, which, it is certain bears a near Resemblance to the primitive Process of *Printing*; as appears from the first Specimen of that Art above-mentioned.

The Book at *Haerlem*, the Vocabulary called *Catholicon*, and the Pieces in the *Bodleian* and *Bennet*'s College, are all performed in this Way, and the Impression appears to have been only given on one Side the Leaves; after which the two blank Sides were pasted together.

But they soon found the Inconveniencies of this Method; and therefore bethought themselves of an Improvement, which was by making single moveable Letters, distinct from one another.

These being first done in Wood, gave Room for a second Improvement; which was the making of them at length of Metal; and in order to that cutting Moulds, Matrices, *&c.* for casting them.

From this ingenious Contrivance, we ought to date the Origin of the present Art of *Printing*, as practised throughout *Europe*; contradistinguish'd from the Methods of the *Chinese* abroad, and the Card-makers at Home, which were the same Art, only practised in a different Place, or with a different View.

And of this, *Schoeffer* or *Scheffer*, first Servant, and afterwards Partner and Son-in-law of *Fust*, at *Mentz*, before-mentioned, is pretty generally allowed the Inventor: So that he was properly the first Printer; and in Strictness, the Bible, which was printed with moveable Letters in 1450, was the first printed Book; the next was St. *Augustine De civitate Dei*, then *Tully's Offices*, &c. about the Year 1461.

But the Art being yet in its Infancy, there were some Imperfections in the Books they printed; among the rest was the Want of capital Letters: Hence they left the Places of initial Letters blank, and gave them to the Illuminers to paint in Gold or Azure: Though others say, this was done designedly, to enable them to pass off their Books for Manuscripts.

Some Authors tell us, that *Fust* carrying a Parcel of his Bibles to *Paris*, and offering them to Sale as M S S. The *French* upon considering the Number of Books, and their exact Conformity with one another, even to a Point, and that the best Book-Writers could not be near so exact, concluded there was Witchcraft in the Case; and by either actually indicting him as a Conjurer, or threatening to do so, extorted the Secret. And hence the Origin of the popular Story of Dr. *Faustus*. But any Body may see that this is a ridiculous Fable.

From *Mentz*, the Art of *Printing* soon spread itself throughout a good Part of *Europe*; *Haerlem* and *Strasbourg* had it very early; which, as the Current of Authors represent it, occasioned their pretending to the Honour of the Invention.

From *Haerlem* it passed to *Rome*, in 1467, and into *England* in 1468, by Means of *Tho. Bourchier*, Archbishop of *Canterbury*, who sent *W. Turner*, Maker of the Robes, and *W. Caxton*, Merchant, to *Haerlem*, to learn the Art. These privately prevailing with *Corsellis*, an Under-Workman, to come over, a Press was set up at *Oxford*; and an Edition of *Rufinus* on the Creed, printed the same Year in a broad Octavo, on Paper.

From *Oxford*, *Caxton* brought it to *London* about the Year

Year 1470, in the ſame Year it was carried to *Venice*, and to *Paris*, where *Gering*, *Grantz*, and *Friburger*, all *Germans*, invited thither by two Doctors of the *Sorbonne*, ſet up a Preſs in that learned Houſe.

Hitherto there had been nothing printed but in *Latin*, and the vulgar Tongues; firſt in *Roman* Characters, then in *Gothick*, and at laſt in *Italick*. But in 1480, and, as ſome ſay, in 1476, the *Italians* caſt a Set of *Greek* Types; and it was at *Venice*, or as ſome ſay, at *Milan* or *Florence*, that the firſt Editions in that Language appear'd.

The *Italians* too have the Honour of the firſt *Hebrew* Editions, which were printed about the ſame Time with the *Greeks*, at *Saccino*, a little City in the Duchy of *Milan*; under the Direction of two *Jewiſh* Rabbins, *Joſhua* and *Moſes*, whoſe Works are dated in the Year of the World 5240, anſwering to the Year 1480 of the Chriſtian Æra.

Towards the End of the 16th Century, there appear'd various Editions of Books in *Syriack*, *Arabick*, *Perſian*, *Armenian*, *Coptick*, or *Egyptian* Characters; ſome to gratify the Curioſity of the Learned, and others for the Liturgick Uſes of the *Chriſtians* of the *Levant*, printed chiefly at *Paris*; whither Puncheons and Matrices were ſent from *Conſtantinople* by Mr. *Savary*, then Ambaſſador at the *Porte*.

Out of *Europe*, the Art of *Printing* has been carried into the three other Quarters of the World: For *Aſia*, we ſee Impreſſions of Books at *Goa*, and in the *Philippines*; at *Lima*, *Mexico*, *Boſton*, &c. for *America*; and at *Morocco* for *Africa*.

The *Turks*, indeed, rigorouſly prohibit *Printing* throughout their Empire, as imagining, that the too free Communication with Books, might occaſion ſome Change in Religion or Government; yet the *Jews* have ſeveral Editions of their Books printed at *Conſtantinople*, *Theſſalonica*, &c.

Thoſe who profeſs the Art of *Printing*, are called *Printers*. The firſt *Printers*, as already obſerved, were *Fuſt*, *Guttemberg*, *Schoeffer*, *Menzel*, and *Koſter*. The firſt that practiſed it in *England* was *Frederick Corſeilles*, brought over from *Haerlem*, under King *Henry* VI; in *France*, *Gering*; at *Rome*, *Conrad Sweynham*, and *Arnold Pommarts*, both *Germans*; at *Naples*, *Sixtus Raſinger*.

The *great Printers*, were *Aldus*, and *Paulus Manutius*; the two *Badii*; *William* and *Frederick Morel*; *Oporin*, *Frobenius*, *Rob. Hen.* and *Char. Stephens*; *Gryphius*, *Turnebus*, *Torres*, *Commelin*, *Plantin*, *Raphelengius*, *Vaſcoſan*, *Bleau*, *Criſpin*, *Petit*, *Coignard*, and the two *Elzevirs*.—The learned Printers were the *Manutii*, the *Stephens*'s, the *Badii*, *Turnebus*, *Wechel*, *Morel*, *Juntæ*, &c.

Plantin had the Title of *Arch-Printer*, *Archi typographus*, given him by the King of *Spain*, in Conſideration of his printing the *Polyglot* of *Antwerp*.

The Names, Characters, and Eloges of all the famous *Printers* are found in Part II. of the firſt Tome of the *Jugemens des Scavans*.

The *Printers*, ſince the Eſtabliſhment of that Art, are eſteemed a Part of the Company of Stationers and Bookſellers: Before that Eſtabliſhment, the Company conſiſted only of Bookſellers, Binders, Writers, Illuminers, and Parchment-makers.—The *Parchment-makers* prepared the Skins, and made the Parchment or Velum; which were then almoſt the only Matters Books were written on. The *Writers* or *Copiſts* wrote and tranſcribed Books after Copies given them by the Bookſellers. The *Binders* were charged with the Binding of thoſe Days, which was very coarſe, only conſiſting of two ſlight Boards covered with ſome paltry Leather. The *Illuminers* painted in Miniature, and gilt initial Letters, Head Pieces, Tail Pieces, and other Compartiments. Laſtly, the Stationers or Bookſellers ſet the Writers to work, and ſold their Copies in Shops and other Places.

PYROTECHNY.

PYROTECHNY, πυροτεχνια, is the Art of Fire, or a Science, which teaches the Management and Application of Fire in ſeveral Operations.

Pyrotechny is of two Kinds, *military* and *chymical*.

Chymical Pyrotechny, is the Art of managing, and applying Fire in Diſtillations, Calcinations, and other Operations of Chymiſtry, of which I have ſpoke at large in my Treatiſe of *Chymiſtry*, under the Letter C.

Military Pyrotechny, is the Doctrine of artificial Fire-works, as *Rockets*, *Stars*, *Serpents*.

A ROCKET, is an artificial Fire-work, conſiſting of a cylindrical Caſe of Paper, filled with a Compoſition of certain combuſtible Ingredients; which being tied to a Stick, mounts in the Air to a conſiderable Height, and there burſts.

The *Rocket* has a great Part in all Fire-works of Entertainment, being not only uſed ſingly, but ſometimes alſo as an Ingredient in others; as we ſhall ſee hereafter.

Beſides the *Rocket* here defined, which is properly called the *Sky-Rocket*, there is another, which from the Sphere it moves in, the Water, is denominated *Water-Rocket*. The Mechaniſm, Preparation, *&c.* of each whereof we ſhall here deſcribe.

1. A concave cylindrical Mould or Frame, is turned of Walnut-tree, or Box, with a Baſe and a Capital, uſually adorned with architectonical Mouldings.—The Cylinder is to be opened at both Ends, and its Dimenſions, for Rockets of various Sizes, as in the following Article.—When large, it is ſometimes alſo made of Braſs or Tin; and when ſmall of Bone.

2. Of the ſame Matter with the Mould is prepared a Quadra or Foot; in the Middle whereof is turned a Hemiſphere, conſiderably leſs than that of the Cavity of the Mould; making the Cap or Head of another Cylinder, and reaching up within the Caſe, where it is kept ſteady by a Pin.

Authors do not agree about the Proportions.—*Simionowitz* preſcribes thoſe that follow. If the Diameter of the Aperture be equal to that of a leaden Ball of a Pound, or at moſt two Pounds in Weight; the Height of the Cylinder, with the Baſe and Capital, to be ſeven Diameters, and the Height of the Quadra $1\frac{1}{3}$. The Altitude of the Cylinder 1; the Diameter $\frac{19}{20}$; the Diameter of the Hemiſphere $\frac{2}{3}$; the Height of the Capital 1; the ſame Author adds, that he finds by Abundance of Experiments, that if the Diameter of the Aperture be divided into a hundred Parts, according to the different Weight of the leaden Balls to whoſe Diameter it is equal, the following Numbers give the Height.

Weight of Leaden Ball.	*Subſiſtuple of Altitude.*	*Weight of Leaden Ball.*	*Subſiſtuple of Altitude.*
1	100	20	86
2	98	30	82
4	96	40	78
6	94	50	75
10	91	70	67
15	88	100	57

The Mould being ready, a wooden Cylinder or Mould is provided; whoſe Diameter is $\frac{3}{4}$ of the Aperture of the Frame, and its Length equal to the Height of the ſame; to which is fixed a Haft or Hilt. About this Mould is a ſtrong Paper, or rather Card, rolled as tight as poſſible, and paſting the Paper or Card, in Proportion as it is rolled; and rolling it till it be of a Bigneſs to enter eaſily the Frame.—This Card thus rolled muſt be of the Height of the Frame, when off its Baſe.

When the Card thus rolled, and paſted, is dry, it is pared at both Ends to make it even and ſtreight

This done, where the Haft is joined to the Cylinder, it is choaked, *i. e.* firmly bound with a ſtrong Pack-thread, wherewith the Artificers make two Turns round the rolled Card, faſtening an End of the Packthread to a Nail faſtened in the Wall, or ſomewhere elſe, and the

the other End to a Stick, which the Artificer passes between his Legs, and behind him, then introduces another Mould into the Place left empty, that while he shakes hard the Paper, it may not lose its first Diameter, nor its first Figure.

When the Cylinder is sufficiently choaked, and there remain Inside thereof an Aperture even too small for the Introduction of the Spike of the Frame, the Packthread which served to choak it is taken off, and another Packthread put in its Place, wherewith several Turns are made round it, binding it very tight, and fastening it with good running Knots made one over another, so that the Cylinder becomes as is seen in our Table of Miscellanies.

The Cylinder thus prepared, the Frame is placed on its Base, and the Cylinder introduced into it, the choaked End foremost, by means of the Base the Cylinder comes out of the Mould about an Inch, or thereabout, then a hollow Spike is introduced into the Cylinder, in the Middle thereof it meets with the Spike of the Base of the Frame, which runs into it, the Artificer knocking three or four Times upon it with a wooden Mallet, that the choaked End may re-assume entirely the Form and Proportion of the Body of the Cylinder, which then is fit to be filled.

The Preparation being likewise prepared in the Manner I'll explain it hereafter, the Artificer shall take a Spoon of Tin or Copper, and fill it with the Composition, and put it into the Cylinder, introducing the first hollow Spike over it, and having knocked three or four Times pretty hard upon it, and likewise round the Mould, to make fall what could be left of the Composition on the Borders thereof; repeating the same Process, and ramming the Composition sometimes with the hollow Spike, and sometimes with a Rammer, till the Cylinder be quite charged, which is done when the Composition has reached the upper End of the Spike of the Basis, which may be felt with the End of the Finger through the Cylinder.

When you feel the Spike no more, you put in a Spoonful of the Composition, and take the massive Spike or Rammer to beat three Times the Composition.

The Composition reaching the Top of the Mould, well beaten, and evenly rammed, there will remain in the Cylinder an empty Place, of about an Inch and a half, as already observed; take then the Bodkin, wherewith you'll separate the Plaits of the Card, and loosen the Extremity of the Cylinder, which you'll beat down Inside on the Composition, so that there remain no more than one or two Plaits of the Card upright. The Card or Paper thus beaten down, you'll ram it still harder than you have done the Composition, and taking afterwards your Bodkin you'll make two Holes in the Card which is down, near that which stands upright, that when Fire is set to the Chasse, which is the Space left a top, and which must be filled with a particular Composition, it may be communicated to the Body of the *Rocket*. When the Operation is carried thus far, the Rocket is taken out of the Mould; the Vacuity left at the Bottom of the Cylinder, through which the Spike of the Ball ran, must be carefully stopped with a little Lump of Paper.

Then the Chasse is put at the End which came out of the Frame; which Chasse is composed of an equal Quantity of whole Powder, and of the Composition the *Rocket* is charged with, passing a Paper over it, to keep up that Charge; afterwards you take a Pot, which you adapt to the Top of the Rocket, introducing your Cylinder into the narrowest Part of the Pot, so that the widest be upwards, passing those two Parts together, and tye them with Packthread; which done, you'll dispose as many Serpents in the Cup as it can contain, taking Care to put the primed End of the Serpents downwards, that they may have a greater Communication with the Fire.

The Pot full, you'll paste a Piece of Paper over it, to hinder the Serpents from falling out. Over the Pot you'll place what is called the *Capital*, which juts out a little, and must be pasted round, and tied besides with small Packthread, that the Pot and Capital may hold fast together, pasting even a Slit of Paper over all.

The *Rocket* thus ready to be primed, you introduce the Spike of the Ball of the Mould downwards into it, holding the *Rocket* very hard, while you turn the Pike two or three Times into it, to press the Composition, stopping the Hole afterwards with a Stopple, which should not penetrate further than an Inch into the *Rocket*, another Inch thereof being left out; and to keep this Stopple fast in the Hole, you'll smear it with a Paste made with Gun-powder pulverized, and Water; covering afterward the Gorge of the *Rocket* with a Piece of Paper tied round it with Packthread.

To make this *Rocket* mount strait, it is tied fast to the End of a long slender Stick, eight Times as long as the *Rocket*; in such Manner as that when poised on the Finger near the Touch-hole, the Stick (which is usually made biggest at this End, and sloping gently to the other) may preponderate, though very little.—The *Rocket* thus equipped, is hung at Freedom, and lighted with Port-fire.

The Composition wherewith *Rockets* are filled, is made in the following Manner.

You must take the biggest Gun-powder, bruise it on a Table with a wooden Muller, and pass it afterwards through a very fine silk Sierce, take sixteen Ounces thereof, and put it by itself: Then you'll bruise Charcoal likewise, made of Willow, or white Wood, and pass it afterwards through a Sierce of Horse-hairs, a little coarser than that of Silk. You'll mix with your Hands four Ounces of this Coal, with your sixteen Ounces of Powder, and pass the Mixture four or five Times thro' a Horse-hair Sierce, much coarser than the other; and every Time you'll have passed it you'll stir it with the Hand. This Composition well mixed and incorporated together, must be kept in a proper Vessel for Use.

You'll try one of your *Rockets* charged with this Composition; if it does not ascend there is too much Charcoal, and the Composition is too weak, therefore it must be strengthned with an Ounce of Gunpowder pulverized; and if it bursts in ascending into the Air (as it often happens when the Rockets have not been tried) the Composition is too strong, and an Ounce of Charcoal must be added to it, or more, according to the Prudence of the Artificer.

Several Artificers are of Opinion, that *Sky Rockets* can be made with the following Compositions, in proportion to their Bigness; some of them weighing, when filled and equipped, as far as twelve Pounds, as it is explained in the following Table.

Dose to make Sky-Rockets.

Composition for a Mould of 2 lb.	*Composition for a Mould of* 1 lb.	*Composition for a Mould of* ½ lb.	*Composition for a Mould of* 4 oz.	*Composition for a Mould of* 2 oz.
Powder 2 lb.	—— 1 lb.	—— 20 oz.	—— 5 oz.	8 or 9 oz.
Salt-petre 1 lb.	—— 12 oz.	—— 12 oz.	—— 1 oz.	⅓ of an Oz.
Sulphur 5 oz.	—— 2 oz.	—— 1 oz.	—— ¼ oz.	
Charcoal 4 oz.		—— 3 oz.	—— ½ oz.	½ an Ounce or 1 Ounce.
Iron filings 2 oz.				
The Mould has 9½ Inches in Height.		The Mould has 8½ In. in Height.	The Mould has 7 Inches in Height.	The Mould has 4½ In. in Height.

As an additional Ornament to *Rockets*, it is usual to furnish them either with Stars, or with Serpents, or Snakes, or with a Shower of Rain, which take Fire when the *Rocket* bursts; and sometimes little Rockets are included in great ones, to take Fire when the great one is at its greatest Height.

To make *Stars* for *Rockets*.—Mix three Pounds of Salt petre, with eleven Ounces of Sulphur, three Ounces of beaten Gunpowder, and ten of Antimony. Moisten the Mass with Gum-Water, and form them into little Balls of the Size of Filberds; drying them well either in the Sun or an Oven. When dry, include a Number of them in the conical Cap of the *Rocket*.

As to the Theory of the Flight of *Sky Rockets*, Mariotte takes the Rise of *Rockets* to be owing to the Impulse or Resistance of the Air against the Flame: Dr. *Desaguliers* accounts for it otherwise.

Conceive the *Rocket* to have no Vent at the Cheek, and to be set on Fire in the conical Bore; the Cause then would be either that the Rocket would burst in the weakest Place, or that if all its Parts were equally strong, and

and able to sustain the Impulse of the Flame, the *Rocket* would burn out immoveable. Now, as the Force of the Flame is equal, suppose its Action downwards, or that upwards sufficient to lift 40 Pounds; as these Forces are equal, but their Directions contrary, they will destroy each other's Action.

Imagine then the *Rocket* open at the Choak; by this Means the Action of the Flame downwards is taken away, and there remains a Force equal to 40 Pounds, acting upwards, to carry up the *Rocket*, and the Stick it is tied to. Accordingly we find, that if the Composition of the *Rocket* be very weak, so as not to give an Impulse greater than the Weight of the *Rocket* and Stick, it does not rise at all; or if the Composition be slow, so that a small Part of it only kindles at first, the *Rocket* will not rise.

The Stick serves to keep it perpendicular; for if the *Rocket* should begin to tumble, moving round a Point in the Choak, as being the common Centre of Gravity of *Rocket* and Stick, there would be so much Friction against the Air, by the Stick against the Centre and the Point, and the Point would beat against the Air with so much Velocity, that the Re-action of the Medium would restore it to its Perpendicularity.

When the Composition is burnt out, and the Impulse upwards is ceased, the common Centre of Gravity is brought lower towards the Middle of the Stick; by which Means the Velocity of the Point of the Stick is decreased, and that of the Point of the *Rocket* increased; so that the whole will tumble down with the *Rocket* End foremost.

All the while the *Rocket* burns, the common Centre of Gravity is shifting and getting downwards, and still the faster and the lower, as the Stick is lighter; so that it sometimes begins to tumble, before it be burnt out: But when the Stick being a little too heavy, the Weight of the *Rocket* bears a less Proportion to that of the Stick, the common Centre of Gravity will not get so low, but that the *Rocket* will rise strait, though not so fast.

As to the Method of making *Water-Rockets*; make a *Rocket* after the usual Manner, excepting in the Number of Choaks. Let its Diameter be equal to that of a leaden Ball of two or three Inches Diameter, and let it be bored to a third Part of its Height. Inclose the *Rocket* in a hollow perpendicular Cylinder, which linear over with melted Pitch or Wax, that it may resist the Moisture.

The Weight of the *Rocket* is to be so proportioned to that of the Water, that the whole Cylinder may be immerged. Some instead of a Cylinder use a truncated Cone, or even a Spheroid; and some hang a Weight to the End where it is lighted.

To make a Rain of Fire for the *Rockets*, take equal Quantity of Sulphur, Salt-petre, and Gunpowder, beat well each Ingredient by itself; and melt, afterwards, the Sulphur in a glazed earthen Pot, or in a Copper-Pot which is best; when melted, put the Salt petre by little and little into it, stirring continually the Matter; and lastly the Powder; this must be done over a very little Fire, lest it should catch the Mixture, while you stir it. Those three Ingredients being well incorporated together, pour the Mixture on Paper, or Board, where it will grow hard, and when you'll want to make a Rain of Fire, you must break it into small Pieces, and mix it with the Powder of the Cracker of your *Rocket*.

To make what we call in *French* a *Courantine*, or a *Rocket* to run along a Cord. Take two *Sky-Rockets*, of the Bigness of those first in order in our Table; but without a Cap, or any other Apparatus, only as they come out of the Mould; join those two *Rockets* together side-wise, the upper End of the one turned towards the lower End of the other, so that the Stopple, which comes out of the Massive of the one, enters the Choak of the other; and paste Paper over it, lest the Violence of the Effort should part them; taking Care, likewise, to stop with wet and pasted Paper, the End of the Massive which is to Fire last.

Those two *Rockets* thus disposed, an empty Cylinder is fasten'd to them very tight in three Places, and the Cord run afterwards through it.

The *Rocket*, which is lighted first, runs along the Cord, from the End it departed to the other End; and when exhausted, the other takes Fire, and returns back the same Way.

These *Rockets* are used, when in publick Rejoicings, the Artificer will have the Fire carried from one Place to another, and even represents in the Air a Kind of Fight between Men, or Animals, sometimes from the Top of a Steeple or Dome, the Artificer sends those Sorts of Figures, to set Fire to that which is at the Top of a Fire-work; without medling with it himself.

Therefore if we want to make use of one of those Figures to carry the Fire, for Example, a Dragon, the Figure being made of Card, and covered with painted Paper; those two *Rockets* are run through its Body, one whereof coming out at its Throat, and the other at its Backside; taking Care that the *Rockets* should be proportioned to the Weight of the Figure.

To make a *Serpent*, you must roll upon an Iron Rod, or round Stick, two Gaming-Cards, one over the other, which must be cover'd with a Paper, so that the Paper appears always a-top, and Cards inside: It will be necessary to wet a little the Cards to make them more tractable; but they are not to be used before they are dry; pasting Paper afterwards, which cover them all its Length, to fasten it. You introduce the Base of the Mould into the *Serpent*, and choak it at that Place, with a Pack-thread greased with a little Soap; and tie it afterwards with Thread; then you put the Mould over the *Serpent*, which thereby is inclosed in it; charging it afterwards by Means of a Quill, with the same Composition the *Rockets* are made of; filling half the *Serpent* first, and then ramming the Charge with the same Iron Rod, the Cylinder has been rolled upon; and having put a Grain of Vetch over the Charge, you fill up the Serpent, with whole Gun-Powder, leaving a Place empty a-top, to thrust in a Stopple of chew'd Paper, which must be rammed down with the Iron-Rod: the Paper being rammed down, and a little Space left empty over it, you choak likewise the *Serpent* at that Place, and tie it with a Thread, as you have done the other End; with this Difference, that this End is quite close, and the other has preserved the Aperture made to it, by the Spike thrust into it at first; this empty Place is primed afterwards with Gunpowder, bruised and mixed with Water.

The Fire-Launce is made of a Sheet of large and strong Paper, for Drawing, rolled lengthwise on a Rod, of the Bigness of a Musket-Stick, and a Foot and a half long; that Paper rolled, is pasted all along to stop it; after which is introduced into one End of the Cylinder, about an Inch far, a Piece of Wood called the Handle or Foot of the Launce, and of the Caliber of the Cylinder; having first dipped the Wood, or Stick in Paste, that it may be fasten'd to the Cylinder: The other End of the Foot is flat, and pierced with two Holes, that it may be nailed in any Place the Artificer judges proper.— Thus the *Launce* is ready for Charging.

The Composition must be of four Ounces of refined Salt-petre in Powder, two Ounces of Gunpowder pulverised, likewise, and passed through a fine Silk Sieve; and an Ounce of Flower of Sulphur: The whole mixed afterwards, and passed through a pretty coarse Horse-Hair Sieve. You charge your *Launce* with this Composition, ramming with the same Rod the Cylinder has been rolled upon, on Proportion as you charge it; and when it is charged to a Quarter of its Height, you'll put as much Gunpowder into it, as would serve to prime a Pistol, which must be rammed gently with the Rod, without knocking upon it; proceeding in the same Manner till the *Launce* be full to the Top: This done, you'll take some Gunpowder beaten, and mix with Water to prime it; pasting afterwards a Piece of Paper over it.

For a Saucisson, the Cylinder is made four Inches long, of a Card rolled twice on a round Stick, and well pasted every where. It is choaked at one End, at the Distance of half an Inch from its Extremity, and tied with a Pack thread; a Stopple of Paper is introduced through the back Part of the Cylinder into it, by Means of the Iron Rod, wherewith it is rammed tight, after which the Cylinder is near filled with common Gunpow-

der, without any Preparation; over which is rammed another Stopple of Paper; choaking afterwards and tying the *Saucisson* at that Place: This done, it is tied with Pack-thread from one End to the other, so that it may be quite cover'd with it; then it is thrown into strong Glue, and lastly put to dry.

To fasten that *Saucisson* to the *Launce*, you must pierce it with a Bodkin, at that End which is the best made, till you reach the Powder; then taking a Quill, you'll cut it, as if it was for Writing, and having filled the End which is not cut so, with Gunpowder, you'll introduce that same End thus filled, into the *Saucisson*, and the other End cut in Form of a Writing-Pen, into the Launce, immediately above its Foot or Handle, where you'll make a Hole to receive it; and having tied them together at the very same Place, you'll cover them with Paper, afterwards, in such a Manner, that the whole be well closed and joined, without hindering, however, the Fire from communicating itself from the Launce to the *Saucisson*, by Means of the Quill.

For a SKY-SAUCISSON, you make its Cylinder four Inches and a half high; you choak it, and tie it at one Inch and a half Distance from one of its Extremities.

Having placed it on the Base, you charge it with whole Gunpowder, which you cover with a Stopple of Paper, tying it afterwards at that End; then you take it off the Base, and fill it at several Times, ramming it each Time with the Iron Rod, with the same Composition used for Sky-Rockets: When full, you take a Piece of Cord of Prime, which is made of Cotton, beaten Gunpowder and Brandy, so that the Mixture of Gunpowder and Brandy be liquid to stick to the Button; so soon as the Cotton is dry, you take two Pieces thereof, which you place Cross-wise on the End of the *Saucisson*, putting over it some of the Composition, and ramming well the whole with the Iron Rod. By this Means come out four Ends of the Cord of Prime, which serves to set Fire to the *Saucisson*.

To use this *Saucisson*, you must make a Pot six or seven Inches high, the Diameter thereof must be stronger by a Line than the *Saucisson*. This Pot must be choaked downwards, at an Inch Distance from the Extremity; make afterwards a Port-fire of a Playing-Card, and fill it with the Composition of a Sky-Rocket; when charged and rammed, make a Button of the Diameter of the Pot; put an Ounce of whole Gunpowder in it, put the Porte-fire in the Middle, and tie the whole together: Carry the Button into the Fire-pot, the upper End turned downwards, so that it may come through the End which is choaked: When you see the End of the Porte-fire come out, you'll tie that choaked End of the Pot to bind tight the Porte-fire, and through the other End you'll introduce the *Saucisson*, the primed End, where are the four Ends of the primed Cord, foremost; and the Vacuity remaining, stopped with Paper, with another Paper pasted over it.

These Pots of *Sky*, or *Flying Saucissons*, are commonly disposed on a Board or Bench, pierced through of the Bigness of the Porte-fire, which is introduced into the Hole, and glued, lest the Effort of the Powder should carry it off; and underneath that Board the Fire is set to each Porte fire. That Porte-fire well fastened to the Pot, remains fast to the Board, and all that was in it flies into the Air.

There is another Manner of setting Fire to these Sorts of Pots, without being obliged to do it to every one of them in particular; which is to make a Kind of Groove underneath the Holes, pierced in the Board; to place in that Groove Port fires open at both Ends, and dispose them one after another, and paste a Slit of Paper over them, to keep them tight together, that the Fire may pass from one to the other without Interruption: That Work must be done before the Pots of Saucissons are placed, and those *Porte-feux* must even be pricked through the Holes with a Bodkin, that when the *Port-fires* of the Pots of Saucissons are introduced into them, the Fire of those which are placed leaning be communicated to those which stand upright.

For FIRE-POTS, you must roll Card two or three Turns round a Piece of Wood turned, a Foot long, and three Inches of Diameter, pasting well the Card: Then you'll take off the Mould, and thrust into an End of the Cylinder another Stick, called the Foot of the Fire-pot. This Stick must not penetrate the Cylinder further than an Inch; and then it ought to be fastened to it with three or four small Pegs.

You'll take a *Fire-Launce*, of a Foot long, and place it in the Middle of the Cylinder, so that it may come out by two or three Inches; then you'll take it out, and take the Mould on which the Cylinder has been rolled, on one End thereof you'll fit a Sheet of white Paper cut in two, and which you'll dispose Cross-wise, to make of it a kind of Cap; in the Bottom of that Cap, which has took the Form of the Pot, you'll put an Ounce of whole Gunpowder, and two Ounces of the Composition used for *Sky-Rockets*: In the Middle of these three Ounces of Matter place the Fire-launce above-mentioned, and gather round the Foot thereof, all that Matter equally on all Sides, keeping it close round the Launce, with the Ends of the Paper, which is tied round the Launce with Packthread: And this is called the Button of the Launce.

For a GIRANDOLE, it must be made in Form of a Wheel, with six Faces: The Spokes of the Wheel to be of a light Wood turned as near as one will have it: The Nave of the Wheel of a little stronger Wood, the Bands of the Wheel only a Line thick, and an Inch or thereabout broad; those Bands are nailed to their Joints, and even glued that they may hold faster; that Wheel thus disposed, you'll apply on each of the Joints or Bands, a Sky-Rocket of the same Length with the Joint, which you'll tie very tight with Packthread in three Places, *i. e.* in the Middle, and at both Ends; proceeding thus round the Wheel, taking Care that one End of the Stopple which comes out of one Rocket, may enter the Massive of the next, for the Communication of the Fire to one another without Interruption: All this being thus well prepared, the Places where the Rockets are joined, are covered with Paper, putting two or three more Papers over it, to hinder the Fire from forcing through that Way: And at the Joints which remain between the two last Rockets, Care must be taken to stop well that which is to play last, with wet Paper, and well rammed at the Extremity which touches the End of the first Rocket, to which the Fire is set, at the Stopple which comes out of it.

To use this *Girandola*, a Foot must be made to it, four Feet long, which is easily introduced through the Nave, to make it turn easier; and at the Extremity of the Nave a Pin is adapted, to hinder the Wheel from falling while it turns round. Those *Girandoles* are nailed at the Corner of the Theatre or Scaffold.

No other Pieces of *Artifices*, but those above-mentioned, enter the Composition of a Fire-work; they are only multiplied as much as is necessary, and according to Art; which is commonly done in the following Manner.

A square Scaffold is erected, twenty-four Feet high, and eighteen broad, supported by nine Pillars: In the Middle of the Scaffold is placed a square Pedestal of Joinery, six Feet high, to support the Figure designed.

The Outside of the Joiner's Work is covered with a Decoration of Paintings, representing Rails, Emblems, Motto's, and allegorical Figures alluding to the Subject of the publick Rejoicing; the whole according to the Fancy of the Painter, and of those which have the Direction of the Feast.

Sometimes, at the four Corners of the Theatre are painted Vases, or Pots full of Fire and Flame, or burlling Bombs.

To order all Things as it should be behind those Figures, at each of the four Corners of the Scaffold is placed a Deal-box containing twelve Sky-Rockets, which are fired together, by means of a Stopple which communicates to all.

The Top of the Rails is garnished round with Fire-launces, each carrying its Saucisson, and a Foot distant from one another: The Intervals are garnished with Fire-pots, and Sky-Saucissons.

At the Foot of the Rail above, the same Thing is done, excepting that the Fire-pots and Launces, are not set quite so upright as those a-top of the Balustrade, lest the Fire should communicate from below to the Top.

The four Corners may be garnished with Fire pots, which operate horizontally.

The

The *Girandoles* are placed likewise at the four Corners Outside; and even in the Middle of the four Faces of the Scaffold, where they are nailed to the Floor.

The Pedestal of the Figure is garnished round in the same Manner; and four Boxes of Sky-Rockets are placed at the four Corners.

The Stopple used to light this Fire-work must run round the Stage, and be placed directly on the Prime of the Fire-launces, and even sunk into it with Pins.

As to the Fire pots, there is no Stopple to them, but they are fired with the Hand, and the Girandoles likewise.

The Fire-launces are fired first, that the Disposition of the Figure, and the Ornaments it is accompanied with, may be seen on all Sides; firing from Time to Time, a Face of the Fire-pots on the Right and Left, of the Scaffold, and of Sky-Rockets likewise: And when you perceive that the Fire diminishes, you light your four Girandoles, which concludes the Feast in an agreeable Manner.

Besides those Fire-works, for Diversion, there are others used in the Defence of Places besieged, to throw on the Besiegers, when they come to the Breach, or attack some other Works; and though few of those *Fire-works* are at present in Use; since a Barrel, or a Sackful of Gunpowder to which a Fusee is fastened, and rolled into a Ditch, or on a Breach, produce as good an Effect as those Machines; I'll give here notwithstanding a concise Description of a few of them; beginning by a *Fire-Ball*.

For a FIRE-BALL, you must have a Port-fire, a Foot and a half, or two Feet long, according to the Bigness the *Fire-Ball* is to be, on an Inch, or an Inch and a half of Diameter, which must be charged with a Composition made of two Pounds of Salt petre, a Pound of Sulphur, and half a Pound of Gunpowder, all well pounded separately, and passed through a fine Sierce, mixing them all together afterwards.

In case the Fire should be too slow, you'll add to it a little Gunpowder pulverized, and Salt-petre, if it burns too quick, to make it last longer; in the Middle of the Ball should be a little Sack filled with this same Composition; the Port-fires shall be run thro' that Sack; and over it, the Ball shall be covered with Tow, and Chips of Wood, dipt in a Mixture made of Linseed-Oil, and Oil of Turpentine, seven Pounds of each, and eight Pounds of Pitch or Tar, gently heated, and well incorporated together; the Tow and Chips must be left to be half dry before they are used; dipping mean while a Piece of very coarse Cloth, in the same Mixture, to envelope the Ball, throwing afterwards on the Cloth Tow and Chips, Salt-petre and Sulphur coarsely pounded, that the Fire may be clearer; observing to put by Intervals Iron-ware round the Matter which is put in the Ball, to make it hold, without being too tight, otherwise the Fire would be too slow; for when the Matter is a little loose, the Flame is greater: If you want to quicken the Fire you must take three Pounds of Gunpowder pulverized, and a Pound of Charcoal pulverized likewise, and having mixed them well together, spread it on a Table, and roll the Ball, covered with the Chips and Tow upon it, covering it afterwards with the Cloth.

For a FIRE-ROCK, you'll put three Pounds of Sulphur in Powder, in a glazed earthen Pot, place the Pot over a little Charcoal Fire without Flame; the Sulphur melted, you'll add to it a Pound of Mutton Suet, a Pound of Gunpowder pulverized, and passed through a Sierce, and a Pound of Salt-petre in Powder: the whole being well mixed, throw it into a Bason, where it must be left to grow cold; or else, while it is hot, cover your Granadoes, Circles, Launces, and other Artifices with it.

Powder, which will be sometimes under Water, and sometimes above it. Take Gunpowder, three Parts of Colophone, a fourth of common Oil, and a sixth of Sulphur; mix them all together, and being dry, try if it burns more or less than it ought; if it does not burn enough add Sulphur and Colophone to it; wrap that Mixture in a Piece of Cloth, then put Straw round it, which must be tied with Packthread, and dip it afterwards in Pitch; cover it over again with other Straw which must be dipped as the first, to keep it from the Water; this done, you'll make a little Hole in it to set it on Fire: The Mixture would be better, if some Petroleum was added to it.

To make *Torches*, which are never extinguished either by the Wind or Rain.—Take old Ropes pretty big, and boil them in Salt-petre Water; and when very dry, cover them with Sulphur pulverized, and coarse Gunpowder, mixed with some Brandy: Take afterwards three Parts of Wax, three Parts of Pitch, one Part of Sulphur, half a Part of Camphire, and half a Part of Turpentine, and with all these Matters mixed together, cover your Ropes, putting four of them together; and as a Torch in the Middle, add besides, between those four Ropes, Quick-Lime, with three Parts of Sulphur mixed together.—These *Torches* will light in all Weathers.

QUAKERISM.

QUAKERS, are a religious Sect, who made their first Appearance in *England* during *Cromwell*'s Usurpation.

They took their Origin from *George Fox*, an illiterate Person, born at *Draiton* in *Leicestershire*; and by Profession a Shoe-maker.

The Accounts of those Times tell us, that as he worked at his Trade he used to meditate much on the Scriptures; which, with his solitary Course of Life, improving his natural Melancholy, he began at last to have Visions, and in consequence thereof, and of an immediate Mission he said he had received from the Holy Ghost, began to preach the Gospel, in a Manner he imagined the most agreeable to the primitive apostolical Simplicity.

The new Apostle proposed but few Articles of Faith, dwelt mostly on Morality, preached mutual Charity, the Love of God, and a deep Attention to the inner Motions and secret Working of the Spirit. He would have a simple Worship, and Religion without any Ceremonies; making it a principal Point to wait in profound Silence, the Motion and Direction of the Holy Spirit.

The Genius of the Time, and the Novelty of the Doctrine, and the great Appearance of Devotion in the Man soon gained him Disciples; and some unusual Shakings and Convulsions they were seized withal at their first Meetings, procured them the Appellation of *Quakers*: Tho' I have learned from very good Authority, that the Innocency and Simplicity of their Manners; their Probity, Disinterestedness, so rare in those Times of Confusion, Trouble and Hypocrisy, and the great Abhorrence they shew'd for all that had the least Appearance of Oppression, Rebellion, Injustice, and other monstrous Vices, which reigned at that Time with Impunity in the three Kingdoms, contributed more to the Increase of their Sect than any Thing else; and that the most loyal Subjects to their legitimate Sovereign, were glad to shelter themselves among them, against the Persecution of the common Oppressors; for as *George Fox* had set aside all Oaths as prohibited by the Gospel; those of the *English*, who continued in their Loyalty, and were not willing to take the Oaths to the Usurper, were glad to be accounted *Quakers*, to be excused from it: Their despising all worldly Honours, as incompatible with the evangelical Simplicity, and Abnegation they professed, and their disclaiming against War, as contrary to the Profession of a Christian, was also a very good Pretext with *Cromwell*, who affected much Religion, though like all other Hypocrites, he had none, for not appearing at his Court, or serving in his Army.

Contrary to the scandalous Maxims of all the new Sects,

Sects, which had preceded theirs, and have appeared since, most of which have been founded on Blood and Slaughter, and have risen from the Devastation of the Countries where they appear'd first, *Quakerism* had no other Foundation than the Disinterestedness, Meekness, and Patience of those who professed it; whose innocent Hands were never seen polluted with the Blood, not even of their most mortal Enemies, and those that persecuted them most; opposing no other Arms to the most atrocious Injuries, than that marvellous Patience which had been admired in the primitive Christians; observing in that Point with a scrupulous Obedience, the Advices which Christ had left us in his holy Gospel, and which the pretended Christians of those Days must have thought till then impracticable. This could not have been an Excess of Hypocrisy, since they had no temporal End to serve thereby, none admitting to be maltreated in so outrageous a Manner as they were then, Nature itself revolting against it, and their Patience, serving only to render them still more despicable in the Eyes of an ambitious World. Neither is it very surprizing, that *George Fox* made no Proselytes among the Great, which the Enemies of that Sect attribute to the Incoherency and Ridicule of his Maxims, and which should rather be attributed to their being so diametrically opposite to those of the grand World, which could never be reconciled with *Christ crucify'd*. For how could *George Fox* have persuaded the Great to a Self-Abnegation, to despise the World and its Pomps, to follow *Christ*, and prefer an eternal Felicity to a temporal one, since the most eloquent Preachers, from the very Infancy of Christianity till then, had not been capable to do it? If it be objected, that the Absurdity of his Doctrine was more than capable to revolt the most sensible Part of Mankind; and that to embrace it was to make an entire Divorce with common Sense; I'll answer, that Part of that most sensible Part of Mankind, have been persuaded to embrace Doctrines, which were not only absurd, but were even condemned by *Christ* himself, and accounted as such by all true Christians; but those Doctrines flatter'd the Passions of the Great, and that was enough to render them reasonable and just.

The *Quakers* profess a great Austerity of Behaviour; a singular Probity and Uprightness in their Dealings; Demureness and Gravity of Countenance; a Coldness and Sparingness of Discourse, to have Time to weigh what they say; though, to my certain Knowledge, they are notwithstanding very chearful, and do not neglect a modest and becoming Complaisance, without Deceit or Dissimulation: They are also frugal in their Tables, and decently plain in their Dress.

They condemn the interested View of the Clergy, of what Denomination soever, therefore would by no Means admit such Orders among them; every one of them (Women not excepted) that thinks himself inspired, being allowed to preach, provided he be known to be of an irreproachable Life.

According to the Genius of rising Sects, an eager Zeal at first led them to some Extravagancies; it is said, that they would run about the Streets naked, perhaps when they had been stripped by those who knew that they followed literally the Counsel of Christ, that when they should be robbed of Part of their Garment, they should also let go the other Part, rather than make any Resistance.

One of their Company, *Nailor*, (if I may credit an Author I have before me) had the Impiety to allow his Followers to call him *Son of God*, *Son of Justice*, and *King of Israel*; to strew Garments before him, and hail him at his Entry into *Bristol*, with *Hosanna*, *Son of David*. He had his Trial for the same, was whipped for Blasphemy, and excommunicated by the rest.

Besides other Penalties inflicted on them, they were laughed at, and rallied in Writing, and exposed on the Theatre; while those who revolted against their legitimate Superiors, dyed their sacrilegious Hands in the Blood of the best of Kings, and massacred their own Countrymen, were caressed, encouraged, and esteemed true Disciples of *King Jesus*. But the *Quakers* despised alike both Press and the Prison, and formed their Sect, maugre all Opposition of both; and under the Direction of *Fox*, *Dewsbury*, and others, grew from a loose, undisciplined Multitude, into a regular Body, with stated Laws and Polity; which they retain with great Œconomy to this Day.

The modern *Quakers* retain nothing of the Extravagancies charged on their Leaders; having approved themselves a sober, quiet People, of exemplary Morals, just in their Dealings, sincere Friends, without Affectation or Dissimulation (which I know, not only by Report, as I do of some other Sects, but by Experience) and remarkably charitable to each other; without picking one another's Pockets under the specious Pretence of relieving the Poor; or rather rendering the Poor poorer still, if it was possible, under Pretence of relieving them.

The Doctrines of the *Quakers* are not easily collected; at least not easily collected out of their own Terms; which appear somewhat ambiguous; for they leave most of the Dogma's to the other Sects to believe; while most of the other Sects leave to the *Quakers* all the Moral and Christian Virtues to practise.

They hold *Christ* to be a Light which has lighted every Man; and that whoever will soberly and seriously turn into himself with a sincere Desire to know and practise his Duty, will not fail to find there a sufficient Director; a Ray from the Fountain of Light illuminating the Understanding, and assisting to distinguish good from Evil.

They add, that such as follow the Directions and Convictions of this Light, shall be holy and acceptable to God; and that this was the End of Christ's coming into the World.—That so far as they follow this Light, they shall be infallible; and that it is not Opinions, Speculations, or Notions of what is true, or Subscription of Articles or Formula's of Faith, how soundly soever worded, that make a Man a true Believer or Christian; but a Conformity of Mind and Practice to the Will of God, according to the Manifestation, and Dictates of this divine Principle of Light within them.

Our Saviour's Injunction about Baptism they understand in a figurative Sense of a Conversion and Change of the Heart; and wholly neglect the outward Sign.—Water-Baptism they hold was only *John*'s; that it was no more than a Type or Figure, fitted for the Infant-State of the Gospel; and therefore now useless, in a Dispensation which is spiritual and inward.

The same they hold of the Eucharist; alledging that both allude to old *Jewish* Practices, and were used as Types and Significations of a near and accomplishing Work. They add, that the Communion of Saints consists only in a Participation of the same divine Principle, shewing itself in an Unity of Spirit.

As to Ministry and Ordinances, they deny that any are to be used of Man's Wit, Will, or carnal Invention, or Imitation; or other than what the inward Principle directs them to. Accordingly, as I have observed already, they have no Persons set apart for the Ministry; but without Distinction of Quality or Sex, every one who is of sober Life, and approved Conversation, and believes him or herself called or moved thereto, is permitted to speak and prophesy in their Assemblies.

They own the Scriptures to be given by divine Inspiration, and allow them the Appellation of the Form of sound Words; but refuse to call them the *Word of God*, as being a Denomination properly attributed to *Christ* alone. They add, that what makes them more scrupulous in this Respect is, that People are apt to be hereby led to think, that if they have the Scripture they have all; and so look for no farther Word or Light.

They acknowledge the *Holy Three* that bear Record in Heaven, *Father*, *Word*, and *Spirit*; but reject the School-Terms, Trinity, distinct Persons, Hypostasis, *&c.* as not scriptural, and as apt to convey too gross Ideas.

They have been even charged with denying the Incarnation, our Saviour's Humanity, Divinity, plenary Satisfaction, and the Resurrection of the Dead; but this is injurious to them; and all that can be justly said, is, that they do not allow of them in the same Sense, or speak of them in the same Terms, as is commonly done

done among others. They allow the Incarnation, and that the Godhead dwelt bodily in *Jesus*; and yet many of them say, that there is no *Christ* but what is within them: Whence it should seem, their Notion of the Incarnation only implied this, that the Light, which they call the *Christ* within, dwelt in the Man *Jesus Christ* fully.—

Their Reasoning here, is, that *Christ*, as God, not being divisible, the Measure or Manifestation of the Spirit of Christ in us, is a Manifestation of the same *Christ* which dwelt bodily and fully in the Man *Jesus Christ*.

They are silent as to the hypostatical Union; and some of them are charged with allegorizing away the whole History of the Crucifixion, the Resurrection, and Ascension; though their best and most approved Writers, have been very explicit in their Acknowledgment of the Reality of the History.

They decline the Use of Modes or Forms of Civility; expressing their Respect to their Superiors no other Way than by obeying all just Laws under their Government, which is the best Sort of Respect.

The System of *Quakerism* is laid down in fifteen Theses by *Robert Barclay*, in a well-writ Apology addressed to King *Charles* II.—Their History writ in low *Dutch* by *William Sewel*, and since translated into *English*, traces them from the Beginning to the Year 1717. A History of them was also published *Anno* 1695, by *Gerard Croese*; but they accuse that Author of having misrepresented Facts, and in many Respects done them Injustice.

As to Discipline and Polity; the Affairs of the Communion are managed under a Democratical Government, by Rules established by common Consent; and this principally at their Meetings, whereof they have many Kinds, *viz. Monthly*, *Quarterly*, *Yearly*, *second Day's Meetings*, *Meetings of Sufferings*, &c. But these Meetings are not like those of some other Sects, calculated to divert the poorest Sort among them from their daily Occupation, and indulge them in Indolence, to the great Detriment of their Family; since they are perfectly well acquainted with this Maxim of the divine Wisdom, *Qui laborat orat*, *He that works prays*; and persuaded that those who neglect their lawful Occupations under Pretence of Devotion, are not acceptable to God.

Their *Monthly* and *Quarterly Meetings* are held in their respective Counties. To these, Deputies are sent from the several particular Meetings. Here Inquiry is made into the State of each Meeting; who stands fast to the Rules and Orders, and who backslides; who pays Tithes and Church-Rates, and who suffers for Non-Payment of either; who are married by Priests, &c. and accordingly they proceed to Censure, or encourage. Here too they excommunicate, and here receive again into Communion, of all which Things exact Registers are kept.

From these *Meetings* Appeal is made to their *yearly ones*, which are always held in *London*, and consist of three Orders or Classes, *viz.* Representatives sent from the *Quarterly Meetings*; Correspondents for the several Counties, and foreign Countries; and Ministers or Preachers. Hither are transmitted Accounts of what has been transacted in all the *Monthly* and *Quarterly Meetings* over the World. Here are Measures concerted, and Directions given as to Behaviour about Tithes and Rates, providing for the Poor, composing Differences, &c. Here publick Accounts are audited, and proper Instructions given to the Deputies to be observed at their Return, and an early Epistle of Admonitions dispatched to be read in all the *Monthly* and *Quarterly Meetings* throughout the World.

The *second Day's Meeting*, is a standing Committee, consisting of the principal Preachers in and about the City, who meet every *Monday* to concert particular Cases and Exigencies relating to the Body, happening between the yearly Meeting; particularly to examine, approve, license, &c. all Books printed in their Behalf.

The *Meeting of Sufferings* is held every Week, and consists of the Correspondents for each County. Its Business is to receive Complaints from such as have suffer'd for non-Payment of Tithes and Rates, and to procure them Relief, either by sending them Money, for which they have a settled Fund, or by solliciting their Causes above, or both.

This Form of Government, seems very well calculated for the Support of a Sect, which otherwise having met from Time to Time with very great Opposition from the Legislature, and having among them none of those who by their illustrious Birth, Credit, and Authority, could protect them against their Enemies, could not have subsisted long. Nothing but the wholesome Laws they have established in their Society, their strict Union, and their unfeigned Friendship for one another, always ready to encourage themselves mutually in their respective Undertakings and Dealings, and to relieve the Distressed with that Christian Compassion, Charity, and Liberality, to be found in no other Christian Sect, could alone hinder them from perishing, during those frequent and violent Tempests, which have been excited against them: Though, at the same Time, their Loyalty to their Sovereigns, from the very Infancy of their Sect, their Meekness, their pacifick Dispositions, their honest Industry to make the Commonwealth flourish, had a greater Title to a Toleration, than any of the Sects who enjoyed that Benefit. Fault is found with their Speaking in an unintelligible Manner, for which they are laughed at; whereas, if some of the other Sects had not been so well understood, the State had not suffer'd those violent Convulsions, which have so often brought it on the Brink of its Ruin, and has given so much Occasion for the Nation to weep, and obliged it to mourn in an extraordinary Manner. I say nothing of their Dogma's; but it is my Opinion, founded on Experience, that if a Legend was made of the moral and Christian Virtues practised by the *Quakers*, and of the Manner they practise them, without the Name of *Quakers* to it, and that compared with those we have of the primitive Christians, which are every Day proposed to us as Examples on which we should modelize our Conduct, the one would often be mistaken for the others; and the Reader often at a Stand to determine which of both has practised those Virtues to a greater Degree of Perfection.

This I speak without Partiality or Prevention, but according to my own Knowledge; for though I have frequented the *Quakers*, I do not remember that I have ever received any Favour from them, which could engage me to prefer them to any other Sect; but I have professed Impartiality at the Beginning of this Work, which Character will appear I hope throughout the whole, notwithstanding what my Enemies or their Emissaries can say to the contrary. I have hid none of the Perfections and Imperfections of the other Sects I have spoke of, though I have perhaps been misinformed of some of them, for it is impossible I should speak of them all on my own Knowledge, as I do of the *Quakers*, among whom, speaking in general, I have found no Imperfection worth minding, or deserving a publick Censure.

QUIETISM.

QUIETISM, is the Sentiments of *Molinos* a *Spanish* Priest, who appeared in the last Century, which he had borrowed from the *Illuminati*, his Countrymen, and only new modelized.

The Name *Quietist*, is taken from a Sort of absolute Rest and Inaction, which the Soul is supposed to be in when arrived at the State of Perfection, which in the Language of the *Quietists* is called the *unitive Life*. To arrive at this, say they, a Man is first to pass through the purgative Way, that is, through a Course of Obedience inspired by the Fear of Hell: Hence he is to proceed into the illuminative Way, before he arrives at Perfection, to go through cruel Combats and violent Pains, *i. e.* not only the usual Dryness of the Soul, and the

the common Privations of Grace, but infernal Pains: He believes himself damned; and the Persuasion that he is so, continues upon him very strongly several Years.

St. *Francis de Sales*, say the *Quietists*, was so fully convinced thereof, that he would not allow any body to contradict him therein. But the Man is at length sufficiently paid for all this, by the Embraces of God, and his own Deification.

These Sentiments of the *Quietists* with regard to God, are wonderfully pure and disinterested. They love him for himself, on account of his own Perfections, independently of any Rewards or Punishments: The Soul acquiesces in the Will of God, even at the Time when he precipitates it into Hell; insomuch, that instead of stopping him in this Occasion B. *Angelo de Foligny* cried out, *Haste, Lord, to cast me into Hell: Do not delay if thou hast abandoned me, but finish my Destruction, and plunge me into the Abyss*; which appears to me rather an Excess of Despair than of Love; since it is impossible we could love an Object from which we desire to be eternally separated; and be thrown into a Place where we must necessarily hate him: Those emphatical Expressions proceed rather from a Motion of Pride and Vain glory, than from the Sincerity of the Heart, inspired with the Love of God.

At length, the Soul, after long Travail, enters into Rest, into a perfect *Quietude*. Here it is only employed in contemplating its God; it acts no more, thinks no more, but lies perfectly open, and at large, to receive the Grace of God, who by means thereof drives it where he will.

In this State it no longer needs Prayers, or Hymns, or Vows; Prayers where the Spirit labours, and the Mouth opens, are the Lot of the Weak and the Imperfect: The Soul of the Saint is, as it were, laid in the Bosom and between the Arms of its God, where, without making any Motion, or exerting any Action, it waits and receives the divine Graces; it then becomes happy; quitting the Existence it before had; it is now changed, it is transformed, and, as it were, sunk and swallowed up in the divine Being, insomuch as not to know or perceive its being distinguished from God himself.

These Sentiments of the *Quietists* are, in part, extracted from the Book of the *Maxim of the Saints*, written by that celebrated Genius M. *de Fenelon*, Archbishop of *Cambray*, Author of *Telemachus*, which Book was attacked by his Antagonist M. *Bossuet*, Bishop of *Meaux*, as containing the Sentiments of *Molinos*, and as such delated to the Court of *Rome*. M. *de Fenelon*, conscious that his Book would be condemned there, anticipated that Condemnation by condemning it himself; though he had strenuously defended it against the violent Attacks of M. *Bossuet*.

The *Quietists* were accused of having other Sentiments besides, which smelled much of Impiety; as this, that provided a Person could retain the Memory of God; while he plunged himself in the most criminal Pleasures, he was guiltless; because, the Soul being then conversant in Heaven, had no Part in what was acted by the Body; which was then left to fall on its natural Penchant: Which dangerous Maxim tended to tolerate all Kinds of Vices and Disorders.

At the Time of the Disputes between Mess. *de Fenelon* and *Bossuet*, about the Book of the *Maxims of the Saints*, several Persons, even of the first Rank, in *France*, appeared inclinable to *Quietism*, and some of them professed it publickly, particularly the famous Madame *Guion*; which excited some Troubles in the *Gallican* Church, but which were soon smothered by the King's Authority, and the Recantation of M. *de Fenelon*; though Madame *Guion* remained a stanch *Quietist* to her Death; some pretending that the Duke of *Montausier*, and several others of the Nobility did the same.

Molinos, the Chief of this Sect, died in the Prison of the Inquisition at *Rome*.

Their Fore-Fathers the *Illumined*, or *Illuminati*, were a Sect of Hereticks, who sprang up in *Spain* about the Year 1575, and called by the *Spaniards Alumbrados*.

Their Leaders were *Villalpando* a Priest, originally of the Isle of *Tenerif*, and a Carmelite, called *Catherine de Jesus*. These had a great Number of Disciples and Followers, most of whom were apprehended, and clapped up in the Inquisition at *Cordua*; some whereof were put to Death, and the rest abjured their Errors.

Their principal Doctrines were, that by means of a sublime Manner of Prayer, which they had attained to, they entered into so perfect a State, that they had no Occasion for Ordinances, Sacraments, nor Good Works; and that they could give way, even to the vilest Actions without Sin; which last Opinion was smoothed a little, and new modelized by the *Quietists*.

The Sect of *Illumined* was revived in *France* in the Year 1634, and were soon after joined by the *Guerinets*, or Disciples of *Peter Guerin*, who together made but one Body, called also *Illumined*: But they were so hotly pursued by *Lewis* XIII. that they were soon destroyed.

REFINING.

REFINING, as I take it in this Place, is the Art of refining Metals and Salts.

All Sorts of Metals admit of *Refining*, viz. *Gold*, *Silver*, *Iron*, *Tin*, and *Lead*; only they are not all refined in the same Manner; nay, there are even several different Manners of refining each of them, *e. gr.*

GOLD, can be refined in three different Manners, *viz.* either with Antimony, with Sublimate, or with Aqua fortis.

The last of these three Manners, viz. *depart*, and which is the most usual, and most dangerous, is also called *departing*, or *parting*; the Process thereof is as follows.

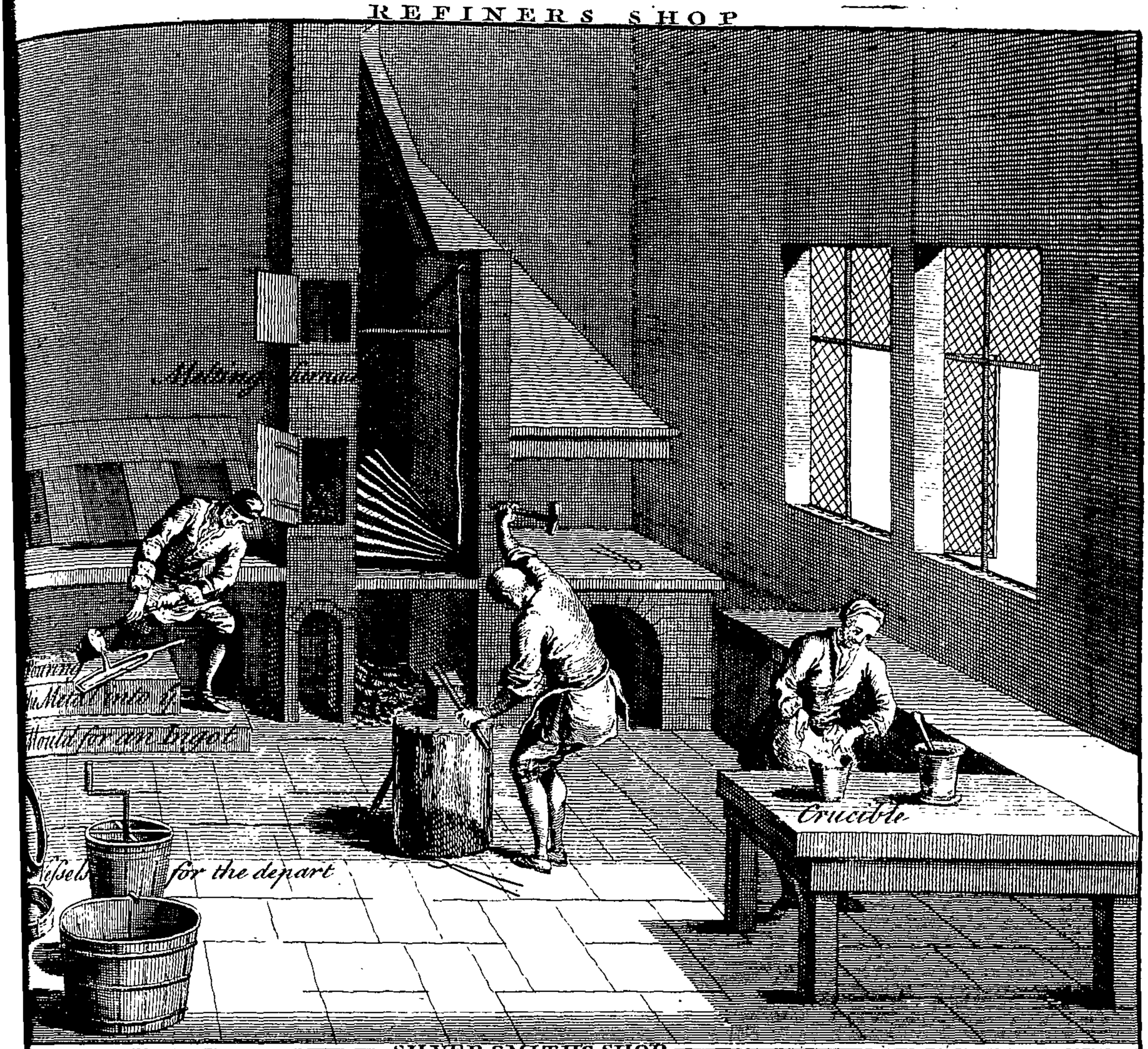
They take at the Rate of one Pound of impure Gold, and two or three of Silver; these they fuse together in a Crucible, and when fused cast them into cold Water, where they become divided into Grains of the Bigness of Peas. These Grains taken out and dried by the Fire, are put in a departing Vessel, which is a Stone Matrass, and to the Matrass is added four Pounds of Aqua fortis. Then taking the Vessel they set it on the Coals, and in about an Hour's Space the Refining is done. For upon opening the Vessel they find nothing therein but the Aqua fortis, and the Gold reduced into a Calx, or Sand; the Silver being all dissolved and imbibed by the Water.

To raise the *Gold* to its due Fineness, they usually give it the Aqua fortis again and again; using for the first Time half a Pound, and for the second a Quarter of a Pound of the Water to eight Ounces of Metal. If the third Water be found good and clear, the Operation is ended: And the Calx of the Gold being washed in repeated Water, is melted down in a Crucible, first by a gentle, and afterwards a vehement Fire, to be cast into Ingots or Wedges.

It must be added, that the Silver with the Impurities of the Gold, are so thoroughly incorporated with the Water, that to the Eye there does not appear any thing besides the pure Liquid, yet this Silver is not lost. To recover it again out of the Menstruum, they divide their Stock of Aqua fortis into several Stone Vessels, which they fill up with Spring Water, observing to put seven or eight Times as much of this as that. This done, in each Vessel they put a Quantity of Copper; and leaving the whole for twenty-four Hours, at the End thereof they find the Particles of the Aqua fortis have quitted the Silver, and are with the Copper, leaving the former in Form of a Calx, or incorporated Ashes at Bottom. This Calx being dried, is melted into an Ingot, with a little Saltpetre.

To husband the Aqua fortis, and make it serve again for a second Operation; they distil it in an Earthen or Glass Alembick; and when the Distillation is about a third

REFINERS SHOP



SILVER-SMITHS SHOP

third over change the Recipient. The Water of the first Recipient serves for the first Operation of *departing*, and the rest for the subsequent ones.

If the Aqua fortis, having quitted the Silver, and being united with the Copper, be then filtrated, it is called *Aqua secunda*, in which, if you steep an Iron Plate some Hours, you will have another *Departure*, for the Menstruum will let go the Copper, and prey on the Iron, leaving the Copper in Powder on the Iron Plate. And filtrating this Dissolution, you may get the Iron out of it, by laying in it a Piece of Lapis Calaminaris; for the Iron in that Case will depart to the Bottom, and the Lapis be dissolved: And if you again filtrate this Water, and pour on it the Liquor of fixed Nitre, you will have another *Depart*, the Lapis precipitating to the Bottom. And, lastly, filtrating this Water as before, and evaporating Part of it, you'll have Crystals of Saltpetre.

To *refine Gold with Antimony*, you must take an ordinary Crucible, of a Size answerable to the Quantity of Gold to be refined; observing that the Gold and Antimony together do not above half fill it: Put that Crucible in a Wind Furnace, with the Gold alone in it; and when the Gold is melted throw into it the Antimony in Powder. The Proportion of the Mineral to the Metals, is about a Pound to eight Ounces, if the Gold be between 22 and 16 Carrats fine: If it be beneath 16 Carrats, they use about five Quarters of a Pound to eight Ounces: The coarser the Gold is, the more Antimony is required.

As soon as the Antimony is in the Crucible, it is covered up; and after charging the Furnace with Charcoal, they put on its Head a Cover, which stand till such Time as the Crucible be left quite bare; then the Head being taken off, and the Crucible left to cool in the Furnace itself, till such Time as it may be taken out by the Hand, they break it to get out the Bottom, or Culot, which is a Mass of fine *Gold* remaining at the Bottom, with the Focus of the Antimony, the Silver and Copper Alloy, and sometimes little Particles of Gold itself over it.

Though the Gold thus prepared be very pure, the Antimony gives it such a harsh brittle Quality, that it ceases to be ductile; and must be softened by Fusion, with Salt-petre and Borax, to bring it to itself.

For this Operation they prepare what they call a *dry Coppel*, that is, a Coppel made of crucible Earth, which does not imbibe like the Coppel made of Ashes.

The Coppel being sufficiently heated in the refining Furnace, they put the Gold in it and cover it up with Charcoal.

As soon as the *Gold* is dissolved, which is very soon by reason of the Remains of the Antimony, they blow it with the Bellows to drive the Mineral entirely away, which now goes off in Smoak; adding to it, as soon as the Fumes cease, a little Salt-petre and Borax in Powder; which collect the Impurities remaining upon Dissolution, and fix the *Gold* in the Coppel in Form of a Plate.

The *Gold* being taken out of the Coppel, and melted afresh in the Crucible, with an Addition of two Ounces of Salt-petre, and as much Borax in Powder, to each eight Ounces of *Gold*; as soon as it ceases to fume, they cast it into an Ingot; which, upon Trial, is found 23 Carrats, 26 Thirty-Seconds fine.

As to the Particles of *Gold* which may have been left behind with the Alloy in the Fæces of the Antimony, they get them out by a dry Coppel, with the same Meltings and Ingredients as are used in softening the former. And when they are assured by the Essay, of the Share of *Gold* the Matter contains, they refine it to separate the Copper; and afterwards make the Depart.

As to the *Gold* which may be left sticking to the dry Coppels, they get it out by breaking and pulverizing the Crucibles, and by repeated Lotions of the Powder thereof in several Waters; which is called Washing.

To *refine Gold by means of Sublimate.*—The Process is begun like that with Antimony, *i. e.* in the same Furnace, with the same Coal, the same Fire, and the same Crucibles.

The *Gold* being melted in the Crucible, they cast in the Sublimate, not pulverized, but only broke in Pieces. As to the Proportion, to eight Ounces of *Gold* to be refined, they put an Ounce, or an Ounce and a half, or even two Ounces, if the *Gold* be of 22 Carrats; three Ounces if 20 Carrats; and 406 Ounces, if it only be from 18 to 20 Carrats. In which last Case they part the Sublimate into two; putting half at a Time, with the *Gold*, into a new Crucible; which, when the Operation is over, leaves the *Gold* from 18 to 23 Carrats, according to its Fineness before. After this, they raise it further by the Fire as follows:

The broken Sublimate being put into the Crucible with the melted Gold, the Crucible is immediately covered up, to smother the Mineral: Which done, the Furnace is filled with Charcoal, and the Head put on. A Quarter of an Hour afterwards they take off the Head, lay the Crucible bare, and give the *Gold* Air, *i. e.* blow off all the Ashes, and other Impurities that may be floating on the liquid Gold, with a Pair of Bellows, the Nozzle whereof is crooked.

This they repeat again and again, till the Impurities of the *Gold* being carried off, by virtue of the Sublimate, it be found of a bright glittering Colour; after which it is taken out of the Crucible, and the *Gold* cast into an Ingot.

The Method of *refining* by Sublimate is both more compleat and cheaper than that by Antimony; but they are both exceeding dangerous, by reason of their sulphurous and arsenical Exhalations: The only Difference in their Malignity consisting in this, that the Poison of the Antimony is slower than that of the Sublimate.

Gold may also be refined with Lead and Ashes, as observed in my Treatise of Chymistry, under the Letter C; but this is a Method seldom used, excepting in *Essays*.

For the Method of *assaying Gold.*—The Assayer having weighed the *Gold* he intends to make the Trial in, very exactly, with Scales that will turn with the hundredth Part of a Grain, and noted down the Weight, add twice as much fine Silver thereto; though this should be in proportion to the Fineness the *Gold* seems to be of, the basest *Gold* requiring the least Silver. The Gold and Silver thus weighed and mixed, are wrapped up in a Piece of Paper, to prevent their losing any Thing of their Weight, which would disturb the Accuracy of the Assay.

While the *Assayer* is weighing his Matters, a Reverberatory Fire is lighted in a Furnace, furnished with a Muffler and a Coppel or Test set therein to heat. This done, a little Bullet of Lead is put in the Coppel, of a Weight proportionable to the Quantity and Quality of the *Gold* to be assayed. When the Lead is well melted, and appears very clean and bright, they put in the Gold and Silver, and let it fuse and seethe till it appears of an opal Colour, and have fix'd itself in a little Lump to the Bottom of the Coppel.

This done, the Coppel is left to cool in the Furnace itself; after which the Lump is separated very exactly from the Place where it stuck to the Vessel; and stretched and hammered on the Anvil, heating it again and again on the Coals, to promote the Stretching.

When sufficiently hammered, they roll it up in Form of a Cornet or Coffin, and thus put it in a Glass Matrass, capable of containing four Spoonfuls of Water; and having added to it a Quantity of Aqua fortis well corrected, that is, mixed with near one Third of the Quantity of River Water; they boil it over a Wood Fire, till such Time as the Aqua fortis yields no more red Fumes.

This first Water being poured off, and the Cornet left alone at the Bottom of the Matrass, they fill the Matrass again, but with pure Aqua fortis; which, after boiling, is poured off in its Turn at such Times as the Fumes are become white.—This done, they fill up the Matrass with River Water, to wash the Cornet.

When washed they put it dry in a Crucible, with a Cover over it, and heat it till it become of a Cherry-Colour.

This done, the *Assay* is finished; and there remains nothing but to weigh it against the same Weight of fine Gold as was used at first before the Essay; for by comparing the first Weight of the Gold ere it was put in the Fire, and the Aqua fortis, with what it returned after

it had thus undergone the Teſt; they judge from the greater or leſs Loſs it has ſuſtained, of the Quantity of Alloy mixed with it.

In thoſe different Manners Gold is *refined* and *aſſayed*.

Now for *refining Silver*; which is done two Ways; the one with Lead, the other with Salt-petre. The beſt and cheapeſt is that with Lead; though that with Salt-petre ſtill obtains in many Places, for want of Workmen who underſtand the Proceſs of the latter.

To *refine Silver with Lead*; a Coppel is filled with a Mixture of Brick Aſhes, and Aſhes of a Bullock's or other Bones. It is ſet on the Fire and heated red-hot; in which State the Lead is put in, and when this is melted, the *Silver*, in the Proportion of a Pound of Lead to four or five Ounces of Silver, and even ſomewhat more Lead, if the *Silver* be very coarſe. As theſe two Metals melt together, the Copper, before mixed with the *Silver*, diſſipates in Smoak, or goes away with the Scum and Litharge, and ſo does the Lead itſelf; leaving the Silver alone in the Coppel, in its proper Degree of Fineneſs.

In this Method of *Refining*, wherein 6 or 7000 Pounds may be refined at once; the Metal is drawn out of the Coppel two Ways; the one by plunging in it, while ſtill liquid, a thick Bar of Iron, round which the *Silver* ſticks in Form of a Shell, or Cruſt; repeating this again and again: The other is by letting the Coppel ſtand till it be cold; in the Bottom whereof the Silver fixes in Form of Cake.

The *refining Silver with Salt-petre*, is performed in a Wind Furnace.—The *Silver* to be refined having been reduced into Grains of the Size of little Peas, by pouring it, when melted, into a Tub of common Water; it is heated over again in a Boiler. After this they put it in a Crucible, and along with it, to every eight Ounces of Metal, two of Salt-petre.

The Crucible is now covered up with an earthen Lid, in Form of a Dome, exactly luted; which Lid however is to have a little Aperture in the Middle.

The Crucible being put in the Furnace, and covered with Charcoal, which is only to be lighted by Degrees; at length they give it the full Force of the Fire to put the Metal into a perfect Fuſion. This they repeat three Times ſucceſſively, at an Interval of a Quarter of an Hour.

After the third Fire they uncover the Furnace, and let the Crucible cool; and at length break it, to get out the Silver, which is found in a Button or Culot; the Bottom whereof is very fine Silver; and the Top mixed with the Fæces of the Salt-petre, and the Alloy of the Silver, and even ſome Particles of the fine Silver.

The Culot being ſeparated from the Impurities, is melted in a new Crucible, and into the Diſſolution is thrown Charcoal-Duſt, and the whole briſkly worked together. Then the Crucible being covered up again, and the Furnace charged with Coal, a ſecond Fire is given it.

This done, the Aſhes, and other Impurities are blown from the Top of the Metal, till it appears as clear as a Looking-Glaſs; and then an Ounce of Borax broke in Pieces is thrown in.

Laſtly, the Crucible being covered up again, they give it the laſt Fire; after which it is caſt into Ingots; which are found eleven Penny-weights, and ſixteen Grains fine.

To recover the Silver that may be left in the Fæces or Scoria, they pound them, and give them repeated Lotions in freſh Waters.

But both the one and the other Manners are tedious and troubleſome, when performed on large Quantities. This occaſioned M. *Homberg* to endeavour to ſhorten the Operation; which he effected with good Succeſs. His Method is, to calcine his Silver with half its Weight of common Sulphur; and after melting the whole together, to caſt a Quantity of Steel-Filings upon it at ſeveral Times: Upon this the Sulphur quits the Silver, and joins itſelf to the Iron, and both are converted into Scoria, which ſwim on the Silver; and the Metal itſelf is found pure at the Bottom of the Crucible.

The *Aſſay of Silver* is much after the ſame Manner of that of Gold; only leſs difficult and ſhorter. The Silver is weighed as before; and the ſame Furnace, and Muttler, the ſame Fire, the ſame Coppel uſed. Add, that Lead is alſo put in the Coppel, proportioned to the Quantity and Quality of the Silver to be aſſayed.

The Lead being well melted and clear, the Silver is put in; and after it is brought to an opal Colour, and fixed in a Lump at the Bottom of the Coppel, which happens in about half an Hour; they let it cool, and cleanſe it; and laſtly, weigh it again as in Gold; and from its Diminution eſtimate the Quantity of Alloy.

The *refining of* COPPER, is only performed by giving the mineral Matter ſeveral Lotions before the melting it; and then giving it ſeveral repeated Fuſions.

The *refining of* TIN, is performed much after the ſame Manner of that of Copper; though we may diſtinguiſh two Kinds of Fineneſs of this Metal: The one ariſing from its Fuſion, that *Tin* taken firſt out of the Furnace wherein it is melted, being always purer than that towards the Bottom.

The other Kind of Fineneſs is that given the *Tin*, by adding ſome other Metal or Mineral to it, to render it more ſonorous as well as brighter; ſuch is *Tin* of Antimony, Pewter, *&c.*

For the *Method of aſſaying Tin*.—To find whether *Tin* be ſoft and ductile, or harſh and brittle, there are two Kinds of Eſſays:—The firſt, is by putting the *Tin* in a Mould of caſt Braſs, and there melting it. If the Metal be harſh, it will be taken out heavier than before; otherwiſe it will be lighter. The ſecond, is by caſting the melted *Tin* into a little Mould, made of the Thunder-Stone. This Mould has a little Canal of moderate Length, which conducts the Matter into a Cavity, capable of containing half a Billiard Ball: If the Tin be harſh, it appears whitiſh towards the Entry of the Mould; otherwiſe it is tinged ſuperficially with a very faint bluiſh Brown.

Refining of IRON, begins likewiſe by melting it. The greater Degree of Fuſion the Mineral has, the more the Metal is purified: But this firſt Fuſion is not ſufficient. To render the Iron malleable, and fit to endure the File, it muſt be melted a ſecond Time; then forged or beaten a long Time with huge heavy Hammers, wrought by Water; then heated in the Fire, and at laſt reduced on the Anvil into Bars of ſeveral Thicknesſes.

The more the Iron is heated in the Fire, and the more it is beaten, whether hot or cold, the finer it becomes.

Steel is only Iron refined to a great Degree by heating it with ſome other Ingredients, which cloſe up the Pores, and ſoften the Grain thereof.

Refining of LEAD, is performed like that of moſt other imperfect Metals, by frequent Meltings, ſtill ſcumming it before it be cold; and caſting in Tallow and other kind of Fat.

There is alſo an *Aſſay made of Lead*; for the Aſſay of Gold and Silver, being performed by means of Lead; 'tis of the utmoſt Importance, the Lead be free of any Mixture of either of the two Metals: Otherwiſe the *Aſſay* will be falſe, by reaſon the Gold and Silver mixed with the Lead, will not evaporate like other Kinds of Alloy, but unite with the Metal under *Aſſay*.

To prevent this Diſorder, and aſſure the Operation, there is no Way but to aſſay the Lead itſelf.

This *Aſſay* is performed in the ſame Furnace, and with the ſame Coppels, as thoſe of Gold and Silver: But the Proceſs is incomparably more ſimple. All here required, when the Coppel is heated, being to put in the Piece of Lead to be aſſayed. If this Lead evaporates entirely, it is fit for the Purpoſe. On the contrary, if there remain a little Grain of Silver, *&c.* at the Bottom, it muſt be ſet aſide.

RELIGION.

RELIGION, *Religio*, is that Worſhip or Homage due to God, conſider'd as Creator, Preſerver, and Redeemer of the World.

The Foundation of all *Religion*, is, that there is a God; and that he requires ſome Service at the Hands of his Creatures. From the different Manners wherein we arrive at the Knowlege of this Service; Religion is divided into *natural* and *reveal'd*.

Natural RELIGION, is all that's a natural Conſequence of that innate Idea we have within us of a Divinity; and which joined with the Dictates of our Reaſon, gives us to underſtand, that that Divinity ſo infinitely above our Apprehenſions, claims from us a certain Worſhip, Love, and Reſpect, far ſuperior to that which is ſhewn to all that is the moſt eminent, the moſt reſpectful, and the moſt amiable among the created Beings.

The *reveal'd Religion* is what we learn to be due, by ſome ſupernatural Means; as by an expreſs Declaration of God himſelf, by the Mouth of Prophets, *&c.*

The firſt flows immediately from the Relation between the Creature and the Creator; the latter does not flow from ſuch a Relation; but is ſuperadded from the mere Will and Pleaſure of the Creator.

The firſt we ordinarily call *Morality* or *Ethicks*; becauſe immediately converſant about the Manners and Duties of Men, towards one another; and towards themſelves, conſider'd as Creatures of that Being; which Religion has never much flouriſhed among Men.

The latter we call, by Way of Eminence, *Religion*, as being the Rule of our Duty immediately to God himſelf.

The firſt ſuppoſes a God, a Providence, a future State, Rewards, and Puniſhments: The latter, likewiſe, ſuppoſes an immediate Miſſion from God himſelf, atteſted by Miracles.

The firſt reign'd from the Creation, to the Miſſion of *Moſes*; though almoſt entirely diſfigured by the Superſtitions, ridiculous Romances, and Dreams of the Pagans, who formed to themſelves as many Deities, as their depraved Imagination could invent; filling the Heavens with a confus'd Mixture of Heroes, virtuous Men, profligate, debauched, and lawleſs Ruffians and Scoundrels; virtuous Women, Proſtitutes, *&c.* and placing on their Altars, not Men only, but even the vileſt and moſt deſpicable Inſects; which they had the ſacrilegious Folly to honour with a Worſhip which was due to God alone; and the moſt unconceivable is, that thoſe Nations where the Arts and Sciences flouriſhed moſt, and diſtinguiſhed from others for their Capacity and Senſe, were the moſt guilty of that Folly.

The *Iſraelites* themſelves, that People ſo much cheriſhed of God, that by a Pre-dilection he had choſen them for his own, in a particular Manner, and excluſive of all other Nations, were not quite free from thoſe Superſtitions; till Revelation came to their Succour, to prevent their deviating ſtill more and more from the true Worſhip; which Revelation was made by *Moſes* and the Prophets, and which was the Foundation of the *Jewiſh* Religion, or *Judaiſm*; as I have explained in my Treatiſe thereof, under the Letter J.

The *Chriſtian Religion*, which is that I deſign to treat of in this Place, is alſo founded on Revelation, which was made by Chriſt and his Apoſtles; part thereof is the *Jewiſh* Revelation. For the *Meſſiah* promis'd in the one, is revealed in the other: But all the reſt of the *Jewiſh* Revelation, which related peculiarly to the *Jewiſh* People, is here ſet aſide, and only that Part of it which was to affect the World in general, we mean that relating to the Coming of the *Meſſiah*, is here built upon.

Indeed it muſt be owned the *Jews* ever looked on this as peculiar to themſelves, as any of the reſt; the *Meſſiah* was promis'd to them; he was to be their Deliverer, their Reſtorer, *&c.* But upon the taking Place of this new Revelation, a new Scene was open'd. This Part of the old Revelation it was ſhewn, was all typical, or allegorical; and the Prophecies relating hereto, not to be underſtood in their primary or literal Senſe. The *Meſſiah* was not to be the Reſtorer of the *Jewiſh* Sovereignty, and Liberties, which were now fallen into the Hands of the *Romans*, but to reſtore and re-eſtabliſh the World, who had loſt their original Righteouſneſs, and were become Slaves of Sin; to preach Repentance and Remiſſion; and at laſt to ſuffer Death; that all who believed in him, might not die, but have everlaſting Life.

Such is the Tenor and Deſign of the *Chriſtian* Revelation, which in the Event was ſo far from being what it had been apprehended to be by the People to whom it was firſt promiſed; that it proved the very Reverſe; and inſtead of re-eſtabliſhing and confirming the other Branches of their Revelation, ſuperſeded, and ſet them all aſide. The Pale was now broken down, and the being of the Seed of *Abraham* ceaſed to be a Privilege, all the World being invited on the ſame Terms with the *Jews*.

The Conſequence was, that the *Jews* denying this to be the *Meſſiah* that had been promiſed to them, as not able to ſee the Prophecies fulfilled in him, for want of the typical Means thereof, were generally excluded from the Privileges of that Miſſion which had been ſuppoſed wholly intended for them; and had their Ruin compleated from the very Means, whence they expected their Redemption.

In Effect, one of the greateſt Difficulties in Chriſtianity turns upon the Completion of the Scripture Prophecies.—In the Prophets of the Old Teſtament, are frequent Predictions of the *Meſſiah*, as already obſerved, which the Writers of the New frequently urge to the *Jews* and Heathens as fulfilled in *Jeſus Chriſt*; and on this Principle evince the Truth of his Miſſion: But theſe Texts thus urged from the Old in the New Teſtament, are ſometimes not to be now found in the Old; whence moſt of the Chriſtian Commentators, Divines, and Criticks, antient and modern, judge them to be applied in a ſecondary, typical, allegorical, or myſtical Senſe.

Thus, *e. gr.* St. *Matthew*, after an Account of the Conception of the Virgin, and the Birth of *Jeſus*, ſays, *All this was done, that it might be fulfilled which was ſpoken by the Prophet, ſaying, Behold a Virgin ſhall be with Child, and ſhall bring forth a Son, and they ſhall call his Name* Immanuel. But the Words, as they ſtand in *Iſaiah*, whence they are ſuppoſed to be taken, do, in their obvious and literal Senſe, relate to a young Woman who was to bring forth a Child in the Days of *Ahaz*; as appears from the Context, and as is owned by *Grotius*, *Huetius*, *Caſtalio*, *Curallæus*, *Epiſcopius*, *Le Clerc*, *Lamy*, *Hammond*, *Simon*, &c.

This Prophecy, then, not being fulfilled in *Jeſus*, in the primary, literal, or obvious Senſe of the Words, is ſuppoſed, like the other Prophecies cited by the Apoſtles, to be fulfilled in a ſecondary, typical, or allegorical Senſe, *i. e.* this Prophecy which was firſt literally fulfilled by the Prophet's Son in the Time of *Ahaz*, was again fulfilled by the Birth of *Jeſus*, as being an Event of the ſame Kind, and intended to be ſignified, either by the Prophet, or by God, who directed the Prophet's Speech.

Grotius obſerves, this to be the Caſe in moſt, if not all the Prophecies and Citations quoted from the Old in the New Teſtament; and *Dodwell*, with Sir *John Marſham*, refer even the famous Prophecy of *Daniel*, about the ſeventy Weeks, to the Time of *Antiochus Epiphanes*; ſhewing that the Expreſſions taken thence by *Chriſt*, and urged by him, as predicting the Deſtruction of *Jeruſalem* by the *Romans*, have only in a ſecondary Senſe a Reſpect to that Deſtruction.

And even that famous Prophecy in the Pentateuch, *A Prophet will the Lord God raiſe up unto thee, like unto me; to him ſhall ye hearken.* Which St. *Luke* refers to as ſpoken of *Jeſus Chriſt*, is, by *Simon*, *Grotius*, *Stillingfleet*, &c. underſtood to ſignify, in its immediate Senſe, a Promiſe of a Succeſſion of Prophets.

It is allowed then the Apoſtles applied the Prophecies they quote from the Old Teſtament, in a typical Senſe; but

it had thus undergone the Teſt; they judge from the greater or leſs Loſs it has ſuſtained, of the Quantity of Alloy mixed with it.

In thoſe different Manners Gold is *refined* and *aſſayed*.

Now for *refining Silver*; which is done two Ways; the one with Lead, the other with Salt-petre. The beſt and cheapeſt is that with Lead; though that with Salt-petre ſtill obtains in many Places, for want of Workmen who underſtand the Proceſs of the latter.

To *refine Silver with Lead*; a Coppel is filled with a Mixture of Brick Aſhes, and Aſhes of a Bullock's or other Bones. It is ſet on the Fire and heated red-hot; in which State the Lead is put in, and when this is melted, the *Silver*, in the Proportion of a Pound of Lead to four or five Ounces of Silver, and even ſomewhat more Lead, if the *Silver* be very coarſe. As theſe two Metals melt together, the Copper, before mixed with the *Silver*, diſſipates in Smoak, or goes away with the Scum and Litharge, and ſo does the Lead itſelf; leaving the Silver alone in the Coppel, in its proper Degree of Fineneſs.

In this Method of *Refining*, wherein 6 or 7000 Pounds may be refined at once; the Metal is drawn out of the Coppel two Ways; the one by plunging in it, while ſtill liquid, a thick Bar of Iron, round which the *Silver* ſticks in Form of a Shell, or Cruſt; repeating this again and again: The other is by letting the Coppel ſtand till it be cold; in the Bottom whereof the Silver fixes in Form of Cake.

The *refining Silver with Salt-petre*, is performed in a Wind Furnace.—The *Silver* to be refined having been reduced into Grains of the Size of little Peas, by pouring it, when melted, into a Tub of common Water; it is heated over again in a Boiler. After this they put it in a Crucible, and along with it, to every eight Ounces of Metal, two of Salt-petre.

The Crucible is now covered up with an earthen Lid, in Form of a Dome, exactly luted; which Lid however is to have a little Aperture in the Middle.

The Crucible being put in the Furnace, and covered with Charcoal, which is only to be lighted by Degrees; at length they give it the full Force of the Fire to put the Metal into a perfect Fuſion. This they repeat three Times ſucceſſively, at an Interval of a Quarter of an Hour.

After the third Fire they uncover the Furnace, and let the Crucible cool; and at length break it, to get out the Silver, which is found in a Button or Culot; the Bottom whereof is very fine Silver; and the Top mixed with the Fæces of the Salt-petre, and the Alloy of the Silver, and even ſome Particles of the fine Silver.

The Culot being ſeparated from the Impurities, is melted in a new Crucible, and into the Diſſolution is thrown Charcoal-Duſt, and the whole briſkly worked together. Then the Crucible being covered up again, and the Furnace charged with Coal, a ſecond Fire is given it.

This done, the Aſhes, and other Impurities are blown from the Top of the Metal, till it appears as clear as a Looking-Glaſs; and then an Ounce of Borax broke in Pieces is thrown in.

Laſtly, the Crucible being covered up again, they give it the laſt Fire; after which it is caſt into Ingots; which are found eleven Penny-weights, and ſixteen Grains fine.

To recover the Silver that may be left in the Fæces or Scoria, they pound them, and give them repeated Lotions in freſh Waters.

But both the one and the other Manners are tedious and troubleſome, when performed on large Quantities. This occaſioned M. *Homberg* to endeavour to ſhorten the Operation; which he effected with good Succeſs. His Method is, to calcine his Silver with half its Weight of common Sulphur; and after melting the whole together, to caſt a Quantity of Steel-Filings upon it at ſeveral Times: Upon this the Sulphur quits the Silver, and joins itſelf to the Iron, and both are converted into Scoria, which ſwim on the Silver; and the Metal itſelf is found pure at the Bottom of the Crucible.

The *Aſſay of Silver* is much after the ſame Manner of that of Gold; only leſs difficult and ſhorter. The Silver is weighed as before; and the ſame Furnace and Muttler, the ſame Fire, the ſame Coppel uſed. Add, that Lead is alſo put in the Coppel, proportioned to the Quantity and Quality of the Silver to be aſſayed.

The Lead being well melted and clear, the Silver is put in; and after it is brought to an opal Colour, and fixed in a Lump at the Bottom of the Coppel, which happens in about half an Hour; they let it cool, and cleanſe it; and laſtly, weigh it again as in Gold; and from its Diminution eſtimate the Quantity of Alloy.

The *refining of* COPPER, is only performed by giving the mineral Matter ſeveral Lotions before the melting it; and then giving it ſeveral repeated Fuſions.

The *refining of* TIN, is performed much after the ſame Manner of that of Copper; though we may diſtinguiſh two Kinds of Fineneſs of this Metal: The one ariſing from its Fuſion, that *Tin* taken firſt out of the Furnace wherein it is melted, being always purer than that towards the Bottom.

The other Kind of Fineneſs is that given the *Tin*, by adding ſome other Metal or Mineral to it, to render it more ſonorous as well as brighter; ſuch is *Tin* of Antimony, Pewter, *&c.*

For the *Method of aſſaying Tin*.—To find whether *Tin* be ſoft and ductile, or harſh and brittle, there are two Kinds of Eſſays:—The firſt, is by putting the *Tin* in a Mould of caſt Braſs, and there melting it. If the Metal be harſh, it will be taken out heavier than before; otherwiſe it will be lighter. The ſecond, is by caſting the melted *Tin* into a little Mould, made of the Thunder-Stone. This Mould has a little Canal of moderate Length, which conducts the Matter into a Cavity, capable of containing half a Billiard Ball: If the Tin be harſh, it appears whitiſh towards the Entry of the Mould; otherwiſe it is tinged ſuperficially with a very faint bluiſh Brown.

Refining of IRON, begins likewiſe by melting it. The greater Degree of Fuſion the Mineral has, the more the Metal is purified: But this firſt Fuſion is not ſufficient. To render the Iron malleable, and fit to endure the File, it muſt be melted a ſecond Time; then forged or beaten a long Time with huge heavy Hammers, wrought by Water; then heated in the Fire, and at laſt reduced on the Anvil into Bars of ſeveral Thickneſſes.

The more the Iron is heated in the Fire, and the more it is beaten, whether hot or cold, the finer it becomes.

Steel is only Iron refined to a great Degree by heating it with ſome other Ingredients, which cloſe up the Pores, and ſoften the Grain thereof.

Refining of LEAD, is performed like that of moſt other imperfect Metals, by frequent Meltings, ſtill ſumming it before it be cold; and caſting in Tallow and other kind of Fat.

There is alſo an *Aſſay made of Lead*; for the Aſſay of Gold and Silver, being performed by means of Lead; 'tis of the utmoſt Importance, the Lead be free of any Mixture of either of the two Metals: Otherwiſe the *Aſſay* will be falſe, by reaſon the Gold and Silver mixed with the Lead, will not evaporate like other Kinds of Alloy, but unite with the Metal under *Aſſay*.

To prevent this Diſorder, and aſſure the Operation, there is no Way but to aſſay the Lead itſelf.

This *Aſſay* is performed in the ſame Furnace, and with the ſame Coppels, as thoſe of Gold and Silver: But the Proceſs is incomparably more ſimple. All here required, when the Coppel is heated, being to put in the Piece of Lead to be aſſayed. If this Lead evaporates entirely, it is fit for the Purpoſe. On the contrary, if there remain a little Grain of Silver, *&c.* at the Bottom, it muſt be ſet aſide.

RELIGION.

RELIGION, *Religio*, is that Worship or Homage due to God, consider'd as Creator, Preserver, and Redeemer of the World.

The Foundation of all *Religion*, is, that there is a God; and that he requires some Service at the Hands of his Creatures. From the different Manners wherein we arrive at the Knowlege of this Service; Religion is divided into *natural* and *reveal'd*.

Natural RELIGION, is all that's a natural Consequence of that innate Idea we have within us of a Divinity; and which joined with the Dictates of our Reason, gives us to understand, that that Divinity so infinitely above our Apprehensions, claims from us a certain Worship, Love, and Respect, far superior to that which is shewn to all that is the most eminent, the most respectful, and the most amiable among the created Beings.

The *reveal'd Religion* is what we learn to be due, by some supernatural Means; as by an express Declaration of God himself, by the Mouth of Prophets, *&c.*

The first flows immediately from the Relation between the Creature and the Creator; the latter does not flow from such a Relation; but is superadded from the mere Will and Pleasure of the Creator.

The first we ordinarily call *Morality* or *Ethicks*; because immediately conversant about the Manners and Duties of Men, towards one another; and towards themselves, consider'd as Creatures of that Being; which Religion has never much flourished among Men.

The latter we call, by Way of Eminence, *Religion*, as being the Rule of our Duty immediately to God himself.

The first supposes a God, a Providence, a future State, Rewards, and Punishments: The latter, likewise, supposes an immediate Mission from God himself, attested by Miracles.

The first reign'd from the Creation, to the Mission of *Moses*; though almost entirely disfigured by the Superstitions, ridiculous Romances, and Dreams of the Pagans, who formed to themselves as many Deities, as their depraved Imagination could invent; filling the Heavens with a confus'd Mixture of Heroes, virtuous Men, profligate, debauched, and lawless Ruffians and Scoundrels; virtuous Women, Prostitutes, *&c.* and placing on their Altars, not Men only, but even the vilest and most despicable Insects; which they had the sacrilegious Folly to honour with a Worship which was due to God alone; and the most unconceivable is, that those Nations where the Arts and Sciences flourished most, and distinguished from others for their Capacity and Sense, were the most guilty of that Folly.

The *Israelites* themselves, that People so much cherished of God, that by a Pre-dilection he had chosen them for his own, in a particular Manner, and exclusive of all other Nations, were not quite free from those Superstitions; till Revelation came to their Succour, to prevent their deviating still more and more from the true Worship; which Revelation was made by *Moses* and the Prophets, and which was the Foundation of the *Jewish* Religion, or *Judaism*; as I have explained in my Treatise thereof, under the Letter J.

The *Christian Religion*, which is that I design to treat of in this Place, is also founded on Revelation, which was made by Christ and his Apostles; part thereof is the *Jewish* Revelation. For the *Messiah* promis'd in the one, is revealed in the other: But all the rest of the *Jewish* Revelation, which related peculiarly to the *Jewish* People, is here set aside, and only that Part of it which was to affect the World in general, we mean that relating to the Coming of the *Messiah*, is here built upon.

Indeed it must be owned the *Jews* ever looked on this as peculiar to themselves, as any of the rest; the *Messiah* was promis'd to them; he was to be their Deliverer, their Restorer, *&c.* But upon the taking Place of this new Revelation, a new Scene was open'd. This Part of the old Revelation it was shewn, was all typical, or allegorical; and the Prophecies relating hereto, not to be understood in their primary or literal Sense. The *Messiah* was not to be the Restorer of the *Jewish* Sovereignty, and Liberties, which were now fallen into the Hands of the *Romans*, but to restore and re-establish the World, who had lost their original Righteousness, and were become Slaves of Sin; to preach Repentance and Remission; and at last to suffer Death; that all who believed in him, might not die, but have everlasting Life.

Such is the Tenor and Design of the *Christian* Revelation, which in the Event was so far from being what it had been apprehended to be by the People to whom it was first promised; that it proved the very Reverse; and instead of re-establishing and confirming the other Branches of their Revelation, superseded, and set them all aside. The Pale was now broken down, and the being of the Seed of *Abraham* ceased to be a Privilege, all the World being invited on the same Terms with the *Jews*.

The Consequence was, that the *Jews* denying this to be the *Messiah* that had been promised to them, as not able to see the Prophecies fulfilled in him, for want of the typical Means thereof, were generally excluded from the Privileges of that Mission which had been supposed wholly intended for them; and had their Ruin compleated from the very Means, whence they expected their Redemption.

In Effect, one of the greatest Difficulties in Christianity turns upon the Completion of the Scripture Prophecies.—In the Prophets of the Old Testament, are frequent Predictions of the *Messiah*, as already observed, which the Writers of the New frequently urge to the *Jews* and Heathens as fulfilled in *Jesus Christ*; and on this Principle evince the Truth of his Mission: But these Texts thus urged from the Old in the New Testament, are sometimes not to be now found in the Old; whence most of the Christian Commentators, Divines, and Criticks, antient and modern, judge them to be applied in a secondary, typical, allegorical, or mystical Sense.

Thus, *e. gr.* St. *Matthew*, after an Account of the Conception of the Virgin, and the Birth of *Jesus*, says, *All this was done, that it might be fulfilled which was spoken by the Prophet, saying, Behold a Virgin shall be with Child, and shall bring forth a Son, and they shall call his Name* Immanuel. But the Words, as they stand in *Isaiah*, whence they are supposed to be taken, do, in their obvious and literal Sense, relate to a young Woman who was to bring forth a Child in the Days of *Ahaz*; as appears from the Context, and as is owned by *Grotius*, *Huetius*, *Castalio*, *Curallæus*, *Episcopius*, *Le Clerc*, *Lamy*, *Hammond*, *Simon*, &c.

This Prophecy, then, not being fulfilled in *Jesus*, in the primary, literal, or obvious Sense of the Words, is supposed, like the other Prophecies cited by the Apostles, to be fulfilled in a secondary, typical, or allegorical Sense, *i. e.* this Prophecy which was first literally fulfilled by the Prophet's Son in the Time of *Ahaz*, was again fulfilled by the Birth of *Jesus*, as being an Event of the same Kind, and intended to be signified, either by the Prophet, or by God, who directed the Prophet's Speech.

Grotius observes, this to be the Case in most, if not all the Prophecies and Citations quoted from the Old in the New Testament; and *Dodwell*, with Sir *John Marsham*, refer even the famous Prophecy of *Daniel*, about the seventy Weeks, to the Time of *Antiochus Epiphanes*; shewing that the Expressions taken thence by *Christ*, and urged by him, as predicting the Destruction of *Jerusalem* by the *Romans*, have only in a secondary Sense a Respect to that Destruction.

And even that famous Prophecy in the Pentateuch, *A Prophet will the Lord God raise up unto thee, like unto me; to him shall ye hearken.* Which St. *Luke* refers to as spoken of *Jesus Christ*, is, by *Simon*, *Grotius*, *Stillingfleet*, &c. understood to signify, in its immediate Sense, a Promise of a Succession of Prophets.

It is allowed then the Apostles applied the Prophecies they quote from the Old Testament, in a typical Sense; but

but unhappily the Rules whereby they are quoted are loſt. Dr. *Stanhope* laments the Loſs of the *Jewiſh* Traditions or Rules for interpreting Scripture received among the Rabbins, and followed by the Apoſtles. But this Loſs, *Sarenheſius*, *Hebrew* Profeſſor at *Amſterdam*, thinks he has retrieved from the *Jewiſh* Talmud, and the antient *Jewiſh* Commentaries; and has accordingly publiſhed to the World, the Rules whereby the Apoſtles quoted the Old Teſtament.

But the Truth is, theſe Rules are too precarious, ſtrained, and unnatural to gain much Credit.

Mr. *Whiſton* condemns all allegorical Explanation of the Prophecies of the Old Teſtament cited in the New, as weak, enthuſiaſtick, *&c.* and adds, that if a double Senſe of the Prophecies be allowed, and there be no other Method of ſhewing their Compoſition, than by applying them ſecondarily and typically to our Lord, after having been in their firſt and primary Intention long ago fulfilled in the Times of the Old Teſtament, we loſe all the real Advantages of the antient Prophecies as to the Proofs of Chriſtianity.

He therefore ſets up a new Scheme in Oppoſition thereto: He owns, that taking the preſent Text of the Old Teſtament for genuine, it is impoſſible to expound the Apoſtles Citations of the Prophecies of the Old Teſtament, on any other than the allegorical Foundation; and therefore, to ſolve the Difficulty, is forced to have recourſe to a Suppoſition contrary to the Senſe of all Chriſtian Writers before him, *viz.* that the Text of the Old Teſtament has been greatly corrupted ſince the apoſtolical Age by the *Jews*.

His Hypotheſis is, that the Apoſtles made their Quotations out of the Old Teſtament rightly and truly from the Septuagint Verſion, which in their Time was in vulgar Uſe, and exactly agreed with the *Hebrew* Original; and that as they made exact Quotations, ſo they argued juſtly and logically from the obvious and literal Senſe of the ſaid Quotations, as they then ſtood in the Old Teſtament: But that ſince their Times both the *Hebrew* and *Septuagint* Copies of the Old Teſtament have been ſo greatly corrupted, and ſo many apparent Diſorders and Diſlocations introduced therein, as to occaſion many remarkable Differences and Inconſiſtencies between the Old and New Teſtament, in reſpect to the Words and Senſe of thoſe Quotations.

As to the Manner wherein theſe Corruptions were introduced, he ſays, the *Jews* in the ſecond Century greatly corrupted and altered both the *Hebrew* and *Septuagint*, eſpecially in the Prophecies cited by the Apoſtles, to make their Reaſoning appear inconcluſive: That in the third Century they put into *Origen*'s Hand one of theſe corrupted Copies of the *Septuagint*; which *Origen* miſtaking for genuine, inſerted in his *Hexapla*, and thus brought into the Church a corrupted Copy of the *Septuagint*; and that in the End of the fourth Century the *Jews* put into the Hands of the Chriſtians, who till then had been almoſt univerſally ignorant of the *Hebrew*, a corrupted Copy of the Old Teſtament.

The Diſagreement then between the Old and New Teſtament, in reſpect to the ſaid Quotations, he contends, has no Place between the genuine Text of the Old Teſtament (now no where exiſting) but only between the preſent corrupted Text of the Old and New Teſtament: And therefore to juſtify the Reaſonings of the Apoſtles, he propoſes to reſtore the Text of the Old Teſtament, as it ſtood before the Days of *Origen*, and as it ſtood in the Days of the Apoſtles: From which Text thus reſtored he doubts not it will appear, that the Apoſtles cited exactly, and argued juſtly and logically, from the Old Teſtament.

But this Scheme of accompliſhing Prophecies labours under Difficulties at leaſt as great as the allegorical Scheme. Its Foundation is incredible, and its Superſtructure from firſt to laſt precarious. In effect, it is inconceivable the Old Teſtament ſhould be ſo corrupted; and it may even be made appear, that the *Hebrew* and *Septuagint* diſagreed in the Times of the Apoſtles: Add to this, that the Means whereby he propoſes to reſtore the true Text, will never anſwer that End; nor has he himſelf from all the Means he is yet poſſeſſed of, been able to reſtore one prophetical Citation, ſo as to make that ſeem literally, which before only ſeemed allegorically applied.

The *revealed Religion*, thus founded on Revelation and Prophecies, ſuppoſes an immediate Miſſion from God himſelf, atteſted by Miracles for the Propagation thereof.

In the Old Teſtament, *Moſes*, *Elias*, *Eliſha*, and other Prophets, had that immediate Miſſion from God, *viz. Moſes*, in thoſe Words, *Come, and I'll ſend thee*, *Exod.* iii. 10. and their Miſſion was atteſted by Miracles; for *Moſes* proved his by changing his Rod into a Serpent, and Water into Blood, *&c.*

In the New Teſtament the Apoſtles had their Miſſion immediately from Chriſt himſelf, in theſe Words, *Go ye, and preach the Goſpel*, &c. And that Miſſion was atteſted by Miracles, according to St. *Mark*, c. xvi. v. 20. *And they went forth, and preached every where, the Lord working with them, and confirming the Word with Signs following.*

It is ſtill a Diſpute in the World how far it may be in the Power of the Devil to work *Miracles*, i. e. to produce ſome extraordinary and wonderful Effects above the Power of Nature; or wherein the Difference lies between the *Miracles* of *Moſes*, and thoſe of *Pharaoh*'s Magicians; thoſe of *Jeſus Chriſt* and the Apoſtles; and thoſe of *Simon Magus* and *Apollonius Tyaneus*; whether the latter were any more than Deluſions of the Senſes; or whether any ſupernatural or diabolical Power? My own Sentiment is, that thoſe Impoſtors acted by a diabolical Power, ſince we learn from the New Teſtament itſelf, that the Devil, who, in all Things he can, is the Ape of the Divinity, did ſeveral Things then which had the Appearance of Miracles; and no doubt but that he could, and would do the ſame, to prevent the Empire of Chriſt being eſtabliſhed on the Ruins of his.

The *Roman* Catholicks reproach thoſe who have took upon them to reform the Chriſtian Religion, that they have not confirmed their Miſſion by Miracles, as Chriſt did, when he came to fulfil the Law of *Moſes*, and reform the Sanctuary; and pretend to be ſurprized, that a Chriſtian indifferently inſtructed in the Principles of his Religion, could be perſuaded to haſten to thoſe Reformers, unleſs they had confirmed their Miſſion (which for a Reformation, muſt have been immediate from God, and extraordinary) with Miracles? But the Reformers, to wave that Objection (which in fact they had been much puzzled to anſwer otherwiſe) ſaid, that Miracles were ceaſed ever ſince the Time of the Apoſtles; and to convince the Chriſtians thereof, take a Method to reform the Religion, quite different from that Chriſt and his Apoſtles had took to eſtabliſh it, ſubſtituting natural Means to the ſupernatural ones, uſed in the Infancy of Chriſtianity; the Humours, Inclinations, and Genius of the Chriſtians of thoſe Times, being very different from thoſe of the primitive Chriſtians; for the primitive Chriſtians preferred Poverty, Humiliation, Abſtinence, Penitence, and Sufferings, to Riches, Grandeur, Luxury, Pleaſures, *&c.* Whereas the Chriſtians of the Reformation's Infancy, thirſted more after the Kingdom of the Prince of this World, that after that of Chriſt, and after a temporal Felicity, than an eternal one.

Religion, is more particularly uſed at preſent for that ſpecial Syſtem of Faith and Worſhip, which obtains in this, or that Country, in this or that Sect; this or that Age, *&c.*

In this Senſe we ſay the *Roman* Religion, the reformed *Religion*, the *Religion* of the *Greeks*, the *Jewiſh* Religion, the *Mahometan* Religion, *&c.*

We have already treated of the two laſt, *viz.* of the *Jewiſh*, in my Treatiſe of *Judaiſm*, under the Letter J; and of the *Mahometan*, in my Treatiſe of *Mahometaniſm*, under the Letter M.—I have alſo treated of the *Roman* Church, in my Treatiſe of the Church under the Letter C; and in that on the Clergy, under the ſame Letter: And of the *Reformation*, in my Treatiſes of *Calviniſm*, *Lutheraniſm*, &c.

M. *de St. Evremont* ſays, that in the Diverſity of Beliefs which divide Chriſtianity, true Catholicity engages him as much by his own Choice, if he had had then to chuſe, as by Habitude, and the Impreſſions he had received

ceived from it: But that that Inclination he had for his own Belief, did not animate him against that of others, neither does it me; and I had never that indiscreet Zeal so common in *England*, which makes us hate Persons, because they are either born in another Country, or do not agree in Sentiment with us. Self-Love forms that false Zeal; and a secret Seduction makes us see a Charity for our Neighbours, where there is nothing but an Excess of Complaisance for our own Opinion: For we do not relieve a Man that agrees with us in Matter of Worship, because he is miserable or unfortunate, but because he is of the same *Religion*.

What we call at present *Religions*, is in fact but a *Difference in the Religion*, and not different *Religions*. I am pleased to think, that my Sentiments in religious Affairs are better than those of another Sect; but notwithstanding, instead of hating a Member of that Sect, for the Difference of Opinion, he is dear to me, because his Principles are the same with mine. The best Means to agree in all Things at last, is to have always some Communication with one another. You'll never inspire the Love of Reunion, if you do not take off first the Hatred of the Division. Deceit and Hypocrisy are the only Things which must be odious in *Religion*; for he that believes sincerely, and without Disguise, if even his Belief was wrong, deserves to be pitied, instead of being persecuted A corporal Blindness excites our Compassion, and what can have that of the Soul capable to excite our Hatred? During the greatest Tyranny of the Antients, they left the Understanding the full Liberty of its Lights; and there have been Nations among Christians, where a Man was forced to be persuaded of what he cannot believe! In my Opinion, every one must be free in his Belief, provided it does not extend towards exciting Seditions, to disturb the publick Tranquility; for then those guilty of such Disorders ought to be severely punished, not as believing such and such Dogma's, but as publick Disturbers, or rebellious Subjects. The Temples are of the Right of Sovereigns, who have Power to open and shut them at their Pleasure; but our Heart is a private Temple, where we may, uncontrolled, adore their Master.

Besides the Difference of Doctrine on certain Points affected to each *Religion*, I find that they have all a particular Spirit which distinguishes them. That of the Catholick *Religion* relates particularly towards loving God, and Good Works. The Catholicks consider that first and supreme Being as an Object, infinitely amiable, and tender Souls are moved by the sweet and agreeable Impressions he makes on them. Good Works follow necessarily that Principle; for if Love be formed within, it manifests itself without, and obliges us to put all in Use to please whom we love. What's only to be feared, is, lest the Source of that Love, which is in the Heart, should be altered by a Mixture of some human Passion. It is to be feared likewise, that instead of obliging God in what he commands, we should invent Manners to serve him, which please us. But if that Love be really a pure one, nothing in the World makes us take a truer Sweetness. The inward Joy of devout Souls proceeds from a certain Certainty they think they have, of being agreeable to God; and true Mortifications, and holy Austerities, are of themselves loving Sacrifices.

The reformed Religion divest Men of all Confidence in Merit. The Opinion of Predestination, for which she has took a Distaste, and which she is left to desert, lest she should contradict herself, leaves a Soul in an indolent and languishing State, without Affection and Motion; under Pretence of waiting with Submission and Patience, the Will of Heaven. She does not search to please, but contents herself with obeying, and in an exact and common Worship, makes God the Object of her Regularity, rather than of her Love. To maintain the *Religion* in its Purity, the *Calvinists* want to reform all that appears human; but they often retrench too much of what is addressed to God, by a too great Desire of retrenching what comes from Man. The Distaste they have taken for the Ceremonies of the Catholick Church, makes them work towards rendering themselves purer than the Catholicks. It is true, that being arrived at that Purity too dry, and too naked, they find themselves at last not devout enough; and pious Persons among them form to themselves a particular Spirit which seems to them supernatural, actuated thereto by a Distaste they have taken for a Regularity which appears too common.

There are two Sorts of Spirits in Matters of *Religion*; the one go towards increasing the Things established, and the others are always retrenching something from them. If we follow the former, there is some Danger of giving too great an Outside to *Religion*, and cover it with certain Appearances which hide the true Bottom thereof. If we side with the latter, the Danger is, that having retrenched all that is superfluous, we may chance to retrench the *Religion* itself. The Catholick *Religion* might have a lesser Outside, but nothing hinders the most sensible Part of Mankind to know it, such as it is, under that Outside, let it be ever so great. The Reformed has not Outside enough (the *English* Church excepted) and its too common Worship, does not distinguish it enough from the common Occupations of Life. In the Places where the Exercise thereof is scarce allowed, the Difficulty hinders the Distaste; Controversy forms a Heat which gives it Life: But where it is dominant, it produces only an Exactness of Duties, as the political Government, or some other Obligation would do.

As for moral Goodness, it is only among the *Calvinists*, an Effect of their Faith, and a Sequel of their Belief. The Catholicks agree, that all Christians are obliged to believe the Truth, and live righteously; but the Manner of expressing ourselves on that Point is different; and when the *Calvinists* say, that *Good Works, without Faith, are dead*, the Catholicks say, *that a Faith without Good-Works, is a dead Faith*.

The Minister *Morus*, used to say among his Friends, that *his Opinion had something too harsh, and that he advised never to read the Epistles of St.* Paul, *without ending by that of St.* James; *for Fear*, says he, *that the Heat of St.* Paul *against the Merit of the Works, should render Men indolent in the Practice thereof.*

But however, I am of Opinion, that it could be said that St. *Peter* and St. *James* had Reason to preach to People so corrupted as the *Jews* were, the Necessity of Good-Works; for it was prescribing them what they wanted, and whereof they were conscious themselves. But those Apostles had made very little Progress in their Ministry by a Discourse on Grace, among People who thought they had more Faith than all the rest of the World; among People who had seen the Miracles operated in their Favour, and had experienced a thousand Times the visible Assistance of God.

St. *Paul* acted with as much Prudence and Wisdom with the Gentiles: Being conscious that he had converted few of them to Christ by Discourses on Good Works. The Gentiles were just and sober, they had Probity and Innocence, and Resolution and Constancy, so far as to die for their Country; to preach Good-Works to them, had been acting in the same Manner as the Philosophers did, who wanted to teach them the Practice of Virtue. I confess that Christ's Moral was purer, but it had nothing that could make a sufficient Impression on their Mind. It was necessary to preach them the Necessity of Grace; and to annihilate, as it were, the great Confidence they had in their own Virtue.

It seems to me, that ever since the Reformation (whereof the Disorders of the Catholick Clergy was either the Pretence or the Subject) Christianity has run on the Doctrine of Beliefs. Those who have established the Reformation, have accused the Scandals and Vices of the Catholicks; and at present the Catholicks set up Good-Works against them. The same who reproached the Catholicks with leading a licentious Life, are not willing to draw any Advantages at present, but from the Imagination they have that their Belief is sound. We confess the Necessity of the Belief; but Christ commanded Charity; and the Doctrine of the Mysteries was not established but long after his Death. Himself has not so well explained what he was, as what he wanted: Whence one may conclude, that he preferred his being obeyed to his being known. Faith is dark, but the Law is clearly expressed. What we are obliged to believe is above our Understanding; but what we are obliged to do, is within the Reach of every Body. In a Word,

Word, God gives us Light enough to act well; and we want some to penetrate too far; and instead of being contented with what he is pleased to let us know, we want to discover what he hides from us.

I know that the Contemplation of Things divine, produces often a happy Distaste for those of this World; but it is often but a mere Speculation, and the Effect of a very natural and human Vice. An unruly Mind has a Desire of acquiring some extraordinary Knowledge, far above its Sphere, and search what is the most hidden in its Author, less to adore him, than by a vain Curiosity of knowing every Thing. That Vice is soon followed by another: Curiosity breeds Presumption; and as bold in defining, as indiscreet in searching, we establish a Science of Things which it is even impossible for us to conceive. Such is the bad Use we make of our Understanding, and Will. We have the Ambition of conceiving every Thing, and we cannot; we can religiously observe every Thing, and we will not. Let us be just, charitable, patient, by a Principle of *Religion*; and we shall know and obey all at once.

But however, to consider Things rightly, I dare say, that the Spirit of the two *Religions*, viz. the Catholick and the Reformed, is in a different Manner founded on good Principles, according as the one considers the Practice of Good more extended; and the other prescribes a more precise Rule to itself to avoid Evil. The Catholick has for God an active Will, and a loving Industry, which searches continually the Secret to please him: The Reformed confined within the Limits of Circumspection and Respect, does not dare to go beyond the Precept known to her, left the imagined Novelties should give too much Credit to the Imagination.

The Means of re-uniting the two *Religions*, are not in disputing always on the Doctrine, as the Reasonings are infinite; the Controversies will last as long as the human Race who makes them. But waving all Disputes, which serve only to breed Animosities (and which the Clergy themselves foment continually in their Pulpits) if we were to go back, without Passion, to that particular Spirit which distinguishes us, it would not be impossible to form a general one, which would procure our Reunion.

Let the Catholicks fix that unquiet Zeal, which makes them act a little too much of themselves: And the Reformed come out of that indolent Regularity, and quicken their languishing State, without losing any of their Submission to Providence: Let the Catholicks do something less in their Favour, and the Reformed do something more, in favour of the Catholicks; then, without minding either *Free-Will* or *Predestination*, there will be formed insensibly a true Rule for their Actions, which will be followed at last by that of their Sentiments.

When they have gained that Point of their Reconciliation of the Will, for the good Use of Life, it will produce soon that of the Understanding on the Intelligence of the Doctrine. Let them endeavour to act well together, and they'll be not long divided in their Belief.

From this I conclude, that it is not very easy to procure Man's Conversion, in attacking them by the Jealousy of the Mind. A Man defends his Lights, either as true, or as his own; and in what Manner soever he does it, says *Montagne*, he forms a hundred Oppositions against the Person that wants to conceive him. Nature giving to every Man his own Sense, seems to have accompanied that Sense with a secret Complaisance. A Man, though free, can submit himself to the Will of another; he can confess himself inferior to him in Courage and Virtue; but he is asham'd of confessing himself subject to the Sense of another; his most natural Repugnance being to acknowledge in any Body whatever, a Superiority of Reason.

Our first Advantage is of being born reasonable: Our first Jealousy is, to see that others want to be more reasonable than we are. If we read the ancient Conversions, we shall find that the Souls have been moved, but the Understanding very little convinced. It is in the Heart the first Disposition is formed towards receiving the Christian Truths. In Things purely natural, the Mind conceives first, and its Knowledge precedes its Affection for the Object: But in the supernatural the Soul fastens and unites itself to them before we are aware of it.

God has better prepared our Hearts to the Impression of his Grace, than our Understandings to that of his Light. His Immensity commands our narrow Intelligence; his Goodness has a greater Rapport to our Love. There is I don't know what in the Bottom of our Soul, which moves secretly for a God we cannot know; whence it happens, that to work to Men's Conversion, we must establish with them some agreeable Commerce, wherein we may inspire them with our Motions; for in a Dispute of Religion, the Mind endeavours in vain to shew what he does not see; but in a pious and gentle Society, it is easy for the Soul to make another feel what she feels herself.

To consider well the Christian Religion, one would think that God would steal it from the Lights of our Understanding, to turn it towards the Motions of our Heart. *To love God and our Neighbours*, contains all the *Christian Religion*, according to St. *Paul*; which is nothing else but asking us the Disposition of our Heart, as well with regard to God as to Men: It is properly obliging us to do by Motives of Love, what the Politicks requires of us by the Rigour of the Laws; and what Morality prescribes us by an Order of Reason.

The Charity engages us to assist, while Justice forbids doing any Injury to our Neighbours. With the true Sentiments inspired by our *Religion*, there is no Perfidy in Love, nor Ingratitude. With those good Sentiments, a Heart loves, with Innocence, the Objects which God has rendered Amiables; and what is innocent in our Amours, is what is sweeter and more tender.

Let sensual and voluptuous Persons complain of our *Religion* for the Fear it inspires them with; those of a nicer Taste must be pleased, that it preserves from Distaste and Repentance. Better skilled in the Science of Pleasure; wiser than the most severe Philosophy in the Science of Manners; it depurates our Taste for Delicacy, and our Sentiments for Innocence. Consider Man in the Civil Society, if he wants Justice, you'll see that it is rigorous to him. In the pure State of Nature his Liberty will have something wild, and if he be governed by Morality, his own Reason will have some Austerity. All other *Religions* stir in his Soul, Sentiments attended with Inquietude, and Passions which disturb him. They excite against Nature superstitious Fears, and furious Zeals; sometimes to sacrifice his own Children as *Agamemnon*; and sometimes to devote ourselves as *Decia*. The Christian Religion alone appeases all Sorts of Inquietudes, softens all Sorts of Ferocity; employs what Tenderness we have in our Motions, not only for our Friends and Relations, but even our Enemies.

That's the End of the Christian Religion, and what was anciently the Use thereof. If it has at present other Effects, it is because we have made it lose the Rights it had on our Heart, to make our Imaginations usurp some over it. Hence has happened the Division of Minds in Points of Belief, instead of an Union of Wills on Good Works; so that what should have been a Tie of Charity between Men, is no more but a Subject of Contentions, Jealousies, and Animosities.

From the Diversity of Opinions arose the Diversity of Parties, and Parties have produced Persecutions and Wars. Millions of Men have perished for contesting only on the Manner they took in the Sacrament, what they all agreed was taken in it. It is an Evil which lasts still, and will always last till *Religion* repasses from the Curiosity of our Minds to the Tenderness of our Hearts; and that surfeited with the Presumption of our Lights, it goes and seeks after the sweet Motions of our Love.

But there is no great Appearance yet of those happy Changes, which would re-unite us once again in the same Belief, and revive among us that Christian Charity, without which our Religion is but a Body without a Soul, or rather a Shadow or Skeleton of *Religion*; and the most surprizing is, that those whose indispensable Duty it is to contribute all in their Power to procure that Reunion, put, on the contrary, all in Use to widen the Breach; either renewing daily the old Controversy, and loading them with new problematical Questions, more capable to revive the ancient Animosities than to appease them, and to precipitate us into Hell, than to lead us to Heaven; or by mocking it, the *Religion* appearing almost every Day under a new Mask, which a Multitude of weak Women, or of ignorant Men, who never were acquainted

acquainted with the real and true Face of Christianity, mistake for it. Most of us have been so much infatuated with the scandalous and antichristian Notion, that to rave, or inveigh bitterly against another *Religion*, is an evident Proof of an Excess of Zeal for that we profess, that they really believe that *Religion* consists scarce in any Thing else. A Sermon which is not seasoned with some Invectives, let it be ever so well calculated for Instruction, to inspire us with the Sentiments of Virtue, or to reform our Manners, is seldom approved: A Touch at Popery in a *French* Conventicle, or at the Church of *England* among Dissenters, will awake those wrapped in a most profound Sleep; and that Part of the Sermon is always better remembered than any other; the Auditors are not so much to be blamed as the Preacher, who has accustomed them to those Invectives, instead of inspiring them with the Sentiments of a Christian Charity; for tho' he may not have them himself, we learn from Christ, that the Scribes and Pharisees preached better than they acted.

Notwithstanding the great Obstacles which are represented as insuperable to a Reunion between the different Sects which lacerate Christ's seamless Gown, that Reunion is not impracticable, if the Shepherds committed to the Guard of Christ's Flock would renounce all Prejudices, and prefer the Salvation of the Souls, to their private Interest and other worldly Views.

The *Roman Religion*, to contribute all in her Power towards that Reconciliation, should give up some Points which are only of ecclesiastical Institution, particularly that of the Celibacy of the Clergy, which, in my Opinion, is the greatest Obstacle; not that I would have Marriage introduced among the *Roman* Clergy; but only Things relating to that Point left on the same Footing as they are at present, *i. e.* that the Celibacy of the Priests should continue in the *Roman* Church, and approved by the Protestants, as their Marriage in the Reformed, and allowed licit and valid by the *Romans*; since that Marriage is no where condemned in the Scripture; and the Church has commanded it only as more becoming the ecclesiastical State; supposing that the Priests being called to the Government of the Church of Christ, and the Conduct of the Souls, that Occupation is so serious, that it requires the whole Attention of a Man, which notwithstanding must be divided, if he is engaged in the matrimonial State; for it is not reasonable to suppose that he will neglect the Care of his Family, to apply himself entirely to the Conduct of his Flock; Nature pleading continually in favour of the former, to the Exclusion of the latter: It cannot be said that he can very well divide his Time between both; for a pastoral Sollicitude admits of no such Division; it not only requires the whole Time of Man, but even much more than he has: A Pastor who will acquit himself of his Duties find no vacant Hours; all his Occupations succeed one another, without any Interval between, for it is either a Person, who is dying, and wants his Assistance in that critical Passage from Time to Eternity, whom perhaps, few Moments of a salutary Exhortation will save from the Precipice, which otherwise he had fell into, and for which a negligent Pastor had been accountable at that dreadful Tribunal of an impartial Judge, where a Difference of *Religion* will have no Excuse for having neglected so essential a Duty; for as no Body is forced to take upon him the Conduct of Souls, he that takes it is inexcusable before God and Men. For those deceive themselves, who falsely imagine, that their whole Office consists in Preaching, reading Prayers, and administring the Sacraments, at the Times appointed; which some of them do, because they are obliged to it, to be entitled to the Revenues, and other Emoluments of the Church; those are the least of their Occupation; exhorting, arguing, reproving in private, to comfort the Afflicted, relieve the Distressed, seek after a Sheep which is run astray, are some of his most essential Duties, though perhaps the least minded, and on which he is to undergo a very severe Examen: If this be not true, the whole Christian Religion is a Romance; and we must believe it, or else deny a future State. For if God has been pleased to establish a certain Order of Men for the Conduct of others in the Road to Salvation, he thought then that every one was not capable to operate his own Salvation alone, and without the Assistance of those Men; and if he be frustrated in his Intention, by the Negligence of those Men, must he not call them to an Account for that Negligence, which deprive the celestial *Jerusalem* of so many Inhabitants; and must not those who have been accessory to the Perdition of those unfortunate Creatures, be severely punished for it?

These were some of the most weighty Considerations which engaged the Church to oblige the Clergy to Celibacy; and as those who made those Regulations were Clergymen themselves, we have all the Reason imaginable to think that they thought it practicable, since they were obliged to submit to it themselves. If this had been done by the Authority of Princes, who imposed a Yoke on others, which they had not been obliged to bow their Necks to themselves, it might have been considered as insupportable, and exclaimed against as an Oppression; but that Yoke was formed by the Clergy themselves, for themselves, without the Concurrence of the Laity, or being actuated to it by any other Motive, but that of rendering their State more perfect, and more agreeable to their Vocation; but since the Protestant Clergy think otherwise, and have shook off that Yoke, which for so many Ages had appeared so light and so agreeable, and submitted to with so much Alacrity, that should be suffered by the Catholicks for the Sake of a Reconciliation.

The Marriage of the Protestant Clergy once tolerated by the Catholicks, it is my Sentiment, that all the other Obstacles which obstruct a Re-union, could soon be conquered in Conferences, managed between both Parties and carried on with that Spirit of Charity, which should inspire all Christian Assemblies, without Jealousy and Animosity. They could soon understand one another on that great Mystery of the Eucharist; especially if they would be pleased to read with Attention, and with the same Impartiality I have wrote it, my Treatise on that Subject. They would think a Hierarchy indispensably necessary for the Government of the Church; and that to suffer every body to follow blindly the Vanity of his Imaginations, is to introduce a monstrous Anarchy in the Sanctuary, and pave that wide Road, mentioned in the Scripture, which leads to Perdition. The *English* Church experiences daily the Inconveniencies of such Toleration.

In those Conferences the Number of Sacraments would be settled, and approved by an unanimous Consent; the Prayer for the Dead, thought perhaps necessary, being neither injurious to God, nor prejudicial to Men; it is not injurious to God; since those Prayers are Part of the Worship due to him, wherein his Omnipotency, Justice, Mercy, and the greatest Part of his other Attributes are acknowledged: They are not prejudicial to Men, since if there be no third State, the Prayers are always good of themselves, and prove beneficial to him that pray.

The Catholicks would perhaps be persuaded, for the Sake of Peace, to reform several Abuses, which either Ignorance, or Avarice, or perhaps both, have introduced into their *Religion*, which though not essential, may be notwithstanding a Subject of Scandal. Thus the Christian Religion should recover its antient Lustre, Animosities and Jealousies cease among us; and there would be then henceforward but one Christ, one Faith, and one Baptism.

It would be improper to conclude this Treatise, without taking some Notice of *Paganism*, or Idolatry, which was the Worship and Adoration of false Gods, or the giving those Honours to Creatures, or the Works of Man's Hand, which are only due to God.

It is generally allowed, that Idolatry had not its Beginning till after the Deluge; and many are of Opinion, that *Belus*, who is supposed to be the same with *Nimrod*, was the first that was deified; though mine is, that Idolatry had a much more antient Origin; and that it began soon after *Cain*'s Fratricide; that the Difference God made between his Sacrifice, and that of *Abel* his Brother, which was the Occasion of that Murder, and seeing himself cursed by his Creator, he invented a new Deity and a new Worship, which was established among his Posterity; whence came the Denomination of Sons of Men for those who followed it, in Contra-distinction of the Sons of Gods, who worshiped their divine Creator.

Word, God gives us Light enough to act well; and we want some to penetrate too far; and instead of being contented with what he is pleased to let us know, we want to discover what he hides from us.

I know that the Contemplation of Things divine, produces often a happy Distaste for those of this World; but it is often but a mere Speculation, and the Effect of a very natural and human Vice. An unruly Mind has a Desire of acquiring some extraordinary Knowledge, far above its Sphere, and search what is the most hidden in its Author, less to adore him, than by a vain Curiosity of knowing every Thing. That Vice is soon followed by another: Curiosity breeds Presumption; and as bold in defining, as indiscreet in searching, we establish a Science of Things which it is even impossible for us to conceive. Such is the bad Use we make of our Understanding, and Will. We have the Ambition of conceiving every Thing, and we cannot; we can religiously observe every Thing, and we will not. Let us be just, charitable, patient, by a Principle of *Religion*; and we shall know and obey all at once.

But however, to consider Things rightly, I dare say, that the Spirit of the two *Religions*, viz. the Catholick and the Reformed, is in a different Manner founded on good Principles, according as the one considers the Practice of Good more extended; and the other prescribes a more precise Rule to itself to avoid Evil. The Catholick has for God an active Will, and a loving Industry, which searches continually the Secret to please him: The Reformed confined within the Limits of Circumspection and Respect, does not dare to go beyond the Precept known to her, left the imagined Novelties should give too much Credit to the Imagination.

The Means of re-uniting the two *Religions*, are not in disputing always on the Doctrine, as the Reasonings are infinite; the Controversies will last as long as the human Race who makes them. But waving all Disputes, which serve only to breed Animosities (and which the Clergy themselves foment continually in their Pulpits) if we were to go back, without Passion, to that particular Spirit which distinguishes us, it would not be impossible to form a general one, which would procure our Reunion.

Let the Catholicks fix that unquiet Zeal, which makes them act a little too much of themselves: And the Reformed come out of that indolent Regularity, and quicken their languishing State, without losing any of their Submission to Providence: Let the Catholicks do something less in their Favour, and the Reformed do something more, in favour of the Catholicks; then, without minding either *Free-Will* or *Predestination*, there will be formed insensibly a true Rule for their Actions, which will be followed at last by that of their Sentiments.

When they have gained that Point of their Reconciliation of the Will, for the good Use of Life, it will produce soon that of the Understanding on the Intelligence of the Doctrine. Let them endeavour to act well together, and they'll be not long divided in their Belief.

From this I conclude, that it is not very easy to procure Man's Conversion, in attacking them by the Jealousy of the Mind. A Man defends his Lights, either as true, or as his own; and in what Manner soever he does it, says *Montagne*, he forms a hundred Oppositions against the Person that wants to conceive him. Nature giving to every Man his own Sense, seems to have accompanied that Sense with a secret Complaisance. A Man, though free, can submit himself to the Will of another; he can confess himself inferior to him in Courage and Virtue; but he is asham'd of confessing himself subject to the Sense of another; his most natural Repugnance being to acknowledge in any Body whatever, a Superiority of Reason.

Our first Advantage is of being born reasonable: Our first Jealousy is, to see that others want to be more reasonable than we are. If we read the ancient Conversions, we shall find that the Souls have been moved, but the Understanding very little convinced. It is in the Heart the first Disposition is formed towards receiving the Christian Truths. In Things purely natural, the Mind conceives first, and its Knowledge precedes its Affection for the Object: But in the supernatural the Soul fastens and unites itself to them before we are aware of it.

God has better prepared our Hearts to the Impression of his Grace, than our Understandings to that of his Light. His Immensity commands our narrow Intelligence; his Goodness has a greater Rapport to our Love. There is I don't know what in the Bottom of our Soul, which moves secretly for a God we cannot know; whence it happens, that to work to Men's Conversion, we must establish with them some agreeable Commerce, wherein we may inspire them with our Motions; for in a Dispute of Religion, the Mind endeavours in vain to shew what he does not see; but in a pious and gentle Society, it is easy for the Soul to make another feel what she feels herself.

To consider well the Christian Religion, one would think that God would steal it from the Lights of our Understanding, to turn it towards the Motions of our Heart. *To love God and our Neighbours*, contains all the *Christian Religion*, according to St. *Paul*; which is nothing else but asking us the Disposition of our Heart, as well with regard to God as to Men: It is properly obliging us to do by Motives of Love, what the Politicks requires of us by the Rigour of the Laws; and what Morality prescribes us by an Order of Reason.

The Charity engages us to assist, while Justice forbids doing any Injury to our Neighbours. With the true Sentiments inspired by our *Religion*, there is no Perfidy in Love, nor Ingratitude. With those good Sentiments, a Heart loves, with Innocence, the Objects which God has rendered Amiables; and what is innocent in our Amours, is what is sweeter and more tender.

Let sensual and voluptuous Persons complain of our *Religion* for the Fear it inspires them with; those of a nicer Taste must be pleased, that it preserves from Distaste and Repentance. Better skilled in the Science of Pleasure; wiser than the most severe Philosophy in the Science of Manners; it depurates our Taste for Delicacy, and our Sentiments for Innocence. Consider Man in the Civil Society, if he wants Justice, you'll see that it is rigorous to him. In the pure State of Nature his Liberty will have something wild, and if he be governed by Morality, his own Reason will have some Austerity. All other *Religions* stir in his Soul, Sentiments attended with Inquietude, and Passions which disturb him. They excite against Nature superstitious Fears, and furious Zeals; sometimes to sacrifice his own Children as *Agamemnon*; and sometimes to devote ourselves as *Decia*. The Christian Religion alone appeases all Sorts of Inquietudes, softens all Sorts of Ferocity; employs what Tenderness we have in our Motions, not only for our Friends and Relations, but even our Enemies.

That's the End of the Christian Religion, and what was anciently the Use thereof. If it has at present other Effects, it is because we have made it lose the Rights it had on our Heart, to make our Imaginations usurp some over it. Hence has happened the Division of Minds in Points of Belief, instead of an Union of Wills on Good Works; so that what should have been a Tie of Charity between Men, is no more but a Subject of Contentions, Jealousies, and Animosities.

From the Diversity of Opinions arose the Diversity of Parties, and Parties have produced Persecutions and Wars. Millions of Men have perished for contesting only on the Manner they took in the Sacrament, what they all agreed was taken in it. It is an Evil which lasts still, and will always last till *Religion* repasses from the Curiosity of our Minds to the Tenderness of our Hearts; and that surfeited with the Presumption of our Lights, it goes and seeks after the sweet Motions of our Love.

But there is no great Appearance yet of those happy Changes, which would re-unite us once again in the same Belief, and revive among us that Christian Charity, without which our Religion is but a Body without a Soul, or rather a Shadow or Skeleton of *Religion*; and the most surprizing is, that those whose indispensable Duty it is to contribute all in their Power to procure that Reunion, put, on the contrary, all in Use to widen the Breach; either renewing daily the old Controversy, and loading them with new problematical Questions, more capable to revive the ancient Animosities than to appease them, and to precipitate us into Hell, than to lead us to Heaven; or by mocking it, the *Religion* appearing almost every Day under a new Mask, which a Multitude of weak Women, or of ignorant Men, who never were acquainted

acquainted with the real and true Face of Christianity, mistake for it. Most of us have been so much infatuated with the scandalous and antichristian Notion, that to rave, or inveigh bitterly against another *Religion*, is an evident Proof of an Excess of Zeal for that we profess, that they really believe that *Religion* consists scarce in any Thing else. A Sermon which is not seasoned with some Invectives, let it be ever so well calculated for Instruction, to inspire us with the Sentiments of Virtue, or to reform our Manners, is seldom approved: A Touch at Popery in a *French* Conventicle, or at the Church of *England* among Dissenters, will awake those wrapped in a most profound Sleep; and that Part of the Sermon is always better remembered than any other; the Auditors are not so much to be blamed as the Preacher, who has accustomed them to those Invectives, instead of inspiring them with the Sentiments of a Christian Charity; for tho' he may not have them himself, we learn from Christ, that the Scribes and Pharisees preached better than they acted.

Notwithstanding the great Obstacles which are represented as insuperable to a Reunion between the different Sects which lacerate Christ's seamless Gown, that Reunion is not impracticable, if the Shepherds committed to the Guard of Christ's Flock would renounce all Prejudices, and prefer the Salvation of the Souls, to their private Interest and other worldly Views.

The *Roman Religion*, to contribute all in her Power towards that Reconciliation, should give up some Points which are only of ecclesiastical Institution, particularly that of the Celibacy of the Clergy, which, in my Opinion, is the greatest Obstacle; not that I would have Marriage introduced among the *Roman* Clergy; but only Things relating to that Point left on the same Footing as they are at present, *i. e.* that the Celibacy of the Priests should continue in the *Roman* Church, and approved by the Protestants, as their Marriage in the Reformed, and allowed licit and valid by the *Romans*; since that Marriage is no where condemned in the Scripture; and the Church has commanded it only as more becoming the ecclesiastical State; supposing that the Priests being called to the Government of the Church of Christ, and the Conduct of the Souls, that Occupation is so serious, that it requires the whole Attention of a Man, which notwithstanding must be divided, if he is engaged in the matrimonial State; for it is not reasonable to suppose that he will neglect the Care of his Family, to apply himself entirely to the Conduct of his Flock; Nature pleading continually in favour of the former, to the Exclusion of the latter: It cannot be said that he can very well divide his Time between both; for a pastoral Sollicitude admits of no such Division; it not only requires the whole Time of Man, but even much more than he has: A Pastor who will acquit himself of his Duties find no vacant Hours; all his Occupations succeed one another, without any Interval between, for it is either a Person, who is dying, and wants his Assistance in that critical Passage from Time to Eternity, whom perhaps, few Moments of a salutary Exhortation will save from the Precipice, which otherwise he had fell into, and for which a negligent Pastor had been accountable at that dreadful Tribunal of an impartial Judge, where a Difference of *Religion* will have no Excuse for having neglected so essential a Duty; for as no Body is forced to take upon him the Conduct of Souls, he that takes it is inexcusable before God and Men. For those deceive themselves, who falsely imagine, that their whole Office consists in Preaching, reading Prayers, and administring the Sacraments, at the Times appointed; which some of them do, because they are obliged to it, to be entitled to the Revenues, and other Emoluments of the Church; those are the least of their Occupation; exhorting, arguing, reproving in private, to comfort the Afflicted, relieve the Distressed, seek after a Sheep which is run astray, are some of his most essential Duties, though perhaps the least minded, and on which he is to undergo a very severe Examen: If this be not true, the whole Christian Religion is a Romance; and we must believe it, or else deny a future State. For if God has been pleased to establish a certain Order of Men for the Conduct of others in the Road to Salvation, he thought then that every one was not capable to operate his own Salvation alone, and without the Assistance of those Men; and if he be frustrated in his Intention, by the Negligence of those Men, must he not call them to an Account for that Negligence, which deprive the celestial *Jerusalem* of so many Inhabitants; and must not those who have been accessory to the Perdition of those unfortunate Creatures, be severely punished for it?

These were some of the most weighty Considerations which engaged the Church to oblige the Clergy to Celibacy; and as those who made those Regulations were Clergymen themselves, we have all the Reason imaginable to think that they thought it practicable, since they were obliged to submit to it themselves. If this had been done by the Authority of Princes, who imposed a Yoke on others, which they had not been obliged to bow their Necks to themselves, it might have been considered as insupportable, and exclaimed against as an Oppression; but that Yoke was formed by the Clergy themselves, for themselves, without the Concurrence of the Laity, or being actuated to it by any other Motive, but that of rendering their State more perfect, and more agreeable to their Vocation; but since the Protestant Clergy think otherwise, and have shook off that Yoke, which for so many Ages had appeared so light and so agreeable, and submitted to with so much Alacrity, that should be suffered by the Catholicks for the Sake of a Reconciliation.

The Marriage of the Protestant Clergy once tolerated by the Catholicks, it is my Sentiment, that all the other Obstacles which obstruct a Re-union, could soon be conquered in Conferences, managed between both Parties and carried on with that Spirit of Charity, which should inspire all Christian Assemblies, without Jealousy and Animosity. They could soon understand one another on that great Mystery of the Eucharist; especially if they would be pleased to read with Attention, and with the same Impartiality I have wrote it, my Treatise on that Subject. They would think a Hierarchy indispensably necessary for the Government of the Church; and that to suffer every body to follow blindly the Vanity of his Imaginations, is to introduce a monstrous Anarchy in the Sanctuary, and pave that wide Road, mentioned in the Scripture, which leads to Perdition. The *English* Church experiences daily the Inconveniencies of such Toleration.

In those Conferences the Number of Sacraments would be settled, and approved by an unanimous Consent; the Prayer for the Dead, thought perhaps necessary, being neither injurious to God, nor prejudicial to Men; it is not injurious to God; since those Prayers are Part of the Worship due to him, wherein his Omnipotency, Justice, Mercy, and the greatest Part of his other Attributes are acknowledged: They are not prejudicial to Men, since if there be no third State, the Prayers are always good of themselves, and prove beneficial to him that pray.

The Catholicks would perhaps be persuaded, for the Sake of Peace, to reform several Abuses, which either Ignorance, or Avarice, or perhaps both, have introduced into their *Religion*, which though not essential, may be notwithstanding a Subject of Scandal. Thus the Christian Religion should recover its antient Lustre, Animosities and Jealousies cease among us; and there would be then henceforward but one Christ, one Faith, and one Baptism.

It would be improper to conclude this Treatise, without taking some Notice of *Paganism*, or Idolatry, which was the Worship and Adoration of false Gods, or the giving those Honours to Creatures, or the Works of Man's Hand, which are only due to God.

It is generally allowed, that Idolatry had not its Beginning till after the Deluge; and many are of Opinion, that *Belus*, who is supposed to be the same with *Nimrod*, was the first that was deified; though mine is, that Idolatry had a much more antient Origin; and that it began soon after *Cain*'s Fratricide; that the Difference God made between his Sacrifice, and that of *Abel* his Brother, which was the Occasion of that Murder, and seeing himself cursed by his Creator, he invented a new Deity and a new Worship, which was established among his Posterity; whence came the Denomination of Sons of Men for those who followed it, in Contra-distinction of the Sons of Gods, who worshiped their divine Creator.

Some pretend, that all we have the moſt certain on this Subject, is, that 426 Years after the Deluge, when God led *Terah* and his Family out of *Chaldæa*, and *Abraham* paſſed over *Meſopotamia*, *Canaan*, the Kingdom of the *Philiſtines*, and *Egypt*, it does not appear that *Idolatry* had then got any Footing in any of theſe Countries; though others pretend, and I am of that Opinion, that *Abraham* himſelf was an Idolater.

The firſt Mention we find made of it is in *Geneſ.* xxxi. 19. where *Rachel* is ſaid to have taken the Idols of her Father; whence I conclude, that the Family of *Terah* were Idolaters; in which ſome of them continued, even long after *Abraham*'s Converſion, ſince *Laban* and all his Children were ſo; for though the Meaning of the *Hebrew* Word *Teraphim* be diſputed, yet it is pretty evident they were Idols. *Laban* calls them his Gods, and *Jacob* calls them ſtrange Gods, and looks on them as Abominations.

To be better convinced of this Truth; we muſt examine what the Criticks ſay of that Word *Teraphim*, which we meet with thirteen or fourteen Times in the Scripture, where it is commonly interpreted *Idols:* But the Rabbins are not contented to have it ſimply ſignify *Idols*, but will have it denote a particular Sort of *Idols*, or Images for the Knowledge of Futurity, *i. e.* Oracles.

R. *David de Pomis* obſerves, that they were called *Teraphim* from רפה, *raphah*, to leave, becauſe People quitted every thing to conſult them.—He adds, that the *Teraphim* were in human Shape; and that when raiſed upright, they ſpoke at certain Hours, and under certain Conſtellations, by the Influence of the celeſtial Bodies. This is a rabbinical Fable, which he has learned from *Abenezra*.

Others hold, that the *Theraphim* were brazen Inſtruments, which pointed out the Hours and Minutes of future Events, as directed by the Stars.—*De Pomis* corrects *Abenezra*, ſaying, that the *Theraphim* being under a certain Conſtellation, the Devil made them ſpeak under the ſame.

R. *Eliezer* tells us, that the Reaſon why the Rabbins will have the *Theraphim* to ſpeak, and render Oracles; 'tis, ſays he, becauſe it is written in the Prophet *Zachary* x. 2. the *Theraphim* have ſpoken vain Things.

The ſame Rabbin adds, that to make the *Theraphim*, they killed a firſt-born Child, clove his Head, and ſeaſoned it with Salt and Oil; that they wrote on a Plate of Gold the Name of ſome impure Spirit, laid it under the Tongue of the Dead, placed the Head againſt the Wall, lighted Lamps before it, prayed to it, and it talked with them.

Be that as it will, *Vorſtius* obſerves, that beſides the Paſſage of *Zachary* juſt quoted, it appears likewiſe from *Ezekiel*, xxi. 22. that the *Theraphim* were conſulted as Oracles.

De Pomis endeavours to ſhew, that the *Theraphim*, which *Michal* put in *David*'s Bed, were not of this Kind, becauſe they were not in the Figure of Men; but R. *Eliezer* is of another Sentiment.

As to the Manner of making the *Teraphim*, *Vorſtius* takes it to be a vain Tradition of the Rabbins, though Rabbin *Tanichuma*, and *Jonathan*, in his *Targum*, Geneſ. xxxi. 19. relates it after R. *Eliezer*.—The chief Reaſon of his Diſbelief is, that *Laban* who had not quite loſt all Notion of the true God, as appears from *Gen.* xxxi. 53. could not be guilty of ſo great a Cruelty: But *Vorſtius* does not conſider, that the Cuſtom might not be leſs real, for its not having been eſtabliſhed ſo early as *Laban*; and that the *Hebrews*, ſometimes, burnt their Children to *Moloch*.

F. *Kircher* directs us to ſearch the Origin of the *Teraphim* in *Egypt*; adding, that the Word is *Egyptian*.—*Spencer*, in his Diſſertation on the *Urim* and *Thummim*, maintains the Word to be *Chaldee*, and to ſignify the ſame with *Teraphim*, the *Chaldeans* being frequently known to change the ש into ת, that is, *S* into *T*. He adds, that thoſe Images were borrowed from the *Amorites*, *Chaldeans*, and *Syrians*; and that the *Serapis* of the *Egyptians*, is the ſame Thing with the *Theraphim* of the *Chaldeans*.

But to return to the Origin of *Idolatry*, *Cluverius* is of my Opinion, that *Cain* was the firſt Idolater; and maintains the falſe Gods he worſhipped to have been the Stars, to whom he ſuppoſed God had left the Government of the lower World.

In fact ſeveral Authors are of Opinion, that the firſt *Idolatry* that ever entered into the World, was the Worſhip and Adoration of the Stars; called by the Scriptures *Tſeba Schamaim*, or *Seba Schamaim*, i. e. Hoſt, or Militia of Heaven; whence ſome Moderns formed the Word *Sabaiſm*, to denote the Worſhip of the heavenly Bodies, and that of *Sabæans* for the Worſhippers. But as the *Hebrew* Word, whence theſe are formed is wrote with a צ *Tzade*, which ſome expreſs in the modern Tongues by an *ſ*, ſome by a *z*, others by *tſ*, and others by *tz*; hence ariſes a great many different Manners of Writing among many different Authors.—Some, *e. gr.* writing *Sabæans*, others *Zabians*, or *Zabæans*, or *Zabæiſts*, as *Buxtorf*; others *Tſabians*, others *Tſabæans*, &c.

Maimonides makes frequent Mention of this *Idolatry* in his *More Nevochim:* It was very general, he obſerves, in the Time of *Moſes*. The Retainers hereto thought, that God was the Spirit of the Sphere, that is the Soul of the World. *Abraham*, he adds, was brought up in the Doctrine of the *Sabæans*, who admitted no other God but the Stars, and who, in their Books, many of which have been tranſlated into *Arabick*, maintains expreſly, that the fixed Stars and Planets are inferior Gods, and the Sun and Moon the ſuperior ones. *Abraham* at length, he tells us, oppoſing theſe Errors, firſt aſſerted the Exiſtence of a Creator, diſtinct from the Sun. The King of the *Cuthæans* clapp'd him up in Priſon; but he ſtill perſiſting, that Prince, from an Apprehenſion of his diſturbing the State by teaching a new Religion, confiſcated his Goods, and baniſhed him to the Extremities of the Eaſt.—This Relation, he tells us, is found in a Book, intitled *the Religion of the* Nabathæans.

He adds, that the *Sabæans*, to the Adoration of the Stars, joined a great Reſpect for Agriculture; ſet a high Value on Cattle and Sheep; and taught that it was unlawful to kill them. He even adds, that they worſhipped Dæmons, under the Form of Goats, and eat the Blood of Animals (tho' they judged it unclean) merely becauſe they imagined it was the Food of Dæmons.

This is a Summary of what that Rabbin gives us concerning *Sabaiſm*; from whence it is eaſy to judge, that *Sabaiſm* is a Mixture of Judaiſm, Chriſtianity, Mahometaniſm, and Paganiſm. The Truth is, the Worſhip of the Stars was eſtabliſhed long before, not only Chriſtianity, but even before the Law of *Moſes*. Not but ſome of the later *Sabæans* have given into divers Articles of almoſt all Religions.

The *Sabæans* were very numerous throughout the Eaſt: In latter Times they have, as already obſerved, mixed ſomething of Chriſtianity with their Superſtition. They ſet a great Value on the Baptiſm of St. *John*; whence they have been alſo denominated Chriſtians of St. *John*.

Abu Joſeph Aſchæus, and *Keſſæus*, place the *Sabæans* about *Charan*, or *Charres*, and *Ghezira* in *Meſopotamia*; which Opinion is confirmed by this, that their Books are in the *Chaldee* Tongue, though in a Character very different from the *Chaldee*.

Hottinger ſets aſide the common Derivation of *Sabæan*, from צבא, *Militia*, *Hoſt*; and will not have it the Name of a Sect of Religion, but of a People in *Arabia felix*, the Deſcendants of *Saba*, Grandſon of *Cham*.—But the Criticks, to a Man, conſpire againſt this Opinion.

The principal Cauſes that have been aſſigned for *Idolatry*, are, the indelible Idea which every Man has of God; and the Evidence which he gives of it to himſelf: An inviolable Attachment to the Senſes, and an Habit of judging, and deciding by them, and them only: The Pride and Vanity of the human Mind, which is not ſatisfied with ſimple Truth, but mingles and adulterates it with Fables: The Ignorance of Antiquity, or of the firſt Times, and the firſt Men, whereof we have but a very dark, and confuſed Knowledge by Tradition, they having left no written Monument or Books: The Ignorance and Change of Languages; the Style of the oriental Writings, which is figurative and poetical, and perſonifies every Thing: The Superſtition, Scruples, and Fears, inſpired by Religion; the Flattery of Writers; the falſe Relations of Travellers; the Fictions of Poets; the Imaginations of Painters, and Sculptors: A ſmattering of Phyſicks, that is, a ſlight Acquaintance with natural

tural Bodies, and Appearances, and their Causes; the Establishment of Colonies; and the Invention of Arts, mistaken by barbarous People; the Artifices, Cheats, and Jugglings of Priests; the Pride of certain Men, who have affected to pass for Gods; the Love and Gratitude bore by the People to certain of their great Men, and Benefactors; and the Scriptures themselves ill understood.

The *Paganism*, consisted chiefly in a great Number of different Sacrifices, and Ceremonies, some of them very magnificent and solemn, and others as extravagant and ridiculous; and what's the most surprising is, that the Ceremonies of this last Order were accompanied with sensual Pleasures and Debaucheries, condemned even by the very Morality they pretended to profess. Temperance, Virtue, Modesty, and even a natural Shame and Pudor, were sacrificed on those Occasions, under the specious Pretence, that such and such Divinities delighted in Sacrifices of those Kinds; which was likely enough, since they had stocked Heaven with profligate Fellows, and common Prostitutes.

RHETORICK.

RHETORICK, is the Art of Cloathing our Thoughts with Words, so as they may be either instructive, persuasive, or entertaining, whether we speak, or write.

I say, 1. That *Rhetorick* is *the Art of Cloathing our Thoughts with Words*; because let our Thoughts be ever so rich and beautiful, they will never appear so to others, unless we have the Art of digesting them well, when we design to communicate them to the Publick; for a Man may think well, and, without this Art, speak or write very ill: In fact we often see Persons of a very fertile Imagination, put to a Kind of Torture when they are obliged to express themselves; it is easy to perceive that their Thoughts crowd on their Tongue, but that that perfidiously deserts them when they want it most; in others the Tongue is too officious, and acts with too much Precipitation, either by exploding a too great Number of Thoughts at once, which reduce the Hearer to the Impossibility of distinguishing them from one another; or by a too great Volubility, making them follow so soon each other, without due Intervals between, so that to understand half thereof, one is obliged to lose the other half.

I say, 2. *So that they may be instructive, persuasive*, &c. *whether we speak or write:* For it but too often happens, that the finest Thoughts are either in part, or entirely disfigured, by our *Speech or Writings*; for we see daily Men of an excellent Understanding, who are but very poor Orators; as we see very good Orators, who have but an indifferent Understanding; tho' the latter will please, while the former grows tedious, and sometimes insupportable: There are likewise some that speak well, and write ill; and others who write well, and have a bad Delivery.

But notwithstanding these Differences among *Orators*, or *Rhetoricians*, Thoughts are the Foundation of the Art of *Rhetorick*, or *Oratory*; and that to produce a good Effect either in Speaking and Writing, they must be good ones, and the Words they are cloathed with appropriated to them, according to their different Degrees of Sublimity: For a sublime one should not be expressed, or digested in common Terms; nor a common one appear under pompous Expressions; for pompous Expressions appropriated to a common Thought, like an old Coat patched with a Piece of new Cloth, or a wrinkled Face plaster'd with white and red, serve only to make it appear worse still, than it is in Reality: Likewise sublime Thoughts appearing under common Terms, and trivial Expressions, lose the greatest Part of their Beauty.

Therefore since our Thoughts are the Foundation of *Rhetorick*, and that Art is only invented for the Manifestation thereof; I'll begin this Treatise, by enquiring first into the different Sorts of *Thoughts*.

Though our Thoughts be of our own Growth, and cannot be suggested to us but occasionally, by the different Objects, which strike our external Senses; it is not in our Power, notwithstanding, to make them such as we would: For it is impossible, for Instance, that a narrow Genius should form any sublime Thoughts; though a sublime Genius be sometimes capable of very common, or indifferent Productions, either by his Spirits being exhausted, or his Imagination vitiated by some external Objects, or through the Imbecility of some of the Faculties of his Soul, occasioned by some extraordinary Disorder of the Microcosm.

The Difference of Thoughts proceeds also sometimes from the Difference of Birth and Education; for it is not possible that a Man who all his Life had but low and servile Sentiments and Inclinations, should be capable of any Thing worthy the Posterity. None but those who have had a noble and liberal Education, provided they have besides a natural Genius, are probably capable, of noble and sublime Thoughts, and of expressing those Thoughts in noble and sublime Terms. We have a particular Instance of this in *Alexander*'s Answer, when *Darius* offered him half *Asia*, with his Daughter in Marriage; *For my Part*, said *Parmenio*, *if I was* Alexander, *I should accept those Offers*; *And I too*, replied *Alexander*, *if I was* Parmenio.

But it is not enough to have fine, noble, and sublime Thoughts, we should be Masters likewise of an Art to communicate them as such to others, without disguising or enervating them; and that Art is the *Rhetorick*.

Rhetorick, is commonly divided into four Parts, *viz. Invention, Disposition, Elocution*, and *Pronunciation*.

INVENTION, is to find out Arguments which the Orator is to use for the proving his Point, or moving his Hearers Passions.

Those *Arguments*, according to *Cicero*, are some probable Matter alledged to gain Belief; and are divided, according to their Source, into those fetched from Reason, and those from Authority: For an Orator must have Recourse to both, when he wants to persuade his Hearers. The Arguments fetched from Reason, when entirely agreeable to the Dictates of a solid one, gain the Attention of the Hearer, flatter his Curiosity, and make him wait, with a kind of Impatience, for something which he expects will convince him, *i. e.* for Arguments fetched from Authority, which when well appropriated to the Subject, answers his Expectation.

Arguments, are also divided, with respect to the Place they are drawn from into *intrinsick* or artificial; and *extrinsick* or inartificial, or remote.

Artificial or *intrinsick* ARGUMENTS, by *Cicero* called *insita*, are the proper Invention of him who speaks; or those which are taken from the Subject treated of: Of which there are several Kinds, viz. *Genus* and *Species*, *Form*, *Cause*, and *Effect*, &c.

To these some add two other Places of *Argument*, *viz.* the *Manners*, and the *Passions*.

Inartificial or *extrinsick* ARGUMENTS, by *Cicero* called *assumpta*, are those which are borrowed from abroad, and only applied by the Orator to the Point in hand; such are Laws, common Report, Books, Oaths, Torture, and Witnesses.

A late Author divides the Places or general Heads of *Arguments*, with regard to their End, into 1. Those intended to persuade or dissuade, which are chiefly drawn from the Consideration of Profit, Honour, and Equity. 2. Those intended to praise or dispraise. And, 3. Those intended to accuse and defend.

The DISPOSITION is defined by *Cicero*, the Art of distributing the Things or Arguments invented, or found out into a proper Order; or a due placing, or ranging the several Parts of a Speech or Discourse.

The *Disposition* is of the same Necessity in *Oratory*, as the marshalling an Army, in order to a Battle; or a beau-

tiful Compoſition in Architecture, Painting, *&c.*—*Horace* enjoins it expreſly in Poetry: *Singula quæque locum teneant ſortita decenter.*

The *Diſpoſition* then is the Order or Arrangements of the Parts of an Oration; which Parts are uſually reckoned four, *viz.* the *Exordium* or Beginning; the *Narration*, the *Confirmation*, and the *Peroration* or *Concluſion*, tho' ſome make them ſix; *viz.* the *Exordium*, *Diviſion*, *Narration*, *Confirmation*, *Confutation*, and *Peroration*, as indicated in that popular Verſe.

Exorſus, Narro, ſeco, firmo, refuto, peroro.

But the *Diviſion* is more naturally referred to the *Exordium*; and the Confutation to the Confirmation.

The *Diſpoſition* is either *natural* or *artificial.*—*Natural* is the Order the Parts are above rehearſed in.—*Artificial* is when, for ſome particular Reaſon, we recede from the Order of Nature.

As to the Parts thus diſputed—The EXORDIUM is the Preamble or Beginning of a Diſcourſe or Speech; ſerving to prepare the Audience, and introduce the Matter in Hand.—The *Exordium* on other Occaſions is called the *Prologue*, *Prælude* and *Proem.*

Cicero defines *Exordium*, as a Part of an Oration, whereby the Minds of an Audience are duly prepared for what remains to be ſaid.—The *Exordium* is a Part of principal Importance; and to be laboured with extraordinary Care; whence *Tully* calls it *difficillima Pars Orationis.*

Exordiums are of two Kinds; either juſt and formal; or vehement and abrupt. In the firſt, the Audience is prepared and conducted by due and eaſy Steps; in the ſecond, the Orator, as if ſeiz'd with ſome ſudden Paſſion, breaks out upon his Audience at once. Such is that *Exordium* of *Iſaiah*, *Hear, O Heavens, and give Ear, O Earth:* Or that of *Cicero* againſt *Catiline*, *Quouſque tandem abutere Patientia noſtra Catilina? How long*, Catilina, *wilt thou abuſe of our Patience?*

Abrupt *Exordiums* are the moſt ſuitable on Occaſions of extraordinary Joy, Indignation, or the like; though we have Inſtances of Panegyricks of the greateſt Orators begun abruptly without any ſuch Occaſions: Such is that of *Gorgias*, who began his Eloge of the City and People of *Elis*, with *Elis, beata Civitas*; *Elis*, happy City; or that of *Gregory Nazianzene*, in Praiſe of *Athanaſius*, *Athanaſium laudam, Virtutem laudabo*, in praiſing *Athanaſius*, I'll praiſe Virtue.—Abrupt haſty *Exordiums* were more of the Taſte of the *Greeks* than the *Latins.*

The Requiſites in an *Exordium* are, 1. *Propriety*, whereby the *Exordium* becomes of a Piece with the whole Diſcourſe, and matches it as a Part does a whole; ſo that it could not be accommodated to any other, or perhaps a contrary Occaſion. The ancient Orators were very defective in this Point: Their *Exordiums* had frequently nothing in common with the Subject.

2. *Care*, Accuracy and Magnificence, as being the Part moſt minded, and moſt expoſed to Shew. Thus *Tully*, *Veſtibula aditusque ad Cauſas facies illuſtres*, you'll make the Opening of your Pleadings magnificent.

3. *Modeſty*, or an ingenious Baſhfulneſs, which recommends the Orator exceedingly to the Favour of his Audience. This is what *Cicero* extolls ſo much in *L. Craſſus*, *fuit enim in L. Craſſo Pudor quidam, qui non Modum obeſſet ejus Orationi, ſed etiam Probitatis Commendatione prodeſſet.* The ſame *Tully* owns of himſelf, that at the Beginning of his Orations he trembled every Limb, and his whole Mind was in a Flutter.

And 4. *Brevity*, not exemplified or ſwelled, with a deal of Circumſtances, or a long Circuit of Words: Such as that muſt be of the Lawyer, who being to ſpeak of a Difference between two Neighbours, decreed his *Exordium* from *Adam.*

The *Exordium* appears an eſſential Part of an Oration; though antiently in the *Areopagus*, *Julius Pollux* tells us they ſpoke without any *Exordium*, any Paſſions, and any Peroration or Epilogue. The like is ſaid to have been done by *Xenophon*, who began thus, *Darius & Pariſatis duos habuere Filios*, *Darius* and *Pariſatis* had two Sons. Which, in my Opinion, is the beſt Manner in Pleadings and Harangues, whence *Exordiums* ſhould be retrenched, as taking up too much Time, and keeping the Mind of the Judges, and of the Audience too long in Suſpence; but in Sermons and Panegyricks, and the like, *Exordiums* are indiſpenſably neceſſary; becauſe, in them is made the Diviſion of the Diſcourſe, and a general Idea thereof given; which eaſes the Memory of the Hearer, and helps him to follow the Orator throughout; and, then the *Exordium* ſhould not be too long; otherwiſe the Audience might chance to be fatigued before the Orator begins to treat his Subject.

The DIVISION ſeldom finds Place in any other Diſcourſes, but in *Sermons* and *Panegyricks*, and is invented only to eaſe the Memory of the Orator. The Diviſion ſhould be always, as much as poſſible, contained in the Text: For Example, if I was to preach a Sermon on the Grace of *Jeſus Chriſt*, and take for Text of my Diſcourſe this Paſſage of St. *Paul*, *It is by the Grace of God that I am what I am, and the Grace of God has not been void in me*; I would divide my Diſcourſe into two Parts, proving in the firſt the Power of Grace, alluding to the firſt Part of my Text, *It is by the Grace of God that I am what I am*; and in the ſecond, the Neceſſity of our co-operating with Grace, and *the Grace of God has not been void in me.*

The NARRATION is a Recital or Rehearſal of a Fact as it happened, or as it is ſuppoſed to have happened.

This is of two Kinds, either *ſimple* and *hiſtorical*, as where the Auditor or Reader is ſuppoſed to hear or read of a Tranſaction at Second-hand—or *artificial* and *fabulous*, as where their Imaginations are raiſed, and the Action, as it were, re-acted before them.

The *Narration*, as already obſerv'd, makes the ſecond Part of a juſt Speech or Harangue, *viz.* that immediately following the *Exordium*; it makes the whole of a Hiſtory; abating for the occaſional Reflexions, Epiſodes and Digreſſions.

Cicero requires four Virtues in a *Narration*, viz. *Perſpicuity*, *Probability*, *Brevity* and *Sweetneſs.*

The *Narration* is render'd *perſpicuous*, by obſerving the Order of Time, by uſing none but proper and known Terms, and by reciting the Action uninterruptedly.

It is rendered *probable*, by the Credibility of the Narrator, by the Simplicity and Openneſs of the *Narration*, by avoiding every Thing far remote from the common Senſe and Opinion of Mankind, and by a preciſe Detail of Circumſtances.

It is rendered brief, by taking it up no higher than is juſt neceſſary; nor fetching it back, as that impertinent Author in *Horace*, *qui genuino Bellum Trojanum orditur ab ovo*; and by avoiding trivial Circumſtances.

Laſtly, It is render'd ſweet, by uſing ſmooth, numerous and well ſounding Words; by arranging them, ſo as to avoid any Hiatus or Claſhing; by the Greatneſs, Novelty, and Unexpectedneſs of the Things related; and by enriching it with Tropes and Figures, as frequent Admirations, Exclamations, Interrogations, Expectations, Suſpences, ſurpriſing Events; by Grief, Joy, Fear, *&c.*

CONFIRMATION is that Part of an Oration, wherein the Orator undertakes to prove, by Laws, Reaſon, Authorities, and other Arguments, the Truth of the Propoſitions advanced in his Narration.

Confirmation is either *direct* or *indirect*; to the firſt conforms what the Orator has to urge for ſtrengthening his own Cauſe; the ſecond properly called *Confutation*, refels the oppoſite arguing of the Adverſaries, the two Parts together being ſometimes placed under the Head or Title of *Contention.*

The *Confirmation* is, as it were, the Life and Soul of the Oration; in this the main Streſs of the Argumentation lies, whence *Ariſtotle* properly enough calls it *Fides.*

The *Peroration* is the Epilogue or laſt Part of an Oration; wherein, what the Orator inſiſted on through his whole Diſcourſe is urged afreſh, with greater Vehemency and Paſſion.

The *Peroration* conſiſts of two Parts, 1. Recapitulations, wherein the Subſtance of what was diffuſed throughout the whole Speech, is collected briefly and curſorily, and ſummed up with new Force and Weight.

2. The moving the Paſſions, which is ſo peculiar to the *Peroration*, that the Maſters of the Art call this Part *Sedes affectuum.*

The Paſſions to be rais'd in the *Perorations* are various, according

according to the various Kinds of Orations: In a Panegyrick, Love, Admiration, Emulation, Joy, &c. in an Invective, Hatred, Contempt, &c. in a Deliberation, Hope, Confidence, or Fear.

The Qualities required in the *Peroration* are, that it be vehement and passionate, and that it be short; because, as *Cicero* observes, Tears soon dry up.

The *Peroration* was *Cicero*'s Master-piece. Here that great Orator, not only set his Judges and Auditors on Fire, but even seemed to burn himself; especially when he was to raise Pity and Commiseration towards the Accused; where, as he himself tells us, he frequently filled the Forum with Weeping and Lamentation. He adds, that where there were several Orators to speak for the same Person, the Peroration was always refused to *Cicero*; and subjoins, that if he excelled herein, it was not owing to Genius, but the Grief himself shewed. This is abundantly evident in his Milonian *Peroration*; where he says, *Sed finis sit; neque enim præ lachrymis loqui possum; & hic se Lachrymis defendi vetat.*—And in that for *Rabirius Posthumus: Sed, jam, quoniam, ut spero, fidem quam potui, tibi præstiti, Posthume, reddam etiam lachrymas quas debeo. —Jam indicat tot hominum fletus quam sis carus tuis, & me dolor debilitat, includitque vocem.*

The ELOCUTION, is defined by *Tully* the chasing and adapting of Words and Sentences to the Things, or Sentiments to be expressed.—To the *Elocution* then properly belongs the *Delectus Verborum*, or Choice of Words. In fact there is nothing more proper to fix the Attention, and excite the Passions, than the Choice of proper Terms; it is by them that Greatness, Elegance, Neatness, Weight, and Strength, shine in a Discourse as in a rich Picture, and give to the Things a kind of Soul and Life: Lastly, fine beautiful Expressions are in fact the proper and natural Light of our Thoughts. But we must not affect notwithstanding, to make every where a Parade of pompous Words; for to express a mean or low Thing, in great and magnificent Words, is, says *Longinus*, as if one would put a large Mask on the Face of a young Child, unless it be in Poetry. That may be seen in a Passage of *Theopompus*, which *Cecilius* blames without Cause, since it seems on the contrary, very much to be commended for its Justness, and because it says a great deal. *Philip*, says that Historian, *drinks, without Difficulty, the Affronts which the Necessity of his Affairs obliges him to suffer.*

In fact, a simple Discourse shall sometimes express a Thing better than all the Pomp and Ornament that could be invented, as we see every Day in the Affairs of Life. Add, that a Thing enounced in a common Manner makes itself easier believed. Therefore, in speaking of a Man who to aggrandize himself, suffers Indignities, not only without Pain, but even with Pleasure, *to drink the Affront*, seems to say a great deal. The same may be said of this Expression of *Herodotus. Cleomenes being grown furious, took a Knife, wherewith he hacked his own Flesh in small Pieces; and being thus hacked, he died.* And again *Pithes continuing still on board the Ship, fought till he was cut in Pieces.* For those Expressions shew a Man he relates plainly the Things as they are, without refining or finessing, including notwithstanding in them, a Sense which is neither coarse nor trivial.

The Beauty of *Elocution* consists chiefly in the Use of Figures, and figurative Dictions or Expressions, in the Periods and the Style.

A Period, according to *Aristole*, is a Discourse which has a Beginning, a Middle, and an End, all visible at one View.

The *Periods* allowed in Oratory are three; a *Period* of three Members, called by the Greeks *dicolos*, and the Latins *bimembris*: A *Period* of three Members, *tricolos*, *trimembris*: And a *Period* of four Members, *quadrimembris*, *tetracolos*.

A strict *oratorial Period*, does not allow of either more or fewer than these; it is possible indeed to introduce a Period of one Member, called by *Aristotle*, *monocolos*, or *simple Period*, but it will be reputed a Flaw, and is a Thing never practised by the Masters.

The *Period* may be likewise prolonged to five or six Members, but then it changes its Name, and instead of *Period* commences a periodical Discourse.

A *Period* of two Members *Cicero* supplies us with: *Ergo & mihi meæ pristinæ vitæ consuetudinem, C. Cæsar, interclusam aperuisti; & his omnibus ad bene de republica sperandum quasi signum aliquod sustulisti.*

A *Period* of three Members the same *Cicero* gives us in the Exordium of his *Manilian Oration: Nam cum antea per ætatem hujus autoritatem loci contingere non auderem; statueremque nihil huc nisi perfectum ingenio, elaboratum industria afferri oportere; omne meum tempus amicorum temporibus transmittendum putavi.*

A *Period* of four Members he gives us in that admirable Description of the Punishment of *Parricides. Ita vivum ut ducere animum de Cœlo non queant: Ita moriantur ut eorum ossa terra non tangat: Ita jactantur fluctibus, ut nunquam abluantur: Ita postremo ejiciuntur, ut ne ad sanor quidem mortui conquiescant.*

The Laws and Measures of *Periods* are pretty strictly regarded by Orators, at least by the antient ones: In ordinary Discourse, and in the modern Tongues, Authors are much less severe.

In Oratory, the Members of *Periods* are to be equal, or nearly equal; that the Pauses, or Rests of the Voice, at the Close of each Member may be nearly equal: But in Writings no Ways intended for Rehearsal, this is disregarded.

Common Discourse allows of *Periods* longer and shorter than Oratory; which admits of none less than two Members, nor greater than four. Short mutilated *Periods* break the Stream, and check the Course of the Sublime; and long ones embarass and keep the Mind too long in suspense; and even strain the Voice, which is never to stop but at the Ends of *Periods*. *Phalareus*, *Hermogenes*, *Terence*, &c. confine the just *Period* (called by the Latins *ambitus* and *circuitus*) to four Members; agreeable to the Distich,

Quatuor e membris plexum formare videbis
Rhetora circuitum, *sive* ambitus *ille vocetur.*

Of which Sentiment is *Cicero*, who in his *Orator* says, that *that Ambitus and full Comprehension consists of almost four Parts, which are called Members, that it may but fill the Ear, and be neither longer nor shorter than it ought to be.*—An Instance of the periodical Discourse the same Author gives us in the opening of his Oration for *Archias* the Poet: *Si quid in me sit ingenii, Judices, quod sentio quam sit exiguum; aut si quæ exercitatio dicendi, in qua me non inficior mediocriter esse versatum; aut si hujusce rei ratio aliqua ab optimarum artium studiis & disciplina profecta, a qua ego confiteor nullum ætatis meæ tempus abhorruisse; earum rerum omnium vel in primis hic A. Licinius fructum a me repetere prope suo Jure debet.*

Periods are said to be either *rotundi*, round, or *quadrati*, square, according to their different Œconomy and Cadences, or Numbers, which Numbers are a sort of simple unaffected Harmony, less glaring than that of Verse, yet such as is perceived, and affects the Mind with Pleasure.

The *Numbers* are that by which the Style is said to be easy, free, round, flowing, &c.

A fine Instance of *Numbers* we have in that Passage of *Tully* for *Marcellus: Nulla est tanta vis, tantaque copia quæ non ferro, ac viribus debilitari, frangique possit*, all the Beauty of which would be entirely lost to any tolerable Ear, if the *Numbers* were a little inverted, thus: *Nulla est vis tanta & copia tanta, quæ non possit debilitari frangique viribus & ferro.*

Numbers are a Thing absolutely necessary in all Writings, and even all Speeches. Hence *Aristotle*, *Tully*, *Quintilian*, &c. lay down Abundance of Rules as to the best Manner of intermixing Dactyls, Spondees, Anapests, Iambus's, Choraicks, and Dichoraicks Molossus's, &c. in order to have the *Numbers* perfect.

The Substance of what they have said are reducible to what follows, 1. The Style becomes numerous, by the alternate Disposition and Temperature of long and short Syllables; so as that the Multitude of short ones neither render it too hasty, nor that of long ones too slow and languid.—Thus *Tully* to *Cæsar*; *Domuisti gentes immanitate barbaras, multitudine innumerabiles, locis infinitas, omni copiarum genere abundantes*, &c.

Sometimes indeed, long or short Syllables are designedly thrown together, without any such Mixture; to paint

paint the Celerity or Slowness of a Thing by that of the *Numbers*; as,

Quadrupedante patrem sonitu quasi ungula campum.
Æneid. lib. 8.

Luctantes ventos, tempestatesque sonoras. Id. lib. 1.

2. The Style becomes numerous, by the intermixing Words of one, two, and more Syllables, *e. gr. vivis & vivis non ad deponendam sed ad confirmandam audaciam.* Whereas the too frequent Repetition of Monosyllables renders the Style pitiful and grating; e. gr. *hac in re nos hic non feret.*

3. It contributes greatly to the Numerousness of a *Period* to have it closed by magnificent and well sounding Words; as *Qui locus quietis ac tranquilitatis plenissimus fore videbatur, in eo maximæ molestiarum, & turbulentissimæ tempestates extiterunt.*

4. The *Numbers* depend not only on the Nobleness of the Words in the Close, but of those in the whole Tenor of the Period: As in that fine Oration of *Cicero* for *Fonteius*, Brother of one of the vestal Maids. *Nolite pati, Judices, aras Deorum immortalium, Vestæque matris, quotidianis virginum lamentationibus de vestro Judicio commoveris*; *Do not suffer, O Judges, the Altars of the immortal Gods, and of the Mother Vesta, to be shaken by the continual Lamentations of Virgins, occasioned by your Sentence.*

5. To have the *Period* flow easily and equally, the harsh Concurrence of Letters and Words is to be studiously avoided, particularly the frequent meeting of rough Consonants; as, *ars studiorum rex Xerxes:* The beginning the first Syllable of a Word, with the last of the preceding; as, *res mihi invisæ sunt:* The frequent Repetition of the same Letter or Syllable; as in that Verse of *Ennius*, *Africa terribili tremit horrida terra tumultu:* And the frequent Use of like ending Words; as *amatrius, adjutrius, præstigiatrius fuerunt.*

Lastly, the utmost Care is to be taken, lest in aiming at oratorial Numbers, you fall into poetical ones; and instead of Prose write Verse, which even *Cicero* himself is sometimes guilty of: Witness, *cum loquitur tanti fletus gemitusque fiebant.*

But to return to our Division of *Periods* into *round* and *square*.—The *square Period*, is that consisting of three or four equal Numbers, formerly distinguished from each other—as, that of *Cicero* on the Punishment of *Parricides.*

The *round Period*, is that whose Members or Parts are so connected, and fitted into each other, as that the Junctures or Commissures are scarce seen; but the whole slides equally round, without any notable Stops or Inequalities.—Such are the Dicolos and Tricolos of *Cicero* above-mentioned.

Now for the *Style* which is another Part of the *Enunciation.*

Style, in Matter of Language, is a peculiar Manner of delivering a Man's Thought in Writing agreeably to the Rules of Syntax; or, as Father *Buffier* more accurately defines it, the Manner wherein the Words contracted according to the Laws of Syntax, are arranged among themselves, suitably to the Genius of the Language.

This Definition fixes the Notion of *Style* to something determinate, which before was very vague and arbitrary; whence many Authors, even of Note, confounded it with Syntax itself.

From the Definition, it appears, that *Style* supposes, or includes the Syntax; and that Syntax does not extend so far as *Style:* For the Syntax may be very just, where the *Style* is wretched, were it only in this Example: 'God always rewards with great Fidelity, and greater 'Liberality, the Just: Or this, 'there is no body who 'more than I honour you.'

The Regimens and Terminations of each Word, are perfectly just in each of these Phrases: There is no Fault then in the Syntax; but there is something wanting in the Arrangement of the Words, to suit them to the Genius of the Language; there is a Fault then in the *Style.*

Indeed, against what particular Rule of Grammar the Fault is committed, it is scarce possible to determine precisely; the Taste and Use of a Language being so exceedingly delicate and precarious. It is true, that a Fault in *Style*, is not less a Fault against Grammar, than is a Fault in Syntax; only the former is less palpable and precise than the latter.

A very common Error in Grammarians, Father *Buffier* adds, is to confound two Kinds of *Styles* in one: The *grammatical Style*, or that directed by the Rules of Grammar; and the *personal Style*, which depends less on the Grammar, than on the Person that writes; whether with regard to his particular Taste and Genius, or with regard to his Matter, or the Kind or Character of his Work.

There are a great many Differences between the two; the most essential is, that the one may be diversified an infinite Number of Ways, and the other cannot. In effect, the *personal Style* is naturally variable, according to the different Genius's, Humours, and Complexions.

It is the Imagination that acts, that conceives, that proposes, and that expresses Things, according to its Character, which is different in all Men, and which is to be varied, according to the particular Kind of the Work.

Hence arises the *gay*, the *grave*, the *florid*, the *jejune*, the *copious*, the *concise*, the *poetical*, the *epistolary*, the *burlesque Styles.*

These *personal Styles* are all independant on the grammatical; and we have Authors who excel in the one, yet are miserably defective in the other. The *personal Style* is not under the Direction of Grammar; but of Imagination, or rather of *Rhetorick*, that Art having to do directly with our Thoughts, as Grammar with our Words.

This, however, may be said, that Grammar is free from being able to vary the same Words of a Phrase, with equal Perfection; and that generally there is but one Way of delivering them in the Taste and Genius of the Language. Thus the grammatical *Style* is invariable in the following Phrase. 'Death is a Law, which all 'Men are to undergo.' For you cannot well range the Words otherwise than they are here, without going out of the Bounds of Grammar. But in the personal Style, where the Imagination comes to be concerned, this Sentence might be varied infinite Ways, according to the Kind of Writing, whether oratorial, poetical, *&c.* as, 'Death neither spares the Prince, nor the Peasant.'— 'Death knocks equally at the Monarch's Palace, and 'the Beggar's Hut, *&c.*'

Therefore *Style*, in *Rhetorick*, is restrained wholly to this *personal Style* of Father *Buffier.*

Language refers principally to the Matter of Discourse *viz.* the Words; *Elocution* to the particular Members or Parts thereof, and *Style* to the whole Composition.

Rhetoricians reduce the Kinds of Styles to three; the *sublime*, the *low*, and the *intermediate*, or *equable Style.*

Sublime Style, is that consisting in magnificent Words and Sentences; which by its noble Boldness ravishes the Hearers, and extorts Admiration even from the Unwilling.

Low or *simple Style*, is that ordinarily used in smaller and humbler Works; as Epistles, Dialogues, and common Discourse. The chief Virtues hereof are Perspicuity, Smoothness, Easiness, and Cleanness; it must be very sparing in the Use of Tropes and Figures, especially the more violent ones, as the Prosopopæia, Apostrophe, *&c.*

Intermediate or *equable Style*, partakes of the Magnificence of the *Sublime*, and the Simplicity of the *Low.* It neither rises to the Majesty of the one in Words and Sentences; nor yet is smartly pointed like the other; but as *Tully* excellently expresses it, *est stylus quidam interjectus, intermedius, & quasi temperatus; nec acumine inferioris, nec fulmine utens superioris, vicinus amborum, in neutro excellens, utriusque particeps.*

The same Author calls it the *florid* and *polished Style*; it being in this that all the Graces and Beauties of Language are principally to be used.

For the Choice of *Style*, in the general, the Matter is to determine it. Such *Style*, says *Cicero*, is to be chosen, as expresses great Things magnificently, middle Things moderately, and low Things subtilly: But more particularly, as there are three Branches of the Duty of an Orator, to *teach*, to *delight*, and to *move*; the simple *Style* is used to *teach*; the Middle to *delight*; and the *sublime* to *move.*

Again the *ſimple* or low *Style* is fit for *Comedy*; the *ſublime* for *Tragedy*; and the Middle for *Hiſtory*.—*Cæſar*, it is true, rather uſed the ſimple than the intermediate *Style*; but then he wrote Commentaries, not an Hiſtory, as is obſerved by *Cicero*.

Again, the ſimple *Style* is fit for Bucolicks and Eclogues; the intermediate *Style* for *Georgicks*; and the ſublime for *Epicks*, which tripple Difference we eaſily deſcry in *Virgil*, though he ſometimes mixes them all in the *Æneid* itſelf, uſing the ſimple Style in the fifth Book, where he deſcribes Games; and the intermediate in the Beginning of the Poem. Care is ſtill to be taken, that the Style be not flat and dull, on Pretence of being ſimple.

M. *Boileau* obſerves, that in all Languages a mean Thought expreſſed in noble Terms, is better liked than the nobleſt Thought expreſſed in mean Terms: The Reaſon he gives is, that every body cannot judge of the Force and Juſtneſs of a Thought; but ſcarce any body but perceives the meaneſt of Words. The latter we find by our Senſes, the former by our Reaſon.

He adds, that the Words in different Languages do not always anſwer juſtly to one another; and that a noble *Greek* Term cannot frequently be expreſſed in another Language, but by a very mean one.

This we ſee in the Word *aſinus* in *Latin*, *aſne* in *French*, and *Aſs* in *Engliſh*, which are the meaneſt imaginable in thoſe three Languages; yet the Word expreſſing that Animal, has nothing mean in it, either in *Greek* or *Hebrew*, but it is uſed in the fineſt and nobleſt Paſſages.

Add to this that Languages are exceedingly capricious on this Head: A Bull, a Heifer, a Goat, a Boar, *&c.* may be uſed in the ſublimeſt Paſſages, without debaſing the *Style*; but a Cow, a Sheep, a Hog, a Sow, *&c.* would be intolerable. Shepherd and Herdſman, are fine Words; Hog-keeper, and Cow-ward, which carry the ſame Idea, vicious to the laſt Degree. The chief Faults in *Style* are, in being *tumid* and *ſwollen*; or *cold* and *pueril*, or *ſtiff*, *or looſe*, or *dry* and *jejune*.

A *tumid Style* is that immediately ſtuffed with big Words and Sentences; ſuch as thoſe Verſes of the Emperor *Nero*, ridiculed by *Perſius*.

Torva mamillonis implerunt cornua bombis
Et raptum vitulo caput ablatura ſuperbo
Baſſaris, & lyncem mænas flexura corymbis, &c.

Frigid, or *pueril Style*, is that which affects certain trifling Ornaments, inſipid Jeſts, remote, and ſtrained Alluſions, redundant Expreſſions, *&c.*—Such, *e. gr.* as *Centaur*'s ridding himſelf: More golden than Gold, *&c.* Of this Vice, that Paſſage of *Virgil* ſeems guilty,

Num capti potuere capi? num incenſa cremavit
Troja viros?

And that in *Plutarch*, and *Dion Caſſius*; 'It was no 'Wonder *Diana*'s Temple ſhould be burnt the Night '*Alexander* was born; as that Goddeſs attending ſo 'noble a Birth, could not be in the Way to extinguiſh 'the Flames.'—And that in *Plautus*, where a Perſon is repreſented ſo exceedingly covetous, that he would invoke Heaven and Earth, if he ſaw but a Grain of Smoak eſcape out of his Cottage.

Looſe Style, is that which wanting Articles, Numbers, *&c.* fluctuates here and there, not connected and joined together. This is a Fault ſo frequent, eſpecially in young Writers, that we ſhall ſpare giving Inſtances of it.

Dry, *jejune Style*, is that which is deſtitute of Ornament, Spirit, *&c.*

The Ancients made a notable Diſtinction of Styles into *laconick*, and *aſiatick*.

Aſiatick Style, is that which is very diffuſive and prolix; or where Abundance of Words are uſed, to expreſs a little Matter: Thus called by the *Greeks*, from the People of *Aſia*, who affected ſuch Redundances, in Oppoſition to the

Laconick Style, which is diſtinguiſhed by its exceeding Conciſeneſs; and by comprehending a deal of Matter under a few Words.

Such, *e. gr.* is that Anſwer returned by the *Lacedemonians* to a long Epiſtle of an Enemy, threatning to deſtroy them with Fire and Sword; ει, *ſi*, *if*; that is, do if you can; or that returned by the ſame People to King *Philip*, demanding ſome extravagant Thing of them, ου, *non*, no. Or that of *Cleomenes*, the *Spartan* General, to the Ambaſſador of *Samos*; 'As to what 'you have ſaid, the firſt Part I do not remember; the 'Middle I do not underſtand; the laſt I do not approve.' Or that Epiſtle of *Archidamus* to the *Elei*, who were preparing War againſt him; *Archidamus* to the *Eleans*: *It is good to be quiet.* Or that of *Cæſar* to the *Roman* Senate, after his conquering *Pharnaces*, King of *Pontus*, *Veni*, *Vidi*, *Vici*; or that of *Charles* IX. King of *France*, after the St. *Bartholomew*, to the Prince of *Conde*, to perſuade him to turn Catholick, *mort*, *meſſe*, *ou Baſtille*, i. e. *Death*, *Maſs*, or *Baſtille*; or that of an Officer of the Army to *Henry* IV. King of *France*, *argent*, *ou congè*, Money, or my Diſcharge; and that Prince's Anſwer, *ny l'un ny l'autre*, neither one nor the other.

We muſt obſerve before we leave this Article, that there is a Difference between *ſublime Style*, and what we call ſimply the *ſublime*, which according to M. *Boileau*, is ſomething extraordinary and ſurprizing in the Diſcourſe, which ſtrikes the Soul, and makes a Sentiment or Compoſition raviſh and tranſport.

The *ſublime Style* neceſſarily requires big and magnificent Words; but the ſublime may be found in a ſingle Thought, a ſingle Figure, a ſingle Turn of Words. A Thing may be in the *ſublime Style*, and yet not be *ſublime*, i. e. have nothing extraordinary or ſurprizing.

For Inſtance, 'the Almighty Author of the Univerſe 'with a ſingle Word created Light.' This now is in the ſublime Style, yet it is not ſublime, there being nothing extraordinary in it, which another Perſon might not eaſily hit on. But God ſaid, *let there be Light*, *and there was Light*; ſo extraordinary a Turn of Expreſſion, which ſhews the Obedience of the Creature to the Orders of his Creator, is only *ſublime*, and has ſomething more in it than human.

Longinus makes five Sources of the *ſublime*. The firſt a certain Elevation of Mind, which makes us think happily. The ſecond, is the pathetick, or that natural Vehemence and Enthuſiaſm, which ſtrikes and moves us: Theſe two are owing almoſt wholly to Nature, and muſt be born with us; whereas the reſt depend partly on Art. The third is, the turning of Figures in a certain Manner both thoſe of Thoughts and of Speech. The fourth, Nobleneſs of Expreſſion, which conſiſts of two Parts, the Choice of Words, and the elegant figurative Diction. The fifth, which includes all the reſt, is the Compoſition and Arrangement of the Words in all their Magnificence and Dignity. For, ſays *Longinus*, as we ſee that the Sound of the Flutes moves the Soul of thoſe who hear it, and fill them with Tranſports, as if they would go out of themſelves; that ſtriking their Ears with the Motion of its Cadence, it forces them to follow it, and to conform to it in ſome Manner, the Motion of their Body. And not only the Sound of Flutes, but almoſt all other Sounds in the World, for Example of the Lyre, produce that Effect. For though they ſignify nothing of themſelves; notwithſtanding by thoſe Changes of Tones, and the Mixture of their Accords, we ſee that they cauſe often in the Soul an admirable Tranſport and Raviſhment. And if theſe which are but Images and ſimple Imitations of the Voice, are capable to produce ſuch marvellous Effects; what muſt we ſay of the Compoſition which is as the Harmony of the Diſcourſe, the Uſe whereof is natural to Man; and which not only ſtrikes the Ears, but the Mind likewiſe; which moves at once ſo many different Sorts of Names, Thoughts, Things, Beauties, and Elegancies, wherewith our Soul has a kind of Union and Affinity; which by the Mixture and Diverſity of the Sounds inſinuate into the Minds, and inſpire the Hearers with the very Paſſions of the Orator; and build on that ſublime Heap of Words, that great, that marvellous we ſearch.

The Beauty of the Periods and Style conſiſts chiefly in the *Figures* which enter the Compoſition.

FIGURE, in *Rhetorick*, is a Phraſe or Turn of Speech or Diſcourſe, finer and nobler, than what is uſed in common or ordinary ſpeaking.

Figures, by the *Greeks* called *Sclemata*, are the Enrichments

richments of Discourse, which we only use when raised, and moved with the Consideration of something extraordinary.

There are two Kinds of *Figures*; the one of *Sentences*, and contained in the Sense itself, without any immediate Dependance on any particular Words; the others are only in the *Words* themselves.

Of the FIGURES of *Sentences* some are designed to *move*, others to *teach*, and others only to *delight*.

Of the *first* Kind the most considerable are, *Exclamation*, *Imprecation*, *Obsecration*, *Interrogation*, *Doubting*, *Præterition*, *Expolition*, and *Epiphonema*.

Those of the *Second* are the *Antithesis*, *Correction*, *Communication*, and *Suspension*.

Those of the *Third*, the *Apostrophe*, *Hypothyposis*, *Prosopopæia*, *Ethopæia*, and *Prosopographia*.

The *Exclamation* is a Figure wherein, by raising the Voice, and using an Interjection, either expressly or understood, we testify an uncommon Warmth and Passion of Mind; and express the Magnitude of the Thing, or the Importance of the Occasion.

Such is O Heavens! O Earth! Such also is that of *Cicero* against *Catilina*, *O Times! O Manners! This the Senate knows, the Consul sees, and yet he lives. Lives, said I? Nay, and comes into the Senate*! Or that for *Cælius*, *Proh Dii immortales! Cur interdum in Hominum Sceleribus maximis aut connivetis, aut presentis Fraudis Pœnas in Diem reservatis!—Oh præclarum custodem ovium, ut aiunt, Lupum!*

In *English* the Interjections O! or oh! Alas! or good God! Are generally adjoined in an Exclamation; and very often in *French*.—In *Latin* they use *O! Heu! Eheu! Ah! Vah! pro superi! pro superum atque Hominum Fidem!* Sometimes, however, the Interjection is understood, as woe is me! *Miserum me! Hoccine sæculum!*

The *Imprecation* is a Kind of Curse, express'd in Discourses, by *may* or *let*; for Instance, *may the Enemies of God be confounded! Let the wicked be punished*, &c.

The *Interrogation* is a Figure wherein the Passion of the Speaker introduces a Thing by Way of Question, to make its Truth more conspicuous.

The *Interrogation* is a Kind of Apostrophe, which the Speaker makes to himself; and it must be owned that this Figure adds an uncommon Briskness, Action, and Force to Discourse.

Doubting, is a Figure wherein the Orator appears sometimes fluctuating, and undetermined what to do, or say, What shall I do? Shall I apply to those I once neglected! or implore those who now forsake me!

Tacitus furnishes us with an Instance of *doubting*, almost to a Degree of Distraction, in those Words of *Tiberius*, written to the Senate: *Quid scribam, P. S. aut quomodo scribam*, or *quid omnino non scribam hoc Tempore, Dei me Deæque pejus perdant, quam perire quotidie e sentio, si scio.*

The *Obsecration* is a Figure whereby the Orator implores the Assistance of God or Man.

This Figure *Cicero* makes admirable Use of, for King *Dejotarus* to *Cæsar*.—*Per Dexteram te istam oro, quam Regi Dejotaro Hospes, Hospiti porrexisti: Istam inquam Dexteram non tam in Bellis, & præliis, quam in promissis, & Fide firmiorem*, i. e. I entreat you by that Hand, which you was pleased to give to King *Dejotarus*, when he received you as his Guest in so hospitable a Manner; by that Hand, says I, which is not more firm or steady in Wars and Battles than in Promises and Faith given. —Thus *Virgil*.

Quod te per Cœli Jucundum Lumen & Auras,
Per Genitorem oro, per Spem Surgentis Juli,
Eripe me his invicte malis.———

The *Preterition* is a Figure, whereby in pretending to pass over a Thing untouched, we make a summary Mention thereof, for Instance—*I will not say he is valiant, he is learned, he is just*, &c.—The most artful Praises are those given by Way of *Preterition*, when the Imagination is warmed, and Reasons and Arguments present themselves in Abundance; the Orator would willingly lay them all down in Form; but for Fear of wearying his Audience, only produces some of them *en passant*, and without dwelling on them.—This Figure is also called *Paralepsis* and *Aposcopesis*.

Expolition, is a Figure whereby we explain the same Thing in different Phrases and Expressions, in order to shew it more fully.

Expolition was the favourite Figure of *Balzac*, a *French* Author.—A Man, but moderately versed in the Stile of the Scripture, will perceive that this is no more than an *Expolition*; that is, a Figure, whereby the sacred Author explains the same Thing in different Terms. The Scriptures are full of such Figures; and *Souciet* scarce thinks there is any one more ordinary.

Epiphonema is a sententious Sort of Exclamation, frequently added after a Narrative, or Rehearsal of any Thing remarkable; containing, usually, a lively close Reflection on the Subject there spoken of.

Such is that of St. *Paul*, when, after discoursing of the Rejection of the *Jews*, and the Vocation of the *Gentiles* he cries out,

Oh the Depth of the Wisdom and Knowledge of God!

Such also is that of *Lucretius*, after relating the Story of *Agamemnon*'s sacrificing his Daughter *Iphigenia*.

Tantum Religio potuit suadere Malorum!

Such, *lastly*, is that of *Virgil* upon Occasion of *Juno*'s persecuting *Æneas*.

Tantæne Animis Cœlestibus Iræ!

which M. *Boileau* has imitated in,

Tant de Fiel entre t'il dans l'ame des Devots!

and Mr. *Pope* in

And dwells such Rage in softest Bosoms then?
And lodge such daring Souls in little Men?

The *Antithesis*, is a setting two Things by Way of Exposition to each other, that the different Qualities of each may appear the more strongly.

Such is that of *Cicero* in the second *Catilinarian*: *On the one Side stands Modesty, on the other Impudence; on the one Fidelity, on the other Deceit: Here Piety, there Sacrilege; here Continency, there Lust*, &c.—Such also is that of *Augustus* to some seditious young Men, *Audite Juvenes, Senem, quem Juvenem Senes audivere.* Young Men listen to an old Man, to whom old Men have listen'd while he was young.—Such again is that of *Seneca*, *Curæ leves loquuntur, Ingentes stupent. Light Cares speak, but the great ones render stupid*, and that of *Virgil*,

Flectere si nequeo superos, Acheronta movebo.

i. e. If I cannot appease the Heavens, I'll endeavour to excite Hell to Compassion.

St. *Augustin*, *Seneca*, *Salvian*, and many other antient Writers seem greatly to affect *Antithesis*: But among the Moderns they are generally decried.—*Desmarests* represent them as the Favourites of young Writers.—*Persius* long ago declaimed against the impertinent Use of *Antitheses*.

———*Crimina Ræsis*
Librat in Antithesis, doctus posuisse Figuras.

Correction is a Figure whereby a Person in a Passion, fearing he has not expressed a Thing fully or strongly enough, calls it back again, as it were, by a stronger Phrase, and corrects the Error. This is also called *Epanorthosis*.

Such, *e. gr.* is that of *Cicero* for *Cælius*: *O Stultitia! Stultitiam ne dicam, an Impudentiam singularem*! Oh Folly! Folly did I call it, or rather intolerable Impudence?—And in the first *Catilinarian*: *Quanquam quid loquor! te ut ulla Res frangat? tu ut unquam te Corrigas? tu ut ullam Fugam Meditere? Tu ut ullum exilium Cogites? Utinam tibi istam Mentem Dii immortales donarent.* Thus also *Terence*, in the *Heautontimorumenos*, introduces his old Man *Menedemus* saying.

Filium unicum adolescentulum
Habeo. Ah! Quid dixi habere me? Imo habui Corem,
Nunc habeam necne, incertum est.

Suspension, is a keeping the Hearer in Suspence, and attentive, in Expectation of what the Speaker will conclude in, as, *O God! Darkness is not more opposite to Light, Tempests to Calm, Pain to Pleasure, or Death to Life, than Sin to thee.*

The

The *Apostrophe*, is a Figure, whereby the Orator, in an extraordinary Commotion, turns his Discourse from the Audience, and directs it to some other Person or Thing.

Thus *Cicero* in his Oration for *Milo*, addresses himself to the great Patriots, who had shed their Blood for the Publick, and calls them to the Defence of his Client. So the same Orator, in his first *Catilinarian*, directs himself to *Jupiter* the Protector of the City and Empire, and beseeches him to repel the Parricide, *&c.*

The *Apostrophe* is also frequently addressed to Inanimates, as Tombs, Monuments, Defuncts, *&c.*—*Cicero*'s Apostrophe to *Tubero*, in his Oration for *Ligarius*, is judged one of the finest Passages in his Works.

That *Apostrophe* of *Demosthenes*, wherein he addresses himself to the *Greeks* slain at the Battle of *Marathon*, is famous. Cardinal *du Perron* says, it has procured the Orator as much Glory, as if he had raised them from the Dead.

The *Hypothyposis*, is a Figure whereby a Thing is so lively described or painted, that it does not seem to be read or heard, but actually seen, or presented before the Eyes.

Such is that elegant one of *Cicero*, wherein he paints the Barbarity of *Verres*: *Ipse inflammatus scelere, & furore, in forum venit. Ardebant oculi; toto ex ore crudelitas emanabat. Expectabant omnes quo tandem progressurus, aut quidnam acturus esset; cum repente hominem corripi, atque in fori medio nudari ac deligari, & virgas expedire jubet; Clamabat ille miser se civem esse Romanum*, &c.

The *Hypothepsis* is frequently used by the Poets, and particularly *Virgil*, who abounds in Paintings.

The *Ethopœia*, or *Ethopœa*, called also *Ethology*, is a Draught or Description, expressing the Manners, Passions, Genius, Tempers, Aims, *&c.* of another Person.

Such is that beautiful Passage in *Salust*, in his *Bellum Catilinarium*, wherein he gives a Picture of *Catiline*: *Fuit magna vi & anima & corporis sed ingenio malo pravoque huic*, &c. *He had an uncommon Strength both of Body and Mind; but an ill-turned and wicked Disposition. When a mere Boy, his great Pleasure was in intestine Broils, Rapine, Slaughter, and Civil Discord. His Body was formed to undergo Fasting, Cold, and Watching, beyond all Belief. His Mind was daring, deceitful and various; and could imitate, or accommodate itself to every body: He was extremely covetous of other People's Goods, and profuse of his own withal: His Lusts and Desires were very high; his Stock of Eloquence considerable; but his Discretion, scarce any.*

The *Ethopœia* is divided into *Prosopographia*, and *Ethopœia* properly so called; the former of which is a Picture of the Body, Countenance, Make, Dress, Gait, *&c.* and the latter of the Mind.

The *Prosopopœia*, is a Figure whereby we make Persons that are absent or dead, or even Things which are inanimate, as Cities, *&c.* to speak.

The Poets in their Fictions, make frequent Use of the *Prosopopœia*; as also do the Orators, in their painting of violent Passions, which seems to transport, and make them forget themselves.

There are two Kinds of *Prosopopœia's*; the one direct the other indirect. For an Instance of the latter; *Just Gods, Protectors of the Innocent, permit the Order of Nature to be interrupted for one Moment, and let this Carcass resume the Use of Speech*, &c.

Instances of the former are found every where among the Orators and Poets: That which follows is a very beautiful one, found by way of Epitaph on a Tombstone: The dead Wife addresses her surviving Husband thus:

Immatura peri: Sed tu feliciter, annos
Vive tuos, conjux optime, vive meos.

I have been snatched away, before I was arrived yet to the Years of my Maturity; but thou, much happier, O the best of Husbands, may the Years I should have lived be added to thine.

Of *Figures of Words*, some are *Tropes*, i. e. Translations of Words from their proper Signification, to some more remote and extraordinary one.

The principal of these are, the *Metaphor*, *Allegory*, *Metonimy*, *Synechdoche*, *Irony* and *Sarcasm*, *Metalepsis*, *Antonomasia* and *Sylepsis*.

Others are *Figures of Words*, properly so called, and not Tropes, being so inherent in the Words, that upon changing of those the Figure is destroyed; as in *amantes sunt amentes*, where the Figure would be lost, if instead of *amentes* you should put *stulti*.

Of these the principal are *Repetition*, *Conversion*, *Complexion*, *Gradation*, *Synonymy*, *Polysyndeton* and *Polyptoton*, *Reticency*, *Distinction*, *Similitude*, *Paronomosy*, and *Transition*.

Before we proceed to the Explication of every one of these *Figures*, we must know what is understood by *Trope*.

Trope, is a Word or Expression, used in a different Sense from what it properly signifies. Or a Word changed from its proper and natural Signification to another with some Advantage.

As when we say an *Ass*, for a *stupid Person*; *Thunderbolt of War*, for a *great Captain*; *to wash the Black-moor white*, for a *fruitless Undertaking*.

This Change of Sense is never to be used, but where it gives a Force and Dignity, or renders the Discourse more significant, weighty and graceful.

It is called *Trope* τροπος, from the *Greek* τρεπω, *verto*, *I turn*, *change*, in regard the Words are here transferred from the Things they properly import, to others which they only import indirectly; and that Tropes only signify the Things they are applied to, by reason of the Relation and Connection those Things have with those others, whose proper Names they are.

This Change or Inversion is performed various Ways, but chiefly four; whence arise four principal Tropes, *viz.* the *Metaphora*, *Metonimia*, *Synechdoche*, and *Ironia*.

Some Authors confound *Trope* with Figure, but they are very different Things.—Most Authors, as F. *de Colonia*, &c. make Figure the Genus, and *Trope*, a Species; defining Figure to be any Ornament in Discourse, whereby it is raised above the common Language; and *Trope* to be that peculiar kind of Ornament which consists in a Change of the Sense, *&c.*

But *Vossius* makes *Trope* and Figure, to be two collateral and independent Things; defining *Trope* to be the Change of the Sense, *&c.* and Figure, to be any Ornament, except what becomes so by such Change, *&c.*

'Tis in the Tropes principally that the Richness and Variety of Language consists; and those should never be used but to express what could only be represented imperfectly, in common and proper Terms. Tropes should always be clear; they are vicious, if they be obscure or too far fetched. The Idea of the *Trope* should be so connected with that of the proper Name, that they should follow each other; so that in exciting the one, the other should be awakened of Course.

Besides the four capital Tropes above-mentioned, there are several inferior ones. When the Trope is too bold, it is called an *Hyperbola*; when continued it is an *Allegory*; when too obscure an *Ænigma*; when it shocks or is too remote, a *Catachresis*.

Some also refer the six Kinds of Scoffing or Derision to the *Tropes*, viz. the *Sarcasm*, *Diasyrm*, *Charientism*, *Asteism*, *Mycterism*, and *Mymesis*, but without sufficient Reason.

Now for the Explication of each of the different *Figures* of Words, beginning by the *Metaphor*.

The *Metaphor* is a Figure of Speech, whereby a Word is transferred from its proper Signification to another; or whereby the proper Denomination of one Thing is applied to another; which other Thing is more elegantly explained by this translatitious, or foreign Name, than by that which naturally belongs to it. As when we say the Light of the Understanding; to burn with Zeal; to float between Hope and Despair, *&c.*

The *Metaphor* is the most common of all the Figures of Speech; and is that usually meant when we say a Thing is spoken figuratively.

The *Metaphor* is a short Simile; an Image being thereby called from its proper Subject to give the Resemblance of another. An Allegory is no more than a continued *Metaphor*.

The Sources or Places whence *Metaphors* are drawn, are innumerable; they may be fetched from divine

Matters: Thus *Cicero* calls *Plato* our God, *Deus ille noster Plato*. From the Elements, as a *Torrent* of Eloquence. From Plants, as when Virtue has taken *Root*; from artificial Things, as where *Appian* is called the *Cymbal* of the World; and *Charles Maire du Palais* in *France*, is called *Martel*, from his having hammered, or defeated the *Saracens*, who had invaded the Kingdom; *Longinus* a *living Library*; *Pertinax* Fortune's *Foot-ball*.

Quintilian distinguishes *Metaphors* into four Kinds: The *first* when a Word is transferred from one Animal to another; as when *Livy* says, that *Cato* used to bark at *Scipio*; or, when our Saviour calls *Herod* Fox. The *second*, when the Word is transferred from one inanimate to another; as *Bridle* for *Laws*. The *third* when Inanimates are applied to Animates; as the Flower of Youth. And the *last*, when Animates are applied to Inanimates; as the River *disdained* its Bounds.

As the *Metaphor* is intended to set Things before the Eyes; it becomes so much the more perfect, as it shews them the more vividly, by representing them in the Motion and Action. A *Metaphor* should have nothing in it either coarse or shocking, or that may raise it above the Simplicity of Nature: Nor should it appear a *Metaphor* to any but those who view it very closely. *Metaphor* should never be carried too far; for in that Case it degenerates into Puerility.—*Metaphors* should always be followed in the same Kind; they become unnatural when different Images are introduced.—In all metaphorical Dictions there should be a kind of Unity, so that the different Words used may have a kind of Suitableness to each other: Different Ideas are always absurd; as in this Instance, *the Church was besieged with a Deluge of Troubles*: Where the two Images *Siege* and *Deluge* have no Relation: But in this *the Church was overflowed with a Deluge of Troubles*, the *Metaphor* is good, there being a Relation between *Overflowing* and *Deluge*.

There is nothing young Writers are more faulty in, than the indiscreet Use of *Metaphors*: Those who affect the Merveilleux, are eternally on the metaphorical Strain, nor know any Bounds or Restraint. They who understand them best, use them with the greatest Reserve. Mr. *Addison* proposes it as a Rule for Writers, to imagine their *Metaphors* actually painted before them, and to view and examine the Justness of their Application and Assemblage under those Circumstances; throwing every Thing out of the Writing but what might be retained in the Picture.

Cardinal *du Perron* prescribes this general Rule for *Metaphors*; that they must always descend from the Genus to the Species; and never go backward from the Species to the Genus: Thus we say figuratively the *Bonds of Society*; and the *human Cords* which tie us together; *Bond* being a Genus, and *Cord* a Species.

The *Allegory*, is a Figure whereby we make use of Terms which in their proper Signification mean something else than what they are brought to denote; or it is a Figure whereby we say one Thing, expecting it shall be understood of another, to which it alludes.

An *Allegory* is properly a Series of Metaphors.—Such is that beautiful Allegory in *Horace*, lib. 1. Od. 14.

O navis, referent in mare te novi
Fluctus, &c.

Where the Ship is usually held to stand for the *Republick*; *Waves* for *Civil War*; *Port* for *Peace* and *Concord*; *Oars* for *Soldiers*; *Mariners* for *Magistrates*, &c.

The Old Testament is supposed by many to be a perpetual *Allegory*, or typical Representation of the Mysteries of the New.

In Effect, *Allegory* has a good deal in most Religions.—The *Jews*, we know abound with them: *Philo Judæus* has three Books of the *Allegories*, in the History of the Six Days.

Nor are the Heathens without Allegories in their Religion: It may even be said, that the Use hereof is of a much earlier Standing in the *Gentile* than in the *Jewish* World.—Some of their Philosophers undertaking to give a Rationale of their Faith, and to shew the Reason and Scope of their Fables, and the antient Histories of their Gods; found it necessary to put another Construction on them, and maintain, that they signified something very different from what they seemed to express.—And hence came the Word *Allegory*: For a Discourse that in its natural Sense, signifies something other than what is intended by it, makes what we properly call an *Allegory*.

This Shift they had Recourse to, in order to prevent People from being shook with those Absurdities which the Poets had introduced into their Religion; and to convince the World, that the Gods of *Greece* had not been those vile Persons which their Histories represented them to be. By this Means the History, as well as the Religion of *Greece*, was at once converted into *Allegory*; and the World left to seek for them both in a Heap of Fables, few of which have been solved to any Purpose to this Day.

The *Jews* finding the Advantages of this Way of explaining Religion, made Use of it to interpret the sacred Writings, so as to render them more palatable to the Pagans.—The same Method was adopted by the Primitive Writers of Christianity.

The *Metonymy*, is a Rhetorical Trope, consisting in a Transmutation, or Change of Names; or a putting of the Effect for the Cause, or the Subject for the Adjunct; and *vice versâ*.

The *Metonymy* is the most extensive of all the Tropes. It is also called *Transnominatio*, and differs not much from *Hypallage*, which *Hypallage* is a grammatical Figure, whereby of different Expressions, which give the same Idea, we make Choice of that which is least natural and obvious; or, when there is a mutual Permutation, or Change of Cases, Moods, Regimens, &c. as in this Instance, *Dare Classibus austros*, instead of *Dare Classes austris*.

There are four Kinds of *Metonymies* in principal Use: The *first*, when we put the Inventor for the Thing invented; as *Bacchus* for Wine, *Ceres* for Bread. The *second*, when we put the containing for the Thing contained; as a Glass for the Wine within it. The *third*, when Effect is put for the Cause; as the Captain for his Soldiers, *Greece* for the *Greeks*, the Author for his Works. The *fourth*, when the Sign is put for the Thing signified; as the Gown for the Priesthood, &c.

Synecdoche, is a Kind of Figure, or rather Trope, frequent among Orators and Poets.

There are three Kinds of *Synecdoches*: By the *first*, a Part is taken for the whole; as the Point for the Sword, the Roof for the House, the Sails for the Ship, &c.—By the *second*, the whole is used for a Part.—By the *third*, the Matter whereof the Thing is made, is used for the Thing itself; as Steel for Sword, Silver for Money, &c. to which may be added another Kind, when the Species is used for the Genus, or the Genus for the Species.—As *he bore the Sin of many*, i. e. of all.

The *Irony*, is a Figure in Speech, wherein we plainly intend something very different from what our Words express: As when we seem to praise a Person at a Time, when we evidently rally and discommend him.

Hence *Quintilian* calls this Figure *Diversiloquium*, *Dissimulation*, and *Illusion*.

Thus we say, *Toland*'s Christianity, meaning his Atheism; *John* is an honest Fellow; meaning is a rank Knave, &c.—The Irony discovers itself rather in the Tone of the Speaker than in the Words.

Sarcasm, is a keen, bitter Irony, whereby the Orator scoffs and insults his Adversary.

Such was that of the *Jews* to our Saviour: *Thou who destroyest the Temple, and raiseth it in three Days, save thy self*, &c. And again, *He saved others, himself he cannot save*. Or that of *Turnus* to a Trojan slain by him, in *Virgil*.

En agros, & quam bello, Trojane, Petisti
Hesperiam metire jacens! hæc præmia qui me
Ferro ausi tentare ferunt: sic mœnia condunt!

Antonomasia, is a Figure whereby a Noun Appellative is used instead of a proper Name, or *vice versâ*.

Thus we say the Philosopher instead of *Aristotle*; the Orator, for *Cicero*; the Poet, for *Virgil*; the Apostle, for St. *Paul*; the Doctor of Grace, for St. *Augustin*; the angelick Doctor, for St. *Thomas*; the Master of Sentences, for *Peter Lombard*, &c. and thus we say, *Henry the Great*, for *Henry* IV. King of *France*.

The *Sylleptis*, is a Figure whereby we conceive the Sense

Sense of Words otherwise than the Words import; and thus make our Construction, not according to the Words, but the Intention of the Author.

The *Syllepsis*, says an ingenious Author, is a figurative Construction, which agrees rather with our Ideas, than with the Words; and expresses rather the Sense of our Mind, than the Sense of the Terms themselves.

Syllepsis is also used for the Agreement of a Verb or Adjective, not with that Word next it, but with the most worthy in the Sentence, as *Rex & Regina beati.*

Some Authors call the *Syllepsis*, *Synthesis*; others Substitution. It is a Figure of considerable Use for the well understanding of Authors.—*Scioppius* divides it into two Kinds, *simple* and *relative.*

Simple Syllepsis is when the Words of a Discourse either disagree in Gender or Number, or both.

Relative Syllepsis is when the relative is referred to an Antecedent, which is not expressed; but which we conceive by the Sense of the whole Period.

As to the *Figures of Words* properly so called, the first is *Repetition*, which is a Figure whereby the Orator rehearses the same Word or Phrase over again.

Of this there are two Kinds.—In the *first* the Words is repeated precisely in the same Sense: As, *Oh Jerusalem, Jerusalem, who killeth the Prophets*, &c. *my God, my God, why hast thou forsaken me?*

Such *Repetitions* have the same Effect in Discourse, with second Stroaks of the Pencil in Painting; they render the Colours more strong and lively.

Sometimes the Orator begins again and again with the same Words; of which we have an Instance in the Beginning of *Cicero*'s first Oration against *Catiline*; *Nihilne te Nocturnum præsidium Palatii, nihil Urbis Vigiliæ, nihil timor populi, nihil consensus bonorum omnium, nihil hic munitissimus habendi Senatus Locus, nihil horum ora vultusque moverunt!* Where the Word *nihil* so often re-iterated gives an admirable Force and Vehemence to the Discouse. —Again, the same Author: *Quem Senatus damnarit, quem Populus Romanus damnarit, quem omnium existimatio damnarit, eum vos Sententiis vestris absolvetis?* again *non feram, non patiar, non sinam.*

The second Kind of Repetion called πλοκις, *Ploce*, is a *Repetition* of the same Word, in the same Phrase; but in such a Manner as that some new Idea or Character is added to the Words in the second, which it had not in the first.

As *Corydon* is always *Corydon: ex illo Corydon, Corydon est Tempore nobis*; by which we signify that *Corydon* is no ordinary Person; and that nothing can distinguish him but the Repetition of his own Name: As if we should say, *he is Corydon, that is enough.*—By the same Figure our Saviour speaks, when he says, *let your Language be yea, yea, and nay, nay.*

Conversion, in *Rhetorick*, is understood of Arguments which are returned, retorted, and shewn on opposite Sides, by changing the Subject into the Attribute, and the Attribute into the Subject.

There are *Conversions* of Arguments from a Figure to another, and from general Propositions to particular ones. —Thus *Cicero* against *Anthony*; *Doletis tres exercitus P. R. interfectos? interfecit Antonius. Desideratis clarissimos Cives? eosque vobis eripuit Antonius. Auctoritas hujus Ordinis afflicta est? afflixit Antonius?*

Complexion is a Figure, including a Repetition, and a Conversion at the same Time; the Sentence both beginning and ending with the same Word.

Thus *Tully*, *Quis Legem tulit? Rullus, quis Comitiis præfuit, Rullus*, &c.

Gradation, is when a Series of Considerations or Proofs is brought, rising by Degrees, and improving each on the other.

Such is that in *Cicero* to *Herennius: Africano industria Virtutem, Virtus Gloriam, gloria æmulos comparavit*; and of the same to *Catiline, nihil agis, nihil moliris, nihil cogitas; quod ego non audiam, quod etiam non videam, planeque sentiam:* Thou dost nothing, moveſt nothing, thinkest nothing; but I hear it, may see it, and perfectly understand it: Thus, the same to *Atticus, si dormis expergiscere; si stas, ingredere; si ingrederis, curre; si curris advola.* — So *Tertullian de Spect. Who has ever found the Truth without God? Whoever found God without Christ? Who found Christ without the holy Spirit? and who the holy Spirit without Faith?*— This Figure is also called *Climax.*

Synonymy is a Figure whereby Synonyms or Synonymous Words, that is, various Forms of the same Signification, are made use of, to amplify the Discourse.

Such is that Passage of *Cicero, abiit, evasit, effugit, erupit*, he went off, he escaped, he run away, *&c.*

Some severe Criticks condemn all Use of synonymous Terms in the same Period; but this is to condemn all Antiquity: So far is the Use thereof from being vicious, that it is frequently necessary; as *Synonymes* contribute both to the Strength and Clearness of the Expression. If the first Word sketch out the Resemblance of the Thing it represents, the *Synonym* that follows, is, as it were, a second Touch of the Pencil, and finishes the Image.

Indeed they must be used with a deal of Discretion and Œconomy: The Stile must be raised and brightened, not stuffed or loaded with *Synonymous* Terms. They must be used as Ornaments, and to render the Expression the more forcible, without making a Shew of the Riches thereof, or heaping Synonyms on Synonyms.

But, though *Synonymous* Words be laudable, *Synonymous* Phrases are inexcusable: The Reason is, that two *Synonymous* Phrases keep the Mind at rest, and let it flag and languish.

The *Polyptaton* is the Figure, wherein the same Word is repeated in different Cases, Genders, or Numbers, *i. e.* with different Terminations.

Such is that of *Cicero, pro Arch. Sed pleni sunt omnes libri, plenæ sunt sapientum voces, plena exemplorum vetustas.*—So *Virgil. Æneid. lib.* 4. *v.* 28.

Littora littoribus contraria, fluctibus undas
Imprecor, arma armis pugnant.———

Reticency is a Figure whereby we make oblique Mention of a Thing, in pretending to pass it over unmentioned.

Thus: *To say nothing of the Nobility of his Ancestors: I forbear to speak of his Courage, and pass over the Severity of his Morals.*

The *Comparison* is a Figure, or rather Place in Speech, whereby two Things are considered, with Regard to some Third, which is common to them both.

Thus *Cicero Topic. Catoni licuit sequi bellum civile, igitur & Ciceroni licebit. It was allowed Cato to engage in the Civil War, therefore it may be allowed Cicero:* Where to engage in the civil Wars is common to both.

There are three Kinds of *Comparison*; the first *a majori*, i. e. from the Major to the Minor, as that of *Cicero* against *Antony, Quid feceris domi tuæ, cum alienæ tam sis insolens?* Or that of *Terence, Quem feret, si parentem non fert suum?* From the same Place *Ovid* endeavours to appease *Cæsar.*

Cur ego posse negem leniri Cæsaris iram
Cum videam mites hostibus esse Deos?

The second *a minori*, i. e. from the Minor to the Major: Thus *Cicero, Majores nostri sæpe Mercatoribus, ac Naviculatoribus imperiosius tractatis, bella gesserunt; vos tot civium Romanorum millibus uno nuntio, atque uno tempore necatis, quo tandem animo esse debetis?*

The Third *à pari*; as when we contend that what obtains in one Thing, ought to obtain in another of the same Kind: Thus, *it was a Law, that he who killed his Father should be sew'd up in a Sack and thrown into a River; therefore, he who killed his Mother deserves the same Punishment.*

Capto tuam, pudet heu, sed capto heu, maximæ, cœnam,
Tu capis alterius; Jam sumus ergo pares.
Mane salutatum venio, tu diceris ille,
Ante salutatum: Jam sumus ergo pares, &c.

The *Paronomaty* is a Figure, whereby Words nearly alike in Sound, but of very different Senses, are affectedly or designedly used.

As, not Friends, but Fiends were here: So *Tully* to *Antony, Cum in Gremio mimarum, mentem & mentum, deponeres*: and to *Atticus, Consul ipse parvo animo & pravo, facie magis quam sautiis ridiculus.* And that of St. *Peter Chrysologus, Monachorum cellulæ jam non* Eremeticæ, *sed* Aromaticæ; and in another Place, *leve agant*

in cellis quod angeli in cælis.

Among the *Greeks* the *Paroniomasy* was very familiar. Thus *Herodotus*, πάθημαλα, μαθήμαλα, *quæ nocent, docent.*

And thus that Inscription of *Apollodorus* a celebrated Painter, on one of his Pieces.

Μαμήσεται τις μαλλον, η μιμεσεῖαι.
It will be easier to deride than to imitate.

The *Transition* is a kind of Connexion in Discourse, whereby the several Parts and Members thereof are joined, so as to constitute one regular Whole.

Some place Transition in the Number of Figures, as I have done here; others with *Quintilian* exclude it that Rank.

Father *de Colona* makes two Kinds of *Transitions*; the one *perfect*, the other *imperfect*.

Perfect Transition, is that wherein we briefly intimate what is said, and what remains to be said. As, *now that we have spoke of War, there remains something to be said of Peace.—Satis multa de turpitudine: Dicam deinceps, quod proposui, de periculo.—Unæ Epistolæ respondi: Venio ad alteram.—Sed hæc vetera; illud recens: Cæsarem meo consilio interfectum.*

Imperfect Transition, is that wherein only one of these is expressed.—As, *Let us now consider the Consequences of*, &c.—*Sed finis sit; neque enim præ lachrymis loqui possum; & hic se lachrymis defendi negat.*

There are also Figures of Prosody, *viz.* the *Synalæpha*, *Enthlipsis*, *Crasis*, *Diaresis*, *Systole*, and *Diastole*; which belong rather to Grammar than to Rhetorick.

Nothing is more capable to move an Audience, according to *Longinus*, than the Mixture of several Figures; for two or three Figures thus mixed, entring thereby into a kind of Society, communicate to one another Strength, Graces, and Ornaments. As it appears in this Passage of the Oration of *Demosthenes* against *Midias*; *for that Man*, says that Orator, *who maltreats another, does a great deal of Gesticulation of the Eyes and of the Voice*, which the Person offended cannot relate: And lest his Discourse should grow weaker in the Sequel, being persuaded that Order belongs to a settled Mind, and Disorder, on the contrary, is the Mark of a Passion which in fact is itself nothing else but a Trouble, and Emotion of the Soul, he proceeds in the same Diversity of Figures. *Sometimes he strikes him like an Enemy, sometimes to insult him, sometimes with his Fist, and sometimes in the Face.* By this Violence of Words thus heaped on one another, the Orator does not touch and move his Judges less powerfully, than if they had seen the Person insulted in their Presence. He returns to the Charge and pursues like a Tempest. *Those Affronts move, those Affronts transport a brave Man, not used to be insulted, with Rage. The Enormity of such an Action cannot be expressed with Words.* By that continual Change he preserves every where the Character of those turbulent Figures; so that in his Order there is a Disorder; and on the contrary, there is in his Disorder a marvellous Order.

The same Author says likewise, that the Figures must be supported by the Sublime; because a Discourse wherein the Figures are employed alone, is of itself suspected of low Cunning, Artifice, and Deceit, particularly when the Orator speaks, before a Judge, a General, or a King; who conceives a sort of Indignation against the Orator, and cannot bear, that he should attempt to deceive him as a Child, by coarse Finesses. Therefore there is no better Figure than that which is quite hidden and which can scarce be discovered. Therefore the best Means to disguise it, is to have Recourse to the Sublime and Pathetick, because the Art being thus covered with something bright and great, has all it wanted, and is no longer suspected of Deceit.

Longinus recommends also the Images in the Discourse, which he defines to be in general any Thoughts proper to produce Expressions, and which present a kind of Picture to the Mind.

But, in the more limited Sense, he says, *Images* are such Discourses as come from us, when by a kind of Enthusiasm, or an extraordinary Emotion of the Soul, we seem to see the Things whereof we speak, and present them before the Eyes of those who hear.

Images, in Rhetorick, have a very different Use from what they have among the Poets: The End principally proposed in Poetry is Astonishment and Surprize; whereas the Thing chiefly aimed at in Prose is to paint Things naturally, and shew them clearly.—They have this however in common, that they both tend to move, each in its Kind.

These Images or Pictures are of vast Use to give Weight, Magnificence and Strength to a Discourse. They warm and animate it; and when managed with Art, according to *Longinus*, seem, as it were, to tame, and subdue the Hearer, and put him in the Power of the Speaker. *If a Man*, says an Orator, *has heard a great Noise before the Palace, and another at the same Time comes to inform that the Prisons are open, and the Prisoners fled; there is no old Man, let him be ever so decrepid, nor young Man, however so indifferent for the publick Good, who will refuse his Assistance in that dangerous Case*; and mean while, if any body shews them *the Author of the Disorder, that unhappy Wretch is undone, he must perish on the Spot, without being allowed Time to speak.* At the same Time the Orator proves the Thing by Reason, an Image is wanted, and by that Proposition he advances, he does more than persuade and prove. For as in all Things we value more, those which have the greatest Brillant; likewise the Mind of the Auditor is easily gained by that Image offered to it in the Middle of a Reasoning, and which striking his Imagination, hinders him from examining so carefully the Proofs of the Orator, because of the grand Eclat his Discourse is covered with.

The same Author recommends the *Periphrase* as of great Use in a Discourse; which *Periphrase* is a Circuit or Tour of Words, much affected by Orators, to avoid common and trite Manners of Expression.

The Periphrase, is certainly of good Use in many Occasions; and we are frequently forced to have Recourse to it, to make Things be conceived which is not proper to name.

It is a Piece of Politeness to suppress the Names, and only intimate, or design them. These Terms of Expression are particularly serviceable in Oratory; for the Sublime admitting of no direct Citations, there must be a Compass taken to insinuate the Authors, whose Authority is borrowed. A *Periphrase*, by turning round a proper Name, to make it understood, amplifies and raises the Discourse; but Care must be taken it be not too much swelled, nor extended *mal a propos*, in which Case it becomes flat and languid.

Thus *Cicero*, unable to deny that *Clodius* was slain by *Milo*, owns it, with this *Periphrase* or *Circumlocution*, 'Milo's Servants being prevented from assisting their 'Master, who was reported to be killed by *Clodius*, 'they, in his Absence, and without his Privity or Consent, did what every body would expect from their 'own Servants on such Occasions.'

The Amplification, is also of a very great Use in *Rhetorick*, and is Part of a Discourse or Speech, wherein a Crime is aggravated; a Praise or Commendation heightened, or a Narration enlarged by an Enumeration of Circumstances; so as to excite the proper Emotions in the Souls of the Auditors.

Such is that Passage in *Virgil*, where, instead of saying merely that *Turnus* died, he amplifies his Death,

——Ast illi solvuntur frigore membra,
Vitaque cum gemitu fugit indignata sub umbras.

Amplification, according to *Cicero*, is a vehement Argumentation, a forcible Affirmation, that persuades by moving the Passions.

Some Authors define *Amplification* after *Isocrates*, to be a Discourse which makes great Things of little; or which raises and aggravates little Things, so as to make them appear great. But in this Sense *Amplification* should rather become a Sophist or Juggler than an Orator.

The Masters of Eloquence make *Amplification* the Soul of Discourse.—*Longinus* speaks of it as one of the principal Means which contributes to the Sublime; but censures those who define it a Discourse which magnifies Things; this equally agreeing with the Sublime, the Pathetick, &c. The same Author distinguishes *Amplification* from the Sublime by this, that the latter consists wholly in the Elevation of Words and Sentiments, whereas the former

former consists also in their Multitude; the Sublime is sometimes found in a single Thought; but *Amplification* cannot subsist, excepting in Abundance.

There is likewise a Difference between the *Amplification*, and the Proof; in that the one serves to clear the Point, and the other to heighten and exaggerate it.

There are two general Kinds of *Amplification*; the one of *Things* the other of *Words*. The first is produced in divers Manners; as, 1. By a Multitude of Definitions: Thus it is *Cicero* amplifies on History: *Historia est testis temporum, lux veritatis, vita memoriæ, magistra vitæ, nuntia vetustatis.*—2. By a Multitude of Adjuncts; of which we have a fine Instance in *Virgil*'s Lamentation for *Cæsar*'s Death, by enumerating the many Prodigies and Monsters that either preceded or succeeded it.—*Vox quoque per lucos vulgo exaudita silentes, ingens, & simulacra modis pallentia miris visa sub obscurum noctis; pecudesque locutæ, infandum, sistunt amnes, terræque debiscunt, & mæstum illachrymat templis ebur, æraque sudant.*—3. By a Detail of Causes and Effects.—4. By an Enumeration of Consequences.—5. By Comparisons, Similitudes, and Examples, *&c.*—6. By the Contracts of Antithets, and rational Inference.

Amplification by Words, is effected six Ways.—1. By using Metaphors.—2. By Hyperboles.—3. By Synonyms.—4. By splendid and magnificent Terms; as that of *Horace*, *scandit æratas vitiosa navi cura nec turmas equitum relinquit, ocyor cervis, & agente nymbos ocyor Euro.*—By Periphrases, or Circumlocutions.—6. By Repetition.—To which may be added by Gradation.

The Periods, Numbers, Figures, *&c.* are what composes what we call *Discourses*, or *Orations*; since an Oration is a Speech or Harangue, framed according to the Rules of Oratory, and spoke in publick.

All the Kinds of *Orations* may be reduced to three Heads, *viz. demonstrative*, *deliberative*, and *judicial*.

To the *demonstrative Kind* belong, *Panegyricks*, *Genethliaca*, *Epithalamia*, *Epicedia*, *Eucharistiæ*, *Epinicia*, and Congratulations.

Panegyrick, is an Oration in praise of some extraordinary Person, or Virtue.

To make their *Panegyricks* the most solemn, the *Greeks* used to begin with the Praises of the Deity, in whose Honour the Games, *&c.* were celebrated, then they descended to the Praise of the People or Country where they were celebrated; then to the Princes or Magistrates who presided at them; and at length to the Champions, especially the Conquerors who had gained the Prize.

F. *de Colonia* lays down two Methods, or Series's observed in *Panegyricks*. The artificial, where, without any Regard to the Order of Time, every Thing is reduced to certain Heads. Thus *Tully* refers the whole Praise of *Pompey* to his Skill in War, his Virtue, Authority, and Felicity.

The other *natural*, wherein the Order and Time of History are observed. This Series he divides into three Periods; the Space before the Person's Birth, that wherein he lived, and if he be dead, that which followeth his Death. This natural Series requires much less Art, Genius, *&c.* than the other.

The Places or Sources of *Panegyricks* are chiefly the Family, Country, Auguries at his Birth, his Virtues, the Talents of his Body, Mind, Honours, Riches, Manner of his Death, and the Consequences thereof.

Genethliacum, is a Composition in Verse, on the Birth of some Prince, or other illustrious Person; wherein the Poet promises him great Honours, Advantages, Successes, Victories, *&c.* by a kind of Prophecy or Prediction.

Such is the Eclogue of *Virgil* to *Pollio*, beginning,

Siceliides musæ paulo majora canamus.

There are also Genethliack Speeches or Orations, made to celebrate a Person's Birth-Day.

The *Epicedion*, is a poetical Composition on the Death of a Person.

At the Obsequies of any Man of Figure, among the *Greeks* and *Latins*, there were three Kinds of Discourses usually made; that rehearsed at his Bustum, or Funeral Pile, was called *Nenia*; that engraven on his Tomb, *Epitaph*; and that spoke at the Ceremony of his Funeral, *Epicedion.*—We have two beautiful *Epicedions* in *Virgil*; that of *Euryalus*, and that of *Pallas*.

I have explained what is understood by *Epithalamium* in my Treatise of *Poetry* under the Letter P.

The *Epicedion* was a Composition on Occasion of a Victory obtained.

To the deliberative Kind belongs *Persuasion*, *Dissuasion*, *Exhortation* and *Commendation*.

And to the *judicial* Kind belongs *Accusation*, *Confirmation*, *Confutation*, &c.

Confirmation, is the third Part of an Oration, wherein the Orator undertakes to prove by Laws, Reasons, Authorities, and other Arguments, the Truth of the Propositions advanced in his Narration.

Confirmation, is either *direct* or *indirect*; the first confirms what the Orator has to urge for strengthening his own Cause: The second, properly called *Confutation*, refels the opposite arguing of the Adversaries. The two Parts together are sometimes placed under the Head and Title of Contention.

The *Confirmation* is, as it were, the Life and Soul of the Oration: In this the main Stress of Argumentation lies, as heretofore observed.

From this I'll proceed to the fourth and last Part of our Division of *Rhetorick*, *viz.* the *Pronunciation*.

PRONUNCIATION.

The PRONUNCIATION, as understood in this Place, consists in regulating and varying the Voice and Gesture agreeably to the Matter and Words, so as more effectually to touch the Hearers.

The *Pronunciation* is of such Importance, that *Demosthenes* called it the first, second, and the third Part of Eloquence.

Quintilian defines the *Pronunciation*, *vocis & vultus, & corporis moderatio cum venustate*; a decent, agreeable Manner of managing the Voice, Gesture and Action of the whole Body.

Cicero somewhere calls it *quædam corporis eloquentia*, a certain Eloquence of the Body; and in another Place, *sermo corporis*, the Language or Speech of the Body.

Pronunciation, is the same with what we otherwise call *Action.*—Some Writers, particularly Mr. *Henley*, confound it with Elocution, which, as we have seen, is a very different Thing. That Author, when he styles himself *Restorer of the antient Elocution*, means of the antient Pronunciation.

There are three Things which come under the *Pronunciation*; the *Memory*, *Voice*, and *Gesture*.

The *Memory*, is a natural Talent, which though essential to the Orator, is not, notwithstanding to be acquired by Art.

The *Voice*, is also a very essential Part of Eloquence, since it contributes much towards discovering all the Beauties of a Discourse or Oration, without which it appears inanimate, or languid. A fine and sonorous Voice strikes so agreeably the Ear of the Auditors, that it often penetrates the inmost Recesses of the Heart, where it excites different Sorts of Passions, according to the Subject of the Discourse. But the Voice of the Orator, let it be ever so agreeable, must be governed by Art, and not abandoned to its natural Impetuosity; or forced beyond it. The Orator must always begin his Discourse, with a gentle and moderate Voice, raising it with Discretion by Degrees, as Occasion requires; in such a Manner that he may be always Master thereof; expressing Joy in a quite different Manner than he would do Sorrow, avoiding above all Things a tedious Monottony; as well as those excessive Bawlings, more proper to stun the Auditor, than to make him hear.

The *Gesture*, is a Motion of the Body, intended to signify some Idea or Passion of the Mind.

Quintilian defines *Gesture*, *totius corporis motus & conformatio.*—*Gesture* consists principally in the Action of the Hand and Face.

Action, in Oratory, is an Accommodation of the Person of the Orator to his Subject; or a Management of the Voice and Gesture, suited to the Matter spoken or delivered.

Action, is a collateral or secondary Method of expressing our Ideas; and is susceptible of a kind of Eloquence as well as the primary.—It is an Address to our external Senses; which it endeavours to move, and bring into its

its Party, by a well concerted Motion and Modulation; at the ſame Time that the Reaſon and Underſtanding are attacked by Force of Argument. Accordingly *Tully* very pertinently calls it *ſermo corporis*, the Diſcourſe of the Body. The *Roman* Mimes and Pantomimes, we read, had ſuch a Copia in this Kind, ſuch a Compaſs even of mute *Action*, that Voice and Language ſeemed uſeleſs to them: They could make themſelves underſtood to People of all Nations; and *Roſcius*, the Comedian, is particularly famed, as being able to expreſs any Sentence by his Geſtures, as ſignificantly and variouſly as *Cicero* with all his Oratory.

Quintilian gives us a Syſtem of the Rules of *Action*; taken not only from the Writers of antient Orators, but from the beſt Examples of the Forum.

The Force and Effects of *Action*, at leaſt as practiſed among the Antients, appears to be very great; ſcarce any Thing was able to withſtand it. What we uſually attribute to Eloquence was really the Effect of the *Action* only, as ſome of the greateſt Maſters in that Way have frankly acknowledged. *Demoſthenes* expreſly calls it, 'the Beginning, the Middle, and the End of the 'Orator's Office,' and *Cicero* profeſſes, 'that it does not 'ſo much matter what the Orator ſays, as how he ſays 'it.' *Neque tantum refert qualia ſunt quæ dicas, quam quomodo dicantur. De orat.*—Hence the great *Greek* Orator is repreſented as practiſing and adjuſting his *Action* in the Glaſs: *Demoſthenes grande quoddam intuens ſpeculum componere actionem ſolebat.* Quintil.

Every Part of the Body is by them lifted into the Service, and marſhalled in its proper Place: The Hand, the Eye, Head, Neck, Sides, Cheeks, Noſtrils, Lips, Arms, Shoulders, *&c.*—*Precipuum in actione caput eſt. Cum geſtu concordet, &* lateribus *obſequatur*, oculi, lachrymæ, ſupercilium, genæ, rubor.—*Non manus ſolum, ſed &* nutus.—*Dominetur autem maximè* vultus.—*Quin & in vultu* pallor.—*Nares, labia.*—Dentes, cervix, humeri, brachia.—Manus *vero, ſine quibus* trunca eſſet actio.—*Quintil.* xi. 3.

The Hand is Maſter of a whole Language, a Set of Signs itſelf.—Even every Finger is laid down by the Antients, as having its diſtinct Office; and hence the different Names they ſtill bear, as *Pollex*, *Index*, &c.

By ſuch a Multitude of Rules and Obſervances, it is no Wonder that ſome of the Orators of thoſe, as of our Days, were perverted more than profited.—Rules only tend to perfect the *Action*, which muſt have its Origin from another Source, *viz.* Nature and good Senſe; where thoſe are deficient, Rules will ſooner make an Ape than an Actor. *Eloquentiæ*, ſays *Cicero*, *ſicut & reliquarum rerum, fundamentum eſt ſapientia.*—And hence we find the great Maſters abovementioned continually ſoftening, and even unſaying, and calling People off from the intemperate Uſe of their own Rules, *nullæ argutiæ digitorum, non ad numerum articulum cadens. Cicero* even aſſures us, he was a whole Year a learning to keep his Hand within his Gown.—The ſame Author recommending a Motion of the whole Body, ſays, the Orator ſhould make more Uſe of his Trunk than of his Hand; *trunco magis toto ſe ipſe moderans*, and *virili laterum flexione.*

Walking, *Inceſſus*, is ſometimes recommended as highly deſerving to be cultivated; but *Cicero* will ſcarce allow it to be uſed at all. It ſeems ſome of the active Orators of that Time had rendered it ridiculous; one of whom was pleaſantly aſked by *Flavius Virginius*, how many Miles he had declaimed? *Caſſius Severus*, when he perceived an Orator given to Walking, uſed to cry out for a Line to be drawn round him to keep him within Bounds.—The Orator *Tityus* improved Walking into a Sort of Dancing; and it is hence, as we are told by *Quintilian*, that the Dance *Tityus* took its Name.—*Junius* rallied his Father *Curio*'s inceſſant Libration, or rolling from one Side to another, by aſking, who that was Haranguing in a Ferry-boat? And to the like Effect was that of *C. Sicinius*, when *Curio* having ſpoke with his uſual Buſtle near *Octavius*, who by reaſon of his Infirmities had divers Laniments and Plaſters on his Limbs, you can never be enough thankful, *Octavius*, to your good Colleague, who has ſaved you this Day from being eaten up by the Flies.—*Demoſthenes* being naturally apt to be too buſy, and eſpecially with his Shoulders, is ſaid to have reformed himſelf by ſpeaking in a narrow Pulpit, and hanging a Spear pointed juſt over his Shoulders; that if in the Heat of his Diſcourſe he ſhould forget himſelf, the Puncture might remind him.

After all, it is a Point will bear being controverted, whether *Action* ought to be practiſed and encouraged at all? A Thing that has ſo much Command over Mankind, it is certain muſt be very dangerous; ſince it is as capable of being turned to our Diſadvantage, as our Advantage. It is putting a Weapon in the Hands of another, which, if he pleaſes, he may make uſe of to ſubdue and enſlave us: And accordingly Hiſtory is full of the pernicious Uſes made thereof.—For this Reaſon Eloquence and *Action* are generally diſcouraged in the modern Policy; and both the Bar and the Pulpit are brought to a more frigid Way of Delivery.

Some ſay that perhaps the Foundation of all *Action* may be vicious and immoral.—Voice and Geſture, we know, will affect Brutes; not as they have Reaſon, but as they have Paſſions: So far as theſe are uſed in a Diſcourſe, therefore, it does not regard an Aſſembly of Men, more than it would a Herd of Quadrupeds; that is, their whole Effort is ſpent, not on the rational Faculties, which are out of the Queſtion, but on the animal ones, which alone they endeavour to poſſeſs and actuate, independent of Reaſon.—Nay, they even go further, and pretend that our Reaſon and Judgment itſelf is intended to be biaſſed and inclined by them; *Action* being only uſed as an indirect Way of coming at the Reaſon, where a direct and immediate one was wanting, *i. e.* where the Judgment cannot be taken by the proper Means, Argument; it is to be taken by Circuition and Stratagem.

The natural Order of Things then, conclude they, is here inverted; our Reaſon, which ſhould go before and direct our Paſſions, is dragged after them, inſtead of cooly conſidering, and taking Cognizance of Things; and according to what we perceive therein, raiſing ourſelves to the Paſſions of Grief, Indignation, or the like; we are attacked the other way; the Impreſſion is to be carried backwards, by virtue of the natural Connection there is between the Reaſon and the Paſſions: And thus the Helm, the Principle of our Actions, is taken out of our own Hands, and given to another.

The Caſe is much the ſame here, ſay they, as in Senſation, and Imagination: The natural and regular Way of arriving at the Knowledge of Objects, is by Senſe; an Impreſſion began there is propagated forward to the Imagination, where an Image is produced ſimilar to that which firſt ſtruck on the Organ.—But the Proceſs is ſometimes inverted; in hypochondriack, lunatick, and other delirious Caſes, the Image is firſt excited in the Imagination; and the Impreſſion thereof communicated back to the Organs of Senſe: By which Means Objects are ſeen, which have no Exiſtence.

To ſay no more, continue they, *Action* does not tend to give the Mind any Information about the Caſe in hand; is not pretended to give any Arguments or Ideas which the ſimple Uſe of Language would not convey. But is it not that we ſhould form our Judgments upon? and can any thing help us to make a juſt Judgment beſide what ſome way enlarges our Underſtanding? When *Cicero* made *Cæſar* tremble, turn pale, and let fall his Paper, he did not apprize him with any new Guilt which *Cæſar* did not know of: The Effect had no Dependance on *Cæſar*'s Underſtanding; nor was it any thing more than might have been produced by the unmeaning Sounds of a muſical Inſtrument duly applied: Logs of Timber, and Stone, have often trembled on the like Occaſion.

But let them ſay what they will to depretiate the Merit of the *Action* in an *Orator*, as for me I conſider it as one of his principal Qualities; and think that the beſt Diſcourſe, pronounced without it, has no Agreement, and is capable of very little elſe than to lull us to Sleep. I hate to hear an Orator, with no other Action than a diſagreeable Monottony, tearing the Ear in a miſerable Manner, with now and then ſome Nodding of the Head, as if affected with a Kind of Palſy; not that I approve thoſe Maniacks, who while they ſpeak ſeem to be in ſtrong Convulſions of their whole Body; but a moderate and eaſy Action, without Affectation of any Kind, but which

which on the contrary seems to flow gently, as it were for a Source, and guided by our Voice, contributes much towards animating our Discourse, and rendering it more pathetick. It is false that it has no Effect on our Mind; since, on the contrary, by striking agreeably our external Senses, it is thereby convey'd to our Imagination, whereby our Attention is gained; it must even affect in the most sensible Manner the noblest Faculty of our Soul, *viz.* our Judgment, otherwise we could not make a just Difference between a good and bad, or an agreeable and disagreeable Action. — I approve of no other Gestures but of that of the Hands; seldom of the Head; sometimes of the Eyes, since it is thereby we discover if the Orator be affected himself with what he says; and never of the whole Body: Even the Gestures of the Hand, which is the most common, must be moderate, and as natural as possible; and always under the Direction of the Eye, *i. e.* that it must always follow the Hands; except in those Occasions, where it is necessary to express Scorn, or Reluctancy, or Abhorrence: The Pulpit admits of much more Gesture than the Bar. It is particularly to the Action, that the Title of *Eloquent* in Speaking is attributed; though there be also another Kind of *Eloquence* in Writing well.

Demosthenes and *Cicero* are the Princes of antient Eloquence; the one among the *Greeks*, the other among the *Romans*; because they both wrote, and spoke well. Their Manner however was exceedingly different; the first being close, strong, nervous, concise, and severe, so that a Word could not be spared: The latter copious, florid, and rich, so that a Word could not be added.

It was objected to *Cicero*, that his Eloquence was *Asiatick*, that is, redundant, or stuffed with superfluous Words and Thoughts.

Pericles was called *a Torrent of Eloquence, a Thunderbolt of Eloquence.* Pedants do not distinguish *Eloquence*, from the Heaping up of Figures, the Use of big Words, and the Rotundity of Periods.

True *Eloquence* depends principally on the Vivacity of the Imagination. In Strictness, it is not that which gives Grace and Ornament, but Life and Motion, to Discourse. Its Mien is that of an Amazon, not that of a Coquette.

The Authors of the *Art of Thinking* remark, that the Rules of *Eloquence* are observed in the Conversations of People naturally *eloquent*, though they never think of them while they practise them. They practise those Rules because they are *eloquent*, in order not to be *eloquent*.

The *Eloquence* of the Chair, and Pulpit, is much more difficult every where, but in *England*, than that of the Bar. The Obligation laid on the *English* Clergy to read their Sermons, has entirely banished Eloquence from the Pulpit; therefore much better *Orators* are found at *Westminster*, either in both Houses of Parliament, or in the Courts of Judicature, than in the Churches; whereas in other Countries, *France* for Example, the best Orators are found in the Chair or Pulpit. It is true that there are some Persons who read better than others, but still it is but Reading, for that can never be called Preaching, and Reading for Reading, I had rather chuse to read myself than to hear another read; since I cannot only read better Pieces of Eloquence than those which often are read to me, but likewise enter better into the Sense of the Author, and be thereby much more edified. If that Prohibition of reciting Sermons by heart was taken off, the *English* Pulpit would acquire a new Lustre, for no doubt but that there are are as good Orators among the *English* Clergy, as among others, and we should not see a kind of epidemical Lethargy reigning in the Churches.

But without confining ourselves to a particular Country, we must say, that *Eloquence* has shared every where the Fate of all other Arts and Sciences, and has suffered a very great Eclipse ever since, like them, it has met with little or no Encouragement: In fact, true Eloquence is so little in Vogue at present, that the best Orator would scarce find an Audience worthy of being spoke to; ridiculous Discourses, digested without Art, Order, or Agreement, and stuffed with low Thoughts, trivial Expressions, and delivered in an Indolence which had been capable only to excite the Compassion, or perhaps the Laughter of an honest *Roman* Citizen, are almost the only ones we are entertained with at present, and can assemble a numerous Audience. Not that I pretend that all Discourses are to be composed with a scrupulous Regularity, according to all the Rules of *Rhetorick* heretofore explained; but they should not be all neglected, since no body can claim the Title of Orator, without he be a Rhetorician.

ROPE-MAKING.

ROPE-MAKING, is to spin Twists, or Strings of Hemp; and when spun, to twist them together, in a greater or less Number, according to the Thickness of the *Rope*.

This Spinning is done by the Rope-Maker, twisting round him a certain Quantity of coarse hempen Flax, fastening one End thereof to the Iron of a Spinning-Wheel made for the Purpose, spinning it with his Index, and Thumbs of both Hands, walking slowly backwards, *i. e.* his Face turned towards the Wheel, while another Person turns it round, to twist what he spins. — This Operation is done in a long Alley, commonly called Rope-Walk; and there are placed in the Walk, by Intervals, Racks to support the Ropes, and keep it tight, which otherwise, being arrived at a certain Length, would fall to the Ground, and thereby prevents the Operation going forwards.

If the Twist, or String, which is spun, is used alone, without being joined with others, it must be twisted harder than if it was to enter into the Composition of another Rope; though there is scarce any Rope which has not several Twists.

When the Rope is made very thick, it is called a *Cable*; and when very small, a *Cord*.

A CABLE, is a thick, long, three-string'd Rope, ordinarily of Hemp, serving to hold Ships firm at Anchor.

The Term *Cable* is sometimes also applied to the Cordage used to raise massy Loads, by means of Cranes, Wheels, and other like Engines: Though, in Strictness, *Cable* is not applied to Ropes of less than three Inches Circumference.

Every *Cable*, of whatever Thickness it be, is composed of three Strands; each Strand of three Twists; each Twist of a certain Number of Caburns, or Threads of Rope-Yarn, more or less, as the *Cable* is to be thicker or smaller.

To make a *Cable*, after forming the Strands, they use Staves, which they first pass between the Strands, that they may turn the better, and be intertwisted the more regularly together: And to prevent any entangling, a Weight is hung at the End of each Strand. The Cable being twisted as much as needs, is untwisted again three or four Turns, that the rest may the better retain its State.

The Number of Threads each Kind of *Cable* is to be composed of, is ever proportion'd to its Length and Thickness; and it is by this Number of Threads, that its Weight and Value are ascertained. A Rope of three Inches Circumference, or one Inch Diameter, consists of 48 ordinary Threads, and weighs 192 Pounds; one of 10 Inches Circumference of 485 Threads, and weighs 1940 Pounds; a *Cable* of 20 Inches, of 1943 Threads, and weighs 7772 Pounds. The Seamen say, the *Cable is well laid*, when it is well wrought or made.

As to the *Strength, of Ropes, or Cordage*, M. *Reaumur* takes Occasion, in the *Memoirs of the Royal Academy*, to consider the Question, whether a Rope of several Twists or Strands interwoven, *v. gr.* ten, have more Strength to sustain a Weight, than the ten Twists would have separately,

parately, placed parallel over one another: Or, which is the ſame Thing, whether if each Twiſt be capable of ſuſtaining the Weight of a Pound, the whole Cord be able to ſuſtain more than ten?

There indeed appears no great Difficulty in the Queſtion; the Evidence ſeems ſtrong on the Side of the Affirmative: For, 1. By Virtue of the Twiſting, the Diameter of the Rope is made larger than are thoſe of the ten Twiſts together; but it is apparently by its Thickneſs that a Rope ſuſtains a Weight, or reſiſts a Fracture.

2. Twiſted Strands have not at all, as when parallel, a vertical Direction with Regard to the Weight; ſeveral of them, and even the greateſt Part have oblique Directions, and of Conſequence do not bear all the Share of the Burthen they would otherwiſe bear. In Effect they are inclined Planes that are only preſſed with a Part of the Load.

Hence it would follow, that the Surplus of the Strength of the Twiſts, might be employ'd in raiſing a larger Weight.

On the other Hand it is true, that in twiſting the Strands ſome are ſtretched, and others left more looſe, and the new Tenſion given the former, ſerves to weaken them; and has of itſelf the Effect of a Weight: Thus they become leſs able to ſuſtain one ſo large. Thoſe more lax, on the contrary, wade in ſome Meaſure the Action of the Weight, for the Action is diſtrbuted equally on the ten ſuppoſedly equal Twiſts; and if ſome, by Reaſon of their particular Diſpoſition, receive leſs than their Quota, the Weight will act more forcibly on the reſt, and will break them firſt, as being more tenſe; after which it will eaſily diſpatch the reſt, as not being in ſufficient Number to oppoſe it.

This is the Sum of what can be urged for, and againſt the Twiſting, to decide between them M. *Reaumur* had Recourſe to Experiment. The Reſult was, that contrary to all Expectation, he ſtill found the twiſting diminiſhed the Strength of the Rope; whence it is eaſily inferred, that it diminiſhes it the more, as the Rope is the thicker; for inaſmuch as the Twiſting diminiſhes, the more Twiſting, the more Diminution.

The *Reſiſtance* or *Frixion of Cordage* is very conſiderable, and by all Means to be conſidered in calculating the Power of Machines. M. *Amontons* obſerves, in the Memoirs of the Royal Academy, that a Rope is ſo much the more difficult to bend; 1. As it is ſtiffer and more ſtretched by the Weight it draws. 2. As it is thicker; and 3. as it is to be more bent; *i. e.* as it is to be coiled, for inſtance, into a ſmaller Ring.

The ſame Author has thought of Ways to prove in what Proportion theſe different Reſiſtances increaſe; that ariſing from the Stiffneſs or Rigidity occaſioned by the Weight which draws the Rope, increaſes in Proportion to the Weight; and that ariſing from its Thickneſs in Proportion to the Diameter. *Laſtly*, That ariſing from the Smallneſs of the Gyres, or Pullies about which it is to be wound, is indeed greater for ſmaller Circumferences than large ones, but does not increaſe ſo much as in the Proportion of thoſe Circumferences.

On this Footing the Loſs a Machine ſuſtains, by the *Cordage* being eſtimated in Pounds, becomes, as it were, a new Weight, to be added to that which the Machine is to raiſe. This Augmentation of Weight will render the *Cords* ſtill the more ſtiff, which Exceſs is to be computed as before.

Thus we ſhall have ſeveral Sums ſtill decreaſing, which are to be added together, as in the Article of Friction; and it will be ſurpriſing to ſee what a Sum they will amount to.

Where Ropes are uſed in a Machine, all the Reſiſtance reſulting from their Stiffneſs is to be put together, and all that occaſioned by the Friction, which will make ſo conſiderable an Augmentation to the Difficulty of the Motion, that a Power, which to raiſe a Weight of 3000 Pounds, by means of a fixed and a moveable Pulley, needed only 1500 Pounds; muſt, according to M. *Amontons*, have 3942 Pounds, on Account of the Frictions, and the Reſiſtance of the Cordage.

SACRAMENTS.

SACRAMENT, in the general, denotes a Sign of a holy or ſacred Thing. The Chriſtian Church admits of two Sorts of Sacraments; *viz.* thoſe of the Law of *Moſes*, and thoſe of the Law of Chriſt.

The *Sacraments* of the Law of *Moſes* were, 1. The Circumciſion; 2. The Paſchal Lamb; 3. The Purifications of external Impurities; 4. The Expiations for Sins; 5. The Conſecration of Prieſts; 6. And the eating the Shew-bread.

The *Sacraments* of the Law of Grace, are but two in the Proteſtant Church; *viz.* *Baptiſm*, and the *Lord's Supper*; and ſeven in the Catholick, *viz.* *Baptiſm*, *Confirmation*, *Penitence*, *Euchariſt*, *Extreme-Unction*, *Order*, and *Matrimony*; whereof the Catholicks ſay, that thoſe of the Old Teſtament were only Types or Shadows.—That, 1. The *Circumciſion* was the Type of *Baptiſm*; 2. The *Paſchal Lamb*, and the eating the *Shew bread*, the Figure of the *Euchariſt* or *Lord's Supper*; 3. The *Purifications* and *Expiations*, the Types of the Penitence; 4. The Conſecration of Prieſts, the Figure of *Order*.

I'll treat only, in this Place, of the Sacraments of the Law of Grace; 1. Of the *Name of Sacraments*; 2. Of the *Definition of Sacrament*; 3. Of the *Cauſes*; 4. Of the *Effect*; 5. Of the *Number of Sacraments*, which is a great Point of Controverſy between the Catholicks and Proteſtants.

The ſacred Authors underſtand the Word *Sacrament* in a Manner quite different from that of the Prophane: For *Sacrament* in the Scripture ſignifies the ſame Thing as Myſtery; and is underſtood in two Manners; 1. For a ſecret or hidden Thing; 2. For the Sign of a ſecret or hidden Thing.

In the firſt Manner, the Incarnation of the Word, and the Vocation of the Gentiles, are called *Sacraments* or *Myſteries*, i. e. the Things hidden in the Secret Council of God, which no Body could know, 'till he was pleas'd to reveal them by his Prophets and Apoſtles, *Epheſ.* iii. 3. and *Coloſſ.* xxvi. 1. *Tim.* ii. 16.

In the laſt Manner, the Marriage of *Adam* and *Eve*, and *Nebuchadnezzar*'s Dream are called *Sacraments* or *Myſteries*, i. e. Signs of ſecret and hidden Things, *Epheſ.* v. 32. and *Dan.* ii. 19. For the Marriage of *Adam* and *Eve* ſignifies the Union of Chriſt with his Church; and the Dream of *Nebuchadnezzar*, the Succeſſion of four Kingdoms. In this laſt Senſe the Proteſtants ſay, that the *Baptiſm* and *Euchariſt* are *Sacraments* or *Myſteries*, and the Catholicks ſay the ſame of the five others they admit, *i. e.* Signs of ſecret or hidden Things; not of every ſecret Thing, but of an inward Grace, or Holineſs, as we'll explain it hereafter.

The Roman Catholicks define a *Sacrament*, *the Sign and Cauſe of Grace*, or *a ſenſible Thing*, *which*, *by God's Inſtitution*, *has the Power to ſignify and produce Grace.* Which Definition becomes only the Sacraments of the New Teſtament, and not thoſe of the old; for though the antient *Sacraments* ſignified Grace, they could not produce it; but they both ſignify and produce it, not as principal Cauſes, but as inſtrumental.

The ſame Catholicks ſay, that the Proteſtants differ from them, and among themſelves; for ſome of them, and *Luther*, in particular, define a *Sacrament a Promiſe of Grace annexed to an external Sign*: Others, as *Calvin*, *a Seal wherein that Promiſe is ſealed*; and others in another Manner: All which different Definitions the Catholicks refute in two Manners. 1. Becauſe, ſay they, none of their Adverſaries underſtand by the Word Grace, an internal one, or an inherent Juſtice; but only a gratuite Remiſſion of Sins, which, they imagine, conſiſts in that God does not impute our Sins to us; but cloaks them, as it were, and diſſembles them; none of their Diſtinctions, beſides, becoming the *Sacrament* of the Lord's Supper; ſince that *Sacrament* was not inſtituted for the Remiſſion

Remission of Sins; but rather to strengthen, preserve, and increase the Grace, or inherent Justice in the just; for the Eucharist is nothing else but a spiritual Meat and Drink, whereby the Soul is strengthened, *John* vi. 55. *For my Flesh is Meat indeed, and my Blood is Drink indeed.* Therefore as corporal Meat and Drink are of no Service to a dead Body, but only to a living one; likewise the Eucharist is of no Service to a Soul dead by Sin, but only to that living by Grace.

As to the *Causes of the Sacraments*, the Catholicks reckon four of them, *viz.* the *Matter*, *Form*, the *efficient*, and *final Cause*.

The *Matter* of the *Sacraments* is the Thing sensible.—The *Form* is the Power which that *Thing sensible* has received, by God's Institution to signify, and produce Grace.—The *efficient Cause* or Principle of the *Sacraments* is God.—And the *final Cause*, for which they have been instituted, is our Sanctification: Therefore, conclude they, they were instituted to confer on us the sanctifying Grace, which they signify.

This last Point the Protestants deny; and say that the *Sacraments* were instituted to excite that Faith within us, whereby we are justified; which the Catholicks deny in their Turn; for that Faith, say they, is required, before we receive the *Sacrament*, as a previous Disposition; according to these Passages of the Scripture, *Mark* xvi. 16. *He that believeth, and is baptized, shall be saved; but he that believeth not shall be damned.* Faith here precedes, and Baptism follows, and *Matt.* xxviii. 19. *Go ye, therefore, and teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost.* Whereby it appears that the Intention of Christ was, that Men should be instructed, first, in the Doctrine of the Faith, and believe in Christ their Redeemer, before they could be baptized.

This they confirm by Examples from the Scripture; for *Philip* would not baptize the Eunuch, before he believed in Christ, *Acts* viii. 36. *And the Eunuch said, see, here is Water; what does hinder me from being baptized? And Philip said, if thou believest with all thine Heart, thou may'st.*—And *Peter* in his Sermon to the *Jews* on the Day of Pentecost, excited them first to a Faith in Christ, and exhorted them afterwards to receive Baptism: For if Baptism, conclude they, had been instituted only to excite Faith in us, it could be of no Service to Infants; Hence, they wanting the Use of their Reason, it cannot excite Faith within them.

To this Protestants object, 1. That, according to the Scripture, a Man is justified by Faith, and therefore is not justified by the *Sacraments*, otherwise than by exciting that Faith within them.

To this the Catholicks answer, that the Consequence is neither just nor conclusive, because a Man can be justified by divers Causes; for he is justified by Faith, as by a previous Disposition; by Grace or inherent Justice, as by a formal Cause; by God, as by the principal efficient Cause; by the *Sacraments*, as by the instrumental Causes; and by Christ, as by the Cause of Merits.

They object, 2. That the Apostle teaches that *Abraham* was not justified by the Circumcision, which is a *Sacrament* of the Law of *Moses*; but by Faith, *Rom.* iv. 10. Therefore, likewise, we are no otherwise justified by the *Sacraments* of the New Testament, than by their exciting Faith within us.

The Catholicks answer to this, that it is supposed in the antecedent of this Argument, that the Circumcision had excited Faith in *Abraham*, which is false. For it did not excite Faith within him, but was only a Mark of the Faith he had before. For *Abraham* believed in God, first, and was circumcised afterwards, *Gen.* xv. 6. and *Gen.* xvii. 24. they say, besides, that the Consequence is not good; since there is a great Difference between the *Sacraments* of the Old Testament, and those of the New; for the old *Sacraments* did not confer Grace, and the new confer it; and therefore it does not follow hence, that because *Abraham* was not justified by Circumcision, we are not justified by Baptism.

As to the *Effects of the Sacraments*, from what we have said, it is easy to discover the different Sentiments of the Catholicks and Protestants. The Protestants say, that the *Sacraments* have been instituted to excite Faith within us; whence it follows that their Effect is Faith. The Catholicks say, on the contrary, that they have been instituted to confer the justifying Grace; whence it follows that their Effect is Grace, according to the following Passages of the Scripture, *John* iii. 5. *Verily, verily I say unto thee, except a Man be born of Water, and of the Spirit, he cannot enter into the Kingdom of God.* From whence we infer, that we are regenerated by Baptism, which cannot be done without the justifying Grace. And also *Acts* ii. 38. *He baptised every one of you in the Name of Jesus Christ, for the Remission of Sin, and you shall receive the Gift of the Holy Ghost*; and Chap. xxii. Ver. 16. *Arise, and be baptized, and wash away thy Sins*, which cannot be washed away but by the justifying Grace.

As to the *Number of Sacraments*.—The Catholicks teach with the Council of *Trent*, and, say they, with the unanimous Consent of the universal Church; that there are seven *Sacraments* of the New Testament, *viz. Baptism*, *Confirmation*, *Penitence*, *Eucharist*, *Extreme-Unction*, *Order*, and *Matrimony*.

The Protestants reject five of those *Sacraments* received by the Catholicks; but do not very well agree among themselves, or with Regard to the true Number thereof, for some of them, as *Luther*, *Lib. de captivit. Babilonic. circa Initium*, receives the Baptism alone. Others, as *Philip Melanthon*, *de locis commun.* receive the Baptism, Eucharist, and Penitence, in which he is followed by a vast Number of Lutherans. Others, with *Ervingle*, receive the Baptism, the Lord's Supper and Matrimony. *Ervingle de vera & falsa Religione.* And others with *Calvin*, *lib.* 4. *Institut.* c. 19. § 30. receive the *Baptism*, the *Lord's Supper* and *Ordination*.

Neither can they, in any Manner, say again the Catholicks, prove their different Sentiments, either by Scripture or the Tradition; for the Tradition which they reject, continue always the same Catholicks, is for us; and the Scripture, which they receive, has not furnished them yet with any Proofs, which they could alledge in their Defence. For the Scripture does not say, that there are only two or three *Sacraments*; nay, it does not even give the Name of *Sacrament* to the Baptism or Eucharist; and does not define which is properly a *Sacrament* of the Law of Grace. What Assistance then, ask the Roman Catholicks, can the Protestants expect from the Scripture? None at all; while they borrow all theirs from the perpetual Tradition of the Church. For their Sentiment is, that the Church has always believed seven *Sacraments*; following in that the Advice of the Apostle, 2 *Thess.* ii. 15. *Therefore Brethren, stand fast, and hold the Traditions which ye have been taught.*

The Catholicks, to prove their Sentiment by the Tradition, consult the Fathers of the Church; particularly St. *Augustin*, as one of the most eminent among them, and even respected by the Protestants. They say, therefore, that St. *Augustin* receives Baptism and Eucharist, *lib.* 3. *de Doctrin. Christian. c.* 9. *The Lord himself*, says he, *and the Discipline of the Church, deliver to us Things which are to be kept carefully, and are easy to practise; such is the* Sacrament *of Baptism, and the Celebration of the Body and Blood of the Lord.* He acknowledges the Confirmation, *lib.* 2. *contr. Liter. Petilian. c.* 104. *In that Unguent he will have the Sacrament of the Chrisma understood, which among the visible Signs is as holy as Baptism itself.* He acknowledges the Penitence, *lib.* 1. *de Adulter. Conjug. c.* 26, & 28. *The Cause of Baptism, and of the Reconciliation, is the same; without which Sacraments, Men believe they are not to depart this World.* He acknowledges Order, *lib.* 2. *contr. Epist. Parmen. c.* 13. *They are both Sacraments, and both given to Men, by a certain Consecration; that when he is baptized, and this when he is ordained; and therefore neither of them is to be reiterated in the Catholick Church.* He acknowledges the Extreme Unction, *Serm.* 215. *de temp. Whenever any Malady happens, he that is sick must receive the Body and Blood of* Jesus Christ; *and be anointed, afterwards, that what is written may be fulfilled in him, if any Body be sick among you, he must send for the Priests of the Church, that they may pray on him, anointing him with Oil.* He acknowledges Matrimony, *lib.* 2. *de Nupt. & Concupiscent. c.* 10. *The End of this Sacrament is, that a Man and Woman being joined by Marriage, remain inseparable while they live.*

parately, placed parallel over one another: Or, which is the same Thing, whether if each Twist be capable of sustaining the Weight of a Pound, the whole Cord be able to sustain more than ten?

There indeed appears no great Difficulty in the Question; the Evidence seems strong on the Side of the Affirmative: For, 1. By Virtue of the Twisting, the Diameter of the Rope is made larger than are those of the ten Twists together; but it is apparently by its Thickness that a Rope sustains a Weight, or resists a Fracture.

2. Twisted Strands have not at all, as when parallel, a vertical Direction with Regard to the Weight; several of them, and even the greatest Part have oblique Directions, and of Consequence do not bear all the Share of the Burthen they would otherwise bear. In Effect they are inclined Planes that are only pressed with a Part of the Load.

Hence it would follow, that the Surplus of the Strength of the Twists, might be employ'd in raising a larger Weight.

On the other Hand it is true, that in twisting the Strands some are stretched, and others left more loose, and the new Tension given the former, serves to weaken them; and has of itself the Effect of a Weight: Thus they become less able to sustain one so large. Those more lax, on the contrary, wade in some Measure the Action of the Weight, for the Action is distrbuted equally on the ten supposedly equal Twists; and if some, by Reason of their particular Disposition, receive less than their Quota, the Weight will act more forcibly on the rest, and will break them first, as being more tense; after which it will easily dispatch the rest, as not being in sufficient Number to oppose it.

This is the Sum of what can be urged for, and against the Twisting, to decide between them M. *Reaumur* had Recourse to Experiment. The Result was, that contrary to all Expectation, he still found the twisting diminished the Strength of the Rope; whence it is easily inferred, that it diminishes it the more, as the Rope is the thicker; for inasmuch as the Twisting diminishes, the more Twisting, the more Diminution.

The *Resistance* or *Frixion of Cordage* is very considerable, and by all Means to be considered in calculating the Power of Machines. M. *Amontons* observes, in the Memoirs of the Royal Academy, that a Rope is so much the more difficult to bend; 1. As it is stiffer and more stretched by the Weight it draws. 2. As it is thicker; and 3. as it is to be more bent; *i. e.* as it is to be coiled, for instance, into a smaller Ring.

The same Author has thought of Ways to prove in what Proportion these different Resistances increase; that arising from the Stiffness or Rigidity occasioned by the Weight which draws the Rope, increases in Proportion to the Weight; and that arising from its Thickness in Proportion to the Diameter. *Lastly*, That arising from the Smallness of the Gyres, or Pullies about which it is to be wound, is indeed greater for smaller Circumferences than large ones, but does not increase so much as in the Proportion of those Circumferences.

On this Footing the Loss a Machine sustains, by the *Cordage* being estimated in Pounds, becomes, as it were, a new Weight, to be added to that which the Machine is to raise. This Augmentation of Weight will render the *Cords* still the more stiff, which Excess is to be computed as before.

Thus we shall have several Sums still decreasing, which are to be added together, as in the Article of Friction; and it will be surprising to see what a Sum they will amount to.

Where Ropes are used in a Machine, all the Resistance resulting from their Stiffness is to be put together, and all that occasioned by the Friction, which will make so considerable an Augmentation to the Difficulty of the Motion, that a Power, which to raise a Weight of 3000 Pounds, by means of a fixed and a moveable Pulley, needed only 1500 Pounds; must, according to M. *Amontons*, have 3942 Pounds, on Account of the Frictions, and the Resistance of the Cordage.

SACRAMENTS.

SACRAMENT, in the general, denotes a Sign of a holy or sacred Thing. The Christian Church admits of two Sorts of Sacraments; *viz.* those of the Law of *Moses*, and those of the Law of Christ.

The *Sacraments* of the Law of *Moses* were, 1. The Circumcision; 2. The Paschal Lamb; 3. The Purifications of external Impurities; 4. The Expiations for Sins; 5. The Consecration of Priests; 6. And the eating the Shew-bread.

The *Sacraments* of the Law of Grace, are but two in the Protestant Church; *viz.* *Baptism*, and the *Lord's Supper*; and seven in the Catholick, *viz.* *Baptism*, *Confirmation*, *Penitence*, *Eucharist*, *Extreme Unction*, *Order*, and *Matrimony*; whereof the Catholicks say, that those of the Old Testament were only Types or Shadows.—That, 1. The *Circumcision* was the Type of *Baptism*; 2. The *Paschal Lamb*, and the eating the *Shew bread*, the Figure of the *Eucharist* or *Lord's Supper*; 3. The *Purifications* and *Expiations*, the Types of the Penitence; 4. The Consecration of Priests, the Figure of *Order*.

I'll treat only, in this Place, of the Sacraments of the Law of Grace; 1. Of the *Name of Sacraments*; 2. Of the *Definition of Sacrament*; 3. Of the *Causes*; 4. Of the *Effect*; 5. Of the *Number of Sacraments*, which is a great Point of Controversy between the Catholicks and Protestants.

The sacred Authors understand the Word *Sacrament* in a Manner quite different from that of the Prophane: For *Sacrament* in the Scripture signifies the same Thing as Mystery; and is understood in two Manners; 1. For a secret or hidden Thing; 2. For the Sign of a secret or hidden Thing.

In the first Manner, the Incarnation of the Word, and the Vocation of the Gentiles, are called *Sacraments* or *Mysteries*, i. e. the Things hidden in the Secret Council of God, which no Body could know, 'till he was pleas'd to reveal them by his Prophets and Apostles, *Ephes.* iii. 3. and *Coloss.* xxvi. 1. *Tim.* ii. 16.

In the last Manner, the Marriage of *Adam* and *Eve*, and *Nebuchadnezzar*'s Dream are called *Sacraments* or *Mysteries*, i. e. Signs of secret and hidden Things, *Ephes.* v. 32. and *Dan.* ii. 19. For the Marriage of *Adam* and *Eve* signifies the Union of Christ with his Church; and the Dream of *Nebuchadnezzar*, the Succession of four Kingdoms. In this last Sense the Protestants say, that the *Baptism* and *Eucharist* are *Sacraments* or *Mysteries*, and the Catholicks say the same of the five others they admit, *i. e.* Signs of secret or hidden Things; not of every secret Thing, but of an inward Grace, or Holiness, as we'll explain it hereafter.

The Roman Catholicks define a *Sacrament*, *the Sign and Cause of Grace*, or *a sensible Thing*, *which*, *by God's Institution*, *has the Power to signify and produce Grace.* Which Definition becomes only the Sacraments of the New Testament, and not those of the old; for though the antient *Sacraments* signified Grace, they could not produce it; but they both signify and produce it, not as principal Causes, but as instrumental.

The same Catholicks say, that the Protestants differ from them, and among themselves; for some of them, and *Luther*, in particular, define a *Sacrament a Promise of Grace annexed to an external Sign*: Others, as *Calvin*, *a Seal wherein that Promise is sealed*; and others in another Manner: All which different Definitions the Catholicks refute in two Manners. 1. Because, say they, none of their Adversaries understand by the Word Grace, an internal one, or an inherent Justice; but only a gratuitous Remission of Sins, which, they imagine, consists in that God does not impute our Sins to us; but cloaks them, as it were, and dissembles them; none of their Definitions, besides, becoming the *Sacrament* of the Lord's Supper; since that *Sacrament* was not instituted for the Remission

Remiſſion of Sins; but rather to ſtrengthen, preſerve, and increaſe the Grace, or inherent Juſtice in the juſt; for the Euchariſt is nothing elſe but a ſpiritual Meat and Drink, whereby the Soul is ſtrengthened, *John* vi. 55. *For my Fleſh is Meat indeed, and my Blood is Drink indeed.* Therefore as corporal Meat and Drink are of no Service to a dead Body, but only to a living one; likewiſe the Euchariſt is of no Service to a Soul dead by Sin, but only to that living by Grace.

As to the *Cauſes of the Sacraments*, the Catholicks reckon four of them, *viz.* the *Matter*, *Form*, the *efficient*, and *final Cauſe*.

The *Matter* of the *Sacraments* is the Thing ſenſible.—The *Form* is the Power which that *Thing ſenſible* has received, by God's Inſtitution to ſignify, and produce Grace.—The *efficient Cauſe* or Principle of the *Sacraments* is God.—And the *final Cauſe*, for which they have been inſtituted, is our Sanctification: Therefore, conclude they, they were inſtituted to confer on us the ſanctifying Grace, which they ſignify.

This laſt Point the Proteſtants deny; and ſay that the *Sacraments* were inſtituted to excite that Faith within us, whereby we are juſtified; which the Catholicks deny in their Turn; for that Faith, ſay they, is required, before we receive the *Sacrament*, as a previous Diſpoſition; according to theſe Paſſages of the Scripture, *Mark* xvi. 16. *He that believeth, and is baptized, ſhall be ſaved; but he that believeth not ſhall be damned.* Faith here precedes, and Baptiſm follows, and *Matt.* xxviii. 19. *Go ye, therefore, and teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghoſt.* Whereby it appears that the Intention of Chriſt was, that Men ſhould be inſtructed, firſt, in the Doctrine of the Faith, and believe in Chriſt their Redeemer, before they could be baptized.

This they confirm by Examples from the Scripture; for *Philip* would not baptize the Eunuch, before he believed in Chriſt, *Acts* viii. 36. *And the Eunuch ſaid, ſee, here is Water; what does hinder me from being baptized? And Philip ſaid, if thou believeſt with all thine Heart, thou may'ſt.*—And *Peter* in his Sermon to the *Jews* on the Day of Pentecoſt, excited them firſt to a Faith in Chriſt, and exhorted them afterwards to receive Baptiſm: For if Baptiſm, conclude they, had been inſtituted only to excite Faith in us, it could be of no Service to Infants; Hence, they wanting the Uſe of their Reaſon, it cannot excite Faith within them.

To this Proteſtants object, 1. That, according to the Scripture, a Man is juſtified by Faith, and therefore is not juſtified by the *Sacraments*, otherwiſe than by exciting that Faith within them.

To this the Catholicks anſwer, that the Conſequence is neither juſt nor concluſive, becauſe a Man can be juſtified by divers Cauſes; for he is juſtified by Faith, as by a previous Diſpoſition; by Grace or inherent Juſtice, as by a formal Cauſe; by God, as by the principal efficient Cauſe; by the *Sacraments*, as by the inſtrumental Cauſes; and by Chriſt, as by the Cauſe of Merits.

They object, 2. That the Apoſtle teaches that *Abraham* was not juſtified by the Circumciſion, which is a *Sacrament* of the Law of *Moſes*; but by Faith, *Rom.* iv. 10. Therefore, likewiſe, we are no otherwiſe juſtified by the *Sacraments* of the New Teſtament, than by their exciting Faith within us.

The Catholicks anſwer to this, that it is ſuppoſed in the antecedent of this Argument, that the Circumciſion had excited Faith in *Abraham*, which is falſe. For it did not excite Faith within him, but was only a Mark of the Faith he had before. For *Abraham* believed in God, firſt, and was circumciſed afterwards, *Gen.* xv. 6. and *Gen.* xvii. 24. they ſay, beſides, that the Conſequence is not good; ſince there is a great Difference between the *Sacraments* of the Old Teſtament, and thoſe of the New; for the old *Sacraments* did not confer Grace, and the new confer it; and therefore it does not follow hence, that becauſe *Abraham* was not juſtified by Circumciſion, we are not juſtified by Baptiſm.

As to the *Effects of the Sacraments*, from what we have ſaid, it is eaſy to diſcover the different Sentiments of the Catholicks and Proteſtants. The Proteſtants ſay, that the *Sacraments* have been inſtituted to excite Faith within us; whence it follows that their Effect is Faith. The Catholicks ſay, on the contrary, that they have been inſtituted to confer the juſtifying Grace; whence it follows that their Effect is Grace, according to the following Paſſages of the Scripture, *John* iii. 5. *Verily, verily I ſay unto thee, except a Man be born of Water, and of the Spirit, he cannot enter into the Kingdom of God.* From whence we infer, that we are regenerated by Baptiſm, which cannot be done without the juſtifying Grace. And alſo *Acts* ii. 38. *He baptiſed every one of you in the Name of Jeſus Chriſt, for the Remiſſion of Sin, and you ſhall receive the Gift of the Holy Ghoſt*; and Chap. xxii. Ver. 16. *Ariſe, and be baptized, and waſh away thy Sins*, which cannot be waſhed away but by the juſtifying Grace.

As to the *Number of Sacraments*.—The Catholicks teach with the Council of *Trent*, and, ſay they, with the unanimous Conſent of the univerſal Church; that there are ſeven *Sacraments* of the New Teſtament, *viz. Baptiſm*, *Confirmation*, *Penitence*, *Euchariſt*, *Extreme-Unction*, *Order*, and *Matrimony*.

The Proteſtants reject five of thoſe *Sacraments* received by the Catholicks; but do not very well agree among themſelves, or with Regard to the true Number thereof, for ſome of them, as *Luther*, *Lib. de captivit. Babilonic. circa Initium*, receives the Baptiſm alone. Others, as *Philip Melanchton*, *de locis commun.* receive the Baptiſm, Euchariſt, and Penitence, in which he is followed by a vaſt Number of Lutherans. Others, with *Ervingle*, receive the Baptiſm, the Lord's Supper and Matrimony. *Ervingle de vera & falſa Religione.* And others with *Calvin*, *lib.* 4. *Inſtitut.* c. 19. § 30. receive the *Baptiſm*, the *Lord's Supper* and *Ordination.*

Neither can they, in any Manner, ſay again the Catholicks, prove their different Sentiments, either by Scripture or the Tradition; for the Tradition which they reject, continue always the ſame Catholicks, is for us; and the Scripture, which they receive, has not furniſhed them yet with any Proofs, which they could alledge in their Defence. For the Scripture does not ſay, that there are only two or three *Sacraments*; nay, it does not even give the Name of *Sacrament* to the Baptiſm or Euchariſt; and does not define which is properly a *Sacrament* of the Law of Grace. What Aſſiſtance then, aſk the Roman Catholicks, can the Proteſtants expect from the Scripture? None at all; while they borrow all theirs from the perpetual Tradition of the Church. For their Sentiment is, that the Church has always believed ſeven *Sacraments*; following in that the Advice of the Apoſtle, 2 *Theſſ.* ii. 15. *Therefore Brethren, ſtand faſt, and hold the Traditions which ye have been taught.*

The Catholicks, to prove their Sentiment by the Tradition, conſult the Fathers of the Church; particularly St. *Auguſtin*, as one of the moſt eminent among them, and even reſpected by the Proteſtants. They ſay, therefore, that St. *Auguſtin* receives Baptiſm and Euchariſt, *lib.* 3. *de Doctrin. Chriſtian.* c. 9. *The Lord himſelf*, ſays he, *and the Diſcipline of the Church, deliver to us Things which are to be kept carefully, and are eaſy to practiſe; ſuch is the* Sacrament *of Baptiſm, and the Celebration of the Body and Blood of the Lord.* He acknowledges the Confirmation, *lib.* 2. *contr. Liter. Petilian.* c. 104. *In that Unguent he will have the Sacrament of the Chriſma underſtood, which among the viſible Signs is as holy as Baptiſm itſelf.* He acknowledges the Penitence, *lib.* 1. *de Adulter. Conjug.* c. 26, & 28. *The Cauſe of Baptiſm, and of the Reconciliation, is the ſame; without which Sacraments, Men believe they are not to depart this World.* He acknowledges Order, *lib.* 2. *contr. Epiſt. Parmen.* c. 13. *They are both Sacraments, and both given to Men, by a certain Conſecration; that when he is baptized, and this when he is ordained; and therefore neither of them is to be reiterated in the Catholick Church.* He acknowledges the Extreme Unction, *Serm.* 215. *de temp. Whenever any Malady happens, he that is ſick muſt receive the Body and Blood of* Jeſus Chriſt; *and be anointed, afterwards, that what is written may be fulfilled in him, if any Body be ſick among you, he muſt ſend for the Prieſts of the Church, that they may pray on him, anointing him with Oil.* He acknowledges Matrimony, *lib.* 2. *de Nupt. & Concupiſcent.* c. 10. *The End of this Sacrament is, that a Man and Woman being joined by Marriage, remain inſeparable while they live.*

Kemnitius objects to the *Roman* Catholicks, that the Scripture does not say that there are seven *Sacraments*; and they answer, that it does not say neither that there are two or three.

He objects, 2. That the Scripture denies that there are seven Sacraments, for *Apocalyp.* 17. *v.* 7. the Angel calls *Sacrament* the Beast which has seven Heads; therefore the Septennary Number of *Sacraments* belongs to the Antichrist, signified by that Beast.

The Catholicks answer, that this Objection of *Kemnitius* is an atrocious Calumny, because if their seven *Sacraments* be the seven Heads of the Antichrist, the Baptism and Eucharist must be two of them, which *Kemnitius* receives as true *Sacraments*: Besides, by the seven Heads are understood seven Kings, not seven *Sacraments*, as the Text witnesses.

Though the Church of *England* admits but two *Sacraments* of the Law of Grace, with the rest of the Protestants, it notwithstanding retains the Ceremonies of two others, of those admitted by the Catholicks, *viz.* of the *Confirmation* and *Order*; the Bishops in their Visitation laying Hands on Children, and other Persons who are presented to them, and even forbidding the Reiteration of that Ceremony, as it is forbidden in the Catholick Church.

The Antients called *Confirmation Chrisma*, and *Unction*; among them it was conferred immediately after Baptism; and was esteemed in some measure a Part thereof: Whence the Fathers call it the Accomplishment of Baptism.

Among the *Greeks*, and throughout the East, it still accompanies Baptism; in the Catholick Church, it is never conferred but on Children who have the Use of their Reason.

It appears that *Confirmation* has all along been ordinarily conferred by the Bishops: St. *Cyprian*, and most of the Fathers, speak of it in such Terms, as imply it to have been confined to the Bishop alone; and the Abbot *Fleury*, and most of the Moderns, from them, lay it down as a distinguishing Character between the Offices of a Priest or Deacon, and that of a Bishop, that the former might baptize, but the latter alone might *anoint* and confirm; by virtue of their Succession to the Apostles, to whom it originally belonged. But from some Passages in St. *Gregory*, &c. others gather, that the Priests likewise on Occasion, had the Power of *confirming*. It is certain, among the *Greeks*, the Priest who baptizes confirms also: Which Practice *Lucas Holstenius* shews, is of so old a Standing among them, that it is now generally looked on as belonging properly and of Right to the Priest; though some will have it, to have been borrowed by them from the Bishops.

The Council of *Rouen*, held in 1072, decrees, that *Confirmation* be conferred fasting, both on the Side of the Giver and Receiver.

The Church of *England* retains likewise the Ceremonies of *Ordination*, but does not receive Order as a *Sacrament*; but the *Roman* Catholick Church receive it as such, and says that it was instituted by Christ (to whom alone the Institution belongs) as it appears from their Definition thereof, *viz.* that *Order or Ordination is a Sacrament of the new Law instituted by Christ, whereby Grace is conferred to the Clerk, together with the spiritual Power of consecrating the Eucharist, or of exercising some Office, which has any Report to the effecting that Sacrament.*

They call it a Sacrament of the new Law, because it is expressly defined such by the Council of *Trent*, *Sess.* 23. *can.* 3. and because it has all the Conditions required for a *Sacrament* of the New Testament; for it has, 1. A sensible Sign; 2. Christ's Institution; and 3. The Promise of Grace annexed to it.

In the Church of *England* there are but three Orders, viz. *Bishops*, *Priests*, and *Deacons*. But in the *Roman* Catholick Church there are seven; distinguished into minor Orders, and major or sacred Orders.

The *minor Orders* are four, *viz.* those of *Door-Keeper*, *Exorcist*, *Reader*, and *Acolith*; besides the clerical Tonsura, which is a Preparation to those Orders, and which one is obliged to receive before he takes any of them.

The *Tonsure* is the first Ceremony used for devoting a Person to the ecclesiastical State, by presenting him to the Bishop, who gives him the first Degree of the Clericate by cutting off Part of his Hair, with these Prayers, *O Lord, thou art Part of my Inheritance, and of my Chalice, thou art he that shall restore mine Inheritance to me*; signifying thereby his solemn Renunciation to the World, and his taking henceforward *Jesus Christ* for his Inheritance: Then the Bishop puts on him the Surplice, with this Prayer, *May God cloath thee with the new Man, who is created in the Holiness and Justice of the Truth*; this white Garment signifying what must be the Purity of the Heart and Body of him that receives the *Tonsure*.

Some hold the *Tonsure* a particular Order; others, as *Loyseau*, only the Mark and Form of ecclesiastical Orders in general.

The Tonsure suffices to make a Clerk: The rest is only to qualify him for the holding Benefices. A Person is capable of the Tonsure at seven Years of Age; hence a Benefice of simple Tonsure, is such a one as may be enjoyed by a Child of seven Years old.

The Order of *Door-Keeper*, which is the first of the *minor Orders*, is defined by some Catholick Authors, *a minor Order, which, by the Bishop giving the Keys of the Church, to him whom he ordains, he gives him at the same Time the Power of opening and shutting the Church, and of discharging some other Functions in it*: Which Functions are detailed in these Words of the *Roman* Pontifical, addressed by the Bishops to those who he is to ordain *Door-Keepers*; and which are as follow: *You dearly beloved Children, who are to receive the Office of Door-Keeper, hear what are your Duties. A Door-Keeper must ring the Bell; open the Church and the Sanctuary, and the Book to him who is to preach. Be very careful therefore, lest by your Negligence the Things belonging to the Church should be lost or perish; and to open the Doors at the appointed Times to the Faithful, and shut them always against the Infidels: Take Care likewise, that, as with material Keys, you open and shut the visible Church, you may shut to the Devil, and open to God, by your Words and Examples, his invisible Church*, i. e. *the Hearts of the Faithful*, &c.

The Order of *Exorcist*, which is the second of the Minors, is defined *an Order of divine Institution, whereby delivering the Book of Exorcism to the Person ordained, and by certain Words pronounced by him that ordains, a certain Power is conferred on the Clerk.*—The Words pronounced by him that ordains are these: *Receive, and remember it, and have the Power to impose the Hands on the Energumeni, whether they be baptized, or only Catechumens.* The other Offices of the *Exorcist*, as collected from the *Roman* Pontifical, are to make Room for those who are to receive the Sacrament of the Eucharist, that they may come without Obstruction to the Communion Table. 2. To prepare the holy Water, and carry the Vessel which contains it before the Priest, when he sprinkles the People; 3. To assist the Priest in Exorcisms, and hold the Book open before him, &c.

The *Order of the Reader*, is defined a *minor Order*, whereby the Bishop delivering the Book of the Prophecies and Lessons, with some Prayers, the Person ordained receives the Grace and Power of discharging certain Functions in the Church; which Functions are, 1. To read the Word of God, which is the most essential. 2. To sing the Anthems. 3. To read the Acts of the Martyrs, the Homilies of the Fathers, the circular Letters sent to the Churches, the Symbol of the Apostles, and the Lord's Prayer. 4. To teach the People the first Elements of Christianity. 5. To bless the new Fruits.

The *Order of the Acolith*, is defined a *minor Order*, whereby the Bishop delivering a Candlestick with a Taper lighted, &c. with Prayers, the Ordained receive the Power to exercise some certain Functions in the Church; which Functions are, 1. To light the Tapers at the Time of the divine Office. 2. To prepare Fire and Frankincense, at the Times appointed. 3. To carry the Candlestick, when the Gospel is read, at the Communion of the Sick, and in all other Occasions. 4. To prepare the Wine and Water for Mass. 5. To serve in the solemn Masses with the Surplice. 6. To assist the Priest in the Administration of all the Sacraments.

Those in minor Orders may marry without any Dispensation: In effect, the minor Orders are looked on as little other than Formalities, and as Degrees necessary to arrive at the higher Orders. Yet the Council of *Trent* is very serious about them; enjoins that none be admitted into them,

them, without understanding *Latin*, and recommends it to the Bishops, to observe the Intervals of conferring them, that the Persons may have sufficient Time to exercise the Functions of each Order; but it leaves the Bishops a Power of dispensing with those Rules; so that the four Orders are usually conferred the same Day, and only make the first Part of the Ceremony of Ordination.

The *Greeks* disavow those petty *Orders*, and pass immediately to the Subdiaconate; the Church of *England* to the Diaconate.

Their first Rise *Fleury* dates in the Time of the Emperor *Justinian*, there is no Call nor Benefice required for the four minor *Orders*; and a Bastard may even enjoy them without any Dispensation; nor does Bigamy disqualify.

Sacred or *major Orders*, we have already observed, are three, *viz.* those of *Sub-deacon*, *Deacon*, and *Priest*.

The *Order of Sub-deacon*, is defined by the Catholicks a *sacred Order*, which by the Bishops delivering the Chalice empty, with the Book of the Epistles, and some Prayers, gives the Ordained Power to exercise some certain Functions of the Church; which Functions are, 1. To give the Water to the Priest, at a high Mass; 2. To serve the Deacon; 3. Wash the Pallæ and Corporalia; to give the Chalice at Mass. 4. Receive the Oblations of the Faithful; 5. Sing the Epistle at Mass; and, 6. To carry the Cross in Procession.

It is disputed in the *Roman* Catholick Church, whether the *Subdiaconat* be a Sacrament or not, in regard Subdeacons are ordained without Imposition of Hands, and that there is no Mention made of them in the Scripture, yet *Bellarmin* holds the affirmative Side of the Question.

According to the Canons, a Person must be twenty-two Years of Age, to be promoted to the Order of Subdeacon.

By the Papal Canons, a married Man may be ordained Sub-deacon; upon Condition his Wife consents to it, makes a Vow of Continence, and shuts herself up in a Monastery.

The *Order of Deacon*, is defined a *sacred Order*, where by the Imposition of the Hands of the Bishop, and the Delivery of the Book of the Gospel, with certain Prayers said by the Bishop, the Ordained receives the Power to exercise some certain Functions in the Church: Which Functions are, 1. To serve to the Altar, where he calls the People to Mass, sings the Gospel, distributes the Eucharist, and dismiss the People, at the End of the Mass, *&c.* 2. To preach. 3. Baptize.

Deacons were instituted, seven in Number, by the Apostles, *Acts* vi. which Number was retained a long Time in several Churches. Their Office was to serve in the Agapæ, and to distribute the Eucharist to the Communicants, and dispense the Alms.

By the antient Canons Marriage was not incompatible with the State and Ministry of a Deacon. But it is now a long Time that the Church has prohibited their marrying; and the Pope only grants them Dispensations for very important Causes; and after Dispensation they lose the Rank and Functions of their Order, and return to a lay State.

The *Deacons* were formerly prohibited sitting with the Priests: The Canons forbid *Deacons* to consecrate; that being a sacerdotal Office. They also prohibit a *Deacon* being ordained, unless he have a Title or Call, and be at least twenty-five Years of Age. The Emperor *Justinian*, in *Novel* 123. assigns the same Age of twenty-five Years for a *Deacon*; but this was the Custom when Priests were not ordained at less than thirty Years of Age. At present twenty-three Years of Age suffices for a *Deacon*.

At *Rome*, under Pope *Silvester*, they had only one Deacon; then seven were appointed; then fourteen, and at last eighteen, who were called *Cardinal Deacons*, to distinguish them from those of other Churches.

Their Office was to take Care of the Temporalities of the Church, look to the Rents and Charities, provide for the Necessities of the Ecclesiasticks, and even of the Pope. The collecting of the Rents, Alms, *&c.* belonging to the Sub-deacons; the Deacons were the Depositaries and the Distributers. Having thus the Management of the Revenues of the Church in their Hands; their Authority grew apace, as the Riches of the Church increased. Those of *Rome*, as being Ministers of the first Church, preceded all others, and even at length took Place of the Priests themselves. Doubtless it was the Avarice of the Priests that made them give Place to the *Deacons*, who had the Disposal of the Money. St. *Jerom* exclaims against that Attempt, and proves that a *Deacon* is inferior to a Priest.

The Council in *Trullo*, which is the 3d of *Constantinople*, *Aristenus* in his Synopsis of the Canons of that Council, *Zonaras* on the same Council, *Simeon Logotheta*, and *Œcumenius*, distinguish *Deacons* destined for Service at the Altar, from those who had the Care of the Distribution of the Alms of the Faithful. Thus the Custom of constituting *Deacons*, without any other Office but to attend the Priest at the Altar, being once introduced, those simple *Deacons* durst no longer pretend to a Superiority over the Priests.

The *Order of Priests* is defined a *sacred Order* instituted by Christ, where by the Delivery of the Chalice with the Wine, and the Paten with the Bread, and the Imposition of the Hands of the Bishop with certain Words pronounced by him; the Person ordained receives the Power to consecrate and absolve.

The Ordination of Priests by the Imposition of the Hands of Bishops, is proved, 1. By the Scripture, 1 *Tim.* iv. and v.—And 2 *Tim.* ii. where that Imposition of Hands is mentioned; *I admonish thee to be strong in the Grace of God, which is in thee by the Imposition of our Hands.*

By the Councils, particularly that of *Carthage*, *can.* 4. where the Priest is said to be ordained by the Imposition of the Hands of the Bishops.

By the Fathers, particularly St. *Leo*, Epist. 87. to the Bishops of *Africa*, where he explains the Passage above quoted.

The Bishop is the proper and only Minister of the *sacred Orders*, particularly of the Diaconate of Priesthood; as being the legitimate Successor of the Apostles, who received their Mission immediately from Christ, when he sent them to preach and baptize; and the Power of binding and unbinding, when breathing on them, he told them, *receive ye the Holy Ghost*, &c.

Ever since the Divorce between the *Roman* and *English* Church, there has been a great Controversy between them, concerning the Validity of the latter; the former denying it absolutely, under Pretence that there have been several Interruptions in the Succession of the Bishops of the *English* Church; and the *English* Church pretending, on the contrary, there was none; for both Churches agree, that an interrupted Succession from the Apostles is necessary for the Validity of their Ministry. Father *Corroyer*, a regular Canon of St. *Augustin*, of the Abbey of St. *Genevieve* at *Paris*, pretends to have cleared that Point in a Book he has wrote to assert the Validity of the Ordination of the *English* Church; but the *Roman* rejects that Book as spurious; it was censured by the Sorbon, and suppressed by an Arret of the King's Council given in 1726, and the Author obliged to quit the Kingdom, *incog.* His Book was answered by a Jesuit, who pushes him with Vigour; and pretends to invalidate all his best Proofs; which of them is in the Right, is what I will not have the Temerity to determine; all I can say is, that the Civil Troubles, Revolutions, and different Changes happened in *England*, since the Reformation, might have affected the ecclesiastical Hierarchy; and render the Memoirs on which Father *Corroyer* has wrote a little suspicious: Though, in my Opinion, the different Manner of thinking of the two Churches on that Subject, should decide the Question and terminate the Dispute; for whereas the Church of *England* considers Ordination as a simple Ceremony only; which does not imprint the least Character on the Person ordained, who, when he pleases, can quit the ecclesiastical State, and follow any laick Employment, either in the Army, Commerce, *&c.* they have no need for it of an interrupted Succession from the Apostles, but may lawfully celebrate that Ceremony, without any body having the least Right to find Fault with it, or contradict it. The same could not be said of the *Roman* Church, who believe Order a Sacrament (instituted by Christ, and conferred on his Apostles when he sent them to preach the Gospel; and breathing on them, he gave them the

Holy

Holy Ghost, and at the same Time the Power of binding and unbinding, &c.) which *Sacrament*, she thinks, confers Grace, and imprints on the Person ordained a sacred Character, which is indelible both in this World, and in the other; which Character cannot be given but by the immediate Successors of the Apostles who were made the Depositaries thereof.

The Extreme Unction, which is not so much as taken the least Notice of among the Protestants, is also a *Sacrament* in the *Roman* Church; and administered to People dangerously sick, by anointing them with Oil, and performing several Prayers over them.

It is called Extreme Unction as being only given to Persons in Extremity. In the 13th Century it was called *The Unction of the Sick*, and not Extreme Unction: For in the earlier Ages it was given before the Viaticum; which Practice, according to Father *Mabillon*, was not changed till the 13th Century.

The Reasons he assigns for the Change are, that in that Age there arose several mistaken Opinions, several of which we find mentioned and condemned in the *English* Councils. Among the rest it was held, that such as had receiv'd this *Sacrament*, in Case they recover'd, might not make Use of their Wives, nor eat Meat, nor go bare-footed: Whence they chose to forbear using it till the last Extremity; which Practice prevailed. See the Councils of *Worcester* and *Exeter*, in the Year 1287, that of *Winchester* in 1308; and Father *Mabillon*, *Act. Sanct. Bened. Sæcul.* iii. *p.* 1.

The Form of Extreme Unction is now deprecative, as the Divines call it; formerly it was absolute and indicative.

This *Sacrament* is not only in Use in the *Latin*, but also in the *Greek* Church, and throughout the East, tho' under another Name, and with some Difference in the Circumstances; in that the Orientals do not wait till their Sick are come to Extremity, in order to anoint them; but the Sick generally go to Church themselves; and it is administer'd to them as often as they are indisposed: The *Greeks* taking that Direction of St. *James* v. 14. which is the Foundation of the Practice in a general Sense: *Is any sick among you? let him call for the Priests of the Church, and let them pray over him, anointing him with Oil.*

Father *Dandini* distinguishes two Kinds of Unction among the *Maronites:* The one called *Unction with the Oil of the Lamp*; but this, he suggests, is not the *sacramental Unction*, ordinarily administer'd to such as are in extreme Sickness; for that the Oil is only consecrated by a Priest, and that it is given to all who are present, not to the Sick only, but also to the Healthy: Even the Priest who officiates partakes of it. The other Kind of Unction, according to that Father, is only for the Sick; it is performed with Oil consecrated by the Bishop alone, on *Holy Thursday*. And this it seems is their sacramental Unction.

But this Unction with Lamp-Oil is in Use, not only among the *Maronites*, but throughout all the Eastern Church, who use it very religiously. The Truth is, they do not seem to have any other *Sacrament* of Extreme Unction besides this. Yet Father *Goar* observes, tho' it be only a Ceremony with Regard to those in Health, it is a real *Sacrament* to those that are sick.

In their great Churches they have a Lamp, wherein this Oil for the Sick is preserved: This Lamp they call *The Lamp of Oil join'd with Prayer:* For what the *Latins* call *Extreme Unction*, the *Greeks* call *Oil with Prayer*, or *Holy Oil*.

I cannot conceive what Reason can be alledged for reforming this praying over the Sick, and anointing him with Oil; after St. *James* has recommended it in so formal and clear Terms in his Epistle, that it is impossible to give them another Sense; for if there was a Superstition in it, that Superstition was as antient as the Church, and has been not only encouraged, but even recommended by a holy Apostle, who had been instructed in the School of Christ, and gave up gloriously his Life at last for the Defence of the Gospel.

The Sentiment of the Roman Catholick Church, with Regard to Penance, which is also one of her *Sacraments*, and rejected as such by the *Calvinists*, and others, is, that there is no other *Sacrament* of the New Testament, that has more convincing Proofs in the Scripture of its having been instituted by *Jesus Christ*. As is evident from *Matt.* xvi. 19. *And I will give unto thee the Keys of the Kingdom of Heaven: And whatsoever thou shalt bind on Earth, shall be bound in Heaven; and whatsoever thou shalt loose on Earth, shall be loosed in Heaven.* And from St. *John* xx. 23. *Whosesoever Sins ye remit, they are remitted unto them; and whosesoever Sins ye retain, they are retained.*

The same Roman Catholicks define Penance a *Sacrament*, wherein a Person who has the requisite Dispositions, receives Absolution at the Hands of the Priest, of all Sins committed since Baptism.

To a legitimate Penance they require three Things, *Contrition*, *Absolution*, and *Satisfaction*.

Contrition is a real Sorrow, resulting from the Thoughts of having offended God; from the sole Consideration of his Goodness; without any Regard to the Punishment the Sin deserves.

Some Doctors of the *Roman* Church avow, notwithstanding the Practice of their Church, that Contrition is valid, and carries with it every Thing necessary to obtain Pardon, without the Ceremony of the *Sacrament* of Confession and Absolution.

And in this they make the Difference between Attrition and Contrition to consist. This Doctrine was maintained by F. *Segeunot*, upon St. *Augustin*; but was censured by the Faculty of *Paris*.

Absolution is a juridical Act, whereby the Priest, in Virtue of the Power given him by *Jesus Christ*, remits the Sins of such as, upon Confession, appears to have the Conditions requisite thereto.

The Formula of the Absolution in the *Roman* Church is absolute, in the *Greek* Church deprecatory; and among the *Calvinists* declarative. *Arcuvius*, indeed, contends that the *Greek* Formula is absolute; and that it consists in these Words, *Mea Mediocritas habet te omni Tempore*. When I say, that the Formula of Absolution, in the *Roman* Church, is absolute, I would not be understood, that the Priest absolves of his own Authority, as most Protestants falsly imagine, for the Formula begins thus: *May our Lord Jesus Christ, who is the high Pontiff and Priest, absolve thee*, which is deprecatory; then he proceeds, *and I, by his Authority which I exercise, absolve thee*, &c. Which Formula seems very agreeable to the Passages of the Scripture, quoted at the Beginning of this Article; for Christ does not say to *Peter*, in St. *Matthew*, *Thou shalt declare that they are bound or loosed*, &c. but, *whosoever thou shalt bind shalt be bound*, which implies an absolute Authority given him, as well as to all the Apostles in St. *John:* Which is surprizing to me, that we should search Matters of Controversies, in Passages which are as clear as one and one are two; which cannot proceed but from Motives of Animosity and Jealousy. The Church of *England* is so well convinced of this Truth, that she has the same Formula of Absolution, Word for Word, in the Visitation of the Sick; where she exhorts them to Confession.

Satisfaction, which in the *Roman* Church is the third Part of the *Sacrament of Penance*, is defined, *a voluntary Submission to the Penance enjoined by the Priest, as a Compensation for the Injury done to God by Sin, and to redeem the Pain incurred thereby.* Whence it is easily inferred, that the satisfactory Deeds, according to the *Roman* Church, must be penal and onerous; as is even insinuated by the Scripture, where Fasting, Humiliation, Affliction, Tears, Ashes, the Cilicium, and the like, are prescribed, *Joel* ii. *Jonas* iii. *Matt.* xi. where a Fast of Expiation was appointed for the *Jews*, *Num.* 29. which, if true, those will be unfortunately mistaken, who content themselves with asking Forgiveness for their Sins, thinking that it is a Popish Superstition to make the least Atonement for it; depending entirely on *Jesus Christ*'s Satisfaction on the Cross; as if he had suffer'd only to indulge us in our Lukewarmness and Indolence; or that we may offend him with greater Impunity. And having satisfied for all our Sins, we may commit the most atrocious, which will be forgiven whenever we will take the Time to ask for Forgiveness; whence it would appear, that Christ was come on Earth, rather to encourage Vice, than to refrain it; which it would be a very great Impiety to believe.

But let those criminally indolent Sinners think what they

they will, it is certain, that Penance has always been commanded by the Church; but the Manner of doing it, either publick or private, has varied according to the different State of the Church, and the Want of the Faithful. The Son of God, in the Gospel, does not impose Penance on the Sinners who came to him, because he gave them a perfect Contrition of their Sins, and at the same Time the Absolution by the Strength of his Grace, and by the Plenitude of his Authority. St. *Paul*, 1 *Cor.* vi. excommunicates the incestuous *Corinthian*, and delivers him to Satan, and receives him some Time afterwards to his Communion, having left him, says St. *Chrysostom*, uncertain, if his Penitence was to last till Death. But he is engaged to forgive him by the Penitent repenting sincerely of his Sins; by a just Fear that the Continuation of the Pain should prove hurtful to him, by the unanimous Desire of the Church of *Corinth*, and by the Change which that Rigour had caused in the Manners of the Members of that Church. It is certain, that in the first Centuries, the Discipline of the Penance was not so regular as it has been since; and that the Imposition of the Pain depended absolutely on the Bishops; and did not last so long. St. *Cyprian* witnesses, that his Predecessors did not receive to Penance those who were guilty of Adultery, Murder, and Idolatry. The Council of *Elvire*, made Canons on Purpose, which even extend to false Witnesses. Notwithstanding which, under that holy Bishop, the Custom was introduced in *Africa*, to remit Penances at the Sollicitation of the Martyrs; as we learn from his Epistles; where he complains of the Insolence of those who being fallen in the Idolatry, wanted to be received into the Communion without Penance, on Notes they had extorted from those who were a going to suffer Martyrdom.

Ever since the Heresy of the *Novatians* and *Montanists*, the Church began to be more severe in the Imposition of the canonical Penance, for the Sinners whom those Hereticks said were not to be admitted to it; whether for the Time which sometimes reached to the latter End of the Life, or for the penal Mortifications which were very hard. At last the Discipline being formed, the Degrees of Penance were divided into four. In the first, which was called of the *Cryings*, the Penitents remained out of the Church, sometimes in the open Air, and sometimes under a Porch; and when the Faithful enter'd the Church, they used to throw themselves at their Feet, and intreat them to intercede for them. And *Tertullian* called that to move *Jesus Christ* himself, they were cloathed in Sack-cloth, or black Gowns. They laid on the Ground, fasted with Bread and Water, spent the Nights in Prayers, did not frequent the Baths, nor use Marriage. The second Degree was called of the *Hearers*, because those who were arrived at it, were admitted to hear the Preaching in the Church, and went out afterwards with the Catechumens. The third Degree was of the *Prostrated*, who did not partake of the Prayers of the Faithful, and threw themselves at the Feet of the Bishops before they went out of the Church, to receive the Imposition of Hands, which was deprecatory, and was done with particular Prayers, according to the Council of *Laodicea*, *c.* 19. they received one in Beginning their Penance, and the last was given at the End, when they were reconciled by the Absolution, and admitted to the Participation of the Eucharist. The fourth Degree was of those called *Consistants*, because they remained in the Church during the Celebration of divine Service, and the Administration of the Eucharist, though they were not allowed to partake of it. The Names of the Degrees above-mentioned, are not found in the *Latin* Authors of the first Centuries of the Church, who have not reckoned that of the *Plorantes* and *Auditores*, among the Stations of the Penance, but only the Prostration and Consistence: And by the first Term, they, and the *Greeks* in the fourth Century, understand the publick Penance, and range under it all the rigorous Satisfactions it contained, and which increased or diminished afterwards. All Sorts of Sins were not equally subject to it; and the Antients distinguished them under three Classes The first contained Idolatry, Adultery, Murder, and the other Species. They called them capital and canonical, because they were to be expiated, whether publick or secret, by the Pains order'd by the Canons, which were alike throughout all the Church. For those, as already observed, during two Centuries, in most Churches Penance was not even granted; not that they were thought irremissible, or that the Power of the Keys given to the Priests did not extend so far, since they were then of Opinion, that it has no Limits, and that all Sorts of Sins are subject to it; but only to inspire the Faithful with a greater Horror for them, to whom by the last Council of *Jerusalem* they are particularly forbidden. The second Class contained the Sins which we call mortal. We understand by this Word, all those which deprive us of the Grace of God. But the holy Fathers extended it to Sins specified in the Canons. In the first Centuries they were not chastised by a publick Penance, at least as to oblige Persons guilty of them to pass through the Degrees above-mentioned, though they were reprimanded publickly, and deprived of the Eucharist, which was practised, as to this last Pain for occult Sins, which were not expressed in the penitential Canons. The third Class contained the venial Sins, which were not subject to the Keys, by the Ordinances of the Church, but the Faithful were exhorted to purify themselves of them by Prayers and Alms. In the third and fourth Centuries the Church becoming more severe, began to submit the heinous and scandalous Sins of the second Class to a publick Penance, to oppose the Torrent of Corruption of the Manners of the Christians. For that Reason, the Bishops composed penitential Books, to inform the Priests what Penance they were to impose for every Sin, and that those Penances should be uniform. By Degrees, towards the latter End of the fifth Century, a Sort of Penance was introduced between the publick, and the secret, for occult Sins, which was accomplished in Monasteries, or in other Places appointed by the Priests, in the Presence of some pious Persons, according to the Direction of the Bishop. The Difference between them and publick Sinners, was, that the Bishops gave these a publick Absolution, in Presence of the Clergy, and the People, without the Rails which separated the Altar from the Nave of the Church; whereas to those it was given in Secret, as the Confession having been secret, and the Penance secret. The former could not be reconciled but by the Bishop, and the Priests could reconcile the latter. Those were obliged by the Censures to a publick Satisfaction; and these were at Liberty to submit to it, or not; the Priest contenting himself with refusing them the Absolution, if they were not willing to obey him on that Subject.

At last towards the seventh Century, the publick Penance for occult Sins was entirely laid aside. *Theodorus*, Archbishop of *Canterbury*, was the first Author in the Western Church of the secret Penance for secret Sins. It was, likewise, about that Time that the Church began to grant it in private to those who had fallen again into the same Faults, after they had made a publick one. For till then, as it appears from all antient Authors, a canonical Penitence only was granted, which *Tertullian* calls for that Reason, the last Hope of the Christian. Not that the holy Fathers would make those who return to their Vomiting (to use the Expressions of the Scripture) and committed the same Sins over again, abandon themselves to Despair; but they judged that they were not to be administered for the second Time, the ecclesiastical Remedy, which they had so little minded, lest Christians should be encouraged to Sin, in Hope of receiving always the Absolution; which is, according to the Bishops of the third Council of *Toledo*, doing Penance in a very ugly Manner. They order'd them to do a Penance in Secret, as much or more rigorous as the former had been needless to them, and to continue that Penance all their Life; and persevering in it to hope that God would forgive them their Sin, and have Mercy on them. It is what we learn clearly from St. *Augustin*, in an Epistle he wrote to the Judge *Macedonius*, and which cannot be controverted, without giving the Lie to all the Fathers and Councils. That outward Severity was mitigated by Degrees; and towards the End of the eighth Century, a Redemption, or rather Commuration of the Pains imposed was introduced. He, for Instance, who by the Canons was to fast so many Days, redeemed that Abstinence, either by Alms, or vocal Prayers, or otherwise. At first, that Redemption was very rigorous, and of

of some Days only; and then it was neither the first nor the second Year, or that happened very seldom. But at last, that Distinction of Time was no longer observed; and it was free for the Penitents, either to do the canonical Penance, or to redeem it entirely, according to the Rules prescribed by the Bishops in the penitential Books; as we see in *Barcard*, *Ives* of *Chartres*, *Beda*, and in the Collection of Canons made by the Abbot *Reginon*. Some attribute that Redemption for *England*, to *Theodorus* Archbishop of *Canterbury*, who had suppressed the publick Penance for secret Sins, as already observ'd, and which in my Opinion was extremely well done, for the Reasons I'll give afterwards. But others deny it, and are founded on the Improbation of the Bishops of that Kingdom in a Synod held 50 Years after his Death; which shews, says M. *Godeau* Bishop of *Vence*, rather a Corruption of Discipline than Establishment, at least in the Manner the Thing was practised. In those later Times were employed likewise the Pilgrimages to the holy Lands, to *Rome*, to St. *James* of *Galicia*, to St. *Martin* of *Tours*, in lieu of a publick Penance for enormous Crimes, tho' they were secret. It is what made the *English* and *French* undertake those famous Wars to wrest the Sepulchre of Christ from the Hands of the Infidels; which Wars had as unfortunate Success, as the Subject thereof was just and holy. Pope *Urban* II. in the Council of *Clermont*, wanting to engage to it the Princes and Bishops there present, made use of that Reason to invite them to it, and granted them the Relaxation of all the *Penances* they were subject to, by the Canons. There was even a Canon made of it, which says expresly, that that Voyage would serve instead of *Penance* for those who would undertake it by a Motive of Devotion, and not by a Desire of Glory, or of Profit. In the Council of *Rheims*, celebrated several Years afterwards, under *Eugenius* III. the same Commutation was made in favour of Incendiaries, who would go to fight the *Moors* in *Spain*, for a whole Year. *Calistus* the Second, in the Council of *Lateran* held in 1122, confirmed the same Thing. His Successors followed likewise that Order in the Publication of the Croisades; and we have Proofs thereof in St. *Bernard*, who preached one under *Innocent* the Second, the Success thereof was not very fortunate. *Louis* the Younger, King of *France*, engaged into it, by his Advice, to expiate the Sins committed in the unjust War he had undertook, against *Thibau* Earl of *Champagne*. *Paul Emyle* writes, that *Godfrey de Bouillon* undertook for Penance the Voyage of *Jerusalem*, which succeeded him so gloriously, that in endeavouring to acquire the Kingdom of Heaven, he conquered one upon Earth; and that the Memory of his Fault being vanished, nothing remained but the immortal one of his heroical Virtues. *Foulques*, Earl of *Anjou*, who had usurped the Estates of St. *Martin* of *Tours*, punished himself in the same Manner, by going to War against the *Saracens*. In that the Church changed her former Discipline, whereby the Exercise of Arms was forbidden to Penitents, as it appears from several Canons. The pious Cause against the Infidels or Hereticks, had temperated that Rigour. She became still much more remiss, after the Journeys above-mentioned were ceased; when in the twelfth Century the Custom was introduced of redeeming the Time of canonical Penance, either in Part, or entirely, with a pecuniary Alm applied to the building of a Church, and sometimes to Works for publick Use. This Practice was called at first by the Bishops and Doctors, a Relaxation of Discipline; but People accustomed themselves to it by Degrees, and it was called INDULGENCE; which is the Epocha of the Extinction of the antient Penance, whereof we have but a Shadow left; and which in all Probability was invented either to cloak the Avarice of the Clergy, or to indulge Sinners in their Guilt, or both; not that I would pretend to condemn Indulgencies, or like *Corah*, *Dathan* and *Abiram*, put a sacrilegious Hand to the Censer, which would smell too much of a Reformer, but I cannot approve the bad Use thereof, which has rendered them quite despicable, and has served for Pretence to the Enemies of the *Roman* Church, to reject them entirely as superstitious; though, in my Opinion, it had better answered their Purpose to have retained them; since it had supplied the Want of their Satisfaction for Sins, which they have rejected likewise; though thought by the primitive Church indispensably necessary, as it appears from what I have said of the antient Discipline; for if those primitive Christians, who had been instructed in the Christian Religion by the Apostles themselves, thought that our Sins could not be remitted, without making an Attonement for them proportioned to the Heinousness of the Crime; how can those who are of a different Opinion pretend to follow the Discipline of the primitive Church, unless they pretend likewise that another Christ is dead, and another Gospel preached for them?

There remain nothing more to end this Matter of the antient *Penance*, than to say a Word of the Persons who were subject to it. After the third Century the major Clerks were not subject to a publick one; and when they had committed some enormous Crimes for which the Laicks were subject to it, either publick or occult, they were deposed of their Degree, and often confined in Monasteries, to accomplish in secret the Satisfaction which others did in the Face of the whole Church. Sometimes the Church was contented with the single Deposition, when the Sins were common. But in the three first Centuries, the Bishops, Priests and Deacons, were subject to the common Penance, and to the Imposition of Hands, when they had committed Crimes which had deserved a greater Punishment than the Deposition, or were fallen again in those, for which they had been deposed, and then there was no Difference between them and the secular. The Canons of the Apostles make no Distinction between them; when they speak of the ecclesiastical Punishments, which Penitents must undergo. St. *Cyprian*, *Epist.* 67, 68. writes, that the Bishop *Basilides* who was fallen into Idolatry, quitted the Episcopacy, and considered as a signal Favour that he was allowed the Communion of the Laicks. It was at that Time the Church made the Decree, of not receiving the Ministers guilty of Apostasy to the Exercise of their Order, and of condemning them to do *Penance*. It is said in the first Council of *Orange*, and in the second of *Arles*, that *Penance* should not be refused to the Clerks who ask for it; which without doubt must be understood of the publick *Penance*, since the Secret was done without being asked for. The Fathers, in the fifth Council, speak sometimes as if this had never been observed in the Church, and the Exemption of the publick *Penance* in the Manner of the Laicks, came from apostolical Tradition; but they speak according to the Practice of their Time. They understand that the Clerks, who were only suspended of their Offices, were not to be condemned to the publick and humiliant Penalties of the *Penance*, and not of those who being reduced for their Crimes to the Rank of the Laicks, were treated like them in the Satisfactions for their Crimes. In that Century the inferior Clerks began to be exempted from the Imposition of the Hands, and other Humiliations of Penance, as were those in sacred Orders, and confined in Monasteries to make Satisfaction to God. This we learn from the third Council of *Orleans*, from that of *Narbonne*, and from the fourth, sixth, and seventh of *Toledo*.

For the Monks and Virgins whom we call Nuns at present, there was no Difference, either in the three first Centuries, or in the following, between them and the other Faithful, as it appears by the antient Canons, which distinguishing the Clerks, join the Monks and Laicks together in their Satisfactions. St. *Leo* in his Epistle to *Rusticus* Bishop of *Narbonne*, at the Time when the major Clerks did no longer the publick *Penance*, subjects the Monks to it, who had violated their Vows. *Gelasius* the First treats in the same Manner the Virgins who have embraced the matrimonial State. St. *Basil*, before them, had ordered to the one the *Penance* imposed on adulterous Women, and to the other the *Penance* enjoined to Fornicators. That must be understood of the Time when neither the Monks nor Nuns dwelt together, as they do at present in Monasteries, but in private Houses, or in those of their Parents. When they came to lodge in a common Habitation, the Church allowed them to do *Penance* in their Monasteries, where they were reconciled with the same Ceremonies used for the Laicks. We must not be surprized at that Conduct, since they were no otherwise con-

considered then but as the purest Portion of the Laicks, that they came to the Sinaxis with the others, and had no Part in the Functions of the Clericature. Towards the seventh Century, Things took a new Face, and there was no Difference between the Penance of the Priest and that of the Monk, because the Monks were admitted to the Sacerdoce with a much greater Facility than before.

MATRIMONY, which is the seventh *Sacrament* of the Catholicks, is defined as such by them, *a Sacrament of the new Law, whereby a Man and Woman, who have been baptized, give mutually to one another a Power over their Body.*

They are asked, with regard to the first Part of this Definition, why they believe that Christ has made *Matrimony* a Sacrament?

To which they answer, 1. That it is the Opinion of the antient Fathers, particularly of St. *Ambrose, lib. de Abraham, c.* 7. and of St. *Augustin, lib. de bono conjugii, c.* 7, 8, 15, 17, 18, 24, and 25, and likewise, *lib. de Nuptiis & Concupiscentia, c.* 10, 17, and 21. Which Opinion is confirmed by the Practice of the Church, which is sufficient; and by the Council of *Trent, Sess.* 7. and 24. *can.* 1. it being not necessary that the Institution of the Sacraments of the new Law be expresly marked in the Scripture.

2. That it is reasonable to believe that Christ would make it a *Sacrament*, because as the State of Matrimony is attended with very great Difficulties, *viz.* the Indissolubility of the Knot, the mutual Cohabitation, and mutual Servitude of the Body, and several other such which cannot be remedied by a Libel of Repudiation, as it was done in the old Law; it was necessary to raise that Contract to the Dignity of a *Sacrament*, which should have the Power of producing Grace *ex opere operato*, and of conferring a Right to actual Graces necessary to marry'd People, to conquer easier the Difficulties above-mentioned; and to render that Yoke lighter, which otherwise would sometimes become insupportable; since it is written, that *married People will be sometimes in Tribulation.*

When they are asked farther, why they admit *Baptism* in their Definition, as a Condition of the Validity of Matrimony? And if the Marriage of those who are not baptized, be not a legitimate Contract? They answer, 1. That though the Marriage of those who are not baptized, be not a Sacrament, according to St. *Augustin, lib. de Bon. Conjug. c.* 24. it is notwithstanding a civil Contract, which must be considered as valid, according to the Apostle, 1 *Cor.* vii.—2. That the Marriage of a Person baptized with one that is not baptized, is not properly a *Sacrament*; because the formal Ratio of that *Sacrament* is either in none of the contracting Parties, or in both, since the formal Ratio of the *Sacrament* extends as far as the Ratio of the Contract, Christ having changed nothing in that Contract, but raised it only to the Being of a Sacrament: But the Contract of Marriage, as a Contract that requires two contracting Persons, *viz.* a Man and a Woman; therefore, as a *Sacrament*, it requires two Persons who have been baptized.

If they be asked besides, if the Marriage of two Persons baptized be always a Sacrament? They answer with a Distinction; in the Affirmative, if the Marriage be legally contracted, since the Reason of the Validity of a civil Contract, and that of the *Sacrament* in the Marriage of two Persons baptized, are two Formalities which have between them an inseparable Connexion, and which must last always according to Christ's Institution: And in the Negative, if it be not lawfully contracted.

But as the Catholicks consider likewise *Matrimony*, as a civil Contract; they define it as such, *a legitimate marital Conjunction of a Man and a Woman, consisting in an inseparable Society of Life.*

Note, As this State of Matrimony, which even by those Sects which will not have it a Sacrament, is considered as a holy State; and that very few of those engaged in it knows the Dignity thereof; and it meets with a great many Difficulties, either as to the Lawfulness, Validity, *&c.* of the Contract, or after it is concluded; it is very proper I should here, for the Instruction of my Readers, and the Good of the civil Society, solve some of the most intricate of these Difficulties, and answer some Questions thereupon: Therefore,

It may be asked (to answer those Hereticks who rejected Matrimony as something bad) if Marriage be good in itself; and what can be the End thereof?

To which I answer; that *Matrimony*, whether it be considered as a civil Contract, or as a Sacrament, is good in itself and lawful; either because it was instituted by God himself, *Genes.* i. and ii. as *Jesus Christ* insinuates it, *Matt.* xix. where he confirms the Force and Indissolubility thereof in these Words, *What therefore God has joined together, let not Man put asunder*; or because God besides has approved it, not only before, but likewise after Man's Fall; as we learn from the first and ninth Chapters of *Genesis*, where he blesses that State in *Adam* and *Eve*, and likewise in *Noah* and his Children, when he says, *Increase and multiply*, &c. It was also approved by Christ when he honoured, with his Presence, the Wedding of *Cana* in *Galilee*, where he wrought his first Miracle, by changing Water into Wine, *John* iii. Or because God ordered it for two good and lawful Ends. 1. For the Procreation and Education of Children. 2. That a Man and Wife may mutually help one another. All which we learn from the first and second Chapters of *Genesis*.

As to the End of Matrimony, it was ordained before the Fall of our first Parents for two natural Ends, *viz.* 1. For the Procreation and Education of Children, as already observed. 2. For the mutual Help of the Husband and Wife. After the Fall, a third End was added to the two former, *viz.* as a Remedy against Concupiscence; as it appears from the First of *Corinthians, c.* vii. *v.* 2. *Nevertheless to avoid Fornication, let every Man have his own Wife, and let every Woman have her own Husband:* and lower, *It is better to marry than burn.*

The next Thing we'll ask is, if the mutual Consent of the contracting Parties, be necessary to the Validity of Marriage? To which I answer, that if we consult the Law of God, the mutual Consent of the Man and Woman is so necessary, that without it there is neither a true Marriage, nor a conjugal Knot; since, according to the common Law of God, for all particular Effect is required the Concourse of the nearest Cause, appointed by God for such Effect, which nearest Cause in Matrimony, is the mutual Consent of the Man and Woman, and that ordained by the common Law of God for such an Effect; therefore a mutual Consent is so necessary to a Contract of Marriage, that without it, according to the common Law of God, Matrimony cannot be reckoned valid. Add, that Love and Benevolency could be no otherwise maintained between married People.

It may be asked next, if that Consent must be free; and what we should think of one given through Fear and by Deceit? To which I answer, 1. That for the Validity of Matrimony, the Consent must be free; which I prove by the Scripture, by the Councils, and by Reason.

By the Scripture, which insinuates that the Consent must be free, 1 *Cor. c.* vii. in these Words, *Let him marry whom he will.*

By the Councils, especially that of *Trent, Sess.* 24. *c.* 9. where those who force others to marry are excommunicated.

By Reason; because the Goods which are another's Property, cannot pass into the Power of another without the Consent of the Proprietor, or he be forced to it by some Law; but the Bodies of those who contract Matrimony are their own personal Goods, which they mutually deliver to one another; and therefore cannot be delivered by a Contract of Marriage without their free Consent; and so far from being any Law either ecclesiastical or civil, capable to extort that Consent, that on the contrary they all require it; as we learn from the Chapter *sufficiat*, 27. *Quest.* 2. and Chapter *cum apud de sponsal.* And likewise from *lib. Nupt.*

I answer to the second Part of the Question, That a Consent extorted through a great Fear, is not sufficient for the Validity of Matrimony; but on the contrary, that Fear renders a Marriage void and invalid, not so much by natural, as by the ecclesiastical Right, because it has been thus decreed by the Church.

I have

I have ſaid through a great Fear, to inſinuate thereby that a little Fear does not invalidate Marriage; and that muſt proceed from an external Cauſe; for if it proceeds from an internal one, it does not render the Contract void; for Inſtance, that Marriage is not void which is contracted, after it has been propoſed as a Means to avoid Death, by a Perſon who has deſerved it for ſome capital Crime he has committed; the Reaſon is, becauſe that Fear is not given to procure the Marriage; but the Marriage is ſuppoſed accepted freely, to avoid Death. That Fear beſides muſt be unjuſtly given; for let it be ever ſo great, and proceeding from an external Cauſe, even with no other End than to procure the Marriage, if it be juſtly given, it does not render the Marriage invalid. This may be illuſtrated by an Example. A Father finds a Man debauching his Daughter, and threatens to ſue him according to the greateſt Rigour of the Law if he does not marry his Daughter; in this Caſe the Marriage is valid, if the Man conſents then to marry the Woman he has debauched; and he does it with the other Conditions eſſential to Matrimony; notwithſtanding, what is ſaid in the Chapter *veniens*, becauſe it is queſtion there of an injuſt Coaction, whereby a Father having found a young Man debauching his Daughter wants to kill him if he does not marry her. The Reaſon why the Marriage in the former Example is valid, is, 1. That the Father can lawfully threaten the Fornicator to denounce his Crime to the Judge, and ſue him for it. 2. Becauſe that Fear does not proceed ſo much from an external Cauſe; as from an inward Conſciouſneſs the Fornicator has that his Crime deſerves the Puniſhment he is threatned with, which makes him fear it, according to this of the *Proverbs* xviii. *The Impious ſhall fly, though purſued by no body*, and begins to ſearch the Means how to prevent that Accuſation: Whence if he accepts the Means propoſed by another, he is to be ſuppoſed to accept that Means, not ſo much through the external Fear given him, as through the inward one he has conceived himſelf.

I have ſaid likewiſe, *not ſo much by the natural, as by the eccleſiaſtical Right*; becauſe a great Fear leaves us a free Act; whence it follows, that if we conſult only the natural Right, that Matrimony remains valid, ſince by the natural Right nothing more is required to contract a Marriage lawfully, but the mutual free Conſent of the contracting Parties. Therefore if a Marriage contracted through a great Fear unjuſtly given, be invalid, that proceeds rather from the Diſpoſition of the poſitive eccleſiaſtical, than from the natural Right.

3. To the third Part of the Queſtion I anſwer, that the civil Law, which cannot judge but by outward Appearances, without pretending to penetrate the Heart of Man, does not admit of a fictitious Conſent; though before God ſuch a Conſent is not ſufficient to render the Marriage lawful.

The next Queſtion is, *If a conditional Conſent be ſufficient to the Validity of Marriage, or not, let the Condition be what it will?*

Note, 1. That the Condition can be conſidered either as of the future, or of the preterit, or of the preſent.

Note, 2. That the *Condition de futuro*, on which the greateſt Difficulty lies, can be conſidered in different Manners: 1. As neceſſary, whether neceſſary from the Nature of the Thing, as if one was to ſay, *I marry you, if the Sun ſhines To-morrow*; or neceſſary from a certain Suppoſition, as if one was to ſay, *I contract with you, if the Antichriſt comes.* 2. As impoſſible, whether it be impoſſible from the Nature of the Thing, as if one ſaid, *I marry you, if you can touch the Sky with your Finger*, or impoſſible of Right, ſuppoſed, notwithſtanding, that it has decreed ſomething contrary; as if one was to ſay, *I marry you, if you be related to me in the ſecond Degree*; or impoſſible from the Condition of the contracting Party; as if one was to ſay to a poor Woman, *I marry you if you bring me a thouſand Crowns.* 3. As contrary to the Subſtance, End, or Good of Marriage; as if one was to ſay, *I marry you, if I have Leave to do it, or when I pleaſe, or provided you make yourſelf impotent, or if you will grant me the laſt Favour.* 4. As not contrary to the Subſtance or End, &c. of Marriage, but notwithſtanding as diſhoneſt and ſhameful, as if one was to ſay, *I marry you, if you will turn Thief.* 5. As indifferent. 6. As honeſt.—Theſe pre-obſerved,

I anſwer, *that a Conſent given under Condition, of what may happen, or de futuro, which is neceſſary, is ſufficient to render a Marriage lawful for the preſent, or de preſenti, ſo that it is not at all neceſſary to wait the Accompliſhment of the Condition*; becauſe that Condition is not commonly eſteemed as if it had been added, ſince it muſt neceſſarily happen, as certainly exiſting in its natural Cauſes; a Condition which is to happen infallibly or neceſſarily, being commonly reputed as preſent.

I have ſaid under Condition *de futuro*, becauſe there is no Difficulties of the Condition *de preſenti*, and the *præterito*; ſince that Condition exiſts already, and muſt be conſidered as already accompliſhed.

2. I ſay the ſame Thing of a Conſent given, under a *Condition* de futuro, *which is impoſſible*; becauſe that Condition is not commonly conſidered as interjected.

3. I anſwer, that *a Conſent given under a Condition* de futuro, which is contrary to the Eſſence or End of Marriage, far from being ſufficient to render the Marriage lawful, renders it on the contrary void and unlawful, which I prove by the canonical Laws, where it is ſaid, *that if Conditions againſt the Eſſence, End*, &c. *of Matrimony, be inſerted in the Contract*, viz. *if one of the contracting Parties was to ſay to the other, I contract with you, provided you avoid having Children, or till I find a more deſerving Wife, or if you will proſtitute yourſelf for Gain; ſuch Contract, let it be otherwiſe ever ſo favourable, is of no Effect.*

5. *A Condition given under a ſhameful Condition, provided it be not repugnant to the Subſtance, End*, &c. *of Matrimony, is ſufficient to render it valid and lawful*; becauſe ſuch Conſent ought to be conſider'd as if there was no Condition at all.

5. *A Conſent given under an honeſt and poſſible Condition* de futuro, *is not ſufficient to render the Marriage valid* de preſenti, *but that Condition ſuſpends the Validity thereof, ſo long as it remains unaccompliſhed:* Becauſe it is of the Nature of a Condition, to ſuſpend the Conſent *till it be* accompliſhed, unleſs it be conſider'd by the Law, as if it had not been added; therefore as an honeſt and poſſible Condition *de futuro*, is not conſider'd by the Law as not added, the Marriage remains void ſo long as the Condition remains unaccompliſhed.

5. It may be aſked, next, *If the Conſent given for Marriage muſt neceſſarily be ſenſible and manifeſt; how, and before what Perſons?*

To which I anſwer, 1. *That the Conſent of the contracting Parties, muſt neceſſarily be ſenſible and manifeſt, otherwiſe it is not ſufficient to render the Marriage valid*; becauſe the Eſſence of Marriage conſiſts in that mutual Conſent, therefore both Parties muſt be convinced of it, which cannot be without ſome external Signs.

The Conſent of the contracting Parties, at preſent, muſt be manifeſt and ſenſible, not only to one another, but likewiſe to the proper Miniſter, and to two or three Witneſſes, and that under Pain of Nullity; becauſe it was thus decreed by the Council of *Trent*, *Seſſ.* 24. which is followed in the Church of *England*, on this Article, and ſeveral others relating to the Diſcipline.

I have ſaid, *at preſent*, to give thereby to underſtand, that before the foreſaid Decree of the Council, it was ſufficient at leaſt for the Validity of the Marriage, that the Conſent of the two contracting Parties, ſhould be reciprocally known to one another, without letting it be known, either to the Miniſter, or to Witneſſes; and then clandeſtine Marriages were thought valid.

3. There is requir'd, beſides, at leaſt to render a Marriage lawful, a publick Publication of Bans, at three different Times; and that according to the Council of *Trent*, *Seſſ.* 4. *c.* 1.

From theſe I paſs to ſeveral very eſſential and neceſſary Queſtions, relating to the Impediments of Matrimony; treating firſt of Impediments in general.

It may be aſked, 1. *What is underſtood by Impediment of Matrimony conſider'd in general?*

To

To which I answer, *that thereby is commonly understood something pre-existing, which renders a Marriage either positively or negatively, invalid or unlawful; either by the natural, positive, divine, or human Right.*

I say, 1. That an Impediment *is something pre-existing*; otherwise it could not be conceived, how it could in the Beginning render it invalid or unlawful. The Reason is, because if it be considered only as something adventititious, it could be said, that it either hinders the Use thereof, or only dissolves the conjugal Knot; for an Example of the first Affirmation, we'll bring an Affinity contracted by an unlawful Copulation, after Marriage; and for an Example of the second, a solemn Vow of Chastity, though this is not received in the Church of *England*.

I say, 2. Either *positively* or *negatively*, for it is not necessary to be accounted an *Impediment*, that it should be always something positive, as is the Impediment of Crime, Rape, *&c.* but it suffices, that it be something negative, as is the Impediment of Impotency, *&c.*

It is said, 3. *Which renders from the Beginning, a Marriage invalid or unlawful*; because, either the Impediment is diriment, and thus renders the Marriage invalid, or Impediment only; and thus renders only the Marriage unlawful.

Our next Question on this Subject, will be, *how the Impediment of Matrimony considered in general is divided?* To which I answer, that it is commonly divided into *diriment Impediment, and into Impediment, simply Impediment*; because either the Impediment of Matrimony is such, that it not only hinders it from being contracted, but likewise renders it void after it has been contracted; and thus is a diriment Impediment; or the Impediment is such, that it does not render Matrimony, after it has been contracted invalid, but hinders it only from being contracted lawfully, and thus is only a simple Impediment.

The *Roman* Church reckons fifteen diriment Impediments, contained in the following Verses,

Error, conditio, votum, cognatio, crimen,
Cultus disparitas, vis, ordo, ligamen, honestas,
Amens, affinis, si clandestinus, & impos,
Si mulier sit rapta, loco nec reddita tuto;
Hæc facienda vetant connubia, facta retractant.

Of these Impediments some are such with respect to certain Persons, such are the Impediments of Relation, Affinity, Crime, *&c.* and others are so absolutely with respect to all Sorts of Persons whatever, such are the Impediments of *solemn Vow, Order, Folly, absolute Impotency*, &c.

Now we'll enter into a strict Examen of each Impediment in particular, beginning by the first, viz. *Error*.

Therefore, it may be asked which is the *Error* which renders a Marriage void? Which to answer in a proper Manner, we must consider, 1. That by the Word of *Error* is understood an Act of the Understanding, thinking a Thing true, which is entirely false, or a Thing false, which is entirely true.

2. That there may be three Sorts of *Error*, with Respect to the Object, *viz.* 1. With Respect to the Substance, as when one Person is taken for another, *viz. Leah* for *Rachel*. 2. With Regard to the Condition of the Person, not that which modifies and suspends the Contract, but that which imports either a servile or free Condition, as, when, *v. gr.* one marries a Woman Slave, which he thought free. 3. With Regard to the Quality of the Person, as when, *v. gr.* one marries a Prostitute for an honest Woman, or a Woman of low Extraction for one of Birth. 4. With Respect to the Fortune, as when, *v. gr.* a Man marries a poor Woman, which he thought rich.

3. That the *Error* can be consider'd in two Manners, with Respect to the Act, 1. As Antecedent. 2. As Concomitant. That is Antecedent, which is the Cause of the Action; and that Concomitant which does not induce to Act, but which accompanies the Action in such a Manner, as that the Act does not at all depend on his Existence, as when, *v. gr.* one contracts with *Elizabeth* thinking her to be *Mary*, for he is so habitually disposed in his Will, that though he should know her to be *Elizabeth*, he would as freely marry her, and perhaps sooner. These pre-observed,

I answer, 1. That *an antecedent Error, and even a concomitant one, with Respect to the Person, invalidates or renders void, of natural Right, and much more of human Right, the Marriage contracted with that Circumstance.* Because that Error destroys entirely the Consent requisite for the Validity of Marriage, since a perfect Knowledge of the Person must be the first and substantial Object of a Contract of Marriage. Whence he that contracts with such Error, is not reckoned to consent to be married, but with the Person he has in his Mind; and he does not contract with that, when he contracts with an Error with Regard to the Person, because he contracts with that he has not in his Mind, therefore, *&c.* notwithstanding that with only that concomitant Ignorance he be so affected in his Will, that he would not miss contracting with *Elizabeth*, if he knew her to be *Elizabeth*; because the Consent requir'd in Marriage, must be positive and actual; which consent is not such, when there is in it a concomitant Error, since there is no Position without Knowledge.

I answer, 2. That an Error, with Regard to the Condition of a Person, invalidates a Marriage; which will be proved by the next Article.

I answer, 3. That an Error, with Regard to the Quality and Fortune of the Person, does not of itself invalidate a Marriage; because that Error does not relate to the Person, but only to the Accidents; and nothing hinders such Contracts from being voluntary, with Regard to the Substance.

If I be asked what Condition invalidates a Marriage; before I answer, we must observe, 1. That it is a Question here of the Error with respect to the Condition.

2. That the Condition understood here is not properly that expressed by the Particle *if*, or by the Equivalent *provided, when*, &c. which keeps in Suspense; but that which import a servile Condition.

3. That it is a Question here of that Error which regards the servile Condition of the Person, and which happens when any Body marries a Slave, thinking her to be free; such an Error rendering a Marriage void. These pre-observ'd,

I answer, that an antecedent or concomitant Error, with Regard to the servile Condition of the Person, renders a Marriage void, by the positive and ecclesiastical Right, in that Case where he who contracts with such an Error, is of a free Condition.

Our next Question is, *which Degree of Parentage invalidates a Marriage?*

Previously to my answering this Question, we must observe, 1. That by the Word *Parentage* is understood a certain Relation of the contracting Parties between themselves.

2. That there are three Sorts of Relation, *viz.* a natural one called *Consanguinity*, one spiritual, and the third legal; each hereof must be explained before we proceed further.

A *natural Relation* or *Consanguinity*, is commonly defined an Union between those Persons, one of which proceeds from the other by a carnal Generation, or between those which descend from the same common Stock by a carnal Generation.

It is called, 1. An Union because by Sanguinity several Persons are joined together, as by a Knot, not a physick but a moral one.

It is said, 2. Between Persons, one of which proceeds from the other, by a carnal Generation, either to denote the direct Line of Consanguinity, or to exclude the Formation of *Eve* of one of *Adam*'s Ribs.

3. It is said, or between these Persons, which descend from the same common Stock, by a carnal Generation; to denote the transversal or collateral Line. If I be asked, what I understand here by the Name of *common Stock*; I'll answer, that by *Stock* is understood that Person from which the Descendants draw their Origin and Blood.

It is said from a *near Stock*; because those who descend from a too distant Stock, have no Consanguinity, otherwise there would be a Consanguinity between *Adam*'s or *Noah*'s Descendants; whence it is commonly said, that the most distant Relation is not so much to be accounted a Stock, as a Root, whence the Stock and Branches draw their Origin.

5. It is said by *Generation*, i. e. by a Production of a Living

Living joined with a Living, in Similitude of Nature.

6. It is said by *carnal Generation*, i. e. by a communicative Production of Flesh and Blood.

It may be asked here for a clearer Elucidation of our Definition, which is, and how many there are Lines of Consanguinity; and which is the Degree minded in the Line, either direct or collateral, and how we can distinguish the Degrees of Consanguinity? To answer those Questions.

I answer, 1. That by Line is understood a certain Series and Co-ordination of Consanguinity; and I say, that we may consider two Lines of Consanguinity, a *direct* one, and the other *collateral* or *transversal*.

The *direct* one is that Series of Consanguins, in which the Inferiors descend from the Superiors by a carnal Generation: Such is the Series in which the Son descends from the Father; the Grandson from the Son, *&c.*

The *collateral* or *transversal Line*, is that ordinate Series of Consanguins, who descend from the same common and near Stock, but not from one another: Such is the Series with Brothers, with Sisters, with Uncles with Nephews, *&c.*

I answer, 2. That by a Degree in a Line, is understood the Distance of one Person from another in that same Line.

I answer, 3. That Consanguins are so many Degrees distant from one another in a direct Line, as there are Persons reckoned in a Series, one of them being taken out. Thus Father and Son are in the first Degree; the Grandfather and Grandson in the second Degree. But the Consanguins in an equal transversal Line, are distant from one another of so many Degrees, as they are distant from the common Stock; thus two Brothers are only distant from one another of one Degree, and two Nephews of two Degrees; but if the transversal Line be unequal, the Consanguins who are distant unequally from the common Stock, are distant between them by as many Degrees, as the most distant of them, is distant from the common Stock; so that if one of them be distant of one Degree only, and the other of five Degrees, they are reckoned to be distant between them of five Degrees.

Consanguinity terminates in the sixth or seventh Degree, excepting in the Succession to the Crown; in which Case *Consanguinity* is continued to Infinity.

The Civilians call *fratres Consanguinei*, those born of the same Father; in Opposition to *fratres Uterini*, who are only born of the same Mother.

According to the common Opinion, those were not allowed to complain of an inofficious Testament, *i. e.* of being disinherited without Cause; excepting from the Turpitude of the Person appointed Heir in their Place. But *Van Water* endeavours to shew the contrary; and urge that the *Consanguinei* might plead Inofficiosity, even where the Testament was not made in Favour of a Person incapable.

As to the *legal Kinship*, or *Relation*, it is that *Relation which arises from Adoption.* Which to understand, we must examine what Adoption is, which is commonly defined *a gratuite Assumption of a Stranger for a Son and Heir.* It is called, 1. *Assumption*, i. e. Election: It is called, 2. *Gratuite*, i. e. liberal, and without any Burthen: It is said, 3. Of a *Stranger*, i. e. of a Person wanting that Degree of Filiation to which he is promoted. Which does not hinder, notwithstanding, a Relation from being capable of Adoption; since it suffices for it, that the adopted Person be not born of the Person who adopts him; whence nothing hinders a Father-in-law from adopting a Daughter-in-law.

With Regard to the aforesaid Adoption, you must observe that these Conditions are required in the Person who adopts, 1. That he be a Male. 2. That he be of his own Right, or his own Master. 3. That he be major. 4. That he has no natural Impotency towards procreating Children. The Conditions required in the Person adopted, are, 1. That he be present before the Person who adopts him, and consenting to it. 2. That he be younger, at least by eighteen Years than the Person that adopts him, that by Reason of his Age he may have him for Father, since that Adoption of Children has been invented and introduced *ad instar.* of carnal Children. 3. That he be a Stranger, in the Manner above-mentioned; having regard, however, in that Case, to the Law and Customs of every Kingdom. These pre-observed,

I answer that a natural Kinship or Consanguinity, in a transversal Line, annuls at present a Marriage only to the fourth Degree inclusively, and antiently to the seventh.

I say, 1. *In the transversal Line*, to insinuate that according to the common Opinion of Doctors, that Relation in a direct Line, annihilates a Marriage much farther, and even *in infinitum.*

2. *Only in the fourth Degree, and that at present*, to give to understand, that in the transversal Line that Kinship never invalidates in the fifth Degree, whether the Line be supposed equal on both Sides of the Consanguins, or Unequal. Whence I say, that he who on one Part is in the third or fourth Degree, can contract with that which on the other Part is in the fifth Degree.

If I be asked with Regard to a natural Kinship, *according to what Right it has the Power of dissolving a Marriage?* I'll answer, that natural Kinship has that Power of natural Right, with respect to the first Degree. For Nature has in Abhorrence a Marriage contracted between Brother and Sister, unless it be in case of an extreme Necessity, as it happened in the Beginning of the World, when *Adam*'s Son could have no other Wife but *Adam*'s Daughter. I say, 2. That that Kinship has the Power to dissolve a Marriage, with respect to the other Degrees, only of an ecclesiastical Right; whence I say besides, that two Infidels married in the Degrees prohibited only by the ecclesiastical Right, can, after they have been converted, continue in that Marriage, because when they contracted it they were not subject to the ecclesiastical Laws; thus their Marriage is valid, and cannot be annihilated by their Conversion.

I answer, 2. That a *legal Kinship renders a Marriage void*, 1. In a direct Line, between the Adopting and Adopted, and between their Children to the fourth Degree. 2. In a transversal Line, between the legitimate Children of the Adopting, while they remain in the Power of their Father, and the Adopted. 3. By manner of Affinity, between the Wife of the Adopting, and the Adopted, and *vice versa*, between the Wife of the Adopted and the Adopting. Observing at the same Time, that this Kinship in the first and third Degrees above-mentioned, is always diriment, though the Adoption be dissolved by the Death of the Person who adopted; but in the second it is no longer diriment, but while the adopted lasts, and the legitimate Children of the adopting remain in the Power of their Father.

We'll ask next, *if, and what Crime has the Power to dissolve a Marriage, and by what Right?* To which I answer, that *two Crimes have the Power to dissolve a Marriage*, viz. *Homicide and Adultery, not every Adultery, nor all Homicide, but that attended with certain Circumstances.*

If I be asked, *What Conditions are required in an Homicide, that it may have the Power to dissolve a Marriage?* To which I answer, that all the following ones are required; so that if one of them be wanting, the rest cannot dissolve the Marriage.

The first is a real Murder of the Husband, or of the Wife, but not that which has been only attempted, so that the Husband must kill in fact his Wife, or the Wife her Husband. For in all penal Laws it is commonly required, that the Effect should be consummated, to incur the Punishment, which is supposed inflicted by that Law. Hence it follows, 1. That he who kills another Person with Intention to kill his Wife, and the same must be said of the Wife, is not in the Impediment of the Crime. It follows, 2. That he or she that has given Order to kill his Wife, or her Husband, and has afterwards revoked that Order, and has sufficiently signified, that Revocation to the Assassin, is not subject to the Impediment of the Crime. *But*, say you, *does it Matter much in what Manner a Husband is killed by his Wife, or a Wife by her Husband?* No; for it suffices that he kills her, or she kills him, no Matter whether by himself, or by another, whether by a Sword, or by Poison, or any other Weapon.

The second Condition is, that the Man and Woman, who want to be married together, must have conspired together against the Life of the deceased Husband or Wife; whence if it happens, that one of them has contrived

trived the Death of the Wife or Husband, without the Concurrence of the other, they are not reckoned to have contracted the Impediment of the Crime, excepting notwithstanding, the Case in which in Consequence of such a Murder, an Adultery has been committed; for it suffices in such Case, that one of them has machinated the Murder, though the other be not conscious of it.

The third Condition is, that the Conspiracy may be carried on to the End, that the Husband or Wife dead, the Conspirators may be at Liberty to marry. The Reason is, because the Church has decreed that Impediment to hinder a Husband from killing his Wife, or a Wife her Husband, and afterwards marry the Person, with whom that Death had been concerted.

But what can be said, say you, *of a Husband or Wife, who concert the Death of his Wife, or of her Husband, with another Person, by a Motive of Hatred or Revenge, and not with a View of marrying such Person?* I answer, that in such a Case a grievous Sin is committed, but it is not properly an Impediment of the Crime, which has the Power to invalidate a Marriage.

It will be asked next, *which Kind of Adultery has the Power to invalidate a Marriage?*

To which I answer, that *Adultery* can be an Impediment in three different Manners.

1. When Adultery is joined with Murder committed with the View of marrying the Person who was accessary to that Murder.

2. When the Adultery is joined with Marriage, the former Wife being yet living, as, *v. gr.* when *Titius*, his former Wife being yet living, has a carnal Knowledge of *Mary*, and marries her at his former Wife's Death; for in that Case he is not allowed to marry *Mary*, at his former Wife's Death; notwithstanding, whether the Adultery be committed before or after he married his former Wife, provided it be committed while that former Wife was alive.

3. When the Adultery is joined with a Promise of Marriage with the Person, with whom the Adultery is committed; no Matter if the Promise be made with an Oath or not.—If I be asked, *if the Promise must be reciprocal to have the Force of a diriment Impediment?* I answer in the Negative, because the Laws require only a *Promise*, which can be such without being reciprocal. Two Things are required to this Promise, 1. That it be manifest by some external Sign. 2. That it be accepted.

From all we have said on this Subject it may be inferred, that there are four Cases in which Homicide and Adultery have the Power to dissolve Marriage by the ecclesiastical Right, *viz.*

1. When the Husband and a Woman contrive with a common Consent the Death of the Wife, with a View of being afterwards married together.

2. When an Adulterer procures the Death of his Wife or of the Husband of his Adulteress, to marry her afterwards. Likewise, when the Adulteress procures the Death of her Husband, or the Death of the Wife of the Person with whom she has committed Adultery, to marry afterwards the Adulterer.

3. When the Adulterers have contracted together, the former Wife and Husband being yet living; or one of the Parties having yet his former Help-mate.

4. When the Adulterers have promised to marry one another, after the Death of the Wife of the Adulterer, and of the Husband of the Adulteress.

But it must be observed, that this Impediment of the Crime has been established by the ecclesiastical Law only; because we find no where that it has the Sanction, either of the natural or divine Law.

If I be asked, *why the Church has decreed that Impediment?* I'll answer, that it has done it to prevent several Homicides and Adulteries; for Husband and Wife would be much more ready to procure one another's Death, in hope of a future Marriage, if the Church by its usual Prudence had not put that Bar to it.

Our next Question is, *an, and which Disparity of Worship dissolves Marriage?*

Before I answer this important Question, we must observe, 1. That by Disparity of Worship is understood Diversity of Religion, such as is found between the Faithfuls and Infidels.—2. That the Infidels can be considered in two Manners. 1. As baptized, such as Hereticks, and Apostates. 2. As not baptized, such as all Infidels, who have not been initiated to the true Baptism of Christ. 3. That it is a Question here, if the Disparity, found, 1. Between a Person who is baptized, and one not baptized, be an Impediment capable to dissolve a Marriage. 2. If that Disparity of Worship which is between an Orthodox and an Heretick, be likewise a diriment Impediment. These pre-observed,

I answer, 1. That *the Disparity of Worship between a Person that's baptized, and one who is not, has the Faculty of a diriment Impediment.* Which is proved by the third Council of *Toledo*, *c.* 14. and by the constant and universal Custom of the Church, which has the Power to decree Impediments. Since such a Custom, which I suppose lawfully established, has, according to St. *Isidorus*, the Power of Law, and must be taken for Law when the Law is deficient.

It may be asked here, 1. *If the Infidels who are not baptized who are married together, must be parted when one of them is converted to the Faith.*

Which I answer, with a Distinction, in the Affirmative, with regard to some Cases; and in the Negative, with regard to others.

For Proofs of the first Part of my Answer, *viz.* that *they are to be parted in some Cases*; I say, 1. That they are to be parted, when they have contracted in some Impediment, which by the natural Law, or the Constitutions of their Prince, have the Power to dissolve a Marriage. As, *v. gr.* when an Infidel refuses to cohabit with the Faithful, according to the Doctrine of the Apostle, 1 *Cor.* vii. 15. *But if the Unbelieving will depart let him depart*, &c. or likewise, when the Infidel agrees to cohabit with the Faithful, but not without that Cohabitation being injurious to the Creator; in that Case the Faithful can dissolve his Marriage and marry another, according to the Advice of the same Apostle, in the same Place, *A Brother or a Sister is not under Bondage in such Cases*, &c. If I be asked, *when, in such Case, an Injury is supposed to be offered to the Creator?* I answer, that it is offered when the Unbeliever excites the Believer to Sin; or when he does not hear the Name of God, or of Christ with Respect, or blasphemes it, or hinders his Family from being educated in the Christian Faith, *&c.*

I prove the second Part of my Answer, viz. *that in certain Cases they are not to be separated*, viz. when they have contracted without any Impediment established either by Nature, or by the Prince; and when the Unbeliever agrees to cohabit with the Believer, without any Injury done to the Creator; and when there is no Danger for the Believer of being perverted.

I answer, 2. That the *Disparity of Worship between two Persons baptized, one of whom is Orthodox, and the other Heretick, is not a diriment Impediment*; because no Law has decreed it such; whence it follows, that a Marriage contracted between two Persons, one of whom is orthodox, the other heretick, is valid.

Our next Question is, *if, and which Violence dissolves a Marriage, and by what Right?* I have no need to dwell long on the Explanation of this Impediment, since it is easily understood by what I have said heretofore, when I have treated of the Fear *cadens in constantem virum*, and by what I shall say hereafter, when I shall explain *Rape.*

We'll ask next, *if a Tye be a diriment Impediment of Matrimony; and what is understood by Tye or Ligament?*

Before I answer this Question, we must observe, 1. That by the Name *Ligamen*, a Tye, is understood the indissoluble Knot of Marriage, whereby a married Person remains obliged to the other while he lives, so as to be incapable of contracting with another. 2. That it is Question here of that Knot which arises from the Marriage of Persons baptized, and that consummated. Since we have said heretofore that a Marriage between Infidels can be dissolved, if one of them be converted. These pre-observed,

I answer, that Ligamen, Tye, or Knot, as considered in this Place, has the Power to dissolve a Marriage, both by the ecclesiastical and divine Laws; because it has been so decreed by the Church; and *Jesus Christ* declares *Matt.* xix. 9. *Whosoever puts away his Wife, and shall marry another commits Adultery.*

It

It may be asked, in this Place, *If a Woman can marry a second Husband, when she does not know if the other be dead; but only presumes it, because he has been long absent?* Which Question I answer in the Negative; because she must have at least a moral Certitude, that her first Husband is dead, for fear of exposing herself to take a second Husband when the first is yet alive.

It may be asked, 2. *If a Woman contracted with a second Husband believing the first was dead, though in fact yet alive, is obliged to quit the second, to return to the first?* Which I answer in the Affirmative; and say, that she neither ought, nor can ask, or grant the Duty of Matrimony to the second, after she has been informed that the first is alive.

We'll ask next, *If and what publick Honesty is capable to dissolve Marriage, and how far?*

Before I answer this Question, we must observe, 1. That it is understood here by publick Honesty, some apparent Relation, resulting either from Persons having been lawfully betrothed, or from a Marriage celebrated, but not consummated. With this Notion, we must observe, 1. That this Sort of Honesty is called the Justice of publick Honesty, because founded on the Justice and Equity of publick Honour, and on a common Honesty, and human Decency. 2. That it is called an apparent Relation, because it bears along with it some Appearance of Affinity, from which it notwithstanding differs, because Affinity is founded on Copulation; and Honesty not.

We must observe, 2. That it is asked here, to what Degree this publick Honesty invalidates a Marriage. These pre-observed,

I answer, 1. That *that publick Honesty, resulting from a lawful Betrothing, is an Impediment, which ever since the Council of* Trent, *invalidates a Marriage only in the first Degree*; because it has been thus decreed by that Council, *Seff.* 24. *c.* 3. *de Reformat.*

I have said, 1. *Which result from a lawful Betrothing*; to give to understand, that before that Council an Impediment resulting even from an invalid Betrothing, dissolved a Marriage. Hence it follows, 1. That a conditional Betrothing has not the Force of an Impediment of publick Honesty, before the Condition be accomplished, because it is not a true Betrothing before that Accomplishment. 2. That the Impediment of publick Honesty does not result from a Betrothing dissolved with the mutual Consent of the contracting Parties; because such a Betrothing is invalid. 3. The Impediment of publick Honesty does not result from a second Betrothing, contracted after a former one, which was lawfully contracted. Because that second Betrothing is render'd invalid by the former.

I have said, 2. *Only in the first Degree*, to distinguish it from the Impediment of publick Honesty, resulting from a Marriage celebrated, but not consummated.

I answer, 2. *That the Impediment of publick Honesty, resulting from a Marriage celebrated, but not consummated, has the Force to dissolve a Marriage, as far as the fourth Degree*; according to the Council of *Trent*; which *Impediment of publick Honesty*, is not minded among the Reformed.

Our next Question is, *If, and which Affinity has the Force of a diriment Impediment, and how far it dissolves a Marriage?*

Before I answer this Question we must observe, 1. That there are two Sorts of Affinity, one spiritual, and the other carnal. As to the spiritual Affinity, it does not dissolve a Marriage; and is not at all minded among Protestants.

2. That by the Name of carnal Affinity is understood the Relation of Persons, one of whom has had a carnal Knowledge of the Consanguin of the other, for which Relation, the Consanguins of that Man are said to be in the same Degree of Affinity with the Woman thus known, as they are in Consanguinity with the Man himself. If I be asked, *in what a simple Affinity differs from Consanguinity?* I'll answer, that it differs in that Consanguinity is founded in the same Blood; and a carnal Affinity in a carnal Knowledge, fit to procreate Children. For all other Copulation capable to produce a carnal Affinity, cannot produce a diriment Impediment.

3. There are two Sorts of carnal Knowledge, in which the Impediment of Affinity is founded, one lawful, which is between two Persons lawfully married; and the other unlawful, between two Persons who are not lawfully married. These pre-observed,

I answer, 1. That *the Impediment of carnal Affinity resulting from an unlawful Copulation, has the Force to dissolve a Marriage to the second Degree inclusively*; according to the Council of *Trent*, *Seff.* 24. *c.* 3. *de Matrim.* if I be asked, *if that Impediment, though it does not invalidate a Marriage, hinders it, notwithstanding from being contracted in the other Degrees.* I'll answer it in the Negative. If I be asked further, *if at least he hinders a Man who has had a carnal Knowledge of the Consanguin of his Wife in the third or fourth Degree, from requiring the Marriage-Duty from his Wife*; I'll answer, likewise, this Question in the Negative; because the Affinity resulting from that unlawful Copulation, has not the Force of dissolving a Marriage in the third and fourth Degree; since that Affinity which before the Contract has not the Force to dissolve it beyond the second Degree, has not likewise the Force of hindering the Use thereof, when contracted beyond that Degree.

If I be asked, *by what Right or Law that Affinity has the Force to invalidate a Marriage?* I'll answer, by the ecclesiastical, not by the divine Law; since we find neither in the Scripture, nor in the Tradition, that such an Affinity is a diriment Impediment.

I'll answer, 3. That *an Affinity resulting from a lawful Copulation, has the Force to dissolve a Marriage to the fourth Degree inclusively, and no further*; because it has been thus decreed by the Church, *c. non debet. de Consang. & Affinit.*

If I be asked, 1. *If Affinity produces Affinity?* I'll answer in the Negative; since we find it decreed no where. Whence we commonly say, *Affinis mei, non est Affinis meus*, v. gr. because a Person has an Affinity with my Brother, it does not follow hence, that he has an Affinity with me; therefore it is not surprizing, that *Peter* can marry the Sister of the Wife of his Brother *Paul*; or *James* the Daughter of the second Wife of his Father *Henry*.

Our next Question is, *If, and what Folly dissolves a Marriage?*

Before I answer this Question, we must observe, 1. That by the Name *Folly* is understood a Privation of the Use of Reason, proceeding from a natural Defect. 2. That that Folly can be consider'd in two Manners with respect to Marriage. 1. As being *antecedent* to the Marriage. 2. Or *subsequent* to it. These pre-observ'd,

I answer, 1. That *an antecedent Folly, whether it be consider'd as perpetual or as temporal only, has while it lasts the Force to dissolve a Marriage, and that by the natural Law*; because it takes off the free Consent necessarily requisite in the Contract of Marriage. Therefore it is not at all surprising, if the Contract of a Madman, or of a Man drunk, or asleep, be considered as void.

I answer, 2. That *a Folly which happens after the Marriage is contracted, has not the Force to render it void*: Because a Marriage once lawfully contracted is indissoluble as to the Knot, while both Spouses live.

We'll ask next, *If, and which Impotency can render a Marriage void?*

Previously to my answering this Question, we must observe, 1. That it is not Question here of the *Impotency* of begetting Children, commonly called Sterility, since it is certain, that it does not render a Marriage void; but of *the Impotency of a carnal Copulation.* 2. That by the *Impotency* we mean, is understood a certain Inability towards a carnal Copulation, or towards consummating Matrimony by that carnal Copulation. If I be asked, by the Way, *in what consists that carnal Copulation, and what's necessarily required for it?* I'll answer, that it consists in the Emission of the Seed of the Man, within the Womb of the Woman, for it is by that Semination that the Man and the Woman are properly said to be one and the same Flesh. Whence we may infer, that it matters not from what Part the Impotency proceeds, whether from the Man or from the Woman; and consequently it is no Matter, whether it be active or passive. 3. That the *Impotency* meant here, can be consider'd either

ther as perpetual or temporal. That is reckon'd perpetual, which cannot be remedied without putting the Life of the Person in Danger, or without Sin, or without a Miracle. And that is temporal, which can be remedied in Process of Time, either by Age, or the common Remedies of the Church; or by the Administration of Medicines, without any Danger for the Life of the Patient. 4. That both these *Impotencies* can be again consider'd in two Manners, 1. As absolute, *i. e.* with Respect to either of the Persons, as when, *v. gr.* the Man, because of the Impediment he has, can consummate Marriage with no Woman whatsoever. 2. As respective only, *i. e.* with Respect to a certain Person, but not to all others: As when, *v. gr.* some Women are too narrow with Respect to some Man, but not so with Respect to some other. 5. That *Impotency*, particularly the perpetual, can be considered existent in the Subject at the Time the Marriage is supposed contracted, or happening after the Marriage is contracted. These pre-observed,

I answer, 1. That *a perpetual Impotency, supposed to exist in one of the contracting Parties, at the Time the Marriage is contracted, renders it void, and that by the natural Law*; because it has been so declared by the Church, *Titul. de Frigidis & maleficiat*; and because that Contract is null by the Law of Nature, in which one of the contracting Parties obliges himself to do, what, it is supposed, he can by no Means perform; which is the Case of him who contracts Marriage with a *perpetual Impotency*, since, it is supposed, that he cannot grant the conjugal Duty to which he obliges himself: Therefore his Marriage is void. We may add to this, that that *perpetual Impotency* is repugnant to the primary End of Marriage: Therefore it invalidates a Marriage, when it exists at the Time it is contracted.—Whence it follows, that those who are perfectly Eunuchs, and cannot emit a perfect Seed, are unable, towards contracting Marriage; but not so, if they can emit a perfect Seed, though they appear to be perfectly Eunuchs.

I have said, *Which is supposed to exist in one of the contracting Parties, at the Time the Marriage is contracted*; to give to understand, that if the said *Impotency* happens after the Marriage is contracted, it does not dissolve it, because it is supposed, that at the Time it was contracted, it had all the Things essentially requisite.—*But what is to be done, if it be probably supposed that the Impotency has preceded the Celebration of Marriage?* I answer, that the Doctors do not agree among themselves on that Point. For some of them are of Opinion that one must presume that it has preceded Marriage: Others, on the contrary, opinate in Favour of the Marriage, and say that the said *Impotency* is to be presumed to have happened after the Marriage was contracted.

I may be asked, if a *respective perpetual Impotency has the Force to render a Marriage void, and renders it void in Fact, while it exists at the Time the Marriage is contracted?* Which I answer in the *affirmative*, because Marriage regards the individual Person; therefore, if with Regard to such a Person the *Impotency* be diriment, it follows hence, that a Marriage contracted with it is void.

I answer, 2. That *a temporal Impotency, from what Cause soever it may proceed, does not, of itself, render a Marriage void*; because it has been so decreed by the Church, *c. fraternitatis de frigid, & malefic.* and because it is not required to the Validity of the Marriage, that the Faculty of Generation be actual; it suffices that it be aptitudinal; therefore it suffices, *v. gr.* that the Man be capable in Time to perform the Act of Generation: But a *temporal Impotency* does not take off an aptidutinal one, since it is supposed, that in Process of Time he can perform the Act: Therefore it does not dissolve the Marriage. You must observe, that I have said *of itself*; to give to understand that a Marriage to which such an *Impotency* is annexed, can be render'd void by some other diriment Impediment, *viz.* for Want of the Age requir'd by the Church, and that under the Penalty of Nullity of Marriage.

But what must be done, say you, *when there is a Doubt if the Impotency be perpetual or temporal: If absolute or respective?*

I answer, 1. That the Church, in that Case, grants three Years to the Persons married, to resolve that Doubt.

I answer, 2. That the three Years expired, if the *Impotency* continues, he that of the two is judged able, can marry another Person, after he has took an Oath before a Judge, that during those three Years he has done all he could to perform the conjugal Act, but could not.

I answer, 3. That the Person whose *Impotency* after a Trial of three Years, was judged perpetual, is obliged to return to the Person he was contracted to, if by a carnal Knowledge he has had of other Persons afterwards, we can judge that he is sufficiently capable to have a carnal Knowledge of the Person, from whom he has been divorced by a judiciary Sentence, and the second Marriage be contracted and consummated.

I answer, 4. That nothing ought to be determined with too much Precipitation in these Cases; and Physicians must be consulted before any Thing can be concluded.

We'll ask next, *If, and what Rape can dissolve a Marriage?*

Before I answer this Question, we must observe, 1. That by the Name *Rape* is understood the carrying off by Violence a Woman from the House of her Father: No Matter whether or not the Woman be Single, Married, or Widow; provided she be carried with Violence from one House to another, with a Design to marry her. 2. That we may consider two Sorts of *Rape*, the first when an unjust Violence is offer'd to a Maid, and she is carried off against her Will: The second when there is no Violence offer'd, and she is supposed to have consented to her being carried off; but that Violence is offer'd to the Parents or Tutors, under whose Care and Power the Maid was. This last is not properly a *Rape*, and is not consider'd as such in *England*. These pre-observ'd,

I answer, that *a Rape renders void a Marriage contracted between the Ravisher and the Person ravished*; because it has been so decreed by the Church. *Concil. Trident. Sess.* 24. *c.* 6.

But what, say you, *if the Ravished being separated from the Ravisher, and carried to a safe Place, where she is at Liberty, consents to have him for a Husband, and the Ravisher takes her for his Wife?*

I answer, that in that Case the Marriage is valid; but the Ravisher, and all those who have been accessary to the Rape, are *ipso jure*, excommunicated, and for ever infamous, and incapable of all Sorts of Dignities; though this does not hold in *England*. The Ravisher is obliged, besides, whether he marries her or not, to allow her a handsome Maintenance, at the Option of the Judge; according to the Decree of the Council of *Trent*.

I'll pass from this Explanation of the *diriment Impediments of Matrimony*, to the Solution of some other very essential Questions, relating to the same Subject, and, 1. Of those relating to a *Separation of Bed, and Cohabitation*: Therefore,

It may be asked, *If there can be any legitimate Cause for the Dissolution of a Marriage, as to the Bed and Cohabitation?* Which I answer in the Affirmative, according to the Council of *Trent*, *Sess.* 24. *can.* 8.

The next Question resulting from this Answer, is, *Which are the legitimate Causes of the Dissolution of a Marriage, as to the Bed and Cohabitation, and consequently of a Divorce?*

I answer, that those Causes can be reduced to three principal ones. The first, is, *Adultery supposed committed after the Marriage is contracted*, according to St. *Matthew* v. but not when supposed committed before the Celebration of Marriage; because nothing can be supposed then committed against the Faith given.

If I be asked, *If there is an equal Right of procuring a Divorce, for the same Cause in both Parties?* I'll answer in the Affirmative, because both Parties have an equal Right on their respective Bodies.

If I be asked further, *if the Sentence of a Judge be necessary to such a Divorce?* I'll answer with a Distinction, in the Affirmative, when the Adultery is not publick, and notorious enough; because a Divorce is a publick Punishment, which consequently must be imposed by publick Authority. And in the Negative, if it be publick and notorious enough. Though in that Case one is obliged to follow the Custom of the Country.

The second legitimate Cause of a Divorce, is the *Brutality of one of the Parties*, as when, *v. gr.* there is a Foundation to fear some great Evil; and the Reason is, because the natural Law gives every one a Right to avoid the Danger of Death. How this Separation must be made, must be according to the Laws and Customs of each Kingdom.

The third legitimate Cause of a Divorce is Apostacy, because if there be an imminent Danger for the Soul of one of the Parties, that Party is obliged to separate himself from the other.

We'll treat next of the Faith, or Fidelity, of Persons engaged in the conjugal State; and ask, *what that Fidelity obliges them to?*

Before I answer that Question, we must observe, 1. That by *conjugal Fidelity* is understood here, that mutual Fidelity whereby married People are obliged to the matrimonial Duty towards one another, and are not to have such Familiarity with Strangers. That same Fidelity extends likewise towards the reciprocal Love which must subsist between them, and towards helping or assisting one another. 2. That for a clearer Explanation of this important Subject, it may be asked, 1. If they be both equally obliged to the conjugal Duty. 2. If they be both obliged to cohabit together. 3. What should be the Love of married People towards one another. 4. If they be obliged to assist mutually one another in their domestick Affairs? These pre-observed,

I answer, 1. That *married People are mutually obliged to grant one another the conjugal Duty*; according to the Apostle, 1 *Cor.* vii. 3. *Let the Husband render unto the Wife the Benevolence; and likewise also the Wife unto the Husband:* And because every one is obliged to observe the Law of Justice; which Law of Justice obliges married People to observe the aforesaid Fidelity.

It may be asked next, *what can be the Obligation between married People, with regard to the conjugal Duty?* To which I answer, that they are obliged to it under a grevious Sin, when any of them asks for it seriously and reasonably. I say *reasonably*, because when it is desired otherwise, *viz.* at an improper Place or Time, the other is not obliged to grant it. I have added *seriously*, and with Instance; because otherwise, one is not obliged to grant it, since it is a Sign that there is no great Danger of Incontinence.

If I be asked, *which are the Causes which excuse from granting the conjugal Duty?* I'll answer, that the most common Causes are the four following, *viz.* 1. The great Danger the Body of the Person is exposed to, if he or she grants the conjugal Duty. 2. Adultery supposed to have been committed by one of the Parties. 3. The Knowledge of a diriment Impediment, though it be not known to the other Party. 4. When the Person who asks for it, is drunk, or furious, or mad.

I prove the first Part of my Answer, or the first Cause which excuses from conjugal Duty, viz. *the great Danger of the Body resulting from the Grant of conjugal Duty.* Because every one is no less obliged by the natural Law to consult his own Safety, than to the granting the conjugal Duty. Therefore as Charity ought to begin always by oneself, it follows hence, that one of the Parties is not obliged to grant the Duty to the other, if he foresees that he is to suffer thereby. Whence it is not surprizing that a Husband or a Wife, is not obliged to grant to his Wife, or to her Husband, the conjugal Duty, if he or she know her or him infected with some contagious Distemper.

I prove the second Part of my Answer, or the second Cause which excuses from granting the conjugal Duty, viz. *Adultery committed by one of the Parties*; because if a Divorce be granted for Cause of Adultery, why should not the conjugal Duty be refused for the same Cause.

I prove the third Part, or the third excusing Cause, viz. *the Knowledge of a diriment Impediment, though it is not known to the other Party*; because in that Case the Marriage is void, and therefore Copulation in such a Case is rather an Act of Fornication, of the Part of the Person that knows the Impediment, than a conjugal Act.

I prove the fourth Part, or fourth Cause, *viz. when the Duty is required by a Person that's drunk, or furious, or mad*; because it is not asked in a human Manner.

I answer, 2. *That a Man and Wife must cohabit together, without the Cases excepted.* Because that's prescribed by both the ecclesiastical, and civil Laws; and because they are obliged to assist one another, in the Administration of their Affairs, and in the Education of their Children; which they could not do, if they were not to cohabit together.

I have said *without the Cases excepted*; to give to understand, that there are some Cases in which it is lawful for one of the Persons married not to cohabit with the other, as heretofore explained.

I answer, 3. That *a Man and Wife are in such a Manner obliged to assist mutually one another, in the Administration of their domestick Affairs, and the Education of their Children, that the Wife always remains subject to the Husband.*

I prove the first Part, *viz.* that *they must help one another in the Administration of their Affairs, and the Education of their Children*, because it is one of the chief Ends of Marriage; as it appears from *Gen.* i. where God speaks thus, *Let us make him a Help like him.*

I prove the second Part, viz. *that notwithstanding the Wife ought to remain subject to her Husband.* Because, according to 1 *Cor.* ii. *The Husband is the Chief of his Wife.* Whence the Apostle speaks, 1 *Tim.* i. *For I suffer not a Woman to teach, nor to usurp Authority over the Man.*

I answer, 4. *That there should be a perfect Love in God between Man and Wife:* Which I prove, 1. By Scripture, *Ephes.* v. *Husbands love your Wives, as Christ loves his Church*, &c. 2. By Reason, because Marriage represents the Union of Christ with the Church, and the reciprocal perfect Love between both. Add to this, that without such mutual Love, they cannot support the Burthens of the conjugal State, as they ought; which is rendered light and supportable by that Love.

I may be asked, *in what the reciprocal Love must appear most?* I answer that it should appear most in the following Circumstances and Occasions.

1. That in all Things lawful they endeavour to agree, so that one procures what he knows agreeable to the other, and remove what he thinks may offend him.

2. That on all Occasions they speak honourably of one another, and hide their Imperfections if they have any, with the Cloak of Charity.

3. To abstain from opprobrious and provoking Language; and if one of them be guilty of it, the other should oppose nothing else to it but Patience and Love.

4. To exhort mutually one another to Acts of Piety and Virtue, *&c.*

As to what regards the Use of Marriage. I may be asked, *if the Use of Marriage be honest and lawful between Man and Wife lawfully contracted?* Which I answer in the Affirmative, and prove by the Scripture, the Fathers, and by Reason.

By the Scripture, 1 *Cor.* vii. 5. *Defraud you not one the other*, &c. And a little lower, *and come together again, that Satan tempt you not for your Incontinency.*

By the Fathers, especially St. *Augustin*, throughout his whole Book of *the conjugal Good.*

By Reason, because that Act is good which is a Means ordained by God, for to attain a good End, such as is the conjugal Act; as it appears from *Genesis* i. and *Matt.* xix. Therefore, *&c.*

When I have answered the Question in the Affirmative, I understood, that the conjugal Act is good, *of itself*; for it can be rendered bad by Accident, *viz.* whether it be vitiated on the Part of the End, or of the Manner, or Place, or Time, or some other like Circumstances.

APPENDIX.

Of Polygamy.

Polygamy, is a Plurality of Wives, or Husbands, held by the same Man or Woman, at the same Time.

Polygamy is prohibited among Christians, but was allowed by divine Appointment among the *Jews*; as it is still among the *Mahometans.*

Major *Grant* observes, that the Males and Females brought into the World are nearly on a Balance; only abating for a little Excess on the Side of the Males, to make up for the extraordinary Expence thereof in War, and at Sea: Whence it follows, that Nature only intends one Wife, or one Husband for the same Person; since, if they

they have more, ſome others muſt go without any at all.

Hence he concludes that the Chriſtian Law, which prohibits, is more agreeable to the Law of Nature than the *Mahometan*; and we may add then the *Jewiſh* Law, which tolerates *Polygamy*.

Yet *Selden* has proved, in his *Uxor Ebraica*, that Plurality of Wives was allowed of, not only among the *Hebrews*, but almoſt all other Nations, and in all Ages. It is true, the ancient *Romans* were more ſevere in their Morals, and never practiſed it, though it was not forbid among them; and *Mark Antony* is mentioned as the firſt who took the Liberty of two Wives.

From that Time it became pretty frequent in the Empire, till the Reigns of *Theodoſius*, *Honorius*, and *Arcadius*, who firſt prohibited it by expreſs Law in 393. After this the Emperor *Valentinian*, by an Edict permitted all the Subjects of the Empire to marry ſeveral Wives; nor does it appear from the eccleſiaſtical Hiſtory of thoſe Times, that the Biſhops made any Oppoſition to this Introduction of *Polygamy*.

In effect, there are ſome even among the Chriſtian Caſuiſts, who do not look on *Polygamy* as in itſelf criminal. *Jurieu* obſerves, that the Prohibition of *Polygamy* is a poſitive Law, from which a Man may be exempted by a ſovereign Neceſſity. *Baillet* adds, that the Example of the Patriarchs is the moſt preſſing Argument in favour of *Polygamy*.

At *London* we had ſome Years ago an artful Treatiſe publiſhed in behalf of a Plurality of Wives, under the Title of *Polygamia Triumphatrix*; the Author whereof aſſumes the Name of *Theophilus Aletheus*; but his true Name was *Lyſerus*, a Native of *Saxony*. It has been anſwered by ſeveral.

Polygamy is alſo uſed in the common Law, for a Plurality of Wives, though only had ſucceſſively, or one at a Time. In the *Roman* Church this ſtill diſqualifies a Man for the Prieſthood; if even the Perſon had been married but twice.

SACRED HISTORY.

SACRED HISTORY, is that Hiſtory which lays before us the Myſteries and Ceremonies of the Deity, *&c.* Miracles, and other ſupernatural Things, whereof God alone is the Author. Such are the Old Teſtament, and the Goſpels, *&c.*

Note. That *Hiſtory* is a Recital or Deſcription of Things as they are, or have been in a continued orderly Narration of the principal Facts and Circumſtances thereof.

Hiſtory, is divided with regard to its Subject, into the *Hiſtory of Nature*, and the *Hiſtory of Actions*.

Hiſtory of Nature, or *natural Hiſtory*, is a Deſcription of natural Bodies; whether terreſtrial as Animals, Vegetables, Foſſils, Fire, Water, Air, Meteors, *&c.* which I have given in my Treatiſes, of *Animals*, *Botany*, &c. or celeſtial, as the Stars, Planets, *&c.* which is ſeen in my Treatiſe of *Aſtronomy*.

Hiſtory, with regard to Action, is a continued Relation of a Series of memorable Events, in the Affairs either of a ſingle Perſon, a Nation, or ſeveral Perſons, and Nations; or whether included in a great or little Space of Time. Thus *Thucydides* has wrote the Hiſtory of *Greece*, *Livy* of *Rome*, *Mezeray*, and Father *Daniel* of *France*; *Tyrrel*, *Echard*, and *Rapin* the Hiſtory of *England*; which the ingenious Mr. *William Guthrie* is writing with great Accuracy and Impartiality: *Buchanan* of *Scotland*; *Clarendon* the Hiſtory of the Rebellion; *Thuanus*, Biſhop *Burnet*, *&c.* the Hiſtory of their own Times. *Euſebius*, *Baronius*, *Fleury*, &c. have wrote the Hiſtory of the Church; Biſhop *Burnet* that of the Reformation, *&c.*

Hiſtory, with regard to its Matter, is either ſacred or natural, civil or perſonal, or ſingular. I have already given the Definition of the *ſacred*, and *natural Hiſtory*.

Civil Hiſtory, is that of People, States, Republicks, Communities, Cities, *&c.*—Such are thoſe of *Thucydides*, *Halicarnaſſeus*, *Livy*, *Polybius*, *Mezeray*, Father *Daniel*, *Milton*, *Buchanan*, &c.

Perſonal Hiſtory, is that which gives the Portrait, or Life of ſome ſingle Perſon. Such are the Lives of *Plutarch*, *Cornelius Nepos*, *Suetonius*, &c. the Lives of the Painters, Poets, *&c.* *Perſonal Hiſtory* is the ſame, with what we otherwiſe call *Biography*.

Singular Hiſtory, is that which deſcribes a ſingle Action, Siege, Battle, or even War, Expedition, *&c.*

Hiſtory with regard to its Form, is either *ſimple*, or *figurate*, or *mixed*.

Simple Hiſtory, is that delivered without any Art or foreign Ornament; being only a naked and faithful Recital of Things, juſt in the Manner and Order wherein they paſſed; ſuch are the Chronicles of the Eaſtern Empire, the Faſti, Chronological Tables, Journals, *&c.*

Figurate Hiſtory, is that which is further enriched with Ornaments, by the Wit, Ingenuity, and Addreſs of the Hiſtorian. Such are the political and moral Hiſtories of the *Greeks*, *Romans*, and moſt of the Moderns. This latter is a kind of rational *Hiſtory*; which without ſtopping at the Shell or Outſide, the Appearances of Things diſcovers the Springs and Movements of ſeveral Events; enter into the Thoughts and Breaſt of the Perſons concerned therein, diſcovers their Intentions and Views; and by the Reſult of Enterprizes and Undertakings, diſcovers the Prudence or Weakneſs, wherewith they were laid, conducted, *&c.*—Theſe are much the moſt uſeful and entertaining *Hiſtories*.—To this Claſs may be particularly referred the *Hiſtories* and Annals of *Tacitus*, among the Antients, and thoſe of *Guicciardin*, *Thuanus*, &c. among the Moderns.

Mixed Hiſtory is that, which beſides the Ornaments of Figured Hiſtory, calls in the Proofs and Authorities of Simple Hiſtory, furniſhing authentick Memoirs, or original Letters, Manifeſto's, Declarations, *&c.* Such are the Hiſtories, or Collections of *Ruſhworth*; M. *Rapin de Thoyras*'s Hiſtory of *England*, and that of Mr. *William Guthrie*; the Genealogical Hiſtory of *Du Cheſne*; M. *de Marca*'s Hiſtory of *Bern*, &c. The Reader will find all theſe different Sorts of Hiſtories in my *Chronology*, the Hiſtories of Councils, of the different Chriſtian Sects, of the religious and military Orders, *&c.*

But to return to the *Sacred Hiſtory*, which is to be the Subject of this Treatiſe, which Hiſtory, as already obſerved, is contained in the Books of the Old Teſtament, and in the Goſpels; as I have already given the moſt eſſential Part of the Hiſtory of the Old Teſtament in my Chronology; I begin this Treatiſe where I left off there, *i. e.* at the Birth of *Jeſus Chriſt*, where I'll begin my Abridgment of the Hiſtory of the New; and which, though it is to be contained in leſs than two Numbers, we ſhall, I hope, pleaſe the Reader as well, as thoſe voluminous Works ſwelled with the Dreams of ſome modern Interpreters, who underſtand the Goſpel as they do the Alcoran; ſince mine is to be a ſimple Narration of Facts, with the Sentiments of the antient and moſt learned Fathers of the Church (whoſe Veracity has not been conteſted yet by any Chriſtian Sect) on the moſt difficult Paſſages; which Hiſtory will not be one of the leſs uſeful and entertaining Subjects of the whole Work; ſince the Reader will find it an exact and impartial Narration of the Life and Actions of their Divine Saviour and of his Apoſtles, illuſtrated with the Interpretations of orthodox Interpreters, and not in the leaſt depraved with the Spirit of Hereſy and Schiſm; beſides, the Science of the Scriptures is a true Science, and that of the Saints. Therefore,

Human

Human Nature had sighed during four thousand Years for its Deliverer, and could find no Remedy to its Evils, neither in the Precepts of a human Philosophy which is nothing but Pride, nor in the Observations of the Law of *Moses*, which had nothing but Shadows, and which, though holy in itself, rendered the *Jews* more criminal, and more punishable, because they did not keep them. Besides that, its Office was, according to the Apostle, *Rom.* iii. to shew the Sin, the Cure whereof belonged to *Jesus Christ*. All Men, as *Adam*'s Children, were born in Ignorance, which darkened their Understanding; in the Slavery of the Concupiscence which corrupted and weakened their Will; and in a Condemnation to a temporal and eternal Death, as due to the first Sin. Their Unhappiness was, that they did not know that deplorable State: At least there were but few of them to whom a divine Light rendered it sensible. Temples and Altars were erected to the Devil throughout the whole Earth; the most frightful and infamous Abominations were accounted a religious Worship among the Nations, so great was his Power to seduce them, and extinguish in them all the Lights of Nature and Reason. The Worship of the true God flourished only in *Judæa*; and even that was extremely vitiated in the Doctrine and Manners, by the bad Example of the Priests, the Brutality of the *Jews*, always uncircumcised of Heart, and by the Errors of divers Sects introduced into it. The Scepter was gone out of the Tribe of *Judah*, and *Herod* the *Idumean*, possessed it under the Protection of *Augustus*. That Prince had joned in his Person, the Power of *Lepidus*, and of *Antony* his Colleagues in the Triumvirat; and having no more either Rivals or Enemies to fear, he made the World enjoy a general Peace. This State of Things marked the Time of the Coming of the *Messiah*, according to the Scriptures.

The Prophets called him the Son of *David*. To accomplish their Prediction, he chose a young Virgin called *Mary*, who descended from that Prince; but who by the Revolution of human Things, was fallen into Obscurity and Poverty. The Scripture speaks neither of her Genealogy, mentioned by St. *John Damascenus*, nor of her miraculous Birth of *Anne* who was sterile. I leave that Discourse, and that of her Life in the Temple, where, according to several Authors, she was presented to God, while she was but three Years of Age, and where she lived in the Practice of the most perfect Piety, till being marriageable, she was given in Marriage to *Joseph*; though there was no conjugal Commerce between them, that Marriage was notwithstanding a true one, says St. *Augustin*, *l.* 3. *c.* 9. against *Julian*; since Faith, Mystery, and the Fruit thereof, were found in it. Faith, because there was no Adultery: Mystery, because there happen'd no Divorce; and the Fruit, because Christ is born of the Woman. The divine Wisdom had order'd, that Christ should be born of a married Woman, though in fact she was a Virgin, to prevent his being reproached with being born in Adultery, and by that Accusation elude the Strength of his Words, and reject his Authority; besides the Danger his Mother had run of her Honour, whereof St. *Ambrose* says, on St. *Luke*, he took a greater Care than of his own; chusing rather that the Truth of his Generation by the Holy Ghost should be questioned, than his Mother's Virtue; and being unwilling to assert the Miracle of his Birth, at the Expence of her Reputation. The antient Fathers, and Authors add, that this happen'd thus, in order to have *Joseph* for an irreproachable Witness of her Virginity, and that he should take Care of the Infant *Jesus*. St. *Ignatius* the Martyr, in his Epistle to the *Philadelphians*, and several other Interpreters add, that it was done, besides, to hide his Birth of a Virgin from the Devil, lest he should know that he was the *Messiah*. It must be added, to support that Thought, that the Devil seeing *Joseph* and *Mary* married together, did not apply himself to take Notice, that she remained always a Virgin, and that seeing her pregnant, he thought she had conceived like other Women.

He that was the Messenger of that miraculous Conception, was called *Gabriel*, he enter'd *Mary*'s Chamber while she was alone, and saluted her full of Grace, and told her, that *she should conceive the Son of the Almighty, that God would give him the Scepter of* David *his Father, that he should reign in the House of* Jacob, *and that his Reign would have no End.* *Mary* surprised at that Message, answer'd him in Terms, which shewed no Mistrust of the Truth of the Words of the Angel, but which contained only an humble Question of the Means whereby that Conception was to be accomplished, having made a Vow of Virginity. *Gabriel* assured her, *that the Holy Ghost should come into her, and that the Child who was to be born of her, would be holy, and called the Son of God.* She replied nothing else but that she was the Lord's Servant, and that it may be *done to her, according to the Words of the Angel.* At that Instant the Body of the Son of God was perfectly formed; and by that marvellous Conception he became *Adam*'s Son, without inheriting his Guilt, which is no otherwise transmitted but by the natural Way of Generation, infected with the Concupiscence. *Joseph* perceiving her big, was in strange Inquietudes, because he knew that he had lived with her like her Brother, and could not question her Virtue, though he saw in her Marks of the contrary; so that as he could not excuse her, and being unwilling to expose and accuse her, he took a Resolution worthy a just Man as he was, which was to abandon her, in going some where else, and to leave the Judgment of it to God. In that Thought the Angel appeared to him, dissipated his Doubts, and made him change his Resolution, informing him of the miraculous Conception of his Spouse, which had been done by the Operation of the Holy Ghost. *Mary* knew his Suspicions, by the Manifestation of the Grace she had received, but would not clear up his Doubts, because in discovering her Innocence, she discover'd at the same Time her Greatness, and she did not know what God would have her do in that Occasion. There is a Diversity of Sentiments between the Fathers and Interpreters on that Subject; some of them believing that *Joseph* and *Mary* were then betrothed only; and others maintaining that they were in fact married. I follow the last Opinion, as that which I think the most common in the Church; but I do not condemn the other, which has its Reasons, its Proofs, and its Defenders among the Fathers and modern Interpreters.

A few Days afterwards she departed for *Nazareth*, to pay a Visit to her Cousin *Elizabeth*, of whose miraculous Pregnancy she had been informed by the Angel, to confirm her in the Truth of that he promis'd her. That pious Woman was married to a Priest, called *Zachariah*, and both had lived without Children, to an Age where Nature forbad them to hope for any: But God had permitted that Sterility for the Manifestation of his Power, and the Glory of his Son. One Day, while *Zachariah* was serving in his Turn, in the Temple, and offering the Sacrifice of the Incense, according to Custom; the Angel of the Lord appeared to him, and assured him, that *his Wife should conceive a Son, who would be great before the Lord; that the Joy of his Birth would be general; that he would be filled with the Holy Ghost, even in his Mother's Womb; that he would convert to God several of the Children of* Israel; *that he should precede the Lord, and prepare to him a perfect People.* *Zachariah* surprised at that Apparition, and doubting of the Favour which God promised him, lost his Speech, for a Punishment of his Incredulity; and to shew the Truth of the Things which were announced to him. The People was expecting that he should come out of the Temple, and was surprised that he staid so long; but they were much more surprised to see him come out dumb; every one believing that he had had some Vision. He returned to his House, when the Time of his Office was expired; and a few Days afterwards *Elizabeth* found herself pregnant. She was already six Months gone, when the blessed Virgin came to visit her. When she saluted *Elizabeth*, the Child within her knowing his Master, adored him, by a Leap, which was rather divine than natural. It was then he received the Use of his Reason, and the Sanctification of the Holy Ghost, which the Angel had promised to *Zachariah*. At his coming into the World he untied the Tongue of his Father, who sung a marvellous Song to announce the approaching Birth of the *Messiah*. Every one conceived great Hopes of him, whose Birth had been accompanied with so many Prodigies. He surpassed those Hopes by the Holiness of his Life, as we'll see in the Sequel of this *History*. *Mary* departed from that

that bleſſed Houſe, where her Preſence had brought ſo many Favours, and returned to *Nazareth*, the Place of her Habitation, to wait for her Delivery. But God had not choſen that City for the Accompliſhment of ſo great a Myſtery, no more than that of *Jeruſalem*, Capital of *Judea*.

Auguſtus wanting to know the Forces of the Empire, cauſed a general Edict to be publiſh'd, whereby he order'd that in all the Provinces ſubject to it, there ſhould be a Muſter made of all the Perſons found in them. *Quirinus* was ſent into *Syria* by an extraordinary Commiſſion (*Sentius Saturninus* being then Governor thereof) to have it executed. The Order he gave in *Judea*, which was compriſed in that Province, was that every one ſhould come to be enrolled in the capital City of his Family, or of his Tribe. Therefore *Bethlehem* being the Chief of the Family of *David*, *Joſeph* and *Mary*, who deſcended from it, came thither to obey the Command of the Emperor. That Deſcription is called the firſt by St. *Luke*; becauſe *Quirinus* made another nine or ten Years afterwards, when *Archelaus* Son of the old *Herod*, having been, as I'll ſay hereafter, exiled to *Vienna* in *Dauphine*, *Judea* was reduced into a Province, and govern'd by a Procurator of *Cæſar*. The City of *Bethlehem* was ſo ſmall, and ſo many People flocked to it, that *Joſeph* and *Mary* could find no Place to lodge in; but were forced to retire into a Cave (ſome place it in the City, and others in the Suburbs) which ſerved for a Stable for Beaſts.

It was there that the Son of the living God would come into the World, and not in a magnificent Palace, to confound the Vanity of Men, and to begin by his Humility the Cure of the Evils which the Pride of the Chief of human Nature had cauſed. He came out of the Womb of the Virgin, as a Flower comes out of its Stalk without opening it; and inſtead of wounding her Virginity, he conſecrated it anew by his Birth, which was to be as pure as his Conception. His Cradle was a Manger for Beaſts, and he would ſubmit himſelf to all the Infirmities of other Children, which are the Puniſhment of the Sin in which they are born, though he was free from it. An Angel declared to Shepherds who kept their Flocks in the Fields, that the Saviour was born, and commanded them to go and adore him in *Bethlehem*, where they would find him wrapped in Swaddling Cloaths, in a Manger. At the ſame Time they heard a heavenly Muſick of Angels, who ſung *Glory to God in the Higheſt, and on Earth Peace, good Will towards Men.* They immediately took the Road of *Bethlehem*, where they found the Infant *Jeſus*, with *Joſeph*, and *Mary* his Mother, in the Condition that was told them. They ador'd him, and return'd to their Flocks, bleſſing God, who had ſent at laſt into the World, the *Meſſiah*, whom *Iſrael* had ſo long expected. He was circumciſed the eighth Day, according to the Law of *Moſes*, though he was not ſubject to it, having no Sin, and coming to take off that Mark, which diſtinguiſhed the *Jews* from the other People of the World, in order to form of both a new People, who ſhould worſhip God in Spirit and Truth. The Name of *Jeſus*, which ſignifies Saviour, was given him, as it had been order'd by the Angel, when he announced to her his Conception. If the Circumciſion was done in the Place where he was born, or in a Houſe, it is a Queſtion more curious than important.

A Star newly created, appeared to the Magi in the Eaſt, and a divine Light made them know, from their Obſervation of that new Phænomenon, that the King of the *Jews* was born. At the ſame Hour they left their own Country (ſome ſay it was *Perſia*, others *Chaldæa*, or *Arabia Felix*, and I believe that it is the laſt which produces Gold and Perfumes, and is not ſo far from *Judea* as the two other Regions) to come to ſearch for him, obeying the Motion of the Spirit of God which conducted them. They came directly to *Jeruſalem*, thinking that they were to find that new King in the Capital of the Kingdom. *Herod* informed of their Arrival, and of the Subject of their Journey, was much diſturbed, and the whole City took the Alarm, as well as he. After he had aſſembled the Doctors, to know of them in what Place Chriſt was to be born, and they had anſwer'd, that according to the Prophets it would be in *Bethlehem*, he diſmiſſed the Magi, and deſired them to return back thro' *Jeruſalem*, that on their Report, he might go himſelf and worſhip that Monarch, whoſe Birth was ſo glorioſly announced. His Heart had Sentiments quite different from his Words; but God confounded all his Ends. The Star which had hid itſelf from the Magi in *Jeruſalem*, appeared again to them when they came out of it, and conducted them to the Place where the Infant *Jeſus* repoſed. Though they found him in the Infirmities of other Children, they notwithſtanding adored him as their God; and were the Premiſes of the *Gentiles* in their Homage, which they accompanied with a rich Preſent of Gold, Myrrh, and Incenſe. The Feaſt which the Church celebrates, at preſent, in honour of that Adoration, in its firſt Inſtitution among the *Greeks*, had for Object the Nativity of *Jeſus Chriſt*, which they called *Theophany* and *Epiphany*, that is to ſay, the *Apparition* and *Manifeſtation of God*, and ſolemnized it the ſixth of *January*, thinking that Chriſt was born that Day. He would offer himſelf to the Temple the fourteenth Day after his Birth, and obſerve all that the Law of *Moſes* preſcribed for the Redemption of the Firſt-born, as his bleſſed Mother obſerved on her Side all that reſpected Women after their Delivery for their Purification, tho' ſhe was not ſubject to it; having neither conceived, nor been deliver'd of her Son by the natural Way. *Simeon*, who was a juſt Man, and feared God, had been aſſured by the Holy Ghoſt, that he ſhould not die without ſeeing the Redeemer of *Iſrael*. He lived in Expectation of ſo ſignal a Favour, and was almoſt always in the Temple. The Spirit of God conducted him thither when *Mary* enter'd it, carrying her Son in her Arms, and let him know in that Infant who appeared very poor, the King of *Iſrael*, and the Saviour of the World. He ſung a Canticle where he named him the Salutary of God, and the Light of Nations. Afterwards, ſpeaking to the Mother, he told her, that *he would be to ſeveral a Sign of Contradiction, and a Subject of Ruin as well as of Reſurrection in* Iſrael. *Anna*, the Prophetess, a Widow of a ſingular Piety, who was always in the Temple, and ſpent the Days and Nights in Faſts and Prayers, announced, at the ſame Time, the Greatneſs of *Jeſus Chriſt*, to all thoſe who waited for the Redemption of *Iſrael*. When *Joſeph* and *Mary* had accompliſhed all the Ordinances of the Law, they returned to *Nazareth*, which was the Place of their Habitation.

Mean while the Angel cautioned the Magi againſt returning thro' *Jeruſalem* towards *Herod*, who had reſolved, being informed by them of the Place where *Jeſus* was, to have him killed, to ſecure in his Houſe the Kingdom of *Judea*, and quiet entirely his Mind. When he ſaw that they did not return, his Fear increaſed, and made him take a quite barbarous Reſolution. He ſent Soldiers into the Territory of *Bethlehem*, and the neighbouring Places, with Orders to put to the Sword all the Male Children under two Years of Age. St. *Epiphanius* underſtanding ill thoſe Words, has ſaid, that the Magi did not come to adore our Lord but two Years after his Birth; but in that he is followed by no Body. The Force of the *Greek* Text ſhews, that it was ſoon after, and the common Opinion of the Church places that Arrival on the thirteenth Day. That Cruelty (which *Macrobius* alone, among the profane Authors has mentioned, and of which *Joſephus*, which is ſurpriſing enough, does not ſpeak, tho' he forgets none of the bad Actions of *Herod*) ſtained that unhappy Prince with an horrible Crime, without producing the Effect he expected from it. I do not believe that one of his own Sons was wrapped in that Maſſacre, becauſe there is not the leaſt Appearance that at his Age, he could have a Child only two Years old. It was on Occaſion of the Death of his other Children, *Auguſtus* ſaid, that he would rather chuſe to be *Herod*'s Hog, than his Son. The Angel adviſed *Joſeph* to take *Jeſus* and his Mother, and fly into *Egypt*, and to ſtay there till he ſhould command him to come out of it. *Joſeph* obey'd immediately, and the Saviour of the World would fly before a petty King, who reign'd only by his Leave. *Herod*'s Death followed ſoon that Flight. I have related in my Chronology of the Kings of the *Jews*, the frightful Circumſtances it was attended with. It ſuffices to repeat in this Place, that it cannot have happen'd later than the ſecond Year of *Jeſus Chriſt*; and the 37th begun of the Reign of that Prince, reckoning from the Time he was declar'd King by the Senate, and the

the 34th, since by *Antigonus*'s Death, he enjoyed peaceably the Throne. He left three Sons, *Archelaus*, *Herod* sirnamed *Antipas*, and *Philip*. The first went to *Augustus* to be confirmed in the Dominions of his Father, who had declared him his Successor. *Herod* pretended to it in Virtue of a former Will, and all his Relations join'd with him. The *Jews* had sent Ambassadors to desire the Emperor to deliver them from the Dominion of both, and allow them to live under the Governors of *Syria*. The Cause was pleaded before him, and *Nicolas Damascenus* spoke for the Princes they wanted to exclude from the Throne, having already experienced the Violences of one, and fearing that the other would not be much better. *Augustus* to adjust those Differences, gave *Judea*, *Idumea*, and *Samaria* to *Archelaus*; the rest of the Kingdom was divided between *Philip* and *Herod*, and *Galilee* fell to the last.

The Angel having informed *Joseph* of the Death of the Persecutor of *Jesus Christ*; commanded him to leave *Egypt*, and return into *Judea*. But as that careful Guardian heard that *Archelaus* supplied there the Place of his Father, he was afraid he should be Heir of his Father's bad Dispositions towards *Jesus*, as he was of his Kingdom. He imitated him in his Cruelties, which were so great at last, that the *Jews* and *Samaritans*, incapable of bearing them any longer, sent Ambassadors to *Rome* to carry their Grievances to the Emperor. He sent for him to answer the Accusations exhibited against him, and as he made but a very bad Defence, he banished him to *Vienna* in *Gaul*. The Provinces where he commanded, were joined to the Government of *Syria*. *Caponius*, a *Roman* Knight, was sent to govern them with the Title of Procurator of *Cæsar*.

Joseph chose his Habitation in *Nazareth*, a small City of *Galilee*, which was done by the Direction of the Holy Ghost, who wanted to make him accomplish the Prophecy, which says, *he shall be called* Nazarene. That Name was written on the Title of the Cross as ignominious; but the Angels gave it *Jesus Christ* after his Resurrection, as a Title of Glory and Greatness. The first Christians were called *Nazarenes*, a Name they retained till they took that of Christians. Authors do not agree among themselves on the Time our Lord staid in *Egypt*. Some of them will have it two Years, others three; and others eight. Cardinal *Baronius* follows the last Date, but we leave that Dispute to Chronologists. What we can say for certain is, that he consecrated that Province by his Presence; and sowed in it the Seeds of Holiness, which some Centuries afterwards, produced those marvellous Examples of Austerity and Piety we read in the Lives of the Anchorets, who made of it a Country of Penitence. *Eusebius* says, that at the Entrance of the Son of God into *Egypt*, the Devil, which had been so long worshipp'd there, and where he had reigned with so absolute an Empire, fled. *Origen*, St. *Athanasius*, and *Sozomene* add, that the Idols fell, according to this Prediction of *Isaiah* xxxvi. *There the Lord shall ascend on a high Cloud, and enter Egypt, and its Idols shall be shaken.*

At 12 Years of Age *Jesus* ascended into *Jerusalem* with his Kindred, to solemnize the Feast of *Easter*, where he staid, without having informed his blessed Mother of his Design. When she saw, that she could not find him among her Acquaintance, and her Relations, she and *Joseph* were affected with a Grief which could scarce be expressed. They were gone already a Day's Journey, when they returned back, and re-entering the City, went directly to the Temple, where they found him among the Doctors, asking them Questions, and answering them, in so learned, and so wise a Manner, and so much above his Years; that those who heard him were ravished with Astonishment, to see at that Age so clear an Understanding, so well instructed in his Religion, and so prudent. His Mother having thus found him, said to him, when they were alone, *Son, how could you use us in this Manner, your Father and I were looking for you, very sorry to have lost you.* But *Jesus* answer'd that tender and loving Complaint, in a Manner which seemed a little rude. *Why did you look for me*, said he, *did you not know that I must apply myself to the Things which regard my Father?* St. *Luke*, who relates those Words, adds, that they did not understand his Answer. That Ignorance did not regard the divine Condition of his Person, but only the Particular of the Affairs of his divine Father, to which he said he was obliged to apply himself. After that Action the sacred History says nothing more of his Life till his Baptism, but only that he returned to *Nazareth* with his Parents, and was subject to them. Let us not be curious without Cause, and respecting that Obscurity, in which he was pleased to spend 30 Years of his Life, we ought not to make fruitless Meditations, under Pretence of Piety, which, though sincere, must establish its Thoughts on the Truths which the Scripture, or the Fathers teach, as the Belief of the Church. There would be a Temerity in wanting to know what *Jesus Christ* would hide. The Scripture says nothing either of the Life of *Joseph*, or of the Time of his Death; which, notwithstanding, must have happen'd before that of our Lord, for if he had been living, the Son of God, before he expired on the Cross, had not recommended his Mother to the Care of St. *John*, his beloved Disciple. The Fathers and ecclesiastical Historians say nothing of him: But the Holy Ghost has praised him more than any Body could, when in one Place the Evangelist says, that *he was the Spouse of* Mary, *of whom* Jesus Christ *was born*. And in another Place, that *he was a just Man*. Which few Words include a great Excellency.

Augustus, after he had govern'd alone the *Roman* Empire, during forty Years, and made his Government agreeable by wise and prudent Conduct, and procured a general Peace to the whole Earth, to those who were the most zealous for the antient Liberty, ended in *Nole*, a Life which his good Constitution had carried to the Age of seventy-five, ten Months, and some Days. His excellent Qualities joined to his good Fortune, had raised him to a Fulness of Greatness. He had robbed the *Roman* Citizens of their Liberty, but he had deprived them of a Good which they could not preserve, and of which they were no longer capable. His Beginnings were of an Usurper, and he ended as a Father; which made the *Romans* say, that *he should never have been born, or must never have died.* The greatest Harm he did the Empire, was to leave it to *Tiberius*, whose bad Qualities he was not unacquainted with.

In the fifteenth Year of *Tiberius*'s Tyranny, when *Pilate* governed *Judea* in the Quality of his Procurator, *Herod Antipas* reigned in *Galilee*, *Philip* his Brother was Tetrarch of *Ituræa*, and *Trachonites*; and *Lysanias* of *Abilene*. *Caiaphas*, and *Annas*, were one Pontif, and the other Prince of the Priests, or Chief of the Grand Council called *Sanhedrim* (some Authors say that he was Vicar of the first in his Absence) when the Holy Ghost taking *John Baptist* from the Desart, where he had lived, according to some Authors, ever since he was five Years of Age, commanded him to preach on the Shore of *Jordan*, a Doctrine and a Baptism of Penitence, which made a great Noise in *Judea*. He was that Angel whom God had promised by the Prophet *Malachy* to send before the Lord, to prepare his Ways. He very well deserved that Name by his new Kind of Life, which surpassed the natural Strength. For from his Infancy he had lived in the Desart, on Locusts, which are good to eat in those Countries, and wild Honey; his Cloaths were made of Camel's Hair, and there was nothing in his Person, and his Countenance, which did not preach a great Austerity. This contributed much towards authorizing his Discourses, which spoke of nothing else but of God's Judgments, of his Wrath ready to overtake Sinners if they refused to repent. From all Parts of *Judea* People came to hear him, and several confessing their Sins, received the Baptism of Water, which he administered in the River *Jordan*. Seeing the Pharisees came to it, he treated them as their Pride and Hypocrisy deserved, calling them a Generation of Vipers. But as much as the Knowledge of their secret Sins excited his Indignation, as much that he had of that Holiness of the *Messiah*, caused his Surprize, when he saw him among a Croud of Sinners present himself to his Baptism; which was but a Disposition to that which was to be instituted by him, some Time afterwards, for the Remission of Sins. *John* wanted to be excused, protesting that he could not do an Action which he judged so contrary to the Respect he owed him, as to the Lamb of God come into the World to purify all Men. But Jesus

Jesus commanded him to obey, and told him, that he should do what he desired of him, and that he was willing to accomplish all Justice, *i. e.* bear all the Humiliations due to Sin to satisfy to the Justice of his Father, and glorify him by that Humiliation. At his coming out of the Water, the Heavens opened, and the Holy Ghost came down upon him in Form of a Dove, and a Voice was heard saying, *This is my beloved Son, in whom I placed my Delight.*

There is a great Diversity of Opinions among the ecclesiastick Authors on the Time of that Baptism, which the Evangelist marks by these Words, *Jesus was as beginning his thirty Years.* For some of them maintain, that he was but twenty nine Years and ten Months of Age; others, that he had entered his thirtieth Year; St. *Chrysostom*, and most of the *Greeks* after him, say, that the thirtieth Year was accomplished. The *Latins* have followed that Date. The eastern Church has always believed, that this great Event had happened the 6th of *January*, and makes mention of it in the Office of the Epiphany.

St. *John* in his Office of Preacher of Repentance, did not lead Sinners to despair, and discouraged no body, of what Condition soever, of the Hope of Salvation, not even Soldiers, whom he obliged only to be contented with their Pay, and to offer Violence to no body. But when he saw the Pharisees and Sadducees coming to him, he treated them in the Manner above-mentioned, and was not afraid to threaten them with the Wrath of God.

The Son of God coming out of the Water, which he had sanctified by his going into it, was conducted by the Holy Ghost into the Desart, where he staid forty Days and forty Nights without eating, far from the Company of Men, and conversing with the Beasts of the Earth. St. *Mark* says, that he was driven into the Desart; and that Term of conducted used by the other Evangelists, marks, in my Opinion, a very great Thing in that Retreat, which is, that the Son of God, who in receiving the Baptism of *John* Baptist had confessed himself a Sinner like all the others who received it, wanted likewise to bear all the Humiliations, and all the Punishments due to Sin. Which are the Banishment from God, a Privation of his Creatures, and a Subjection to the Devil to be tempted by him. In fact, he follows *Jesus Christ* into his Solitude, and dares to tempt him there of Gluttony, pressing him to change the Stones into Bread; of Curiosity, intreating him to throw himself from the Top of the Temple to the Bottom; and of Ambition, promising him all the Kingdoms of the World, if he would fall before him and worship him.

The Insolence of the Slave against his Sovereign could go no further; as the Humility of the Sovereign who suffered with so much Patience his Audaciousness, could not be greater, and less imitable. For instead of using his Power in exterminating the Tempter, he argued with him, and answered to the Passages of the Scripture he alledged by others, which shewed the bad Application thereof.

The Author of the Treatise called, *the Cardinal Deeds of Jesus Christ*, attributed to St. *Cyprian*, and found among his Works, denies the Reality of that Transportation; and will that it had only happened in Spirit; but all the antient Fathers, and the universal Church believes at present that it was a true one; which we can easily conceive if we consider, that our Lord at the End of his Life was much more subjected to the Power of Darkness, *i. e.* of the Devil, and in a Manner much more derogatory to his Dignity. His Greatness appeared in that Temptation. For the Devil having been confounded, retreated full of Confusion, and was forced to leave the Place to Angels who came down from Heaven, to serve him whom the Tempter had treated so ill. The Christians in this first Action of the Life of our Saviour have a marvellous Model, to learn in what Manner they must behave when they are tempted, and to put their Confidence in him, who himself would be tempted, to deserve for them the Virtue of conquering the Temptation. Of this marvellous Example of the Fast of her Spouse, the Church has drawn that of Lent, which is as venerable by its Institution, which the antient Fathers called apostolick; as it is holy for its End, to all those who believe truly in him whose Life has been a Model of Penitence, though it has always been not only innocent, but the Source of Innocence for others.

After this great Victory *Jesus* came out of the Desart, as a Wrestler inured to fight against the Devil; and began to carry a vigorous War against him by the Predication of the Gospel, which destroyed all the Maxims of his Reign.

One of St. *John*'s Disciples called *Andrew*, hearing his Master say, who pointed at *Jesus Christ* with his Finger, *There's the Lamb of God*, followed him, and meeting with his Brother, called *Simon*, told him, that he had found the *Messiah*; at that Instant he desired him to carry him to our Lord who received him kindly. He changed his Name of *Simon* into that of *Cephas*, which signifies *Peter*. The Day following he called *Philip*, and this gained *Nathanael*, who deserved from the Mouth of *Jesus Christ* the Title of true *Israelite*, in whom there was no Fraud.

He came afterwards to a Wedding, in the little Town of *Cana* in *Galilee*, where he changed Water into Wine, which was his first Miracle. Some Authors have wrote, that it was the Wedding of St. *John* the Evangelist, who having seen that marvellous Transmutation, quitted his Spouse to follow *Jesus Christ*. But this Fable is without Foundation, and none of the Antients have spoke of it. *Nicephorus* writes, that it was the Marriage of *Simon* the *Canaanite*, who was afterwards one of the Apostles, called *Zelotes*. From thence our Lord came to the City of *Capernaum*, where he staid some Time with his Apostles; and his blessed Mother retired to *Nazareth*, which was the Place of her Birth.

The Feast of *Easter* happening, he ascended into *Jerusalem*, where entering the Temple, he made a Whip, wherewith he expelled all the Sellers and Buyers, who profaned the Holiness thereof, and of the House of his Father made a publick Market. The *Jews* who saw that Action, were offended at it, and asked him some Marks of the Authority he exercised on that Occasion; but instead of shewing them the Letters of his Mission, he made them an Answer which confounded them more, because they understood of their material Temple built in forty Years by *Herod*, what he would say of the Temple of his Body, which after they had destroyed it, he would rebuild in three Days. To his Discourse he added so many great Miracles, that several believed in him.

Nicodemus was remarkable among the rest, because of his Rank, and of his Reputation among the *Jews* and Pharisees, whose Sect he followed. He came to *Jesus Christ* by Night, and heard from his Mouth Truths which surprized him at first, but which were a great Subject of Consolation to him, when he, who taught him those Truths opened his Understanding to understand the Regeneration of Man by Baptism. We'll follow the Order of the Feasts of *Easter* he has celebrated, to relate summarily his principal Actions, it being impossible to make an exact Detail of them, because of the Conciseness we have prescribed to ourselves, and of the Severity of the Laws of History.

The Son of God, ever since that Time, continued to preach the Doctrine of Salvation in *Judea*; and the Apostles baptized those who believed in him. *John* Baptist had Disciples, who by an indiscreet Zeal for the Glory of their Master, could not bear the Reputation of *Jesus Christ*; he reprimanded them for that Thought, and told them, that it was absolutely necessary that *Jesus Christ* should increase in Glory and Authority, while himself declined in both; and that they should remember the Protestation he had so often, and so solemnly made, of being not Christ, but only his Forerunner. Being in Prison he deputed some of them to him, that at his Miracles they should acknowledge him for the *Messiah*, and follow him after his Death; having retained them near his Person with no other View than to dispose them to receive his Doctrine. The Zeal he had for Justice, and the Honour of God, was the Cause of his Imprisonment. *Herod Antipas*, though he loved him, and had done several Things at his Recommendation, could not bear he should reprimand him so bitterly

so

for the Inceſt he had committed with *Herodias*, his Brother *Philip*'s Wife, and *Ariſtobulus*'s Daughter. He loved her ſo paſſionately, that he was not afraid to take her from her Huſband, and of irritating againſt him *Aretas*, King of *Arabia*, whoſe Daughter he had repudiated. In fact a very cruel War was thereby kindled between them, and *Herod*'s Forces were often beaten. But his greateſt Misfortune came from the Death of St. *John*, whom, by an inexcuſable Complaiſance, he ſacrificed to the Fury of his Miſtreſs. The Daughter of that Inceſtuous having pleaſed him in dancing at a Feaſt he celebrated on his Birth-day, he promiſed with a ſolemn Oath, to give her all ſhe would aſk, was it even half his Kingdom. The Mother making uſe of the Occaſion, engaged her to aſk the Head of *John* Baptiſt, which was granted to her; and the Life of the greateſt of the Sons of Men, was the Reward of the Dexterity of a Dancer. St. *Jerom* ſays, that *Herodias* pierced his Tongue with the Needle of her Hairs, to be revenged, after his Death, of the Freedom of his Speeches. His Diſciples buried his Corps in *Samaria*.

Herod, being informed of the Miracles of *Jeſus Chriſt*, thought that him he had put to Death, was riſen from the Dead. God puniſhed the Author of that Death, with a very great Severity. For *Herod* having been accuſed by the old *Agrippa*, at his Return from *Rome* into *Judæa*, of wanting to excite a Revolt, and his Defence having not appeared ſatisfactory to the Emperor *Caligula*, he was baniſhed to *Lyons* with *Herodias*, and where they ended their Days in a miſerable Manner. In that Calamity *Herodias* acted generouſly; for the Emperor being loth to join her in the Puniſhment of her Huſband, and cauſing all her Fortune to be reſtored to her, in Conſideration of her Brother *Agrippa*, ſhe anſwered him generouſly, that *he granted her a Favour worthy his Goodneſs, but ſhe could not accept it; and that ſince ſhe had been Partaker of* Herod's *Proſperity, ſhe thought the conjugal Love obliged her to accompany him in his Adverſity*. *Caligula* could not bear that Generoſity, and baniſhed her with her Huſband, executing the divine Revenge on her who had been the principal Cauſe of the unjuſt Death of *John* Baptiſt, whoſe Holineſs is ſo great, that it was queſtioned if he was not the *Meſſiah*; which appeared by the Deputation of the Prieſts of *Jeruſalem*, who had a Suſpicion that he could very well be the *Meſſiah*. Our Lord having named him the greateſt, *i. e.* the moſt holy of the Children of Man, made a Panegyrick of him to which nothing can be added. I have related theſe Events out of the Times they happened, but the Sequel of Things has obliged me to it.

Jeſus Chriſt being informed that his Forerunner was put in Priſon, quitted *Judæa*, and came into *Galilee*. In paſſing through *Samaria*, he converted, near the Well of *Jacob*, that famous *Samaritan* Woman, who was his Evangeliſt near her Countrymen, and he informed her that the Time was come when God would be no longer adored on the Mountain of *Sion*, nor on that of *Gerizim*, but would be worſhipped every where, in Spirit and Truth, *i. e.* by the Light of Faith, and without the Shadows of the antient Figures. He ſtaid two Days in *Samaria*, and ſeveral, after they had heard his marvellous Diſcourſes, believed in him. He came from thence into *Cana* of *Galilee*, where he cured the Son of a petty Prince, or Lord of ſome City. He would not enter *Nazareth*, but choſe *Capernaum* for the Place of his Habitation; not that he ſtaid always there, for he uſed to travel from City to City, and from Borough to Borough, to preach. In his Journey into *Galilee* he called on the Sea-ſhore *Peter*, *Andrew* (thoſe for the ſecond Time) *John* and *James*, all Fiſhermen by Profeſſion. The Grace of that Vocation was ſo efficacious, that it made them leave their Father and Boats, to follow him, who promiſed them no temporal Advantage, to oblige them to obey him. With them he entered the Synagogue of *Capernaum*. He cured a Man poſſeſſed with the Devil, and reſtored her Health to St. *Peter*'s Mother-in-law, who was afflicted with a violent Fever. Towards the Evening, at the Door of his own Houſe, he did ſeveral other marvellous Works. Some Time afterwards being aſleep in the Boat of his Diſciples, and a Tempeſt threatning them with an imminent Naufrage, he awaked, and commanded the Winds to be ſtill, and to the Sea to reaſſume its former Calm, to which they obeyed immediately. The Devils who were in the Bodies of two poſſeſſed, could not reſiſt the Force of his Voice which expelled them; and aſked him no other Favour, than Leave to enter the Bodies of the Swine which were feeding near the Mountain; which he granted, and immediately thoſe evil Spirits made them precipitate themſelves into the Sea. The Cure of the Paralitick who was let down through the Roof of a Houſe, rendered his Name famous throughout the whole Province. But that of the Woman who for twelve Years ſucceſſively had been afflicted with a Bloody Flux, and who ſaw it ſtopped as ſoon as ſhe had touched the Hem of his Garment, was a Proof equally illuſtrious and new of his Power and Holineſs. He called *Matthew* the Publican, who was in his Compting-Houſe, and the Efficacy of his Voice made him abandon all his Fortune, to be one of his Diſciples. He raiſed from the Dead the Daughter of *Jairus*, who was but very lately dead, reſtored their Sight to two blind Men, and expelled from the Body of one of them a dumb Devil, who had tormented him a long Time.

In the Feaſts of the ſecond *Eaſter*, ſince his Baptiſm, he cured in *Jeruſalem* a Paralitick, who had been thirty-eight Years near the Pool of *Siloam*, without being able to deſcend into it, becauſe he had no body to help him when the Angel deſcended to diſturb the Water. That Miracle having been done on a Sabbath-day, the Phariſees took hence Occaſion to accuſe *Jeſus Chriſt* of having violated the Law, whereas ſuch a miraculous Cure ſhould have made them acknowledge him for the Son of God. He defended that Miracle againſt their Calumny, as well as that of reſtoring the dried or paralitical Hand to its former Strength; and the Action of his Diſciples, who being hungry, and paſſing through a Corn-field, had, on a Sabbath-day, pulled out ſome Ears of Corn, rubbed them between their Hands, and eat them, alledging to them the Example of *David*, to whom the High Prieſt had given to eat the Shew-bread in an extreme Neceſſity, though by the Law no body was allowed to eat it but the Prieſts. After he had ſtaid ſome Time on the Sea-ſhore, to avoid the Fury of his Enemies who were entirely bent on his Deſtruction, he left the Multitudes who followed him, and retreated to the Mountain; where he ſpent the Night in Prayer, after which he choſe twelve from among his Diſciples, whom he called Apoſtles. Their Names are *Peter*, *Andrew*, *James* and *John*, Sons of *Zebedee*, *Philip*, *Bartholomew*, *Thomas*, *Matthew*, called the Publican, *James* Son of *Alphæus*, called the Lord's Brother, *Thaddeus*, *Simon*, and *Judas* the Traitor. They were all of a low Birth, of a mean Profeſſion, of a coarſe Underſtanding, and illiterate. In that appeared the Wiſdom of the Son of God, who would not, by chuſing Perſons of Condition and Learning, that the Succeſs of his Goſpel ſhould be attributed to their Authority or Eloquence. But we ſhall ſee ſoon thoſe Fiſhermen confound the Doctors of the Law, render Philoſophers mute, and make the Folly of the Croſs triumph over the Wiſdom of the World. It was after that Election that our Saviour made that excellent Sermon of the Beatitudes, and Chriſtian Perfection, related by St. *Matthew*. Coming down the Mountain, he cured a Leproſy, and entring *Capernaum*, he reſtored his Health to the Servant of the Centurion, whoſe Faith he was pleaſed to praiſe, ſeeing that he thought himſelf unworthy he ſhould enter his Houſe, but aſked him only a Word which he thought ſufficient to produce the Effect he deſired. Coming from thence into the ſmall Town of *Naim*, he raiſed from the Dead the only Son of the Widow, whom he found at the Gate of the Town carried to be buried.

The Converſion of the Woman Sinner, in the City (whom a common Belief miſtake for *Mary*, Siſter of *Martha*, and *Lazarus*, and for *Magdalen* of *Galilee*, though the Antients were of another Sentiment, and diſtinguiſh them) can very well be called a Reſurrection. As ſoon as ſhe knew that Jeſus Chriſt was at *Simon*'s the *Phariſee*, who had invited him to eat, ſhe went thither, without conſidering the Reaſons of Decency which ſhould have hindered her from it. She ſtaid behind him, and throwing herſelf at his Feet, bathed them with her Tears, and

wiped them with her Hair, making subservient to her Repentance, all that had been subservient to her Sins. The Pharisee was offended to see that *Jesus Christ* suffered her to touch him; but he judged of Things by the proud Maxims of his Sect, and not by the Motion of that Grace which the Son of God was come to bring into the World. He defended her Repentance against her Accuser, and sent her away, with this Testimony of having loved much, which will render her illustrious throughout all Ages. In *Capernaum* he delivered a Possessed who was blind and dumb. After which he preached on the Sea-shore, and under several Parables of the Seed, of the Zizany, of the Mustard-Seed, of the Leaven, of the Treasure found in the Field, and the Net full of large and small Fishes; he taught the Increase of the Church to the Multitudes who followed him; the City of *Nazareth* which was obliged, as the Place where he had dwelt longest, to do him a particular Honour, not only would not hear favourably his Discourses, but was scandalized at them, because of his low Birth, being thought the Son of *Joseph* and *Mary*, and because he had not frequented the Schools, where the Sciences were taught. That Injury obliged him to leave a Place where his Affection was so ill acknowledged; and the Evangelist observes, that the Incredulity of his Fellow-Citizens hindered him from operating a great Number of Miracles in *Nazareth*. But it did not hinder him from evangelizing in *Galilee*, which he over-run. As he could not alone suffice to so much Work, he sent his Apostles, two and two, to preach, and to authorize their Discourses, he gave them the Grace of Miracles. They acquitted themselves with a great deal of Piety, of that Ministry, and when they came back to him, he carried them into a Solitude to repose themselves. Five thousand Men followed him thither, whom he fed with five Loves and two Fishes, which he multiplied by his Blessing in so marvellous a Manner, that after that great Multitude had been satiated, there were yet twelve Baskets full of what they had left. That Miracle gave him subject, being at *Capernaum*, to make that excellent Sermon of the evangelical and eucharistick Bread, related in the sixth Chapter of St. *John*.

Jesus Christ did not ascend into *Jerusalem* with his Apostles, to solemnize the third *Easter*, because the *Jews* searched to put him to Death; but made that Journey in secret, and afterwards returned immediately into *Galilee*, from whence he went as far as the Frontiers of *Tyre* and *Sidon*, where he cured the Daughter of the *Cananean* Woman, who was tormented by the Devil. At his Return on the Sea-shore he cured several Diseased and made a Man who was both dumb and deaf, speak and hear. He afterwards fed four thousand Men by the Multiplication of seven Loaves, and some small Fishes, and seven Baskets were full of what was left. In the Districts of *Magbedam* and *Dalmanutha*, the Pharisees asked him a Sign from Heaven; and instead of gratifying their Curiosity, he cautioned his Auditors again their Hypocrisy, which he calls their Leaven. He being afterwards in *Cæsarea*, examined his Apostles on the Opinion People had of the Son of God. They answered that some said he was *Elias*, others *John Baptist*; these *Jeremiah*, and those some of the antient Prophets: Which shews the common Belief among them of the Transmigration of Souls. Having heard that Answer, he asked them what was their own Opinion of him? *Peter* answered for them all, and confessed him the Son of the living God. That Confession, which neither Flesh nor Blood could have revealed to him, raised him to the Dignity of the fundamental Stone of the Church, under him who is the corner Stone of that Edifice, against which the Gates of Hell will never be able to prevail. To the Promise of that high Dignity, he joined the Discourse of his approaching Passion, and pronounced the solemn Sentence, which obliges all his Servants to carry their Cross after him; which Sentence has been reformed since. *Peter* could not hear the melancholly News of the ignominious Death of him, whom he had so lately acknowledged for Son of God. He followed in his Discourse the Impulse of his Affection, which was yet all carnal, and would dissuade his Master from entering the Road to *Calvary*, after which he thirsted. He received from him an Answer which filled him with Confusion, and heard himself called *Satan*, by the same Mouth which a little before had so highly praised him. He had notwithstanding soon after the Favour to see his Transfiguration on the Mountain, in the Company of *James* and *John*; and if *Jesus Christ* had then followed their Sentiments, he had always staid there; and built three Tabernacles, one for himself, one for *Moses*, and one for *Elias*. He appeared to them in a bright Cloud, with a Face more radiant than the Sun, and in Cloaths as white as Snow. Their Conversation had no Report to that State of Glory, for it run only on the bloody Execution which was to be done in *Jerusalem* on his Person. He forbade the three Witnesses of the transitory Glory of his Body, to speak of that great Vision, till after his Resurrection. At his coming down from the Mountain he cured a Possessed who was Lunatick, and from whose Body his Disciples could not expel the Devil; and he told them, *that he was of the Number of those which cannot be expelled but by Fasting and Prayer.*

To give them an Example of the Obedience due to the Law, he would pay for himself and for *Peter*, the capital Imposition of half a Sicle, which was raised of each *Jew*, by God's Ordinance, for the Support of the Temple. But in doing that Action, to which he was not obliged, since he was the Son of the God of the *Jews*, and of the Temple, he wrought a Miracle. For he sent *Peter* to fishing, and the first Fish he took, had in its Mouth the Piece of Money necessary to pay for them both. St. *Hilary*, and several Authors after him, interpret thus the Tribute I mention. St. *Jerom* and *Bede*, on the contrary, believe that it was an Imposition made by *Augustus* on each *Jew*, and that it was carried to his Coffers. It is certain that *Titus* the Son of *Vespasian*, imposed on the Head of every Man of that Nation, the same Tribute which was payed to the Temple by Order of the Law. But I find the first Explication the best. The voluntary Submission of the Master should have hindered the Disciples from pretending to any Degree of Primacy among them; notwithstanding which they had some Thoughts of it, and disputed upon it on the Road, in a very ignorant Manner. The Son of God reprimanded them for it, with his usual Goodness, and calling a Child, whom he placed in the Middle of them, told them, that those should have no Part in the Kingdom of Heaven, who would not be semblable to the Child he held; that's to say, would not have the Simplicity, Meekness, Obedience, Purity, and Disinterestness required by the Gospel. He taught them afterwards the Abhorrence for the Sin of Scandal given to the Elect whom he called little, and pronounced that we must pull out the Eye, and cut off the Hand and Foot, which scandalize, *i. e.* that we must quit all Occasions which can incline us to Sin, without considering the Utility and Pleasure we receive by remaining in it, no more than the Inconveniency and Trouble we can meet with in quitting it. This Discourse was followed by that of the fraternal Correction, and of the Forgiveness of Enemies, under the excellent Parable of the Father of a Family, who calling his Servants to their Accounts, remitted to one of them a great Sum he owed him, who immediately after meeting with one of his Companions, who owed him a Trifle, carried him by Force to Prison: Which being reported to the Father of the Family, provoked him to Wrath, and he caused that unmerciful Servant to be thrown into a Dungeon, and confined there till he had paid his whole Debt.

At the Feast of the Tabernacles, he did not ascend into *Jerusalem* with his Relations, according to his Custom, but went thither in secret. The *Samaritans* refused him the Entrance of their City, because he was going to *Jerusalem*; and that Insolence inflamed so much the Zeal of the Apostles, that *James* and *John* asked Leave to make the Fire come down from Heaven to burn that ungrateful City. He reprimanded them for that Rigour, and told them, that *the Son of Man was come into the World to save, not to destroy.* He was so far from resenting the Injury, which the Apostles thought had been done to him by the *Samaritans*, that a Leprous

of that City presenting himself before him, and nine other Persons afflicted with the same Malady, received an entire Cure.

During the Solemnity, he preached in *Jerusalem* with so much Efficacy and Reputation, that the Princes of the Priests, and the Pharisees, jealous of his Credit, which diminished theirs, sent Men to take him Prisoner: But they were taken themselves by the Charms of his Discourses, and returning back to those who had given them charge to seize his Person, they told them boldly, *that no Man had ever spoke like him.* His Enemies thought they had entrapped him, by presenting to him a Woman surprised in Adultery, for if he had condemned her, they had accused him of Cruelty, he who was always preaching Meekness; and if he had absolved her of her Sin, they had made him pass for a Destroyer of the Law of *Moses*, which commanded that she should be stoned to Death. The Wicked were themselves entrapped in their Malice; and the Accusers of that poor Criminal having read their Sins which the Saviour had wrote on the Dust (which is the Opinion of several grave Interpreters) they went away one after another, being incapable to resist the Remorses of their Conscience, which reproached them with the same Crime they had render'd themselves Accusers of, and perhaps of others much more abominable. The Sinner found in *Jesus Christ* a Physician rather than a Judge, and he sent her back with a salutary Advice to sin no more; which he has always added, when he has forgiven some very great Sinners. A little afterwards he cured a Person born blind, having put upon his Eyes Earth dissolved with his Spittle; which was capable to blind him, if he had had the Use of his Sight. That Miracle was so famous, that the Pharisees could not eclipse it. It caused a Division among them, some of them maintaining, that *Jesus Christ* was a Sinner, because he had done that Sign on a Sabbath-Day; and others, on the contrary, defending his Innocence, as being impossible that a wicked Man could do so marvellous an Act.

From *Jerusalem* he went throughout all *Judea*, announcing the Kingdom of God, and sending always some of his Disciples before him. He chose them to the Number of seventy-two, and gave them the same Instructions he did to the Apostles. Being in *Bethany*, in the House of *Lazarus*, of *Martha* and *Mary*, he preferr'd the Contemplation of one, to the Sollicitude of the other, to whom he gave the Praise of having chose the *better Part*. A little afterwards he taught his Apostles a Formula of Prayer. The first Part contains all that we owe to God, and which should be done to him, to honour him in the Quality of our Father, and Sovereign, as are the Sanctification, *i. e.* the Glorification of his Name, the Coming of his Kngdom, *i. e.* the last Judgment, which will put an End to the Reign of the Prince of this World; and the Accomplishment of his Will on Earth, as it is in Heaven. The second Part of that divine Prayer, includes in the Words of daily Bread, all Things necessary for the Preservation of the Life of the Soul, and of the Body. The Forgiveness of the daily Offences all Men are guilty of, being joined in it with that of the Forgiveness of the Enemies; the Evils of which it makes us ask to be deliver'd from, is nothing else but the Concupiscence, which is the Source of all the Sins which are committed, and of which the Grace of God alone can stop the unhappy Effects. That Prayer is one of the strongest Arguments St. *Augustin* employs against the *Pelagians*, to prove that all Men sin, and that none has lived neither under the Law of Nature, nor under the written Law, nor under the Gospel, without falling into those Faults called venial, the blessed Virgin excepted, and that every one wants the Grace of God to do Good, and avoid Evil. *Jesus* never refused to go to the Feasts to which he was invited, and he returned always to those who invited him the Injury of the Charity they did to him. When he did eat with the Pharisees, Complaisance was not capable to hinder him from condemning their Superstitions, their Vanity and their Hypocrisy. In the House of one of the most Appearent among them, he cured a Man afflicted with a Dropsy on the Sabbath-Day, and shewed them by the Text of the Law that by that Action he did not violate the Sabbath. The *Jews* in that of the Dedication of the Temple, wanted to stone him; but his Hour being not come, he fled, and crossed the River *Jordan*. Several Persons ran thither to hear him, and the Pharisees among the rest. He disputed against them on the Indissolubility of Marriage, and on the Divorce which, he says, had been allowed to the *Jews*, because of the Hardness of their Heart, against the first Institution of that Union, which does that the Man and the Woman are two in one Flesh; whence he concludes, that Man ought not to part what God has joined. On the Road he found a young Man, whom the Proposition of forsaking every Thing discouraged from following him; which gave him Occasion to speak to his Disciples of the Difficulty the Rich had to be saved, and of the Happiness of those who abandoned all Things for his Sake. He continued to teach the Truths of the Gospel by several Parables. Some antient Interpreters will have, that what he says of *Dives* is one of them; others, but in a greater Number, maintain that it is a true History. But whether Parable or History, the Rich must learn from it, that the common Use they make of their Riches, is what will condemn them at God's Judgment; and not the State of Riches; and that it does not suffice that they have not acquired them by oblique Means; but that they must expend them, according to the Rules of a Christian Sobriety, which exclude Luxury and Pleasure; and give Part of them to the Poor, whom they have killed by refusing to feed them; and who, after they have suffered transitory Evils in this Life, enjoy an eternal Happiness in the other.

Jesus Christ being on the Confines of *Judea*, received a Message from *Mary* and *Martha*, informing him of the dangerous Malady of their Brother, in these Terms; *He whom you love is ill*; they thought it was enough to let him know the extreme Danger his Friend was in, and let him act, on that Occasion, according to his Will, which was their Rule. He did not come to *Bethany* till four Days after he had received their Message. He went to the Sepulchre where *Lazarus* had been buried, and where he was already stinking. He shook, he suffer'd himself to be in a Kind of Confusion, he shed Tears, he pray'd to his Father, and after all those extraordinary Actions, he cried with a loud Voice, *Lazarus come out of the Tomb.* The Dead obeyed, and the Apostles having untied the Bands his Body had been tied with, let him go. So illustrious a Resurrection having converted a great Number of Persons, made the Priests, Scribes, and Pharisees take the Resolution to have him put to Death, together with *Lazarus*; for they could not disguise that Miracle; and all the People ravished with Admiration, look'd on *Jesus* as the greatest Prophet which ever appeared in *Judea*. Their bad Design, which was not unknown to him, obliged him to retire from among them; and he came into the City of *Ephraim*, near the Desart, where he did not stay long. For the Feast of *Easter* approaching, he returned to *Jerusalem*, to celebrate it there as the last; and to be himself our Passover, offering himself as a Lamb come to blot out the Sins of the World. *John* and *James*, Sons of *Zebedee*, were very far from the Humility of his Thoughts. They believed that he was soon going to restore the Kingdom of *Israel*, and therefore made their Mother ask him the two first Places of the Kingdom. They thought of a Throne, while himself thought of nothing but of his Cross, and of the bitter Cup of his Passion, which he desired with a Sort of Impatience to drink, to exhaust that of the Wrath of his Father. They boasted that they could drink it, but they knew neither the Bitterness thereof, nor their Weakness. *Jesus Christ* their Master, answer'd, that he could dispose neither of his Right nor of his Left, but that such a Thing belonged to his Father alone. The other Apostles were shock'd with that ambitious and imprudent Request; and our Lord took that Occasion to teach them, how much the Ministry to which he designed them, required to be free of all Sorts of Vanity and secular Dominion.

Passing thro' *Jericho*, *Zacheus* received him in his House, and his Conversion was the Reward of his Hospitality; as the Restitution he made deserves our Esteem and Admiration; for it was of the Four-fold of what he could have gained injustly in the Administration of the publick Funds; and of the Fortune he had left, he gave half to the Poor. Few Persons of his Profession follow his Example,

ample, and those who restore what they have robbed from the Publick, and from private Persons, think to have done much, among the *Roman* Catholicks, to restore a Crown in ten thousand, among others the Restitution has been reformed; therefore few of them are truly converted. *Jesus Christ*, at his Coming out of his House, restored two blind Men to their Sight. *Simeon*, called the *Leper*, made a Feast, which the Unction of *Mary*, *Lazarus*'s Sister, render'd famous. *Judas* condemned the Prodigality of the Perfumes she poured on the Head of the Saviour, and wanted to cloak his Avarice under the specious Pretence of the Care of the Poor; but the Son of God took the Defence of so holy an Action, which anticipated in him the Duties of his Sepulture, and assured, that it would be celebrated to the latter End of the World.

He enter'd *Jerusalem* amidst the Acclamations of the People, who heaped up the Road through which he passed with Branches of Palm-Trees, and throwed their Garments under the Feet of the young Colt he mounted, according to the Prediction of *Isaiah*. The Children who followed him, gave him Blessings as to the Son of *David*, who came in the Name of the Lord. Who would not have said, seeing that magnificent Entry of *Jesus Christ* into the Capital of *Judea*, that he was going to be acknowledged King of the *Jews*. But that Honour, and these Acclamations preceded only of six Days, the Maledictions and horrible Clamours of that same People, who were heard to ask, that he should be crucified, as the worst of all Men. Approaching the City he shed Tears, foreseeing its future Desolation. He enter'd the Temple, whence he expelled the Buyers and Sellers. He cured several lame and blind People, though the Pharisees, actuated by their usual Motives, condemned those Actions, which they should have admired. His Father, by a Voice which came from Heaven assured him to glorify him, and gave an illustrious Testimony of what he was to the *Gentiles*, who had desired to see him. The *Jews* laughed at it, but he reproached them with their Incredulity, and under divers Parables foretold them that the Kingdom of God, *i. e.* the Gospel, would be taken from them to be given to the Nations. As they did not dare to lay Hands on him, they endeavour'd to surprize him by asking him what he thought of the Obligation of paying the Tribute to *Cæsar*. His Answer was, Give to *Cæsar* what belonged to him, and to God what was due to God; and sent them away with Confusion. Though the Scribes and Pharisees were his declared Enemies, that he reproved their secret Vices, in the most terrible Manner, and fulminated frightful Maledictions against them; he notwithstanding recommended to the People to do what they said, and respect them as being seated on *Moses* Chair; which teaches the Faithful, that the Imperfections of the Pastors, whom God has established for their Conduct, does not excuse them from the Respect and Obedience they owe to them. But at the same Time, that must teach the Pastors, that they are guilty of a great Sacrilege, when they destroy the good Doctrine they teach, by their bad Example.

The Apostles admiring the Structure of the Temple, and the Bigness of the Stones, *Jesus Christ* foretold to them the approaching Ruin of that magnificent Edifice, and afterwards the general Destruction of the World by the last Judgment.

Mean while *Judas* was making his infamous and sacrilegious Bargain with the Princes of the Priests to deliver his Lord to them, and set at thirty Pence, *i. e.* about thirty Shillings of *English* Coin, the most precious Head of the World.

The Saviour, who while he lived had loved tenderly his own, would leave them an eternal Pledge of that Love in the *Sacrament* of the Eucharist, which he instituted after he had eat the Paschal Lamb with his Apostles, at the Time appointed by the Law, which was the fourteenth of the Moon, at the Evening, where began likewise the Observation of unleavened Bread. The *Latin* Church use it, at present, for the *Sacrament*; but the Learned are of Opinion, not without Reason, that that Use is modern, and pretend to prove that Opinion which revolts the Vulgar, by the Authority of the antient Canons, and of the Fathers, during several Centuries. The Examen of this Controversy is not of this Place, and the Change happen'd in that Circumstance of the Eucharist, some Time before Pope *Leo* IX. does not at all wound the Truth thereof; and for that Subject the *Latin* Church would not make a Divorce with the *Greek*, since it is not a Question of an essential Dogma, but of a ceremonial Custom, for which the Unity ought not be broken. Our Lord instituting the Sacrament of his Body, would do that Action, which is the End, and the Abregee of all those of his Life, with particular Circumstances, to render it more venerable.— First he chose a Place which was handsomely adorned. Some Authors have said, but without Foundation, that it was the House of St. *John the Evangelist*, or of another *John*, Son of *Mary*. But the sacred Text is repugnant to that Imagination; for as to St. *John the Evangelist*, it is clearly marked that he was sent with St. *Peter* to meet the Man who was to shew them the House where the Lord had commanded them to prepare the Passover.

Having eat the Paschal Lamb (some Authors say that it was before) *Jesus Christ* rose from Table, and quitting one of his Robes, he tied a Cloth round him, and went about to wash the Feet of his Apostles. He would begin with *Peter*; but his Humility resisted to it at first, and he could not be persuaded to suffer that his Master should thus demean himself; till he was threatened, that if he should not wash his Feet, he would have no Part in his Kingdom: That Action so humble, and done with so much Love, could not soften *Judas*, nor make him change his Design. That Ceremony ended, whereby he taught the Priests, and the Faithful, the Purity of Heart which is necessary to receive, or participate worthily of the Sacrament he was going to institute; he took his Place at Table, and eat the natural and common Supper: In Eating, he said that one of them was to betray him. St. *John* who reposed in his Bosom (the *Jews* used to eat lying on little Beds in the *Roman* Fashion) *i. e.* who was nearest to him, to gratify St. *Peter*'s Curiosity, whom that Discourse afflicted much, took the Liberty to ask, who was the Wretch of the Company, who had formed so execrable a Design. Our Lord would not name him aloud, to spare the Honour of him, who would not spare his Life; but designed him, by giving him a Bit dipped in a Dish; it was, perhaps, that of the bitter Lattuces, says Cardinal *Baronius*, which, according to the Ritual of the *Jews*, was served at the second Course, in the Ceremony of the Passover; in which the Chief of the Family dipped a Bit of the unleavened Bread: The Traitor received it from his Hand, and at that very Instant the Devil entered his Body, either by a real Possession, or by a new Rage wherewith he filled his Soul, to make him execute quickly the Project of his Treason.

The natural Repast being ended (several Authors place the Washing of the Feet, abovementioned, immediately after) he took the Bread, returned Thanks to God his Father, blessed it, brake it, and giving it to his Apostles, said to them, and at the same Time did what he said: *This is my Body which is given for you, do this in Remembrance of me:* Afterwards he took the Cup, and having returned Thanks, he gave it to them, and said; *Drink ye all of this, for this is my Blood of the New Testament, which is shed for you and for many, for the Remission of Sins.* The Truth succeeded the Figure; this was a new Food to maintain a new Life, and the Servants were fed with the Flesh of their Masters. *Judas* was made, with the rest, Partaker of that divine Meat, but it became a Poison for him; for no sooner had he received it, but he rose from Table, to go and execute his abominable Bargain; shewing the Truth of what St. *Paul* has said since, 1 *Cor.* xi. that whoever eats and drinks unworthily the Body and Blood of the Lord, is guilty of delivering his Body and his Blood, and eats and drinks his own Judgment.

After the Institution of that great Mystery, *Jesus Christ* made that marvellous Discourse, which St. *John* relates in three Chapters of his Gospel. He speaks divinely of his Unity with his Father, and of that whereinto he introduces Christians, which takes them from their own Being, that is a divided Being, to establish them in God's Being, and make them one with him.

When *Jesus Christ* had ended that Discourse, and sung the Hymn of Thanksgiving, which was said after the Celebration of the Passover, he quitted the City, and

went

went on the Mount of *Olives*, where there was a Garden, which he entered with *Peter*, *John* and *James*, having left the other Apostles further off: He left these likewise at some Distance from him, and prostrating himself on the Ground to pray, he enter'd into an Agony which was so strong, that it forced out of his Body Drops (the *Greek* Word signifies Clods) of Blood and Water. He asked at three different Times, his Father, that the Cup of his Passion should pass far from him; having left his Soul in the natural Sentiments of Fear of that frightful Death, which he was soon to suffer, and suspending the ordinary Influences of the Divinity, to render it capable of being sorrowful to Death. But his Prayer, though proceeding from a great Fervency, was always accompanied with a perfect Submission to the Will of his Father. An Angel descending from Heaven comforted him, who is the Strength of the Angels themselves; and who at the Time of his Humiliation wanted to bear this likewise, of receiving Consolation from one of his Ministers. He rose from the Ground, and went to meet the Soldiers, who were coming to take him. He could very well have saved himself from their Hands, since with a single Word he struck them down to the Ground. *Judas* appeared at their Head; and a Kiss was the Signal to make him known. He whom he betrayed with so much Insolence, and Rage, would not refuse him to touch his sacred Mouth, and was contented with reproaching him his Crime in a Manner which would have melted a Tyger. *Peter* drew his Sword to defend him, and cut off an Ear of the Servant of the High Priests. *Jesus Christ* restored it immediately to its Place, and commanded his Apostle to sheath his Sword, since he did not want to be defended in that Manner; he who could have commanded, if he had been willing, Legions of Angels in his Defence: Then all the Apostles abandoned him. He was conducted first to *Anna*'s House, and afterwards to that of *Caiaphas* his Son-in-law, who was sovereign Pontiff. There he received a Slap on the Face from the Hand of one of the Ministers, and contented himself with reproaching the Person who had done him that atrocious Injury, that he was in the wrong to strike him thus without any Subject. In fact, he had answered *Caiaphas* with as much Modesty as Truth, on the Doctrine he had preached publickly, which the People could witness.

While they examined him, *Peter*, who consulting his Love rather than his Strength, had boasted that he would die rather than deny him, denied him three Times, and added Oaths and Imprecations, by a Weakness which serves for Example to the whole Church, to make those who think themselves the best founded on Virtue, live in a great Mistrust of their Strength; and to teach them what they are capable to do when they trust to themselves, and when to punish their Presumption, and make them know their own Weakness, the Grace forsakes them. A Look of *Jesus Christ* restored to him the Light which the Fear of Death had made him lose; and shewed him the Horror of his Crime. He quitted that unfortunate Palace, and by a Flood of bitter Tears, which did run to his Death, he began to witness the Truth of his Repentance. He gave a marvellous Example of a sincere Repentance in not going to throw himself at the Feet of his Master, to ask for Forgiveness, so soon as he knew his Offence; which had been, says St. *Ambrose*, doing him a Kind of Injury; but staying out, and wanting by the Punishment of that Separation, very rigorous to his Love, to expiate the Heinousness of his Fault.

Caiaphas having asked our Lord, in the Name of the Living God, If he was Christ, the Son of God? and hearing him answer clearly that he was, tore his Robe, as if he had heard an execrable Blasphemy, without considering that such a Thing was forbidden him by the Law, *Levit.* 10. and 24. All the Assistants were seized with the same Fury, and pronounced that he deserved Death. When they had condemned him with that Precipitation and Injustice, they did spit on his Face, and left him in the Hands of Soldiers and Servants, who, during the whole Night, treated him in such a barbarous Manner, that the divine Providence thought proper to draw a Veil on that bloody Scene, lest the Knowledge thereof should have thrown all the Created Beings into Convulsions. The next Morning the Priests, Doctors, and Scribes, having held a Council, conducted him to *Pilate*, who was Procurator of *Cæsar* in *Judæa*, that he should have their Sentence executed. He endeavoured to save him, perceiving very well that the Envy of his Accusers was all his Crime. Having heard them accuse him of being a *Galilean*, and of exciting the People to Sedition, from *Galilee* to *Judæa*, he sent him to *Herod*, who was then at *Jerusalem*, as a Criminal under his Jurisdiction. That Prince, who had a long while wanted to see him, asked him several curious Questions, to which he returned no Answer. His Silence made *Herod* and all his Court laugh at him; and he ordered he should be clothed with a white Robe (the *Greek* Word of the Evangelists signifies shining) the same as was given to Fools, and in that Dress sent him back to *Pilate*, with whom he was reconciled, on account of the Civility he received from him in that Occasion. The *Jews* continued to press *Pilate* to have Jesus put to Death. To excuse himself from it, he proposed them to forgive him, according to Custom, in the Solemnity of the Passover. But by an execrable Impiety, they preferred to him a notorious Thief, called *Barabbas*, who was then Prisoner for a Murder he had committed in a popular Emotion. That weak Judge thinking himself obliged to give them some Satisfaction, caused him to be whipped in a most cruel Manner. The Soldiers, who very likely were paid by the *Jews*, to exercise on him all Sorts of Barbarities and Injuries, tore his sacred Body in a horrible Manner, and made but one single Wound of it. To that Torment they added the Ignominy of the Robe, or military Cassock of Purple they cloathed him with, of the Reed which they put in his Hand, as a ridiculous Sceptre, and of the Thorns they crowned him with. In that Garb *Pilate* shewed him to the People. The Blood which run from his Head and from all the other Parts of his Body, served only to render their Rage greater, and all with one Voice cried, *Let him be crucified.* The President resisted still; but when he was attacked by a Reason of State, and he had heard these Words: *If thou release him thou art not Cæsar's Friend, because he makes himself a King*; he relented, and condemned him by a precipitate Sentence to die on the Cross, violating thereby the Ordinance of the Emperor, and the Laws of the *Jews* at the same Time; for by that the Execution of Criminals was to be deferred for ten Days after they had been condemned, and the Supplice of the Cross was lately for notorious Thieves. By this the Crime *Jesus Christ* was accused of, had the Lapidation for its Punishment. But by an ineffable Counsel of the divine Wisdom, the God of Innocence, would die of the most ignominious of all Deaths, and suffer the Punishment due to *Barabbas*, whom the *Jews* had preferred to him.

Simon the *Cyrenian* helped him to carry his Cross, which he could not do alone, because of his Weakness caused by a prodigious Effusion of his sacred Blood in his Scourging. On his Way he found several Women whom their Compassion for his deplorable Condition, made to weep bitterly. He advised them not to shed Tears for him; but rather for themselves, and the City of *Jerusalem*, which should soon feel the divine Revenge for the Parricide they committed on his Person. He was conducted as far as Mount *Calvary*, very little distant from the City, and the Place appointed for such Executions. Most of the Fathers have thought that *Adam* was buried there. For a greater Infamy, he was placed between two Thieves. At first both blasphemed him; but one of them being enlightened by a sudden and marvellous Light, acknowledged him for his God; his Companion, on the contrary, continuing to blaspheme; and while his Apostles had abandoned him, he asked him Part in his Kingdom, tho' he saw him in a Condition, in which he seemed incapable of saving himself from the Hand of his Enemies. So great a Faith was not deceived, and as he had believed, he entered the eternal Empire of that living God, whom he had so gloriously confessed. That Forgiveness would give Hope to the greatest Sinners; but it must not serve us for Pretence to defer our Repentance to the Hour of our Death, because it is rather a Miracle of the Grace of *Jesus Christ*, than a regular Example of his Conduct for those

those whose Life is a continual Series of Crimes, to whom the Church does not refuse the Penance they ask for, when they are going to die, but to whom likewise she does not give any Security. *Jesus Christ* being on the Cross, said that he thirsted, and was presented with Vinegar, of which he would not drink. St. *Mark* speaks of a Wine of Myrrh which Interpreters are much puzzled to find out. St. *Matthew* mentions a Wine mixed with Gall; which is a sort of composed Drink, which they used to give the Criminals who died of a violent Death, either to stupify them, or to strengthen their Heart. I leave the Questions formed on that Subject, which has been learnedly agitated between Cardinal *Baronius* and M. *le Febvre* Preceptor to *Louis* XIII. King of *France*: I consider them as much more curious than useful, and they would interrupt the Narration of the Death of *Jesus Christ*, wherewith nothing should be mixed capable to divert the Mind of the Reader from the Attention due to so holy a Thing, and so important to our Salvation.

The Son of God seeing his blessed Mother, and the Disciple he loved, at the Foot of the Cross, said to her, *There's thy Son*, pointing to St. *John*; and to him, *Here's thy Mother*. And from that Time he took her under his particular Care, and into his House. *Magdalen*, and some other pious Women, who had followed him from *Galilee* to serve him, did not abandon him till he had delivered up his blessed Soul into the Hands of his Father. He did it with a great Cry (St. *Paul* adds with Tears) to shew that he died rather by the Strength of his Love, and by his own proper Will, submitted to that of his Father, than by the Violence of the Torments. He prayed before for his Executioners, as for Men ignorant of what they did; though their Ignorance did not excuse them notwithstanding from being guilty, since they wanted Forgiveness, which supposes a Crime deserving Punishment. The Son of God is commonly painted fastened with three Nails, but I am of Opinion that there was four Nails, two for the Hands, and two for the Feet; and that from the Middle of the Cross came out a Piece of Wood in Form of a Seat, on which his Body rested. Otherwise the Weight had carried it down, and it could not have remained nailed, as the Texts of the Evangelists informs us it did, till it was taken down. The Soldiers divided his Vestments, and for his Coat, which was without Seam, they did cast Lots, that the Prophecy of *David*, which had marked that Circumstance, in precise Terms, should be accomplished.

Nature shewed itself sensible of the Death of its Author, while the Princes of the Priests, the Scribes, and the Pharisees rejoiced at it, and loaded him with atrocious Maledictions. The Sun lost its Light by a miraculous Eclipse, since the Moon could not cause it by the Interposition of its Body, being full: That Obscurity did not only cover *Judea*, but spread over the whole Earth. *Origen* writing against *Celsus* the Philosopher, makes use of that Event contrary to the Law of Nature, and alledges the Authority of *Phlegon* the Emperor *Adrian*'s Freedman, for a Proof which could not be suspicious to him. *Tertullian*, in his Apology, speaks of it, as of a certain Thing. *Eusebius* relates his own Words, which witness besides, that at the same Time the Earthquake mentioned likewise by the Evangelists, threw down several Houses in the City of *Nice* in *Bithynia*. *Dionysius* called the *Areopagite* (I speak according to the common Opinion) observed that marvellous Eclipse, being at *Heliopolis* with *Apollophanes*, which contributed much to his Conversion, when he learned from St. *Paul* the History of the Death of *Jesus Christ*. Besides that Prodigy, which alone could be sufficient to discover the Divinity of the Son of God, there happened several other very great ones. The Veil, which parted the Sanctuary from the rest of the Temple, was rent in two. The Monuments were opened, and several Dead appeared to divers Persons. By the Earthquake the Stones on *Calvary* were broke in two. St. *Cyril* of *Jerusalem* says, *Catech.* 3. that in his Time several of them were yet seen in that Condition. Some Authors write, that in divers Places several Mountains were thrown down, but this is not well proved, no more than the Narration of *Plutarch*, of that Voice which cried to certain Mariners passing near an Isle, that *the grand Pan was dead*. *Eusebius* and St. *Jerom* have wrote, that at the same Time Voices were heard in the Temple, saying, *Let's go out of this Place*. But *Josephus* referred that Prodigy to the Time of the Siege of *Jerusalem*. Those related by the Gospel suffice to strengthen our Faith. They touch'd so sensibly the Centurion, and the Soldiers who had assisted at that bloody Execution, that they acknowledged for the Son of the true God him whom they had seen expire on the Cross. The *Jews* intreated *Pilate*, that he should have his Legs broke, that his Body should not remain on the Cross on the Sabbath-day, which happened the next Day. He granted them their Request; but when those who were to execute his Order, having broke the two Thieves, came to him, they found him dead; so that that Injury was not done to him; according to the Prophecy, which said, *you shall not break one of his Bones*. A Soldier having opened his Side with a Launce, there run from it Blood and Water; the marvellous Symbol of the Sacraments of the Church, which did flow from that Wound which Love had made, rather than the Steel of the Soldier, according to the Expression of the antient Fathers.

Joseph of *Arimathea*, who, while *Jesus* was living, had been one of his secret Disciples, and had not consented to his Condemnation, had the Courage to ask his Body of *Pilate*, which was granted. He wrapped it in a white Sheet, imbalmed it, and deposited it in a Monument he had built anew, and with it the Cross, the Title, and the Nails, which had served to his Passion. The Priests who could not obtain from *Pilate*, that the Title of the Cross should be changed, and wanted that in lieu of these Words, *Jesus the Nazarean King of the Jews*, there should be wrote, *Jesus the Nazarean, calling himself King of the Jews*, obtained of him Leave to seal his Sepulchre, and have it guarded, to hinder, said they to him, his Disciples from stealing his Body, and from publishing afterwards that he was risen from the Dead, which would cause a second Error worse than the first.

Those Guards could not hinder the Effect of the Promise he had made of his Resurrection. The Morning of the third Day there happened an Earthquake, and an Angel descending from Heaven, rolled away the Stone which stopped the Entrance of the Sepulchre, and at his terrible Aspect the Soldiers were frightened to Death. *Magdalen* and the other Women, who used to accompany the Son of God, coming the Day after the Sabbath (*i. e. Sunday*, according to our Manner of reckoning) to embalm him anew, what *Joseph* had done, being not sufficient to satisfy their Devotion; an Angel appeared to them, and said, that their Master whom they searched in the Tomb, was living of a Life which was no more subject to Death. He made them enter the Sepulchre, that finding not in it the Body of our Saviour, they should be Eye-witnesses of his Resurrection. At their coming out, they had a Vision of two other Angels who spoke to them a little roughly. They came to bring this News to the Apostles. Presently *Peter* and *John* run to the Sepulchre. This, as the youngest, and running faster, arrived first to the Monument, and looking into it, he saw nothing but the Shrouds he had been wrapped in. *Peter* entered it, and found nothing else. *Magdalen* was returned to the Sepulchre with the Apostles, and believing that the Body of her Master had been stolen, melted in Tears. *Jesus Christ* appeared to her under the Form of a Gardener; and if her Eyes were something deceived, her Ear could not: For as soon as he had called her by her Name, *Mary*, she knew him, and went to touch him; he pushed her away, and told her, *Do not touch me*. He would teach her thereby, that henceforward she was not to use him with the same Familiarity he had allowed her while he was mortal; and that at present as he lived of a new and quite spiritual Life, he would have her love him in Spirit, and consider him as not having yet truly ascended at the Right-Hand of God, but notwithstanding would soon take his Place there. She brought that good News to the Apostles, and on the Road *Jesus Christ* appearing to her, and to the Women who were with her, he permitted them to kiss his Feet.

The Apostles added no Faith to their Words, and

to draw them from their Incredulity, the Saviour appeared to *Peter*.

Two Disciples who were going to *Emmaus*, a little Place near *Jerusalem*, thinking to converse with a Traveller, conversed with the Saviour, who shewed them by the Sequel of the sacred Scriptures, that he was to suffer, and after his Sufferings enter his Glory. Their Eyes, which he kept shut while on the Road, were opened at the Breaking of the Bread, at which he disappeared, leaving them in a very sweet Consolation. They related to the Apostles what they had seen, and while they were speaking of that Apparition, the Doors of the Place where they were being shut, Jesus entered it, shewed himself to all, and dissipated their Doubt, eating with them, and making them feel his Hands, and his Side; at the same Time he gave them the apostolical Mission, to go and preach the Gospel throughout the whole Earth with the Power of remitting Sins.—*Thomas*, who was not there then, and would not believe what his Brethren told him of the Apparition of the Saviour, eight Days afterwards had the Favour to touch his Feet, and his Hands, and the Wound of his Side; and his Incredulity served to procure us an invincible Proof of the Resurrection of the Son of God: Which makes the Fathers say, that his Doubt has been more useful to us, than the Faith of the other Apostles. The Saviour appeared to them, for the third Time, while they were fishing, the beloved Disciple knew him, and informed *Peter* of it, who immediately threw himself into the Sea to go to him. After he had eat before them to confirm more and more the Truth of his Resurrection, he interrogated *Peter* three Times, not on his Science, or on his other Qualities, but on his Love for him; and if it was greater than that of the others, as a Condition absolutely necessary to exercise the Employment of feeding his Sheep and his Lambs, *i. e.* to govern his Church, and to shew his Successors, and the other Pastors who compose the Hierarchy, that Charity is the proper Spirit of Episcopacy and Priesthood. While the Saviour was raising *Peter* to that high Dignity, he foretold him the Death he was to suffer for the Defence of his Name; but he did not understand then what he meant. After that Establishment he shewed himself again, on a Mountain of *Galilee*, which some believe to have been that of *Tabor*, to more than five hundred Brethren. There he taught the Apostles the Manner of baptizing, and assured them, that he would be with them and their Successors, to the Consummation of the World, to preserve his Church against all Heresies, Schisms, and the Powers of the Earth. The Evangelists take no Notice of the Apparition to five hundred Brethern, and to *James* in particular, but it is no less certain.

In all these Apparitions *Jesus Christ* poured a Light of divine Science into their Understanding, and the Heat of Charity in their Heart: So that they made greater Progress during forty Days, in those interrupted Conversations, than they had done during three Years before.

The Day he had fixed upon for his Ascension into Heaven, being arrived, he carried them on the Mount of *Olives*, whence he raised himself by his own Virtue to the Right Hand of his Father. There are very different Opinions about the Year the Son of God died in. St. *Augustin* mentions the Error of those who maintained, that he died while he was forty-six Years of Age. *Tertullian* says, that he was thirty; but the Heresiarch *Valentin*, had invented that Date before him. St. *Epiphanius* says he was thirty three. Several Authors add three Months to the thirty-fourth; and it is the Chronology followed by Cardinal *Baronius*. Some Moderns pretend that the thirty-fifth was began. I will take no Notice of the Reasons they support their different Sentiments with, but reassume the Thread of my Narration.

The Apostles losing the Presence of their Saviour, felt within themselves a Sorrow mixed with Joy for the Absence of their good Master, whom they were ravished to see in that high State of Glory and Felicity. Two Angels appeared to them, and told them that it was in vain they staid there, looking to Heaven, and that *Jesus* who had just then ascended into it, would one Day descend from it in the same Manner. They returned then to *Jerusalem*, where they staid shut up with the blessed Virgin and the Disciples in a private House, employing all the Day in Prayers. In that Retreat *Peter* proposed the Election of some of the Disciples in the Place of *Judas*. That Traitor, sensible of the Heinousness of his Treason, went to the Priests, returned them their Money, and transported with Despair, hung himself, and his Entrails came out of his Body. His vacant Place was filled by *Matthias*, on whom the Lot fell, (*i. e.* some remarkable Sign of the divine Election, after a zealous Prayer made to God, that he should be pleased to declare the Person whom he had elected to the Apostleship) and not on *Barsabas*, called the Just, who was kin to our Lord; to teach the Successors of the Apostles not to follow the Sentiments of Flesh and Blood, in the Promotion of their Relations to ecclesiastical Employments.

At the End of ten Days, the divine Comforter, whom the Apostles expected, descended with a great Wind, in the Form of Tongues of Fire, which dividing themselves, rested on the Head of each of them, and of the other Disciples assembled. Their Change was as marvellous as sudden. Those among them who spoke ill their own Mother-tongue, began to speak perfectly all Sorts of Languages. Fifteen different Nations who heard them preach, in their Idioms, were surprized at it, and accused them of being drunk. *Peter*, who was become another Man, spoke to repel that Calumny, and published the Resurrection and Divinity of Christ, to those who had crucified him, with as much Resolution, as he had shewed Weakness, in denying him when he was going to be crucified. That first Predication proved so powerful, that the Hearers touched with Remorse, asked what they should do to expiate their Sins? *Peter* answered, *Repent, and let every one of you receive Baptism for Remission of your Sins.* The Number of those who were converted then was three thousand. Charity united them as much as their Belief. The Rich sold their Inheritance, and brought the Price thereof at the Feet of the Apostles: Thus all the Faithful were poor, though there were no Poor in the Church; because there was distributed to every one what was necessary for his Subsistence, contrary to the Practice of the modern Apostles, who plunder their Flock to enrich themselves; so that those false Shepherds, or rather Wolves, feed on the Substance of their Sheep. They were always in the Temple, and participated every Day of the Sacrament of the Eucharist, sometimes in one House, and sometimes in another. Their Manners were so holy, and so much Candour and Simplicity appeared in their Actions, that the People respected and loved them. *Peter* and *John* ascending into the Temple to pray, cured a Person lame from his Birth, who was begging at the Gate. That Miracle, done in the Name of *Jesus Christ*, gained the People's Admiration, who came in Crowds to see the Authors thereof. *Peter* took that Occasion to tell them, that *he, by whose Virtue they had acted, was* Jesus *of* Nazareth, *whom they had denied before* Pilate's *Tribunal, preferring a Thief to him: That the God of* Abraham, Isaac *and* Jacob, *would glorify his Son in their Presence: That they should repent and be converted, to obtain the Remission of their Sins, that they may be saved in the Day of the last Coming of* Jesus Christ: *That all the Prophets from* Samuel *had declared his Coming; and that God had sent him, and raised him first for them, who were the Sons of the Prophets, and Heirs of the Blessings promised to* Abraham. This Discourse was so powerful, by the Operation of Grace, that it converted five thousand Persons.

The Priests, and the Magistrate of the Temple (*i. e.* according to St. *Chrysostom*, he who had the Guard of the Temple, and was the Captain thereof, having under him Officers or Soldiers) and the Sadducees, happening to come at the Time he was yet speaking, they sent him and his Companion to Prison. The Day following they assembled the Council of the Seventy, before whom the Apostles were brought. They were asked, in whose Name, and by whose Virtue they had cured the Lame? *Peter* answered courageously, that *it was in the Name of Jesus Christ whom they had crucified, and whom God his Father had raised from the Dead: That he was the Stone rejected by them, and established, notwithstanding their Reprobation, in the Office and Dignity of the fundamental Stone, to support the Edifice of the Church, and lastly, that*

that it was by Faith in him alone that Men could be saved. The Priests hearing him speak with so much Boldness and Sufficiency, were surprised at it, knowing that he was an illiterate Man, and remembering to have seen him, in *Jesus Christ*'s Retinue. This Miracle was capable to convince them, and every Step of the lame Person, was a Proof of the Power of him whose Name they abhorr'd. After they had consulted among themselves what they should do; they resolved to let them go, forbidding them only to preach any more in the Name of their Master. But *Peter* and *John* hearing that Prohibition, protested that they would not keep it, and that it was more reasonable to obey God than Men.

The Number of the Faithful increased every Day, and Poverty seem'd so precious to them, as already observ'd, that every one sold his Possessions to bring the Price thereof to the Apostles. *Barnabas*, born in *Cyprus*, quitted a very considerable Estate. He lived in *Jerusalem*, and *Gamaliel* (if we believe the Tradition) had instructed him in the Law, with *Stephen* and *Saul*, one of whom was soon afterwards made a Martyr of Christ, and the other a Vessel of Election, and Apostle of the *Gentiles*. *Ananias* and *Sapphira* believing that they could deceive *Peter*, offered him half of the Price of their Estate. But their sudden Death, at St. *Peter*'s Word, who reproached them with their Sacrilege, shewed, that one should not lie to the Holy Ghost, and filled all the Faithful with Fear. Every where the Apostles found sick Persons, who presented themselves to them, and all were cured by the Invocation of the Name of *Jesus Christ*. The single Shadow of *Peter* restored Health, which that of *Jesus Christ* had never done; which was the Accomplishment of what *Jesus Christ* had told them before he died, that those who should believe in him, should do greater Signs than he did. Those Miracles exciting the Rage and Envy of the Priests, they sent them to Prison under a sure Guard. The Night following an Angel set them at Liberty; so that the next Morning they entered the Temple, and continued to preach. Mean while the Princes of the Priests, and those they had assembled, to resolve on what they should do with the Apostles, sent Men to the Prison to bring them before them. They returned back with the News, that the Dungeon they had been confined in was shut, without the least Appearance that it had been broke open; and that the Centries who kept the Watch before the Gate, had not seen the Prisoners go out. That News surprised them extremely; but they were still more enraged to hear, at the same Time, that the two Apostles were teaching publickly in the Temple. The Captain of the Temple went thither with some Ministers, to bring them quietly before the Council, for fear of irritating the People, who had a great Veneration for them. Their Death had been resolved upon, if *Gamaliel*, a secret Disciple of *Jesus Christ*, had not warded off the Blow; by representing to them, that *if that new Sect was not of God, it would fall of itself, and, on the contrary, Men could never destroy it, if it came from him.* Therefore the Council contented themselves with having them whipped, and the Blemishes of the Rods were for them Marks of Honour, and Subjects of Joy and Triumph, having been found worthy to suffer that Affront, for the Love and Honour of *Jesus Christ*.

The Devil being uncapable to destroy the Church by open, thought he could do it by domestick Enemies; he excited a Murmur among the *Jews*, of Religion, who were born out of *Judea*, called *Greeks*, on that their Widows were not admitted, like those of the *Jews* born in *Palestine*, to the Service of the Poor, and to the Care of feeding the Faithful, who took their Repast at the common Tables. Some Authors believe, that that Partiality mentioned by St. *Luke*, was not for the Function of assisting others, but for the little Care taken of those Widows. To prevent the Evil which could have been caused by that Division, the Apostles convoked a general Assembly of the Disciples of *Jesus Christ*, and proposed to them the Election of seven Men of good Fame, and full of the Holy Ghost, to exercise to every one's Satisfaction, the Ministry which caused Jealousy and Discontent to the *Greeks*. The Assembly made Choice of *Stephen*, *Philip*, *Prochorus*, *Nicanor*, *Timon*, *Parmenias*, and *Nicolas* the *Antiochian*. They were presented to the Apostles, who laid their Hands on them, after they had prayed, *i. e.* ordained them Deacons of the Church: Their Office was to distribute the publick Alms, and mind the Tables, where the Faithful, together with the common Bread, received the Eucharist. That Custom of taking the Communion in the natural Repast, lasted some Time in the Church; but it was soon changed into that of taking the Sacrament fasting, by Reason of the Irreverences committed in those Feasts, called *Agapæ*, *i. e.* of Charity. Even in St. *Paul*'s Time there were Abuses introduced in them, among the *Corinthians*, as we learn from his first Epistle to them, where he accuses them of that Disorder, as of a great Fault against the Respect due to the Body of *Jesus Christ*.

Among the new Deacons, *Stephen* was remarkable for the Strength of his Preaching, and for the eminent Holiness of his Life. The Miracles God operated by him, excited the People's Admiration, and proved the Divinity of *Jesus Christ*, by Argumenrs, which all the Doctors of the Law could not answer. The Holy Ghost spoke in him, and confounded the vain Doctrine of his most violent Adversaries, whom the Text of the *Acts* observe, to have been the *Jews* of the Synagogue of the *Alexandrians*, *Cyrenians*, *Cilicians*, and *Libertines* (i. e. of those born of *Jews*, carried Captive to *Rome*, and made free, afterwards, by their Masters) and of the *Asiaticks*; who all had Colleges in *Jerusalem*, to learn the Law. The Confusion he put them in, in all their Disputations, provoked their Rage, and prompted them to suborn Witnesses, who accused him with having blasphemed against the Law of *Moses*, and against God. The People were easily imposed upon, by the Impudence wherewith they maintained that Falshood; so that a Band of furious Rabble seized him, and dragged him to the Place, where the Council of the Seventy, heretofore mentioned, was held. The false Witnesses maintained to his Face all that had been suggested to him. As he was permitted to defend himself, he made a marvellous Discourse, in which going back as far as the Origin of the *Jewish* Nation, and to the Election God had made of her, in the Person of *Abraham*, he proved to them by the Prophets that *Jesus Christ* was the true *Messiah*. The Reproach he made them of the Hardness of their Hearts, and of the Murder of the Prophets, perpetrated by their Fathers, offended them in such a Manner, that they gnashed their Teeth against him. But they stopped their Ears, and abandoned themselves entirely to the Transports of their Rage, when the Holy Ghost who made him speak with so much Resolution, transporting him beyond himself, made him cry, *I see Jesus standing at the Right Hand of God.* He was carried out of the City of *Jerusalem* as a Blasphemer, and stoned to Death. He had Compassion of his Executioners, and at the Example of his divine Master, prayed God not to impute to them the Sin of his Death. The Church lamented that great Man, and did him the last Duties, with particular Cares and Honours, as to a Person, who in so short a Time, had gained her a great many Victories, and who the first sanctified her with his Blood. The Martyr *Lucian*, in the Epistle where he relates the finding of his Body, said, that *Gamaliel* caused him to be buried in the Night. Authors are of different Opinions with Regard to the Time of his Death. Some, with *Nicephorus*, *Lib.* 2. *Hist. c.* 3. believe that it happened immediately after he was ordained Deacon, and about the Month of *August*. Others have extended the Term thereof to the seventh Year after the Death of our Saviour: But the common Opinion of the Church is, that it happened the 26th of *December*, which was the first Day of the 36th Year of *Jesus Christ*. The Empress *Eudoxia* caused a magnificent Church to be built on the Place where he was stoned to Death.

The Rage of the *Jews* being not yet satiated with the Death of that innocent *Levite*, wanted to involve the Faithful in a general Persecution; and several, to avoid it, quitted *Jerusalem*; which was not done without a particular Direction of the Holy Ghost. For by that Means they spread the Seed of the Gospel, not only in all the Provinces of *Palestine*; but likewise in *Syria*, *Phœnicia*, the Isle of *Cyprus*, and in *Antioch*, Capital of *Syria*: Tho' they preached then only to the *Jews*, believing that it was only to them that the Truth was to be preached; and

and considering yet the *Gentiles* as an unclean and reprobate Nation.

Among the Persecutors of the Infant Church, *Saul* (who was also called *Paul*, according to some) was the most animated, and had the greatest Credit. He was born at *Tarsus*, Capital of *Cilicia*. *Gamaliel* had instructed him in the Science of the Law; and the Jealousy of the Honour thereof, which he thought offended by the Preaching of the Apostles, joined with the Impetuosity of his Age (which was of thirty-three, according to some, or of thirty-four, according to others) and of his natural Genius, carried him to the last Extremities, an indiscreet Zeal of Religion is capable of. He was not contented with having stoned *Stephen* to Death, by the Hands of those whose Cloaths he kept all the while (according to St. *Augustin*, *Serm.* 14. *Sanct.*) though he was his near Relation; with hunting continually the Faithful, who had hid themselves, and carry them to Prison; but would besides wage War against them out of the Province. To satiate his Rage, he took Commissions and Letters from the Princes of the Priests, to go into the City of *Damascus*, and take Prisoners there all those who should make Profession to believe in *Jesus Christ*. He, whom he persecuted with so much Cruelty, had Pity of his Rashness. On the Road, a great Light coming down from Heaven, environed him, and the Lord appearing to him, sounded in his Ears these Words, *Saul, Saul, why persecutest thou me? Who art thou Lord*, answered he trembling. *I am Jesus of Nazareth*, continued the Voice, *it is hard for thee to kick against the Pricks.* During that Colloquy, the Darkness of his Understanding was dissipated, and the Hardness of his Heart softened, and so marvellously changed by the Efficacy of Grace, that he replied to the Son of God, *Lord, what wilt thou have me to do?* He was sent to the good Priest *Ananias*, who govern'd the Faithful, gather'd by his Care in the City of *Damascus*, tho' he was not Bishop thereof, to learn what God desired of him. In rising from the Ground, where he was fallen, he found himself blind, so that those who accompanied him, led him by the Hand into the City. Mean while, the Lord appeared to *Ananias*, and commanded him to go and seek that new Convert, of whom he had resolved to make a Vessel of Election, and an invincible Witness of his Truths, before all the Kings, and all the People of the World. *Ananias*, who at first was afraid of him, as of a mortal Enemy of the Gospel, after he had been assured of his Change, and known the Designs of *Jesus Christ* on him, obeyed the Command; and came to seek him in the House where he was. He saluted him with Words, which shewed that he knew what had happen'd on the Road. On the Imposition of his Hands, *Saul*'s Eyes were opened, and a Kind of Scales fell from them. At the same Time he was baptized. He did not leave the Grace of his Vocation needless. For he began immediately to acquit himself of the Ministry of Preaching, he was intrusted with. The Faithful could scarce believe, at first, his Change real and sincere. But the *Jews* were provoked at it beyond Expression. He was a formidable Enemy for them, for he was perfectly instructed in the Law, and they could not reproach him with any Fault, which could lessen the Credit of what he said. After he had staid a very short Time in *Damascus*, he departed for *Arabia*, as we learn from himself in the Epistle to the *Galatians*, Chap. ii. but he has forgot, or rather was not willing we should know what he has done in that Province. There is a great Diversity of Opinions with Regard to the Time of his Conversion, and I am contented with mentioning it, without engaging myself to unfold a Question, which would engage me into a too long Digression.

Mean while *Philip*, one of the Deacons, preached the Gospel in *Samaria*. He did it with so much Strength and Success, that *Simon* the Magician, not daring to contradict him, would himself be baptized with his Fellow-Citizens. The News of it were brought to *Jerusalem*, from whence *Peter* and *John* were immediately sent by the Apostles, to impose Hands on the new converted, and give them the Holy Ghost, what *Philip*, being but a Deacon, had not the Power to do. That Imposition of Hands was nothing else but what we call at present Confirmation, which Bishops alone, as true Successors of the Apostles in the Episcopacy, can confer on the Faithful, to render them perfect Christians, according to the Sentiment of the antient Fathers. *Simon Magus* seeing, that by the Imposition of the Hands of the Apostles, the Holy Ghost descended, and that immediately the Believers spoke several Languages, which they had not learned, and operated Miracles, he offer'd the Apostles Money to have the same Power. *Thy Money perish with thee*, answered *Peter*, *because thou hast thought that the Gift of God may be purchased with Money. Thou hast no Part in the Word we preach, because thy Heart is not right before God. Repent therefore, and pray him, if perhaps the Thoughts of thine Heart may be forgiven thee, for I perceive that thou art full of Gall, and in the Bond of Iniquity.* Pray you for me, replied that Sacrilege, that none of those Things which you have spoken come upon me. Far from his being disposed to receive the Fruit of their Prayers, he immediately after their Departure, continued to sow his Errors among the *Samaritans*, persuading them, that he was the great Virtue of God. He endeavour'd likewise to deceive the *Jews*, whom he saw enraged against the Faithful, calling himself the Son of God for them, and the Holy Ghost for the *Gentiles*. The Devil wanting to destroy the new Kingdom, which the Apostles were establishing in the World on the Ruins of his, made use of *Simon*, and suffer'd he should be the Chief of the Hereticks. The Sequel of the History will oblige me to speak more at large of him, and explain the Impieties he thought to smother the good Doctrine with. That Wretch gave the Name to the Venality of spiritual Things, which was called *Simony*, and which has ever since unfortunately reigned in the Church.

The Apostles having established a Church in *Samaria*, and in the Neighbourhood, returned to *Jerusalem*; as for the Deacon *Philip*, the Angel of the Lord commanded him to go on the Road which leads from *Jerusalem* into *Gaza*, a City of *Palestine* near *Egypt*, and destroyed by *Alexander*. He had not walked long before he saw a Chariot coming to him, in which was the Eunuch of *Candace* Queen of the *Lower Ethiopia*, who was returning from *Jerusalem*; where, as a Proselyte, he had been to offer his Vows to God in the Temple. The Angel commanded *Philip* to approach him, and having obey'd, he found that he was reading in the Prophet *Isaiah*, and was fallen on that Passage, *He has been carried as a Sheep to the Slaughter, and as a Lamb without Voice before his Shearer; therefore he has not opened his Mouth; who shall declare his Generation? For his Life is taken from the Earth.* Dost thou understand, said the Deacon, the Words thou art reading? How can I understand them, answered the Eunuch, unless some Body be pleased to explain them to me. Of whom does the Prophet say that? of himself, or of some other? Then *Philip*, whom he made come into his Chariot, began by that Passage to preach to him the Faith of *Jesus Christ*. His Discourse was so animated with efficacious Grace, that meeting with a Brook, the Eunuch enlightened with a divine Light, and prefled by a heavenly Motion, told him, *Here's Water, what hinders me from being baptized? Philip* answered, that if he believed with all his Heart, that could be done. *Yes*, replied the Eunuch, *I believe with all my Heart, that Jesus Christ is the Son of God.* At that Confession, the Deacon made the Chariot stop; and both descended into the Water, where the Eunuch received the Baptism he desired. At their coming out of that salutary Bath, the Spirit of the Lord ravished *Philip* in an Instant, and placed him, in the Town of *Azoth*. The new Convert pursued his Journey with great Alacrity. According to the Testimony of the Fathers, *viz. Iren. lib.* 3. *c.* 12. *Hier. in c.* 51. *isa. Euf. l.* 2. *c.* 1. He was the Evangelist of *Jesus Christ* in his own Country; in *Arabia Felix*, and in the Isle of *Tropobanes*; and had afterwards all his evangelical Toils crowned with a glorious Martyrdom.

The Apostle of the Nations was not idle on his Side. He returned from *Arabia* to *Damascus*, where, for two Years successively, he preached with so much Zeal, and so marvellous a Doctrine, that the *Jews*, incapable to resist the Strength of his Reasonings, drawn from the sacred Scriptures they received, formed the Resolution to take

take him Prisoner, and make away with him. We have said that the War had been kindled between *Herod Antipas*, and *Aretas* King of *Arabia*, because of the Repudiation of his Daughter. The *Romans* took Part in it to succour *Herod*, who in several Rencounters had been beaten, Victory following that Party who had Justice on its Side. *Vitellius* who governed *Syria*, did set Forces on Foot to go to his Assistance; and as they were considerable, *Aretas* caused the City of *Damascus* to be carefully guarded for fear of a Surprize. The *Jews* making use of that Occasion, desired him to give them Leave to stay at the Gates, to hinder *Paul* from making his Escape. They staid there Night and Day; but the Disciples of the Apostle, let him down in a Basket over the Walls; and thus he escaped the Hands of his Enemies. He came to *Jerusalem*, where at first the Faithful were afraid of him: But *Barnabas* dissipated their Fears, by informing them of all the Circumstances of his Conversion, and of what he had done for the Propagation of the Gospel. He staid but fifteen Days in *Jerusalem*, during which he had the Time to enjoy peaceably the Conversation of *Peter*, and *James* the Lord's Brother; who are the only Apostles, he says, he had seen in that Journey. But I cannot omit, that he writes himself, that he had particularly undertook it, to see St. *Peter*, and that the *Greek* Word he makes use of, signifies a Design of observing and studying him; which shews a particular Respect he had for him, and that he wanted to defer to him as to the first Apostle, to make use of the Terms of St. *Jerom*. The *Jews* were so surprized, and so provoked to hear him speak of *Jesus Christ*, as of the Son of God, that they formed the Resolution to kill him. To avoid their Fury, it was found proper that he should quit the City. He was conducted as far as *Cæsarea*; whence he departed for *Tarsus*, his Birth-place.

At the same Time *Tiberius*, died after he had reigned twenty-two Years, six Months, and some Days, or to speak better, after a long Tyranny, which was as infamous for his monstrous Pleasures as for his Violences. He knew without doubt the Manner how to treat the *Romans*, who had neither Courage enough to shake off that insupportable Yoke, nor Wisdom enough to bear it, and endeavour to render it more supportable. He appointed *Caligula* his Successor, whom he knew to be as bad as himself; tho' he did an Act of Justice in the Beginning of his Reign, which proved a Subject of Consolation to the Faithful, by sending *Pilate* into Exile, to punish him for his Concussions while he was Procurator of *Cæsar* in *Judea*, and for his Cruelty against the *Samaritans* who had revolted, having caused them to be almost all put to the Sword. At the End of two Years that unfortunate Judge killed himself, and went to appear before the dreadful Tribunal of him, whom he had so unjustly condemned.

The Tranquility the Church enjoyed in *Palestine*, gave Time to St. *Peter*, to visit the neighbouring Places, to establish there the ecclesiastical Discipline. It was then according to the Tradition, he founded the Church of *Antioch*, which (if we include his Journeys into the neighbouring Provinces) he governed seven Years as private Bishop. It acquired since the Dignity of Primacy of all the Churches of the East, even that of *Jerusalem*, founded by *Jesus Christ* himself, was subjected to it, with *Cæsarea*, the Metropolis of *Palestine*. At *Lydda*, a City situated on the Shore of the *Mediterranean* Sea, he cured a Man, called *Æneas*, who had been eight Years paralitical. That Miracle was the Cause of the Conversion of the Inhabitants, and of those of *Saron*. The Resurrection of *Tabitha*, a Widow famous for her Charity, produced the same Effect in *Joppa*. The Change of the Centurion, called *Cornelius*, was no less marvellous. He was Captain of a Company of Foot, called *Italian*; but the military Profession did not hinder him from being religious in his Conduct, charitable to the Poor, and applying himself to Prayers. Those good Works, animated with the Faith of the true God, whereof he had acquired a Knowledge among the *Jews*, ascended to Heaven, and brought from thence an Angel, who commanded him, by God's Orders, to send into the City of *Joppa* for a Man called *Peter*, who lodged at a Tanner's called *Simon*, to learn from him what he should do. At that same Time *Peter*, about the Hour he was to take his Meal, had a Vision of a great Sheet full of unclean Animals, which descended from Heaven. He was commanded by a Voice coming from Heaven, to kill those he liked, and eat them. He answered he could not do it, because he had never eat any Thing polluted, and forbidden by the Law: But the Voice replied to him, *that Man could not call unclean what God had purified.* As he reflected on what God would make him understand by those Words, the Deputies of *Cornelius* arrived, and related to him the Apparition of the Angel to their Master, who desired he would come to him; then he understood, that by those Animals accounted unclean in the Law, which he was loth to eat, God did let him know, that his Design was that the Gospel should be preached to the *Gentiles*. He would not defer longer so great a Work; so that the next Day he departed, and the following arrived at *Cæsarea*, where that good Captain had assembled all his Friends to do him Honour, and partake of the Fruit of his Journey. He preached to them the Doctrine of Salvation, and in few Words, but very efficacious, related to them the Life, Miracles, Death, and Resurrection of the Son of God; and explained to them the Prophets who spoke of him. In the Middle of his Discourse the Holy Ghost came down on his Auditors, and made them speak the Wonders of God, in Languages they had never learned. That surprized and rejoiced together, the Faithful, who had been converted from Paganism, to the Faith. *Peter* surprized, and extremely pleased like the rest, had them baptized; and at their Intreaties staid several Days with them. *Cornelius* made so good Use of the Instructions of the Apostle, that, after *Zaccheus*, he was elected Bishop of *Cæsarea*, as we read in the *Roman* Martyrology, on the 2d Day of *February*, and in the Menology of the *Greeks* on the 13th of *September*. *Metaphrastus* makes him Bishop of another Place, but without any Proof drawn from Antiquity. His House was converted into a Church, which was standing in St. *Jerom*'s Time, who writes to the virtuous *Paula*, *Epist.* 27. that he visited it.

At that same Time St. *Matthew* wrote his Gospel in *Hebrew*, for the Instruction of the *Jews* who believed in *Jesus Christ*. He has particularly described the Actions of his sacred Humanity; therefore among the four Evangelists he is represented under the Figure of a Man. It was so much valued, from the very Time of its being first published, that St. *Barnabas* carried always a Copy thereof in all his Travels, with which he was buried, and which was found on his Stomach, when his Corps was digged up, at the Time of the Emperor *Zeno*. The *Nazareans* preserved it a long Time, without any Alteration, and St. *Jerom* got a Copy thereof from them, to transcribe it, in order to translate it into *Latin*. But in Process of Time they corrupted it as well as the *Ebionites*, *Cerinthians* and *Carpocratians*, who took Occasion from the human Genealogy described in it, to deny the Divinity of *Jesus Christ*. St. *Jerom* says, that in his Time the *Hebrew* Original was in the Library of *Cæsarea*.

When the Conversion of *Cornelius* was known, there was some Murmur in *Jerusalem* excited by *Cerinthus*, who was afterwards an impious Heresiarch. But St. *Peter* appeased it, by the Recital of his Vision, and of the coming down of the Holy Ghost, before the Baptism of Water, on those he catechised. Then every one praised the Mercy of God, who was pleased to spread the Light of the Faith on the *Gentiles*, who had been thought excluded from that Grace. The Apostles at the same Time being informed of the Progress of the Gospel in *Antioch* of *Syria*, sent thither *Barnabas* to cultivate that large Field. At his Arrival he found that he was not sufficient alone for the Work of so plentiful a Harvest, so that he went to search *Paul* in *Tarsus*, to come to help him. He could not chuse a better Second, and he discovered soon that God had inspired him with that Choice. By their Preaching, the Faith made very great Progress, though often obstructed by the Devil. It was in that City that the Faithful, called Disciples before, took the Name of Christians, which signifies their Royal Unction flowing from that of *Jesus Christ*.

Caligula having been killed by *Chæreus*, Captain of his Guards, after he had reigned three Years, ten Months, and some Days, *Claudius* his Uncle succeeded him, who continuing the same Favour to *Agrippa*, confirmed him in the Kingdom of *Judea*, his Predecessor had given him, as may be seen more at large in my Chronology of the Kings of *Judah*, under the Letter C. He returned thence from *Rome*, where he was at the Time of *Caligula*'s Death, into his Kingdom, loaded with Honours, Glory and Riches. But instead of acknowledging that he received all those Favours from the munificent Hands of the Almighty, and of beginning his Reign by some religious Action, which could bring down his Blessings, he on the contrary signalized it by the Death of St. *James*, called the Major, whose Life he sacrificed to the Rage of the *Jews*, to gain their good Will at his Accession to the Throne. He who had accused him, seeing that he went to Execution with so much Courage, and with so much Love for his Enemies, was touched with Admiration: And the Grace of God enlightning his Understanding, he embraced the Gospel, and asked the Apostle's Forgiveness, who granted it with Pleasure, and who had him at the same Time for a Companion of his Martyrdom. Some Authors pretend, that he converted *Philetus* and *Hermogenes*, both Magicians. They afterwards corrupted their Faith, as St. *Paul* witnesses it, in his second Epistle to *Timothy*; for they denied the future Resurrection of the Dead, maintaining that it had happened already, debauching several Persons by their false Doctrine.

Herod, who searched all imaginable Means to please the *Jews*, that they might love his Government, thought that one of the most agreeable Things he could do to oblige them, was to persecute the Christian Church, and work its entire Ruin. Therefore he took the Resolution to attack St. *Peter*, and put him in Prison under a safe Guard, to give the People the Pleasure of his Execution, after the Solemnity of the Passover. But the Angel of God deceived his Expectation, by setting the Apostle at Liberty, who was still very necessary to the Church. Himself brought the News of his Deliverance to the Christians, assembled in the House of *Mary*, Mother of *John*. They could scarce believe it, seeing him, and hearing him relate how the Angel having awaked him, the two Chains he had been tied with, were fallen off his Hands, and all the Gates of the Prison were opened before him, without the Soldiers who guarded him had perceived it. He ordered them to inform *James*, called the Lord's Brother, of his Deliverance, who was Bishop of the City, and the other Faithful, and afterwards took his Leave.

The next Day, the Soldiers, not finding *Peter* in the Middle of them, were strangely surprized; and *Herod* extremely irritated at his Deliverance, caused them to be rigorously chastised; but he was soon punished for the Impiety he was sorry he had not committed. For while he was in *Cæsarea* of *Palestine*, employed in the Celebration of the publick Games, for the Welfare of the Emperor; the Inhabitants of *Tyre* and *Sidon* with whom he was at Variance (St. *Luke* does not mention the Subject thereof) sent him a Deputation to treat of a Peace. He would receive them with an extraordinary Magnificence, and make a Shew of his Grandeur to them. He therefore appeared in publick on his Throne, cloathed in his royal Robes. While he was speaking, the People cried to flatter him, *The Voice of God, and not of a Man.* Instead of rejecting that sacrilegious Acclamation, he was pleased at it, and thought that the People spoke true. But at the same Hour the Angel of the Lord struck him with a frightful Wound: He was carried from the Throne to his Bed, where Worms gnawing his Flesh, made him know, but too late, that he was a Man subject to Death, that Kings being the Images of God, ought not to usurp an Honour due to the Original; and that as it is from him they have all their Power, they must chiefly employ it for the Preservation of his true Worship. After his Death *Judea* had no more particular Kings, and was included in the Government of *Syria*.

The Apostles, to avoid the Persecution which *Herod* had began, particularly against them, divided between them the Provinces of the World, to go and establish in them the Kingdom of *Jesus Christ*. It was then they composed the Symbol that bears their Name, either because each of them made an Article thereof, or because it was a Mark they gave the Christians to know one another, and to distinguish themselves from Heretics, as Soldiers, of the same Party, do at the Word of their General.

St. *John*, St. *James*'s Brother already crowned with Martyrdom, went into the lesser *Asia*, and penetrated very far into the eastern Provinces, where he preached the Gospel of him whose beloved Disciple he was, with a Zeal and Courage agreeable to the Gratitude which required from him so honourable a Title. We learn from the synodal Epistle of the Council of *Ephesus* to the Clergy of *Constantinople*, that he lived in *Ephesus* with the blessed Virgin. The Antients make mention neither of that Abode, nor of the Journey of the Mother of the Son of God, nor of their common Habitation; but they speak clearly of the Churches he had founded in *Asia*. St. *Paul* worked three Years in that of *Ephesus*, and he may be called the Founder thereof; so that I would be very apt to think, that the Apostle above-mentioned did not govern it but in his old Age. The Bishops of that City called themselves Successors, and Disciples of St. *John*; and founded themselves on his Authority, for not celebrating the Feast of *Easter*, as the *Roman* Church does. That same Apostle evangelized the *Parthians*, to whom he writes his first Epistle, which anciently bore that Title. The Relations of those who in our Times have carried the Light of the Gospel to the furthest Provinces of the East, say, that they have found an old Tradition among those People of the Preaching of that Apostle. The false *Pachorus* relates Things of it quite fabulous. Those related by *Metaphrastus*, are not much more true. There is a great Dispute among Authors, to know if he be dead, or if God keeps him with *Enoch* and *Elias*, to fight against the Antichrist. That Dispute is occasioned by the Words of *Jesus Christ* to St. *Peter*, which seem to signify, that he should not die like the other Apostles. The Menology of the *Greeks* on the sixth of the Calends of *October*, makes mention of his Passage to God, *i. e.* of his Death. *Polynates*, Bishop of *Ephesus*, speaks of him in the same Manner, writing to Pope *Victor*. St. *Chrysostom* makes mention of his Sepulchre full of his Bones.

St. *Andrew* preached to the *Scythians*, and to the *Sogdians*, in *Ethiopia*, *Egypt*, *Thracia*, and *Achaia*. *Gregory Nazianzen* says, that he evangelized likewise in *Epirus*. But as to his having founded the Church of *Bizantium*, of *Nice* in *Bithynia*, it is contested; and Pope *Agapet*, maintains, in his Letters read in the fifth Synod, that St. *Peter* was the first who preached *Jesus Christ* in those two Cities. He was crowned for all his Toils, by a glorious Death in the City of *Patras* in *Achaia*. The Proconsul *Ægeas* had him fastened to a Cross turned upside-down, which he saluted afar off, with Words which testified, that it was the Object of his Desires. He remained two Days fastened to it; and from it, as from a Chair, which could be very justly called the Chair of Truth and Authority, he preached the Grandeurs of *Jesus Christ*, and caused as much Confusion to the Authors of his Death, as Consolation to the Faithful who heard him; and whom, by his Example, he animated to the generous Confession of the Name of his Master. The Priests of *Achaia* wrote the Acts of his Martyrdom, which *Lipomanus* and *Surius* relate. Those of the Apostles, published under his Name, have been rejected as apocryphal.

St. *Philip* having converted some Provinces of *Scythia*, and worked gloriously in the higher *Asia*, was crucified, and stoned to Death in *Hierapolis*; at the Age of eighty-seven Years. He was martyred in the twelfth Year of the Emperor *Claudius*.

Thomas whiten'd the *Ethiopians*, as St. *Chrysostom* expresses himself, *Hom.* 2. on St. *Matt.* and preached to the *Parthians*, *Persians*, *Medes*, and *Indians*, in the great Island of *Tropobane*. He was pierced with a Lance, near the City *Meliapur*, at present called the City of St. *Thomas*, and by a glorious Death for *Jesus Christ*, repair'd the Fault of his Incredulity. We learn from the modern History of the *East-Indies*, that in the Kingdoms of *Narsingue* and *Canganor*, and in the neighbour-

ing

ing Provinces, the Tradition is conſtant, that the Apoſtle here mentioned, carried the Light of the Goſpel thither. The Chriſtians found there, were called the Chriſtians of St. *Thomas*, and they recounted ſeveral marvellous Things of him, which they ſaid, were extracted from their Annals, and which were ſung by the Children of *Malabar*, in the vulgar Tongue. As a little before the laſt Diſcovery they had received Biſhops from the Patriarch of *Armenia*, their Faith was corrupted by the *Neſtorians*. As to the reſt, they obſerved almoſt the Ceremonies of the *Roman* Church. They honoured religiouſly the Euchariſt, and took it as a Viaticum before they died. They kept the Faſt of *Advent*, and of *Lent*, the Feaſts of the Saints, and ſolemnized in a particular Manner the *Sunday* of the Octave of *Eaſter*; becauſe on that Day St. *Thomas*, who had been incredulous at the Reſurrection of the Son of God, had the Happineſs to ſee him, and put his Hand in his Side. They had not the Uſe of the Extreme Unction, nor of the Images, except that of the Croſs. Their Prieſts could be married once. The New Teſtament was read in their Churches in *Syriack*. That Religious Worſhip was the Cauſe of the Perſecution they ſuffer'd, either from the *Mahometans*, or from the Heathen Kings, when the *Portugueſe* arrived in their Country. They ſaid, beſides, that St. *Thomas* had foretold their Arrival, and that it happen'd according to his Prophecy. His Body, according to *Maphæas*'s Relation, was found in the Ruins of a Church built antiently to his Honour, in the City of *Meliapur*, and tranſported to *Goa*, into a magnificent Temple, which the Vice-Roy of that Time cauſed to be built for it, by the Order of King *Emanuel*. Before the Arrival of the *Portugueſe*, the Chriſtians of thoſe Countries were reckoned to amount to 15 or 16000 Families, or, according to another Calculation, to 70000 Perſons, who inhabited the ſouthern Part, the neareſt Cape *Camorin*, in the Neighbourhood of the Cities of *Coulan*, and of *Cranganor*, Weſtward; and about *Meliapur*, and *Nægapatan*, Eaſtward. But towards the Weſtern Coaſt, and the City *Cochin*, Northward, there were a greater Number of them. Their Archbiſhop render'd Obedience to the Patriach of *Mozul*, or *Babylon* (antiently *Seleucia*) who pretended to a Juriſdiction over the Chriſtians of the *Indies*. But under Pope *Pius* IV. he ſubmitted himſelf to the *Roman* See, at the Perſuaſion of the *Portugueſe*, retaining, notwithſtanding, the antient Ceremonies of his Church. His Succeſſor, at a Synod held at *Goa*, in the Year 1599, made Profeſſion with all his Suffragans, of the *Roman* Religion, without any Reſervation of the antient Worſhip, and gave all their Books to correct, to the Archbiſhop of that City, to take out all that ſmelt of *Neſtorianiſm*.

St. *Bartholomew* preached in the *Armenia major*, and converted the People of *Lycaonia*. He preached, likewiſe, in *Albania*, and in the citerior *India*. *Pantænus*, a Chriſtian Philoſopher, in a Journey he made thither, found that they had preſerved his Memory; and brought from thence the Goſpel of St. *Matthew*, which he had left there. The Brother of the King he had converted, cauſed him to be ſlay'd alive.

St. *Matthew*, who had left his Bank to follow *Chriſt*, preached the Goſpel in *Ethiopia*, where he died.

Simon the Cananean, called *Zelotes*, preached in *Meſopotamia*, and according to ſome Authors, in *Egypt*, *Africa*, and *Perſia*, where he received the Crown of Martyrdom. *Nicephorus* and *Dorothæus* add *Great Britain*, but it is without any Authority of the Antients.

Judas, called *Thaddæus*, and Brother of *James the Minor*, preached likewiſe in *Meſopotamia*, *Arabia*, *Syria*, and *Idumæa*, and the neighbouring Countries: He died for the Confeſſion of *Jeſus Chriſt* in the City of *Berith*. *Euſebius* reckons him among the 72 Diſciples.

St. *James*, Son of *Alphæus*, ſtaid at *Jeruſalem*, becauſe he was Biſhop thereof. He is called the Lord's Brother, becauſe he was his Couſin.

St. *Matthias* preached in *Judea*, and in Part of *Ethiopia*, and was crowned like the others, for the Confeſſion of the Name of *Jeſus Chriſt*.

In all theſe apoſtolical Miſſions, there is no mention made of *America*, which is the new World; and it is very likely, that if the Apoſtles, or their Diſciples had preached there, ſome Authors had informed us of it. Tho' it is a ſurprizing Thing, that God would leave for ſo many Centuries, half the Earth without the Light of the Goſpel. All the Hiſtorians who have wrote the Diſcovery of thoſe Countries by the *Spaniards*, agree, that they found in it no Track of the Chriſtian Religion. Paganiſm reigned there alone, and even to this Day it is the Country where it has a greater Number of Partiſans. Authors give it ſix of the ſeven Parts *America* is compoſed of. Even ſeveral of the Inhabitants, tho' Chriſtians, adore ſtill the Idols, which proceeds from their Ignorance, and the little Care the *Spaniards* take of their true Converſion. It is not only in that vaſt Continent, that Idolatry remains in its Force, it reigns alſo in the Places from whence the Apoſtles and their Diſciples had expelled it by the Preaching of the Goſpel: And it poſſeſſes the ſixtieth Part of *Europe*, half the Circumference of *Africa*; all that is in that large Country between the River *Nile* and the weſtern Sea of *Ethiopia*; all the ſouthern *Ethiopia*, both Sides the *Nile*, from the eaſtern Sea to the weſtern, and even as far as the Cape of *Good Hope*, if we except from it ſome Parts of *Congo* and *Angola*, where there are a few Chriſtians, and the Extremities of the Shore of the Sea of the *Levant*, from *Moſambick*, Northwards, which is full of *Mahometans*. The ſame may be ſaid of *Aſia*, half whereof, or even more, is occupied by the Pagans. But to aſk, why God leaves thoſe innumerable People in that profound Night of Idolatry, his Son being come upon Earth to enlighten all the World, and deliver it from the Slavery of the Idols, it is wanting to penetrate into a Secret which God has reſerved to himſelf; and it ſuffices us to believe, that that Conduct, which is not agreeable to our Reaſonings, is, notwithſtanding, full of Juſtice. Ever ſince two Centuries, the Goſpel has penetrated into ſeveral Countries of the old and new World; and before *Jeſus Chriſt* comes to judge the Quick and the Dead, his bleſſed Name will be preached every where. But when, and by whom ſuch a Thing will be effected, is another Secret, which we muſt not attempt to fathom. Thoſe who make ſo many curious Queſtions on this Subject, ſhould rather thank God that he has placed them in a Country where his Name is ador'd, and endeavour to live according to the Goſpel which they profeſs.

I ſay very little of the Life and Actions of each Apoſtle; becauſe we have nothing certain relating to it; and the Rules of Hiſtory forbid us to relate apocryphal Narrations.

In the Portion of the Provinces made by the Apoſtles, St. *Peter* choſe the Weſt, and eſtabliſhed his Chair at *Rome*, that the City which had been a School of Error and Impiety for the whole Earth, ſhould become a School of Piety and Truth; and the Pride of the Capitol yield to the Humility of the Croſs of *Jeſus Chriſt*.

Peter was no ſooner arrived at *Rome*, but he began to work towards the Eſtabliſhment of the Reign of his Maſter. But we can ſay nothing of it in particular with the Authority of the ancient Fathers, who all unanimouſly agree, that he came to *Rome*, but ſay nothing of what he did there. But they are not ſo unanimous with Regard to the Time of his Arrival; ſome of them placing it in the 44th Year of *Jeſus Chriſt*, and others a great deal later. It is a Matter belonging to Chronologiſts; and it muſt ſuffice us, that he came in fact to *Rome*.

Metaphraſtus gives a Relation of his Journey from *Antioch*, and marks all the Churches he founded in his Way. But he proves nothing of what he ſays, by any Author to be credited. St. *Paul*, in his ſecond Epiſtle to *Timothy*, ſalutes him in the Name of *Pudentius* and *Priſca*, or *Priſcilla*; and Cardinal *Baronius* is of Opinion, that they were thoſe who received him in his firſt Journey to *Rome*; that *Pudentius* was a Senator, who was converted to the Faith, with his two Daughters, *Pudentiana* and *Praxedis*, for a Reward of his Hoſpitality. He adds, that his Houſe built at the Foot of Mount *Quirinal*, ſerved afterwards to the Faithful, for their Aſſemblies. It was at *Rome* he wrote his firſt Epiſtle, which he addreſſes to the Elect diſperſed here and there in ſeveral Provinces of the World. He dates it from *Babylon*, which cannot be underſtood literally, none of the Antients having wrote that he had ever preached there. Thoſe who will have it that St. *John* in his Apocalypſe, by that Name underſtands *Rome*, cannot find

amiss that we take it in the same Sense, and make Use of that Proof to justify by the Scripture his Arrival at *Rome*.

The Famine foretold by *Agabus*, happen'd at the Time he had marked, which was the second Year of the Emperor *Claudius*, who on that Occasion shewed for the Subsistence of the Inhabitants of *Rome*, a true paternal Care. The Faithful of *Antioch* sent, likewise, very great Succours to the Christians of *Jerusalem* by *Barnabas* and *Paul*.

After they had executed that important Commission, they returned to *Antioch*, to continue their ordinary Functions of the Preaching. Though they did not stay long there, for by the Command of the Holy Ghost, after the Celebration of the Mysteries, a Fast, and the Prayers of the Ministers of that Church, whom St. *Luke* calls Doctors, they received the Impositions of Hands to go and preach the Doctrine of Salvation in the Provinces, where they were sent by the divine Providence. We have explained, already, what that Imposition of Hands was, which so much puzzles the Interpreters; and it suffices to say in this Place, that it was not an Ordination, either to Episcopacy or to the Apostolate, which St. *Paul* had received immediately from *Jesus Christ*, as he witnesses it himself, but a simple religious Ceremony, which declared the Will of God for the apostolical Ministry among the *Gentiles*, more openly, and in a more illustrious Manner than they had done yet. The Ravishment to the third Heaven, happened (according to the Opinion of several) at that same Time to the Apostle of the Nations. God who designed him to preach his Truths in the World, wanted before to let him see them in their Source, that possessing them with more Light, he could explain them with more Efficacy. He did not bury that Treasure, for departing immediately from *Antioch*, he diffused it first in *Seleucia*. He went afterwards to *Cyprus*, an Isle famous for the fabulous Birth of *Venus*. *Sergius Paulus*, whom St. *Luke* calls, in the *Acts*, Proconsul, was the most illustrious Conquest he made there. A Sorcerer, called *Elymas*, endeavour'd to prevent his Conversion, but the sudden Blindness he was struck with by the Apostle, confirmed the new Catechumen in his Resolution. He proved so grateful for the Favour he had received of his Catechist, that, according to the most common Opinion, he desired him to take his Name, which was one of the most illustrious of the Empire. In fact, it is in that Place that St. *Luke* begins to call him *Paul*. That *Roman* Appellation, could serve besides towards rendering him more acceptable to the *Gentiles*, to whom his Ministry was particularly directed.

From *Cyprus* the two Apostles came to *Perga*, a City of *Pamphylia*; and from thence to *Antioch* of *Pisidia*. *Paul* spoke there several Times to the *Jews*, in a Manner which convinced and persuaded a great Number of them. Those who remained obstinate made use of the Simplicity of some pious Women, who are very easily deceived, and of some Men of Quality, to excite a Sedition against him and *Barnabas*, which obliged them to leave that City. They threw against them the Dust of their Feet, according to the Custom of their Nation, and protested, that since they render'd themselves unworthy of the Preaching of the Gospel, they were going to carry it to the *Gentiles*. In fact, they came to *Iconium*, a City of *Lyaconia*, where the Preaching of St. *Paul* had a marvellous Effect. They met with very great Difficulties; but the Combats they were obliged to sustain, procured them so many glorious Victories.

The most obvious of them all, was the Conversion of *Thecle*, whom her Birth, Beauty, Fortune, and Wisdom, render'd the Admiration of all those who knew her.

From *Iconium* the Apostle came to *Lystra*. The Inhabitants seeing the Miracle he had done in the Person of a Man lame from his Birth, wanted to adore him, taking him for *Mercury*, because he spoke first, and *Barnabas* his Companion for *Jupiter*. They hinder'd them from committing that Impiety in tearing their Cloaths, and representing to them, that the Worship they would render to them, was due to God alone; that they were come to deliver them from the Error they were plunged in, and to teach them to serve him who had created all Things, and that for them they were only his Ministers. The Respect of those Superstitions was soon changed into Rage; for some *Jews* coming from *Antioch* and *Iconium*, spurred them on in such a Manner, that they helped them to stone that same *Paul*, whom some Time before they wanted to worship. He was left for dead on the Place, but God preserved him by a singular Miracle. At Night he re-enter'd the City, amidst his Disciples; and the next Day went to *Derbe*. From thence he visited the Churches of *Lystra*, and of *Antioch* of *Pisidia*, establishing in all the Cities, Bishops, and Priests to govern them.

At that Time the blessed Virgin quitted the Earth, to go and enjoy in Heaven the Presence of her Son, who had left her in the World till then for Reasons unknown to us. The Chronologists, who disputed of the Age she died at, are very different in their Calculation; and one Opinion is as probable as the other. The *Roman* Church celebrates the Feast of her *Assumption*, and her common Belief is, that she was carried Soul and Body into Heaven. The small Treatise, which bears the Title *Of the Assumption of the blessed Virgin*, inserted among the Works of St. *Jerom*, is no more of him, nor of *Sophronius*, than the Homilies of that Feast, attributed to St. *Augustin*, are his. I know that commonly a Passage of St. *Dionysius*, the *Areopagite*, found in his Book of the divine Names is alledged, where it is pretended, that that Author says, that he was present at the Death of the Virgin, with St. *Peter*, St. *Paul*, and St. *James*. *Juvenal*, Bishop of *Jerusalem*, St. *John Damascenus*, and several other *Grecks* after them, understand it in that Manner. Others explain it of the Sepulchre of our Lord, which had received the God of Life. The Change of a single Letter in the two *Greek* Words, can very well have made that Equivocation. But whatever might have been the Time when that blessed Woman died, and whoever was present at her Death, it is certain she died the Death of the Elect, which is always precious before God.

Paul and *Barnabas* having visited the Churches they had founded, returned to *Antioch* in *Syria*. The Devil excited there a Division among the Faithful, thro' the Obstinacy of some *Jews*, who maintained, that the *Gentiles*, newly converted to the Faith, should receive the Circumcision, according to the Law of *Moses*. The Apostle and his faithful Companion, opposed it courageously; but the Dispute increased to such a Degree, that it was determined that each Party should send to consult the Apostles and Priests who were in *Jerusalem*. St. *Peter* was then in *Jerusalem*, and. as it appeared since, that happened by the particular Influence of the Holy Ghost.

The Emperor *Claudius* having banished all the *Jews* from *Rome*, because of the Seditions excited daily among them, and which were occasioned perhaps by some of them embracing the Christian Religion, and others opposing it, *Peter* had been obliged to go out of *Rome* with the rest, to obey the Edict. *Paul* and *Barnabas*, who were sent by the Party of those who refused to oblige themselves to the legal Ceremonies, related their Commission, at their Arrival in *Jerusalem*. The Apostles who happened to be there with St. *Peter*, were *John* and *James*, who judged that to resolve so important a Difficulty, they should assemble with the Priests of the Church, and decide by the Oracle of the Holy Ghost, the Question which troubled the Faithful of *Antioch*. It was disputed with much Warmth; but, which did not alter the Charity among them, St. *Peter*, as Chief, spoke first; and shewed, *that it was by him that God had began to instruct the* Gentiles *in the Truths of the Gospel, that by the coming down of the Holy Ghost on* Cornelius *the Centurion, and on those who were in his Company, he had very well shewed, that he made no Difference between the* Jews *and the Nations, for the Manifestation of the Truth. That by Faith he had purified their Heart; and that it was without Reason, they wanted to impose a Yoke, which the Ancestors of the* Jews, *and even the modern* Jews *could not bear.* *Paul* and *Barnabas* related afterwards what God had done by their Ministry in the Provinces, where they had preached to the Infidels. *James* spoke last, and concluded according to the Sentiment of *Peter*; that *they ought to order nothing to those who came from Idolatry to the Faith, but*

but only that they should abstain from suffocated Meats, and from those sacrificed to the Idols, from the Blood of Beasts, and from Fornication.

By that Determination, equally prudent and holy, both Parties were satisfied. For the Gentiles were discharged from the Obligation of having themselves circumcised, which was the hardest; and of many other legal Observations, which they considered as an insupportable Servitude. For the *Jews*, they were likewise pleased, because they were left in their Uses, and the Gentiles were obliged to some Precepts of the Law, to which they were much bigotted. The Prohibition of eating Flesh with the Blood had been made to *Noah*, immediately after the Flood, by the Mouth of God himself. For that of Fornication it was necessary to the Idolaters, not that it was a Thing lawful among them before this Prohibition, since it is bad of itself, and contrary to the Order of Nature, but because they did not consider it as such; and that the civil Laws which condemned Adultery, saying nothing of that unlawful Conjunction, that Silence opened them a wide Gate to Incontinency, and was directly contrary to the Purity, which the Christian Faith requires of its Observers, as of those whose Bodies become by Baptism the Temples of the Holy Ghost; therefore it was necessary to forbid it expressly, that no body should alledge for Excuse either Ignorance or Custom.

After the Decree was formed by the Apostles, in the first Council where the Church had been assembled, a synodal Epistle was drawn, wherein that Decree was explained in the Manner we have related it; and to give it a greater Authority, these Words were put at the Head thereof, *It has seemed good unto the Holy Ghost, and unto us.* Which shews, that it is not Men that make the Decisions of the Councils, but the Holy Ghost which render them infallible for the Things of the Faith; of which some of the *Calvinists* and others are so conscious, that to have Room to condemn what Councils they please, their Translators have expunged these Words to the Holy Ghost, which are in the Original, and in all Translations from the Beginning of the Church, to *Luther* and *Calvin*, &c. who having made what Changes they pleased in the Scripture, they have expunged the Words, *to the Holy Ghost*, contented themselves with these, *it seemed good to us. Judas* and *Silas* were charged with the synodal Epistle, and departed with *Paul* and *Barnabas*, to go and restore Peace to the Church of *Antioch. Peter* came thither some Time afterwards. At first he eat indifferently of all Sorts of Meat with those who had left Gentilism: But at the Arrival of some *Jews*, being afraid to scandalize them, he left those new Converts, and returned to the legal Observations. *Paul*, who saw the Consequence of that Conduct, which was likely to rekindle the Division which had been extinguished, and destroy the Decision of the Council, reprimanded him, and resisted him to his Face, *because he was reprehensible*, to use his own Terms. That Resistance was not a Mark of Self-conceit in St. *Paul*, but of a very courageous and very disinterested Zeal. Neither did it deprive him of the Primacy he had received immediately from the Son of God. On the contrary, by suffering as he did, that publick Correction, he has left a marvellous Example to all Bishops, to make the Interests of their Dignity, give Way to the Salvation of the People, and the Truth of the Gospel.

That Division which did not alter the Charity between the two Apostles, caused another some Centuries afterwards, between the two greatest Men of the Church, St. *Augustin* and St. *Jerom*. For this having wrote according to the Opinion of St. *Chrysostom*, and of the *Greeks*, that the Dispute of St. *Peter* and St. *Paul* had been concerted between them, the better to deceive usefully the *Jews*, and oblige them to renounce the Superstition they were too much bigotted to, for the Distinction of Meats; St. *Augustin*, who thought that that Opinion attacked dangerously the Truths of the canonical Scriptures, wrote a Letter of Reprimands to him. It was not delivered to St. *Jerom*, but several Years after it had been wrote, tho' it had been rendered publick every where. St. *Jerom* was much nettled at it, and in that Contestation they both wrote Things which instructed the Faithful. It is certain that St. *Augustin*'s Opinion is the true one, and that no Reason obliging to explain the Dispute of the Apostles otherwise, than it is written by St. *Paul*, we must mind the Letter, which the Enemies of the Primacy of the Church of *Rome* pretend to be favourable to their Sentiments.

Paul who had received from the Council the Care of the Nations, persuaded *Barnabas* to go and visit the Churches of *Asia*. He consented to it, but he would have along with him his Cousin, called *John*, and surnamed *Mark*, to assist them. The Apostle did not judge that proper, because as he had not accompanied them in their first Journey, he would be an entire Stranger to those whom they were to visit; besides, that he thought that Rigour necessary to render him more courageous in Process of Time, than he had been before. But *Barnabas*, who would not be persuaded to desist from his former Sentiment, parted from St. *Paul*, and took a different Road. Notwithstanding which, the Charity was not wounded in that Dispute, and Providence made use of their Division to declare the Truth of the Gospel to divers People. That *Mark* rejected by St. *Paul*, was afterwards one of his faithful Companions. As for *Barnabas*, St. *Luke* says nothing of what he did after that Separation; and it would be imposing on the Reader, to relate the Fables we read in the Book of *Abdias*, entitled the Combat of the Apostles, and in the Recognitions of St. *Clement*. The surest Tradition is, that he has founded the Church of *Milan*, and preached the Gospel in *Liguria*, which is at present the State of *Genoa*, but which then extended much further. Cardinal *Baronius* cannot bear that one should say that he has preached in *Rome*, before St. *Peter*. *Origen*, *Clement* of *Alexandria*, and St. *Jerom*, quote an Epistle of him, which was much esteemed in the Church. *Tertullian*, and some other Authors have attributed to him that of St. *Paul* to the *Hebrews*.

Paul, having parted from *Barnabas*, and chose *Silas* to supply his Place, made the Tour of *Syria* and *Cilicia*, exhorting the Christians to persevere courageously in the Faith, and observe faithfully the Precepts of the Apostles and of the Priests. In *Lystra*, he found a young Man called *Timothy*, Son of a Mother who was born a *Jew*, but professed the Christian Religion, but whose Father was a Gentile, to whom all the Christians of that City rendered honourable Testimonies of his Piety, and whom he chose for Companion of his Travels. As under so excellent a Master, so good a Disciple made soon great Progresses in all the Christian Virtues, he became very dear to him, and had always the first Place in his Affection, among all those he had educated. He praises him for his Faith, Constancy, Fidelity, and the marvellous Progresses he made in the divine Knowledge. He calls him his dearly beloved, and most faithful in our Lord. He says, that he has no body, to whom he is so unanimously joined, and that he has served him in the Predication of the Gospel as his Child. He gives him the Name of his Coadjutor, and recommends him as himself. He circumcised him for fear of offending the *Jews* who lived in those Places, making himself a *Jew* with them to gain them to *Jesus Christ*, and shew them he did not reject the Circumcision as bad, but only as needless after the Coming of *Jesus Christ*. It is to *Timothy* he wrote afterwards two marvellous Epistles, which teach the Qualities and Duties of a good Bishop, of Priests and Deacons.

He would have preached in *Asia*, and in *Bithynia*; but the Holy Ghost who breathes where he pleases, and leaves whom he pleases in the Darkness of Infidelity, would not permit it; and by the Vision of a Man dressed *Macedonian* Fashion, who told him, *Come thou into Macedonia to assist us*, shewed him that his Will was, that he should preach in that Province. From *Troas* he came to *Samothracia*; the next Day to *Neapolis*, and from thence to *Philippi*; where he converted a Woman who followed the Occupation of dying in Scarlet, God having opened the Heart to her alone, to receive the Word of the Gospel, which St. *Luke* observes particularly; and which teaches us that the Preacher speaks in vain to the corporal Ears, if at the same Time the divine Grace does not open the Heart, and introduce into it the Doctrine of Salvation. The Deliverance of the *Pythonisse*, who was a Maid, and by whose Means the Devil divined, and brought thereby a great Gain to her Mas-

ſter, cauſed a Sedition againſt *Paul*, and againſt *Silas*. They were preſented to the Magiſtrates, who had them whipped, and put in Priſon. In the Middle of the Night, while the others were aſleep, they ſung Hymns to God, who was pleaſed to diſcover their Innocence by a Miracle. All the Gates of the Priſon opened of themſelves, the Chains fell off the Hands of the Priſoners, and there happened a great Earthquake. The Gaoler, who thought that thoſe put in his Cuſtody were fled, drew his Sword to kill himſelf through Deſpair. St. *Paul* ſaid to him that he ſhould not hurt himſelf, and that they were in the ſame Place, where he had put them the Night before. The divine Light enlightening his Underſtanding, he came at that Inſtant to throw himſelf at the Feet of the Apoſtles, and aſked them what he ſhould do to be ſaved. They told him, that it was neceſſary to believe in Chriſt, and at the ſame Time inſtructed him on the Points of Faith. He believed and was baptiz'd with all his Family. The next Day the Magiſtrates ſent them Word they might go where they pleaſed; and came themſelves to intreat them of it, having been informed that they were *Roman* Citizens, excuſing as well as they could, the Injury done to them againſt the Laws, and againſt the Privileges of their Condition. It was at that Time, and in that City, that St. *Luke* Author of one of the four Goſpels, and of the Acts of the Apoſtles, joined St. *Paul*, and never left him afterwards. From *Philippi* the Apoſtles paſſed through *Amphipolis*, and through *Apollonia*, and ſtop'd at *Theſſalonica*, where they converted ſeveral Gentiles; which enraged the *Jews* againſt them. *Jaſon*, who was their Landlord, became their Bail, and it was with the greateſt Difficulty that he appeaſed them. In the Night he procured their Eſcape, and they came to the City of *Berœa*. The Succeſs of their Preaching was great there. The *Jews* of *Theſſalonica* being informed of it, ran thither to take the Apoſtle; which made them take the Reſolution to give way to Violence, and carry the Light of Salvation ſomewhere elſe.

Athens was a Theatre worthy of St. *Paul*. The Philoſophy and other Sciences, flouriſhed there ſtill, but the Superſtition of Idolatry rendered it an abominable Place to live in. The Apoſtle immediately after his Arrival, felt within himſelf extraordinary Motions of Zeal; and *Luke* obſerves that he diſputed every Day with the Stoicks and Epicureans, who were capital Enemies of the Humility and Purity of the Goſpel. For the former made a God of their wiſe Man, maintaining that he was incapable of feeling any Paſſions, and of falling. Therefore they acknowledged neither the Corruption of Nature by Sin, nor Weakneſs by Concupiſcence, nor conſequently the abſolute Neceſſity of the Grace of *Jeſus Chriſt*. The Epicureans denied the Immortality of the Soul, and by that Dogma alone, ruinated all the Religion. For tho' the Voluptuouſneſs whereof their Founder made his ſovereign Good, was not that of the Body, which the Vulgar underſtand by that Word; but he explained it of the Tranquility of the Soul joined with Indolence: That laſt End notwithſtanding, of the human Actions, was entirely different from that the Goſpel gives them. They had other Errors againſt the Providence, and the Reſpect due to the Divinity, who, according to them, was not to be feared, to enjoy the Felicity of a wiſe Man. It is not to be wondered at, then, if neither the one nor the other could receive the Doctrine of St. *Paul*, which was ſo contrary to their Opinions, and which eſtabliſhed for its Foundation the Corruption of Nature by Sin, and the Neceſſity of Redemption by *Jeſus Chriſt*, to which no body could have Part, without partaking of his Sufferings. The Diſcourſe he made in the Areopagum, the Subject whereof he took from an Altar erected, *to the unknown God*, which he had ſeen in the City, raviſhed all thoſe who heard him. But as towards the End, he ſpoke of the Reſurrection of the Dead, and of the laſt Judgment, ſome of his Auditors laught at him, as at a Madman who retailed ridiculous Romances. Others ſaid, that they would hear him again on the ſame Subject. Some were converted, among whom the Text of the Acts takes Notice of St. *Dionyſius* the *Areopagite*, i. e. one of the Judges of the Areopagum, as of an extraordinary Man.

From *Athens* the Apoſtle came to *Corinth*, where he lodged with *Aquila*, whoſe Profeſſion was to make Tents for the Soldiers. He knew likewiſe that Art, and did not think it beneath him, on Occaſion, to get his Livelihood, by the Works of his Hands, not to be burthenſome to thoſe whom he inſtructed; when he thought that to forward their Salvation, it was neceſſary to receive nothing from them for his Subſiſtence. For otherwiſe he never refuſed from others the common Neceſſaries of Life. In thoſe Occaſions his great Maxim was, that *all that is permitted, is not expedient*. There were a vaſt Number of *Jews* at *Corinth*. All Sabbath-Days, he preached to them, and inſtructed them as much by his Example, as by his Words and Miracles; ſuffering with Joy all Sorts of Perſecutions from them, for the Sake of his Maſter. But when he perceived, that inſtead of yielding to Truth, they oppoſed it every Day, with ſtill more Violence, he ſhook his Cloaths, to ſhew them that he was innocent of their Reprobation; and told them boldly, that he was a going to communicate to the *Gentiles* the Light they refuſed. In fact, he changed his Place of Abode, and came to lodge with *Titus*, whoſe Houſe was near the Synagogue. *Criſpus*, who was the Chief thereof, made a very good Uſe of his Neighbourhood, and received the Grace of Faith, with all his Family. Several of the Inhabitants had the ſame Happineſs, and were baptized. Thoſe Converſions could not happen, without the Devil giving ſubject to St. *Paul* to exerciſe his Patience. For he excited every Day ſome new Perſecution againſt him, to hinder him from deſtroying entirely his Reign in that City, which was all plunged in ſenſual Pleaſures. The Vanity and Curioſity the Sciences are accompanied with, were, likewiſe, very great Obſtacles to the Doctrine St. *Paul* preached, near Perſons who were uſed to the Eloquence of Orators and Reaſonings of Philoſophers. The Son of God, who ſtrengthen'd him by his inward Grace, would ſenſibly encourage him, beſides, amidſt ſo many Difficulties by a Viſion, in which he appeared to him, and told him, *that he ſhould fear nothing, that he was always at his Side to aſſiſt him, that no body could hurt him, and that he had a great Number of Servants in* Corinth. Thoſe divine Aſſurances filled him with a new Zeal for the Preaching of the Goſpel, and engaged him to ſtay 18 Months in that City; during which he ſignalized his Apoſtolate, as he ſays himſelf by Miracles, which confirmed the Truth he announced, and which ſpreading on that Church all Sorts of Bleſſings, render'd it equal to the moſt illuſtrious Churches. St. *Luke* ſays nothing in particular of the Actions of St. *Paul*; and we can only learn from what he wrote afterwards to the *Corinthians*, that he ſuffered a great deal there; and acted in an extraordinary Manner, for the Eſtabliſhment of the Goſpel. A Year and a half was employed in that Manner. And that Term almoſt expired, he was ſeized by the *Jews*, who hated him mortally, and carried to the Tribunal of *Gallio*, Proconſul of *Achaia*. They accuſed him of teaching a Worſhip contrary to the Law of God. But *Gallio* ſeeing that it was a Queſtion of a Point of Religion, would not meddle with it; and even diſmiſſed them in a pretty rude Manner. The *Jews* enraged to ſee their Complaints neglected, revenged themſelves on *Soſthenes*, Prince of the Synagogue, who was a Chriſtian, and beat him cruelly before the Proconſul himſelf, who uſed no Endeavours to ſtop that Violence. Afterwards the Apoſtle ſtaid ſtill ſome Time in *Corinth*; whence he wrote the two Epiſtles to the *Theſſalonians*, to calm the vain Apprehenſions ſome Doctors had inſpired them with, of the laſt Day being near at Hand. When he ſaw that his Abode was no longer neceſſary in that City, he left it with the Deſign of coming into *Syria*. He cut his Hair in the Port of *Cenchræa*, to acquit himſelf of a Vow he had made. St. *Luke* does not explain that Vow, and we believe it to be that of *Nazarene* for ſome Time, which Charity engaged him to make; either to perſuade the *Jews* who were in his Company, that he reſpected the Obſervances of the Law; or becauſe in their Preſence, he might, on ſome Occaſions have contracted ſome legal Impurities, of which he thought proper to purify himſelf, left he ſhould ſcandalize them.

At his Departure from *Corinth*, he had *Aquila* and *Priſcilla* along with him, who had received him in their Houſe at *Corinth*; he left them in *Epheſus*, where he

he only passed, designing, at his Return, to stay longer in it. Continuing his Journey he arrived at *Cesarea* of *Palestine*. From thence he came to *Antioch* of *Syria*, whence he departed to visit the Churches of *Galatia*, *Phrygia*, and of the Provinces of the *Higher Asia*; in which he employed a whole Year at least. After he had communicated in that Journey to those whom he visited, new Lights, and new Forces, to persevere in the Profession of Christianity, he returned to *Ephesus*, as he had promised.

It was a City famous for the Temple of *Diana*, which was reckon'd among the seven Wonders of the World. *Asia* had employed two hundred Years in building it, and all its Provinces had contributed towards that grand Design: Its Length was of 525 Feet, and its Breadth of 220; it had 127 Columns, erected by so many Kings; they were 60 Feet in Height, and all the Rules of Architecture were marvellously observed in them. But what gained its Reputation, was the Cause of the Unhappiness of *Ephesus*, since that Temple attracting the Vows of all the Provinces of the World, render'd it more bigotted to the Worship of the Devil, which they mistook for a Divinity. It was a Place very advantageous for Preaching the Gospel to all *Asia*, therefore the Apostle staid three Years there. At his Arrival he found some Persons who called themselves Disciples of *Jesus Christ*, and who, notwithstanding, had only been baptized with the Baptism of *John*, and knew not if there was a Holy Ghost, far from having received it. He caused them to be baptized in the Name of *Jesus Christ*, and having imposed Hands on them, *i. e.* confirmed them, the Holy Ghost came down upon them, and made them speak Languages which they had never learned, which was the common Sign of his descending on the new Faithful, in those fortunate Days of Christianity's Infancy. The Apostle, for three Months successively disputed every Sabbath-Day against the *Jews*, and proved to them clearly that *Jesus Christ* was the *Messiah* they expected. But in all the Places of the World, the same Veil of Error cover'd the Eyes of those of that Nation. Instead of yielding to Truth, they contradicted it with Fury; and proferred Blasphemies against the Honour of the Son of God, which obliged St. *Paul* to forsake them. He took his Abode in the School of a sophist Philosopher, called *Tyran*, which was a commodious Place for the Preaching of the Gospel. There was no Day passed without his Preaching the evangelical Doctrine, in a Manner so holy, and so marvellous, that he had always a great Crowd of Auditors. As *Ephesus* was the Capital of *Asia*, Men from all the Provinces resorted thither, who would go to hear that new Doctor, who made so much Noise. Several carried back along with them to their own Country, the Knowledge of the Gospel, and became so many Evangelists among their Fellow-Citizens. Therefore the Apostle, without going out of a City, catechised almost one third Part of the World. He joined the Glory of Miracles to the Strength of his Preaching; so that the Learned who had Genius enough to contradict his Discourses, were forced to surrender to the marvellous Cures he operated by the Invocation of the Name of *Jesus Christ*. His Handkerchiefs, and Girdles restored Health to the Sick, and all Kinds of Devils were obliged to obey his Command.

The Sons of *Sceva*, Prince of the Priests among the *Jews*, Inhabitants of *Ephesus*, (the Text of the *Acts* calls them Exorcists) attempted to do the same Thing, and undertook to expel the Devil in the Name of the God whom *Paul* preached. But the evil Spirit told them that he knew *Jesus*, and the Apostle who preached him; but as for them, they were Strangers to him, and he laughed at their Conjurations. In fact, the Possessed threw himself on them, and having beaten and wounded them cruelly, he forced them to fly quite naked. When that was known by all the Inhabitants of *Ephesus*, both *Jews* and *Gentiles*, it filled them with Fear and Respect together for *Jesus Christ*, and for him who preached his Doctrine. The Christians were likewise extremely moved at it; and those who knew themselves guilty of great Sins, were not ashamed to confess them, and seek the Remedies thereof in Penitence. Several Persons, likewise, who had been addicted to Magick, brought all the Books which treated of that Art, and burnt them in publick. Their Number must have been very great, or their Rarity extraordinary, since in the *Acts*, St. *Luke* informs us, that their Price amounted to fifty thousand Pence, which might have been five thousand Gold Crowns, according to the Supputation of *Budæus*. We learn from History, that *Ephesus* had always been much addicted to the Abominations of Magick, and that Characters were sold there publickly. *Eustachius* observed, that there were several engraven on the Feet and Crown of the Statue of *Diana*. As by it the Devil received great Honours, he opposed with all his Might the Progresses of the Gospel, and excited such cruel Persecutions against the Apostle, that he says in his first Epistle to the *Corinthians*, that he had suffer'd so much in *Ephesus*, that Life was become tedious to him: He adds, that he had fought against the wild Beasts, which I believe must be explained allegorically, and not literally. He doth speak, without Doubt, of the Sedition which *Demetrius* excited against him, which was very dangerous.

This was a Silversmith in Credit, who gained a considerable Livelihood, and procured it to several other Workmen under him, whom he employed in making Silver Statues, which the Idolaters used to buy, to present them to the Temple of *Diana*, or little Temples formed on the Model of the great one. Ever since the Apostle had began to preach against the Worship of the false Divinities, his Gain had decreased considerably, and he was afraid to find himself at last without Occupation. That made him take the Resolution to assemble all those who worked under him, and had the same Interest to defend the Honours of *Diana*. He represented to them so pathetically the Decay of the Reputation of their Temple, which their Ruin must unavoidably follow, that he engaged them to stir up a publick Sedition. In that Rage they found *Caius* and *Aristarchus*, two *Macedonians* born, who were Disciples of St. *Paul*; they seized them, and carried them to the Theatre. The Apostle offer'd to go thither; but his Disciples, and some *Asiatick* Lords who loved him, dissuaded him from it, for fear, the People in the Height of the Emotion, should put him to Death. A Magician, who happen'd to be there, spoke so dexterously, and so happily to the People, that he appeased the Tumult, and they all went away without doing any Thing against their Prisoners.

The Apostle judging that he had staid long enough at *Ephesus*, took the Resolution of executing the Project he had formed to pass into *Macedonia*, and *Achaia*, from thence to *Jerusalem*, and from *Jerusalem* return to *Rome*.

The Apostle, before his Departure from *Ephesus*, appointed *Timothy* Bishop thereof; which Church he govern'd with much Holiness and Zeal. And after he had a long while and gloriously worked for the Glory of *Jesus Christ*, he had the Honour to be stoned to Death for him, in wanting to oppose the impious Worship of *Diana*, and the superstitious Fury of the *Gentiles*, in one of their Feasts.

From *Ephesus* the Apostle wrote his first Epistle to the *Corinthians*. The frightful Excommunication he pronounced against the Incestuous, teaches the Church not to use that Punishment slightly, and the Faithful to fear it more than they do at present. What he says in it of the Advantages of Celibacy, to which he exhorts by his Example, proves clearly that he was never married; and that if he consider'd Marriage as a great Mystery in *Jesus Christ*, and in his Church, to answer previously those who should condemn it afterwards; he preferred, notwithstanding, the State of Celibacy to it, to confound, likewise, those who in Process of Time were to blame a Kind of Life, which having no Model on Earth, has searched it in Heaven, in the Bosom of God the Father; according to the Expression of St. *Ambrose*, *lib. de Virgin.* the Apostle staid several Months in *Macedonia* to confirm the Faithful in their Faith. From thence he wrote his first Epistle to *Timothy*. Continuing his Journey, he went to *Greece* by Sea, where he staid three Months. He landed in the Island of *Crete*; and left *Titus* to govern the Church he had assembled there, and those of the neighbouring Places. He afterwards addressed him in an Epistle, wherein he teaches which are the Duties of a true Minister of *Jesus Christ*. He speaks of him in his Epistles,

Epistles, as of a Man who was very dear, and very useful to him. For in the second Epistle to the *Corinthians* he declares, that not finding him in the City of *Troas*, as he had expected, he was very uneasy; and that having met with him in *Macedonia*, he had received great Consolation at his Arrival, having learned of him the good State of their Church. The antient Authors do not speak of the Time of his Conversion, but they prize his Learning, Zeal, and Toils for the Defence of the Gospel. St. *Ignatius the Martyr* says, that he kept his Virginity all his Life. The Apostle must have discover'd in him an extraordinary Virtue, since he not only made Use of him in several important Employments near his Person, (St. *Jerom* says, that he made him write under him) but gave him the Conduct of the Churches of the Isle of *Crete*, where the Debauchery and depraved Manners of the Inhabitants, required a holy, and very learned Pastor, to establish there the Reign of *Jesus Christ*. *Titus* having done it with great Success, went, besides, to preach the Gospel in *Dalmatia*, where by his Words and Example he converted a great Number of Idolaters to the Faith. He returned into *Crete*, where continuing in his Functions, he died of a peaceable Death at the Age of eighty four.

At that same Time St. *Luke* wrote the Gospel which bears his Name: He was born at *Antioch* in *Syria*, and professed Physick. *Nicephorus* makes him an excellent Painter; and we are shewn to this Day, Images of the blessed Virgin, which are said to be of his Hand. But it is much more certain, that he has painted in a divine Manner the laborious Life of the Son of God in his Gospel; having related several Things of his Birth, Preaching and Miracles, which have escaped the Memory of the other Evangelists. Even his Stile is more elegant than theirs. He wrote, likewise, the Book entitled, *The Acts of the Apostles*, where his chief Design was to write the History of St. *Paul*; though he has omitted several of his most important Actions, which we find in the Epistles of his Master. St. *Epiphanius* says, that he preached the Gospel in *Gaul*, *Italy*, and *Dalmatia*. That may be, but when he adds, that he was one of the seventy-two Disciples of our Lord, it is against his own Testimony at the Beginning of his Gospel, where, as we have already observed, he declares that he was not an Eye-witness of the Things he writes. The *Greeks*, in their Menology, do not mention him as a Martyr, no more than St. *Jerom*, who marks his Death at the Age of eighty-four Years. But St. *Gregory Nazianzen*, St. *Paulin* Bishop of *Nole*, and St. *Gaudentius* Bishop of *Brescia*, give him the Glory of sealing with his Blood the Truths he had wrote.

By the Death of the Emperor *Claudius*, the *Jews* were allowed the Liberty to return to *Rome*, whence his Edict had expelled them; which engaged St. *Paul* to return thither, likewise, to preach the Gospel; after having passed thro' *Macedonia*, and *Achaia*, and staid a little while in *Jerusalem*. From *Nicopolis*, where he passed the Winter, he wrote his second Epistle to the *Corinthians*, wherein he rises the Excommunication of the Incestuous. The Apostle prizes himself much in that Epistle, but it is clearly seen, that it is for the Defence of the Ministry, and not for the Glory of the Minister, that he speaks so advantageously of his Apostolate, of his Visions, and of his Miracles. For he adds to it the Relation of a shameful Temptation he was tormented with, and confesses that he had prayed God with a great Fervency, and a long while, to deliver him from it; which shews, that it must have been very violent.

St. *Chrysostom* cannot bear that it should be said, that that great Apostle has felt so violent Motions of Incontinency, and in an Age, when it is quite extinguished in the greatest Debauchees: And he explains that Prick of *Satan*, of the continual Persecutions he suffered in the Preaching of the Gospel: But, as he says himself, that it was given him lest the Sublimity of his Revelations should raise him too much; it seems to me that we should conclude, that the Remedy must have been proportioned to the Evil: But the Persecutions he suffered had rather been capable to inspire him with Vanity, than hinder him from conceiving any, because they succeeded always to his Glory: But what could be, on the contrary, more proper to humble him, than a carnal Temptation, and in his old Age, after he had exercised himself so long in the Practice of Virtue. It is the most common Sentiment of the antient Fathers, and Interpreters, which I am the more inclined to follow, because I find it conformable to the Wisdom of God, who while he was raising St. *Paul* into Heaven, by sublime Visions, leaves him in the Dirt of a carnal Temptation; besides that the Force of Grace appears in it, which hinders him from consenting to it.

From *Cenchræa*, which was the Port of *Corinth*, he writes his Epistle to the *Romans*, which contains the fundamental Truths of the Christian Religion, the Corruption of human Nature by *Adam*'s Sin, the Reparation by the Grace of *Jesus Christ*; the Efficacy of that Remedy, its Necessity, and the Secret of his eternal Election, which he establishes on the pure Will of God, who from the same Mass of Corruption draws Vessels in Honour, and Vessels of Ignominy, without any having Right to ask him the Reason of so different a Conduct. He proposes to himself all the Objections which human Pride can make against the Choice of the one, and the Reprobation of the others, which has no other Reason but the Will of him who does it; the Original Sin being supposed. But instead of resolving them, by alledging the Proviso of the Merits of some, and of the Infidelity of others, which had plainly satisfied human Reason, he has Recourse to the Sublimity and Depth of God's Judgments, which Man must respect with Humility, and not undertake to fathom with Pride; as if the Creator was indebted in something to those who are all born in the same Condemnation by the first Sin, and who could all be left in it, without Injustice.

St. *Paul* returned to *Macedonia*, to avoid the Ambushes which the *Jews* had laid for him on the Road of *Syria*. From *Philippi* he came to *Troas* in five Days. Here he raised a young Man from the Dead, who being overcome by Sleep, was fallen from the Windows of the Hall, where he preached very late in the Night, and celebrated the sacred Mysteries. He joined his Disciples in *Asson*, where they were gone by Sea to wait for him. From thence he came to *Mitylene*, and having embarked the Day following, they came to *Chio*; the next Day to *Samos*, and the third to *Miletum*, which was the Port of *Ephesus*. He desired the Bishops who were then at *Ephesus*, and the Priests who governed the Church, to come to him, because he should not stay long in that City, designing to be at *Jerusalem* for the Feast of Pentecost. He made then an excellent Discourse to engage them to acquit themselves with Care, of the Government of those whom the Holy Ghost had committed to their Pastoral Solicitude; and concluded with that beautiful Sentence of *Jesus Christ*, which we do not find in the Gospel, *it is better to give than to receive*. He prayed with them Kneeling on the Shore; and left them extremely afflicted, of what he told them, that they should see him no more. From that Place, his Ship carried him streight to the Island *Coo*; the Day following to *Rhodes*, and afterwards to *Patara*. He left *Cyprus* on the Left, and steering towards *Syria*, he came ashore at *Tyre*, where he staid two Days, for the Consolation of the Faithful who were there: Then having re-embarked, he went to *Ptolemais*, and the next Day to *Cesarea*. He lodged there with *Philip*, one of the first seven Deacons, where he staid a Week. The Prophet *Agabus* told him, that if he should go to *Jerusalem*, the *Jews* would certainly take him Prisoner, and deliver him into the Hands of the *Gentiles*. His Disciples hearing that Prediction, intreated him not to go thither, and added Tears to their Intreaties; but all they could say, was not capable to dissuade him from it. And he protested to them, that *he was ready, not only to suffer the Chains for Jesus Christ, but likewise to lose his Life for his Service*. He continued then his Journey, and arrived happily in the City, where he was to lose the Liberty of the Body, to restore that of the Soul to several others, by an admirable Direction of the Holy Ghost.

James, who was Bishop of *Jerusalem*, and all the other Faithful, received him with Joy, and with the Respect, which what he had suffer'd for the Cause of the Gospel, deserved. The Account he gave them of the Progresses he had made among Idolaters, obliged them to

to praise a thousand Times the divine Goodness, and to honour more still, him whom he had employed in so great a Work. The *Jews*, and the *Christians* who judaized, published every where, that he was a mortal Enemy of the Law of *Moses*, and destroyed it wherever he could. This could render him not only useless, but even odious to the Faithful of that Church, who observed obstinately several legal Ceremonies. Therefore St. *James* advised him to shew publickly the Respect he had for the Religion of his Ancestors, the better to blot out the Calumny they aspersed him with; and prevent the Troubles which could be excited in his Church, on his Account. There was then a favourable Occasion for it. Four Men were to purify themselves in the Temple, as it was commanded to the *Nazarenes*. He thought proper, that joining with them, he should use that Observation in his own Person, by offering for himself the usual Sacrifice, and even make the Expence of it for the others. The Charity he had for his Brethren, inclined him easily to that holy Condescension to their Infirmity which was desired of him, but which was not thought should have been followed by the Misfortune which happen'd. For while he was in the Temple, some *Asiatick Jews* who had heard him preach in their Provinces, rushed upon him, and crying that he was that Man called *Paul*, who disclaimed every where against the Law of *Moses*, and was a mortal Enemy thereof, they excited a Sedition, where he had been killed, if the Tribune *Lysias*, who ran thither to appease it, had not deliver'd him from their Hands, by having him conducted to the Tower, called *Antonian*. He took him first, for a certain *Egyptian* Impostor, who had abused the People some Time before, and assembled four thousand Assassins, who committed great Disorders, and horrible Murders. The Apostle undeceived him, and to appease the *Jews* would give them an Account of his Life. After he had spoke of his Zeal for the Law, and recounted his Conversion, he mentions the Command he had received to preach the Gospel to the *Gentiles*. That Discourse excited the Rage of those that heard him. *Lysias*, to appease them, commanded that he should be whipped, and he had received that Injury if he had not discovered himself to be a *Roman* Citizen. The Inhabitants of *Tarsus*, who were a *Roman* Colony, had that Right. The next Day he spoke again before the Council, where the Affairs of the Religion were treated. *Ananias*, who was the President, commanded his Servants to buffet him. That Violence obliged him to a just Menace of the Judgment of God against him; and he called him *white-washed Wall*. But having been informed of his Quality of Prince of the Priests; he excused himself, on that he did not know him, and alledged the Passage of the Scripture, which forbids reviling the Prince of his People. His Judges being very little disposed to receive his Justifications, he thought he must come out of their Hands by an innocent Artifice. They were of two Sects, Enemies of one another, *viz. Pharisees* and *Sadducees*. The Apostle who had professed the first, said, that he was persecuted for defending the Resurrection of the Dead. The Sadducees denied it; so that that Word made them forget the Cause of their pretended Criminal, to engage them in a violent Dispute among them, which was the Cause that the Assembly separated without doing any Thing.

After he had escaped that Danger, forty Men made a Vow neither to eat nor drink till they had killed him. Those Ambushes were discover'd to him by his Nephew, and he informed *Lysias* of it, who sent him to the Governor of the Province, called *Felix*, under a sure Guard. *Ananias*, and several others of the most apparent among the *Jews*, went immediately to *Cesarea* to accuse him. *Felix* having heard the Parties, by the Mouth of *Tertullus* their Advocate, postponed the Judgment of their Differences, till after the Arrival of *Lysias*, who had examined him first. Mean while he often discoursed with him in private, together with *Drusilla*, a *Jew* Woman of Belief, Daughter of the old *Agrippa*, and Sister of the young one. He had made her leave her Husband *Arelas*, who was a petty King of the *Emesians*, and he kept her publickly as his Wife. St. *Paul* in one of those Conversations, spoke of Chastity, and of the last Judgment, with a great Force. The Proconsul was very much frighted at it, but was not changed, neither for his Belief, nor for his Manners. He expected always that the Apostle would give him Money to come out of his Hands, and in that Expectation he kept him under the Guard of a Centurion, with Liberty enough, allowing that every Body should see him. He had had that Government by the Favour of his Brother *Pallas*, that famous Freedman of the Emperor *Claudius*, who had with Insolence abused his Fortune, and of the Stupidity of his Master, as we have observed in our Chronology of the *Roman* Emperors. But Things having changed Face under *Nero*, his Successor, *Pallas* was disgraced, in which, according to the Custom which prevails to this Day, all his Relations having been included, the Emperor sent *Porcius Festus* into *Judea*, in *Felix*'s Place. He would, at his Departure, gratify the *Jews*, so that tho' he knew the Innocency of the Apostle, he, notwithstanding, left him Prisoner.

So soon as the new Governor was arrived in *Judea*, the Princes of the Priests renewed their former Accusations against St. *Paul*, and intreated him earnestly to do Justice to them, and to command that he should be brought to *Jerusalem*. *Festus* having been, perhaps, informed of it, or knowing their Animosity, told them, that *he was Prisoner in* Cæsarea, *that in a few Days he would go thither, and that they should send their Chiefs thither, likewise, to accuse him, and if he was guilty, he would make an Example of him.*

The Apostle had no need to fear that Condition. His Accusers being arrived at *Cesarea*, alledged several Things against him, but could not prove them. As for him, he shewed clearly, that he had failed neither against the Law of *Moses*, nor against the Respect due to the Emperor. *Festus*, who was willing enough to destroy the Apostle, thereby to ingratiate himself with the *Jews*, asked him if he would go up to *Jerusalem*, and there receive his Sentence. *Paul*, who knew how far that Proposition went, told him, *that he appealed to* Cæsar, *and that it was before his Tribunal he was to be judged.* That Appeal surprized the Judge, and the Parties, and ruined the Design they had formed to undo him. At the End of a few Days, the young *Agrippa*, Son of that *Herod*, whose frightful Death we have related, and *Berenice* his Sister, came to *Cesarea* to visit *Festus*. He spoke to them of the Prisoner he had in his Hands, and *Agrippa* shewed that he wanted to hear him. As he was a *Jew* by Birth, and Religion, *Festus* was glad he should speak before that Prince, that on his Report, he could inform the Emperor of the Circumstances of his Affairs, and of the Reasons of his Appeal. On the Day appointed for that Audience, *Agrippa* came to the Place with a royal Pomp, the Apostle was brought, likewise, and being commanded to speak, he made so learned, and so powerful a Discourse, that *Festus* interrupting him, cried, that *his great Learning had made him mad*. *Agrippa* was no less moved at it, and could not help saying, *that it wanted but very little, that he should persuade him to turn Christian*; *My great Desire*, replied the Apostle, *would be, that you, and all those that hear me, should be like me, excepting the State of Captivity I find myself in*. *Agrippa*, *Festus*, *Berenice*, and the other Persons of Distinction, who were present, rose at those Words, and after they had consulted among themselves, *Agrippa* concluded, that if he had not appealed to *Cesar*, there was Room to set him at Liberty.

When the Time was proper for the Voyage to *Italy*, St. *Paul* was put into the Hands of a Captain of Foot, called *Julius*, and embarked on Board a Ship of *Adramyttium*, and *Luke*, and *Aristarchus* the *Macedonian*, accompanied him. Being arrived at *Sidon*, *Julius* gave him Leave to visit his Friends. After they had crossed the Seas of *Cilicia* and *Pamphylia*, they came on Shore at *Lystra*, a City of *Lycia*. There they re-embarked in a Ship of *Alexandria*, freighted for *Italy*; and after a very tedious Navigation, occasioned by contrary Winds, they were forced to sail towards *Crete*. They came to anchor in a Place called *Good Harbour*, near a small Town called *Thalassa*. They were to winter there; but their Guide forced them to put to Sea again, and laughed at the Apostle threatning them with an approaching Shipwreck. The Event confirmed his Prediction; for a furious Tempest rose, which lasted fourteen Days, without seeing all that Time, either Sun, Moon, or

or Stars, and which forced them to throw their Merchandise over Board, to ease the Ship. Every one thought his Death unavoidable; but God gave all the Passengers to the Prayers of his Servant, and assured him of it in the Night, by an Angel. After that furious Storm, they were thrown against the Isle of *Malta*, where they went on Shore. A Viper coming out of the Wood they had lighted to dry themselves, fastened itself to the Hand of St. *Paul*. Those who were present, took him immediately for a bad Man, pursued by the divine Justice on Land, after he had escaped the Sea. But when they saw him shake off the venomous Beast, and that the Sting had done him no Harm, they threw themselves at his Feet, and took him for a God. He preached to them the Gospel, and operated several Miracles to confirm the Doctrine thereof, among which the Cure of the Father of *Publius*, Prince of the Isle, acquired him a great Reputation and Authority. That Isle is at present the Bulwark of Christendom, against the Designs of the *Turks*, and its Knights, tho' in a small Number, stop their Fury, as the Sand of the Shore stops that of the Sea, when it seems that its Waves are going to cover and drown the Earth.

The Spring being come, the Captain *Julius* made the Apostle re-embark, and this second Navigation was more happy than the first. They came to *Syracuse*, Capital of *Sicily*, thence to *Reggio*, and the second Day afterwards to *Puteoli*. The News of his Arrival having been spread in *Rome*, several Christians went out of it to meet him. With them he enter'd that great City, which was the Capital both of the Empire of the World, and of Idolatry. At the End of three Days he desired the Chiefs among the *Jews*, who dwelt in *Rome*, to come to him. He told them the Subject of his Voyage, and the Reason of the Appeal he had interjected to *Cæsar*; not to avoid the Punishment of any Crime he had committed, or to accuse any of his Nation; but to deliver himself from the Rage of his Adversaries, who had swore his Ruin; and wanted to employ the Formalities of Justice to destroy him. The *Jews* answered him, *that they had received no Complaint from Judea against him, but had only heard from common Report, that the new Doctrine he preached, was opposed every where, and that they would be glad to hear him on that Subject*. He promised to gratify them, whenever they would. At the Day appointed, they all crowded to the House where he was arrested. He preached the Gospel to them, and proved, by the Text of the Law, the Figures, and the Prophets, that *Jesus Christ* was the Redeemer promised to their Fathers. Some of them were persuaded, but the greatest Part contradicted the Truths he taught them. So that he was forced to reproach them with the Hardness of their Heart, and to carry to the *Gentiles* the Light they would not receive.

Nero had governed the Empire two Years, and by his Beginnings gave very great Hopes of as just a Reign, as the Sequel was abominable. God deliver'd the Apostle from the Mouth of that Lion, who gave him leave to walk in Peace, under the Guard of a Soldier. He converted several Persons of his Family. He appeared before several other inferior Tribunals, and defended himself always so well, that they could find no Room to condemn him. This made the Doctrine he preached known every where; and encouraged the new Christians to follow him. It was not enough for his Zeal to sow the Word of Life in that great City; he took Care, likewise, of the distant Pastors, and of the Churches he had founded, instructing them by his Epistles. The first he wrote was the second to *Timothy*, in which he gives him a Relation of what had happened to him. Those to the *Ephesians*, *Philippians*, and *Colossians*, shew his Vigilance, and his apostolical Care, to caution the Faithful against the Errors, sowed already by divers Heretics. It was likewise from *Rome* he sent the admirable Epistle to the *Hebrews*, wherein by the divine Explanation of the Sacerdoce, or Priesthood of *Jesus Christ*, he shews his profound Erudition in the Law of *Moses*, and his other Light in the most sublime Truths of the Gospel. It furnishes great Subjects of Controversy, either for its Author, or for the Sacrifice it treats of. But my Design is not to examine this Question here; besides that it would be dangerous to do it.

St. *Luke* ends his Narration at the second Year of the Abode St. *Paul* made in *Rome*, at the End of which he recover'd an entire Liberty, according to the Chronology I follow. For some learned Men believe, that he came to *Rome* much later; and that he never went out of it after his first Absolution. We cannot say any Thing of his Actions till his Martyrdom, at least with any Certainty; because we have neither valuable Acts, nor Authors worthy of any Consideration that speak of it. St. *Chrysostom* says, that he went into *Spain*, as himself declares, writing to the *Romans*, that he once designed it. In eight Years, he might have made the Tour of the World. We should have some Subject to complain of the Silence of the *Sacred History*, in this Occasion, if we were not obliged to respect the Conduct of the divine Wisdom, who was not willing that the Actions of so great a Man, for eight Years successively, should come to our Knowledge, for Reasons, which tho' hidden, are notwithstanding very just. I know that it is pretended, that in that Time he founded several of the Churches of *France*; and among others that of *Narbonne* pretend to have received from his Hands the Proconsul *Sergius Paulus*, who had been converted in *Cyprus*, for its first Bishop; but I do not care to introduce those Traditions, which have not much Certainty, into my Narration, it being my Design, when I first began it, that uncontroverted Truths should make the Ornament thereof.

SCULPTURE.

SCULPTURE, is the Art of cutting or carving various Figures or Representations in Wood, Stone, or other Matter; as also of fashioning Wax, Earth, Plaister, *&c.* to serve as Models or Moulds, for the casting of metalline Figures.

Sculpture is divided into several Branches, *viz. Statuary*, which is the Art of making *Statues* only, either in Wood, Stone, Ivory, Plaister, *&c.* *Carving*, which is that of making *Bass-Relievo's*, *Festoons*, *Cartouches*, *Fret-work*, &c.

We'll begin with the first and most noble Branch, which is *Statuary*, and in that examine first what a *Statue* is; and how many different Sorts of *Statues* there are?

A STATUE is a Piece of *Sculpture* in full Relievo, representing a human Figure.

Daviler more scientifically defines *Statue*, a Representation in high Relievo, and Insulate, of some Person distinguished by his Birth, Merit, or great Actions; placed as an Ornament in a fine Building, or exposed in a publick Place, to preserve the Memory of his Worth.

In Strictness, the Term *Statue* is only applied to Figures on Foot, as that of King *James* II. at *Whitehall*; the Word being fomed from the *Latin Statura*, the Size of the Body; or from *stare*, to stand.

Statues are usually distinguished into four Kinds.— The first are those less than the Life, of which Kind we have several *Statues* of Men, of Kings, and of Gods themselves.

The second, those equal to the Life; in which Manner it was, that the Antients, at the publick Expence, used to make *Statues* of Persons eminent for Virtues, Learning, or the Services they had done.

The third, those that exceed the Life; among which those who surpassed the Life once and a half, were for Kings and Emperors; and those double the Life for Heroes.

The fourth Kind were those that exceeded the Life twice, thrice, and even more, and were called *Colossus*.

Every

Every *Statue* resembling the Person it is intended to represent, is called *statua iconica*.

There are also *Allegorical*, *Cyriatic*, *Curule*, *Equestrian*, *Greek*, *Hydraulick*, *Pedestrian*, *Persian*, and *Roman Statues*.

Allegorical STATUE, is that which under a human Figure, or other Symbol, represents something of another Kind, as a Part of the Earth, a Season, Age, Element, Temperament, Hour, *&c.*

Cyriatick STATUE, is the same with what we called in our Treatise of Architecture Caryatides.

Curule STATUES, are those which are represented in Chariots drawn by Rigæ, or Quadrigæ, that is, by two or four Horses; of which Kind there were several in the Circus's, Hippodromes, *&c.* Or in Cars, as we see some with triumphal Arches on antique Medals.

Equestrian STATUE, is that representing some illustrious Person on Horseback. As that famous one of *Marcus Aurelius* at *Rome*; that of King *Charles* I. at *Charing-Cross*; and that of *Henry* IV. King of *France*, on the new Bridge at *Paris*.

A *Greek* STATUE, is a Figure that is naked and antique; it being in this Manner the *Greeks* represented their Deities, Athletæ, of the olympick Games, and Heroes. The Reason of this Nudity, whereby the *Greek* Statues are distinguished, is, that those who exercised Wrestling, wherein the *Greek* Youths placed their chief Glory, always performed naked. The *Statues* of Heroes were particularly called *Achillean Statues*, by reason of the great Number of Figures of that Prince, in most of the Cities of *Greece*.

Hydraulick STATUE, is any Figure placed as an Ornament of a Fountain, or Grotto; or that does the Office of a Jet d'Eau, a Cock, Spout, or the like, by any of its Parts, or by any Attribute it holds. The like is to be understood of any Animal serving for the same Use.

Pedestrian STATUE, is a *Statue* standing on Foot. As that of King *Charles* II. in the *Royal Exchange*, and that of King *James* II. in the Privy Garden.

Persian STATUES, are those taken Notice of in my Treatise of Architecture, under the Letter A.

Roman STATUES, is an Appellation given to such as are cloathed, and which receives various Names from their various Dresses. Those of Emperors with long Gowns over their Armour, were called *statutæ paludatæ*; those of Captains and Chevaliers, with Coats of Arms, *thoracatæ*; those of Soldiers with Cuirasses, *loricatæ*; those of Senators and Augurs, *trabeatæ*; those of Magistrates with long Robes, *togatæ*; those of the People with a plain Tunica, *tunicatæ*; and lastly, those of Women with long Trains, *stolatæ*.

The *Romans* had another Division of *Statues*, into *divine*, which were those consecrated to the Gods; as *Jupiter*, *Mars*, *Apollo*, &c.—*Heroes*, which were those of the demi Gods, as *Hercules*, &c. And *Augusti*, which were those of the Emperors; as those two of *Cæsar* and *Augustus*, under the Portico of the Capitol.

The Figure, or Portrait of a Person in *Relievo*, shewing only the Head, Shoulders, and Stomach; the Arms being lopped off, ordinarily placed on a Pedestal or Consol, is called *Bust* or *Busto*.

The *Bust*, is the same with what the *Latins* called *herma*, from the Greek *hermes*, *Mercury*; the Image of that God being frequently represented in this Manner among the *Athenians*. *Bust* is also used, especially among the *Italians*, for the Trunk of a human Body, from the Neck to the Hips.

The first Thing to be minded in carving *Statues* is to make a Model of Earth or Wax. For earthen Models they use but few Instruments; their Hands and Fingers do almost the whole. For waxen Models, to a Pound of Wax they put half a Pound of Colophony; some Oil of Turpentine, melting the whole with Oil of Olive: Some add a little Vermillion, or other Matter, to give it a Colour. It is worked and molded with the Fingers. But this supposes a Draught or Design of the *Statue*, previously made, on which the Model is formed.

The next Operation, if the *Statue* is to be of Wood, is to choose Wood proper for it. If it be any Thing large, and require a deal of Strength and Solidity, the hardest and most durable Wood is to be chosen, as Oak, or Chesnut: For smaller Work they use Pear-tree, and Service-tree. But as these Woods are very hard, for little delicate Works they use softer Wood, only close, and of a fine Grain; such is the Linden-tree, which the Chissel is found to cut more easily, and cleanly, than any other Wood.

The Ancients have made their *Statues* of almost all Kinds of Wood; at *Sicyon* was an Image of *Apollo* in Box; at *Ephesus*, that of *Diana* was in Cedar. As these two Kinds of Wood are very hard, and even held incorruptible, especially Cedar; *Pliny* observes, they were judged particularly suitable for Representations of the Deities. In a Temple on Mount *Cylenius*, dedicated to *Mercury*, was an Image of that God formed of the Wood of the Lemon-tree: Others there were of the Palm-tree, Olive-tree, Ebony, and even of the Vine.

For large Works, if it be only single Figures, it is better they consist of several Pieces than of a single one, by reason of the Liableness of the latter to warp; for every large Piece may probably not be dried to the Heart, however it may appear without-side. Observe that the Wood will not be fit for working, till after it has been cut at least ten Years.

The Sculptor has several Chissels, all different in Bigness and Fineness; which they change in Proportion as they go on with their Work; the largest are used to prime it, which the *French* call *Ebaucher*, before they lay their Design on the Block, whereof the *Statue* is to be made.

For *Sculpture on Marble or Stone*; the first Thing they do, is out of a great Block of Marble to saw another of the Size required, which is performed with a smooth Steel Saw without Teeth, casting Water and Sand thereon from Time to Time: Then they fashion it, by taking off what is superfluous with a stubbed Point, and a heavy Mallet; after this, bringing it near the Measure required, they reduce it still nearer with another finer Point. They now use a flat cutting Instrument, having two Notches in its Edge, or three Teeth; then a Chissel to take off the Scratches the former has left. This last Instrument they use with a deal of Delicacy, giving thereby a Softness and Tenderness to their Figure; till at length taking Rasps of different Degrees of Fineness, by Degrees they bring their Work into a Condition for polishing.

To polish or make the Parts smooth and sleek, they use Pumice stone, and Smalt, then Tripoli; and when a still greater Lustre is required, a Skin of burnt Straw.

To proceed more regularly, on the Head of the Model, they place an immovable Circle, divided into Degrees, with a moveable Ruler, or Index, fastened in the Center of the Circle, and divided likewise into equal Parts; from the End of the Ruler hangs a Thread with a Plummet, which serves to take all the Points to be transferred thence to the Block of Marble, from whose Top hangs another Plummet like that of the Model. All which may be seen in our Table of Miscellany.

Indeed there are some excellent Sculptors, who disapprove of this Method; urging that the smallest Motion of the Model changes their Measures, for which Reason they rather chuse to take all their Measures with their Compasses.

There is as much Care required in making the Model, and rather more, if possible, as in making the *Statue* itself, since on the Beauty and Regularity of the Model depends entirely that of the Statue. Nay some of the Models of famous Artists, have been preferred to the Piece done after it.

The Perfection of a *Statue*, either in Wood, Marble, Stone, Iron, *&c.* consists chiefly in a fine Attitude, beautiful Parts imitating Nature as near as possible, without any Exaggeration either in the Features, or the Pronunciation of the Members. The Drapery, if there be any, well thrown, and with as few Plaits as possible; since it is not so easy to make them imitate the natural with the Chissel, as with the Pencil; and a too great Number of Plaits in Marble, Stone, or Plaster, appear rather as the Pipes of an Organ, or the like, than Plaits, never affecting to render the Muscles visible in the naked, but in Proportion as the Age, Sex, or Attitude of the Person the Figure is to represent, require it: For the Muscles are not to be so visible in a Woman as in a

Man

Man, nor in a Child, as in a Man grown, nor in a Figure ſuppoſed in an eaſy Poſture, as in one ſuppoſed in a violent one: Which is a Fault ſeveral very good Sculptors are guilty of, pretending thereby to make Connoiſeurs admire the Stroaks of their Chiſſels, and the Knowledge they have of Anatomy.

The Artiſt muſt take particular Care that that Part of a Block of Marble or Stone, which is deſigned for the naked, eſpecially the Face, ſhould be ſound and ſmooth; for if it was britly or gravelly, it would cauſe a Deformity in the Face, or other naked Parts, which is ſeldom or never ſo well repaired as not to be eaſily diſcerned by Connoiſſeurs, which leſſens much the Value of the Figure. In the Drapery, ſuch Imperfections can be eaſily rectified by ſome Strokes of the Chiſſels of a dexterous Hand. The Imperfections which may chance to be met with in Wood, Ivory, or the like, can be eaſily rectified in any Part of the Statue, by an ingenious Artiſt, by taking off the vitiated Part of the Wood, and having the vacant Place filled with a ſound Piece, dexterouſly applied, working afterwards upon it.

Statues are ſaid to be Figures alſo in *Relievo*.

There are three Kinds of *Relievo's*, viz. *Alto-Relievo*, *Baſſo-Relievo*, and *Demi-Relievo*. *Relievo* in general, or *Relief*, *Imboſſment*, being applied to a Figure which projects or ſtands out, prominent from the Ground or Plain whereon it is formed; whether that Figure be cut with the Chiſſel, moulded, or caſt.

Alto-RELIEVO, *haut relief*, or *high Relievo*, is when the Figure is formed after Nature, and projects as much as the Life.

Baſſo-RELIEVO, *bas relief*, or *low Relievo*, is when the Work is but raiſed a little from its Ground; as we ſee in Medals, and in the Frontiſpieces of Buildings, particularly Hiſtories, Feſtoons, Foliages, and other Ornaments in the Frieze.

Demi-RELIEVO, is when one half the Figure riſes from the Plain, *i. e.* when the Body of a Figure ſeems cut in two, and one Half is clapped on the Ground. When in a *Baſſo Relievo* there are ſome Parts that ſtand clear out, detached from the reſt, the Work is called a *Demi-boſſe*.

The Antiquity of Sculpture is paſt doubt; as the ſacred Writings, the moſt antient and authentick Monument we have of the earlieſt Ages, mentions it in ſeveral Places; witneſs *Laban*'s Idols ſtolen away by *Rachel*, and the golden Calf which the *Iſraelites* ſet up in the Deſart, *&c.* but it is very difficult to fix the Original of the Art, and the firſt Artiſts from prophane Authors; what we read thereof being intermixed with Fables, after the Manner and Taſte of thoſe Ages.

Some make a Maſter of *Sicyon*, named *Dibutades*, the firſt Sculptor; others ſay, the Art had its Origin in the Iſle of *Samos*, where one *Ideaus* and *Theodorus* performed Works of this Kind, long before *Dibutades*'s Time. It is added that *Demaratus*, Father of *Tarquin* the Elder, firſt brought it into *Italy* upon his retiring thither; and that by means of *Euciparus* and *Eutygrammus*, two excellent Workmen herein, who communicated it chiefly to the *Tuſcans*, among whom it was afterwards cultivated with great Succeſs. They add that *Tarquin* ſent for *Taurianus*, one of the moſt eminent among them, to *Rome*, to make a Statue of *Jupiter*, &c. of baked Earth; for the Frontiſpiece of the Temple of that Deity.

About this Time, there were many Sculptors, both in *Greece* and *Italy*, who wrought altogether in Earth: Some of the moſt noted are *Chalcoſthenes* an *Athenian*, who made himſelf and his Houſe famous, by the great Number of earthen Figures he adorned it withal; and *Demophilus* and *Gorſanus*, two Painters, who enriched the Temple of *Ceres* with great Variety of Painting and earthen Images. In effect, all the firſt Statues of the heathen Deities, were either of Earth or Wood; and it was not ſo much any Frailty of the Matter, or Unfitneſs for the Purpoſe, as the Riches and Luxury of the People, that firſt induced them to make Images of Marble, and other more precious Stone.

Indeed how rich ſoever the Matter were whereon they wrought, yet they ſtill uſed Earth, to form Models thereof: And to this Day, whether they be for cutting Marble Statues with the Chiſſel, as already obſerved, or for caſting them in Metal: They never undertake the one or the other, without firſt making a perfect Model thereof in Earth: Whence doubtleſs aroſe the Obſervation of *Praxiteles*, that the Art of moulding earthen Figures, was the natural Mother of that of making Marble, and metalline Figures; which laſt never appeared in Perfection, till about 300 Years after the building of *Rome*, though the firſt was at its Height long before.

Phidias of *Athens* who came next, ſurpaſſed all his Predeceſſors, both in Marble, in Ivory, and Metals: And about the ſame Time appeared ſeveral others, who carried Sculpture to the higheſt Perfection it ever arrived at, particularly *Policletus* at *Sicyon*; then *Aſigron*; *Lyſippus*, who alone was allowed the Honour of caſting *Alexander*'s Image in Braſs: *Praxiteles* and *Scopas*, who made thoſe excellent Figures now before the Pope's Palace, at *Monte Cavallo*: *Briacus*, *Timotheus*, and *Leothares*, who with *Scopas* wrought the famous Tomb of *Mauſoleus* King of *Caria*; *Caphiſſodotus*, *Canachus*, *Dedalus*, *Bathicus*, *Niceratus*, *Euphranor*, *Theodorus*, *Xenarates*, *Pyromachus*, *Itratonicus*, *Antigonus*, who wrote on the Subject of his Art; the famous Authors of *Laocoon*, viz. *Age ſander*, *Polydore*, and *Athenodorus*, and infinite others, the Names of ſome whereof have paſſed to Poſterity; thoſe of others have periſhed with their Works: For though the Number of *Statues* in *Aſia*, *Greece*, and *Italy*, was ſo immenſe, that in *Rome* alone, as we are informed, there were more than there were living Perſons, yet we have but few now left, at leaſt very few of the fineſt.

When *Marcus Scaurus* was Ædile, his Office obliging him to provide what was requiſite towards the publick Rejoicings, he adorned the ſtately Theatre which he erected with 3000 Braſs Statues; and though *L. Mummius* and *Lucullus*, brought away a great Number out of *Aſia* and *Greece*, yet there were ſtill above 3000 remaining in *Rhodes*, as many at *Athens*, and more at *Delphos*.

But what is more extraordinary was the Bigneſs of the Figures, which thoſe antient Artiſts had the Courage to undertake: Among thoſe *Lucullus* brought to *Rome*, there was one of *Apollo* 30 Cubits high; the *Coloſſus* of *Rhodes* made by *Cares* of *Lyndos*, the Diſciple of *Lyſippus* far exceeding it; *Nero*'s Statue, made by *Xenodorus*, after that of *Mercury*, was 110 Feet high.

Sculpture however did not continue above 150 Years, after *Phidias*'s Time, till it began inſenſibly to decline; not but that there were ſtill ſome fine Pieces of Workmanſhip both in *Greece* and *Italy*, though not performed with ſo good a Fancy, and ſuch exquiſite Beauty as thoſe of the former Works. Beſides that the *Greek* Statues are moſt eſteemed for the Workmanſhip; there is a ſpecial Difference between them and thoſe of the *Romans*, in that the greateſt Part of the firſt are naked, like thoſe who wreſtle, or perform ſome other bodily Exercile, wherein the Youth of thoſe Times placed all their Glory; whereas the others are clad or armed, and particularly have the Toga on, which was the greateſt Mark of Honour among the *Romans*.

Statues were never more diſregarded than they are at preſent, and *Statuary* ſhares the Fate of all other Arts, which flouriſhed and were encouraged, when Merit and Virtue flouriſhed and were encouraged. Like a Fire which had been long buried under Aſhes, Sculpture, like all other Arts and Sciences, blazed, if I may be allowed to uſe that Expreſſion, by the great Encouragement it met with under the glorious Reign of *Lewis* XIV. King of *France*; and as there were then in that Kingdom *Raphaels*, for Painting, there were likewiſe *Praxiteles*'s, and *Phidias* for Sculpture, as the famous Buſto ſeen a-top of *Prior*'s Monument at *Weſtminſter* witneſſes it. The Figure on that of Dr. *Chamberlaine*, ſhews likewiſe, that there are yet in that Kingdom ſome good Artiſts of that Kind; though at preſent, if I be rightly informed, Arts and Sciences meet with as little Encouragement in *France* as any where elſe; which is owing to the narrow Capacity of the Miniſters who have been at the Helm, ſince thoſe great ones, viz. *Louvois*, *Colbert*, &c. who under the late King did all they could to cultivate the excellent natural Taſte, their Prince had for all Kinds of Arts and Sciences.

I have been informed that *England* was once as rich in beautiful

beautiful Statues, as in fine Paintings; which I am very apt to believe, ſince ſeveral of their Kings had a grand Taſte for thoſe Arts, to which they gave a royal Encouragement. There are ſtill in *England* ſome very good Sculptors, but they are ſcarce employed otherwiſe than in erecting Monuments to the Dead. The famous *Riſbrach* is eſteemed the beſt among them, and not undeſervedly, for, in my Opinion, his Chiſſel is conducted with a great deal of Delicacy and Softneſs. Some of his Figures are of a grand Taſte; which is a Mixture of the Antique, and of the Modern, judiciouſly imagined, and dexterouſly executed, and very well adapted to the Character of the Perſon they repreſent. I admire in particular that of the celebrated Sir *Iſaac Newton*; but the Globe over it, which in my Opinion is too big for its Diſtance, from the Area, and the Attitude of the Figure a-top that Globe, which ſeems uneaſy, robs it of ſome of its Merit. That of my Lord *Stanhope*, which is not thus ſhadowed, pleaſes me much better; becauſe, perhaps, when I view it, my Imagination, inebriated with the Thoughts of ſo many chriſtian, moral, and heroical Virtues, which adorned the illuſtrious Soul of the Original, while living, dim my Sight, and prejudices it in favour of the Copy. There are, beſides, ſome other Sculptors in *England*, not much inferior to M. *Riſbrach*, tho' not ſo much in Vogue.

SHAMOISING.

SHAMOISING, is the Art of preparing Sheep, Goat, or Kid-Skin, in Oil, in Imitation of *Shammy*. Which *Shammy* is the Skin of the *Chamois*, or *Shamois*, a Kind of *Rupi-capra*, or wild Goat, called *Iſard*, inhabiting the Mountains of *Dauphiné*, *Savoy*, and the *Pyreneans*.

Beſides the Softneſs and Warmneſs of the Leather, it has the Faculty of bearing Soap without Damage, which renders it very uſeful on many Accounts.

To counterfeit this Sort of Leather, the Skins of any of the other Animals above-mentioned, being waſhed, drained, and ſmeared over with Quicklime on the fleſhy Side, are folded in two, length-wiſe, the Wool outwards, and laid on Heaps; and ſo left to ferment 8 Days; or if they have been left to dry after flaying, 15 Days.

Then they are waſhed out, drained, and half dried, laid on a wooden Leg, or Horſe, the Wool ſtripped off with a round Staff for the Purpoſe, and laid in a weak Pit, the Lime whereof had been uſed before, and had loſt the greateſt Part of its Force.

After twenty-four Hours they are taken out, and left to drain twenty-four more; then put in another ſtronger Pit. This done, they are taken out, drained, and put in again by Turns; which begins to diſpoſe them to take Oil; and this Practice they continue for ſix Weeks in Summer, or three Months in Winter; at the End whereof they are waſhed out, laid on the wooden Leg, and the Surface of the Skin on the Wool-Side pulled off, to render them the ſofter; then made into Parcels, ſteeped a Night more in the River, in Winter; ſtretching ſix or ſeven over one another, on the wooden Leg; and the Knife paſſed ſtrongly on the Fleſh-Side, to take off any Thing ſuperfluous, and render the Skin ſmooth.

Then they are ſtretched as before in the River; and the ſame Operation repeated on the Wool-Side; then thrown into a Tub of Water with Bran in it, which is brewed among the Skins, till the greateſt Part ſtick to them; and then ſeparated into diſtinct Tubs, till they ſwell, and riſe of themſelves above the Water.

By this Means the Remains of the Lines are cleared out: They are then wrung out, hung up to dry on Ropes, and ſent to the Mill, with the Quantity of Oil neceſſary to ſever them: The beſt Oil is that of Stock-Fiſh.

Here they are firſt thrown in Bundles into the River, for twelve Hours; then laid in the Mill-Trough, and fulled without Oil till they be well ſoftened; then oiled with the Hand, one by one, and thus formed into Parcels of four Skins each, which are milled, and dried on Cords a ſecond Time, then a third, then oiled again and dried.

This Proceſs is repeated as often as Neceſſity requires: When done, if there be any Moiſture remaining, they are dried in a Stove, and made up into Parcels wrapped up in Wool: After ſome Time they are opened to the Air, but wrapped up again as before, till ſuch a Time as the Oil ſeems to have loſt all its Force; which it ordinarily does in twenty-four Hours.

The Skins are then returned from the Mill to the *Shamoiſer*, to be ſcoured, which is done by putting them in a Lixivium of Wood-Aſhes, working and beating them in it with Poles; and leaving them to ſteep till the Lye has had its Effect; then they are wrung out, ſteeped in another Lixivium, wrung again, and this repeated till all the Greaſe and Oil be purged out. When this is done, they are half dried, and paſſed over a ſharp-edged Iron Inſtrument, placed perpendicular on a Block, which opens, ſoftens, and makes them gentle: Laſtly, they are thoroughly dried, and paſſed over the ſame Inſtrument again, which finiſhes the Preparation, and leaves them in form of *Shammy*.

Kid and Goat-Skins are *ſhamoiſed* in the ſame Manner as thoſe of Sheep; excepting that the Hair is taken off, without the Uſe of any Lime; and that when brought from the Mill, they undergo a particular Preparation, called *Ramalling*; the moſt delicate and difficult of all others.

It conſiſts in this, that as ſoon as brought from the Mill, they are ſteeped in a fit Lixivium; taken out, ſtretched on a round wooden Leg, and the Hair ſcraped off with the Knife; this makes them ſmooth, and in working, caſt a Kind of fine Nap. The Difficulty is in ſcraping them even.

This Art of *Shamoiſing* is in great Vogue in *France*, particularly at *Orleans*, *Marſeilles*, and *Tholouſe*.

There is, likewiſe, an Art or Manner of preparing, or dreſſing Skins in white, to fit them for Uſe in divers Manufactures, particularly Gloves, Purſes, *&c.* which Art is called *Tawing*.

All Kinds of Skins may be *tawed*; but it is chiefly thoſe of Sheep, Lambs, Kids, and Goats, that are uſed to be dreſſed this Way; as being thoſe fitteſt for Gloves.

As to the *Method of Tawing, or drawing Skins in white.* The Wool or Hair being well got off the Skins by Means of Lime, *&c.* as above deſcribed, they are laid in a large Vat of Wood or Stone ſet in the Ground, full of Water, wherein Quick-lime has been ſlacked; wherein they continue a Month or ſix Weeks, as the Weather is more or leſs hot; or as the Skins are requir'd to be more or leſs ſoft and pliant.

While in the Vat, the Water and Lime is changed twice, and they are taken out, and put in again every Day. When taken out for the laſt Time, they are laid all Night to ſoak in a running Water, to get out the greateſt Part of the Lime; and in the Morning, are laid ſix together, on the wooden Leg, to get off the Fleſh, by ſcraping them ſtoutly, one after another, on the Fleſh Side, with a cutting two-handed Inſtrument, called a Knife; and while this is in Hand, they cut off the Legs, and other ſuperfluous Parts about the Extremes.

This done they are laid in a Vat or Pit, with a little Water; where being well fulled with wooden Peſtles for a Quarter of an Hour, the Vat is filled up with Water, and the Skins rinſed therein. They are next thrown on a clean Pavement to drain; which done, they are caſt into a freſh Pit of Water, where being well rinſed, they are taken out, and laid on the wooden Leg, ſix at once, with the Hair Side outermoſt, over which they rub a Kind of Whetſtone very briſkly, to ſoften and fit them to receive four or five more Preparations given them on the Leg, both on the Fleſh Side and the Hair Side, with the Knife, after the Manner above-mentioned.

This over, they are put in a Pit with Water, and Wheat Bran, and ſtirred about therein, with wooden Poles, till the Bran is perceived to ſtick to them, and then they are left; as they raiſe of themſelves to the Top of the Water by a Kind of Fermentation, they are plunged down again to the Bottom; and, at the ſame Time, Fire is ſet to the Liquor, which takes as eaſily as if

if it was Brandy, but goes out the Moment the Skins are all cover'd.

This Operation is repeated as often as the Skins rise above Water; and when they rise no more they are taken out, laid on the wooden Leg, the Flesh Side outermost, and the Knife passed over it to scrape off the Bran. The Bran thus cleared, the Skins are laid in a large Basket, where they are loaden with huge Stones to promote their draining; and when sufficiently drained, their Feeding is given them, which is performed after the following Manner.

For a hundred large Sheep-skins, and for smaller in Proportion, they take eight Pounds of Allum, and three of Sea-Salt, and melt the whole with Water over the Fire; pouring the Dissolution out, while yet lukewarm, into a Kind of Trough, wherein is twenty Pounds of fine Wheat Flour, with eight Dozen Yolks of Eggs; of all which is formed a Kind of Paste, a little thicker than Children's Pap, which when done, is put into another Vessel, to be used in Manner following.

A Quantity of hot Water being poured into the Trough, wherein the Paste was prepared, two Spoonfuls of the Paste is mixed therewith; in order to which they use a wooden Spoon, which contains just what is required for a Dozen Skins: And when the whole is well diluted, two Dozen of the Skins are plunged therein: Care being taken, by the Way, that the Water be not too hot, which would spoil the Paste, and burn the Skins.

Having staid some Time in the Trough, they are taken out one after another with the Hand, and stretched out; which is repeated twice: When they have all had their Paste, they are put in Tubs, where they are fulled afresh with wooden Pestles.

Then they are put-in a Vat, where they remain five or six Days or more; and are at last taken out in fair Weather, and hung out to dry on Cords or Racks; the quicker they dry, the better; for if they be too long a drying, the Salt and Allum within them are apt to make them rise into a Grain, which is an essential Fault in this Kind of Dressing.

When the Skins are dry, they are put up in Bundles, and just dipp'd in fair Water; from which being taken out and drained, they are thrown into an empty Tub; and after some Time, are taken out, and trampled under Foot.

They are then drawn over a flat Iron Instrument, the Top whereof is round like a Battledore, and the Bottom fixed into a wooden Block, to stretch and open them: When open they are hung in the Air upon Cords to dry; and when dry are open a second Time by repassing them over the same Instrument.

Lastly, they are laid on a Table pulled out, and laid smooth; and are thus in a Condition for Sale and Use. After the same Manner are dressed Horses, Cows, Calves Skins, *&c.* for Sadlers, Harness-makers, *&c.* as also Dogs, Wolves, Bears Skins, *&c.* excepting that in those the Use of the Paste is omitted; Salt and Allum-Water being sufficient.

It will not be improper to add here the Manner of preparing *Shagreen*, which is a Kind of Grain Leather, chiefly used on the Cover of Cases, Books, *&c.* it is very close and solid; and cover'd over with little roundish Grains or Papillæ.

As to the Preparation thereof. The Skin being just flayed off, is stretched out, cover'd over with Mustard-Seed, and the Seed bruised on it; and thus exposed to the Weather for some Days; then tanned.

The best is that brought from *Constantinople*, of a brownish Colour; the white is the worst. It is extremely hard, yet when steeped in Water, becomes very soft and pliable; whence it becomes of great Use among Case-makers. It takes any Colour that is given it; red, green, yellow, or black. It is frequently counterfeited by *Maroquin*, formed like *Shagreen*; but this last is distinguished by its peeling off, which the first does not.

There is also a Kind of *Shagreen*, made of the Skin of the *Squatina*; in *English*, the Monk or Angel Fish.

There is a Dispute among Authors, what the Animal is, whence the *Shagreen* is prepared. *Rauwolf* assures us, it is the Onager, which, according to him and *Bellonius*, is a Kind of wild Ass.

It is added, that it is only the hard Part of the Skin is used for this Purpose. *Boul* says it is a Sea-Calf; others a Kind of Fish, called by the *Turks Shagrain*, whose Skin is cover'd with Grains; and those so hard, that they will rasp and polish Wood.

Shagreen is brought from *Constantinople*, *Tauris*, *Tripoli*, *Algiers*, and some Parts of *Poland*. But I do not find, that it is much in Use at present; most of the Cases sold for *Shagreen* being counterfeited; because, perhaps, that those who deal in those Sorts of Commodities, have found that Shagreen Cases lasted too long.

SMITHS.

SMITH, is an Appellation given to Artists, who forge, and prepare some Metal on the Anvil, particularly Gold, Silver, Iron, Copper, *&c.* therefore there are *Goldsmiths*, *Silversmiths*, *Blacksmiths*, *Coppersmiths*, &c.

There is no other Difference between a Goldsmith and a Silversmith, but in the Appellation, for commonly the same Artist works both Metals; the Reason is, that there are not enough Gold-Works done to employ wholly a Workman, because of the Scarcity and Dearness of that Metal; there being, besides, but very little Difference in working Gold, or Silver, except that which consists in the Melting and Separation of the two Metals.

The Workshop of a Gold or Silversmith, must be fitted with a Forge, Crucibles of different Sizes, Anvils, Hammers, Moulds, Vices, Files, Polishers, Burnishers, *&c.* but the most essential Implement is to have a good Quantity of Metal.

Gold and Silver are never worked pure, but are always mixed with their proper Alloy, which for Gold, is Silver and Copper; and for Silver, Copper alone; but in mixing those Metals, they must be kept to the Standard.

The Standard of Gold in *England*, *France*, and *Flanders*, is 22 Carats of fine Gold, and a Carat of Alloy in the Pound Weight Troy. And the Standard of Silver, is 11 Ounces and two Penny Weights of Silver, and 18 Penny Weights of Alloy of Copper.

Very few Gold or Silversmiths keep to these Rules, and several of them mix with their Metals a greater Quantity of Alloy; tho' there be a very severe Punishment for those who are found guilty; which is never the Case of those among them who have any Honour and Conscience. They are even kept very much in Awe, by being obliged to have their Works assayed, and stamped with the Mark of the Hall, after it is quite finished. But those who deal in base Metal, have the Secret to counterfeit that Mark, the better to defraud the unwary Purchaser.

Gold and Silver, before they are forged, are reduced into Ingots; and the ingenious Artist, having took enough of it for the Piece of Work he intends to make, he heats it red-hot in his Forge, as a Blacksmith does his Iron, to render it more ductile, compact and more proper for farther Preparations. This first Operation is the Foundation, of the whole Beauty of the Work. For if the Metal be not well forged, at first, it remains brittle, and fragile, *i. e.* that it breaks easily under the Hands of the Artist, when he is giving the Form it must have; or of those who have bought it; whereas when well forged it bends all Manner of Ways, without breaking, which proceeds from that the Pores of the Metal, by forging and hammering, having been, as it were, concatenated together, *i. e.* forming an innumerable Multitude of small Chains, obey, and give Way when any Violence is offer'd to the Piece of Work; besides that the marve-

marvellous Mechanism, those Chains by their Texture, reflecting the Light in an infinite Number of different Manners, gives an extraordinary Lustre to the Work when finished, which is always much more beautiful when forged than when cast. But there is a great Art in forging it; for the Metal must neither be heated too much, nor too little, nor too often, nor hammered too hard; for if it be heated too hot, it scales by too great Abundance of the igneous Particles, which crowd into the Parts of the Metal with too much Impetuosity lacerating their Texture; and if not heated enough, it resists to the Hammer for want of a sufficient Quantity of igneous Particles to help by their Rotation, accellerated by the Motion of the Hammer, towards the Dilatation of the Pores: Therefore the Metal must never be left in the Fire till it emits a kind of Stars when taken out; neither is it to be taken out while it appears cloudy.

The Artist must likewise take a particular Care to hammer it evenly, *i. e.* without leaving Part of its Metal very prominent while he is flattening the other; nor do I understand thereby that he should not give the Form required for his Piece of Work; but that either the flat or prominent Part, should be without Prominences; for as those Prominences must be flattened at last, to render it level with the rest; they force by their Extension the adjacent Parts out of their Place, which crowd on the next to them, and those on the next, so as to disorder all their Symetry, and render it impossible at last to render the Work as perfect as otherwise it could have been done. In forging, the Hammer must not be let fall too heavy on the Metal, for dilating thereby its Pores with too much Violence, it makes them burst, whereby they run into one another, and prevents the Concatenation necessary, to render it pliable and manageable. Neither is any Form to be given to it till after it has been well forged, and the Heat to be given after that Form has been primed, must be no greater than is sufficient to keep the Metal ductile enough to give that Form the Perfection which it must acquire under the Hammer.

If it be a Piece of Work which must be planed cold, after it has been forged; that planing must be done with a steady and even Hand, with very little Violence, taking the Ridges successively, one after another: And if it be a round Piece of Work, planing round-wise; beginning next the Edges, and going on progressively towards the Middle.

When a Piece-work, after it has been forged, is to be filed, if it be a large Piece, the filing must be done with bold and long Strokes, which contributes much to the Beauty of the Work, and helps towards its being polished with much more Ease.

The Pieces of Works which are to be cast, are cast either in Sand, if they be large Pieces, or in the Bones of the Scuttle-fish, if they be small ones; which they do by pressing the Pattern between two Bones; and leaving a Jet or Hole to convey the Silver through after the Pattern has been taken out.

If the Work consists of several Pieces, they are soldered together, with a metalline Composition, called Solder.

Goldsmiths usually make four Kinds of Solder, *viz.* Solder of eight, where to seven Parts of Silver there is one of Brass or Copper. Solder of Six, where only a sixth Part is Copper. Solder of Four, and Solder of Three. It is the Mixture of Copper in the Solder that makes raised Plate always come cheaper than flat.

To solder the Pieces they fasten them tight together with a Piece of Iron Wire, and they cover with Pieces of Solder and some Borax, that Part where the Pieces are to be joined: Then if it be a small Piece of Work, they put it on a Piece of Charcoal, and having lighted a Lamp or a big Candle, and holding their Work in the Left-Hand, and as near the Flame as possible, they with the Right holding their Pipe, which in *French* we call *Chalumeau*, blow through it into the Flame, which makes it spread over the Work, and melt the Solder, whereby the Pieces are solder'd together. When the Artist sees the Solder fusing, he takes his Work from the Lamp, and the Operation is done; taking off afterwards with a File the Superfluidity of the Solder; so dexterously, that the soldered Part may be as little discernable as possible; in which consists the great Secret of the Art of soldering.

The Work in this Condition is fit for polishing; which is done with a Piece of white Wood and Tripoli. When polished it is burnished with a round polished Piece of Steel; which last Operation gives a Lustre to the Metal. If it be Gold it is coloured in the same Manner we have explained in our Treatise of Gilding, under the Letter G.

As there is nothing to be thrown away of what comes out of Gold or Silver, all the Ashes of the Furnaces and Sweepings of the Work-shop, are carefully saved, in order to recover by Washing the Particles of Gold and Silver out of them; which is performed by simply washing them again and again, or by putting them in the Washing Mill.

To make one of those Washes, they not only gather together the Ashes of the Furnaces, and the Sweepings of the Work-houses; but they also pound and break the old earthen Crucibles, and the very Bricks whereof the Furnaces are built; little Particles of Gold, *&c.* being found to stick to them, by the crackling Nature of those Metals when in their vast Degree of Heat.

These Matters being all well ground and mixed together, are put in large wooden Basons, where they are washed several Times, and in several Waters, which run off by Inclination into Troughs underneath; carrying with them the Earth, and the insensible Particles of the Metals; and only leaving behind them the larger and more considerable ones, which are visible to the Eye, and taken out with the Hand, without any more Trouble.

To get out the finer Parts gone off with the Earth, they use Quicksilver, and a washing Mill. This Mill consists of a large wooden Trough, at the Bottom of which are two metalline Parts, serving like Mill-stones; the lower being convex, and the upper, which is in Form of a Cross, concave.

A-top is a Winch, placed horizontally, which turns the upper Piece round; and at the Bottom a Bung, to let out the Water and Earth when sufficiently ground.

To have a Wash then, the Trough is filled with common Water, into which they cast thirty or forty Pounds of Quicksilver; and two or three Gallons of the Matter remaining after the first Lotion. Then turning the Winch, they give Motion to the upper Mill-stone; which grinding the Matter and the Quicksilver violently together, the Particles of Gold and Silver become more easily amalgamated therewith: This Work they continue for two Hours; when opening the Bung, the Water and Earth run out, and a fresh Quantity is put in.

The Earths are usually passed thus through the Mill three Times; and the same Quantity of Mercury usually serves all the three Times. When there is nothing left in the Mill but the Mercury, united with the Gold and Silver which it has amalgamated, they take it out, and washing it in divers Waters, they put it in a thick Bag, and lay in a Press to squeeze out the Water and the loose Quicksilver: The remaining Quicksilver they evaporate by Fire in a Retort, or an Alembick. The Metal which remains they refine with Lead, or part it with Aqua fortis, as described in my Treatise of Refining, under the Letter R.

As for *Black-Smiths*, their Workshop must likewise be fitted with a Forge, Anvils, and Hammers, of different Sizes, Files, Vices, *&c.*

The Forge of a Blacksmith, as likewise of the several other Operators in Iron, is very simple.

The Hearth, or Fire-place, is a Mass of Bricks about two Feet six Inches high: The Back of the Forge is built upright to the Cieling, and is inclosed over the Fire-place with a Hovel, which leads into a Chimney to carry away the Smoak. In the Back of the Forge, against the Fire-place, is a thick Iron Plate, with a Taper fixed therein, about five Inches long, called the *Tewel*, into which the Nose or Pipe of the Bellows is received: The Use of this Plate and Tewel is, to preserve the Pipe of the Bellows, and the Back of the Hearth from being burnt. Right before the Back, at about two Feet Distance, is the Trough filled with Water, to wet the Coals in, and thereby increase their Force; as also

punch the Iron in. Behind the Back of the Forge is placed the Bellows, one of whose Boards is fixed so that it moves not either upwards or downwards; and to the other is fitted a Rope, Chain, or even Rod; which rising perpendicularly, if fixed to a cross Piece, called the *Rocker*, which moving on a kind of Fulcrum near the Middle, serves as a Handle.

By drawing down this Handle, the moveable Board of the Bellows rises; and by a considerable Weight atop of its upper Board, sinks it down again; and by this alternate Agitation performs the Office of a Pair of Bellows.

Braziers and Copper-smiths Forge differs but little from that already described, unless that it is much less, and that nothing is burnt in it but Charcoal; the Metals used by these Operators not being able to sustain the Violence of Pit-coal.

Iron is hammered and forged two Ways, either by the Force of the Hand, in which there are usually several Persons employed, one of them turning the Iron, and hammering likewise, and the rest only hammering.

Or by the Force of a Water-Mill; which rises, and works several huge Hammers beyond the Force of Man, under the Strokes whereof the Workmen present large Lumps, or Pieces of Iron, which are sustained at one End by the Anvils, and at the other by Iron Chains fastened to the Cieling of the Forge.

This last Way of Forging is only used in the largest Works, as Anchors for Ships, *&c.* which usually weigh several thousand Pounds. For lighter Works, a single Man suffices to hold, heat, and turn with one Hand, while he strikes with the other. Each Purpose the Work is designed for requires its proper Heat. If it be too cold, it will not feel the Weight of the Hammer, as the *Smiths* call it (*i. e.* will not stretch or give Way) and if it be too hot, it will red-scar, *i. e.* break, or crackle under the Hammer.

The several Heats the *Smiths* give their Iron, are, 1. A blood-red Heat. 2. A white Flame-Heat. 3. A sparkling or welding Heat.

SOAP-MAKING.

SOAP-MAKING, is the Art of preparing a kind of Paste, sometimes hard and dry, and sometimes soft and liquid; much used in washing and whitening Linen; and for various other Purposes, by the Dyers, Perfumers, Hatters, Fullers, *&c.*

There are three principal Sorts of *Soap* manufactured in *England*, viz. the *soft*, the *hard*, and the *Ball-Soap*. The soft Soap again is either white or green.

The chief Ingredients used in making the green soft Soap, are Lyes drawn from Pot-ash and Lime, boiled up with Tallow and Oil. First, the Lye and Tallow are put into the Copper together; and when melted, the Oil is put to it, and the Copper made to boil; then the Fire is dampt or stopt up, while the Ingredients lie in the Copper to knit or incorporate; which done, the Copper is set on boiling, being fed or filled with Lyes, as it boils, till there be a sufficient Quantity put therein: Then it is boiled off with all convenient Speed, and put into Casks.

There are two Sorts of *white Soap*; one Sort thereof is made after the same Manner as *green soft Soap* is, Oil excepted, which is not used in White. The other Sort is made from Lyes of Ashes of Lime boiled up at twice with Tallow.

First, a Quantity of Lye and Tallow are put into the Copper together, and kept boiling; being fed with Lye as it boils, until it grains, or is boiled enough; then the Lyes are separated or discarded from the tallowish Part, which Part is removed into a Tub, and the Lyes thrown away: This is called the first half boiled. Then the Copper is charged again with fresh Tallow and Lyes, and the first half boil'd put out of the Tub into the Copper a second Time; where it is kept boiling with fresh Lyes and Tallow till it comes to Perfection. It is then put out of the Copper into the same sort of Casks, as are used in green soft Soap.

As to *hard Soap*.—It is made with Lyes from Ashes and Tallow, and most commonly boiled at twice: The first called a half boiling, has the same Operation as the first half boil'd of soft white Soap. Then the Copper is charged with fresh Lyes again, and the first half-boil'd put into it, where it is kept boiling, and fed with Lyes as it boils, till it grains, or is boiled enough; then the Lye is discharged from it, and the *Soap* put into a Frame to cool and harden. There is no certain Time for bringing off a boiling of any of these Sorts of *Soap*; it frequently takes up Part of two Days.

The *Ball Soap* is made with Lyes from Ashes and Tallow. The Lyes are put into the Copper, and boiled till the watery Part is quite gone, and there remains nothing in the Copper but a sort of nitrous Matter (the very Strength or Essence of the Lye;) to this the Tallow is put, and the Copper kept boiling, and stirring for about half an Hour, in which Time the *Soap* is made; and then it is put out of the Copper into Tubs or Baskets with Sheets in them; and immediately (while soft) made into Balls. It requires near twenty-four Hours to boil away the watery Part of the Lye.

Note, That there is a smooth unctuous Kind of Earth, found in the *Levant*, called *Soap-Earth*, *steatites*, and used as Soap. The Soap-Earth, Dr. *Smith* tells us, is only had in two Places near *Heraclea*, six Leagues to the East of *Smyrna*. It is in effect of itself a fine Soap, boiling and shooting up out of the Earth. It is gathered always before Sunrise, and in Mornings when there falls no Dew; so that a Stock must be laid up in the Summer Months, to serve all the Year. In some Places it comes up an Inch or two above the Surface of the Ground; but the Sun rising on it, makes it fall again. Every Morning there returns a fresh Crop.

The *soft Soap* is the most common in *England*, and the best; they having not found the Secret yet of making good hard Soap. In *France* they seldom use any other but hard Soap; some whereof is quite white, and others marbled blue; the white being accounted the best of the two. Soft Soap is an excellent Remedy to kill Crab lice, by rubbing the Part with it.

There is so great a Consumption of *Soap* in *England*, and it pays so considerable a Duty to the King, that it is one of the best Branches of the Revenue; therefore particular Care is taken by the Commissioners of the Excise, that no Fraud be committed on the Part of the Soap-Boilers, who have the Honour to have always their Coppers, while they are at Work, attended by one of his Majesty's Officers; who are pretty exact, actuated to it in Part by their own Probity, and in Part by their own private Interest, for when they are found negligent, they are desired to make Room for another; and when they find Soap-Boilers working in an unentered Place, they, on Conviction, are handsomely rewarded; which alone is capable to make them over-diligent.

SOCIETY.

SOCIETY, *societas*, is an Assemblage or Union of several Persons in the same Place, for their mutual Assistance, Interest, or Entertainment.

We have a great many Kinds of *Societies*, distinguished by the different Ends proposed by them, *viz. Civil Societies*, *Religious Societies*, *Litterary Societies*, and *Trading Societies*.

A *Trading Society*, is a Contract or Agreement between two or more Persons, whereby they bind themselves together for a certain Time, and agree to share equally in the Profits or Losses which shall accrue in the Affairs, for which the *Society* or Copartnership is contracted.

There are in *England* several very considerable *Societies* of this Kind, as the Merchant Adventurers, the *Turkey*, *East-India*, *Muscovy*, *Eastland*, *Greenland*, *Spanish*, *African*, *South-Sea*, and *Hudsons-Bay* Companies. The Institutions, Policies, *&c.* whereof I have related in my Treatise of Commerce under the Letter C.

By the *Roman* Law, the social Contract needs no other Solemnity but the sole Consent of Parties, without any Writing at all: But among us Articles of Copartnership are required. There is no Contract wherein Probity is more required than in *Society*; inasmuch as the Laws pronounce those null, that are made contrary to Equity, and with Design to deceive.

There is in my Opinion no greater Theft, and which can be more odious, both before God and Man, than that committed by a Copartner, who prefers his own private Interest to the common Good of the Society; or who being intrusted with the whole Stock, appropriates the greatest Part thereof to his own Use; these are enormous Frauds, much worse than those committed by publick Robbers; for these may be driven to it through mere Want; and if taken are punished with Death; but those through a Perfidy, which cannot be too much abominated, make use of the great Confidence others repose in them, to plunder them with Impunity, the Laws being deficient in this Point, and having not sufficiently provided against those perfidious Robbers.

The *French* distinguish three Kinds of mercantile *Society*; *ordinary Society*, called also *collective* and *general*; *Society in commendam*, or *Commandity*; and *anonymous Society*, called also *momentary*, and *inconnue*.

Society in commendam, &c. is that between two Persons, one of whom only puts his Money into the Stock, without doing any other Office of a Co-Partner; the other, who is called the *Complementary* of the *Society*, dispatching all the Business under his own Name. This *Society* (if the *Complementary* be an honest Man) is very useful to the State; inasmuch as all Kinds of Persons, even Nobles, and Men of the Robe, may contract it; and thus make their Money of Service to the Publick: And those who have no Fortune of their own to trade withal, hereby find Means of establishing themselves in the World, and of making their Industry and Address serviceable.

Anonymous Society, is that where all the Members are employed, each particularly in the common Interest, and each accountable for Profits, *&c.* to the rest; but without the Publick's being informed thereof. So that the Seller has only an Action against the particular Buyer, no other Name appearing.

It is also called *momentary*, because frequently made on particular Occasions, and ceasing with them; as in the making a Purchase, the selling any Commodity, *&c.*

Of this they distinguish four Kinds: *Society by Participation*, which is usually formed by Letters from one City to another, where a Merchandise is to be bought or sold.—The second is when two or three Persons go together to Fairs to buy Goods. The third, when two or three Persons agree, to buy up the whole of some Commodity in any Country; to sell it again at their own Price.—And the fourth is, when three or four Persons make a Journey together, to buy and sell the same Commodity; beside Merchants, People of Quality, *&c.* are admitted into these *anonymous Societies*.

Religious Societies are Parties of Persons, formed either to live regularly together; or to promote the Interest of Religion; or to cultivate it in themselves.

Of the first Kind are all Congregations of Religious; particularly the Jesuits, who are called the *Society of Jesus*; though they more usually call themselves the *Company of Jesus*. The *Society* of *Sorbonne*. The *Society* of St. *Thomas de Villeneuve*, instituted in 1660, by F. *Ange le Proust*. The *Society* of St. *Joseph*, instituted in 1038. The *Society* of *Bretagne*, a Reform of *Benedictines*, in 1606. And the *Society* of *Jesus*, a religious military Order, instituted by *Pius* II.

To this first Kind may likewise be referred all the *Societies* among the *Roman* Catholicks, known under the Name of *Confreries*; who are a certain Number of Persons, who meet together at certain Times, in a particular Church, which they have chosen for the Purpose; to perform some particular Act of Devotion, or of Charity, or of both; for it is either to pray for those who are at the Point of Death, so soon as they are informed of it by the tolling of the Bell; and then no Matter at what Time of the Day or Night, all those that can possibly resort to the Church; or to accompany the Sacrament, when carried to a sick Person; or to assist at Funerals, *&c.* all which they do freely, and of their own Accord, without receiving the least Retribution for it.

Of the second Kind are, the

Societies for Reformation of Manners, and putting in Execution the Laws against Immorality and Prophaneness. It was set on foot, very near fifty Years ago, by five or six private Persons in *London*; but is since exceedingly increased, by a Number of Members of all Denominations: A particular Body of the most considerable hereof, bear the Expences of Prosecutions, *&c.* without any Contribution from the rest: These chiefly apply themselves to the prosecuting Persons for Swearing, Drunkenness, and prophaning the Sabbath. Another Body of about fifty Persons, apply themselves to the suppressing Lewdness; and by them above 500 lewd Houses have been once suppressed. A third Body consists of Constables. A fourth of Informers.

Besides these are eight other regular, mixed Bodies of House-keepers, and Officers, who inspect the Behaviour of Constables and other Officers, assist in searching disorderly Houses, *&c.* seizing Offenders, giving Information, *&c.* There are several *Societies* of this Kind at *London*, *Bristol*, *Canterbury*, *Nottingham*, &c.

The *Society for propagating the Gospel in foreign Parts*, was instituted by King *William*, in 1701, for securing a Maintenance for an orthodox Clergy, and making other Provisions for the Propagation of the Gospel, in the Plantations, Colonies, Factories, *&c.* To that End he incorporated the Archbishops, several Bishops, and other of the Nobility, Gentry, and Clergy, to the Number of 90, into a Body, with Privilege to purchase two thousand Pounds a Year Inheritance, and Estates for Lives or Years, with other Goods to any Value.

They meet yearly on the third *Friday* in *February*, to chuse a President, Vice-President, and other Officers; and the third *Friday* in every Month to transact Business, depute fit Persons to take Subscriptions for the said Uses; and of all Monies so received, to give Account to the Lord Chancellor, *&c.* They have a standing Committee at the Chapter-House to prepare Matters for the monthly Meeting, which is held at St. *Martin*'s Library.

The *Society for propagating Christian Knowledge*, was begun in 1699, by Persons of Worth, *&c.* Its original Design was to propagate Religion in the Plantations, to secure the pious Education of the Poor at Home, and to reclaim those that err in the Fundamentals of Christianity.

In the Year 1701, they had procured considerable Charities, and had transmitted the same to the Plantations, in Libraries, Bibles, Catechisms, *&c.* with a voluntary Maintenance for several Ministers to be employed in the Plantations. But the *Society* for propagating the Gospel into foreign Parts, being then instituted,

tuted, they were incorporated, by Charter, into the ſame; and thus diſcharged, as a particular *Society*, from the further Purſuit of that Branch of their original Deſign: Whereupon they turned themſelves to the other; and are now very conſiderable, by great Acceſſions from among the Clergy and Laity.

They meet weekly to concert Meaſures for raiſing Charity for the Education of poor Children, and ſetting up Schools for that Purpoſe; as alſo for the more regular Diſpoſal of pious Books, and Catechiſms; for Inſtruction of ignorant, erroneous, *&c.* By the Aſſiſtance of Members of other religious *Societies*, they have procured Subſcriptions for the Education of above three thouſand Children, who are placed out in Schools, about *London*, and taught Reading, Writing, Pſalmody, *&c.* They have diſperſed a great Number of Books among the Poor in the Fleet, Army, *&c.* and have procured ſeveral to be tranſlated into *Welch*, and other foreign Languages, and diſperſed accordingly.

Of the third Kind are divers religious *Societies*, properly thus called; firſt ſet on Foot in *London*, about the Year 1678, by a few young Men, who agree to meet weekly for Prayer, Pſalmody, and ſpiritual Conferences. They are now increaſed to forty diſtinct Bodies, who have ſet up publick Prayers in many Churches, where it was not; procure frequent Adminiſtrations of the Sacraments; and maintain Lectures on that Subject, in one Church or another, almoſt on every *Sunday* Evening.

I have been informed, that there are likewiſe ſome *Societies* of Criticks, in *London*; but as Criticiſm is very near a-kin to Malice, Jealouſy, and Calumny; and when not directed by Equity, and Wiſdom, degenerates always into ſome of theſe Vices; I have ſome Reaſon to ſuppoſe that ſome of thoſe *Societies* are not free from them.

The SOCIETY I deſign to take a particular Notice of in this Place, is that for which Men were in Part created, and which is founded on mutual Love, and ſincere Friendſhip. For it is very reaſonable to ſuppoſe, that when the divine Creator ſaid after he had formed *Adam*, that it is not good he ſhould be left alone, but have a Companion like to himſelf; his ſole View was not then the Propagation of the human Race, but likewiſe that every Individual having the ſame Origin, and the ſame End, the ſame Subſtance, and the ſame Form, the ſame intellectual Faculties, and the ſame Operations; they ſhould all unite in the ſame Views, all conſult the ſame Intereſt, and all ſeek the ſame moral Good, which he knew could not be effected but by a great Unanimity, and mutual and ſincere Love. It was on that he had founded that beautiful Harmony, which had made of the whole Earth a terreſtrial Paradiſe, and whence had reſulted a juſt Subordination between the different Members of that numerous Society of *Adam*'s Children, which had made them all act in their reſpective Stations, as being all inſpired by the ſame Principles, all actuated by the ſame Motives, and as if they had all had between them but one Heart and one Soul. It was likewiſe, with that Deſign that Man was formed in God's Image, *i. e.* that as by the eternal and reciprocal Love which ſubſiſt between the firſt and ſecond Perſon of the bleſſed Trinity, they produce a third; likewiſe by the temporal, and reciprocal Love, which ſhould have ſubſiſted between the human Creatures, had proceeded the temporal Felicity, which had been the great Acceſſory to their eternal one.

But alas, we do not find, that that reciprocal Love, ſo perfect as God had conceived it, had ever any Exiſtence but in his divine Ideas, for even in the Garden, while *Adam* perſevered in his Innocence, we do not find in the ſacred Writings, that there was a reciprocal Love between him and *Eve*; indeed it is ſaid that Love was ſo great, and ſo ſincere, on *Adam*'s Side, that he rather choſe to diſobey the Orders of his Creator, and therefore deſerve Death, which was the Conſequence thereof, than to run the Riſk of vexing her, in refuſing to eat of the forbidden Fruit; but the Heart of *Eve* was not ſo paſſionately affected; ſince ſhe preferred the Perſuaſions of the Serpent to the Felicity of her loving Companion; having heard, as well as he, the frightful Anathema fulminated againſt the Offender. That firſt *Society*, of the human Race, which conſiſted then but of two Perſons, who were both equally great, equally perfect, who commanded with an equal abſolute Power to all the other Creatures; whoſe Intereſts were entirely the ſame, there being no other then to purſue, which could even inſpire either of them with the leaſt Inclination to do it; that firſt *Society*, ſay I, ſeemingly ſo perfect, and ſo well eſtabliſhed, could not notwithſtanding remain long inacceſſible to Perfidy and Deceit; for *Eve* uſed all the Means ſhe ſhould have employed to cultivate that Union which the Almighty had eſtabliſhed between her and *Adam*, I mean the Power ſhe had over his Affections, and her natural Charms, to break it; ſo that the Woman was the firſt falſe Friend in the World. The Serpent would not tempt *Adam* firſt; becauſe conſcious of his Gratitude for ſo many ſignal Favours God was continually heaping upon him; and of his ſincere and unfeigned Love for *Eve*, he thought he could never be capable to perſuade him to diſobey his Creator's Orders, at the Riſk of rendering his Wife eternally unhappy. Therefore he attempted *Eve*, whoſe Love he knew was not near ſo well rooted in her Heart, nor ſo ſincere for *Adam*, as that of *Adam* was for her. He employed Ambition and Curioſity, two Paſſions he thought could make the greateſt Impreſſion on her Mind to ſupplant it; though, at the ſame Time, would make Uſe of it, or rather of the Shadow thereof, which *Eve* left for Inheritance to her Sex, to diſguiſe thoſe Paſſions to *Adam*, and make him ſwallow the Bait. So that the Want of Sincerity in Friendſhip, was the only Cauſe of *Adam*'s Fall, which his Deſcendants attribute falſly to the Cunning of the Serpent, ſince the Serpent himſelf was ſo ſenſible of the Weakneſs of his Cunning, that he thought it was not capable to deceive *Adam* without the Aſſiſtance of the Artifices of a falſe Friend; therefore have I not Reaſon to ſay, that a reciprocal Love has never exiſted in the World; ſince in the very State of its Infancy, which we call a State of Innocence, by Way of Eminence, it was not even known.

It is true, that *Adam*'s Love was real; that he was *Eve*'s ſincere Friend; but that alone could not be called Friendſhip, Friendſhip ſuppoſing always a reciprocal Love, otherwiſe it is no Friendſhip.

It had been deceiving one's ſelf to believe that Friendſhip could have ſubſiſted between *Adam*'s Children, after their Mother had given them ſuch an Example of Diſſimulation and Deceit; and it is reaſonable enough to attribute to that bad Example, the Jealouſy which reigned afterwards between *Abel* and *Cain*, which ended at laſt in a Fratricide; hence all the Diſorders, Impieties, Injuſtice, Violence, and all the other Crimes, which covered afterwards the Face of the Earth, ſo as to make God repent of having created the World, and form the Reſolution of deſtroying entirely that wicked Generation who had inherited *Eve*'s Deceit and Perfidy.

It is likely enough that a kind of Union and Friendſhip reigned among that *Society* which God was pleaſed to ſave in the Ark, from the univerſal Inundation; otherwiſe he had not long continued to them that divine Protection, which brought them ſafe on Land again, in order to people the Earth with a new Generation; for as a Diſunion among them had ſoon bred Jealouſy, Spite, Malice, Hatred, Jars, Contentions, and all the other Vices which are the neceſſary and fatal Conſequences thereof, his omnipotent Hand which had ſaved them from the general Calamity, in Conſideration of the Innocency of their Manners, and kept them ſuſpended all the while, between Life and Death; had ſoon left them to the Fury of the Waves, and the Tempeſt, and ſuffered them to ſhare the Fate of thoſe they had imitated in their Perverſity.

That Union, no doubt, though ever ſo imperfect, was brought from the Ark on Land; and which God beheld with ſo much Complaiſance and Satisfaction, when *Noah* at his coming out of the Ark, and kneeling on the Shore with all his Family to thank him for their Preſervation, they all with Unanimity and Concord ſend their Vows and Prayers to his Throne, that he ſwore he would never drown the World any more: So great was the Power of mutual and reciprocal Love among his Creatures, as to be capable to diſarm his Hands, which were yet ſmoaking with the Thunder, which he had ſo lately

lately launched against the criminal Effects of Treachery and Deceit.

Tho' *Noah*'s Descendants deviated soon from their former Innocence, and Division, and Broils were soon introduced among them, so as to oblige them to be separated; we have some Reason to believe that they did not all renounce their former Union, but, on the contrary, that it was preserved and cultivated among some of them, since the Antients mention often the Felicity of the Reign of *Saturn*, or golden Age, which could never have been so perfect as they represent it, if domestick Divisions, Broils, and Controversies had subsisted among the Subjects; but as they represent it as an extraordinary or uncommon Thing, or rather as a kind of Miracle, to give us to understand that it did not continue long; hence we may easily conclude that losing Ground by Degrees, it was daily confined within narrow Limits; first from a whole Kingdom within few Provinces; from Provinces within the scanty Compass of Cities; and degenerating still more and more, was reduced in Time from Cities to publick Associations, from publick Associations to private Families, and to few Friends, so as to be entirely banished at last from among Mankind; which must have been long ago their unhappy Fate; otherwise Authors would not represent a *sincere Friend*, as a kind of Prodigy, worthy the Admiration, not only of the Age he lived in, but of Posterity; the more, because this Phænomenon is seldomer seen than the other natural ones, its being not subject to a periodical Revolution, several Ages passing without producing a *sincere Friend*.

None but generous Souls, and Persons educated in noble Sentiments, are capable of Friendship; for those dirty, base, sneaking Souls who mind nothing but their own private Interest, which is at present the Mastersprung of all our Actions, from the Prince to the meanest of his Subjects, cannot familiarize themselves with that excellent Virtue; on the contrary they glory in their Perfidy and Deceit; and feel such an inward Satisfaction, when they have made those two Vices subservient to their infamous Ends, to the Oppression or entire Ruin of their Friends, that they cannot help shewing that Satisfaction outwardly, by applauding themselves in the Company of other Scoundrels like themselves, on their oppressive Successes. I know at this present Time Wretches of that infamous Character, and when I cannot possibly avoid seeing them, they seldom miss making me think, that it is impossible that those rebellious Spirits, or rather that roaring Lion mentioned by the Apostle, who is always seeking whom he can devour, should be worse than they. Like Vipers, they tear the very Bosom that gives them Birth; like Basilisks, they kill with their own Sight; like those Sea Monsters of the Fable, they decoy by their treacherous Voice their Friends into Precipices; and like the most dangerous of all Serpents, they infect the Air they breathe. But how could they act otherwise? sprung from a Dunghil, and educated in the Dust, at least most of them, could they have nobler Sentiments? Which should caution noble and generous Souls, against contracting Friendship with Persons of that Stamp; for though it is very possible, and we have often seen it, that the Disadvantages of Birth, are repaired by the Advantages of Education, as good Education seldom accompanies a mean Birth, one should be very sure of a good Education before he trusts to a mean Birth; unless Probity supplies the Wants of one, and rectifies the Disadvantages of the other.

Avarice, Hypocrisy, Bigottism, Ignorance, Cowardice, Adulation, Self-conceit, are likewise all a Bar to Friendship, and one should never choose for his Friend a Person addicted to any of those Vices; for an avaricious Person will always not only prefer his own Interests to those of his Friends, but even sacrifice his whole Fortune, and perhaps his Life, to the least Appearance of Lucre. How could it be expected that a Wretch who worships no other Divinity but Mammon, should prefer it to a Friend? How could we imagine that he who sacrifices his own domestick Peace, and all the lawful Pleasures of this Life, to the Toils of amassing Riches, and to the Inquietude of keeping them safe in his own Hands, shall forget them a Moment to enjoy his Friends? How could we flatter ourselves that he'll have any Inclination to relieve us in our Distress, while he has not the Heart to relieve himself? Shall a Wretch who suffers himself to perish near his own Treasure, for fear of diminishing it, be willing to put his Hand to it to save even our Life? No, no, an Avaricious, who is not even a Friend to himself, is not capable of those Marks of Friendship to another; since a sincere Friend must consider Riches no other than as a necessary Dirt, and should value it no further than they render them capable to be serviceable to all Mankind in general, and to his Friends in particular, wishing to enjoy them no longer than they can answer those noble and generous Ends.

Not Money only, but likewise Preferments, Honours, Dignities, and all that's the more capable to flatter our Vanity or Ambition, are sacrificed to Friendship by a sincere Friend, when he knows that he cannot enjoy them without abandoning his Friend; with what inward Satisfaction he receives that pretended Disgrace, when he reflects that it is a new Mark he gives his Friends of the Sincerity of his Love, and that nothing more is to hinder him from giving himself up entirely to the Pleasure of enjoying his Friend without Obstacle or Controul! which to a sincere one is an anticipated Felicity; with what Contempt he considers what he has left, when he compares it with what he enjoys! And if any Thing can be capable to cause him then some Inquietude, it would be the Fear of losing too soon what he thinks he has acquired too late, a Tranquility of Mind which can be found no where but in a mutual Friendship. Princes themselves have descended from their Throne to have a Taste of that Felicity; and, without having Recourse to Antiquity for Examples of that Kind, it is said of *George* I. King of *Great Britain*, of glorious Memory, that he never appeared better pleased than when he could find an Opportunity of forgetting what he was, a great Prince, to appear in the Company of few Friends, of whom he had always a select Number, such as he had always been, and would always be, a noble, generous, and sincere Friend; and where he would not suffer to be distinguished from the rest otherwise than by signalizing himself by greater Marks of Friendship. He preferred those happy Moments to all the Pomp and Magnificence his Throne was adorned with; and it was easy to judge at the indicible Satisfaction he seemed to enjoy then that he thought a Court had no Pleasure comparable to that of enjoying a sincere Friend; for himself Heaven had took Pleasure to form him one, by adorning his noble Soul with all the excellent Qualities requisite for it. For he was generous, affable, brave, impartial, just, and had a great deal of Humanity and Compassion, in a Word, all in him spoke a sincere Friend, and claimed one, for I really believe that it was impossible to see him without loving him. Even his Enemies, who were prejudiced against him on other Accounts, could not help doing him that Justice.

We must be as cautious of chusing an Hypocrite, or a Tartuf for a Friend, as an Avaricious, and I dare say, that the Hypocrite is the most dangerous of the two; for how could we expect that he who is continually attempting to deceive Heaven itself, will deal sincerely with us? His whole Life is nothing but a Texture of Perfidy, Falshoods and Impostures, the more dangerous, because disguised under the Mask of Religion. Pretending to be infatuated with his own Perfections and Virtues, though in fact he is sensible of his own Wretchedness, he is a perpetual and very bitter Censor of our Conduct, the least Irregularities thereof he condemns with the same Severity as if they were the most attrocious Crimes; let us act with the greatest Circumspection and Prudence human Understanding is capable of, he always finds that we act wrong, because if he was to find otherwise, he would lose the Opportunity of exercising his malicious Talent, and of boasting of his own Perfections, which he would have the World think are not to be parallell'd; and if we are weak enough to desire being accounted his Friends, we must at the same Time submit ourselves to the Disagreement of hearing him insinuate sometimes even to ourselves, that we are unworthy of his Friendship, and that none but his excessive Compassion, could engage him to bear our Imperfections and Infirmities, whereof he makes use on all Occasions, to give a new Lustre to his own pretended Perfections; so that in his Opinion

Opinion our Friendſhip is to him what an ugly waiting Woman is to a beautiful Lady. Fly, fly, ſuch Monſters, who are rather born for a Plague to a civil Society, than to maintain it with a ſincere Friendſhip, which they are not capable of. To call ſuch Wretches Friends, is to profane that ſacred Name, and render it deſpicable. For to expect that by our Complaiſance and Condeſcenſions, we ſhall inſpire them at laſt with the Sentiments of a true Friendſhip, is to flatter oneſelf with vain Hopes, and to attempt it is to attempt that which is impoſſible. Chuſe rather the greateſt Reprobate for your Friend than an Hypocrite; for as a Reprobate is almoſt always ſenſible of his own Demerit, he is capable of admiring, and even approving within himſelf the Regularity of your Conduct, your Probity, and good Manners, and that Approbation may be a Means, after you have contracted a ſtrict Friendſhip with him, to engage him to imitate them; but ſuch a Change cannot be expected from an Hypocrite, who thinks that his Reputation would ſuffer, if he was to alter in the leaſt his Conduct or Manners.

Ignorance is alſo a great Obſtacle to Friendſhip, for a Perſon bred in it is not ſuſceptible of the leaſt Sentiments of Generoſity, Sincerity and Gratitude; all that is ſaid to him on that Subject, even ſupported by the moſt perſuaſive Argument, is not capable to diſſipate the Clouds his Underſtanding is darkened with; he'll never be perſuaded, that there is any other Love than the imperfect one he feels within himſelf, and which proceeds from natural Sentiments only; imagining falſely that all that is ſaid of another Kind far preferable to it, and much more perfect, is nothing but a Fiction of Perſons who want to refine on all Things. He thinks that it is enough if he does not wrong his Friends; but that it is an Impoſition to attempt to perſuade him to prefer his own Intereſt to his; ſince we are ourſelves the Friends we muſt love firſt, and preferable to all others; and that to ſacrifice all we have to Friendſhip, is to ſilence the Sentiments of Nature which are contrary to it.

A Coward was never a ſincere Friend, for his Puſillanimity is alarmed at the leaſt Difficulty, as if it was an unconquerable Obſtacle; as his whole Study is, how to avoid all the Dangers which he could be expoſed to; it cannot be reaſonably expected that he would run any to ſerve his Friend. He may be ſenſible of his Misfortunes, but it is rather by a Motive of Cowardice, than of Generoſity, for fear the ſame Thing ſhould one Time or other happen to him. He trembles, he turns pale at the Recital thereof, he ſighs, he lifts up his Eyes to Heaven, his whole Frame ſeems in Convulſions, not for the Calamities of his Friend, but becauſe his Imagination is ſo ſeized with a panick Fear, that while the Recital laſts, he thinks himſelf affected with the ſame. To aſk ſuch a Man to appear for his Friend, in any Difficulty, is to put him in mortal Agonies; and rather than do it, he'll deny having ever been acquainted with him. But a brave Man affronts all the greateſt Dangers to ſerve his Friends, and is never better pleas'd, but when he finds ſome particular Occaſion of ſignalizing his Friendſhip. He thinks it is in the moſt difficult Encounters, that a Friend has Occaſion to ſhew himſelf ſuch, and that there is no other Means to diſtinguiſh a true from a falſe Friendſhip. The Old Teſtament gives us the Example of a brave and generous Friend in the Perſon of *Jonathan*, who expoſed himſelf daily to incur the Indignation of *Saul* his Father, to ſave *David* his Friend from all the Snares which were laid for him; though he knew, at the ſame Time, that *David* was deſigned to ſupplant him in the Succeſſion to the Throne of *Iſrael*. But that Example, which had no Precedent, has had no Imitators. For where is the Prince who would conſult the Preſervation of his Rival to the Crown. And who is that, on the contrary, who would refuſe to accelerate his Deſtruction if he could? I cannot even find that the Friendſhip of *David* for *Jonathan* was reciprocal; for though he mourned for *Jonathan*'s Death, in an extraordinary Manner; it is eaſy to judge by the Sequel, that his Tears were rather of a great Politician, than of a ſincere Friend.

Adulation or Flattery, and true Friendſhip, are incompatible; for as Adulation is moſt commonly accompanied with Deceit, and calculated to diſguiſe Vice and Imperfections, ſo far as to give them but too often the Name of Perfections and Virtues, it cannot be agreeable to a Virtue, which abhors Diſſimulation and Impoſture. For a ſincere Friend knows how to make a juſt Difference between the Imperfections and Perfections of his Friend, and how to blame the one, and approve the other; and would think himſelf guilty of the greateſt Perfidy, and unworthy the Name of a Friend, if he was to approve publickly, what he cannot help condemning inwardly; but then, what he diſapproves, he does it in a friendly Manner, between his Friend and himſelf, without publick Invectives and Reproaches; and contents himſelf with being ſilent in publick, on what he diſapproves in ſecret, and approves then what is worthy every Body's Approbation. For it is no Mark of Friendſhip to condemn publickly our Friends; for we authoriſe thereby the Invectives of his Enemies, diſcourage the few other Friends he may have, and occaſions a certain Coldneſs between him and us, which may chance to degenerate afterwards into Hatred. Fear always a Scoundrel, who flatters you becauſe he wants you; for a generous Soul, though perhaps at the ſame Time, he wants your Aſſiſtance, will never attempt to gain your Friendſhip by thoſe low and deſpicable Means.

A Man, who like another *Narciſſus* is enamoured with his own Image, will never love another; he is too much taken up with himſelf, to have any Time to ſpare for a Friend.

But what is then a *ſincere Friend*, that it is ſo difficult to find one. A *ſincere Friend* is a Perſon who loves another for his perſonal Merit only; without any other View, or under any other Conſideration whatever; who loves him in all the different States and Conditions of Life a capricious Fortune can be pleaſed to place him; rather more, if poſſible, in Adverſity than in Proſperity, ſince it is in Adverſity that Friendſhip appears in its greateſt Luſtre; for as we are not all born with the ſame Conſtancy and Reſolution, to bear with Indifference, the great Calamities our Lives are expoſed to; ſome of us are but too ſubject to ſtoop under their Burthen, and to loſe entirely at laſt that little Courage, which the Favours of Fortune alone were capable to keep up; then it is that Friendſhip muſt exert itſelf; that a ſincere Friend muſt not wait that his unhappy Friend, conſcious of his wretched Condition, and of the Abhorrence a vicious World has for it, meets him trembling and dejected, half-way; but, on the contrary, go and ſeek him in thoſe dark Corners, or Retreats, where he entertains his melancholly Thoughts, which border much on Deſpair, and hide his unhappy Condition from a cenſorious, malicious and unjuſt World, whom he knows too ready to laugh at it, or attribute his Misfortunes either to a Want of Merit, or of Conduct; then a Friend appearing with that becoming and unaffected Complaiſance and Affability, which are inſeparable from a true Friendſhip, is ſole capable to diſſipate that thick Cloud which darkens his Underſtanding, and keep all the other Faculties of the Soul unactive. Raiſed from his profound Lethargy, he can ſcarce believe his Senſes, when he ſees a Perſon before him, whoſe Face is free from the Frowns and ſcornful Looks, the Unfortunate are almoſt always accoſted with; and with that Serenity Fortune cauſes when it ſmiles. And inſtead of tedious Exhortations larded with malicious Reproaches, hears friendly Intreaties, rendered perſuaſive by preſent Succours, far beyond his Expectations, and exceeding perhaps the Forces of his Friend; who all the while is deaf to falſe and malicious Reports, unjuſt Reflections and Calumnies, which moſt commonly aſſail a Man in Diſtreſs, to render his Condition ſtill more wretched. He is ſenſible that thoſe who are guilty of ſuch Barbarity, are either declared Enemies of the Perſon in Affliction, who uſe thoſe indirect Means to accelerate his total Ruin, by diſſuading every body from aſſiſting him; or falſe Friends who have recourſe to them to excuſe themſelves from doing it; which is the common Practice of the pretended Friends of this vicious Age, and who are much more dangerous than the moſt mortal Foes who declare themſelves ſuch. For thoſe perfidious Friends, to diſtil their Poiſon with more Art, begin by chiming with thoſe, who being ſuſ-

ceptible

ceptible of Sentiments of Humanity and Compaſſion, pity the Perſon in Affliction, and with whom they are not particularly acquainted, for no other Reaſon than becauſe he is miſerable; larding their Diſcourſe with Abundance of *but*, and *if*, which at laſt bring thoſe truly compaſſionate Perſons to the Point they would have them, *i. e.* that the poor Wretch is not ſo worthy of Compaſſion as they had thought him at firſt, ſince his own Friends give him ſo wretched a Character; which muſt be true, ſince thoſe who give it him, having had his Confidence, and ſtudied him long, cannot be miſtaken. The Perfidy of thoſe Monſters, under a human Form, works with a ſtill greater Efficacy, if they have the Artifice to diſguiſe it, as moſt of them do, under that uſeful Maſk Hypocriſy; and revile their unhappy Friend among Perſons who are truly religious; for as none but God can fathom our Hearts, and diſcover the Secrets thereof; how is it poſſible that thoſe Perſons of Probity and Virtue could ſuſpect another, whom they almoſt always find beſieging the Altars of a God of Mercy and Compaſſion? How can they imagine that he, who they ſuppoſe is continually claiming that Mercy and Compaſſion for himſelf, has none for others? But they are miſtaken when they ſuppoſe that the Hypocrite is intreating God's Mercy; for as he has his Mind full of nothing elſe but the entire Ruin of his Friends, he is only meditating how he can procure it ſooner and more effectually; I myſelf have heard Men of that infamous Character, who by their Hypocriſy had acquired a ſort of Right to impoſe on weak Minds, concerting Meaſures at the Feet of the Altars to that Purpoſe.

There is another Kind of falſe Friends, who having not quite renounced all Sentiments of Honour and Humanity, would be loth to contribute towards their Friend's Ruin; but are either aſhamed, or afraid of appearing his Friend while he is in Diſtreſs; ſo that they will neither oppreſs, nor aſſiſt him, but abandon him entirely to his unhappy Fate; though, for my Part, I make but very little Difference between this Sort of Friends and thoſe above-mentioned, and think them both equally guilty of a Breach of Friendſhip, and almoſt in the ſame cruel Manner; ſince he who refuſes to aſſiſt his Friend in his Diſtreſs, is as much acceſſary to it, as he that has procured it. But he is afraid, perhaps, was he to aſſiſt his unhappy Friend, either to diſoblige other Friends whom it is his Intereſt to manage, or to incur the Diſpleaſure of Men in Authority; then if thoſe human Conſiderations are capable to deter him from appearing a Friend, he boaſts in vain of his Friendſhip; for a real one is daring, courageous, intrepid; meets with no human Conſideration, which it cannot ſilence; no Obſtacles, let them be ever ſo great, or difficult, which it cannot conquer; Majeſty, Power, Favour, Intereſt, all give way to it; for a Friend may reſpect the Hand which oppreſſes his Friend, and at the ſame Time relieve him under that Hand, and even wreſt him from it, if he can do it without violating the Laws of God and Man; for the Oppreſſor, let him be ever ſo potent or ſo great, muſt have a very mean Soul who will refuſe to admire and commend the courageous Sincerity of ſuch a Friendſhip.

But where can we find at preſent Friends of that Character? in the Sanctuary? Alas it is the Place where Diſſimulation, Deceit and Inconſtancy make their chief Reſidence; there appears ſometimes perhaps as every where elſe, a certain Shadow of Friendſhip, but which vaniſhes at the ſingle Appearance of private Intereſt, when both in Competition. Though no body ſeems to be more obliged to a ſtrict Friendſhip than the Clergy, ſince they pretend both to practiſe and preach in a ſtricter Manner the Goſpel of Chriſt, which is in Part founded on Friendſhip, ſince our divine Saviour puts the Love of our Neighbour on a Level with that of God, when he ſays to the Perſon who aſk'd him, what he muſt do to be ſaved? *Thou ſhalt love the Lord thy God with all thy Heart, and thy Neighbour as thyſelf.* Do they obſerve that Precept, when they put all in Uſe, even Calumnies, Falſhoods and Invectives, to foment Jealouſy and Diſſenſion among us? And if they don't, can they expect to be ſaved? Is that to follow the Example of the beloved Diſciple, who having learned the Rules of Chriſtian Friendſhip, in the very Boſom of his divine Maſter, preached ſcarce any Thing elſe afterwards? How ſcandalous it is to hear nothing elſe in our Aſſemblies, which were calculated to entertain Friendſhip among us, but uncharitable Declamations founded on falſe Prejudices; that alone will always be an Obſtacle to a perfect Reconciliation between us, which, if once removed, would ſoon be accompliſhed. Though it is eaſy to find in the Goſpel, if we would renounce our falſe Prejudices, that ſuch uncharitable Declamations are entirely contrary to it. What would we think of a Perſon, who inſtead of compoſing the Differences which ſubſiſt in a private Family, when it is in his Power to do it, would, on the contrary, foment them, and widen the Breach? would not ſuch a Monſter excite our Indignation, and be conſidered as a Plague in the Civil Society? What muſt we think then of thoſe, who are continually ſowing the Seed of Diſcord and Animoſity in the Family of Chriſt? What would a *Jew*, or an honeſt *Pagan*, think of it that was to hear it, and was ſhewn afterwards in the Goſpel, that formal Command of loving one another? Could he be perſuaded then, that that Perſon does not preach a Religion quite different from that of *Jeſus Chriſt?* If there be ſome Diſputes between us in Points of Belief; Calumnies, Invectives, and Sophiſms, will never decide or terminate them; ſuch Means are never uſed in civil Differences, but by thoſe who are conſcious that they have not the Right on their Side; and Counſellors at the Bar have never Recourſe to them, but when they know that the Cauſe they plead is as good as loſt. Truth is the beſt Argument we can uſe, to perſuade and confound our Enemies; and calling them Names, and loading them with Invectives, make them triumph before the moſt ſenſible Part of Mankind. Such a ſcandalous Conduct is very good to amuſe an ignorant Rabble, which delights in Diſorders and Confuſion; but it is deſpiſed, and even abhorred by thoſe of a ſound Underſtanding, and who have been inſpired by noble Sentiments. How can we expect to eſtabliſh Friendſhip among us, when we are taught to hate one another, and cut one another's Throats by a Motive of Religion? If we think that our Brethren have deviated from the Truth, let us endeavour to bring them to the Sheep-fold on our Shoulders, at the Example of the good Shepherd, and not with the Whip as a Beaſt to the Slaughter; and if our friendly Endeavours prove unſucceſsful, let us addreſs our moſt ardent Vows to Heaven for their Converſion. What! muſt I hate a Perſon becauſe he is a *Roman* Catholick, or a Preſbyterian, or a Quaker, or even a Jew or an Infidel? What is his Religion to me, if he has all the Qualities that deſerves my Friendſhip?

As Friendſhip is of all Religions, it is alſo of all Nations and Countries, though the Difference of Nation or Country, like that of Religion, is but too often a Bar to it. If there have been Time out of Mind, a certain Jealouſy between different Nations, perhaps rival in Glory, muſt I hate a particular Perſon of that Nation? What has he to do with the general Concerns of that Nation? Is he called in the Council of the Sovereign or Republick, under whoſe Government he is born? Has he opinated for the Devaſtation of my Country? Has he done me any private Injury? Does not the Laws of Nations entitle him to the Right of Hoſpitality among us, as they do thoſe of us who are among them? He is an *Engliſhman*, an *Hanoverian*, an *Italian*, a *Spaniard*, a *Frenchman*, &c. *ergo*, we muſt hate him. Does not Nature itſelf revolt againſt that Concluſion, which is condemned by all Laws divine and human? It is true, that all Nations are not equally guilty of that Barbarity; and I can flatter myſelf that I am born in a Country which is entirely free from it; as it can be vouched by all other Nations, who are not blinded by falſe and unjuſt Prejudices; we never ſee there Foreigners inſulted publickly, either in Print or in the Street; the Rabble itſelf is ready to lend them their Aſſiſtance when they want it. And when I have made that Obſervation before Perſons who could not deny it, becauſe they had been Eye-witneſſes to it, they have replied ungenerouſly, that thoſe Demonſtrations of Friendſhip did not proceed from the Heart; thus aſſuming to themſelves a Power, which is reſerved to God alone of ſearching the Heart. But how can they know that thoſe Marks of Friendſhip do not proceed from their Heart? Can we know that a Perſon loves us otherwiſe than by his Actions; and if his Actions denote that Love, how can we be ſo unjuſt to

to ſay that he don't love us? What could engage me but a Motive of Generoſity, to treat kindly a Perſon whom I had never ſeen before, when I do not know whence he comes, who he is, and if ever I ſhall ſee him again afterwards? What could induce me to diſſemble with him? Could any body force me to be kind to him if I would not? Is it not at my Option to take or not to take Notice of him, when no body could find fault with it, not even himſelf, ſince he does not know me? Even ſuppoſed, which is a ſcandalous falſe Suppoſition, that his Actions are different from the Sentiments of his Heart; what's that to me, ſince it is his Actions I want in my Neceſſity, and not his Heart, which muſt be left to God to examine? Of what Service would it be to me, if it was poſſible that a Man ſhould love me, and at the ſame Time do me ſome great Injury, and perhaps cut my Throat? For it is equally impoſſible for me to do all Sorts of good Offices to a Foreigner, and hate him in my Heart, as for me to maltreat him and love him at the ſame Time in my Heart. Such unjuſt Reflections proceed from a natural Jealouſy and Antipathy, which Brutes themſelves are not guilty of; for when they have received ſome good Offices from us, they fawn upon us, to let us know their Gratitude. For my Part, I have been the unhappy Victim of that original Sin of being a *Frenchman*, and more ſo, ſince the War in which I have no Hand, has broke out between the two Nations; though in thoſe Caſes the Subjects ſhould follow the Example of their Princes, who while they are at War, have ſeldom any private Animoſity againſt one another; but on the contrary are as much Friends then, as they are in the moſt profound Peace.

In anſwer to this, it may be aſked, why Foreigners ſhould come among us, when they know that we hate them? I muſt confeſs, that as I ſuppoſe few do it by Choice, I cannot but pity the Unhappineſs of thoſe who are neceſſitated to it; but as they know nothing of that Hatred when they firſt take that Party, and imagine that the ſame Law of Nations that protects Foreigners in their own Country, and obliges them to do to them all Sorts of kind Offices, has the ſame Force in another, and pleads there as much in their Favour, they are excuſable for that firſt Miſtake; but not if they were to commit a ſecond of the ſame Kind.

Shall we find Friendſhip at Court? There in fact, if Friendſhip conſiſted in publick Demonſtrations, and Proteſtations, bound ſometimes by the moſt ſolemn Oaths, we could expect to find Friends; but are they once put to the Teſt, and called upon to fulfil their Engagements, or accompliſh their Promiſes; we are ſoon convinced, though too late, that all thoſe Promiſes, thoſe Proteſtations, thoſe Oaths, even the moſt ſolemn, were nothing but a mere Farce, to trifle with Heaven and amuſe Men; a vain Sound, which periſhes immediately after it has ſtruck the Ears, ſo abſolutely, as not to leave ſometimes the Memory of its Exiſtence. The Prince himſelf cannot fix thoſe Proteſtations to any Thing elſe; even thoſe whom he is continually loading with his moſt ſignal Favours, and whom he receives into his moſt ſecret Confidence, are his Friends no longer than he keeps them engaged to him by thoſe mercenary Means, or to ſpeak better, are no Friends at all; ſo that there is no Monarch at preſent who can ſay of his Favourite, that *Epheſtion* is *Alexander*. Nay, it has been for ſeveral Ages paſt a kind of Hereſy to believe, that it was poſſible to find a ſincere Friend at the Court of Princes; and a Man there who is really ſuch, muſt have retired from it long before he can expect to be truſted to. As another who has given ſeveral repeated Inſtances of his Sincerity, is miſtruſted as ſoon as he begins to frequent a Court; as if the Air breathed there was always infected with Perfidy and Diſſimulation. In fact, Perfidy and Diſſimulation, which every where are conſidered as two ſcandalous Vices, and as ſuch a Bane to Civil Society, are ſeen in a quite different Light at the Court of Princes, and in the Palaces of the Great; and are conſidered by the moſt impartial and leſs prejudiced againſt a Court, as two Qualities eſſential to the Character of a Courtier or Favourite. Courtiers and Favourites themſelves ſeem to be convinced of it, ſince the firſt Maxims they learn are thoſe of diſſembling and deceiving well. And ſuch among them who excel in that Art, think themſelves worthy of the greateſt Employments; and the great Habit they have contracted of it, do that they practiſe it, even in the moſt indifferent Things, ſo that one can ſcarce even depend on what they ſay, or underſtand what they mean. They have brought that Art of late to ſuch a Perfection, as to have made certain general Rules which are common, and expreſſed in the ſame Terms at all Courts: They all ſpeak in the ſame Dialect, and all write in the ſame Style; and I have very great Reaſon to believe, that Miniſters, or Secretaries of State, for Example, have Models of Letters in their Offices, which they copy when they want to write to certain Perſons; which are full of Proteſtations of Friendſhip, and of their Readineſs to ſerve one; but if they be put to the Teſt, thoſe Proteſtations have no other Effect, than that of procuring other Proteſtations; and thus Proteſtations *in infinitum*, and nothing elſe; Eccleſiaſticks themſelves in thoſe Poſts, and even thoſe who affect much Religion, are guilty of thoſe ſcandalous Diſſimulations, and perfidious Deceits; which would render a Man odious in a civil Society, and procure him to be ſhamefully kicked out of it as a dangerous Scoundrel. But as Men in great Poſts are ſometimes ſuffered to rob with Impunity, they muſt alſo be ſuffered to deceive with Impunity. Princes themſelves have been the unhappy Victims of the perfidious Deceits of their Favourites, and have harboured Snakes in their Boſoms, who have ſtung them to Death: Vipers who have tore the very Boſom that gave them Birth; Monſters who have devoured the very Subſtance which ſupported them; Sacrilegious Kidnappers, who have perſuaded their Sovereign to enter into Meaſures which they knew would prove his entire Ruin; which makes me deplore the unhappy Fate of Princes, who have the weak Complaiſance to truſt too much to their Favourites.

We might have antiently ſearched ſincere Friends in the Armies, and have been ſure to find ſeveral; for as none marched then under *Mars*'s Standards, eſpecially in thoſe Poſts where they had Occaſion to ſignalize themſelves in a particular Manner, but Perſons of a particular Merit, and known Courage, who abhorred all that was mean and ſcandalous, no doubt but ſuch Perſons were capable of a ſincere Friendſhip; but at preſent, as moſt of the Sons of *Mars* have been nurſed in the Maxims of a Court, and lulled to ſleep at the Ditties of Miniſters and Favourites, who promote them as their Children, not as they deſerve, they carry thoſe Maxims into the Field, ſo that for ſome Years paſt there has been as much Friendſhip found there as Courage; and they have loved in the ſame modern Manner as they have fought: For as they moſt commonly fight for Lucre, not for Reputation or Glory; they alſo moſt commonly love for Lucre, not by mere Friendſhip; and there are as many vain Proteſtations made in the Tent of a General, as there are in the Antichamber of a Miniſter; a brave Soldier who has ſerved gallantly his King and Country, but comes empty-handed, is promiſed Preferments; but he who is introduced by *Plutus*, though perhaps accompanied by Cowardice, carries it. The General may profeſs himſelf all the while the brave Man's Friend; but the *Craſſus* is really the General's Friend, at leaſt in his Manner of thinking. And this I know by Experience, for could I have perſuaded Mammon to ſtand my Friend in ſome Occaſions, where I had nothing to plead for me but my Services, I ſhould not be reduced at preſent to the indigent State of an Author.

The Bar is as foreign to Friendſhip as any other Place, and there's no Friends to be gained among *Aſtræa*'s Miniſters, but by means of the Offerings which are carried to that Goddeſs's Altar. He among them who profeſſes the greateſt Friendſhip to us, will become a Foe for Gain; though he be perſuaded at the ſame Time, that we have all the Juſtice imaginable on our Side: This I know alſo by Experience.

Friendſhip in Commerce is made a trading Commodity, and is ſold like the reſt; for as Profit or Gain is the Maſter-ſpring of that great Machine, all is rejected which has the leaſt Appearance of Liberality and Diſintereſtneſs.

Even in private Families, where Friendſhip ſhould be found, if any where in the World; there is none; Jealouſy, Ambition, private Intereſt, very often Spite and

and Malice, set a whole Family at Variance; even the Son endeavours to supplant his Father, and the Father his Son. A Brother is jealous that his Brother is more favoured by Fortune than he is, and for that Reason hates him; and a Sister envies her Sister because she is better settled, and makes a greater Figure in the World than she.

Are there then no sincere Friends to be found in the World? Yes there are, even in all the different States above-mentioned; but they are so few, that it is very difficult to find them; not that I speak by Experience, for I can safely protest, that I have never found any. As for those who are Friends while Fortune smiles, and no longer, there is an infinite Number of them, if one is not ashamed to prostitute the Name of Friendship to the most attrocious Perfidy. It is true they are Friends, but it is to themselves; for in worshipping your Fortune, they only consult the Advantages which they can reap from it; either for Honour or Profit, or for both; which is clearly seen at their deserting you so soon as Fortune turns her Back; according to this judicious Sentence of *Ovid*:

Donec eris felix multos numerabis amicos;
Tempora si fuerint nubila, solus eris.

Which Sentence is thus paraphrased by M. *Mangard*:

Tant que vous regorgez d'Honneurs & de Richesses,
Ce ne sont qu'Amities & que vives Tendresses:
Vous êtes recherché des moyens & des grands,
Au dixieme degré vous avez des parens.
Quoi qu'un sang roturier coule en vôtre famille,
La Noblesse s'y joint quand la Richesse y brille.
D'une foule d'amis vos côtes sont pressés,
Qui tous a vous servir se montrent empresses.
Mais vous arrive t'il quelque affreuse disgrace,
La Fortune vient elle a prendre une autre face;
Nos jours se changent, ils en une triste nuit
Chacun dans ce moment vous abandonne & fuit.
L'on voit autour de vous ces ombres diparoitre.
Et vos meilleurs amis souvent vous méconnoitre.

STARCH-MAKING.

STARCH-MAKING, is the Art of procuring a Fecula or Sediment from Wheat which had been steeped in Water; of which Fecula, after separating the Bran from it, by passing it through Sieves, are formed a Kind of Loaves, which being dried in the Sun, or an Oven, is afterwards broke into little Pieces, and so sold. The Process is as follows:

The Grain being well cleaned, is put to ferment in Vessels full of Water, which they expose to the Sun, when in its greatest Heat; changing the Water twice a Day for the Space of eight or twelve Days, according to the Season. When the Grain bursts easily under the Finger, they judge it sufficiently fermented. The Fermentation perfected, and the Grain thus softened; it is put, Handful by Handful, in a Canvass Bag, to separate the Flour from the Husks, which is done by rubbing and beating it on a Plank, laid a-cross the Mouth of the empty Vessel, that is to receive the Flour.

As the Vessels are filled with this liquid Flour, there is seen swimming a-top, a reddish Water, which is to be carefully scum off from Time to Time, and clean Water put in its Place; which, after stirring the whole together, is all to be strained through a Cloth or Sieve, and what is left behind, put into the Vessel with new Water, and exposed to the Sun for some Time; and as the Sediment thickens at the Bottom, they drain off the Water four or five Times, by inclining the Vessel, but without passing it through the Sieve. What remains at the Bottom, is the *Starch*, which they cut in Pieces to get out, and leave it to dry in the Sun. When dry it is laid up for Use.

The best *Starch* is white, soft, and friable, easily broke into Powder. Such as require very fine *Starch*, do not content themselves like the Starch-Men, with refuse Wheat, but use the finest Grain.

To use *Starch*, they take as much as is needed, and steep it in Water over Night, changing the Water four or five Times. The Starch-Men using the Refuse of Wheat, only observe a Part of all these Things in their Process; but their *Starch* falls far short of this.

Starch is used along with Smalt, or Stone Blue, to stiffen and clear Linen. The Powder thereof is also used to whiten and powder the Hair.

It is also used by the Dyers to dispose their Stuffs to take Colours the better.

STEREOMETRY.

STEREOMETRY, is the Art of measuring solid Bodies, *i. e.* of finding the Solidity or solid Contents of Bodies, as Globes, Cylinders, Cubes, Vessels, Ships, *&c.*

Solidity, as understood here, is the Quantity of Space, contained in a solid Body; called also the solid Content, and the Cube thereof.

To *Measure, the Surface, and Solidity of a Prism*; find the Area of the Base, and multiply it by 2; find the Areas of the Planes, or Parallelograms, that include or circumscribe it, and add their Sum to the former Product. The Sum is the whole Surface of the *Prism*.

Multiply then the Base by the Altitude; the Product is the Solidity of the Cube.

All *Prisms* are in a Ratio compounded of their Bases and Attitudes: If then their Bases be equal, they are to each other as their Heights; and *vice versâ*. Similar *Prisms*, &c. are in a triplicate Ratio of their homologous Sides, as also of their Altitudes.

To *measure the Surface and Solidity of a Pyramid.* — Find the Solidity of a Prism, that has the same Base with the given Pyramid; and divide this by three; the Quotient will be the Solidity of the *Pyramid*.

Suppose, *v. gr.* the Solidity of the Prism be found 6701328, the Solidity of the *Pyramid* will be thus found 2233770.

The Surface of a *Pyramid* is had by finding the Areas both of the Base, and of the lateral Triangles. The Sum of these is the Area of the *Pyramid*.

The external Surface of a right *Pyramid*, standing on a regular poligonal Base, is equal to the Altitude of one of the Triangles which compose it, multiplied by the whole Circumference of the Base of the *Pyramid*.

A *Sphere* is equal to a Pyramid, whose Base is equal to the Surface, and its Height to the Radius of the *Sphere*.

Hence a *Sphere* being esteemed such a Pyramid, its *Cube* or *solid Content* is found like that of a Pyramid.

2. A *Sphere* is to a Cylinder, standing on an equal Basis, and of the same Height, as 2 to 3. Hence also may the Cube or Content of the *Sphere* be found.

3. The Cube of the Diameter of a Sphere, is to the solid Content of the *Sphere*, nearly as 300 to 157; and thus also may the Content of the *Sphere* be measured.

4. The Surface of a *Sphere* is Quadruple the Area of a Circle described with the Radius of the *Sphere*. For since a *Sphere* is equal to a Pyramid, whose Base is the Surface, and its Altitude the Radius of the *Sphere*: The Surface of the *Sphere* is had by dividing its Solidity by a third Part of its Diameter. If now the Diameter of the Circle be 100, the Area will be 7850; consequently the Solidity 1570000; which divided by a Third of the Semi-

Semi-Diameter, 100, the Quotient is the Surface of the *Sphere* 31400, which is manifestly Quadruple the Area of the Circle.

The *Diameter of a Sphere being given to find its Surface and Solidity.* Find the Periphery of the Circle described by the Radius of the *Sphere.* Multiply this, found, into the Diameter; the Product is the Surface of the *Sphere.* Multiply the Surface by a sixth Part of the Diameter, the Product is the Solidity of the *Sphere.*

Thus supposing the Diameter of the *Sphere* 56, the Periphery will be found 175; which multiplied by the Diameter, the Product 9800 is the Surface of the *Sphere*; which multiplied by one sixth Part of the Diameter, gives the Solidity 919057, or thus;

Find the Cube of the Diameter 175616; then to 300157, and the Cube found, find a fourth Proportional 919057. This is the Solidity of the Sphere required.

A Gentleman was pleased to favour me with the following Method, which he says he used for the Mensuration of a Globe, whose Axis is 21 Inches.

A GLOBE, *whose* Axis *is* 21 *Inches.*

```
      21. Circumference.          21
      66                          21
     ----                        ----
     126                          21
    126                          42
    ----                        ----
    1386                        441
      35½ of the Axis.           21
    ----                        ----
    6930                        441
   4158                        882
   ----                        ----
1728 ) 48510 ( 2 Feet 1395 Inch.  9261
       3456                        11
       ----                       ----
       1395.                      9261
                                 9261
                                 ----
          F.  In.          21 ) 101871 ( 1728
4851  2. 1395                    84
3456                             ----
----                             178
1395                             168
----                             ----
                                  107
                                  105
                                  ----
                                    21
              F. In.              21
              1.75                ----
              1.75                 00
              ----
                875
               1225
               175
              ----
              3.0625
                1.75          9261 Cube of 21
              ----            5236
              153125          ----
             214375           55566
             30625           27783
             ----           18522
             5.359375       46305
                5236        ----
             ----       1728)48490596 ( 2. 1393
             32156250       3456
            16078125        ----
           10718750         1393
1393      26796875          ----
 806      ----------
----      2.8061687500
0507      ----------
```

Before we attempt to give the Method of measuring a *Cylinder*, we must remember, that a *Cylinder* is a solid Body contained under three Surfaces; supposed to be generated by the Rotation of a Parallelogram, about one of its Sides.

If the generating Parallelogram be rectangular, the *Cylinder* introduced will be a right *Cylinder*, i. e. a *Cylinder*, whose Axis is perpendicular to its Base.

If the Parallelogram be a *Rhombus* or *Rhomboides*, the *Cylinder* will be *oblique* or *scabuous.*

The Surface of a *right Cylinder*, exclusive of its Bases, is demonstrated to be equal to a Rectangle contained under the Periphery, and the Altitude of the *Cylinder.*

The Periphery, therefore, of the Base, and thence the Base itself, being found, and multiplied by two, and the Product added to the Rectangle of the Height, and Periphery of the *Cylinder*; the Sum will be the Area or Superficies of the *Cylinder:* Multiply this by the Area of the Base, and the Product will be the Solidity of the *Cylinder.*

For it is demonstrated, that a Circle is equal to a Triangle, whose Base is equal to a Periphery, and Height to the Radius; and also that a *Cylinder* is equal to a triangular Prism, having the same Base and Altitude with itself; its Solidity, therefore, must be had by multiplying the Superficies into the Base.

Again, since a *Cone* may be esteemed an infinite angular Pyramid; and a *Cylinder* an infinite angular Prism; a *Cone* is one third Part of a *Cylinder*, upon an equal Base, and of the same Height.

Further, a *Cylinder* is to a Sphere of the same Base and Altitude, as 3 to 2.

Lastly, it being demonstrated in Mechanicks, that every Figure, whether superficial or solid, generated either by the Motion of a Line, or of a Figure, is equal to the Factum of the generative Magnitude into the Way of its Center of Gravity, or the Line its Center of Gravity describes: Hence, if a Rectangle revolves about its Axis, it will describe a *Cylinder*, and its Side the Surface of the *Cylinder.* But the Center of Gravity of the right Line is in the Middle; and the Center of Gravity of the generating Plane in the Middle of the right Line. The Way of this, therefore, is the Periphery of a Circle described by the Radius, *i. e.* into the Base: But the Solidity of the *Cylinder* is the Factum of the generating Rectangle, into the Periphery of the Circle described by the other Radius, which is subduple of the Semi-diameter of the *Cylinder.*

Suppose, *v. gr.* the Latitude of the describing Plane, and therefore of the *Cylinder* B C $= a$, the Semi-diameter of the Base D C $= r$; then will E G $= \frac{1}{2} r$; and supposing the Ratio of the Semi-diameter to the Periphery $= 1 : m$; the Periphery described by the Radius $\frac{1}{2} r$ will be equal to $\frac{1}{2} m r$. Therefore multiplying $\frac{1}{2} m r$ into the Area of the Rectangle A C $= a r$; the Solidity of the *Cylinder* $= \frac{1}{2} m a r$; but $\frac{1}{2} m a r 2 = \frac{1}{2} r m r a$, and $\frac{1}{2} r m r a$ and $\frac{1}{2} r m r$, the Area of the Circle described by the Radius D G, the Solidity of the *Cylinder*, therefore, is equal to the Factum of the Base and the Altitude.

To *determine the Surface and Solidity of a Cube.* As the Surface of a *Cube* consists of six equal Squares, a Side multiplied by itself, and the Product by six, will give the Superficies; and the same Product again multiplied by the Side, the Solidity.

Hence if the Side of a *Cube* be 10, the Solidity will be 1000; if that be 12, this will be 1728: Wherefore the geometrical Perch being 10 Foot, and the geometrical Foot 10 Digits, *&c.* the *cubick* Perch is 1000 *cubick* Feet; and a *cubick* Foot is 1000 *cubick* Digits, *&c.*

Hence also *Cubes* are in a triplicate Ratio of their Sides, and are equal if their Sides be so.

To *measure the Solidity of a Cone*; find the Solidity of a Prism or Cylinder, having the same Base with the Cone: Which found divided by 3; the Quotient will be the Solidity of a Cone. Thus, *v. gr.* if the Solidity of a Cylinder be 605592960, the Solidity of the Cone will be found 201864320.

As to the *Measure of the Solidity of a truncated Cone*: As the Difference of the Semi-diameter is to the Altitude of the truncated Cone, so is the greater Semi-diameter to the Altitude of the entire Cone. This found, substract the Altitude of the truncated Cone; which will leave that of the Cone taken off. Find the Solidity of the two Cones, substract one from the other; the Remainder,

mainder will be the Solidity of the truncated Cone.

To *find the Solidity of a hollow Body.*—If the Body be comprized in the Number of regular Bodies; the Solidity first of the whole Body, including the Cavity, then that of the Cavity, which is supposed to have the same Figure with the Body itself, is to be found; and the latter being substracted from the former, the Remainder is the Solidity of the hollow Body required.

As to the *measuring of* TIMBER.—*Timber* is usually measured and estimated by the Load or Ton, which is a solid Measure containing 40 Feet of round *Timber*, or 50 of hewn *Timber*. The Denomination of Load, *&c.* we suppose arises hence, that 40 or 50 solid Feet of such *Timber* weighs about a Ton, *i. e.* twenty hundred Weight, which is usually accounted a Cart-Load.

1. For the *measuring of round Timber:* The Practice is to gird the Tree about in the Middle of the Length; and folding the Line twice, to take one Length or Quarter of the Whole, and account that for the true Side of the Square: Then for the Length it is counted from the But-end of the Tree, so far up as the Tree will hold *half a Foot Girt*, as they call it, *i. e.* so long as the Line twice folded is half a Foot.

The Dimensions thus taken, the Quantity of *Timber* is had, either by multiplying the Side of the Square into itself, and that Product by the Length, by the Method of Cross-Multiplication.

Or more easily and speedily on Gunter's Line, by extending the Compasses from 12 to the Side of the Square in Inches; for that Extent turned twice (the same Way) from the Length in Feet, will reach to the Content in Feet.

Or the better still, on *Coggeshal*'s Sliding-Rule, by setting 12 on the Girt-Line D, to the Length in Feet on the Line C. Then against the Side of the Square, on the Girt-Line D, taken in Inches, you have on the Line C the Content of the *Timber* in Feet.

Note, 1. This Method of measuring round *Timber*, tho' common, is yet erroneous, and the Contents found hereby, it is demonstrated is less than the true Contents or Measure in the Ratio of 11 to 14. How to avoid this Error, and measure it justly, I have shewn under the Use of *Coggeshal*'s Sliding-Rule.

2. If the Tree have any great Boughs that are *Timber*, as the Phrase is, *i. e.* which will hold Feet Girt, they are commonly measured, and added to the rest: The Solidity of the whole being thus found, they divide it by 40, which brings it into Loads.

3. In measuring round Timber for Sale, they usually cast away an Inch out of the Square for the Bark, if Oak; so that a Tree 10 Inches square, they only account as if 9; but for Ash, Elm, Beech, *&c.* an Inch is too much.

4. *For the measuring hewn or square Timber*; the Practice is to find the Middle of the Length of the Tree, and there to measure its Breadth, by clapping two Rules, or other strait Things to the Sides of the Tree, and measuring the Distance between them: In the like Manner they measure the Breadth the other Way. If the two be found unequal, they add them together, and take half the Sum for the true Side of the Square.

The Dimensions thus taken, the Content is found, either by Cross-Multiplication, Gunter's Scale, or the Sliding Rule, after the Manner already directed.

The Contents divided by 50, gives the Number of Loads.

If the *Timber* be unequally sided, this Method of measuring is erroneous, always giving the Content more than the Truth; and the more so, as the Difference of the Sides is greater; yet Custom has authorized it.

To measure such *Timber* justly, a mean Proportion should be found between the unequal Sides, and this mean be accounted the Side of the Square.

What we understand in this Treatise by *Solidity*, is a Property of Matter or Body, whereby it excludes every other Body from the Place itself possesses.

Solidity is a Property common to all Bodies, whether solid or fluid: It is usually called *Impenetrability*; but *Solidity* expresses it best; as carrying somewhat more of positive with it than the other, which is a negative Idea.

The Idea of Solidity, Mr. *Locke* observes, arises from the Resistance we find one Body makes to the Entrance of another into its own Place. *Solidity*, he adds, seems the most extensive Property of Bodies; and being that whereby we conceive it to fill Space: It is distinguished from mere Space, by this latter being not capable of Resistance or Motion. It is distinguished from *Hardness*, which is only a firm Cohesion of the solid Parts, so as they may not easily change their Situation.

The Difficulty of changing Situation gives no more Solidity to the hardest Bodies than the softest; nor is a Diamond a Jot more solid than Water. By this we distinguish the Idea of the Extension of Bodies, from that of the Extension of Space: That of Body, is the Continuity or Cohesion of solid, separable, moveable Parts; that of Space the Continuity of unsolid, inseparable, immoveable Parts.

The *Cartesians* however, will, by all Means deduce *Solidity*, or as they call it, *Impenetrability* from the Nature of Extension; and contend that the Idea of the former, is contained in that of the latter; and hence argue against a Vacuum. Thus, say they, one cubick Foot of Extension cannot be added to another, without having two cubick Feet of Extension; for each has in itself all that is required to constitute that Magnitude. And hence they conclude, that every Part of Space is solid or impenetrable, inasmuch as of its own Nature it excludes all others.

But *Solidity*, abstracted from this general and physical Idea, is more properly taken here, for the Quantity of Space contained in a solid Body, called also the solid Content and the Cube thereof, as already explained.

STOCKING-MAKING.

STOCKING-MAKING, is the forming a Kind of Cloathing of the Leg and Foot, which immediately covers their Nudity, and skreens them from the Rigour of the Cold.

Stockings are either knit or wove.

Knit Stockings, are wrought with Needles made of polished Iron, or Brass Wire. There must be five of them, four to hold the Mashes the *Stocking* consists of, and one to work with.

The first Process in knitting *Stockings*, whether they be of Silk, Wool, Cotton, Thread, *&c.* is to twist loosely three Threads together, the *Stockings* made of two Threads only being very slight, and of very little Service. Then you form on each of the four Needles a certain Number of Mashes, greater or less, according to the Size the *Stocking* must be of; observing that there must be an equal Number of Mashes on each Needle; which Number is to be diminished or increased in the Process of the Work, according as the Shape of the *Stocking* requires it. To diminish the Number, they work two or three Mashes together at once.

The Invention of this Operation it were difficult to fix precisely, though it is commonly attributed to the *Scots*, on this Ground, that the first Works of this Kind came from thence. It is added, that it was on this Account, that the Company of Stocking Knitters established at *Paris* in 1527, took for their Patron St. *Fiacre*, who is said to have been the Son of a King of *Scotland*.

Knit Stockings, are far preferable for Service to the woven ones; though they be not so beautiful to the Sight.

The Islands of *Jersey* and *Guernsey* are famous for this Sort of Work; and it is almost their sole Commerce, and the sole Occupation of the female Inhabitants; who are

are so much used to it from their Infancy, that they work with an incredible Quickness, whether they be sitting or walking, and whether in the Dark or in the Light; for they seldom look on their Work. They also knit Breeches, Waistcoats, Petticoats, and the like.

Woven Stockings, are ordinarily very fine; they are manufactured on a Frame or Machine made of polished Iron; the Structure whereof is exceedingly ingenious, but withal exceeding complex, so that it were very difficult to describe it well, by reason of the Diversity and Number of its Parts; nor is it even conceived, without a deal of Difficulty, when working before the Face.

The *English* and *French* have greatly contested the Honour of the Invention of the *Stocking Loom*; but the Matter of Fact (says an *English* Author) waving all national Prejudices, seems to be this, that it was a *Frenchman* first invented this useful and surprizing Machine; who finding some Difficulties in procuring an exclusive Privilege, which he required to settle himself at *Paris*, went over into *England*, where his Machine was admired, and the Workman rewarded according to his Merit.

The Invention thus imparted to the *English*, they became so jealous hereof, that for a long Time it was forbid, under Pain of Death, to carry any of the Machines out of the Island, or communicate a Model thereof to Foreigners. But as it was a *Frenchman* first enriched the *English* Nation with it, so it was a *Frenchmen* first carried it abroad; and by an extraordinary Effort of Memory and Imagination, made a Loom at *Paris* on the Idea he had formed thereof, in a Voyage he made to *England*. This Loom, first set up in the Year 1656, has served for the Model of all those since made in *France*, *Holland*, &c.

Antiently the only *Stockings* in Use, were made of Cloth, or milled Stuffs sewed together; but since the Invention of knitting and weaving *Stockings* of Silk, Wool, Cotton, Thread, *&c.* the Use of Cloth Stockings is quite out of Doors.

SUGAR-REFINING.

SUGAR-REFINING, is the Art of purifying it of all its coarser Particles, and render it drier, more compact, more agreeable to the Palate, and more beautiful.

The first Preparation the Sugar-Canes undergo after they are cut, and their Leaves cleared off, is to be carried in Bundles to the Mills; which Mills consist of three wooden Rollers, covered with Steel Plates; and have their Motion either from the Water, the Wind, Cattle, or even the Hands of Slaves.

The Juice coming out of the Canes when pressed and broke between the Rollers, runs through a little Canal into the Sugar-House, which is near the Mill; where it falls into a Vessel, whence it is conveyed into a Copper or Cauldron, to receive its first Preparation, only heated by a slow Fire to make it simmer. With the Liquor is here mixed a Quantity of Ashes and Quick-lime; the Effect of which Mixture, assisted by the Action of the Fire, is, that the unctuous Parts are separated from the rest, and raised to the Top, in Form of a thick Scum, which is kept constantly skimming off, and serves to feed the Poultry, *&c.* withal.

The Juice, in the next Place, is purified in a second Copper; where a brisker Fire makes it boil; and all the Time the casting up of its Scum is promoted by means of a strong Lye, composed of Lime-water, and other Ingredients.

This done, it is purified and skimm'd in a third Boiler, wherein is cast a kind of Lye, that assists in purging it, collects together its Impurities, and makes them rise to the Surface; whence they are taken with a Skimmer.

From the third it is removed to a fourth Boiler, where the Juice is farther purified by a more violent Fire: And hence to a fifth, where it is brought to the Consistence of a Syrup.

In the sixth Boiler the Syrup receives its full Coction; and here all the Impurities left from the former Lyes, are taken away by a new Lye, and a Water of Lime and Allum cast into it. In this last Copper there is scarce found one Third of what was in the first; the rest being wasted in Scum.

By thus passing successively a Number of Coppers, the Sugar-Juice is purified, thickened, and rendered fit to be converted into any of the Kinds of *Sugar* hereafter mentioned. The Size of the several Coppers always diminishes from the first to the last; each being furnished with a Furnace to give a Heat proportionable to the Degree of Coction the Juice has received. In some large Sugar-works there are also particular Coppers for the boiling and preparing the Scum.

F. *Labat* mentions several Kinds of *Sugars*, prepared in the *Caribbee Islands*, viz. *Crude Sugar*, or *Muscovado*; *strained*, or *brown Sugar*; *earthen*, or *white Sugar* in Powder; *refined Sugar*, either in Powder or Loaves; *royal Sugar*, *candid Sugar*, *Sugar of fine Syrup*, *Sugar of coarse Syrup*; *Sugar of the Scum*.

Crude Sugar, or *Muscovado*, is that first drawn from the Juice of the Cane, and whereof all the rest are composed. The Method of making it, is that already described for *Sugar* in general. We need only add, that when taken out of the sixth Copper, it is put in a Cooler, where stirring it briskly together, it is let stand to settle, till a Crust of the Thickness of a Crown-piece be formed thereon. The Crust being formed, they stir it up again, then put it into Vessels, where it stands to settle till it be fit to barrel.

Strained, or *brown Sugar*, though whiter and harder, does not differ much from the Crude Sugar: Tho' it is held a Medium between this last, and the earthen Sugar; which is the white Powder *Sugar*. The Preparation of this is the same of that of the Muscovado, with this Difference, that to whiten it they strain the Liquor through Blankets, as it comes out of the first Copper. The Invention of *strained Sugar* is owing to the *English*, who are more careful than their Neighbours in the Preparation thereof; for they not only strain it, but when boiled put it in square wooden Forms, or Moulds, of a pyramidal Figure; and when it has purified itself well, they cut it in Pieces, dry it in the Sun, and barrel it up.

As to the Preparation of *earthen Sugar*, (which is that *Sugar* whitened by means of Earth laid on the Top of the Form it is put in, to purge itself) they begin it after the same Manner as that of Crude *Sugar*, except that they only use the best that comes in it; that they work with more Care and Nicety; that when the Liquor is in the first Copper, the Ashes they put in are little or nothing mixt with Lime, for fear of reddening it; and that they strain it through a Blanket, from the first to the second Copper.

Having passed all the six Coppers, it is laden out into a Cooler; whence it is put into conical Moulds or Forms, the Tops whereof are perforated, but now stopped with Linen, or other Stuff; and this ranged even before the Furnace. When it has been a quarter of an Hour in the Forms, it is cut with a Sugar-Knife, then it is stirred briskly this Way, and that for half an Hour.

This serves not only to promote the forming of the Grain, and the diffusing it equally throughout; but also to determine the unctuous Parts of the *Sugar* to mount to the Top, that they may be skimmed off.

They leave the Forms to stand fifteen Hours in this State, and unstop the Holes at the Bottom to give a Passage to the Syrup, and to determine it to take that Way. When enough of these Forms are filled, to fill a Stove, which usually contains five or six hundred Forms; they visit the Sugar in all the Forms to examine the Quality thereof, and to see if it quits the Form easily; that it may either have the Earth given it, as the Refiner who assists it judges proper; or be melted over again, if it does not prove well.

This done, the Forms are planted each on its Pot, with the Tip of the Cone downwards; the Top is taken off,

off, and in lieu thereof they put in some *Sugar* in Grain, to within an Inch of the Edge; which Space is left for the Earth prepared for it.

The Earths here used are of various Kinds, the good Qualities of each whereof are, that they do not tinge the Water, that they let it filtrate easily through, and that they do not imbibe the fatty Part of the *Sugar*. Before put in the Forms, the Earth is steeped in Water twenty-four Hours; and at length applied in the Consistence of a Pulp.

As soon as the Earth is on the *Sugar*, all the Windows of the refining Room are shut, that the Air and Heat may not dry the Earth. When it is quite dry, which usually happens in nine or ten Days Time, it is taken off; and after cleaning the Surface of the Sugar with Brushes, and racking it up an Inch deep, and laying it level as before, they give it a second Earth.

The Whiteness of the *Sugar* of each Form is seen from the first Earth, Experience shewing that a second or third Earth do not make the *Sugar* any whiter, but only whitens the Head of the Loaf. When the second Earth is taken off, they clean the Surface of the *Sugar* with a Brush, and with a Knife loosen the Edge of it, where it sticks to the Form, that neither Form nor the Sugar-loaf be damaged in taking out the latter. The Windows are now opened, and the Form left to stand eight or ten Days to dry. While the *Sugar* is draining in its Forms a Stove is prepared to receive them.

The Stove being sufficiently heated by means of the Furnace therein; the Loaves are taken out of the Forms one after another; and such as are white from one End to the other, are carried to the Stove, as are also the rest, after cutting off what is not white, to be further refined.

When the Loaves are all ranged in the Stove, a moderate Fire is made for about two Days, during which Time they visit every Part of the Stove very carefully, to see that every Thing is in good Order, and to repair every Thing that may go amiss. After these two Days they shut the Trap-door a-top of the Building, and increase the Fire. Eight or ten Days and Nights continued violent Fire usually suffice to dry a Stove of *Sugar*.

When they judge it sufficiently done, they open the Trap-door, and chuse a hot dry Day to pound the *Sugar*, which is performed with huge, hard, heavy wooden Pestles; when pounded it is put up in Barrels, and well trodden down as it is put in, that the Barrels may hold the more.

Sugar of the Scum, is all made of the Scum of the two last Coppers; that of the former being reserved for making of Rum.

The Scum designed to make *Sugar* is kept in a Vessel for that Purpose, and boiled every Morning in a Copper set apart for that Use. With the Scum is put into the Copper a fourth Part of Water, to retard the Boiling, and give Time for its purging; when it begins to boil, the usual Lye is put in, and it is carefully skimmed: When almost enough boiled, Lime and Allum-water are thrown in. And when it is ready to be taken out, they sprinkle it with a little powder'd Allum.

There are three Kinds of Syrup that run from *Sugar*. The first from the Barrels of raw *Sugar*, which is the coarsest of all: The second from the Forms or Moulds after they are perforated, and before they receive their Earth: The third, that coming from the Forms after they have had their Earth, which last is the best.

The coarse Syrups should only be used for Rum; but *Sugar* being grown dear, Endeavours have been used to make some hereof, and that with tolerable Success. They are first clarified with Lime-water, and when boiled are put up in Barrels, with a Sugar-Cane in the Middle to make them purify themselves. After twenty Days a Quantity of coarse Earth is thrown in, to make them cast the Remainder of their Syrup, and fit them to be returned into a crude *Sugar*. The *Dutch* and *German* Refiners first taught the Islanders how to make this *Sugar of Treacle*.

The second Syrup is wrought somewhat differently; after the Copper it is to be boiled in is half full, eight or ten Quarts of Lime-water are cast in: It is then boiled with a brisk Fire, and carefully skimmed: Some add a Lye, and others none. Father *Labat* takes the former Method to be the better, though it requires more Trouble and Attention. This *Sugar* may be earthed alone, or at least with the Heads of Loaves, the dried Tops, and such other Kinds of *Sugars*, as may not be mixed with the true earthed *Sugar*, nor yet with the crude *Sugar*.

For the third Syrup, after boiling and skimming it as the former, they put it instantly into Coolers, the Bottoms whereof are covered, half an Inch thick, with white *Sugar* very dry, and well pounded; and the whole is well stirred, to incorporate the two together. This done, they strew the Surface over with the same pounded *Sugar*, to the Thickness of one Fifth of an Inch, this assisting the *Sugar* in forming its Grain. When settled, and the Crust gathered at the Top, a Hole is made in the Crust five or six Inches Diameter.

By this Aperture they fill the Cooler, with a new Syrup poured gently in, which insensibly raises up the former Crust. When all the Syrups are boiled, and the Cooler is full, they break all the Crusts; and after mixing them well put it up in Forms or Moulds.

The rest is performed in the same Manner as for the earthed *Sugar*, from which it only differs in that it falls short of its Gloss and Brightness; being in Reality sometimes whiter and finer, though of a flatter and duller White.

Crude *Sugar*, strained *Sugar*, and the Tops, or Heads of Loaves that have not whitened well, are the Basis or Ground of refined Sugar.

In a Refinery are usually two Coppers, the one serving to clarify, the other to boil the clarified Liquor; tho' sometimes they clarify in both, and boil afterwards.

For the *Operation of Refining*, the same Weight of Lime-water, and of *Sugar*, are put in the Copper; and as the Scum is raised by the Heat it is taken off, and when it ceases to raise any more, the Syrup is strained through a Cloth. After this it is clarified, that is, a Dozen of Eggs is thrown in, White, Yolks, Shells and all; after having first broke and beaten them well in Lime-water. When the Fat and other Impurities of the *Sugar*, which this Composition gathers together on the Surface of the Syrup, have been skimmed off; a few more Eggs are thrown in, and it is skimmed afresh. This they repeat till the *Sugar* be sufficiently clarified; which done it is again strained thro' the Cloth.

When taken out of this Copper it is boiled in the second; which done, it is put out into Coolers, the Bottoms whereof are first covered half an Inch thick with fine white powdered *Sugar*. As soon as it is there it is briskly stirred about, and the Surface strewed over with pounded *Sugar*. The rest is performed as in *Sugars* of fine Syrups, or in earthed *Sugar*; only more Care and Exactness is used.

For *royal Sugar*, the Basis hereof ought to be the finest refined *Sugar* to be found. This they melt with a weak Lime-water; and sometimes, to make it the whiter, and prevent the Lime from reddening it, they use Allum-water.

This they clarify three Times, and pass as often thro' a close Cloth, using the very best Earth, when prepared with those Precautions it is whiter than Snow, and so transparent, that we see a Finger touching it, even thro' the thickest Part of the Loaf.

Sugar makes a very great Article in Commerce, by reason of the large Consumption thereof; all the Compositions Honey used to enter into, before the Discovery of *America*; and the most Importation of that Commodity from thence, being at present wholly made of *Sugar*, besides what is used in Tea, Coffee, Chocolate, and other like Liquors.

SURVEYING.

SURVEYING, is the Art, or Act of measuring Lands, *i. e.* of taking the Dimensions of any Tract of Ground, laying down the same in a Map or Draught; and finding the Content or Area thereof.

Surveying consists of three Parts of Measures; the first is the taking of the necessary Measures, and making the necessary Observations on the Ground itself: The second, is the laying down of these Measures, and Observations on Paper: And the third, the finding the Area or Quantity of the Ground thus laid down.

The first is what we properly call *Surveying*: The second we call *Plotting*, or *Protacting*, or *Inapping*; and the third *casting up*.

The first again consists of two Parts, *viz.* the making of Observations for the Angles, and the taking of Measures for the Distances.

The former of these is performed by some one or other of the following Instruments, *viz.* the *Theodolite*, *Circumferentor*, *Semicircle*, *Plain Table*, or *Compass*.

The THEODOLITE is a mathematical Instrument, made variously; several Persons having their several Ways of contriving it; each more simple and portable, more accurate, and expeditious than others. The following one is not inferior to any. It consists of a Brass Circle, about a Foot Diameter, cut in Form of *Fig.* 25. having its Limb divided into 360 Degrees, and each Degree divided, either diagonally, or otherwise into Minutes.

Underneath, at *c c*, are fixed two little Pillars, *b b*, *Fig.* 25. *N.* 2. which support an Axis, whereon is fixed a Telescope, consisting of two Glasses, in a square Brass Tube; for the viewing of remote Objects.

On the Center of the Circle, moves the Index C, which is a circular Plate, having a Compass in the Middle, whose Meridian answers to the fiducial Line *a a*: At *b b*, are fixed two Pillars to support an Axis, which bears a Telescope like the former, whose Line of Collimation, answers the fiducial Line *a a*. At each End of either Telescope is fixed a plain Sight for the viewing nearer Objects.

The Ends of the Index *a a*, are cut circularly to fit the Divisions of the Limb B; and when that Limb is diagonally divided, the fiducial Line at one End of the Index, shews the Degrees and Minutes upon the Limb. The whole Instrument is mounted with a Ball and a Socket, upon a three-legged Staff.

Most *Theodolites* have no Telescopes, but only four plain Sights, two of them fastened on the Limb, and two on the Ends of the Index.

The SEMICIRCLE, called also *Graphometer*, consists of a semicircular Limb, as F I G, fig. 16. divided into 180 Degrees, and sometimes subdivided diagonally, or otherwise, into Minutes. This Limb is subtended by a Diameter F G, at the Extremities whereof are erected two Sights. In the Center of the *Semicircle*, or the Middle of the Diameter, is fixed a Box, and on the same Center is fitted an Alidade or moveable Index, carrying two other Sights, as H I. The whole is mounted on a Staff, with a Ball and Socket.

The *Semicircle*, then, is nothing else but half a Theodolite, with this only Difference, that whereas the Limb of the Theodolite being an entire Circle, takes in all the 360° successively; in the *Semicircle*, the Degrees only going from 1 to 18°, it is usual to have the remaining 180°, or those from 180° to 360°, graduated in another Line on the Limb, within the former.

An Angle is taken with a Semicircle; by placing the Instrument in such Manner, as that the Radius C G may hang over one Leg of the Angle to be measured, and the Center C over the Vertex of the same. The first is done by looking through the Sights F and G, at the Extremities of the Diameter, to a Mark fixed up in one Extremity of the Leg: The latter is had by letting Fall a Plummet from the Centre of the Instrument. This done, turn the moveable Index H I on its Center, towards the other Leg of the *Semicircle*, till through the Sights fixed on it, you see a Mark in the Extremity of the Leg. Then the Degree, which the Index cuts on the Limb, is the Quantity of the Angle.

The Plain-Table is an Instrument, fig. 31. N. 1. consisting of a Parallelogram of Wood, about 15 Inches long, and 12 broad; round which goes a boxen jointed Frame, by Means whereof a Sheet of Paper is fastened tight to the Table, so as Lines may be conveniently drawn upon it.

On each Side the Frame, which may be put on either Side upwards, towards the inward Edge, are Scales of Inches, subdivided, for the ready drawing of parallel Lines. Besides which, on one Side are projected the 360 Degrees of a Circle, from a Brass Centre in the Middle of the Table (each Degree halved) with two Numbers to every tenth Degree, the one expressing the Degree, the other its Complement to 36°, to save Substraction on the other Side, are projected the 180° of a Semicircle, from a Brass Center in the Middle of the Table's Length, and at $\frac{1}{4}$ of its Breadth; each Degree halved, and every Tenth noted with two Numbers, *viz.* the Degree, and its Complement to 180°.

To one Side of the Table is fitted a Compass, for placing the Instrument by; and the whole is fixed by a Socket, upon a three-legg'd Staff for a Stand, on which it is turned round, or fastened by a Screw, as Occasion requires. Lastly, to the Table belongs an Index, which is a Ruler, at least sixteen Inches long, and two broad; usually graduated with Scales, *&c.* and having two Sights perpendicularly placed on its Extremities.

Note, That we understand here by Sights two thin Pieces of Brass, raised perpendicularly on the two Extremes of an Alidade, or Index of a Theodolite, Circumferentor, or other like Instrument, each whereof has an Aperture or Slit up the Middle, through which the visual Rays pass to the Eye, and distant Objects are seen. Their Use is for the just Direction of the Index to the Line of the Object. Sometimes the Slits or Apertures have Glasses or Lens's fitted into them; in which Case they are called *Telescopick Sights*, by Way of Distinction from the former, which in Respect hereof are denominated *plain Sights*.

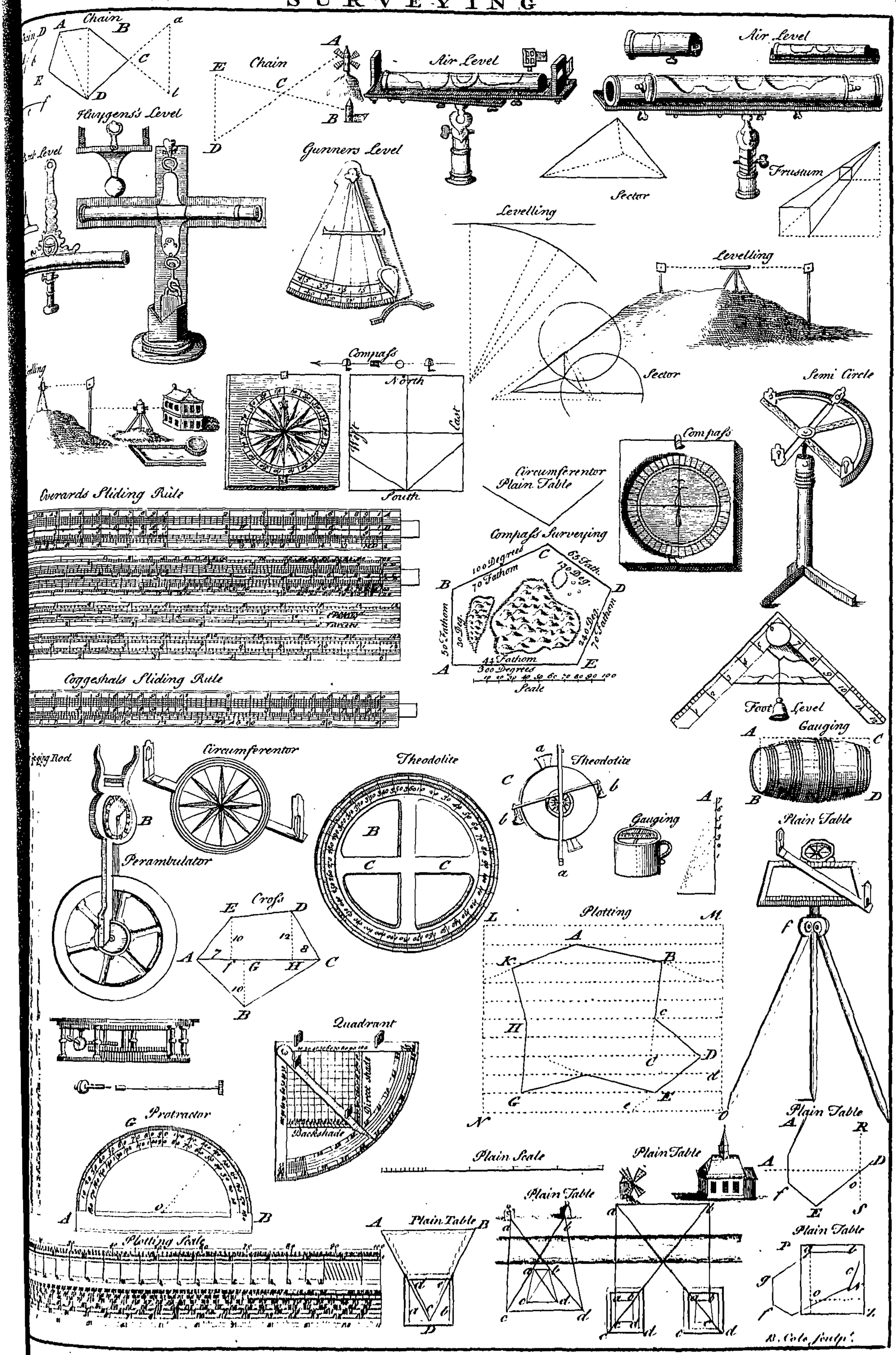
Staff, in Surveying, is a Kind of Stand, whereon to mount a Theodolite, Circumferentor, plain Table, or the like, for Use. It consists of three Legs of Wood joined together at one End, whereon the Instrument is placed; and made peeked at the other, to enter the Ground. Its upper End is usually fitted with a Ball and Socket.

Ball and Socket, is a Machine, contrived to give an Instrument full Play and Motion every Way. It consists of a Ball or Sphere of Brass, fitted within a concave Semi-Globe, so as to be moveable every Way, both horizontally, vertically, and obliquely. It is carried by an endless Screw, and is principally used for the managing of surveying Instruments; to which it is a very necessary Appendage. The antient *Balls and Sockets*, had two Concaves or Channels, the one for the horizontal, the other for the vertical Direction. But to proceed to *the Use of the plain Tables*, after we have given the Description thereof.

To take an Angle by the *plain Table*, or to find the Distance of two Places accessible by the same Third.—Supposing D A, D B, fig. 32. *N.* 2. the Sides of the Angle required; we'll place the Instrument horizontally, as near the Angle as possible; and assume a Point in the Paper on the Table, *v. gr.* to this Point we'll apply the Edge of the Index, turning it about this and that Way, till through the Sights we see the Point B, and in this Situation of the Ruler, we'll draw by its Edge the Line *c e*, indefinitely. Turning about the Index, after the same Manner, on the same Point, till thro' the Lights we see the Point A; and drawing the right Line *c d* indefinitely.—Thus we have the Quantity of the Angle laid down.

We'll next measure the Lines D A, D B, with a Chain, and from a Scale set off the Measures thus found, on the respective

SURVEYING


Chain
Huygens's Level
Chain
Air Level
Air Level
Gunners Level
Sector
Frustum
Levelling
Levelling
Sector
Compass
North
West
East
South
Semi Circle
Compass
Circumferentor
Plain Table
Compass Surveying
100 Degrees
70 Fathom
65 Fath.
130 Deg.
50 Fathom
30 Deg.
240 Deg.
70 Fathom
44 Fathom
300 Degrees
Scale
Foot Level
Gauging
Gerards Sliding Rule
Coggeshals Sliding Rule
Circumferentor
Theodolite
Theodolite
Gauging
Plain Table
Peramblulator
Cross
Plotting
Quadrant
Backshade
Direct shade
Protractor
Plain Scale
Plain Table
Plain Table
Plain Table
Plotting Scale
Plain Table
Plain Table
Plain Table
B. Cole sculp.

respective Lines; which we suppose to reach from *c* to *b*, and from *c* to *a*.—Thus will *c b* and *c a* be proportional to D B and D A.

We'll transfer the Distance *a b* to the same Scale, and find its Length; the Length thus found, will be the Length or Distance of A B requir'd.

If we want to *find the Distance of two Places, one whereof is inaccessible*, by the plain Table: We'll suppose A B, fig. 33. the Distance requir'd, and A the accessible Point. Then we'll place, 1. The *plain Table* in C, looking through the Sights till we see A and B, and drawing *a c* and *c b*, we'll measure the Distance from our Station to A; and set it off from the Scale, upon *c a*. 2. We'll remove the Table to A, placing it so as that the Point *a* representing A, and the Index laid along the Line *a c*, we'll see backward the former Station C.

Note, That in this fixing the Instrument, lies the Use of the Compass; for the Needle will hang over the same Degree of the Card in the first and the second Case; so that some set the Instrument by the Needle alone; others only use it, to shorten the Trouble, by bringing the Instrument nearly to its due Position by Means thereof; and then fixing for good by the back Sight.

3. The Instrument fixed, we'll turn the Sights to B; and draw the Line *a b*.

4. On the Scale we'll measure the Interval *a b*; which will be the Distance of A B required.

But if we should want *to find the Distance of two inaccessible Places by the plain Table*; we would suppose A B, fig. 34. the Distance requir'd. Then chusing, 1. Two Stations in C and D; we would place the *plain Table* in the first C; and through the Sights look to D, B, and A, drawing by the Edge of the Index, the Lines *c d*, *c b*, *c a*. We would, 2. Measure the Distance of the Stations C D; and set this off from a Scale on *c d*. 3. Removing the *Table* from C, we would fix it in D; so as the Point *d* hanging over the Place D, and the Index laying along the Line *c d*, through the Sights, we should see the former Station C. The Instrument thus fixed, we would direct the Sights to A and B; and drawing right Lines *d a* and *d b*. Lastly we would find the Distance of *a b* on the Scale; this would be the Distance of A B required.

After the same Manner may the Distance of any Number of Places be found from two Stations; and thus may a Field, Part of a Country, *&c.* be surveyed.

To *take the Plot of a Field from one Station, whence all the Angles may be seen with the plain Table.*—Placing the Instrument on the Station, assume a Point in the Paper, to represent the same, *v. gr.* C, fig. 21. laying the Edge of the Index to this Point, direct it to the several Angles of the Field, A B C D E F, *&c.* and drawing indefinite Lines by its Edge, towards every Angle, *viz.* C *a*, C *b*, C *c*, *&c.* measure the Distance of each Angle from the Station, *viz.* C A, C B, C C, C D, *&c.* and from a Scale set these off from C on their corresponding Lines; the Extremities thereof will give Points, which being connected by Lines, will represent the Field.

The *Plot of a Field, Wood, or the like, is taken by going round the same, on the plain Table*, by placing the Instrument horizontally at the first Angle, *v. gr.* A, the Needle on the Meridian of the Card; assuming a Point on the Paper to represent it; laying the Index to that Point, and directing it till through the Sights you see a Mark in the Angle B, and drawing an indefinite Line along it; measure the Distance of A and B, and from a Scale set it off on the Line thus drawn; the Extremity of this Distance will represent the Point B. Remove the Instrument to B, where set it so as that the Needle hang over the Meridian of the Cord; and so as the Index laying along the Line last drawn, you see the former Station A through the Sights: Here fasten it, lay the Index to the Point B, and turn it, till through the Sights you see the next Angle C; in this Situation draw a Line as before, measure the Distance B C, and set it off from a Scale on the Line. Remove the Instrument to C, where fixing it by the Needle, and the back Sight, as before, turn the Index on the Point C, till you see the next Angle D; draw the Line, measure, and set off the Distance C D, as before, and remove the *plain Table* to E; where fix it as before, look to the next Angle F, draw the Line, measure, and set off the Distance, *&c.*

In this Manner having compassed the whole Field, you will have its whole Perimeter plotted on the Table; which may be now cast up, and its Contents found.

When in large Parcels of Ground, the Plot is found to exceed the Dimensions of the *plain Table*, and to run off from the Paper; the Sheet must be taken off the Table, and a fresh one put on; the Way of managing which Shifting is as follows. Suppose H, K, M, Z, fig. 35. the Limits of the *plain Table*; so that having laid down the Field from A to B, thence to C and D; you want Room, the Line D E, running off the Paper: Draw as much of the Line D E, as the Paper will well hold, *viz.* D O, and by Means of the Divisions on the Edge of the Frame, draw the Line P Q through G, parallel to the Edge of the Table H M; and through the Point of Intersection O, draw O N parallel to M Z. This done, take off the Frame, remove the Sheet; and clap a fresh one, fig. 36. in its Stead; drawing on it a Line R S, near the other Edge parallel thereto. Then lay the first Sheet on the Table, so as the Line P Q lye exactly on the Line R S, to the best Advantage, as at O. Lastly, draw as much of the Line O D, on the fresh Sheet, as the Table will hold; and from O continue the Remainder of the Line D to E; from E proceed with the Walk as before to F, G, and A.

The great Inconveniency of the *plain Table* is, that its Paper renders it impractable in moist Weather. Even the Dew of the Morning and Evening is found to swell the Paper considerably, and of Consequence to stretch and distort the Work. To avoid this Inconvenience, and render the Instrument useful in all Weathers; by leaving off the Paper, and setting up a Pin in the Center, it becomes a Theodolite, a Semicircle, or a Circumferentor, and applicable like them.

The *plain Table* stripped of its Paper, becomes either a Theodolite, or a Semicircle, as that Side of the Frame which has the Projection of the Degrees of a Circle, or a Semicircle, is turned upwards. If it be to serve for a Theodolite; the Index, which as a *plain Table*, turns on any Point as a Center, is constantly to turn about the Brass Center Hole, in the Middle of the Table.

If for a Semicircle, it must turn on the other Brass Center Hole; in both Cases it is done by Means of a Pin raised in the Holes.

When the *plain Table* is to serve as a Circumferentor, screw the Compass to the Index, and both of them to the Head of the Staff, with a Brass Screw Pin fitted for the Purpose; so as the Staff and Table standing fixed, the Index, Sights, *&c.* may be turn'd about, and *vice versâ*.

To *take an Angle by the plain Table considered as a Theodolite.*—Suppose the Quantity of the Angle E K G, fig. 20. is required. Place the Instrument, or K, the Theodolite Side of the Frame upwards, laying the Index on the Diameter. Turn the whole Instrument about, the Index remaining on the Diameter, till through the Sights you spy E. Screw the Instrument fast there, and run the Index on its Center, till through the Sight you spy G. The Degree here cut on the Frame by the Index, is the Quantity of the Angle sought; which may be laid down on Paper by the Rules of common Protraction.

Thus may you proceed to do every Thing with the *plain Table*, as with the common Theodolite.

If we want to make an Angle with a plain Table, consider'd as a Semicircle. We must proceed in the same Manner with the Instrument, consider'd as a Semicircle, as when consider'd as a Theodolite; only laying the Semicular Side upwards, and turning the Index on the other Center-Hole in the Middle of the Length, and at about $\frac{1}{4}$ of the Breadth of the Table.

If you want to take an Angle with the plain Table considered as a Circumferentor. Suppose the former Angle E K G, requir'd. Place the Instrument in K, the Flower-de-luce towards you. Direct the Sights to E, and observe the Degree cut by the South End of the Needle, which suppose 296, turn the Instrument about, the Flower-de-luce still towards you. Direct the Sights to G, noting the Degree cut by the other End of the Needle, which suppose 182. Substract the less from the greater, the

the Remainder 114° is the Quantity of the Angle sought. If the Remainder chance to be more than 180°, then it must be again substracted from 360. This second Remainder will be the Angle required; which may be protracted, &c.

Thus you may proceed to do every Thing with the plain Table, as with the common *Circumferentor*.

The CIRCUMFERENTOR, is an Instrument used in *Surveying* to take Angles by.

The *Circumferentor* is very simple, yet expeditious in the Practice; it consists of a Brass Circle, and an Index, all of a Piece (fig. 19.) On the Circle is a Card or Compass divided into 360 Degrees; the meridian Lines whereof answers to the Middle of the Breadth of the Index. On the Limb, or Circumference of the Circle is soldered a Brass Ring; which, with another fitted in a Glass, make a kind of Box for the Needle, which is suspended on a Pivot in the Center of the Circle. To each Extreme of the Index is fitted a Sight.

The whole is mounted on a Staff; with a Ball and Socket for the Conveniency of its Motion.

If we want to take an Angle by the Circumferentor. Suppose E K G (fig. 20.) the Angle required, we'll place the Instrument, *v. gr.* at K, with the Flower de luce on the Card towards us; then direct the Sights, till thro' them we spy E; and observe what Degree is pointed at by the South End of the Needle, which suppose 296, then turn the Instrument, the Flower de luce still towards us, and direct the Sights to G; noting the Degree, at which the South End of the Needle points, which suppose 182.

This done, substracting the lesser Number 182, from the greater 296, the Remainder 114, is the Number of Degrees of the Angle E K G.

If the Remainder chance to be more than 180 Degrees, it must be again substracted from 360 Degrees; the last Remainder is the Quantity of the Angle sought.

To take the Plot of a Field, Wood, &c. by the Circumferentor; suppose A B C D E F G K (fig. 21.) an Inclosure to be surveyed by the *Circumferentor*.

1. Placing the Instrument at A, the Flower de luce towards you, direct the Sights to B; where, suppose the South End of the Needle to cut 191°; and the Ditch, Wall, or Hedge, measured with the Chain, to contain 10 Chains, 75 Links, which enter down.

2. Placing the Instrument at B, direct the Sight as before to C; the South End of the Needle, *v. gr.* will cut 279°; and the Line B C contains six Chains, 83 Links, to be noted as before. Then move the Instrument to C; turn the Sights to D, and measure C D as before.

In the same Manner proceed to D, E, F, G, H, and lastly to K; still noting down the Degrees of every Bearing or Angle, and the Distances of every Side.

Having thus gone round the Field, you will have a Table in the following Form.

Stations.	*Degrees.*	*Min.*	*Chains.*	*Links.*
A	191	00	10	75
B	279	00	6	83
C	216	30	7	82.

From this Table the Field is to be plotted or protracted; the Manner whereof we'll see hereafter.

Note, That where Security is to be consulted rather than Dispatch, it may be convenient to take Back sights, *i. e.* to place the Instrument so at each Station, as that looking backwards through the Sights to the last Station, the North End of the Needle may point to the same Degree, as the South End did in looking forwards from the last Station to this.

The COMPASS used in *Surveying*, is in the main much like the Mariner's *Compass*; consisting, like that of a Box and Needle: The principal Difference consist in this, that instead of the Needle being fitted into the Card, and playing with it on a Pivot, it here plays alone; the Card being drawn on the Bottom of the Box, and a Circle divided into 360 Degrees on the Limb (fig. 15.) This Instrument is of obvious Use to Travellers, to direct them in their Road; and to Miners, to shew them what Way to dig, &c. but it has other Uses, though less easy, yet more considerable, *viz.*

1. *To take the Declination of a Wall by the Compass.* Apply that Side of the Compass whereon the North is marked along the Side of the Wall; the Number of Degrees over which the North End of the Needle fixes, will be the Declination of the Wall, and on that Side, *v. gr.* if the North Point of the Needle tends towards the Wall, that Wall may be shone on by the Sun at Noon; if it fixes over 50 Degrees, counting from the North towards the East, the Declination is so many Degrees from the North towards the East.

But since the Needle itself declines from the North towards the West with us, 13°; it must be noted that to retrieve the Irregularity, 13° are always to be added to the Degrees shewn by the Needle, when the Declination of the Wall is towards the East; on the contrary, when the Declination is towards the West, the Declination of the Needle to be substracted.

2. If we want to take an Angle with the Compass. Suppose the Angle required be D A E (fig. 11.) we'll apply the Side of the *Compass* whereon the North is marked, to one of the Lines A D, observing, when the Needle rests, the Degrees at which its North Point stands, which suppose 80: So many Degrees does the Line decline from the Meridian.

In the same Manner take the Declination of the Line A E, which suppose 215°; substract 80° from 215, the Remainder is 135; which substracted from 188, there will remain 75°, the Quantity of the Angle required.

But if the Difference between the Declination of the two Lines exceed 180°; in that Case 180° must be substracted from that Difference: The Remainder is the Angle required. We'll see the Method of laying this on Paper, when I'll speak of Plotting.

Note, That in measuring Angles by the *Compass*, there needs not any Regard to be had to the Variation; that being supposed the same in all the Lines of the Angles.

3. If it be wanted to *take the Plot of a Field by the Compass.* Suppose A, B, C, D, E, (fig. 12.) to be the Field. For the greater Accuracy let there be two Sights fitted to the meridian Line of the *Compass*, place it horizontally, and through the Sights look along the Side A B, or a Line parallel to it; applying the Eye to the Sight at the South Point of the *Compass*, draw a rough Sketch of the Field by the Eye, and on the corresponding Line enter down the Degree to which the Needle points, which suppose 90; measure the Length of the Side, and enter that too, which suppose 10 Chains.

In this Manner proceed with all the rest of the Sides and Angles of the Field; the Sides which suppose 70, 65, 70, 50, 94 Chains; and the Angle which suppose 30, 100, 130, 240, 300 Degrees.

To protract the Field, set down the several Angles observed one after another, and substract the lesser from the next greater: Thus will you have the Quantity of the several Angles, and the Length of the Lines that will include them. More of this under the Article Plotting.

Note, That all the Angles of the Figure taken together, must make twice as many right Angles, abating two.

Note, also, That we have thus far given the Description of the Instruments used in the former Part of the first Branch of *Surveying*; and of the different Uses thereof; therefore we proceed to the Explication of the latter Part of our first Division.

The *latter Part* is performed by means either of the *Chain*, or the *Perambulator*.

The PERAMBULATOR, is an Instrument for the measuring of Distances, called also *Pedometer*, *Way wiser*, and *Surveying Wheel*. Its Advantages are its Handiness and Expedition: Its Contrivance is such, that it may be fitted to the Wheel of a Coach; in which it performs its Office, and measure the Road without any Trouble at all. There is some Difference in its Make: That now most in Use as most convenient, is as follows.

The *Perambulator* (fig. 23.) consists of a Wheel two Feet seven Inches and a half in Diameter; consequently half a Pole, or eight Foot and three Inches in Circumference. On one End of the Axis is a Nut three Quarters

ters of an Inch in Diameter, divided into eight Teeth, which upon moving the Wheel round, falls into the eight Teeth of another Nut *c*, fixed on one End of an Iron Rod Q, and thus turn the Rod once round, in the Time the Wheel makes one Revolution. This Rod laying along a Groove in the Side of the Carriage of the Instrument, has at its other End a square Hole, into which fixes the End *b*, of the little Cylinder P. This Cylinder is disposed under the Dial-plate of a Movement, at the End of the Carriage B, in such Manner as to be moveable about its Axis. Its End *a* is cut into a perpetual Screw, which falling into the thirty two Teeth of a Wheel perpendicular thereto; upon driving the Instrument forward, that Wheel makes a Revolution, each sixteen Poles. On the Axis of this Wheel is a Pinion with six Teeth, which falling into the Teeth of another Wheel of sixty Teeth, carries it round every hundred and sixtieth Pole, or half a Mile.

This last Wheel then carrying a Hand or Index round with it, over the Divisions of the Dial-plate whose outer Limb is divided into one hundred and sixty Parts, corresponding to the one hundred and sixty Poles; points out the Number of Poles passed over. Again, on the Axis of this last Wheel is a Pinion containing twenty Teeth, which falling into the Teeth of a third Wheel that has forty Teeth, drives once round in three hundred and twenty Poles, or a Mile. On the Axis of this Wheel is a Pinion of twelve Teeth, which falling into the Teeth of a fourth Wheel that has seventy-two Teeth, drives it once round in twelve Miles.

This fourth Wheel carrying another Index, over the inner Limb of the Dial-plate, divided into twelve, for Miles, and each Mile subdivided into Halves, Quarters, and Furlongs, serves to register the Revolutions of the other Hand; and to keep Account of the half Miles and Miles passed over, as far as twelve Miles.

The *Application* of this Instrument is obvious from its Construction. Its proper Office is in the surveying of Roads, and large Distances, where a great deal of Expedition, and not much Accuracy is required. It is evident that driving it along, and observing the Hands, has the same Effect as dragging the *Chain*, and taking Account of the Chains and Links.

The CHAIN, in *Surveying*, is a Measure consisting of a certain Number of Links of Iron Wire, usually 100; serving to take the Dimensions of Fields, *&c.* by. This is what *Mersene* takes to be the *Arvipendium* of the Antients.

The *Chain* is of various Dimensions, as the Length or Number of Links varies: That commonly used in measuring Land, called *Gunter*'s *Chain*, is in Length four Poles or Perches, or sixty-six Foot, or a hundred Links, each Link being seven Inches $\frac{72}{100}$.

That ordinarily used for large Distances, is in Length 100 Feet; each Link one Foot.

For small Parcels, as Gardens, *&c.* is sometimes used a small *Chain* of one Pole, or sixteen Feet and a half in Length; each Link one Inch $\frac{98}{100}$.

Some in lieu of *Chains* use Ropes; but these are liable to several Irregularities; both from the different Degrees of Moisture, and of the Force which stretches them. *Schwenterus*, in his practical Geometry, tells us, he has observed a Rope sixteen Foot long, reduced to fifteen in one Hour's Time, by the mere falling of a hoar Frost. To obviate these Inconveniencies, *Wolfius* directs, that the little Strands whereof the Rope consists, be twisted contrary Ways, and the Rope dipped in boiling-hot Oil, and when dry drawn through melted Wax. A Rope thus prepared will not get or lose any Thing in Length, even though kept under Water all Day.

The Manner of applying the *Chain* in measuring Lengths is too popular to need Description. In entring down the Dimensions taken by the *Chain*, the Chains and Links are separated by a Dot: Thus a Line sixty-three *Chains* fifty-five Links long, is wrote 63, 55. If the Links be short of 10, a Cypher is prefixed, thus 10 Chains, 8 Links, are wrote 10. 08.

If we want to *find the Area of a Field*, &c. *the Dimensions whereof are given in Chains and Links.* 1. We multiply the Lines by one another, and from the Product we cut off five Figures towards the Right; those remaining on the Left will be Acres. 2. We multiply the five Figures cut off by four; and cutting off five again from the Product on the Right, those remaining on the Left will be Roods. Lastly, we multiply the five thus cut off by forty; and cutting off five as before on the Right, those remaining at the Left are square Perches.

To *take an Angle* D A E (fig. 1.) by the Chain: measure a small Distance from the Vertex A along each Leg, *v. gr.* to *d* and *c*; then measure the Distance *d c*: To lay this down, draw A E at Pleasure, and from your Scale set off the Distance measured on it. Then taking in your Compasses the Length measured on the other Side, on the Vertex A, as a Center, describe an Arch *d c*; and on the Point *c*, as a Center, with the measured Distance of *c d*, describe another Arch *a b*; through the Point where this intersects the former Arch, draw a Line A D. So is the Angle plotted; and its Quantity, if required, may be measured on a Line of Chords.

If we want to *take the Plane or Plot of any Place*, as A B C D E (fig. 2.) *by the* Chain. We'll draw a rough Sketch of the Place by the Eye; and measuring the several Sides A B, B C, C D, D E, we'll enter down the Lengths on the respective Lines: Then if the Plan be to be taken within-side of the Place, instead of measuring the Angles, as before, measure the Diagonals A D, B D. Thus will the Figure be reduced into three Triangles, whose Sides are all known, as in the former Case; and may be laid down on Paper, according to the Method above.

If the Plan be to be taken without-side the Place, the Angles must be taken thus, *v. gr.* for the Angle B C D, produce the Lines B C and C D, to any certain equal Distance, *v. gr.* to *a* and *b*, five *Chains*; and measure the Distance of *a b*. Thus have you an Isosceles Triangle *c a b*, wherein the Angle *a c b*=B C D, its opposite one is had. Thus is the Quantity of B C D found, and the Angle laid down as before.

To *find, by the Chain the Distance between two Objects inaccessible in respect of each other.* From some Place, as C (fig. 3.) whence the common Distance to each Object A and B, is accessible in right Line; measure the Distance C A, which suppose fifty *Chains*, and continue the Line to D, *viz.* fifty more: Measure also B C, which suppose thirty Chains; and produce the Line to E, *viz.* thirty more. Thus will be formed the Triangle C D E, equal and similar to the Triangle A B C; consequently the Distance D E being measured, will give the inaccessible Distance required.

By the Chain to find the Distance of an inaccessible Object, v. gr. the Breadth of a River. On one Side place a Pole, four or five Foot high, perpendicularly, having a Slit a-top, with a strait Piece of Wire, or the like, two or three Inches long; put through the same. This is to be slipped up or down, till looking along it, you find it point full on the other Side of the River; then turning the Pole with the Wire in the same Direction, observe the Point on the dry Land, to which it points when looked along as before: Measure the Distance from the Pole to this last Point; it is the same with that of the first required. Thus far we have done with the *first Branch of Surveying*, properly so called.

The *second Branch of Surveying* is performed by Means of the *Protractor* and *Plotting Scale.*

The PROTRACTOR, in *Surveying*, is an Instrument, whereby the Angles taken in the Field with a Theodolite, Circumferentor, or the like, are plotted, or laid down on Paper.

The *Protractor* consists of a semicircular Limb B A G, fig. 29. of Brass, Silver, Horn, or the like, divided into 180°, and subtended by a Diameter B A; in the Middle whereof is a little Notch or Lip *o*, called *the Centre of the Protractor.*

On the Limb of the *Protractor* are sometimes also placed Numbers, denoting the Angles at the Centers of regular Polygons: Thus, against the Number 5, denoting the Sides of a Pentagon, is found 72, the Angle at the Center of a Pentagon.

As to *the Use of the Protractor.*—1. To lay down an Angle of any given Quantity or Number of Degrees. Suppose, *e. gr.* an Angle of 50°, with the Line A *o* B, required on the Point *o*, lay the Center of the *Protractor* on the given Line. Make a Mark against the given De-

gree 5°, on the Limb of the *Protractor*; through which from the given Point, draw a Line *o p*; this gives the Angle requir'd.

2. *To find the Quantity of a given Angle*, v. gr. the Angle *p o* A, lay the Center of the *Protractor* on the Point of the Angle *o*, and the Diameter on the Line. The Degree of the Limb cut by the other Line *o p*, viz. 5°, is the Number of Degrees of the Angle requir'd.

3. *To inscribe any given regular Polygon*, e. gr. *a Pentagon in a Circle.* Lay the Center and Diameter of the *Protractor* on the Center, and Diameter of the Circle; and make a Dot against the Number of Degrees of the Angle at the Centre, *viz.* 72. Through this Dot, and the Center of the Circle, draw a Line, cutting the Circumference of the Circle. To the Point of Intersection, from the Point where the Diameter cuts the Circumference, draw a right Line. This Line will be a Side of the Pentagon, which being taken in the Compasses, and set off, as often as it will go in the Circumference, will give Points, which being connected by the Lines, will form the Pentagon requir'd.

4. *To describe any regular Polygon*, e. gr. *an Octagon, on a given Line.* Substract the Angle at the Center, which the *Protractor* gives, 45° from 180°, the Remainder 135° is the Angle included between two Sides of the Octagon; one half whereof, is 67½, applying then the Diameter of the *Protractor* over the given Line, with the Center over one Extreme; make a Dot against 67½, to which from the Center draw a Line. Apply the *Protractor* to the other End of the Line, so as the Center be over the Extreme, and there set off another Angle of 67½. From the Point where the two Lines, thus drawn, intersect as a Center, describe a Circle with the Interval of the given Line. The given Line will be one Side of the Octagon, which being set off as often as it will go in the Circumference thus drawn, will give Points, which being connected, will form the Octagon requir'd.

The PROTRACTOR *improved*, is an Instrument much like the former, only furnished with a little more Apparatus, whereby we are enabled to set off an Angle to a Minute; which is impracticable in the other.

The chief Addition is an Index fitted on the Center, and moveable thereon; so as to play freely and steadily over the Limb. Beyond the Limb, the Index is divided on both Edges, into 60 equal Parts of the Portions of Circles, intercepted by two other right Lines drawn from the Center; so as each makes an Angle of one Degree, with Lines drawn to the assumed Points from the Center.

To set off an Angle of any Number of Degrees and Minutes, with this *Protractor*. Move the Index so that one of the Lines drawn on the Limb, from one of the fore-mentioned Points, may fall upon the Number of Degrees given; and pick off as many of the equal Parts on the proper Edge of the Index, as there are Minutes given; thus drawing a Line from the Center to that Point so pricked off, you have an Angle with the Diameter of the *Protractor* of the proposed Number of Degrees and Minutes.

Indeed it may be of good Use to lay down an Angle to a Minute, when we are able to take it to a Minute: But till we have other Sort of Needles, and juster Theodolites, than are yet made, the old *Protractor* may serve very well.

The PLOTTING *Scale* is an Instrument usually made of Wood, sometimes of Brass, or other Matter; and either a Foot, or half a Foot long. On one Side of the Instrument, fig. 32. are seven several Scales or Lines, divided into equal Parts. The first Division of the first Scale is sub-divided into ten equal Parts, to which is prefixed the Number 10, signifying that 10 of those Sub-divisions make an Inch; or that the Divisions of that Scale are Decimals of Inches.

The first Division of the second Scale is likewise subdivided into 10, to which is prefixed the Number 16, denoting that 16 of those Divisions make an Inch. The first Division of the third Scale is subdivided in like Manner into 10, to which is prefixed the Number 20. To that of the fourth Scale is prefixed the Number 24: To that of the fifth 32; that of the sixth 40; that of the seventh 48; denoting the Number of Subdivisions equal to an Inch, in each respectively.

The two last Scales are broken off before the End, to give Room for two Hours of Chords marked by the Letter *c c*.

On the Back-side of the Instrument is a diagonal Scale, the first of whose Divisions, which is an Inch long, if the Scale be a Foot, is subdivided, diagonally, into 100 equal Parts. At the other End of the Scale is another diagonal Subdivision, of half the Length of the former, into the same Number of Parts, *viz.* 100.

Next the Scales is a Line divided into a hundredth Part of a Foot, number'd 10, 20, 30, *&c.* and a Line of Inches divided into tenth Parts, marked 1, 2, 3, *&c.*

The *Plotting-Scale* is used in the following Manner.— 1. *Any Distance being measured with the Chain, to lay it down on a Paper.*— Suppose the Distance to be 6 Chains, 50 Links, draw an indefinite Line; set one Foot of the Compasses at Figure 6, on the Scale, *e. gr.* the Scale of 20 in an Inch, and extend the other to 5 of the Subdivisions, for the 50 Links: This Distance being transferred to the Line, will exhibit the 6 Chains, 50 Links, requir'd.

If it be desired to have 6 Chains, 50 Links, take up more or less Space, take them off from a greater or lesser Scale, *i. e.* from a Scale that has more or less Divisions in an Inch.

To find the Chains and Links contained in a right Line, e. gr. *that just drawn, according to any Scale*, e. gr. *that of 20 in an Inch.*—Take the Length of the Line in the Compasses, and applying it to the given Scale, you will find it extend from the Number 6 of the great Divisions, to 5 of the small ones: Hence the given Line contains 6 Chains, 50 Links.

From this *Plotting Scale*, this second Branch of *Surveying*, borrows its Name of *Plotting*.

In *Surveying* with the *plain Table*, the Plotting is saved; the several Angles and Distances being laid down on the Spot, as fast as they are taken, as we have observed in the first Branch of *Surveying*.

But in working with the Theodolite, Semicircle, or Circumferentor, as the Angles are taken in Degrees; and the Distances in Chains, and Links; there remains an After-Operation, to reduce those Numbers into Lines, and so to form a Draught, Plan, or Map; which Operation is called *Plotting*.

Plotting, then, is performed by Means of two Instruments, the *Protractor*, and *Plotting Scale*. By the former, as already observed, the several Angles observed in the Field with a Theodolite, or the like, and enter'd down in Degrees in the Field-Book, are protracted on Paper, in their just Quantity.

By the latter, the several Distances, measured with the Chain, and enter'd down in like Manner in the Field-Book, are laid down in their just Proportion.

Therefore having given already severally the Use of those respective Instruments, in the laying down of Angles and Distances; I shall here give their Use conjointly, in the *Plotting* of a Field, surveyed either with the Circumferentor or Theodolite.

The *Method of Plotting from the Circumferentor*, is thus. Suppose an Inclosure, *e. gr.* A B C D E F G H K, fig. 21. to have been surveyed; and the several Angles; as taken by a Circumferentor in going round the Field, and the Distances as measured by a Chain, to be found enter'd in the Field-Book, as in the following Table:

	Deg.	*Min.*	*Chains.*	*Links.*
A	191	00	10	75
B	197	00	6	83
C	260	30	7	82
D	325	00	6	96
E	12	24	9	71
F	324	30	7	54
G	98	30	7	54
H	71	00	7	78
K	161	30	8	22.

1. On a Paper of the proper Dimensions, as L M N O, fig. 31. draw a Number of parallel and equi-distant Lines, representing Meridians, expressed in dotted Lines. Their Use is to direct the Position of the Protractor; the

the Diameter whereof must always be laid, either upon one of them, or parallel thereto; the semi-circular Lines downwards for Angles greater than 180°, and upwards for those less than 180°.

The Paper thus prepared; assume a Point on some Meridian, as A, whereon lay the Center of the Protractor, and the Diameter along the Line. Consult the Field-Book for the first Angle, *i. e.* for the Degree cut by the Needle at A, which the Table gives you, 191°.

Now, since 191° is more than a Semicircle or 180°, the Semicircle of the Protractor is to be laid downwards; where keeping it to the Point, with the *Protracting Pin*, make a Mark against 191; through which Mark, from A, draw an indefinite Line A *b*.

The first Angle thus protracted, again consult the Book, for the Length of the first Line A B, this you find 10 Chains, 75 Links. From a convenient Scale, therefore, on the *Plotting Scale*, take the Extent of 10 Chains, 75 Links, between the Compasses; and setting one Point in A, mark where the other falls in the Line A *b*, which suppose in B; draw therefore the full Line A B, for the first Side of the Inclosure.

Proceed then to the second Angle; and laying the Side of the Protractor on the Point B, with the Diameter, as before directed, make a Mark, as *c*, against 297°, the Degrees cut at B, and draw the indefinite Line B *c*. On this Line, from the *Plotting Scale*, as before, set off the Length of your second Line, *viz.* 6 Chains, 83 Links; which extending from B to the Point C, draw the Line B C, for the second Side.

Proceed now to the third Angle or Station: Lay then the Center of the Protractor, as before, on the Point C; make a Mark, as *d*, against the Number of Degrees, cut at C, *viz.* 216; draw the indefinite Line C *d*, and thereon set off the third Distance, *viz.* 7 Chains, 82 Links; which terminating, *e. gr.* at D, draw the full Line C D, for the third Side.

Proceed now to the fourth Angle D, and laying the Center of the Protractor over the Point D, against 325°, the Degree cut by the Needle, make a Mark *e*; draw the dry Line D *e*, and thereon set off the Distance 6 Chains, 96 Links, which terminating in E, draw D E for the fourth Line: And proceed to the fifth Angle, *viz.* E.

Here the Degrees, cut by the Needle, being 10° 24′, (which is less than a Semicircle) the Center of the Protractor must be laid on the Point E, and the Diameter on the Meridian, with the semicircular Line turned upwards. In this Situation make a Mark, as before, against the Number of Degrees, *viz.* 12° 24′ cut by the Needle at E; draw the dry Line E *f*, on which set off the fifth Distance, *viz.* 9 Chains, 71 Links; which extending from E to *f*, draw the full Line E F for the fifth Side of the Inclosure.

After the same Manner proceeding orderly to the Angles F, G, H, and K; placing the Protractor, making Marks against the respective Degrees, drawing indefinite dry Lines, and setting off the respective Distances, as above, you will have the *Plot* of the whole Inclosure A B C, *&c.*

Such is the general Method of *Plotting* from this Instrument; but it must be observed, that in this Process, the stationary Lines, *i. e.* the Lines wherein the Circumferentor is placed to take the Angles, and wherein the Chain is run to measure the Distances, are properly, the Lines here *plotted*. When, therefore, in *Surveying*, the stationary Lines are at any Distance from the Fence or Boundaries of the Field, *&c.* Off-sets are taken, *i. e.* the Distance of the Fence from the stationary Line, is measured at each Station; and even at intermediate Places, if there prove any considerable Bends in the Fence.

In *Plotting*, therefore, the stationary Lines being laid down as above; the Off-sets must be laid down from them, *i. e.* perpendicular of the proper Length, let fall at the proper Places from the stationary Lines. The Extremes of which Perpendiculars being connected by Lines, give the *Plot* desired.

If instead of going round the Field, the Angles, and Distances have been all taken from one Station; the Process of *Plotting* is obvious from the Example above: All here required, being to protract, after the Manner already described, the several Angles and Distances, taken from the same stationary Pin in the Field; from the same Point or Center on the Paper. The Extremities of the Lines thus determined, being then connected by Lines, will give the Plot requir'd.

The Method of *Plotting*, where the Angles are taken by the Theodolite, *i. e.* by Back-sight, and Fore-sight, as it is called, is somewhat different.

To prepare the Angles for *Plotting*, the Quantity of each must first be found, by substracting the Degree of Back-sight, and Fore-sight from each other: The Remainder is the Angle to be protracted.

The Use of parallel Lines is here excluded, and instead of laying the Protractor constantly on, or parallel to Meridians; its Direction is varied at every Angle. The Practice is thus:

Suppose the former Inclosure to have been surveyed with the Theodolite, after the Manner of Back-sight and Fore-sight, and suppose the Quantity of each Angle to be found by Substraction. An indefinite Line is drawn at Random, as A K, fig. 31. and on this the measured Distance, *e. gr.* 8 Chains, 22 Links, set off, as in the former Example: If now the Quantity of the Angle A have been found 140°, the Diameter of the Protractor is to be laid on the Line A K, with the Center over A, and against the Number of Degrees, *viz.* 140, a Mark made, an indeterminate dry Line drawn through it, and the Distance of the Line A B laid down from the Scale thereupon.

Thus we gain the Point B; upon which laying the Center of the Protractor, the Diameter, along with the Line A B, the Angle B is protracted, by making a Mark against its Number of Degrees, drawing a dry Line, and setting off the Distance B C as before.

Thus proceed to C; laying the Diameter of the Protractor on B C, the Center on C, protract the Angle C, and draw the Line C D: Thus proceeding, orderly, to all the Angles and Sides, you will have the Plot of the whole Inclosure A B C, *&c.* as before.

The *third Branch of* SURVEYING, is performed, by reducing the several Divisions, Inclosures, *&c.* into Triangles, Squares, Trapeziums, Parallelograms, *&c.* but especially Triangles; and finding the Areas or Contents of these several Figures, by the following Rules; which I'll begin by those relating to *Areas*.

An AREA is the superficial Content of any Figure.—Thus if a Figure, *e. gr.* a Field be in Form of a Square, and its Side 40 Foot long; its Area is said to be 1600 square Feet, or contain 1600 little Squares, each a Foot every Way.

Hence to find the *Area* of a Triangle, Square, Parallelogram, Rectangle, Trapezium, Rhombus, Polygon, Circle, or other Figure, is to find the Magnitude, or Capacity thereof in square Measure.

To find the *Area* of Fields, and other Inclosures; they first survey or take the Angles thereof, then plot them on Paper, and thus cast up their Contents, Acres, Roods, *&c.* after the usual Manner of other plain Figures.

This last Branch of *Surveying*, belongs more properly to *Trigonometry*: Therefore I'll refer to that Treatise, all that can be said relating to it.

SWIMMING.

SWIMMING, is the Art of sustaining the Body in Water, and advancing therein by the Motion of the Arms, Legs, *&c.*

This Art consists principally in keeping the Head above Water, so that the Mouth and Nose being at Liberty, Respiration may be carried on: For as to the Feet and Hands, it is enough to stir them, and to use them as Oars to conduct the Vessel. This is so very true, that

hat he that learns to ſwim, is commonly attended by a perfect *Swimmer*, who does nothing elſe but hold the Head of his Pupil by the Chin, above the Water, while the Pupil ſtirs his Legs and Hands as he judges proper; though he muſt take particular Care to ſtir both Legs and Arms at the ſame Time, and keep them well extended.

Fiſhes have an Advantage to ſuſtain themſelves at any Depth of Water, which all other Animals are deprived of; and that is a Veſicle of Air incloſed in their Bodies, called a *Swimming-Bladder*; for the Air in that Bladder being more or leſs compreſſed, according to the Depth the Fiſh ſwims at, and take more or leſs Space; and conſequently the Body of the Fiſh, Part of whoſe Bulk this Bladder is, is greater or leſſer, according to the ſeveral Depths; and yet retains the ſame abſolute Weight.

Now the Rule *de inſidentibus humido* is, that a Body heavier than ſo much Water, as is equal in Quantity to the Bulk of it, will neceſſarily ſink; a Body that is lighter will ſwim; and a Body of equal Weight will reſt in any Part of the Water.

By this Rule, if the Fiſh in the middle Region of the Water be of equal Weight with Water, Bulk for Bulk; the Fiſh will reſt there without any natural Tendency either upwards or downwards.

And if the Fiſh be deeper in the Water, its Bulk becoming leſs, by the greater Compreſſion of the Bladder; it will ſtill remain commenſurate to the Gravity of the Water in that Part.

If the Fiſh be higher than the middle Region, the Air dilating itſelf, and the Bulk of the Fiſh conſequently increaſing, but not the Weight; the Fiſh will riſe upwards, and reſt a-top of the Water.

It is probable the Fiſh, by ſome Action, can emit Air out of its Bladder, and take freſh in. Mr. *Ray* obſerves, that in moſt Fiſhes there is a manifeſt Channel leading from the Gullet to the *Swimming-Bladder*, which doubtleſs ſerves for the Conveyance; and that there is a muſculous Power in the Coat of the Bladder, whereby the Fiſh can contract it when it will. The ſame Author adds, in Confirmation of this Doctrine, that it is found, if the *Swimming Bladder* of any Fiſh be pricked or broke, the Fiſh immediately ſinks to the Bottom, and can neither ſupport nor raiſe itſelf. And that in flat Fiſhes, as Soles, Plaiſe, *&c.* which lie always groveling at the Bottom, there is no Swimming-Bladder at all.

Men borrow likewiſe the Aſſiſtance of blown Bladders, by means whereof they are ſupported on the Water, when they begin to learn to ſwim; and Men alone learn to ſwim; all other perfect Animals ſeeming to take it naturally, though ſeveral of the Imperfect ſwim not at all.

M. *Thevenot* has publiſhed a curious Piece in *French*, called *l'Art de Nager*, the Art of *Swimming*, demonſtrated by Figures; wherein he maintains, that Men would ſwim naturally like other Animals, were they not prevented by Fear, which magnifies their Danger: But ſome are of Opinion that his Sentiment is contrary to Experience; for throw, ſay they, a Brute newly born, into a River, and it ſwims: Throw an Infant in, before he is yet capable of Fear, and he ſwims not, but is drowned. The Reaſon of this, continue they, is, that the human Machine differs very notably in its Structure and Configuration from that of Brutes; and particularly, which is very extraordinary, in the Situation of its Center of Gravity. In Man the Head is exceeding heavy, with regard to the reſt of the Body; by reaſon the Head is furniſhed with a very great Quantity of Brain, and has beſides a deal of Fleſh and Bones, and no Cavities, only filled with Air: So that the Head immerging under Water by its own Gravity, the Noſe and Ears are ſoon filled: Thus the heavy carrying down the light, the Man ſoon drowns, and is loſt.

But in Brutes it is otherwiſe: For the Head here having but little Brains, and there being Abundance of Sinus's therein; its Weight, with regard to the reſt of the Body, is much leſs conſiderable; ſo that they are eaſily able to keep their Noſe above Water, and thus reſpiring freely, are out of Danger of drowning on the Principles of Staticks.

In Fiſhes, it is the Tail that is the grand Inſtrument of *Swimming*, not the Fins, as is generally imagined: For this Reaſon Fiſhes are more ſtrong and muſculous in that Part than in all the reſt of their Body; according as we find it in all other Animals; the motive Parts whereof are ſtill the ſtrongeſt, as the Thighs of Men for walking, the pectoral Muſcles of Birds for Flight, *&c.* Therefore the Fins ſerve only to keep the Body well poiſed and ballanced, and prevent Vacillation.

Among the antient *Greeks* and *Romans*, *Swimming* made ſo eſſential a Part of the Diſcipline of their Youth, that to repreſent a Man perfectly rude and uneducated, they uſed to ſay proverbially, he had neither learned to read, nor to ſwim; which is much better learned by Exerciſe, than by any Rules which could be preſcribed for it; ſince thoſe Rules contribute only towards making a Man drown himſelf ſooner; for the great Attention he would have to thoſe Rules, and the Fear of tranſgreſſing them, joined to that of drowning, would be capable enough to precipitate him the ſooner to the Bottom.

TANNING.

TANNING, is the Art of preparing of Skins or Hides in a Pit, with *Tan* and Water.

What we call *Tan*, in this Preparation (from which the Art borrows its Name) is the Bark of Oak, chapped and ground, by a Tanning-Mill, into a coarſe Powder.

Not only the Bark, but every Part of the Oak-Tree, of what Age or Growth ſoever, all oaken Coppice, *&c.* cut in barking Time, makes good *Tan*; as good at leaſt as the beſt Bark.

This when got is to be well dried in the Sun, houſe-dry'd, and kept ſo. To uſe it, the greater Wood may be ſhav'd ſmall, or cleft, fit to be cut ſmall by a tanning Engine for the Purpoſe; which done it is well dried again on a Kiln, and then ground by the Mill. Where Oak is ſcarce, Thorns may ſupply the Defect.

New Tan is the moſt eſteemed; when old and ſtale, it loſes a deal of its Effect, which conſiſts in condenſing, or cloſing the Pores of the Skin; ſo that the longer the Skins are kept in *Tan*, the greater Strength and Fineneſs they acquire.

The Operation of *Tanning* regards only Bullocks, Cows, Calves, and Horſe-Hides; the Method thereof for Bullocks or Oxes Hides, is as follows.

The Skin being ſlead off the Carcaſs, if it is intended to be kept, it is ſalted with Sea-Salt and Allum, or with a kind of Saltpetre called *Natron*, if it is not for keeping, the Salting is ſaved, as being of no Uſe, but to prevent the Hide from corrupting before it can be conveniently carried to the Tan-houſe.

Whether the Hides have been ſalted or not, the *Tanner* begins with taking off the Horns, the Ears, and the Tail; after which it is thrown into a running Water for about thirty Hours, to waſh off the Blood, and other Impurities adhering to the Inſide.

This done, it is laid Over-night in a Lime-pit, already uſed; whence it is taken, and left to drain three or four Days on the Edge of the Pit.

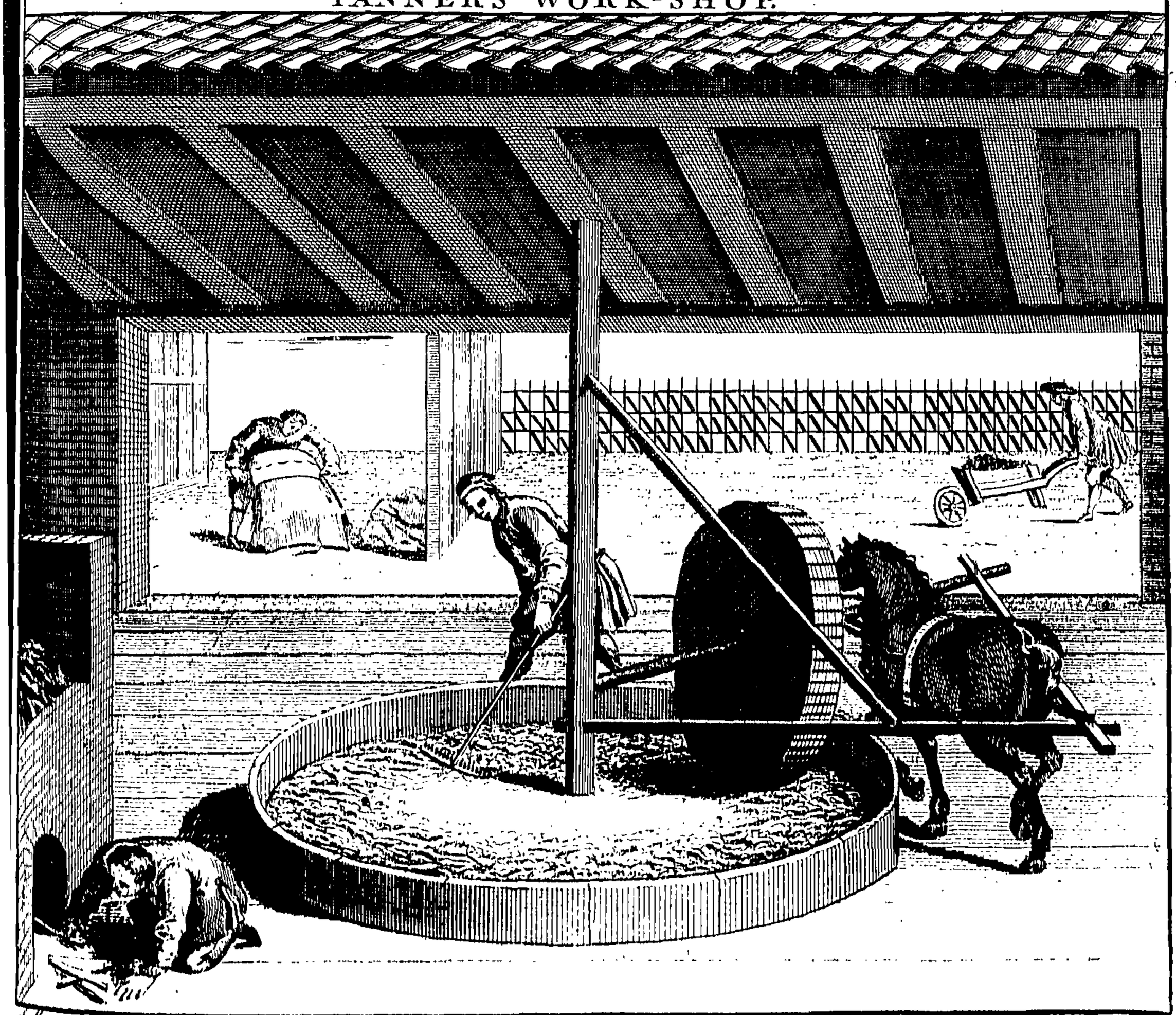
This firſt and ſlighteſt Preparation over, it is returned into a ſtrong Lime-pit for two Days, then taken out for four more; and thus for ſix Weeks alternately, taken out and put in twice a Week.

At the ſix Weeks End it is put into a freſh Pit, where it continues eight Days, and is taken out for ſo many; and this alternately for a Year or eighteen Months, according to the Strength of the Leather, or the Weather. For in great Heat they put in freſh Lime twice a Week; and in Froſt they ſometimes do not touch them for three Months. Every freſh Lime-pit they throw them into is ſtronger and ſtronger.

At four, five, or ſix Weeks End, the *Tanner* ſcrapes off

CURRIERS AND TANNERS.

TANNER'S WORK-SHOP.



off the Hair on a wooden Leg or Horse, with a kind of Knife for that Purpose. And after a Year or eighteen Months, when the Hair is perfectly gone, he carries it to a River to wash, pares off the Flesh on the Leg with a Kind of cutting Knife, and rubs it briskly with a Kind of Whet-stone, to take off any Remains of Flesh or Filth on the Side of the Hair.

The Skin is now put into *tan*; that is, cover'd over with *Tan*, as it is stretched in the Pit; and Water let in upon it: If the Skin be strong, five Coverings of *Tan* will be required; for weaker, three or four may suffice. When the Skin has not been kept long enough in Lime, or the *Tan-pit* is upon clearing it, in the Middle is seen a whitish Streak, called the Horn, or Crudity of the Skin; and this is the Reason why the Soals of Shoes, Boots, *&c.* stretch so easily, and take Water.

When the Hides are sufficiently *tanned*, they are taken out of the Pit to be dried, by hanging in the Air. Then the *Tan* is cleaned off them, and they are put in a Place neither too dry, nor too moist; they are well stretched over one another, with Weights a-top to keep them tight and straight; and under this Condition are sold under the Denomination of *Bind Leather*.

Cows, Calves, and Horses Skins are *tanned* much after the same Manner as those of Oxen, except that the former are only kept four Months in the Lime-Pit; and that before they be put in the *Tan*, there is a Preparation required thus: Cold Water is poured into a wooden Fat or Tub, wherein the Skins are put, which are kept stirring, while some other Water is warming in a Kettle; and as soon as that Water is a little more than lukewarm, it is poured gently into the Fat, and upon this is cast a Basket of *Tan*; during which Time, the Skins are still kept turning, that the Water and *Tan* may not scorch them.

After an Hour, they are taken out, and cast for a Day in cold Water, then returned into the former Fat, and the same Water they had been in before; and here they are left eight Days; which expired they are put in the *Tan-Pit*, and three Coverings of *Tan* given them, the first of which lasts five Weeks, the second six, and the third two Months.

The rest of the Process is in all Respects the same as that above deliver'd. In some Countries, as *Champagne*, &c. the *Tanners* give the first Preparation with Barley instead of Lime.

THEOLOGY.

THEOLOGY (from Θεος, *God*, and λογος, *Discourse*) is, according to this Etymology, a Discourse, or Ratiocination relating to God. For according to *Isidorus*, *Lib.* 8. *Etymol. c.* 6. and St. *Augustin*, *Lib.* 8. *de civit. Dei. c.* 1. every Doctrine which treats of God, is commonly called *Theology*. Whence St. *Augustin*, *Lib. de civit. Dei*, *c.* 14. says, that those Poets were called *Theologians*, who composed the Verses which were to be sung in Honour of the Gods.

The *Theology* we mean here, is not that *Theology Patriæ*, which is the *Theology* of the Blessed only, and is commonly defined a clear and intuitive Knowledge of God, and of divine Things, acquired by the Light of Glory. But is that *Theology viæ*, acquired by us Mortals, while we are in this transitory World; not all such Theology indifferently, not, *v. gr.* that which is acquired by the natural Light, such as those Philosophers had, mentioned by the Apostle *Rom.* 1. nor that which can be acquir'd, without Reasoning, by the sole supernatural Light of Faith, and regards the Propositions which God has immediately revealed, and is the same with Faith itself: But it is that supernatural *Theology* which regards the Conclusions deduced by Reasoning from the Principle or Propositions which God has reveal'd.

Therefore this Sort of *Theology* is divided into *positive* and *scholastick*; and both subdivided again into *practical* and *speculative*.

Positive THEOLOGY, is that which proves its Conclusions by positive Arguments; or, which is the same Thing, by those Principles which are not proved; such are those quoted from the Scripture, Councils, and antient Fathers, for those Principles are rather laid down than proved. *Tertullian* takes Notice of this *Theology*, *Lib. de Prescrip. c.* 14.

Scholastick THEOLOGY, thus called because taught and learned in the Schools; is that which makes Use of the Dialectick or Logick, and Discourses from revealed Principles or Propositions, not only on God and the divine Things, but likewise of all that has Report to God. As when one, *v. gr.* proves that there are two Wills in *Christ*, because there are two Natures, each intellectual, Nature having its own proper Will. Which is an excellent Manner of proving; since, according to St. *Augustin*, *Lib.* 14. *de civit. Dei*, *c.* 14. it breeds Truth in the Infidels, feeds, and strengthens it in the Faithful, and defends it against the Impious and Hereticks.

Speculative THEOLOGY, is that which relates to the Knowledge and Contemplation of those Things, which are not to be reduced into Practice, *viz.* what we are to do, and what we are to avoid.

Polemical THEOLOGY, is that which regards the Things controverted; and is thus called, because it encounters both against the Infidels and the Faithful.

But the chief Question here, is, if there be, and has always been in the Church, such a Thing as a *discursive* and *supernatural Theology?* Which I answer in the Affirmative, because there is a *Theology* which deduces its Conclusions from revealed Principles or Propositions, from the Gospel, the Acts and the Epistles of the Apostles, and from the Writings of the Fathers: Which *Theology* has always subsisted in the Church. For does not *Christ* himself, *Matt.* xxii. deduce the Resurrection of the Dead, from that God is not the God of the Dead, but of the Living? Does not the Apostle conclude, 2 *Cor.* v. that all are dead, because *Christ* died for all? Have not the antient Fathers made use often of a discursive Theology? St. *Jerom*, in the Catalogue of the ecclesiastical Writers, says, that in the Time of St. *Mark* the Evangelist, there were Schools of *Theology* at *Alexandria*; in which *Origen* succeeded the Priest *Clement*, as Professor? And *Eusebius*, in the fifth Book of his ecclesiastical History, says, that those Schools continued to his Time.

This *Theology*, whose Existence we have thus proved, is very properly called *Wisdom*; since it is a Knowledge of excellent Things, by an excellent Cause, having God for its primary Object, and considers him not only as cognoscible by the Creatures, but likewise as he is known to himself, and made known to others by Revelation.

To it belongs Reasoning and Argumenting; since it draws Conclusions from its Premisses; and agrees in that with the other Sciences, that it does not Argument to prove its Principles, but something else from them; as the Apostle proceeds to prove the common Resurrection, from the Resurrection of *Christ*.

There are three principal Places or Sources, from which the Principles of theological Conclusions are drawn, *viz.* the Scripture, Traditions, and the Authority of the Church.

I have said three principal Sources, for there are others besides those, which, though they be not of the same Authority, are notwithstanding of a great Weight; such is the Authority of the Fathers, that of scholastick Authors, and Orators in the Canon Law; natural Reason, the Authority of Philosophers and Civilians; and Histories written by grave and judicious Authors, free from Puerilities and Superstition.

That these latter Authorities are not of the same Authority with the three former, is evident from that none of them is certain of a Certitude of Faith, nor produce an Article of Faith, not even that of the antient Fathers; according to St. *Augustin*, who says, *Epist.* 11. *ad Fortunat. That we are not to consider the Sentiments of*

Authors, let them be ever so much valued, as the canonical Scriptures, so that it should not be lawful for us, to reject or condemn, with all the Respect due to them, what we could find in their Writings contrary to Truth.

With Regard to the Scripture, which is one of the three principal Places, there can be some Difficulty, when it makes Use of Metaphors, and when one and the same Text can be understood in two different Senses; which Difficulty I must endeavour to elucidate; beginning by the *Metaphors*; observing previously to it, that we understand here by *Metaphor*, the Translation of a Term for the Thing which it signifies properly, to the Signification of another, by Reason of some Similitude, as St. *Augustin* expresses it, *Lib.* 2. *de Doctrin. Christ. c.* 10. *In these Terms; thus Laughter, which belongs properly to Men, and signifies a Dilatation of the Mouth, in Witness of Joy, is transferred to signify the Amœnity of green Fields, which delight the Sight of the Spectators, and from which it is commonly said, that the Fields smile.* These pre-observ'd,

I say, that the Scripture can very well use *Metaphors*, because *Metaphors* make a great Impression, and please better, than proper Terms: According to St. *Augustin*, *Lib.* 1. *de Trinit. c.* 1. and in the *Epist.* 119. which is to *Januarius*, where he uses these Words: *Things which are insinuated to us figuratively, make a greater Impression, and excite more Love, than if they were set before us naked.* Either because Man being composed of Body and Soul, and understands by Means of his Senses, it is convenient he should be brought to the Knowledge of spiritual Things, by Similitudes of the corporal, according to the Sentiment of St. *Denis*, *Lib. de cœlesti Hierarch. c.* 1. or because the divine Mysteries are thus deliver'd to us with more Reverence, and are not discovered to the Unworthy; and because, likewise, they exercise more the Study and Humility of the Reader.

The Expressions of the Scripture must be consider'd as figurative, when what is expressed thereby, is either repugnant to Honesty or to Truth, or, which is the same, when they cannot be properly referred either to Truth or to Honesty, because it is the Sentiment of St. *Augustin*, *Lib.* 3. *de Doctrin. Christ. c.* 10. and following. For a greater Elucidation of these Propositions, it will not be improper to mention here three Rules delivered by the same Author, to understand and judge with a greater Security of the Places of the Scriptures; which Rules are these. 1. That the Scripture be expounded, as much as possible, *ad literam.* 2. That a proper Expression, be not mistaken, for a metaphorical one, *Lib.* 3. *de Doctrin. Christ. c.* 10. 3. That a metaphorical Expression be not understood *ad literam.*

Theological Arguments cannot be deduced from the metaphorical Expressions of the Scripture, unless their Sense be evident from some other Place of the Scripture, or from the divine Tradition: Because a metaphorical Expression of the Scripture cannot give a *theological* Conclusion, that Certainty, which it must have to be a true *theological* Conclusion; the Reason is, because a metaphorical Expression cannot have that Certainty, and consequently cannot give it, unless it be evident from some other Place of the Scripture. Whence St. *Jerom*, *Lib.* 2. *in Matt. c.* 10. says very well, that never a Parable, nor the dubious Intelligence of Enigma's, can contribute towards the Authority of Dogma's.

We'll ask next, if the Scripture can have under one and the same Letter, several Senses, and which, and if from it, taken in every Sense, can be deduced a *theological* Argument?

Which to understand, we must observe, 1. That by the Name *Scripture* is understood here the Context of the Words and Sentences, which God has dictated, and which the Author has reduced into Writing: For there are two Authors of the Scripture, *viz.* a chief one, who is the Holy Ghost; and a secondary, which is he who has related the Things inspired by the Holy Ghost. — 2. That in general we distinguish two Senses of the Scripture, *viz.* a literal one, and the other mystical. The literal one, can be again subdivided into proper or simple, and translatitious or metaphorical. And the mystical Sense, is also subdivided into tropologick or moral, and allegorical and anagogick. The literal, proper, and simple Sense, is that which is expressed by simple and proper Words. Such is the Sense of these Words, *Thou shalt love the Lord thy God with all thy Heart.*

The literal, translatitious, and metaphorical Terms; such is the Sense of these Words, *Psalm* xxxiv. *The Eyes of the Lord are upon the Righteous, and his Ears are open unto their Cry.* These Words cannot signify that God sees them with corporal Eyes, and hears them with corporal Ears, since he has neither Eyes nor Ears, but signify rather that he takes Care of the Righteous, and is intent on their Prayers.

The spiritual Sense is that which is neither properly nor metaphorically signified by the Words, but by Things signified by the Words. Therefore that Sense is reckoned mystical and spiritual, which is hid under Things, as the Soul is hid under the Body.

The tropologick or moral Sense, is that whereby Things signified by the Words, signify something besides, belonging to Manners, *v. gr.* belonging to the Instruction or Reformation of Life. Let it be for an Example of what I advance here, the Command of the Circumcision made to *Abraham*, and his Posterity, which signified the Circumcision of all Vices.

The allegorick Sense, is that whereby the Things expressed in Words, in the Old Testament, shadowed those which have been accomplished in the New, according to *Cassian*'s Sentiment. Thus the Sacrifice of *Abraham*, and the Ram fasten'd by its Horns, which *Abraham* sacrificed, represented *Christ* fasten'd to the Cross. These pre-observ'd,

I say, 1. That the Scripture has several Senses, either mystical or literal under the same Expressions.

That it has several Senses, is proved by the Book of the Scripture, being said, *Ezek.* ii. and *Apocap.* v. written *Inside* and *Outside*; Outside, according to St. *Jerom*, on the same Passage of *Ezekiel*, by the literal Sense; and Inside by the spiritual one. Therefore it is not surprizing if St. *Gregory*, *Lib.* 20. *moral. c.* 1. says of the sacred Scripture, *that while it relates a Deed, it signifies a Mystery.*

That it has several literal Senses, under the same Words, is proved by several Passages of the same Scripture, admitting several literal Senses; for, *v. gr.* is not this Passage of *Isaiah* liii. *Who shall recount his Generation?* Understood literally both of the eternal Generation of the Word, *ad intra*, and of his temporal Generation, *ad extra*, by the Incarnation? Is not likewise this Passage of *Hosea* xi. *I have called my Son from Egypt*, understood both of the People of *Israel*, whom God brought from *Egypt* by the Ministry of *Moses*; and of *Jesus Christ*, who after *Herod*'s Death was brought back from *Egypt?*

That the Scripture can have a literal and spiritual Sense together under the same Word is evident, 1. As to a literal Sense, together with an allegorical one, from *Genes.* xxii. where *Isaac* carrying on his own Shoulders the Wood to the Place of the Sacrifice, represented Christ carrying his Cross on his own Shoulders. Likewise *Genes.* xvii. and xxi. when it is said of *Abraham*, *that he had two Sons, one of a Bond-woman, and the other of a free Woman*; two Testaments were allegorically signified, *viz.* the Old and the New, as interpreted by the Apostle, *Galat.* iv.

As to the tropologick and moral Sense, it is also evident; for when the Leprous were ordered, *Levit.* xiii. to shew themselves to the Priests, the Precepts given to Sinners in the new Laws, to shew themselves to Priests in order to be absolved of their Sins, was thereby signified.

As to the anagogic Sense, it is easily shewn; for is not the celestial Beatitude, signified by the old *Jerusalem*, in these Words of the *Apocal.* 22. *And I have seen the holy City, the new Jerusalem, coming down from Heaven*, &c.

I say, 2. That we can very well deduce a theological Argument from the Scripture understood in a literal Sense; but not when understood in a mystical one; unless that Sense be evident from some other Place of the Scripture; or by divine Tradition. Because, 1. The literal Sense is always intended by the Holy Ghost; whence it is never subject to Falshood. 2. Because the mystical Sense has not a sufficient Certitude, its being the Production of a human Understanding, which is different in different Men. Add, that it is uncertain, if that Sense which is human be from the Holy Ghost? Whence it is that a Theo-

Theologian cannot efficaciously argument from it.

It can be easily inferred from what I have said, that *Theology* is a Science, which treats of God, of divine Things, and of all that has any Relation to them; but as I have already treated under their respective Articles, of several of those Things, which are commonly brought under the general Title, *Theology*, and which compose in Part what we call a Course of *Theology*; I'll confine myself in this Place, to some particular Articles which have not been mentioned yet, and particularly to the Virtues called *theological*, viz. *Faith*, *Hope* and *Charity*, beginning by *Faith*, as that which has caused, and causes yet so much Trouble and Division in the Church of Christ, for want of being well understood; observing previously to it, 1. That it is not a Question here of a human Faith, whereby we believe Man's Words in virtue of the great Authority they have acquired among us, but of a divine Faith, as taken for an Argument or Conviction of Things invisible, according to this Definition of *Faith*, by St. *Paul*, in his Epistle to the *Hebrews* xi. 1. *Faith is the Substance of Things hoped for, the Evidence of Things not seen.*—2. That *divine Faith* is taken in three Manners in the Scripture, 1. For the Object of Faith, *Ephes.* iv. *One God, one Faith*, &c. 2. For the Act, *Matt.* ix. *Let it be done to you according to your Faith.* And *Rom.* i. *Your Faith is manifested throughout the whole World.* 3. For an Habit, 1 *Cor.* xiii. *And now abideth Faith, Hope, Charity, these three.*

3. That Faith is not defined here as taken for the Object of Faith, for I'll treat of it as such when I speak of that Object; nor as taken for the Act of Faith, of which I'll speak, when I'll divide *Faith* into actual and habitual; but is defined as taken for an Habit. These pre-observed,

I say, that *Faith is a theological and supernatural Virtue, infused by itself, whereby we believe all that God was pleased to reveal, and the Church has proposed us to believe, whether they be written or not written.*

It is called *Virtue*, because the Nature or Definition of Virtue becomes it; for it is a good operative Habit of the Mind, which renders its Subject and Act good. If I be asked in what Subject that Virtue resides? I'll answer, that it resides both in the Understanding and Will. For Faith is reckoned among those Habits which require both an imperative, and an executing Faculty. For the Understanding could not assent to obscure Things, unless it was determined to it by the Power of the Will, in Obedience to Faith.

2. It is called *theological*, to distinguish it from Virtues purely moral, which having not God for an immediate and primary Object, cannot be called *theological*.

3. It is called *supernatural*, and *infused by itself*; because it is a Gift of God, which of its Nature requires to be infused; it being impossible to acquire it by our natural Strength. Which I prove by the Scripture, the Councils, Fathers, and by Reason.

By the Scripture, *John* vi. 44. *No Man can come to me, except the Father which has sent me, draw him.*

By the Councils, particularly that of *Trent*, *Sess.* 6. *c.* 3. *If any Body say, that a Man without a previous Inspiration, and Succours of the Holy Ghost, can believe as he ought, let him be Anathema.*

By the Fathers, particularly those who have opposed the Pelagians who affirmed that a Man could believe without the Assistance of Grace; and against the Semi-pelagians, that without the Assistance of Grace a Man could be willing to believe. By St. *Augustin*, *lib. de predestinat. sanct.* which was wholly wrote to prove that the Beginning of Faith is not from us: And by St. *Prosper* in all his Book against the Collator, but more particularly in the fourth Chapter.

By Reason, because the Creature cannot be moved towards an End which surpasses her Nature, otherwise than by a Principle existing above her Nature.

4. It is said, *whereby we assent*; because Faith is a Principle raising and comforting the Understanding, so to procure a supernatural Assent, from the Influence of the Will. For the Property of the operating Habits infused by themselves, is to raise and comfort the Power so as to make it produce a supernatural Act.

5. It is said, *firmly*; for unless a firm Assent be given to the first revealing Truth, it cannot be an Assent to the theological Faith. For when Fear or Doubts are mixed with our Assent, they destroy it and render it only a human Opinion.

6. It is said, *to Things which God has revealed*; because by Faith we assent to those Objects which God has intimated simply and obscurely, by an inward or outward Locution; *obscurely*, i. e. without Proof or Evidence; according to the Definition of St. *Paul* already quoted.

7. It is said *to all*; because according to St. *James* ii. *He that offends in one is guilty of all*; since there is no greater Reason to believe one of the Objects revealed, than all the Objects revealed: For there is one and the same formal Reason for believing all Things revealed, *viz.* the divine Revelation, or the first revealing Truth which is the first Rule of our Faith. Whence *Augustin* in *Psalm* 54. says, *the Hereticks agree with me in several Things, and do not agree with me in few Things; but by reason of those few Things in which they do not agree with me, the several Things in which they agree are of no Advantage to them.*

8. It is said, *which God has proposed to us by his Church, to believe*; to give to understand that the Church, which according to the Apostle, *Tim.* ii. *Is the Support and Column of Truth*, has the Power to propose what we are to believe, and qualify them Articles of Faith.

9. It is said, whether they be written or not written; to let us know that of those Things we are to believe, some are written, such are those which we have in the Old and New Testament; and others not written, such as those which are of pure Tradition.

As to the *Object of Faith*, which is the next Thing we are to examine, it is double, *viz.* one *material*, and the other *formal*; but as both admit of some Difficulty, I'll treat of them separately; speaking first of the material Object; and observing previously to it,

1. That by *material Object* is understood, in general, that which is considered either by the Power, or the Habit, or the Act.

2. That there are commonly two *material Objects*; an adequate or total one, to which are referred all the Things, towards which the Habit or Faculty tend; and the other inadequate or partial, which is Part of the total Object.

3. That the inadequate Object is commonly subdivided into primary and secondary; the primary is that towards which the Faculty or Habit tend primarily; and for which it considers all the rest: And the secondary is that which is considered on account of the primary. These pre-observed,

I say, 1. That the *adequate Object of Faith is the Thing revealed*; because the Thing revealed comprehends all that towards which Faith is directed.

I say, 2. That the primary inadequate Object of Faith, is God himself; according to St. *Denis*, *lib. de divin. nomin. c.* 7. *Faith*, says he, *is with regard to a simple, and always existing Truth.* And St. *Augustin*, *lib.* 4. *de civit. Dei*, *c.* 2. *the first*, says he, *and greatest Object, is that we should believe in God himself.*

I say, 3. That the *secondary inadequate Object of Faith, is all that which is not God himself, and which notwithstanding is believed with regard to God*; because the partial Object of the Habit is that which it considers with regard to the primary Object.

Therefore, according to what we have said, God is the primary Object of Faith, and all Things to be believed, are considered by Faith with respect to God; therefore all that is not God, and is notwithstanding believed with respect to God, is the secondary inadequate Object of Faith, *v. gr.* the Mystery of the Incarnation, or Passion, or any other contained either in the Scripture or in the Tradition.

It may be asked, 1. With regard to the material Object of Faith, *if it be something simple*, or *something complex?* To which I answer, that it is something *simple*, if it be considered in itself, and on the Part of the Thing believed; since it be nothing else but the Thing itself to be believed, *v. gr.* the Mystery of the Trinity; But that it is something *complex*, if it be considered on the Part of the Believer; since it is nothing else but the Assent itself given by the Understanding to the Thing revealed.

Which Assent is a Thing complex, since it is the second Operation of the Mind, which always imports a Composition or Division.

It may be asked, 2. *If there was any Necessity to compose a Symbol, and to distinguish the Things to be believed by certain Articles?*

Which I answer in the Affirmative; because by such a Symbol, according to St. *Augustin, Lib. de Symbol. ad Catechum. c.* 1. *The Memory of those who have not a very happy one, is assisted, and the Christian Faith is fenced against the Subtilty and Finesses of Hereticks.* Add that the Symbol is as a Watch-word, whereby the Faithful are distinguished from the Infidels; as Fellow-Soldiers, by the Word know themselves from their Enemies.

There was likewise a Necessity to divide the Symbol into Articles; because some of the Things which are proposed to us to believe, admit of some Difficulties, which others do not.

It may be asked, *if, in Process of Time the Articles of Faith have increased?* To which I answer, that they have not increased with Regard to their Substance, but only with Regard to the Manner, and the Profession of Faith explained.

That they have not increased with Regard to their Substance, I prove it by the Fathers and by Reason.

By the Fathers, particularly St. *Augustin, Epist.* 57. to *Optatus*, where he says, that the Faith of those who preceded the Coming of *Christ*, was the same with ours. According to this of the 2 *Cor.* iv. *Having the same Spirit of Faith.*

By Reason, because all that we believe at present was always believed in the Church of God, at least implicitly, as it appears from the Words of the Apostle *Heb.* xi. 39. *And these all having obtained a good Report through Faith, received not the Promise, but they saw them afar off.* Whence St. *Augustin, Tract.* 45. *in Joan.* expresses himself thus; *the Times are changed, but not the Faith; and the Sound of the Word is changed, he will come, and he is come, but the same Faith joins both.* For there were always two Things to be believed in the Church, 1. That there is a God. 2. That he provides for all, or is the Remunerator of all those that seek him; according to this of the Apostle, *Heb.* xi. 6. *For he that cometh to God, must believe that he is, and that he is the Rewarder of them that diligently seek him.* But in God's Essence is included all that we believe to be in him; and in the Faith of Providence are included all Things which God is pleased to dispense temporally with Regard to Man's Salvation.

That the Articles of Faith have increased only with Regard to the Manner, and the explain'd Profession of Faith, is proved by the Scripture, *Psalm* cxix. *I understand more than the Antients.* Luke i. *Several Kings and Prophets wanted to see what you see, and hear what you hear.*

By Reason, because some things, which were known implicitly only by our Ancestors, have been known explicitly by their Posterity. As it appears from the Words of the Apostle to the *Ephesians* iv. *The Mystery of Christ is not known to other Generations, as it is known at present to his Apostles and Prophets.*

The *formal Object of Faith* is the divine Revelation, or the first Truth as revealing. Because the Scripture proposes nothing for Cause of the Assent to Faith, but the divine Revelation, *Matt.* xvi. *Thou art blessed, Simon Barjona, because Flesh and Blood hath not revealed it to thee, but my Father which is in Heaven,* 1 *Thess.* ii. *Because when ye received the Word of God which you heard of us, ye received it not as the Word of Men, but (as it is in Truth) the Word of God.*

From what we have said, it is inferr'd, 1. That Faith is so certain, that it cannot be subject to Falshood. From the Scripture, 1 *Tim.* ii. *I know in whom I have believed, and I am certain.* From Reason, because God who is the formal Object of Faith, can neither deceive or be deceived: He cannot deceive, because he is infinitely good and true: Neither can he be deceived, because he is infinitely wise and intelligent.

It is inferr'd, 2. That though the Object of Faith be true, because of God's Authority who reveals it, it is not, notwithstanding, something seen, or evident of itself, on the Part of a Believer. Which appears,

From the Scripture, 1 *Cor.* xiii. *For now we see thro' a Glass darkly, but then Face to Face.*

From the Fathers, particularly St. *Augustin, Lib.* 3. *de Trinit. c.* 6. *Therefore,* says he, *we are commanded to believe, because we cannot see. Whence, Tract.* 40. *in Joan. Faith,* says he, *is to believe what we do not see.*

By Reason, because the Object of Faith does not move by itself to the Knowledge of itself; since the Will determines freely the Understanding to assent to the Object of Faith.

It is inferred, 3. That the Object of Faith is not something learned, *i. e.* evidently known by some Ratiocination. Because, according to St. *Augustin, Lib. de utilit. Credend. c.* 1. what is formally believed by Faith, is believed for the sole Authority of him that reveals; but what is properly learned is understood from an evident and necessary Reason. *What we understand,* says he, *we owe it to Reason; what we believe, to Authority*; notwithstanding that the Existence of God be demonstrated, at least *a posteriori.* Because it does not imply, that something can be believed and known, under divers Reasons, and by different Means.

It is inferr'd, that though the Object of Faith be not evident *Physice*, i. e. so evident, that the Understanding could not dissent from it; it is notwithstanding evident *Moraliter*, i. e. so evident, that a prudent Man could not dissent from it, on Account of certain Signs and Motives of Credibility, which render the Object credible.

As to the *Division of Faith.*—Faith is commonly divided, 1. Into *habitual* and *actual.* 2. Into *internal* and *external.* 3. Into *explicit* and *implicit.* 4. Into *Living* and *Dead.* Of which different Divisions I'll treat successively; beginning by that into *habitual* and *actual Faith.*

Habitual FAITH, is an Habit infused by itself, inclining to give a free Assent to the Truth which God has revealed.

It is called *an Habit infused by itself*; because it is not acquired by repeated Acts as the other natural Habits; but requires of its Nature to be infused. Whence it is said to be a special Gift of God.

It is said, *inclining to give a free Assent*, because the Act of Virtue must be a human Act, and consequently voluntary and free. Whence St. *Augustin* says, *Lib. de Prædest. Sanct. c.* 5. *that Faith consists in the Will of the Believers.*

Actual FAITH, or the Act of Faith, is the certain, firm and supernatural Assent itself freely given to some Truth, divinely reveal'd, on Account of God's Authority who reveals it.

It is called *Assent*, because it is an Adherence of our Understanding to the Object, which is true or esteemed such.

It is said *certain*, because the Object of Faith to which our Understanding adheres, is of an undoubted Truth.

It is called *firm*, because by the Act of Faith, our Understanding adheres to the Object which he thinks true, so as to become inebriated.

It is called *supernatural*, because, 1. On the Part of the Object, it has not only God for primary material Object; but requires, likewise, his Revelation for formal Object. 2. On the Part of the Principle, it requires the Succours of Grace, since it cannot proceed from the sole Strength of Nature.

It is called *free*, to give to understand that the Act of Faith, is from the Will commanding, and from the Understanding executing its Command.

From what we have said, it is inferred, that the Act of Faith, or to believe, is nothing else but to know with a firm Assent, though obscure, and is thus distinguished from the Act of Science and Intelligence, which is not obscure, but evident: And is likewise distinguished from Doubt, Suspicion, and Opinion, which is not certain and firm.

If I be asked, what is understood by these Words, *believe God, believe to God, and believe in God?* I'll answer, that *believe God* is the same Thing as to believe that God exists: *believe to God*, is the same as to believe on Account of God's Authority who reveals: And *believe in God*, the same as believe God with a Motion of the Will towards

towards him; which is the ſame Thing as both to believe and love God.

As to the *ſecond Diviſion of Faith* into *internal* and *external:* It is only aſked, If it be a juſt Diviſion? Which I anſwer in the Affirmative; and prove it by the Scripture, the Fathers, and by Reaſon.

By the Scripture, *Rom.* x. 10. *For with the Heart Man believeth unto Righteouſneſs, and with the Mouth Confeſſion is made unto Salvation.*

By the Fathers, particularly St. *Auguſtin, Lib. de fid. & Symbol. Faith*, ſays he, *requires a double Office from us*, viz. *of the Heart and Tongue, and we cannot be ſaved, unleſs we confeſs with the Mouth, the Faith we carry in our Heart.*

By Reaſon, becauſe the Aſſent to Faith is only conceived by us, without any Manifeſtation by Words, or external Signs; and thus is an inward or internal Faith; or is manifeſted by external Signs or Words; and thus is an external Faith.

Faith, particularly the actual, is alſo very well divided into *implicit* and *explicit.* Becauſe we either believe ſome particular Truth, and as ſeparated from all others; as when, *v. gr.* the Myſtery of the Trinity is believed in itſelf, and not in another, ſuch a Faith is called *explicit*; or a particular Truth is not believed in itſelf diſtinctly, determinately, and as ſeparated from others, but is believed in another, in which that particular Truth is contained, as when, *v. gr.* we believe that God has revealed, and the Church has propoſed us to believe, then we are reckoned to believe the ſaid particular Truth, becauſe contained in the Generality of the Things we believe; and this Faith is *implicit.*

As to the Diviſion of Faith into *living* and *dead.* We muſt obſerve, 1. That by *living Faith* is underſtood that Faith, which has the habitual Grace and Charity joined with it, whereby it can produce living Works, and meritorious of the eternal Life. As it appears from the fifth Chapter of the Epiſtle to the *Galatians*; and by the *infirm* or *dead Faith*, a Faith that is ſo deſtitute of the habitual Grace and Charity, that it operates nothing of itſelf. Whence St. *James* ii. it is ſaid dead in itſelf, as a Body without a Soul is dead. 2. That there are three particular Things diſcuſſed in this Place, from the Intelligence thereof, all the other Difficulties relating to Faith, whether living or dead, are eaſily reſolved, 1. If the Diviſion of Faith into formed and inform be juſt. 2. If the inform Faith be ſpecifically the ſame Habit with the formed Faith. 3. In the inform Faith remains a true and entire Faith. Theſe pre-obſerv'd,

I ſay, 1. That Faith is very well divided into *formed* and *inform.* Becauſe either Faith has an habitual Grace, and Charity joined with itſelf, whereby it can operate ſeveral living Acts, and meritorious of the eternal Life; or has not: If it has, it is a formed or living Faith; if not, it is an inform and dead Faith.

I ſay, 2. That an inform Faith is ſpecifically the ſame Habit with the formed or living one. Becauſe it is the ſame between the living and the dead Faith, as it is between a dead Body and a living one; for, according to *James* ii. *As a Body without a Soul is dead, likewiſe Faith without Works*, i. e. *without Charity*, which is the Productrice of living Works, *is dead:* But a dead Body is the ſame Body ſpecifically it was while alive; therefore a dead Faith is the ſame Habit ſpecifically with a living one.

I ſay, 3. That a dead Faith can remain a true and entire Faith; which I prove by the Scripture, the Councils, Fathers, and by Reaſon.

By the Scripture, *Matt.* xxv. where we read, that the fooliſh Virgins are no leſs ſaid to have had their Lamps than the wiſe ones, with this Difference, notwithſtanding, that the Wiſe had theirs full of Oil, and the Fooliſh theirs empty, *i. e.* as St. *Jerom* interprets this Paſſage, *a Faith void of Charity.*

By the Councils, particularly that of *Trent, Seſſ.* 6. *c.* 9. who ſays, that the Grace of Juſtification can be loſt, though Faith be not loſt. Which they explain and define more clearly, *Can.* 28. of the ſame Seſſion. *Whoever ſays that when the Grace is loſt by Sin, the Faith is loſt likewiſe; or that the Faith that remains is not a true Faith, though it be not a living one; or that he who has Faith without Charity, is not a Chriſtian, let him be anathema.*

By the Fathers, particularly St. *Auguſtin, Lib.* 5. *de Trinit. c.* 17. *Faith*, ſays he, *can be without Charity, but it can be of no Advantage.*

By Reaſon, becauſe thoſe Habits can exiſt ſeparately, whoſe Entity is diſtinct; ſince thoſe two Habits differ in Object and Subject; therefore they can be ſeparated from one another. Whence it follows, that Faith can remain entire, though ſeparated from Charity. From this I'll paſs to the *Neceſſity of Faith.*

As the *Neceſſity* of ſomething relating to Salvation, can be conſider'd in two Manners, *viz.* as *Neceſſity of Means*, and of *Precept:* We muſt conſider whether Faith, whoſe Neceſſity is taught by the Scripture, is neceſſary of both thoſe Neceſſities. For as Faith be either habitual or actual; and the actual either internal or external, either implicit or explicit: We muſt ſee which Faith is neceſſary of a Neceſſity of Means, and which is neceſſary of a Neceſſity of Precept. Therefore,

We'll aſk firſt, *if the habitual Faith be neceſſary of a Neceſſity of Means, as well to Infants as to Adults?*

Before I anſwer this Queſtion, we muſt obſerve, 1. That by Neceſſity of Means is underſtood that Neceſſity whereby ſomething is ſo neceſſary to Salvation, that without it it cannot be obtained, though it be omitted without Sin. Thus Baptiſm *in re*, or *voto*, i. e. really adminiſter'd or deſir'd, is neceſſary in the new Law. By *Neceſſity of Precept* is underſtood that Neceſſity, whereby ſomething is neceſſary to Salvation, by that Reaſon only, that it is commanded; whence it is, that through Impotency or Ignorance it can be omitted without Sin; and without it Salvation can be obtained. Of this Kind of Neceſſity, Reſtitution is neceſſary. 2. That the Salvation to which Faith is ſaid neceſſary, can be diſtinguiſhed into two, *viz.* firſt and ſecond. The firſt is nothing elſe but the ſanctifying Grace, whereby Man acquires a Right to Glory. The ſecond and laſt, nothing elſe but the Glory, or beatifick Viſion. 3. That the Neceſſity of Faith can be conſider'd, either with Reſpect to Infants or to Adults. Theſe pre-obſerved,

I ſay, *that the habitual Faith is neceſſary of a Neceſſity of Means, to the firſt and ſecond Salvation, as well for Infants as for Adults.* Which I prove by the Scripture, the Councils, Fathers, and by Reaſon.

By the Scripture, *Heb.* xi. *Without Faith it is impoſſible to pleaſe God.*

By the Councils, particularly that of *Trent, Seſſ.* 6. *c.* 2. where Baptiſm is called a Sacrament of Faith, without which no Body can ever be juſtified. Whence, *c.* 8. it is called the Beginning of Salvation, the Foundation, and Root of all Juſtification, without which it is impoſſible to pleaſe God; and to be admitted into the Fellowſhip of his Children.

By the Fathers, particularly St. *Auguſtin, Serm.* 38. *de Temp. Faith*, ſays he, *is the Beginning of Salvation, without it no Body can be received into the Fellowſhip of the Children of God, becauſe without it no Body in this World obtains the Grace of Juſtification; nor in that to come, ſhall poſſeſs the eternal Life.*

By Reaſon, becauſe without the habitual Faith no Body can by any Means obtain the firſt or ſecond Salvation; becauſe, as the laſt Perfection of Man conſiſts in the intuitive Viſion of God, to which no Body aſcends of his own proper natural Motion: It follows hence, that Man muſt be directed to it by God. But as God has reſolved to direct Man to it, by Love, which has for Object a Thing known, and as he cannot know his laſt Perfection, otherwiſe than by the Doctrine of God himſelf, and conſequently by Faith in this Life, it follows that Faith, and an habitual one, is neceſſary to Salvation of a Neceſſity of Means.

Our next Queſtion is, *if the actual Faith, as well internal, as external, be neceſſary of a Neceſſity of Means, as well to Infants as to Adults?*

To which I anſwer, 1. That *an actual Faith*, or *an internal Act, is not neceſſary of a Neceſſity of Means.* Becauſe Infants are not capable of themſelves to form an Act of Faith, for ſuch an Act muſt be human, and conſequently voluntary and free, of which Infants, who have

have not yet the Use of their Reason, are incapable.

I have said, *of themselves*, to give thereby to understand, that those who are said to have sinned by the Will of others, can likewise be said to believe by others, *viz.* by their Parents, as St. *Augustin* insinuates it, *Serm.* 14. *de verb. apost. c.* 18, 19. notwithstanding their Parents be Infidels; because in that Case, according to the same St. *Augustin*, *lib.* 10. *genes. ad litt. c.* 24. the Faith of the Church, whose Sacrament is applied, supplies the Defect of Faith in the Parents.

I answer, 2. That the actual internal Faith of some Mysteries, is necessary to Adults, of a Necessity of Means, or to speak clearer, it is necessary of a Necessity of Means, that the Adults should operate some internal Act of Faith. According to this of St. *Mark*, *Whoever does not believe shall be condemned.* And *Hebr.* xi. *Approaching to God, one must believe*, &c.

We'll ask next, *of which Mysteries, an internal actual Faith, as well explicite, as implicite, is necessary to Adults, of a Necessity of Means?*—Before I answer this Question, we must observe, that it is asked here chiefly, which Mysteries Adults are obliged to believe explicitely, at least inwardly, and which implicitely, of a Necessity of Means. This pre-observed,

I answer, 1. That *it is necessary of a Necessity of Means that the faithful Adult should believe implicitely all the Mysteries of our Faith.* Because none is to be accounted faithful, who is not ready to believe all that God has revealed; for the Faith is entire, or null. Since it is written, *James* ii. *That he who fails in one is guilty of all.* And the Reason is, because there is but one and the same formal Motive of believing, with respect to all Believers, *viz.* the Authority of God who reveals.

I answer, 2. That *it is necessary of a Necessity of Means, that the Adults should believe by an internal explicite Act, some of the Mysteries of our Religion, but not all.* Because they must believe at least that there is a God, and that he is the Remunerator of those that seek him.

I may be asked, *if besides the two aforesaid Mysteries, it be likewise necessary of a Necessity of Means to believe explicitely the Mystery of the blessed Trinity, and that of the Incarnation, at least after a sufficient Promulgation of the Gospel?*

To which I answer, that the Doctors are of two different Sentiments on that Point. Some of them denying it, who are supported by *Richard Scotus*, *Bartholomew Medina*, *Michael Medina*, *Vega*, &c. But others, whose Sentiment I consider as the best, affirm that it is necessary of a Necessity of Means, that the Adults should believe explicitely those two Mysteries, at least after a sufficient Promulgation of the Gospel. I prove it of the blessed Trinity, by the Scripture, the Fathers, and by Reason.

By the Scripture, *Acts* xix. when the Apostle asked the *Ephesians* if they had the Holy Ghost, by believing; and they answered him, that they knew not that there was a Holy Ghost; then struck with Wonder, he asked them, *In whom then have you been baptized?* As if he was willing to insinuate by that Interrogation, that an explicite Faith of the blessed Trinity was necessary to those who were baptized.

By the Fathers, particularly St. *Athanasius*, who in his Symbol expresses himself in these Words, *Whoever will be saved, it is necessary he should above all Things profess the Christian Faith. And the Christian Faith is this, that we should honour one God in a Trinity, and the Trinity in an Unity, without confounding the Persons, nor separating the Substance.* St. *Cyril*, *lib*, 1. *in Joan. the Knowledge of God is not sufficient to us, without the Knowledge of the Father, and of the Son, and of the Holy Ghost.*

By Reason; because the Mystery of the blessed Trinity is the first of all.

To this may be added the Practice of the Catholick Church, of admitting no body to the Baptism, till she has asked first if he believes in God the Father, *&c.* in *Jesus Christ* his Son, *&c.* and in the Holy Ghost, *&c.* and thus seems to declare that no Adult is capable of the baptismal Grace, and consequently of Justification, unless he has an explicit and distinct Faith of the Mystery of the blessed Trinity.

I prove the second Part, *of the Mystery of the Incarnation*, by the Scripture, the Fathers, and by Reason.

By the Scripture, *Mark* xvi. *Preach the Gospel to every Creature; he that believes and is baptized shall be saved; but he that believes not shall be damned.*

By the Fathers, particularly St. *Athanasius*, in his Symbol; and St. *Jerom* on these Words of the Epistle to the *Ephesians* iii. *He has predestinated us in the Adoption of Children of God, by Christ*; where he speaks thus; we cannot be Children till after they have received the Faith of Christ the Son of God.

By Reason; because Men must know the Way to Salvation, according to the State they are in: But Christ is the Way of our Salvation; as himself declares, *John* xiv. *I am the Way, the Truth, and the Life.* Therefore we should have an explicite Faith of Christ.

It may be asked, if it be necessary of a Necessity of Means to believe explicitely more Mysteries than the four above-mentioned? Which I answer in the Negative; because it can be proved, neither by the Authority of the Scripture, nor by any sufficient Reason.

We'll ask next, *if, and which actual Faith is necessary of a Necessity of Precept?*

The better to elucidate that Matter I answer, 1. That there is some Precept of an actual internal Faith; because that is at least of Necessity of Precept, which we have shewn to be of Necessity of Means; because it belongs to the judicious Government of God, to command what he would be of a Necessity of Means.

I answer, 2. That there is a double Obligation of that Precept: One negative, to exclude all manner of Doubt and Vacillation, with regard to Faith: And the other positive, to believe when a Proposition of Faith is supposed sufficient. Because, as to the first Part of my Answer, a sovereign Certainty is of the Essence of Faith; whence it follows, that we are equally obliged not to doubt of the Truth of Faith, as we are obliged not to recede from the Certainty of Faith; since that Certainty excludes all Doubt.

And because (as to the second Part) that Proposition once made, a Man has no Excuse for not obeying the Precept of Faith, so rigorously obliging to the Practice of the Act. Which is easily shewn by these Words of Christ, *John* xv. *If I had not come and spoke to them, they had not been guilty.* That the same Precept obliges likewise to learn the Faith and seek it, God's Inspiration being supposed as proved, because the Obligation of believing presupposes a hearing of the Faith, as a Medium necessary to it. *For Faith cometh by hearing*, says the Apostle, *but we hear by the Word of God; how can they believe if they have not heard?*

We'll ask next, what we are obliged to believe, either explicitely or implicitely, from the Precept of the internal actual Faith? Which to answer pertinently, we must observe, that Christians, with regard to the present Question, may be considered in three different Conditions or States; for some are Laicks, some Ecclesiasticks, *viz.* Priests and Curates, and others Bishops. These pre-observed.

I answer, 1. That every Man who has the Use of his Reason, and is capable of believing, is obliged from a Precept of an internal actual Faith, to believe implicitely all that the Church believes. Which Answer wants no Proof; for if Men are obliged as already observed, to that actual implicite Faith, they are of Consequence obliged to that of Precept. This implicite Faith of all Believers, is commonly called *the Faith of the Coal-man*, who used to say that he believed all that the Church believed.

I say, 2. That the simple Catholick are obliged from the Precept of an actual internal Faith to believe, and know explicitely almost all that's contained in the Symbol of the Apostles, at least as to the Substance thereof. 2. The Substance of the Precepts of the Decalogue. 3. The Sacraments. 4. The Lord's Prayer, unless they be excused from it, by reason of their Stupidity.

I prove the first Part of my Answer by the canonical Law, the Fathers, and the Practice of the Church.

By the canonical Law, *de consecrat. distinct. c.* 4. *baptisandor.* where are quoted the Words of the 46 Canon of the Council of *Laodicea*, *That those who are to be baptized must learn the Symbol of the Faith; and on Thursday of the last Week should give an Account of it, either to the Bishop or to the Priest.*

By the Fathers, particularly St. *Leo*, *Serm. de pass.* St. *Augustin*, *Serm.* 181. *de tempore.* where they say, that the Symbol was composed by the Apostle to the End that

that Christians should have a certain Rule of Faith, which they should believe and learn.

From the Practice of the Church admitting no Adult to Baptism, till after they have learned the Symbol.

I have said first, *at least as to the Substance*; for it is not necessary that simple Christians should learn the Symbol Word for Word, as it is commonly read. Neither is it necessary that they should know all the Questions made on those Articles, so as to be capable to answer explicitely to them: But it suffices, that when interrogated, they be capable to say that they believe, that there is a God, one in Nature, and three in Persons, the Creator, and Remunerator of all: That Christ is a true God, and a true Man, the Son of God, conceived of the Holy Ghost, born of the Virgin *Mary*; has suffered, and is dead; that he rose from the Dead, and ascended into Heaven, from whence he is to come to judge the Quick and the Dead: That there is to be a Resurrection of the Dead, and there is an eternal Life.

I said, secondly, *almost all*, &c. for who would imagine that they are absolutely obliged to believe and know, not only that Christ has suffered, but that, *v. gr.* he has suffered under *Pontius Pilate*.

I prove the second Part of my Answer, *viz.* that the simple Catholicks are obliged to believe explicitely, and know the Precepts of the Decalogue, at least as to the Substance thereof; either because they are obliged to reduce them into Practice, or because they can easily learn them, they being Precepts of the natural Law, and even universal enough.

I say, thirdly, that the Ecclesiasticks, especially Priests and Curates, must still more explicitely believe and know; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Malach* ii. *For the Priests Lips should keep Knowledge, and they should keep the Law at his Mouth.* And *Jeremiah* ii. where Priests are reprimanded for their Ignorance; *the Priests said not, where is the Lord? And they that handle the Law knew me not.*

By the Fathers, particularly St. *Gregory*, *lib.* 1. *pastoral c.* 1. and Pope *Symmachius* in an Epistle to *Laurentius*, Bishop of *Milan*; as it is quoted, *cap. vilissimus.* 1. *q.* 1. *He is to be accounted most vile*, says he, *if while he is greater in Honour, he does not endeavour to be greater likewise in Learning and Holiness.*

By Reason; because the Ecclesiasticks, particularly Curates, are obliged to feed their Flock, by teaching them the Christian Doctrine; and therefore must have a greater Knowledge thereof.

I say, fourthly, that Bishops must have a still greater Knowledge of the Faith than the Curates; either because Bishops have succeeded to the Apostles. To whom it is said, *Matt.* xxviii. *Go ye and teach all Nations*, &c. *teaching them to observe all Things whatsoever I have commanded you*; or because it belongs to them to protect the Faith, and have a Suffrage in the Councils, assembled to treat of Things relating to Faith.

From what I have said, is discovered the Difference of Condition, between the Sheep and their Shepherd, with regard to Faith and Knowledge.

Our next Question is, *when the Precept of an internal actual Faith, obliges to an Act of Faith, and when the Omission of that Act is sinful?*

Which to answer pertinently, we must observe, 1. That there are two Sorts of Precepts, one *affirmative*, which obliges always to the Practice of the Act, which is commanded, not for every Difference of Time, but only in certain Cases: And the other *negative*, which obliges always, and in every Difference of Time, to abstain from the Act which is forbidden. 2. That there are two Sorts of Obligations of an affirmative Precept; one direct, and of itself, and the other indirect, and by Accident. The first proceeds from the Virtues of Faith, and the second from some other Power. These pre-observed,

I answer, 1. That the Precept of an internal actual Faith obliges directly the Infidels to Acts of Faith, when that Faith is sufficiently exposed to them; and obliges those who are baptized, when they have attained the Use of their Reason; and they know sufficiently the Mysteries of the Faith.

To prove the first Part of my Answer, I say, that if sometimes an affirmative Precept of Faith, has the Faculty to oblige of itself, much more when the Mysteries of our Faith are sufficiently exposed to them, *i. e.* when by the Arguments and Marks of our Faith, the Credibility of our Mysteries appears so, that according to the Rules of Prudence they should be moved to accept the Faith, lest by deferring doing it, they should expose themselves to eternal Damnation.

I prove the second Part, by observing that those who are baptized, have already observed the Habit of Faith, and have promised by their Godfathers and Godmothers, to embrace, profess, and practise the Faith.

We'll ask next, *if every body can be saved in the Faith he professes?* To which I answer, that a great Number of Politicians believe, that the Catholicks can be saved in the Catholick Faith, the *Lutherans* in theirs, and the *Calvinists* in theirs Which the greatest Number of Theologians, particularly all the *Roman* Catholicks, explain in two Manners. 1. That all and every one can be saved in his Faith, provided they believe in Christ; according to this of *John* iii. 15. *That whosoever believes in him should not perish, but have eternal Life.* The Reason is, because whosoever believes the fundamental Articles of Faith can be saved: But believing in Christ is the fundamental Article of the Faith, according to the Apostle, 1 *Corint.* iii. 11. *For other Foundation can no Man lay than that is laid, which is Jesus Christ.* Therefore he that believes that Foundation, *i. e.* that believes in Christ, can be saved; and as the Catholicks, *Lutherans*, *Calvinists*, &c. believe in Christ, they can all be saved by that Faith.

2. That all and every one can be saved in their Faith, provided they believe the twelve Articles contained in the Symbol of the Apostles. The Reason is, because in those Articles is contained the Sum, or Rule of the whole Christian Faith, according to St. *Augustin*, *Serm.* 135. *de temp. The Symbol*, says he, *is the short and grand Rule of your Faith; short by the Number of Words; grand, by the Weight of the Sentences.* But the Catholicks, *Lutherans and Calvinists*, believe the twelve Articles of Faith contained in the Symbol; therefore they can be saved by that Faith.

The Catholicks pretend that the first Explication can be understood in two Manners; 1. That all can be saved if they believe confusedly in Christ; though they do not believe in particular the principal Mysteries of the Faith. —2. That all can be saved who distinctly believe in Christ, *viz.* believe his Divinity, Humanity, Nativity of the Virgin *Mary*, Passion, Death, Resurrection, and other Mysteries contained in the Symbol of the Apostles. They say, that if it be understood in the second Manner, it coincides with the last Explication, which I am to give hereafter. But that if it be understood in the first Manner it is false; since it does not suffice to Salvation, to believe confusedly in Christ; otherwise all the Hereticks could be saved, as the *Arians*, *Donatists*, *Pelagians*, and the like: For they all believed in Christ. They say further, that the Conclusion of this Argument is against the Gospel, where they are commanded to gather the Tares into Bundles that it may be burnt, *Matt.* xiii. 30. the Hereticks being the Tares.—2. That if the Catholicks could be saved in the Catholick Faith, the *Lutherans* in the *Lutheran*, and the *Calvinists* in the *Calvinian*; because they all, at least confusedly, believe in Christ; why so many Disputes and Controversies between them? Or why should the *Lutherans* exclude the *Calvinists*, and the *Calvinists* exclude the Catholicks and *Lutherans* from Salvation? For if every one can be saved by Faith in Christ, every one should be allowed to remain in his Faith undisturbed; which notwithstanding does never happen, even among those Nations who are of that Opinion.

Notwithstanding, say they again, the Testimonies of the Scripture, alledged to support the first Explication; for they are not understood of Christ confusedly, but distinctly, and in particular, with regard to particular Mysteries revealed to us, *v. gr.* when Christ said of himself, that all that believe in him shall not perish; he spoke particularly of his Divinity, as it appears from the Context; where we read this; *He that believes in him is not judged; but he that does not believe is already judged, because he does not believe in the Name of the only Son of God*

God. Therefore it does not suffice to believe in *Christ* confusedly; but it is necessary to believe that *Christ* is the only Son of God.

Likewise, when the Apostle said, that *Christ* is the Foundation of the Faith, he spoke of the particular Mysteries of *Christ*; as he explains himself in other Places, *viz.* of *Christ*'s Divinity, *Rom.* i. 4. *And declared to be the Son of God.* — Of his Humanity, *Gal.* iv. 4. *God sent his Son made of a Woman.* — Of his Passion, 1 *Cor.* i. 23. *But we preach Christ crucify'd.* — Of his Death, Burial, and Resurrection, in the same Epistle, *c.* xv. 3. *For I deliver'd unto you first of all, that which I also received, how that Christ died for our Sins, according to the Scriptures: And that he was buried, and that he rose again the third Day according to the Scriptures.* And lower, *v.* 14. *And if Christ be not risen, then is our Preaching vain, and your Faith is also vain.* — Of his Ascension, *Ephes.* iv. 8. *When he ascended up on high, he led Captivity captive.* — Of his Ascension to the right Hand of God the Father, *Col.* iii. 1. *Seek those Things which are above, where Christ sitteth on the right Hand of God.* And of several other Passages, which St. *Athanasius* has all comprised in his Symbol; and at last concludes thus: *This is the Catholick Faith; which unless every one believes faithfully and firmly, he cannot be saved.*

On the last Explication, where this Principle is established, that all can be saved who believe the 12 Articles of Faith contained in the Symbol of the Apostles; the Catholicks say, that this Principle is true, with these Limitations, 1. If you believe explicitly all the 12 Articles in their true and genuine Sense. 2. If you believe, at least implicitly, the Articles which are not contained in the Symbol, *i. e.* if you believe in general all that the Church believes, and be ready to believe in particular all that the Church proposes to be believed. 3. If you have no Error contrary to the true Faith. 4. If you observe God's Commandments. Whence they conclude thus: Those cannot be saved in their Faith, who neither believe explicitly the 12 Articles of their Symbol, in their legitimate Sense, nor are ready to believe the others which the Church proposes, nor renounce the Error contrary to the true Faith, nor keep God's Commandments.

We'll ask next, *If it be lawful to deny the Faith of Christ to avoid Death?*

Eusebius relates in the sixth Book of his History of the Church, *c.* 37. that antiently there were Hereticks who taught, that those committed no Sin, who during the Persecution, denied *Christ* outwardly, provided they confessed him in their Heart. And that was the Sentiment of several Politicians of those Days; and a very bad one it was. 1. Because it is against the Confession of Faith, which obliges us not to deny the Faith of *Christ* which *Jesus Christ* himself affirms, *Matt.* x. 32. *Whosoever, therefore, shall confess me before Men, him will I confess also before my Father which is in Heaven. But whosoever shall deny me before Men, him will I also deny before my Father which is in Heaven.* Whence St. *Augustin, Tract.* 36. *in Joan. As much as it is Life to confess Christ, so much it is Death to deny Christ.*

It is besides against the Virtue of Truth to do it, even in the Manner mentioned by *Eusebius.* For Truth forbids us lying; but we lye, if we deny *Christ*, whom we confess inwardly. Hence it follows, that for the same Causes, it is not lawful for a Catholick, to deny himself to be such, 1. Because it would be denying the Faith of *Christ*, which is against the Obligation of the Confession of Faith. 2. It would be a Lye, which is against the Obligation of Truth.

We'll ask next, *If it be lawful to dissemble one's Faith?* To which I answer, that there is a Difference between denying one's Faith, and dissembling or hiding it. Therefore if one is asked by *Jews*, *Turks*, or *Gentiles*, if he be a Christian; if the Person who asks him that Question be in a publick Office, he cannot dissemble, or use ambiguous Terms, but must confess openly, that he is a Christian, even to the Risk of his Life. But if he be asked by a private Person, who has no Right to do it, he can evade it by an ambiguous Answer.

But a Person living among *Gentiles* or Hereticks, can in Time of Persecution, fly or hide himself not to be exposed to give an Account of his Faith, and to avoid Death. According to this of St. *Matt.* x. 23. *But when they persecute you in this City, fly ye into another.* Which has been confirmed by St. *Paul*'s Example; who while the Gates of the City were guarded, lest he should escape, was let down in a Basket over the Walls, to facilitate his Flight.

Such a Flight, notwithstanding, is unlawful in some Circumstances, especially in a Pastor or Bishop, who, by Reason of his Office, is obliged to stay among his Flock, in Time of Persecution, even at the Risk of his Life: And that for two Causes, 1. Lest those, under his Conduct, who stay in the Persecution, should be left without a Pastor, whose Presence is then very necessary. 2. For fear the Infidels should despise our Religion, by seeing it deserted by its Pastors, when they should appear in its Defence.

It may be asked next, if it be lawful to pretend to be of another Religion, than that we really profess? Which can be done in two Manners, 1. By Words, as if one should say that he is a *Jew*, a *Turk*, or a *Gentile*, and is not; which is never allow'd, since it is both denying the Faith of *Christ*, and telling a Lie. 2. By outward Signs, as if with Idolaters he should adore an Idol, pray publickly with Hereticks, hear their Sermons, and the like. The Question is thus, if it be lawful for a Christian or a Catholick, living among Infidels or Hereticks, to make Use of those Signs, to hide his Religion, lest he should be killed.

Some are of Opinion, that it is lawful to do it; provided it be done with the Intention of Dissembling only, without any formed Design of professing a false Religion; which Sentiment seems to have been that of St. *Jerom*, who says on the second Chapter of the Epistle to the *Galatians*, that *Dissimulation is useful, and must be used in Time.* And excuse the Apostles, who, by Dissimulation, observed the *Jewish* Ceremonies, though they were already abrogated and unlawful.

Others use a Distinction; for the external Signs whereby a false Religion can be dissembled, may be reduced to two Chiefs. Some of them are properly and particularly instituted, for the Worship of a false Religion; and others, though they belong properly to Infidels, are, notwithstanding, instituted for another End than that of the Worship. They believe that the former are unlawful, but not the latter.

It could be likewise very well asked in this Place, if it be lawful for a Catholick to dissemble his Religion, to avoid paying double Taxes, *&c.* which I hope none of them would answer in the Affirmative.

The next *theological* Virtue, is HOPE, which is a Virtue infused by itself, whereby the Faithful expects with Confidence in this World, the salutary Goods, and in that to come the eternal Beatitude, by the Merits of Christ.

The Difference between Hope and Faith, and between the Subject of both, is, that Faith is an Act of the Understanding; and supernatural Hope of the Will.

Hope, in the natural Order, is posterior to Faith. According to the Council of *Trent*, *Sess.* 6. *c.* 8. where Faith is called the Beginning of human Salvation, the Foundation and Root of all Justification. Which is also the Sentiment of St. *Augustin*, *in Enchirid. c.* 8. nothing is hoped for but what is believed.

Which Sentiment is likewise agreeable to Reason, because *Hope* includes a supernatural Love, if not a perfect one, and of Amity, at least an imperfect one, and of Concupiscence. But every supernatural Love pre-supposes some supernatural Knowledge of the Thing loved; since Will which is blind, is not inclined towards a Thing unknown. Therefore *Hope* is in the natural Order, posterior to Faith; and in that Order only; because *Hope* is prior to Faith in Order of Dignity.

God alone is not only the final Cause, and the Object, at least primary, but likewise the efficient and principal Cause of *Hope.* Whence *Jeremiah* xvii. *He that confides in Man, is said to be cursed*, i. e. when he confides in him as the primary Cause of his Happiness. Which I say on Purpose, because a Man may confide in another, as in a second Agent, or secondary Cause of the Means which contribute towards eternal Happiness. For one can pray for the other, administer him the Sacraments, exhort him, *&c.* which the Apostle thought so very true, that in his Epistle to the *Philippians*, he makes

makes no Difficulty to hope in the Prayers of the Saints.

As to the *Gift of Fear*, which is annexed to *Hope*, it may be asked what it is; and how many Sorts of *Fear* there are? Which to answer, pertinently, we must observe, 1. That we mean here that *Fear* only which resides in the rational Appetite; and not that which resides in the sensitive, irrascible Appetite. 2. That it is asked here what is that *Fear* which resides in the Will, and how many Sorts; which pre-observed,

I answer, 1. That the *Fear* meant here is commonly defined, *A Motion of the Will, averse to an absent and imminent Evil.*

2. That such a *Fear* is divided into *worldly*, *servile*, *filial*, and *initial*.

A *worldly Fear*, is a Motion of the Will flying a temporal Evil, in committing a Sin. As it happens when any Body through Fear of Death does a Thing forbidden.

A *servile Fear* is avoiding Sin, not because it offends God, but because it is attended with a Punishment.

A *filial Fear*, avoiding Sin, or to offend God, because he is our Father.

An *initial Fear*, is a Motion of the Will avoiding Sin, because it is the Cause of Punishment. This *Fear* is called *initial*, because it becomes those who begin to walk in the Way of God's Commandments, actuated in Part by the Love of Virtue, and in Part by the Fear of Pain.

Of all these different Sorts of Fear, none belong to Hope, but that which is simply and properly *servile*, because it regards the Flight from Sin to avoid the Evil which is contrary to the Object of Hope, *i. e.* to avoid eternal Damnation, which is contrary to eternal Happiness.

I have said the *Fear simply servile*, because Fear simply servile, does not belong to Hope, since it includes some Inclination of doing what is unlawful, if it could be done with Impunity.

We'll ask next, *if every one of those Fears is good?*

To which I answer, that a *worldly Fear* is bad, and forbidden; which I prove by the Scripture, Fathers, and by Reason.

By the Scripture, *Matt.* x. *Do not fear those that kill the Body*, &c.

By the Fathers, particularly St. *Basil*, *Hom.* 5. where he calls that Fear, *Enemy*.

By Reason, because such a *Fear* diverts Man from his last End. Because he that fears of that Kind of Fear, makes no Difficulty to offend God, provided in doing it, he can avoid some Pain, or Incommodity; such was the Fear of St. *Peter*, when he denied *Christ*.

I answer, 2. That a *servile Fear* is good when consider'd specificatively only, and according to its Substance, *i. e.* when it is simply servile; but bad when reduplicatively servile.

I prove the first Part of my Answer by the Scripture, Councils, Fathers, and by Reason.

By the Scripture, where we are often invited to that Fear, *Matt.* iii. *O Generation of Vipers, who has warned you to flee from the Wrath to come.* And *Matt.* x. *But rather fear him which is able to destroy both Soul and Body in Hell.*

By the Councils, particularly that of *Trent. Sess.* 14. *c.* 2. where it is said, that the Attrition proceeding from a Fear of Hell, if it excludes the Will of Sinning, is a Gift of God, and an Impulse of the Holy Ghost, not inhabiting, but moving only, whereby the Penitent being assisted, he prepares to himself a Way to Justice.

By the Fathers, particularly St. *Basil*, *Hom.* 8. *in Psalm* 33. where he says, that such a *Fear* is an Introduction to Piety and Charity. Whence the same Father *Hom.* 9. *in Psalm* 34. praised that Fear as very salutary.

By Reason, because this *Fear* not only does not say an Aversion to the sovereign Good, but is supposed to include no Inclination to Sin: But is likewise some Disposition to Justification and Charity. As St. *Augustin* insinuates it, *Tract.* 9. *in Epist.* 1 *Joan.*

I prove the second Part of my Answer by the Fathers, and by Reason.

By the Fathers, particularly St. *Augustin*, *lib. de spirit. & lit. c.* 31.

By Reason, because that *Fear* includes some Inclination to Sin; since it includes an Inclination to do what is not lawful, if it could be done with Impunity.

I answer, 3. That a filial Fear is good, which I prove by the Scripture, and by Reason.

By the Scripture, which prefers that Fear to all other Gifts, *Eccles.* xii. *There is no greater than he that fears God. Eccles.* xxv. *How great is he that has found Wisdom and Knowledge, but there is no greater than he that has found the Fear of God. The Fear of God is above all Things.*

By Reason, because this Fear includes Charity, and produces several good Fruits, the principal whereof are those that follow, *viz.*

1. A Hatred of Evil, and Expulsion of Sin, *Prov.* viii. *The Fear of the Lord is to hate Evil.* Whence St. *Ambrose* says, *lib.* 1. *hexam. c.* 4. *He that fears God declines Error, and directs his Steps towards the Paths of Virtue. For unless one fears God he cannot renounce Sin.*

The second Fruit is a Conversion to a better Life; *Isaiah* xxvi. *Of thy Fear we have conceived and brought forth a Spirit of Salvation.* Whence St. *Augustin* says in the Sentences, that *the Love and Fear of God induces us to all that's good, and the Love and Fear of the World to all that's bad.*

The third Fruit is a Constancy in Temptations, *Proverbs* xiv. *In the Fear of the Lord is strong Confidence.* Whence St. *Cyril* on *Isaiah*, speaks thus, *We must believe that the Fear of God is as a strong Wall to the Soul; which is thereby rendered in some measure invincible*, &c.

The fourth Fruit is an Affluence of temporal Goods. *Psalm* iii. 4. *Fear God all his Saints, because those who fear him are never in want. His Seed shall be powerful on Earth, Glory and Riches in his House.* Whence St. *Chrysostom*, *Hom.* 69. *ad Popul. If we have the Fear of God, we want nothing. But if we have it not, though we should be Masters of a Kingdom, we are the poorest of all.*

The *fifth Fruit* is a true Joy of Heart. *Eccl.* 1. *The Fear of God shall delight the Heart, and give Pleasure and Joy, and lengthen the Days.*

The *sixth Fruit* is a certain Confidence, that the Life shall end well. *Proverbs* xxiii. *Be thou in the Fear of the Lord all the Day long; for surely there is an End, and thine Expectation shall not be cut off.*

From what we have said, it may be inferred, 1. That there is a Difference between a filial and a servile Fear; which does not render, notwithstanding that Fear, simply servile, incompatible with Charity in this Life. Since a Servant can love his Master though he may be punished by him.

2. That the filial Fear shall remain in Heaven, tho' the servile Fear shall not. For it is written, *Psalm* xix. *The Fear of the Lord lasts for ever.* Whence St. *Augustin*, *The Soul*, says he, *when it comes to the Embraces of God, fears, but with Security.*

I answer, 4. that the *initial Fear* is Good. Because, though it has something of the servile Fear, it does not, notwithstanding, include it essentially, but has it only as an Adjunct; and therefore does not differ essentially from a filial Fear, but only as the imperfect from the perfect, as an initial Fear, including a less intense Charity than a filial.

If I be asked *in what Sense the Fear of the Lord is said to be the Beginning of Wisdom*; I'll answer that it is not thus called by Reason of Knowledge. Because, according to St. *Augustin*, *lib. de Predestinat. Sanct. c.* 7. Faith is given first, whereby all the rest is impetrated; but it is thus called by Reason of Operation, because one acts well, either because he fears God should punish him, or that he should be separated from him.

As to the *Object of Hope*, there is a material One, and the other formal; and each of them admitting of some Difficulty: Therefore we'll ask first what must be established for the material *Object of Hope?* Which to answer pertinently, we must observe, 1. That three Things are to be explained here, 1. What must be established for the adequate material Object of Hope. 2. What for the primary inadequate; and 3. What for the partial and less particular material Object.——3. That the adequate

quate Object of an Habit, can be said adequate in two Manners. 1. Purely, simply, absolutely, *viz.* when the Habit considers nothing else but the Object. 2. By Reason of the Attribution only, when it is such that all the rest that occupies such an Habit is referred to it. 3. That the eternal Beatitude can be considered in two Manners. 1. As Objective. 2. As formal; the Objective is God himself, and the Formal is the Possession of God. These preobserved,

I answer, 1. That the Object of Hope, purely, simply, and absolutely adequate, is all absent, arduous, and possible Good, which includes in itself, adequately taken, our supernatural End, and all the Good which can contribute towards the Acquisition thereof; because such a Good not only contains the eternal Beatitude, but all other Good which is a Participation thereof, or have some Relation to it. St. *Augustin* in the Enchiridion to *Laurentius*, c. 114. intimates, that that Good taken adequately is contained in the Lord's Prayer; when he says that of all the Things which are to be believed, those pertain only to Hope, which are contained in the Lord's Prayer; *Tertullian*, *lib.* 2. *de orat. c.* 1. insinuates the same, when he calls the Lord's Prayer, the *Breviary* of the whole Gospel.

I answer, 2. That the eternal Beatitude, as well formal as Objective, is not the adequate Object of Hope, simply, but only the Object of Attribution; because *Hope* regards something else besides Beatitude. But as it considers that something, in order to obtain the Beatitude; hence it is that the Beatitude is the adequate Object of Attribution of Hope.

I answer, 3. That not only the formal Beatitude, but, likewise, the Objective can be said the primary partial Object of Hope, which I prove by the Scripture and by Reason.

By the Scripture; which proposes sometimes God himself, and sometimes God's Possession for such an Object, *Psalm* cxlii. *Thou art my Hope, O Lord. Rom.* v. *We rejoyce in hope of Glory, according to the Hope of the eternal Life, which God, who never lies, has promised*, &c.

By Reason; because that is the primary partial Object of Love, towards which Hope is particularly employed, and in relation to which he considers all other Things; the eternal Beatitude, both formal and objective being such, as it appears by its being, 1. The Thing which God has promised us above all others. 2. And that which he proposes to us to search above all others by our good Works. *Matt.* vi. *Seek ye first the Kingdom of God, and all these Things shall be added unto you.* 3. Because it can principally satiate the Appetite, as it appears from *Psalm* xvii. *I'll be satiated when thy Glory shall appear.*

I answer, 4. That the partial and less principal Object of Faith is all that can serve as a Means either to acquire the eternal Beatitude, or to possess it actually, whether that Means be spiritual and supernatural, or not. Which I prove by the Scripture, and by Reason.

By the Scripture, which proposes several Things to be hoped, distinct from the eternal Beatitude, *Matt.* vi. Christ teaches in the Lord's Prayer what is to be asked and hoped, besides the eternal Beatitude.

By Reason, because what Hope considers and covets, besides the Beatitude, it considers and covets it, with regard to it. Since it is the Property of that Virtue to will the End and the Means.

We'll ask next, *what must be established for the formal Object of Hope?* To which I answer, that the Goodness which is in the Things we hope, inasmuch as it is either our sovereign supernatural Good, which we can obtain by the Assistance of Grace, and through the Merits of Christ; or that it has some Habitude of Means towards obtaining or preserving that sovereign Good, is the formal Object of Hope.

Because that is the formal Object of Hope, which is the formal Object of the Love of Concupiscence, from which Hope proceeds; Hope being a Motion of the Will pursuing the clear Vision of God, not as he is absolutely good in himself, but as he is relatively good, *i. e.* good to us; but the formal Object of the Love of Concupiscence, from which Hope proceeds, is that Goodness itself of the Things hoped, either as it is our sovereign Good, or as it has some Habitude of Means towards obtaining, or preserving it; for such Goodness thus considered, can be the Object of some supernatural Love, *viz.* either of a Love belonging to Charity or to Hope; but is not the Object of a Love belonging to Charity, because such a Love considers its Object as it is good in itself: Therefore it is the formal Object of a Love belonging to Hope. Whence by Consequence it can be said, that the formal Object of a theological Hope, is the Goodness of Things hoped, either as it is our sovereign Good, or as it has some Habitude of Means towards obtaining or preserving it. For by such an Object Hope is very well understood established in itself, and distinct from all the other theological Virtues.

From Hope I'll pass to *Charity*; which is the last of the theological Virtues, according to the common Manner of reckoning them. And relate first the different Manners of expressing *Charity*, either in the Scripture, or by the Fathers.

1. It is taken for *Beauty and Handsomeness.* 2. *For the Act, or Effect of Charity.* 3. *For the Love of God towards us.* 4. *For God himself.* 5. *For the very Act of Charity, either of God towards us, or of us towards God.* 6. *For a supernatural Habit, raising the Will, and inclining it to love God, of a supernatural Love of Benevolence.*

I'll treat of Charity in this Place, according to its fifth and sixth Signification; beginning by explaining what's *habitual* and *actual Charity.* Observing, 1. Previously to it, that I'll be more diffused on the Habit of Charity than on the Act; since we can easily understand what an Act of Charity is, when we have a sufficient Knowledge of the Habit. 2. That I'll define here that supernatural Charity whereby God is beloved, as Author of Grace and Glory; and not the natural one, whereby he is beloved as the Author of Nature. These pre-observed,

I say, 1. That the *habitual Charity* is commonly defined a theological Virtue infused of itself, whereby God is loved for himself, and our Neighbour for God.

It is called *Virtue*, because the Definition of Virtue becomes it; and it is a special Virtue, because it has a special Object. Notwithstanding that it is the Root of all the Acts which proceed from the other Virtues; as it can be inferred from the Words of the Apostle, 1 *Cor.* xiii. *Charity suffers long, and is kind*, &c. because it is not the Root of such Acts, as producing them, but only as commanding them.

It is called *theological*, because it has God both for its material and formal Object.

It is said *infused by itself*; because it cannot be had otherwise than by Infusion; and differs in that from all other Habits infused by Accident. That Charity is infused by itself, is proved by the Scripture, *Rom.* v. *The Charity of God is diffused in our Heart, by the Holy Ghost which is given to us.*

It is said, *whereby*; to denote its supernatural elicitive Principle super-added to the Will.

It is said, *is beloved*; to denote the Act of that Habit; for the Act of Charity is Dilection, which is nothing else but to will Good to the Person beloved; either by Complaisance, if he possesses already that Good; or by Desire, if he does not possess it yet.

It is said, *God*; to express the material Object: For God is to be loved with all our Heart, and above all Things.

It is said, *for himself*; to indicate the formal Object; which is the Goodness of God, considered in itself without any Regard to us.

It is said, *and our Neighbour*; to shew the secondary material Object of Charity; for we must love our Neighbour like ourselves for God's Sake.

If I be asked, what is to be understood by the Word Neighbour? I'll answer, that by our Neighbour is to be understood every intellectual Creature, which is either already Partaker of the eternal Felicity, or at least capable thereof. Whence it appears that an Angel, and a Blessed, and every Man in this World, even the most vicious, must be reckoned among our Neighbours. Which cannot be said of those that are damned, and of the Devils, who are excluded from the eternal Beatitude by a decretorial Sentence of God.

I say, 2. That *actual Charity* can be defined, an Act of the Will, whereby God is loved for himself; and our Neighbour, like ourselves, for God's Sake.

This

This Definition wants no Explication, ſince it is well enough underſtood, by what I have ſaid of habitual *Charity*.

From what I have ſaid it is inferred, 1. That *Charity* is a true Amity between God and Men. As it appears from the Scripture, which calls the Elect God's Friends, *Pſalm* cxxxix. *Thy Friends, O God, are much honoured.* *Luke* xii. *I ſay to you my Friends.* *John* xv. *I'll call you no more Servants, but Friends.* From Reaſon; becauſe it has all the Conditions of a perfect Amity. For, 1. It is a certain Benevolence by itſelf, ſince by it God is loved for himſelf. 2. It is mutual and reciprocal. 3. It is open, ſince God knows perfectly well, if we love him; and we know of a moral Certainty, whether God loves us, *viz.* when we are not conſcious of any mortal Sin, which is ſufficient; according to the Apoſtle, *Rom.* viii. *The Spirit of God witneſſes to our Spirit, that we are the Children of God.* Add, that there is a certain Converſation between God and Man, if not ſenſible, at leaſt ſpiritual, as it appears, *John* xiv. *He that has my Commandments and keeps them, he it is that loves me; and he that loves me ſhall be loved of my Father, and I will love him, and manifeſt myſelf to him.*

2. There may be inferred the Difference between Faith and Charity; Faith being an Act of the Underſtanding; and Charity an Act of the Will.

3. The Difference between Hope and Charity: For though theſe two Virtues belong to the Will, they notwithſtanding differ in ſeveral Things. 1. In that Charity regards Good conſidered as in itſelf, *i. e.* whether it be abſent or preſent: But Hope regards particularly an abſent Good. 2. In that *Charity* baniſhes Fear; and Hope admits Fear. 3. In that *Charity* regards a delectable Good; but Hope regards more particularly an arduous Good. 4. In that Charity tends towards God as good in himſelf, without any Regard to us; and Hope tends towards him as good to us, and Author of our Beatitude: Whence it appears, that *Charity* includes a Love of Benevolence, and Hope a Love of Concupiſcence.

CHARITY, like the other theological Virtues, has two Objects, one *material*, and the other *formal*.

The *material Object of Charity*, purely, ſimply, and abſolutely adequate is God, ourſelves and our Neighbour.

God can be called the *inadequate Object of Charity*, but *primary*, becauſe Charity regards God firſt, and loves nothing but for his Sake. The Reaſon whereof is, that God's Goodneſs, which is the Object of *Charity*, is eſſential and infinite, containing all other Goodneſs. Whence it is not ſurprizing, if the Precept of loving God is laid down by Chriſt himſelf, as the firſt and greateſt Precept, *Mark* xii.

The leſs principal inadequate Object of *Charity*, is either our Neighbour or ourſelves. Becauſe *Charity* regards our Neighbour or ourſelves, but in a ſecond Inſtance; whence the Precept of loving our Neighbour is called by Chriſt the ſecond Precept.

The *adequate Object of Charity*, is all that's good, as well natural as ſupernatural, which contains in itſelf, and under itſelf, all the Things, which, as God's Good can be loved for his Sake. Becauſe the adequate Object of Charity is all the Good we will to a Perſon, for God's Sake, whether it be God himſelf, or our Neighbour, or ourſelves; notwithſtanding that ſuch an Object be a created Object; becauſe that does not hinder it from being God's Good, and from contributing towards his Glory.

If I be aſked, if a Man can love himſelf? I'll anſwer in the Affirmative; becauſe according to both his Parts Man is capable of Beatitude, but in a different Manner; primarily as to his Soul, and ſecondarily as to his Body. Whence he is primarily amiable by reaſon of his Soul; and ſecondarily, by reaſon of his Body.

As to the *formal Object of Charity*. The eſſential and infinite Goodneſs of God conſidered in itſelf, *i. e.* without any Regard to us, is the formal Object of *Charity*, becauſe God's Goodneſs conſidered thus, is what directs *Charity* towards God, our Neighbour, and us: For we love God for himſelf, *i. e.* for his ſovereign, infinite, and eſſential Goodneſs; and we love our Neighbour and ourſelves, for his Sake; or for the Goodneſs we have from him by Participation, and which ſhines in our Neighbour and us.

As to the *different Acts, Effect, and the Excellence of Charity:* We'll aſk firſt, *which are the Acts of Charity?* Which to anſwer pertinently, we muſt obſerve, 1. That the Act of Charity is either internal or external.—2. That both thoſe Acts are either of Proſecution, or of Averſion, or of Slight.—3. That the Act of *Charity* can be conſidered beſides in two Manners, *viz.* either as elicit, or commanded. The elicit is that which proceeds immediately from Charity itſelf. And the commanded, is that which proceeds from another Habit, but ſtill by a Motive of *Charity*; ſuch is an Act of ſpiritual or corporal Mercy. Theſe pre-obſerved,

I anſwer, 1. That the *principal internal Act of Charity is Dilection.* Becauſe the principal Act of *Charity* is that whereby we will, inwardly, Good either to God, or to us, or to our Neighbour.

I anſwer, 2. That the ſaid internal Act of *Charity* can be divided into a triple Act, *viz.* into a Love of Benevolence, of Deſire, and of Complaiſance or Joy, becauſe we either will, or wiſh Good to the Perſon beloved, without conſidering whether the Good be preſent or abſent, and thus it is a Love of Benevolence; or we wiſh him a preſent Good which he has not, and thus it is a Love of Deſire, which if it be inefficacious, is called a ſimple Deſire; and if efficacious, Dilection: Or we wiſh him a Good which he has already, and thus it is a Love of Joy, ſince he is ſuppoſed to rejoice in ſuch a Good preſent, and poſſeſſed.

I anſwer, 3. That to *the triple Act of Proſecution anſwers a triple Act of Flight or Averſion.* The firſt is of *Hatred*, the ſecond of *Fear*, and the third of *Sorrow*. Becauſe as by a triple Act of Proſecution, we will Good to the Perſon beloved, for God's Sake: Likewiſe by a triple Act of Flight we are averſe to the Evil oppoſite to that Good in the Perſon beloved; and we are averſe to it for God's Sake.

I anſwer, 4. *That the external Act of Charity towards God, is the ſame Dilection, as manifeſted outwardly.* This wants no Proof, ſince it is evident enough from what we have ſaid.

I anſwer, 5. That there are three Sorts of external Acts of *Charity* towards our Neighbour, viz. *Beneficence, Alms*, and *fraternal Correction.* Becauſe we either do good to our Neighbour from an internal Affection of Charity, *i. e.* we actually, and in fact do him ſome good Office, and thus it is a Beneficence: Or we relieve him in his Miſery, from a Motive of Charity which is Alms: Or we endeavour to recall him from his licentious, diſorderly, or criminal Life, which is fraternal Correction.

If I be aſked, *which are the Effects of Charity?* I'll anſwer, that of a great Number of Effects of Charity, theſe are to be eſteemed the greateſt. 1. *It gives Life and Merit to the other Virtues.*—2. *It carries off Sins and Imperfections.*—3. *It protects in a particular Manner thoſe who have it, and renders them worthy of the reciprocal Love of God, and of the eternal Life.*—4. *If it be perfect, it ſo ſtrengthens the Friend as to render it intrepid.*—5. *It renders Chriſt's Yoke eaſy, and light.*—6. *It contributes to the Perfection of him that has it.*

I prove the firſt Part, *viz.* that it gives Life and Merit to all the other Virtues, ſince it is not only the Mother, but the Queen of them all. That it is the Mother appears from the Scripture, *Wiſdom* iv. *All Things are likewiſe come to me along with it.* That it is the Queen, and in that Quality gives all the other Virtues Dignity and Merit, is alſo conſtant from the Scripture, 1 *Cor.* xiii. *Though I ſpeak with the Tongues of Men, and of Angels, and have not Charity, I am become as ſounding Braſs, or a tinkling Cymbal.—And though I beſtow all my Goods to feed the Poor; and though I give my Body to be burned, and have not Charity, it profits me nothing.*

I prove the ſecond Part, that it *carries off Sins and Imperfections*; by its being thus wrote of *Magdalen*, *Luke* vii. *Her Sins, which are many, are forgiven, becauſe ſhe loved much.* 1 *Peter* iv. *For Charity covers a Multitude of Sins.* But how does it cover it? *Not to remain, but to be carried off*, ſays St. *Auguſtin*, on theſe Words of *Pſalm* xxxii. *Bleſſed are they whoſe Iniquities are remitted, and whoſe Sins are covered.*

I prove the third Part, *viz.* that it protects thoſe in whom it is found, and renders them worthy of the reciprocal Love of God, and of the eternal Life. For it is wrote, *Pſalm* cxliv. *That God guards thoſe that love him.*

Prov. viii. *I love those that love me. John* xiv. *He that loves me shall be loved by my Father, and I'll love him, and manifest myself to him.*

I prove the fourth Part, *viz. that if the Charity be perfect, it strengthens the Soul so as to render it intrepid.* According to *John* iv. *Perfect Charity casteth out Fear:* because Fear has Torment: He that fears is not perfect in Charity. Whence it is not surprizing if the Martyrs offered themselves to their Persecutors without Fear.

I prove the fifth Part, *viz.* that *Charity renders Christ's Yoke easy and light.* Because it fills the Soul with Satisfaction and Joy; whence they delight in the Observance of the Law of Christ; *Galat.* v. *And the Fruit of the Spirit is Justice, and Peace, and Joy.*

I prove the sixth Part, *viz.* that *it renders perfect the Person who has it*; because it transforms him by a spiritual and moral Transformation into God; 1 *John* iv. *God is Charity; and he that dwells in Charity, dwells in God, and God in him.*

As to *the Excellence, and Utility of Charity, as well habitual as actual*; we have no need to dwell long on that Subject, since both are evident enough from what we have said already: For what can be more excellent than that Virtue, which we have said to be the End of all Precepts, the Soul of all Virtues, and the Perfection of all God's Gifts? What is more excellent than that Act of Virtue, which not only unites Man intimately to God, but even transforms him into God, in the Manner we have said? What is more useful, which, as already observed, is the Mother of all others; and the Act thereof is, above all others, meritorious of the eternal Life? And lastly, which is more useful than that Virtue, without which, according to St. *Augustin*, all others are of no Service?

As to the *Necessity of Charity*, we'll ask first, *if, and which Charity is necessary of a Necessity of Means towards God?*

To which I answer, that *habitual Charity* is necessary of Necessity of Means, as well to Infants as to Adults. Because without the *habitual Charity*, neither Infants nor Adults can obtain eternal Life; since without that Charity they cannot be agreeable and dear to God.

I answer, 2. That the actual Charity either internal or external, is not necessary of a Necessity of Means to Infants. Because Infants having not yet attained the Use of Reason, are not capable to produce such an Act.

I answer, 3. That actual Charity is necessary of a Necessity of Means to Adults; because Adults cannot be saved without some Act of Dilection towards God: As it may be inferred from Christ's Answer to the Lawyer, who asked him what he should do to obtain eternal Life; to whom the Lord said, *How do you read?* And the Lawyer answering, that it was written, *Thou shalt love thy God*, &c. Jesus told him, *do that and thou shalt live.* And if that be necessary to live of a spiritual and supernatural Life, it is not surprizing that it is said in the first of St. *John* iii. *That he that loves not remains in Death.*

We'll ask next, *if, and which Charity towards God, is necessary of a Necessity of Precept?* To which I answer, 1. That *there is a special Precept of loving God, by an internal Act of Dilection.* According to the Scripture, *Deut.* vi. and *Matt.* xxii. *Thou shalt love the Lord thy God with all thy Heart*, &c. *which is the greatest and first Commandment.*

I answer, 2. That *the Precept of Charity towards God obliges only those who have attained the Use of Reason:* Because the Act of Dilection requires an Act of the Understanding; since the Will is blind of itself, and cannot love what it does not know.

We'll ask next, if there be a Precept of an actual Charity to love one's Neighbour, by an Act of Dilection, both internal and external, whether he be our Friend or our Enemy?

To which I answer, that there is a Precept to love our Neighbour in a natural Manner, but by a supernatural Act of an internal Dilection: Which I prove by the Scripture, the Fathers, and by Reason,

By the Scripture, *Matt.* xxii. *Love your Neighbour like yourself.* 1 *John* iv. and this Commandment have we from him, that *he who loves God, loves his Brother also.* If I be asked what signifies this Particle, *like?* I'll answer with St. *Jerom*, that it signifies only some Similitude, but not all Sorts of Equality.

By the Fathers, particularly St. *Augustin, Lib. de Doct. Christ. c.* 28. where he says, that all Men are to be loved by Affection: But as they cannot all be loved effectually, we must love those whom Fate has joined with us.

By Reason; because there is a Precept of the Preparation of the Mind towards wishing well, and doing well to our Neighbour, which Precept consists in some interior Affection of Love: Therefore there is a Precept of loving our Neighbour by an inward and supernatural Act of Dilection. And that Precept is inseparable from that of loving God. For according to St. *John* i. 4. *He that says that he loves God, and hates his Brother, is a Liar, and there is no Truth in him.* The Conduct of the Jesuits would make one believe, that they look on this Passage as apocryphal.

I answer, 2. That *from a Precept of Charity, we are obliged to an inward and positive Dilection of our Enemies*; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Matt.* v. *Love your Enemies, bless them that curse you*, &c. *For if ye love them only that love ye, what Reward have ye?*

By the Fathers, particularly St. *Augustin*; *there is nothing more marvellous*, says he, *in God's Commandments, but what is commanded to love our Enemies.*

By Reason, because while our Enemies are in this World, they are capable of the eternal Beatitude; and as such must be loved.

If I be asked, *for what Reason are Enemies to be loved by a Precept of Charity?* I'll give for Answer the Doctrine of St. *Clement* of *Alexandria*, 4. *Stromat.* where he explains that Precept: *To love our Enemies*, says he, *is not to love the Evil, or Impiety, Adultery, or Theft; but the Thief, the Impious, and the Adulterer, not for his Sins, but for his being a Man, and the Work of God.*

It may be asked, *if the Precept of loving our Enemies is natural?* Which I answer in the Affirmative; since it existed in the Old Testament; notwithstanding what we read *Matt.* v. taken from the 10th of *Leviticus. Ye have heard that it has been said, thou shalt love thy Neighbour, and hate thy Enemy*; for that was not said by God, but was falsly added by the Scribes.

As to the Precept of giving Alms; we'll ask, 1. *If, and which is the Precept that obliges to give Alms, and when it obliges?*

To which I answer, that *there is a Precept to give Alms, which obliges capitally*; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, which insinuates it, *Matt.* xxv. *Depart from me ye cursed into everlasting Fire, prepared for the Devil and his Angels. For I was hungry, and ye gave me no Meat: I was thirsty, and ye gave me no Drink.* And 1 *John* iii. *But whoso hath this World's Goods, and sees his Brother have Need, and shuts up his Bowels of Compassion from him, how dwelleth the Love of God in him?*

By the Fathers, particularly St. *Ambrose, Lib. de Nabut. c.* 22. *You pay a Debt, you do not make a Present.*

By Reason, because that Precept obliges capitally the Violation thereof is a great Breach of Charity; such as is the Violation of the Precept which obliges to give Alms.

If I be asked, when that Precept obliges? I'll answer, that it obliges when we know that our Neighbour is in Want; and we have something surperfluous of our own; which Superfluity I'll explain hereafter.

Our next Question is, *who is obliged by Precept to give Alms; and of what Goods?* Which to answer pertinently, we must observe, 1. That the Goods which are in a Man's Possession are either necessary for his Subsistence, or for the Decency of his Condition, or are superfluous to him. 2. That the Necessity of the Indigent can be consider'd in three Manners. The first is called *common*, such is that of the Poor who beg from Door to Door. The second is *hard*, which is found in those who have not wherewith to maintain the Decency of their Condition, nor can have it, but with a great Detriment of their Honour, Safety, or of Goods lawfully acquired, though they can absolutely supply their Want, with some Shame, with

with Regard to their Condition, either by working or begging. The third is called *Periculosum*, and is in those, who unless they be assisted, are in an imminent Danger of perishing. These pre-observ'd,

I answer, 1. That *whoever has something superfluous, is obliged to give Alms to the Poor*; which I prove by the Scripture, by the Fathers, and by Reason.

By the Scripture, *Luke* iii. where *John the Baptist* speaks thus to the Multitudes that followed him. *He that hath two Coats, let him give to him that hath none, and he that has Meat, let him do likewise.* Luke ii. *Of what remains*, says Christ, *give Alms.*

By the Fathers, particularly St. *Basil*, *Hom.* 7. *But you*, (says he to the Rich, who did not give Alms, but were avaricious) *are you not Spoilers, by reputing your own, what you have only receiv'd to husband? It is the Bread of the Famished, that you keep from them; the Coat of the Naked, which you keep shut up in your Wardrobe; and the Shoe of the Bare-foot, which grows mouldy in your House; and the Money of the Indigent that you keep buried.*

By Reason, because by the Law of Nature the Poor must be relieved of superfluous Goods; which the aforesaid holy Fathers declare, when they call the Rich, Stewards *only of their Goods.* Notwithstanding what may be said, that they only speak with Regard to an extream Necessity: They speak of that Necessity which is common enough.

From what we have said, it may be easily inferred, that not only the Rich are obliged to assist the Poor, but likewise the Physicians attend poor Patients, Counsellors, and Attorneys, serve poor Clients, *&c.* Therefore let the Rich fear the unhappy Fate of him mention'd in the Parable, *Luke* xvi. who is in Hell for having refused to relieve *Lazarus* in his Misery.

I answer, 2. That *Alms are to be given of one's own proper Goods, and not of those of others, or unjustly acquired.* Which I prove by the Scripture, by the Fathers, and by Reason.

By the Scripture, *Tobit* iv. *Give Alms of your own Substance.* Eccles. xxxiv. *He that offers a Sacrifice of the Substance of the Poor, is like to one who should sacrifice a Son in his Father's Presence.* Isaiah lviii. *Break thy Bread to the Hungry.*

By the Fathers, particularly St. *Ambrose*, *Lib.* 1. *de Offic. c.* 30. *That Liberality is not approved, if what is given to me, be extorted from the other: If he acquires unjustly, what he thinks to distribute justly.* St. *Augustin*, *Hom.* 27. of the 50 Homilies, *God has commanded that we should give of our just Labours, but has forbid to give of Rapine.* And St. *Gregory*, *in Regist. Epist.* 110. *That Alms are agreeable to our Redeemer, which are given not of unlawful Things, and unjustly accumulated, but of Things given, and justly acquired.*

By Reason, because it is not allowed to dispose of another's Goods, or to transfer the Property thereof to another, without the Proprietor's Leave; which is the Case of those who give Alms of another's Property. Add, that Goods unjustly acquired must be returned to the right Owner. Since Justice obliges us to return every one his own.

We'll ask next, *to what Persons Alms are to be given by Precept?* Which to answer pertinently, we must observe, 1. That something can be said superfluous in two Manners, *viz.* of Nature, and of the State of Decency. 2. That a Man can be likewise in three Kinds of Necessity, *viz.* common, grievous, and extream. And, 3. That the Superfluous must be consider'd with Respect to the Necessity of the Indigent. These pre-observ'd,

I answer, 1. That *a Man is not obliged by the Precept of Charity to give Alms, but to those who are really Indigents, or in Want.* Because the Scripture speaks only of the Alms to be given to the Poor, *i. e.* to the Indigent.

If I be asked what we are to do, when we doubt if the Person who calls himself indigent, be really in Want? I'll answer, that we must judge then in Favour of the Indigent, as St. *Augustin* insinuates it, *Epist.* 149. *in receiving Strangers*, says he, *it is better to receive the Bad, than, perhaps, by Ignorance exclude the Good.*

I answer, 2. That *by the Precept of Charity, Alms are to be given, not only to our Relations, Friends, and the Honest, but likewise to Foreigners and Sinners:* Which I prove by the Scripture, and by Reason. *Tobit* 4. *Do not turn thy Face from any Poor:* And *Prov.* xxv. *If thy Enemy is hungry, feed him*, &c.

By Reason; because if all Men, without Distinction, are our Neighbours, we are obliged, therefore, to relieve them by Alms, when they are in Indigence: Which Sentiment is against *Wickliff.*

I may be asked, what *we must think of Magistrates, and of Overseers, who hunt the Poor from one Town, or from one Parish into another?*

I'll answer, that they can justly do it, in the following Cases. 1. If the City or Parish, cannot relieve both the foreign and domestick Poor, for then the domestick are to be preferred. 2. If there be just Reason to suspect, that the foreign Poor bring contagious Distempers, or the like. 3. If foreign Poor be sturdy and strong, and can get a Livelihood by working: But not when the foreign Poor are so entirely destitute, that they are ready to perish for Want; or are so much afflicted with some Malady or other, that in removing them their Life is in imminent Danger; for if they die, then those who have thus hunted them, are guilty of Murder before God. Neither is it any Excuse for those Monsters, who having nothing human but their outward Form, move dead Carcasses from one Parish into another, that they may not be at the Charge of burying them.

The Doctrine of Charity, with Regard to giving Alms to the Poor, who really want it, share the Fate in our Age of all the others which are conducive either to our Salvation, or to the publick Good, or to both, *i. e.* that it is consider'd as a Romance by the Generality of Mankind; for though there is still amongst us a great Number of Persons that give Alms, most of them do it by a Motive of Ostentation, and most commonly to those who want it less; and what's worse, is that sometimes those appointed for the Distribution of these Alms, appropriate them to their own Use; and the most conscientious among them, think they have discharged their Office, when they have given a twentieth to the Poor of what they receive. The same may be said of Hospitals, which though extreamly well founded in *England*, the laudable and generous Intentions of the Founders, are frustrated by the scandalous Parcimony of the Managers, who receive seldom into them any others, but those who can make Friends for it; and shut the Gates thereof with an Inhumanity which irritates Heaven and Earth, against those they were open'd for at first.

I answer, 3. That *he who has something superfluous to his Subsistence, though it be necessary to the Decency of his Condition, is obliged to relieve a Man reduced to an extream Necessity; unless by doing it he exposes himself to the imminent Danger of being reduced himself to the same miserable Condition.*

Because the natural Reason dictates that the Life of our Neighbour is preferable to the Decency of our Condition.

There is a *French* Minister belonging to a *French* Church in the City, who practises this to that Degree of Perfection, scarce to be parallelled in the Infancy of Christianity; for he does not only relieve the Poor of what is superfluous to his Subsistence, but incroaches very often on that Subsistence; exceeding even all the Precepts and Advices of the Scripture on that Subject; for he does not always wait to have two Coats to give one of them to cover the Naked; but often does it with the only one he has left, changing thereby Condition with them; and that without the least Affectation, or Hypocrisy; for he does it with that Chearfulness and Satisfaction, as if he knew no other Pleasure than that of heaping up Treasure in Heaven, by making the Poor sole Depositaries of what he has here upon Earth. I mention this with no other View, than to engage those of the same Profession to follow his Example; not in every Particular, for our Age is not worthy of a great Number of such truly apostolical Men, but only in some Cases; and as a Prodigy of the Age we live in.

I answer, 4. That *he that has something superfluous to the Decency of his Condition, is obliged in Conscience to relieve a Man who is in a great Necessity:* Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, 2 *Cor.* viii. *In the present Time, let your*

your Abundance supply their Indigency, (*viz.* of the Poor.)

By the Fathers, particularly St. *Ambrose*, *Lib.* 1. *de offic. It is a great Sin to know that a Faithful wants, and not relieve him; if you know that he is hungry, is in Distress; particularly if he be ashamed to beg.*

By Reason; because when the Scripture, and the Fathers speak of the Necessity of the Poor, for which Alms are to be given them of the Superfluous, they speak, particularly, of a great Necessity, and of the Superfluous to the Decency of our Condition.

We'll ask next, *if a Man is obliged to love himself better than his Neighbour?* Which to answer pertinently, we must observe, 1. That one can love one's self better than another in three Manners, *viz. objectively*, *intensively*, and *appretiatively*. — 2. That there can be made three Comparisons of one with the other. 1. In Goods corporal, or temporal only. 2. In Goods purely spiritual of one Part, and temporal of the other. 3. That of Goods purely spiritual, some are necessary to Salvation, such are the justifying Grace, Perseverance, Faith, Hope, Charity; and some are not necessary to Salvation, such are the Gift of Chastity, the State of Religion, *&c.* 4. That two Things can be consider'd in Man, *viz.* the Body and the Soul. These pre-observ'd,

I answer, 1. That a Man is not obliged to love himself neither more extensively nor objectively than his Neighbour. Because if he was obliged to it, it would be either by a Love of Complaisance, or of Benevolence; and he is by neither of them; not by a Love of Complaisance, beeause often the Good which our Neighbour is Master of, is greater than that we possess; nor by that of Benevolence, since we are obliged by no Precept to wish ourselves more good than we do our Neighbour, unless it be in Case of Necessity: Therefore, *&c.*

I answer, 2. *That a Man is obliged to love himself better appretiatively than his Neighbour, with Regard to spiritual Goods, at least those which are necessary to Salvation.* Which I prove by the Scripture and by Reason.

By the Scripture, *Matt.* xvi. *What avails a Man if he gains the whole World, and loses his Soul? Or what shall a Man give in Exchange for his Soul?*

By Reason; because what is laid down for a Rule to love another, is more to be minded, than what is regulated; but the Love of ourselves is laid down for a Rule of the Dilection of our Neighbour. According to St. *Matt.* xxii. *Thou shall love thy Neighbour as thyself.* Whence it is commonly said Charity begins at Home, and every one is his own Neighbour: Therefore a Man is obliged to prefer himself to his Neighbour, at least in Things which belong to Salvation.

I answer, 3. That *a Man is not obliged to love himself more appretiatively than the Community, with Regard to temporal Goods.* Because the Good of a Community is of much more Value, than a private Good; therefore it must be preferred.

I answer, 4. That *it is more probable that a Man is obliged to love himself more appretiatively than his Neighbour, with Regard to temporal Goods*, v. gr. *the Preservation of his own Life.* Which I prove by the Fathers, and by Reason.

By the Fathers, particularly St. *Augustin*, *Lib. de mendac. ad Consent. c.* 6. *If any Body*, says he, *for the temporal Life of another, loses his own temporal Life; it is not loving him like himself, but it is loving him more than himself, which exceeds the Rule of sound Doctrine.*

By Reason; because our own Dilection is the Rule of the Dilection of our Neighbour: Therefore as the Rule is of a greater Weight than the Thing regulated, in a Parity of temporal Goods, a Man ought to love himself more appretiatively than his Neighbour. Hence it follows, that a Man in an extream Necessity is more obliged to provide for himself than for another; which Sentiment, though probable, is notwithstanding contradicted by the Conduct of that truly apostolical Man, the *French* Minister heretofore mentioned.

I answer, 5. That *a Man is more obliged to love the spiritual Life of his Neighbour, than his own temporal one, in a Case of Necessity; and thus is obliged to expose his Life for the Salvation of his Neighbour, if he can do it efficaciously.* Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *John* xv. *This is my Commandment that ye love one another, as I have loved you. Greater Love has no Man than this, that he may lay down his Life for his Friends*, 1 *John* iii. *Hereby perceive we the Love of God, because he laid down his Life for us: And we ought to lay down our Lives for the Brethren.*

By the Fathers, particularly St. *Augustin*, *lib. de mendac. ad consent. c.* 6. *Christ*, says he, *has made no Difficulty to lose his temporal Life, for the eternal Life of his Neighbour.*

By Reason; because the Salvation of our Neighbour, is a Good of a superior Order; whence it follows, that not a Pastor only, but every Christian is obliged to expose his temporal Life, in case of Necessity, and if he can do it efficaciously, for the Salvation of his Neighbour.

I say in case of Necessity, and when he can do it efficaciously; because, 1. No body is obliged to give either a corporal or spiritual Alms, but to those who are in Necessity. And, 2. No body is obliged to a needless Act.

We'll ask next, *if a Man is obliged to love one Neighbour more than another?* Which to answer pertinently, we must consider, 1. That those Men who are called our Neighbours, may be considered either as Strangers, or in some Manner near to us. 2. That we can establish here three Sorts of Relations: The first is called the Relation of Blood, and is that between Parents and their Children, Brothers and Sisters, in a Word between all Consanguines. The second is called political, which is found, *v. gr.* between Friends, Fellow-Citizens, Fellow-Soldiers, Copartners in Commerce, School-Fellows, *&c.* The third is called spiritual, such as that which is between the Faithful; whom the Apostle *Galat.* vi. and 1 *Tim.* iii. calls *the Domesticks* of the *Faith*; or between Religious of the same Order, or between a Rector and his Parishioners. 3. That Goods are either temporal or spiritual, as already observed. 4. That of temporal Goods, some belong to Riches, some to Reputation and Honour, and some to the corporal Life. 5. That of those Goods some belong to the Union of Blood, some to the political Union, and some to the spiritual. 6. That the Comparisons of Goods and Persons can be made in two Manners, 1. By putting all Things on a Parity; as when, *v. gr.* our Neighbours are in an equal Necessity, and the Goods they are to be relieved with are of the same Order. 2. In putting them on a Disparity, as when, *v. gr.* our Neighbour is in a different Necessity, or when the Goods they are to be relieved with are of a different Order; for Example, when one of those Goods is corporal and the other spiritual. 7. That it is not so much question here of the greater Dilection, either objectively as intensively, as of the greater Dilection appretiatively. These pre-observed,

I answer, 1. That, *cæteris paribus*, a Man is obliged to love better appretiatively, and prefer his Relations to Strangers; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, 1 *Tim.* v. *But if any provide not for his own, and especially for those of his own House, he hath denied the Faith, and is worse than an Infidel.*

By the Fathers, particularly St. *Augustin*, *lib.* 1. *de doctrin. christ. c.* 28. *you must mind those particularly who are nearer to you.*

By Reason; because this Order is more agreeable to the Inclination of Charity: Though I do not pretend, that we are obliged to ruin ourselves, or our Children, to relieve Relations, who have sometimes nothing but the Name of Relations; and who, far from promoting our Interest, do all they can to undermine us, and reduce us to the same Distress, and perhaps a greater than that they are in: For,

I answer, 2. That in Cases of Necessity, *we are to prefer our own Children, to Fathers, Mothers, Brothers, and Sisters: And after them our Fathers and Mothers, and thus progressively.*

As to the *Vices opposed to the Charity we are to have for our Neighbour*; among a great Number of them, the principal are, *Hatred*, *Envy*, *Contention*, &c.

With regard to Hatred, we must observe, 1. That there are two Sorts of it, *viz.* one of *Abomination*, and the other of *Enmity*. 2. That it is particularly asked here, 1. If all Hatred of our Neighbour be a Sin? 2. What kind of Sin be that Hatred, which is contrary

to Charity. These pre-observed,

I say, that *all Sort of Hatred is not a Sin of Abomination:* For to hate Evil in a Person, is so far from being a Sin, that it is rather an Act of Virtue.

If I be asked, when that Hatred, which is called Hatred of Abomination, is a Sin? I answer, that it is a Sin, when one hates a Quality in another, which is not to be hated; as when, for Example, he hates another because he is a Christian or a pious Man.

I say, 2. That a *Hatred of Enmity* is contrary to the Virtue of Charity, and a mortal Sin, when, for Example, one wishes another ill, because he hates his Person: Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, 1 *John* ii. *He that hates his Brother is in Darkness:* By Darkness is commonly understood a mortal Sin: 1 *John* iv. *If any body say that he loves God, and hates his Brother, he is a Lyar.*

By the Fathers, particularly St. *Gregory, lib.* 10. *moral. c.* 18. *every Sin pollutes the Life of the Soul,* says he, *but a Rancour against our Brother kills it.*

By Reason; because every Sin, especially that opposed to Charity, is mortal in its Kind; for it deprives Men of Charity, which is the Life of the Soul.

As to *Envy.*—We must observe, that four Things may be asked with regard to it: First, what *Envy* is. Secondly, what Sin it is? Thirdly, what Effect it produces? Fourthly, how it can be remedied. These pre-observed,

I say, 1. That *Envy* is commonly defined an inordinate Sorrow of the Good happened to our Neighbour, inasmuch as we believe it detrimental to our own Conscience.

1. It is called *Sorrow*, because by Envy a Man is afflicted of the Evil which he thinks happens to him from the Good of another.

2. It is called *inordinate*, to distinguish it from the Sorrow of another's Good, which is in Order, and of which I'll speak in the Sequel.

3. It is said, *of the Good of another as a proper Evil*; because under that particular Reason alone, Sorrow produces Envy; and not under several others, wherefore a Man is afflicted, either justly or unjustly of the Good of another, *viz.*

1. When any Body is afflicted of the Good of his Neighbour, because he fears hence some Evil to him or to his: As when, for Example, one is sorry that such a Person is chosen for a Magistrate or Judge. If I be asked, *whether that kind of Sorrow is a Sin?* I'll answer by a Distinction; *negatively*, if he has any Reason to believe that thereby some Injustice will be done to him: But *affirmatively*, if he fears that some Evil will happen to him justly, as when, for Example, a Thief or a Murderer is sorry that a Person of Probity and Integrity is made a Judge.

2. When any Body is sorry of the Good of another, for Example, of his Learning, Zeal, and the like, for no other Reason than that he has not the same Perfections: For that Sorrow being only an Emulation is not bad, as if it was not of temporal Goods; for it is then either bad or indifferent, according to the Motive.

3. When a Man is sorry of the Good of another, because he thinks him unworthy of that Good, that Sorrow is commonly called Indignation; and can be sometimes good and sometimes bad. Good if it is with Foundation, and from a good Motive; and bad, if otherwise.

4. When any Body is sorry of the Good of another, because he hates him; which Sorrow is criminal.

5. When any Body is sorry of the temporal Good of another, because he considers it as an Obstacle to his Salvation; which Sorrow is just.

6. When any Body is sorry of another's Good, because it is unlawfully acquired, for Example, to the Detriment of a private Person, or of the Community: This Sort of Sorrow is good, because it proceeds from a Zeal of Justice.

I say, 2. That *Envy* in general is a mortal Sin; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Job* v. *And Envy slayeth the silly one.*

By the Fathers, particularly St. *Chrysostom, homil.* 44. to the People of *Antioch*, where he speaks thus, *the Envious are worse than wild Beasts, semblable to Devils, and perhaps worse.*

By Reason; because a Sin opposed to Charity is mortal, since Charity is the Life of the Soul, 1 *John* iii. *We know that we have passed from Death into Life, because we love the Brethren:* But Envy is opposed to Charity; therefore, *&c.*

I say, 3. That *Envy is a capital Vice*; because several other Vices flow from it as from a Source, *viz.* Hatred, Detraction, Calumny, *&c.*

If I be asked how Envy can be remedied; I'll answer in three principal Manners.

1. By *Humility*; for according to St. *Augustin*, in *Psalm* cxix. *Envy is the faithful Companion of Pride*; whence it is impossible that a proud Man should not be envious; but on the contrary Envy is called the Daughter of Pride, by St. *Prosper, lib.* 3. *vitæ contempl. c.* 9.

2. By the *Love of eternal Life*; which cannot be truly loved, unless we love at the same Time those who are already in Possession thereof, or are capable to possess it: Whence St. *Gregory, lib.* 5. *moral. c.* 34. *He that wants to be without Sin, must love that Inheritance which does not straiten the Number of the Coheirs, which is one and the same for all, and entire for every one.*

3. *By the Example of those who suffer through Envy: For who can consider attentively Envy, for which* Lucifer, *with the apostate Angels*; Cain, Esau, Saul, *and the* Jews *have perished, without abhorring it.*

As to *Discord.*—We must observe, 1. That by the Name *Discord* is generally understood a Dissension of Will and Judgment.—2. That Discord can be taken in two Senses, first, in general for any Dissention, whether it be opposed to Charity, or to other Virtues, especially for that which is opposed to Charity.—3. That *Discord* is opposed to Charity in two Manners; first, by itself. Secondly, by Accident: For a Person is reckoned to be at Variance with another Person, when, knowingly, he differs from the divine Good, and from his Neighbour in what he should agree: And, *per accidens*, when the Intention of both, though tending equally to the Honour of God, or the Ability of our Neighbour, one of them, notwithstanding esteems that a Good, which the other considers otherwise.—4. That with regard to Discord, particularly opposed to Charity, four Things are asked here: First, what it is? Secondly, what Sin it is? Thirdly, whence it proceeds? Fourthly, how it can be cured. These pre-observed,

I say, 1. That the Discord meant here, is commonly defined an inordinate Disagreement of the Will from the Will of another, with whom he should agree by a Motive of Charity.

I say, 2. That Discord is in its Kind a mortal Sin, which I prove by the Scripture, by the Fathers, and by Reason.

By the Scripture, *Proverbs* vi. *There are six Things which God hates, and the seventh his Soul abominates*, viz. he that sows Discord among his Brethren.

By the Fathers, particularly St. *Gregory Nazianzen, in orat. de macerat. in disputat. What is finer in our Doctrine*, says he, *than Peace; and I add also, more useful? On the contrary, what is more shameful and pernicious than Disagreement of Will?*

By Reason; because all Sin opposed to Charity, is, in its Kind, mortal, for the Reason alledged in the preceding Articles: But Discord is contrary to Charity, since it is contrary to Peace, which is an Act or Effect of Charity: Therefore, *&c.*

I say, 3. That the Discord meant here is the Daughter of Vain-glory and Pride; because the Disagreement of Wills proceeds from that a Man prefers his own to what belongs to others.

From what we have said already on this Subject, it is inferred, 1. That all sort of Dissension is not a Sin, but is sometimes lawful; for Example, when two Persons are at Law to defend their Right: For one can differ from the other, provided he does not want to do him any Injury.

2. That all Dissension which is a Sin is not contrary to Charity; but sometimes to other Virtues; and is specified from them.

3. That those Remedies are to be applied to that Vice, whereby Vain-glory is commonly cured and extirpated.

As to *Contention*,—It must be observed, 1. That Contention can be taken in two Manners, 1. Widely, for any

Discord whatever. 2. Properly, for a certain Contrariety in Judgments and Words, or for a Conflict of Words. 2. That all Sorts of Contention is not contrary to Charity; but can likewise be opposed sometimes to other Virtues; *viz.* to Faith, when it is in some Things which one is obliged to believe, to Prudence, when contrary to Things of Practice, without any reasonable Foundation; or to Justice; if it opposes any Thing belonging to Justice: And is contrary to Charity, when one directly differs from another in Sentiment, with a Design to contradict him. 3. That we'll examine here three Things relating to Contentions. 1. What it is, 2. What Sin it is. 3. Whence it proceeds. 4. And how to be cured. These pre-observ'd,

I say, 1. That the Contention meant here is commonly defined, *a Dissention, or Altercation of Words with our Neighbour, against Truth, to oppose that Truth.*

I say, 2. That Contention in general is a mortal Sin; because it is contrary to Charity, which is the Life of the Soul. Whence it is not surprising, that the Apostle reckons it among the Sins which exclude from the Kingdom of Heaven, *Gal.* v.

If I be asked, *whence proceeds Contention, and how it is to be cured?* I'll answer, that like Discord it proceeds from Vain-glory and Pride: Since it proceeds from that one will defend, contrary to all Rules, what is agreeable to his own Imagination, and thereby make a Parade of his own personal Merit: Wherefore that Vice is to be cured by the same Remedies applied to Vain-glory and Pride.

As to *Schism*; it must be observed, 1. That Peace consists in a certain Unanimity and Concord. 2. That that Union is either internal or external. 3. That there are two Sorts of internal Unions, *viz.* one spiritual, and supernatural; and the other temporal, and purely natural. The former is among the Members of the Church; and the latter is found among Men: *Schism* is opposed to the former; and War to the latter. 4. That three Things chiefly are asked relating to *Schism.* 1. What it is. 2. How many Sorts of *Schism.* 3. If, and what Sort of Sin it is. These pre-observ'd,

I say, 1. That *Schism* is commonly defined the Discession of a Person baptised, from the Unity of the Church, which Unity is the Effect of Charity.

I have said, 1. The *Discession*, because *Schism* imports a voluntary Separation.

I have said, 2. Of a *Person baptised*; because no Body is properly a *Schismatick*, unless he has enter'd by Baptism, the mystical Body of Christ; which to explain in a clearer Manner, it may be observed here, that the Church is like a certain animated Body, the Soul whereof is Faith, Hope, Charity, and the Gifts of the Holy Ghost; and the Body the outward Profession of Faith, and the Communion of Faith. And if I be asked, *who are those that belong to that Body, or to some Part thereof?* I'll answer, that the Catechumens, whom I suppose baptised *in voto*, and to have Faith, Hope, and Charity, belongs to the Soul only, of that animated Body; and hidden Hereticks to the Body alone: And the Just who are baptised, to both Body and Soul.

I have said, *from the Unity of the Church formed by Charity*, to distinguish *Schism* from Heresy, whereby one separates himself from that Unity which is formed by Faith. For one can voluntarily separate himself from the Unity of the Church, as to Unity and Obedience, though not as to Faith. According to St. *Augustin*, *Lib.* 20. *contra Faust. c.* 3. where he says, that *Schism is having the same Sentiments, and observing the same Rites with the rest, but to delight in being at Variance with the Congregation.*—But Heresy has Sentiments quite different from those of the Catholick Church.

From what we have said, it can be inferred, that all Hereticks are schismatick, according to St. *Augustin*, *Lib.* 2. *contra Crescon. Grammat.* where he calls *Heresy an inveterate Schism:* But not *vice versâ*; for every Schismatick, without Distinction, is not to be taken for a Heretick. Since *Schism* is not always contrary to Faith; though all *Schism* be an easy Way to Heresy. According to St. *Jerom*, *in Epist. ad Gal. There is no Schism*, says he, *which has not such an Affinity with some Heresy, so as to be consider'd as having abandoned the Church.*

If I be asked *in how many Manners a Man becomes a Schismatick*; I'll answer in two Manners, *viz.*

1. By separating himself from the Church, in refusing a due Obedience to it.

2. By separating himself from the other Members of the Church, *i. e.* from the other Faithful, in the Worship, Prayer, Sacraments, and other spiritual Functions; making a Society apart, as if he was not a Member of the Church.

I say, 2. That *Schism* is chiefly divided into *pure* and and not *pure*; because either it is not joined with Heresy, but is only opposed to Charity, or Peace, which is an Effect of Charity; and this is a pure Schism; or is joined with Heresy, and thus is not *pure*; because opposed both to Charity and Faith.

Schism, in its Kind, is a mortal Sin, which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, 1 *Cor.* xii. *That there should be no Schism in the Body.* And *Ephes.* iv. *Supporting one another in Charity, taking Care to preserve the Unity of the Spirit, in the Knot of Peace.*

By Reason; because *Schism* is directly and immediately opposed to the End and Effect of Charity: Notwithstanding that *Schism* might proceed from other Motives, *viz.* Hatred and Envy.

With Regard to War, we'll ask first, *what War is, how many Sorts of War; and in what it differs from Sedition and Riot?* Which to answer pertinently, we must observe: 1. That *War* is called *Bellum* in *Latin*, by Antiphrasis. 2. That *War* is either *offensive* or *defensive.* These pre-observ'd,

I answer, 1. That an *offensive War* is commonly defined, the taking up Arms, to take a Revenge of the Wrongs done to the Republick.

From this Definition may be easily inferred, the Difference between War, Riot, and Sedition. For *War* is of a whole Community or Kingdom against Foreigners; Sedition, of a Multitude against a Multitude in the same Community; and Riot of few against few.

I answer, 2. That *an offensive War can be divided into just and unjust.* Either because it is undertaken without a lawful Authority; or without a just Cause; and then is *unjust*; or with a lawful Authority, and a just Cause; and is then a just War.

If I be asked, *whether a War can be unjust on both Sides?* Because it may happen sometimes, that one of the Party espouses an unjust Cause; and the other declares War without a lawful Authority.

We'll ask next, *if it be lawful for Christians to undertake either an offensive or a defensive War, not only against Infidels, but likewise against Christians?* Which I answer in the Affirmative, and which I prove by the Scripture, by the Fathers, and by Reason.

By the Scripture, which praises certain *Wars* undertaken by holy Men, *viz.* by *Abraham*, *Gen.* xiv. *Moses*, *Joshua*, *Samson*, *Gideon*, *David*, the *Maccabees*, and others, to whom God commanded to wage *War* against the Enemies of the *Hebrews.*

By the Fathers, particularly St. *Augustin*, in several Places; but more particularly, *Lib.* 22. *contra Faust. c.* 34. and *Serm.* 19. *de verb. Domin.*

By Reason; because that can be considered as lawful, which is neither an Evil in itself, nor forbidden by any Precept; but a just War is not an Evil in itself, neither is it condemned by any Precept; therefore, *&c.* for neither Christ himself, *Matt.* xxviii. forbids it the Centurion; nor St. *John*, *Luke* iii. to Soldiers: Therefore a War can be lawfully undertaken by Christians, not only against Infidels, but likewise against Christians: Nay, it can even be sometimes necessary, *viz.* when an Injury cannot be repelled otherwise; nor the Enemies who disturb the Peace of a Kingdom, or of a Republick, otherwise repelled.

It may be objected that a *defensive War*, and much more an *offensive* one, is contrary to the divine Precept; since it is written *Matt.* v. *For I say unto you*, (said Christ to his Disciples) *resist not Evil: But whosoever shall smite thee on thy right Cheek, turn to him the other also.* And, *Rom.* xii. *Not defending yourselves, beloved.* Therefore *War* is not lawful.

To which I answer, according to St. *Augustin*, *Lib.* 1. *de Serm. dom. in monte*, *c.* 34, 35, 36, that that Precept is to be observed in the Preparation of the Mind, so that a Man be always ready to not resist nor defend himself.

ſelf if it be wanted: But one is often obliged to act otherwiſe for the common Good.

It may be objected further, that *War* is the Source of ſeveral Evils, and therefore is not lawful.

To which I anſwer by a Diſtinction; *War* is the Source of ſeveral Evils by Accident; but not by itſelf. To which may be added, that much more Evils would follow, if *War* was not allowed.

It may be urged, that War is againſt an honeſt Peace, and the Dilection of Enemies; and therefore is not lawful: Which I deny, becauſe War is ſo far from being againſt an honeſt Peace, that it is often the contrary the ſureſt Means to obtain Peace; that it is not againſt the Dilection of Enemies, is apparent from that he who makes War does not hate the Perſons, but the Deeds which he puniſhes juſtly.

I ſaid in my Anſwer, *provided it be lawfully and juſtly undertaken*; for unleſs there be the Conditions required to begin and purſue a War, it is not only unlawful, but even ſometimes unjuſt: Therefore,

We'll aſk next, *which are thoſe Conditions requiſite to render a War lawful and juſt?* Which to anſwer pertinently, we muſt obſerve, that we aſk here chiefly whether theſe three Conditions be required, *viz.* a *lawful Authority*, a *juſt Cauſe*, and a *righteous Intention*. Theſe pre-obſerved,

I anſwer, 1. That *to begin and purſue lawfully, and juſtly, an offenſive War, a lawful Authority is required.* Becauſe by a Maxim of the Law, there is no greater Defect than a Defect of Power, when it is queſtion of ſome Act requiring ſome Juriſdiction in the Man who exerciſes that Act: But War is an Act of Juriſdiction, and requires a Juriſdiction in the Perſon who undertakes it; Therefore War is neither lawful nor juſt, if it be undertaken without a lawful Authority and Juriſdiction. To which can be added, that he who thus undertakes an unjuſt War, is obliged to a Reparation of all the Damages he has cauſed.

If I be aſked, *in whom reſides that lawful Authority of declaring War?* I'll anſwer, that it regularly reſides in a Prince, or in a Superior, who knows no other Superior above him; who has a ſovereign Tribunal, from which there is no Evocation. Which I prove by the Scripture, the Fathers, and by Reaſon.

By the Scripture, where it is ſaid to Princes, *Pſalm* lxxxii. *Deliver the Poor and Needy: rid them out of the Hands of the Wicked.*

By the Fathers, particularly St. *Auguſtin, lib.* 22. *contra fauſt. c.* 75. *The natural Order of Mortals appropriated to Peace, requires this, that the Authority of going to War ſhould reſide in Princes.*

By Reaſon; becauſe to thoſe alone belongs the Authority of undertaking War, to whom it belongs to defend a Republick, or Kingdom; which belongs to Princes alone; and therefore the Authority of declaring War.

I anſwer, 2. That *to undertake and purſue lawfully and juſtly, either an offenſive or defenſive War, a juſt Cauſe is required:* Becauſe without a juſt Cauſe it is not lawful to cauſe the great Ravages cauſed by the War.

If I be aſked, what is to be accounted a juſt Cauſe? I'll anſwer, that we may very well eſtabliſh two juſt Cauſes of a War, *viz.* one general, and the other particular.

The general juſt Cauſe, is an Injury offered, or on the Point of being offered to a Prince, or to a Republick, which cannot be repaired or revenged otherwiſe than by a War. For an Injury done can be a juſt Cauſe of declaring War by the Right of Juſtice, to require an adequate Satisfaction or Reparation; and an Injury which is not done yet, can be the juſt Cauſe of a defenſive War.

There are different Sorts of ſpecial juſt Cauſes, according to the different Sorts of Injuries, and which can be reduced to three principal Chiefs; 1. If a Prince ſhould keep the Poſſeſſion of another's Eſtate, and refuſe to reſtore it. 2. If he refuſes the common Law of Nations, without any reaſonable Cauſe; for Example, a publick Paſſage, or a common Commerce. 3. If he attacks the Honour or Reputation of another Prince or of his Subjects, or of his Allies. All which Doctrine is confirmed by the Authority of St. *Auguſtin, lib.* 99. *in Joſhua, queſt.* 10. *Juſt Wars*, ſays he, *are thoſe undertaken to revenge Injuries.*

I anſwer, 3. That *a righteous Intention is required to render a War lawful*; becauſe for want of that Condition a War can be againſt Charity. If I be aſked *what ſort of Intention is accounted righteous?* I'll anſwer, that that Intention is righteous, which according to St. *Auguſtin (lib.* 22. *contr. fauſt. c.* 74.) is not accompanied with a Deſire of oppreſſing, or of being revenged with Cruelty, or of over-ruling, or of revolting from a lawful Sovereign, for all thoſe Intentions which are criminal render a War unlawful; but only with the reaſonable Deſire of recovering juſtly what one has loſt, or being revenged juſtly of an Injury, or of maintaining or reſtoring Peace. Whence the ſame St. *Auguſtin, Epiſt.* 207. *ad Bonifac. Peace is not ſearched*, ſays he, *to excite War, but War is waged to acquire Peace: Be then pacifick in waging War, that by fighting you may perſuade thoſe you fight againſt of the Advantages of Peace.*

The next Queſtion is, *what Perſons are allowed to declare and wage War?* Which to anſwer pertinently, we muſt obſerve, 1. That we have ſaid already, that thoſe only who have a ſupreme Authority, are allowed to undertake and purſue. But if the ſame Right belongs likewiſe to Eccleſiaſticks, is what is aſked moſt particularly here. 2. If the Eccleſiaſticks be forbidden to fight in War, in what Manner, and whether they become thereby irregular?—Theſe pre-obſerved,

I anſwer, 1. That *the ſupreme Power reſides likewiſe in Eccleſiaſticks; and that in virtue of that Power they can declare War, without Fear of becoming thereby irregular.* Becauſe ſuch a Thing is forbidden by no Law to the Eccleſiaſticks, who have ſuch ſupreme Authority in the Temporals, neither do they ſo directly command Homicide, as an Act of Fortitude or Bravery; though if I be allowed to declare fairly my own Sentiment, I really believe, that it is not lawful for Eccleſiaſticks (who have embraced a Profeſſion chiefly founded on Charity, Meekneſs, Patience, Humility, and Compaſſion; and who boaſt of being the Succeſſors of thoſe to whom Chriſt ſaid, when they attempted to draw their Sword in his own Defence, *that whoſoever ſhall ſtrike with the Sword, ſhall periſh by the Sword; his Kingdom being not of this World: when they ſhould be ſtricken on one Cheek, offer the other, when they ſhould not be received in one City, to fly into another*) to declare, wage, or be engaged in a War, either directly or indirectly, under what Pretence ſoever; ſince they are not at all obliged to enter into any Engagements which are acceſſory to it. The Eccleſiaſtical State, is a State of Abnegation, and all that has the leaſt Appearance of Ambition, Pride, worldly Intereſt, or Vain-glory, is entirely oppoſite to it; their worldly Dignities, their Poſſeſſions, ſo contrary to the evangelical Poverty, which an Eccleſiaſtick is indiſpenſably obliged to profeſs, are not ſo inſeparable from the Eccleſiaſtical State, that one could not ſubſiſt without the other; on the contrary, I conſider the Union of both as a monſtrous Mixture of the ſacred with the prophane, or a criminal Alliance of Chriſt with *Baal*; to pretend that ſuch an Alliance is abſolutely neceſſary for the Support of the Church, is a ſcandalous Evaſion, calculated only to flatter the two favourite Paſſions of Men, *viz.* Pride and Ambition: For the Church would be far better ſupported by a religious Practice of all the Chriſtian Virtues, and much more reſpected. A Chriſtian Sacrificator under the Helmet, and the Cuiraſſe, is a kind of Monſter, which ſhould be abhorred by every body. An Eccleſiaſtick ſhould never appear with any other Arms but Zeal and Patience to fight Vices; or in the Sanctuary, offering Vows and Prayers, while others are purſuing a juſt War. I know that a generally received Cuſtom is contrary to my Sentiment; but I know likewiſe, that ſuch a Cuſtom is not very agreeable to the Goſpel; and that if Chriſt himſelf declared that his Kingdom was not of this World; I ſee no Reaſon why thoſe who pretend to be his Vicegerents here upon Earth, ſhould uſurp a royal Authority, and wage War, to maintain themſelves in their vaſt Poſſeſſions. Though *Aaron* was the ſecond Perſon in the Conduct of the People of *Iſrael*, do we find an Example in the Old Teſtament of his having ever led them to War? Do we even find any Example of that Kind among the heathen Sacrificators?

Not

Not that I would have the Temerity to give my own particular Sentiment for a Law; for I submit it to the Censure of the most sensible Part of Mankind; being ready to abide with all the Submission imaginable by that Censure.

We'll ask next, *when it is lawful to begin a War, and how long it must be pursued?* Which to answer pertinently, we must observe that we mean here chiefly an offensive War. These pre-observed,

I answer, 1. That *it is not lawful to begin a War till after Satisfaction has been asked and refused:* Which I prove by the Fathers and by Reason.

By the Fathers, particularly St. *Augustin, Epist.* 205. to Count *Boniface.*

By Reason; because if any adequate Satisfaction be not refused, it is certain, that then a War is at least against Charity, and consequently unlawful.

I answer, 2. That a Prince is obliged, after he has begun a War, and an adequate Satisfaction, or Compensation is offered to him, to abstain from pursuing it; because when the Cause ceases, the Effect must cease: But the Cause for which a War is undertaken is to obtain Satisfaction from the Enemies: Therefore the War must cease, when that Satisfaction, with a Compensation for the Expences made, is offered.

We'll inform ourselves next, *of the Manner of waging War justly, and of the principal Qualities required as well in the Generals as in the Soldiers.* Wherefore we'll ask chiefly here, to what sort of Generals the Command of Armies is to be given?

To which I answer, that none but experienced Generals should be preferred to the Command of Armies; because for want of Experience in them, both the Army and People are exposed to great Dangers; unless perhaps some others more experienced than they, be joined with them in Commission; notwithstanding which, they must use all their best Endeavours to render themselves capable. From the Want of Justice and Probity in the Officers ensue an Infinity of Evils; for, *v. gr.* the Pay of the Soldiers is retained, whence they take Occasion to plunder every where. It happens also sometimes, that general Officers pretend to have a greater Number of Soldiers than they have in Reality, and under that Pretence ask for more Provisions and Ammunitions. For Money some Soldiers are excused from Duty, to the Oppression of others; or are not punished for exacting from their Landlords more than the King, or the Custom of the Kingdom allows. In a Word, the Want of Justice in the Chiefs, is the Cause that several of the Soldiers Crimes are left unpunished to the Oppression of the People.

I answer, 2. That above all other Conditions, these three Qualities are principally required in Soldiers, *viz. Fidelity, Obedience,* and *Courage:* Because for want of Fidelity in the Soldiers the Secrets of an Army may be divulged to the Enemy, or a City, or the Army itself betrayed to them.

The Want of *Obedience* in them proves very disadvantageous, both to the Army and to the Affairs of the Prince.

Want of Courage in the Soldiers, makes all the military Enterprizes miscarry; and opens a Field to the Enemy, to pursue either their Victory or their Conquests, to the great Prejudice of the Nation those pusillanimous Soldiers serve.

I may be asked, *if it be lawful to make use of Ambushes in War?* Which I answer in the Affirmative, provided it be done without Perfidy: Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Joshua* viii. where God commands *Joshua* to lay Ambushes for the Citizens of *Ai.*

By the Fathers, particularly St. *Augustin, lib. quest. super. Josuam, q.* 10. *when a just War is undertaken,* says he, *whether we fight openly, or by Ambushes, it is not done against Justice.*

By Reason; because no body is obliged to discover his Secret to the Enemy; left thereby he should be more on his Guard; whence consequently one may justly lay Ambushes for him.

But Princes do not always follow all the Rules prescribed here; for in their Opinion a War is always just, when undertaken to flatter their Ambition, or extend the Limits of their Dominions by the Acquisition of new ones; which is seldom done, without robbing their Neighbours, and oppressing their Subjects; and what's the more surprizing is, that God, who is the God of Justice and Equity, is always called to witness the Justice of a Cause which is but too often very unjust, and thanked by both Parties, when either of them has gained any Advantage, for having favoured their Cause, though all the while one of them must be in the wrong.

Neither do Princes prefer always to the Command of their Armies the most capable of their Subjects; for those Posts, like all others, are oftener given to Favour than to Merit; which has sometimes been the Cause of the entire Ruin of Princes and their Subjects.

Note, That from this of the *theological Virtues,* I'll pass to several celebrated Questions in Theology, *viz. if besides the Scripture there be Tradition, of an equal Authority with the Scripture? Who is the Judge of Controversies? If there be a Purgatory,* &c.

As to the Question on *Traditions,* the Catholicks answer it in the Affirmative, and the Calvinists in the Negative.

To prove their Affirmation, the Catholicks admit two Kinds of Traditions, *viz.* some of the Old, and others of the New Testament.

They say that the Traditions of the Old Testament were either pharisaical, which Christ reproves in the Gospel: Or mosaick, which were laudable, and necessary to Salvation. Of the first Kind were these: The first, that the Hands were to be washed before eating, *Matt.* xv. 1. The *second,* that that washing was to be repeated often during the Repast, *Mark* vii. 3. The *third,* that one was not to eat with Sinners, *Matt.* ix. 11. and *Luke* v. 30. The *fourth,* that it is not lawful to cure the Sick on the Sabbath-day, *Luke* vi. 7. The *fifth,* that one should frequently pray and fast, *Matt.* ix. 14. and *Luke* v. 33. and several others. And though some of them were good in their Kind, the Pharisees notwithstanding, were reprimanded by Christ for them all, for these Reasons. 1. Because by observing them scrupulously, they expected to gain a great Reputation of Sanctity among Men, *Matt.* xxxii. 25. 2. They searched Riches, in the Observance of some of them, particularly in their long Prayers, which they recited for that End, *Matt.* xxiii. 14. and *Mark* xii. 40. 3. They observed superstitiously their Traditions, and neglected the Commandments of God, *Matt.* xv. 3. and xxiii. 24.

The Traditions of the last Kind, were three principal: The *first,* that all and every one of the Books mentioned in the *Jewish* Canon, were divine, and divinely inspired. This the *Jews* believed as an Article of Faith; which notwithstanding was never written in the Old Testament. The *second,* that Women had some Remedy against original Sin, as well as Men, whatever was that Remedy; and this is no where written in the Old Testament. The *third,* that the bloody Sacrifices of the Old Testament were Types of that of Christ on the Cross: This was likewise a Dogma of Faith; though found written neither in *Moses*'s Books, nor in those of the Prophets. The first Tradition is easily understood; but the two last the Catholicks explain thus.

It was an Article of Faith among the *Jews,* that Women were conceived in the original Sin as well as Men: Therefore it was likewise an Article of Faith among them, that they could not be saved but by means of some Remedy which God had appointed for that Purpose. And they were obliged to know in particular what was that Remedy; otherwise all Women had perished without Remedy. But it was never wrote in the Old Testament what that Remedy was; therefore they knew it by *Tradition.* And that *Tradition* was necessary to Salvation, because without Remedy Women could not be saved.

Likewise they believed as an Article of Faith, that God had instituted some of their bloody Sacrifices for the Expiation of Sins: Therefore they either thought those Sacrifices capable of themselves, and by their own Virtue to expiate Sins; or by virtue of the Passion and Death of Christ, signified by those Sacrifices: If the former, they were Hereticks; if the latter, they were orthodox, because they believe what they ought to believe. But whence had they that Faith and Persuasion?

Not

not from the Scripture, since that was never written in the Old Testament; therefore it must have been from *Tradition*. Which *Tradition* was necessary to Salvation, not that it was necessary for every of the People in particular, to believe that Christ's Death was represented by their bloody Sacrifices; but only by some of them, particularly the Priests and Doctors; whose Office it was to teach and instruct others. Otherwise the whole Synagogue had been without Faith in this Point, which was an essential one.

As to the *Traditions of the New Testament*. The Catholicks observe, three particular Things relating to them. 1. In general, that there are some divine, and apostolical *Traditions* which are of an equal Authority with the Scripture. 2. In particular that some of them belong to Faith; and others to Manners and external Rites. 3. That besides these there are others, which though they be but ecclesiastical, and have not the same Authority as the apostolical ones, should, notwithstanding, be observed by Christians. Which three Kinds of *Traditions* they explain in the following Manner.

1. Generally speaking, say they, there are some apostolical *Traditions*, which are not contained expresly in the Scripture, and which, notwithstanding, have the same Authority with the Scripture; 2 *Thess.* ii. 14. *Therefore, Brethren, stand fast, and hold the Traditions which ye have been taught, whether by Word or our Epistle.* On which Passage St. *Chrysostom* writes thus: *Hence it appears that he had not digested all Things in his Epistle, but had delivered several of them without Epistles; and these were equally Articles of Faith as those.* And *Epiphanius, Hæres.* 61. *We must also use Traditions, for all Things cannot be contained in the divine Scripture; wherefore the Apostles have deliver'd some of them in Writing, and others in Tradition; according to what the Apostle says, as I have delivered it to you.* And St. *Basil, Lib. de spirit. sanct. c.* 27. *the Dogma's which are observed and preached in the Church, we have them, in Part from written Doctrine, and in Part from the Tradition of the Apostles, which have both the same Force*; and *Damascenus, Lib.* 4. *c.* 17. *the Apostles have deliver'd several Things without reducing them into Writing.*

When they are asked, *how Traditions can have an equal Force and Authority with the Scripture?* They answer, that as the Command of a Prince has the same Force among his Subjects, whether it be written or declared *vivâ voce:* It is the same of the Word of God, whether it be written or not. And if it be urged further, that *Tradition* is not the Word of God: They'll answer in the Negative; for, say they, as the Doctrine of the Apostles, contained in their Writings, is called the Word of God, because it was divinely inspired; likewise the Doctrine of the Apostles, which was deliver'd *vivâ voce*, and without being reduced into Writing, is the Word of God: Which they prove thus, as the Doctrine of *Matthew, Mark, Luke, John, Paul, Peter, James*, and *Jude*, reduced into writing, in the Gospel, and the Epistles, is called the Word of God, because divinely inspired; likewise the Doctrine of *Andrew, Philip, Bartholomew, Matthias*, and *Barnabas*, which they have preached *vivâ voce*, must be called the Word of God, as having been likewise divinely inspired; and we are no less obliged to believe those Apostles who have not wrote, than those who have.

2. Particularly speaking, continue they, there are certain apostolical *Traditions* of the Dogma's of Faith: And some of Manners or external Rites.—To prove the former, they say, that there are three very necessary Principles of Faith, which we have from *Tradition*, and not from the Scripture. The *first* is, that the whole Scripture of the Old and New Testament, taken together, is the Word of God. The other, that the whole Scripture, especially in those Things which are necessary to Faith, and Salvation, has been preserved to us safe, and uncorrupted. The *third*, that we have the true and genuine Sense thereof. For, argue they, if we admit these Principles of Faith, we necessarily admit the *Tradition*, whereby we have received them. If we reject them, our Faith is vain.

Besides these three, continue they, there are others, which we have likewise by *Tradition*. The *first*, that the Symbol of Faith be truly canonical and apostolical. Of which St. *Basil, Lib. de spirit. sanct. c.* 27. *I omit the rest*, says he, *but from which Scriptures have we the Profession of Faith, whereby we believe in the Father, Son, and Holy Ghost?* as if he would say, we have it not from the Scripture, but from *Tradition*. For he endeavours to prove, that there are several Dogma's which we believe, not because they are written, but because they were deliver'd, *vivâ voce*, by the Apostles. The *second*, that Infants are to be baptised. *Origen*, on the sixth Chapter of the Epistle to the *Romans*, says, that *the Church has received the Tradition from the Apostles, that Children, likewise, are to be baptised.* And St. *August. lib. de genes. ad liter. c.* 23. *the Custom of our Mother the Church*, says he, *in baptising Infants, is neither to be despised nor consider'd as superfluous; neither should it be believed, but because it is an apostolical Tradition.* The third, that those who have been baptised by Hereticks, are not to be re-baptised, against St. *Cyprian*; According to St. *Augustin, Lib. de Baptism. contr. Donatist. c.* 7. *Which Custom*, says he, (*viz.* of not repeating Baptism,) *I believe to be of apostolical Tradition.* And *Lib.* 5. *c.* 25. *that Custom which was opposed to* Cyprian, *we must believe has for its Source the apostolical Tradition.* The *fourth*, that the blessed *Mary*, Mother of Christ, remained a Virgin after her Delivery, against the damnable Heresy of *Helvidius*; expressed by St. *Augustin, Lib.* 1. *de Hæres. c.* 84. *The* Helvidians, *Disciples of* Helvidius, *contradicted the Virginity of* Mary *in such a Manner, that they pretended that she has had, after* Christ *was born, other Children by her Spouse* Joseph. The *fifth*, that in the Administration of Baptism, these Words are to be pronounced, *I baptize thee in the Name of the Father, and of the Son, and of the Holy Ghost.* And unless they be pronounced, the Baptism is not valid. Which, say they, is admitted, likewise, by our Adversaries; though it cannot be proved otherwise than by Tradition, and the constant Practice of the Church. The *sixth*, that there is a certain and determinate Number of Sacraments in the New Testament; which both the Catholicks and their Adversaries believe; with this Difference, that the Catholicks believe that Number septennary, several *Lutherans* ternary, and almost all the *Calvinists* binary: But this Number, whatever it may be, is not expressed or defined in the Scripture. The Catholicks confess, that they have their septennary one from Tradition, and the Declaration of the Church; and challenge their Adversaries to shew whence they have their binary or tenary: Nor from the Scripture, say they, as they pretend to prove hereafter.

It may be objected to them, that some of those Points can be proved by the Scripture; as, *v. gr.* that Infants are to be baptised, which can be proved by this Passage of *John* iii. 5. *Except a Man be born of Water, and of the Spirit, he cannot enter into the Kingdom of God.* Likewise, that these Words are to be pronounced, *I baptise thee in the Name of the Father*, &c. is evident from this Passage, *Matt.* xxviii. 19. *Go ye, therefore, and teach all Nations, baptising them in the Name of the Father, and of the Son, and of the Holy Ghost.* To which the Catholicks answer, that some of those Points can be proved by the Scripture, when it appears that they have the true and genuine Sense of the Scripture; but it does not always appear, otherwise than by *Tradition* and Practice, which is the true and genuine Sense of the Scripture, *v. gr.* if it appeared that these Words, *Except a Man be born of Water*, &c. have no other Sense than this: Except a Man be baptised of the Baptism of Water; for it would very well follow hence, that Infants are to be baptised. But this Sense, say they, is not certain but by Tradition, neither can they refute, by the Scripture alone *Calvin*, who denies that to be the true Sense of that Passage, but only by this Reason, that we have received this Sense from our Ancestors by a continual Tradition. In the same Manner, if it was certain, that when Christ said, *baptising them in the Name of the Father, and of the Son, and of the Holy Ghost*, that he commanded his Disciples to pronounce these Words, *I baptise thee in the Name of the Father, and of the Son, and of the Holy Ghost*, the Thing would be without Difficulty; but this is not certain from the bare Words of the Scripture; for as Christ said, *baptise them in the Name of the Father*, &c. he has said, likewise, in other Places, *if you*

you ask any Thing of my Father in my Name he'll give it you. And likewise the Apostle, 1 *Cor.* x. 31. *Whether, therefore, ye eat or drink, or whatsoever ye do, do all to the Glory of God.* Notwithstanding which it is not necessary, that he who asks something of the Father in Christ's Name should pronounce these Words, *I ask this, or that, in the Name of Christ.* And that in the first Case of Baptism, it is necessary to pronounce the Words, and not in the latter, of asking something in the Name of Christ, we have it only from the Practice of the Church, transmitted to us by Tradition.

These, say they, are sufficient for the first Part of their Conclusion, and they endeavour to confirm, likewise, the latter Part, by various Examples. For there are several ecclesiastical Rites, in their Sentiment, which have been received from the Apostles by the sole Tradition; such as these following: 1. That the Exorcism, and other Ceremonies be used in Baptism, according to *Tertullian, Lib. de corona milit. c.* 3. And St. *Basil, Lib. de spirit. sanct. c.* 27. 2. That there should be three Immersions used in Baptism, according to the same St. *Basil*; that the Sign of the Cross should be made on the Forehead of the Person who is baptised, *&c.* If you ask a Law from the Scripture, says *Tertullian, Lib. de corona milit. c.* 7. *To authorise those, and other such Practices, you'll find none, the Tradition is offered to you as Author thereof, Custom to confirm them, and Faith to observe them.*

3. Besides the aforesaid Traditions, which have been transmitted to us from the Apostles, say they, there are some other ecclesiastical ones, which, after the Times of the Apostles, have been introduced by the Prelates of the Church; and which though they have not the same Authority of the Apostolical, deserve, notwithstanding to be observed by the Christians. St. *Augustin* speaks of both, *Epist.* 118. when he says: *Those Things which are not written, but are only delivered to us,* viva voce, *and which are observed throughout the whole Earth, are given to be understood, either by the Apostles themselves, or by the general Councils, whose wholesome Authority in the Church, is, that we should retain their Commands and Statutes, as those, that the Passion of our Lord, his Resurrection and Ascension into Heaven should be annually celebrated in a solemn Manner,* &c. for by this Particle, *or, by the Apostles themselves,* he understands the apostolical Traditions; and by this, *or the general Councils,* he understands the ecclesiastical ones: And then adds, that *it is an insolent Folly to dispute, whether what is observed by the universal Church* should be practised.

And such is the Sentiment of the Catholicks, with Regard to *Traditions,* both apostolical and ecclesiastical; which, say they, is confirmed by the Authority of the Apostles, and of the antient Fathers.

Let's see, at present, what is that of their Adversaries; that by comparing, afterwards, both Sentiments together, we may be capable to judge which is best.

Those who have made a Divorce with the *Roman* Church reject all Sorts of *Traditions,* and admit nothing but what is found contained in the Scripture of the *Old* and *New Testament.* For which the Catholicks accuse them of sinning in four different Manners, 1. Because, in that, say they, they imitate the antient Hereticks. 2. Because they disagree among themselves. 3. Because they attribute falsly and maliciously several Things to the Catholicks. 4. And, because they argue ignorantly from some Passages of the Scripture against *Traditions*; all which four Accusations they endeavour to make good, each by itself, in the following Manner.

1. As the Catholicks, say they, in admitting the *Traditions,* follow the common Sentiment of the antient Fathers; likewise their Adversaries, in rejecting them, follow the common Sentiment of the antient Hereticks. For the antient Hereticks, likewise, used to call always to the Scriptures, and reject the *Traditions,* and particularly these: 1. The *Arians,* who, disputing the Divinity of Christ, would admit nothing but the Scripture; whence *Maximinus,* an Arian Bishop, disputing with St. *Augustin,* said, *if you alledge something from the Scripture, which every Body knows, we must hear it. But those Words which are not found in the Scripture, have no Influence over us.* This Argument is quoted by St. *Augustin, lib.* 1. *cont. Maximin.* 2. The *Macedonians* and *Eunomians,* who would not admit this Speech, *Glory be to the Father, and to the Son, and to the Holy Ghost,* because it was not found in the Scripture, of whom St. *Basil* speaks, *lib. de Spirit. sanct. c.* 26. towards the End, *that these are continually boasting that the Glorification of God with the Holy Ghost, wants Proof, wants the Scripture.* And at the Beginning, c. 24. *But that our Proposition wants Proof, because it is not found in the Scripture, is what we deny; for if nothing was received but what is found in the Scripture, the Scripture itself would not be received. Therefore I believe that it is apostolical to adhere likewise not to written Traditions.* 3. *Eutyches,* who denying two Natures in Christ, said, *I have not learned two Natures in the Scripture,* to which the Priest *Mamas* answers, neither do we learn *Homousion in the Scripture,* which we find in the general Council of *Chalcedon, Act.* 1. where the fifth Action of the Council of *Constantinople* was read over again. 4. The *Pelagians,* who used to say: *Therefore let us believe what we read, and consider as a Crime to establish what we do not read,* which Sentiment of the *Pelagians* is related by St. *Augustin, lib. de Nat. & Grat. c.* 39.

The *Catholicks* urge further, that though their Adversaries agree with all the antient Hereticks in rejecting the Traditions; they, notwithstanding, do not agree among themselves on that Subject. That some of them reject entirely all *Traditions,* without Distinction, whether they pertain to Faith, or to the external Worship of God; and will believe or do nothing else but what the Scripture commands to believe or do. Thus *Calvin, lib.* 4. *Institut. c.* 88. *n.* 8. *Let this be,* says he, *a constant Maxim, that there is no other Word of God to be believed in the Church but what is first written in the Law and the Prophets, and afterwards in the apostolical Writings: And that there is no other Manner to teach in the Church, but that which is agreeable to that Word*; and in the Book of the Necessity of reforming the Church, *God not only considers as needless, what, in View of worshipping him, we undertake, besides his Commandment; but even abominates it openly.* And in his Epistle 87, to the Protector of *England: When it is Question of a legitimate Reformation, we must return to the Word of God.* And likewise the *Calvinists* in the Synod of *Utrecht,* in the Prologue of their Ordinances, *n.* 2. *we oblige ourselves,* say they, *by an Oath, that, in this Province, we will not embrace and follow any other Doctrine, Rule, Measure, and Form of Faith, and Christian Conduct, but the sole Word of God expressed in the Books of the Old and New Testament.*

Others admit some *Traditions* only, as *Kemnitius* in his Examen of the Council of *Trent, Sess.* 4. in the second Kind of *Traditions,* where he says: *We receive with Reverence the Traditions whereby the Book of the sacred Scriptures are delivered into our Hands.* And in the 5th Kind, *Origen and Augustin affirm that the Baptism of Infants is an apostolical Tradition: This we receive.* And in the 7th Kind; *Therefore it is certain from the Writings of the Apostles that they have left some Rites and Traditions to the Churches. And it is also very likely that they have left some external Rites which are not marked in the Scripture,* and lower, *such Rites we love, and retain justly; such as are the Confession of Faith, the Renuntiation to the Devil, and the other Rites in the Administration of Baptism.*

Lastly, Others use a Distinction. They say that *Traditions* can be admitted of indifferent Things; but not of Things necessary to Salvation; for it is sufficiently evident to us from the Scripture, that it contains entirely all that is necessary to Salvation; so that *Tradition* would be needless. But, say the *Catholicks,* those who speak thus increase the Dissention; and repugn manifestly to *Luther* and *Kemnitius*; for *Kemnitius* confesses that the *Lutherans* receive, *with Respect,* that *Tradition* whereby the Scripure is delivered into our Hands: But the Scripture, according to them, is necessary to Salvation; therefore they admit some *Tradition, de re,* necessary to Salvation.

Likewise *Luther* teaches, that Infants are not justified by Baptism, but by the actual Faith, which is infused into them by the Force of the Exorcism before Baptism; and without that Faith they cannot be saved, or receive Baptism. Whence it follows, that the Salvation (according to *Luther*) depends of their actual Faith, and Faith from the Exorcism; and consequently that the Exorcism is necessary to the Salvation of Infants; but the Exorcism is had by *Tradition,* not by the Scripture: Therefore, according

according to *Luther*, some *Tradition* is necessary, *de re*, to Salvation. I'll quote *Luther*'s Words in their proper Place.

The *Catholicks* pretend that their Adversaries father Falshoods upon them. And 1. to excite Envy against them, they say, that they teach that the Scripture without humane *Tradition*, is insufficient, and imperfect, which is false, since the *Catholicks* do not teach that of human *Traditions*; for they distinguish two Sorts of *Traditions*, with St. *Augustin*; some apostolical, which have the same Authority with the Scripture: Others ecclesiastical, which have not so much Authority. Therefore they say, that the Scripture does not suffice by itself, unless it be accompanied with *Traditions*, which is accounted divine and not human, for two Reasons: The *first*, because the Scripture is not sufficient, unless we be sure of its true and genuine Sense; which Sense does not always appear, otherwise than by the apostolical *Tradition*, as already observed. The *second*, because the Christians believe several Things, which are not contained in the Scripture.

2. They say that the *Catholicks* teach, that by human *Traditions*, we merit the Grace of Justification, and the Remission of Sins; and that they acknowledge these Sorts of *Traditions* for their Mediator and Justificator. Thus *Philip Melanchthon* in the Apology of the Confession of *Ausbourg*. *Art.* 15. of human *Traditions*. This is also false; because they teach publickly, that we, by no means, can merit Justification, or the Remission of Sins; but that it is given us *gratis* by the Merits of Christ, as it appears from the Council of *Trent*, *Sess.* 6. *Can.* 8. in these Terms; *we say that we are justified gratis, because none of those Things which precede Justification, whether Faith or Works merit the Grace of Justification.*

3. They say that the *Catholicks* teach, that all their *Traditions* are apostolical. Thus *Calvin*, *lib.* 4. *Institut.* *c.* 18. 6. 19. *The Masters Romanist*, says he, *will extort that there is among them no Ceremony which is not apostolical*, which, the *Catholicks* say, is false; for they acknowledge, as already so often repeated, two Sorts of *Traditions*, one of which they have received from the Apostles; and the others which have been introduced into the Church, after the Times of the Apostles.

The *Roman Catholicks* Adversaries object, 1. against the *Tradition*, this Passage of the *Deuteronomy*, *c.* 4. v. 2. *Ye shall not add unto the Word which I command you*; *neither shall you diminish ought from it.* Whence they infer, that all *Traditions* are to be rejected, and that the *Catholicks* sin who admit them. Why? Because nothing is to be added to the written Word of God; which the *Catholicks* say is an ignorant Objection. 1. Because in wanting to oppose the *Catholicks*, they oppose the Apostles, from whom they have received the *Traditions*; and particularly St. *Paul*, who says keep the *Traditions* which you have received. They oppose St. *Augustin* and the other Fathers, who have embraced the *Traditions*. They contradict themselves; because themselves, according to *Kemnitius*, receive with Respect the *Tradition* of the Scripture, of the Exorcism, and several others; therefore if the *Catholicks* sin in admitting the *Traditions*, the Apostles, Fathers, and *Lutherans* themselves sin likewise; and if they are all innocent, why should the *Catholicks* be condemned?

Besides, urge the *Roman Catholicks*, they do not understand the Sense of the Passage they quote; which Sense is collected from the Context, which runs thus, *Now therefore, hearken O* Israel, *unto the Statutes and unto the Judgments which I teach you, for to do them, that you may live, and go in and possess the Land which the Lord God of your Fathers give ye; ye shall not add unto the Word which I command you, neither shall you diminish ought from it. Keep the Commandments of the Lord your God, which I command you*; as if he would say, I would give you the ceremonial and judicial Precepts, which you must religiously observe, which is signified by this Phrase, *ye shall not add or diminish*; which is explained in other Places, in different Words, though in the same Sense, *Ye shall not decline from them, either to the right or to the left*, as *Deuteronomy* xvii. ver. 20. *Let him learn to fear the Lord his God, and keep his Words and Ceremonies, and not to decline to the right or to the left.*

Therefore, those Passages signify these three Things, 1. To observe religiously the mosaical Precepts. 2. To not decline from them either to the right or left. 3. To neither add nor diminish any Thing in their Observation, which is not to be understood as if it was not allowed to add new Precepts (otherwise it had not been allowed to add the evangelical Precepts of the Faith of the Trinity of Baptism, of the Eucharist, *&c.*) but that the mosaical Precepts are not to be corrupted in their Observance, either by Addition, or Diminution, but must be kept whole, *v. gr.* it was a mosaical Precept, that a Woman after she had been delivered of a male Child, should be unclean for seven Days successively, and the eighth Day the Child should be circumcised; *Levit.* xii. 2. to which Precept it was not lawful to add or diminish from, *i. e.* It was not lawful to circumcise the Child either before or after the eighth Day. The same must be said of the other Precepts, as we shall see in the next Objection.

The Catholicks urge further, that it appears hence, that the Testimony of *Deuteronomy*, which their Adversaries urge against them with so much Warmth, is nothing to the Purpose: Unless they would argue thus; the *Jews* were obliged to observe religiously the mosaical Precepts; therefore the Christians must not admit the apostolical Traditions, but be contented with the Scripture alone: Which Consequence, say they, every Body sees, is certainly absurd and ridiculous. But to render the Thing still clearer, they ask their Adversaries if they think that that Testimony belong to the *Jews* alone, or to the Christians likewise? If it belongs to the *Jews* alone, why is it urged against the Christians? Or why are the *Lutherans* and *Calvinists* of Opinion, that we are not obliged to keep it? If it belongs, likewise, to the Christians, why don't their Adversaries keep the mosaical Precepts? Why are they not circumcised? And, lastly, why do they urge against the Catholicks this Particle, *Ye shall not add*, and do not urge, likewise, against themselves the other, *Ye shall not diminish.* For since that Passage is taken from the Old Testament, and it has an immediate Report to the Old Testament, to which it is forbidden by God, to add, or to diminish from, since there was no mention yet of the New Testament; why have the Reformers attempted to diminish from the Old Testament, by refusing the Precepts thereof, since it is equally forbidden to diminish from it, as it is to add to it? Here they must remain Mutes; say the Catholicks.

The second Objection is taken from this of *Deuteronomy* xii. 32. *What Thing soever I command you, observe to do it: Thou shall not add thereto, nor diminish from it.* Hence our Adversaries infer, likewise, say the Catholicks, that all Traditions, and human Precepts are null, and to be despised; why? because nothing is to be done but what God commands: Wherefore what Men commands is not to be done. Which Objection, say they, is as great an Inepthy as the former. 1. If all human Precepts are null, and to be despised, what shall we say of the *Jews*, who observed religiously the Precept of the Feast of the *Encænians*, which was not divine, but human? What of the *Rechabites*, who observed religiously the Precept of their Father *Jonadab*, to abstain from Wine, *Jer.* xxxv. 6. What of the Apostles, who in the Council of *Jerusalem*, commanded the Abstinence from Blood, and Things suffocated? *Acts* xv. 29. What of St. *Paul*, who distinguishes between his Precepts and those of Christ? 1 *Cor.* vii. 12. What of Magistrates, who make Laws to maintain Peace and Justice in the Republick? Lastly, what of their Adversaries themselves, who in their Synods and Conventicles, make ecclesiastical Laws and Statutes, which every Body observe?

2. They urge, that the Sense of this Passage, is not that given to it by their Adversaries, but quite another, but as in the preceding Testimony, it was a Question of Observance of all the mosaical Precepts in general, likewise it is Question here of the Observance of a particular Precept of Sacrifice. The Text is this, *Deuteronom.* c. xii. ver. 29, 30, 31, 32. *when the Lord thy God shall cut off the Nations from before thee, whither thou go to possess them, and thou succeed them, and dwellest in their Land: Take heed to thyself that thou be not snared by following them, after that they be destroyed from before thee, and that thou enquire not after their Gods, saying, how did these Nations serve their Gods? even so will I do likewise, thou shalt not do so unto the Lord thy God: For every abomination*

mination to the Lord which he hates, have they done unto their Gods: for even their Sons and their Daughters they have burnt in the Fire to their Gods. What Thing soever I command you observe to do it: THOU SHALT NOT ADD THERETO, NOR DIMINISH FROM IT.

The Sense is; when you shall come into the Land of Promise, and offer a Sacrifice to the Lord thy God, thou shall not imitate the Gentiles, who offer their Sons and Daughters by Fire, to their false Divinities; but shalt offer only what I command thee: *viz.* of the Animals, Sheep, Goats, He-Goats, and Calves; Doves, Sparrows, Turtles: Of the Fruits of the Earth, Bread, Flour, Salt, Incense, *&c.* Of Liquors, Blood, Wine, Oil, Water: Do this only, *i. e.* offer it to the Lord; and thou shalt add nothing to it from the Sacrifices of the Gentiles, nor diminish any of the Things enumerated here.

The Catholicks ask their Adversaries, what they can conclude from that; unless they reason thus: The *Jews* were obliged to offer only in Sacrifices, those Things which God had determined; therefore the Christians are not obliged to observe human Precepts, whether they be civil, or ecclesiastical: *Who can help Laughing at such Reasoning?*

The third Objection is taken from *Galat.* i. 8. *But though we, or an Angel from Heaven, preach any other Gospel unto you, than that which we have preached unto you, let him be accursed.* And lower, *If any Man preach any other Gospel unto you, than that ye have received, let him be accursed.* Therefore, say they, it is not lawful to admit Traditions.

To this the Catholicks answer, 1. That the same Argument may be retorted on their Adversaries in this Manner. If any Man preach any other Gospel unto you than that the Apostle has preached, let him be accursed: Their Adversaries preach another Gospel than that the Apostle has preached, because they oppose the *Traditions*; contrary to what the Apostle has said, *keep the Traditions:* Therefore let them be accursed.

2. That from what the Apostle says, we must find whether Traditions be condemned in this Place, or not. The Meaning of the Apostle is this: The *Galatians* had been taught by St. *Paul*, that the Ceremonies of the Law of *Moses* were abrogated; and that no Body could be justified by such Ceremonies, but by Faith in Christ, (ch. ii. 16.) they were afterwards incited to renounce that Doctrine, by some false Apostles, who taught, that they could not be saved by Faith in Christ, unless they were likewise circumcised, and observed the other mosaical Ceremonies, (ch. i. 6. and iii. 1. and iv. 9. and v. 1.) against those false Apostles *Paul* speaks, when he says, *If any Man preach unto you any other Gospel than that you have have received, let him be accursed.* As if he should say; you have learned of me, that a Man is justified by Faith in Christ, and not by the Observance of the Mosaical Law; if any Body teaches you otherwise, let him be accursed: But it does not follow hence, that the apostolical *Traditions* are to be rejected, but are, on the contrary, to be observed, since they are not against what St. *Paul* preached to the *Galatians* of Justification, but are rather the same Thing he preached to the *Thessalonians*, when he said, *Keep the Traditions which you have learned.*

The fourth Objection is taken from this of the Apocalypse xxii. 18. *If any Body add to these, God shall add to him the Woes written in this Book, and if any one diminishes from the Words of the Book of this Prophecy, God shall take his Part off the Book of Life.* Therefore it is not lawful to add *Traditions.*

The Catholicks answer, that this Testimony condemn the *Lutherans*, who not only diminish from the Words of the Book of that Prophecy, but consider the whole Book as apocryphal. But however it does not condemn Traditions, because it does not forbid that any Thing should be admitted besides the apocalyptical Prophecy (otherwise it would not be lawful to admit the Prophecies of *Isaiah*, *Jeremiah*, and of the other Prophets of the Old Testament, nor likewise the Gospels, Epistles, Symbol of Faith) but it only forbids depraving the Words of the apocalyptical Prophecy, which he insinuates, can be done in two Manners, 1. By Addition, as if any one added something to that Prophecy, as Part thereof, which is not such. 2. By Diminution, as if something was taken off from it, as if it did not belong to it, though it really belongs to it. But the Catholicks say that they do neither.

This they prove by an Example: St. *John* foretels, c. xi. *that two Prophets shall appear cloathed in Sack-cloth, who shall prophecy* 1260 *Days, and have the Power to shut Heaven, and hinder it from raining during the whole Time of their prophetizing, and of changing Water into Blood*, &c. To this Prophecy the Catholicks add nothing which does not belong to it: And takes nothing from it which belongs to it, but leave it whole, as it is written by St. *John.* But their Adversaries act otherwise, who say that those two Prophets were *Luther* and *Calvin*: For they that say it necessarily diminish from the Words of that Prophecy, since it it certain that *Luther* and *Calvin* were not cloathed in Sack-cloth, had not the Power of shutting Heaven, of changing the Waters into Blood, *&c.*

The fifth Objection, is taken from this, 2 *Tim.* iii. 16. *All Scripture is given by Inspiration of God, and is profitable for Doctrine, for Reproof, for Correction, for Instruction in Righteousness.* From which Place they argue in two Manners. Some thus: All Scripture is profitable for Doctrine, and for Reproof; therefore the Traditions are needless, as if you was to say, all Meat is profitable for Food; therefore Drink is needless. Or all Alms are profitable to Salvation, *Luke* xi. 14. and *Dan.* iv. 24. therefore Prayers are needless, the Sacraments are needless, which is a very bad Reasoning.

Others thus: All Scripture is profitable, *i. e.* sufficient; therefore the Traditions are needless. But what sort of Interpretation is this? Ask the *Roman* Catholicks: Is it reasonable to say that to be useful and sufficient, is one and the same Thing? For if it be one and the same Thing, this 1 *Tim.* iv. 8. *Piety is profitable*, or rather useful to all Things, might be interpreted that Piety is sufficient for all Things: Therefore all the rest is needless. And likewise this, 2 *Tim.* iv. 11. *Take Mark, and bring him along with you; for he is likewise useful to me in the Ministry*, i. e. sufficient; therefore *Timothy*, *Titus*, *Onesimus*, and others, are needless. Who does not see, say the *Roman* Catholicks, that if this Licence of interpreting the Scripture, was once tolerated, it could soon be entirely corupted and adulterated.

But to explain the Thing clearer, continue the *Roman* Catholicks, we must examine the Text of the Apostle: Therefore the Apostle exhorts, in the Chapter quoted, the Bishop *Timothy* to instruct his Flock in the Faith, and Good Works, and to reprimand his Adversaries, who with a depraved Mind, and erring in the Faith, oppose the Truth. And to shew that he can do that, he adds: *But continue thou in the Things which thou hast learned, and hast been assured of, knowing of whom thou hast learned them. And that from a Child thou hast known holy Scriptures which are able to make thee wise unto Salvation, through Faith which is in Christ Jesus. For all Scripture divinely inspired, is profitable for Doctrine*, &c. where by the sacred Letters, which he says *Timothy* had learned from his Infancy, he understands the Scripture of the Old Testament; for at that Time *Timothy* was an Infant, there was yet no Scripture of the New Testament.

Therefore, according to the *Roman* Catholicks, the Apostle in that Text, argues thus: All Scripture, divinely inspired, is useful to instruct your Flock, and reprove your Adversaries; but the Scripture of the Old Testament, which you have learned from your Infancy, is divinely inspired: Therefore it is useful to teach your Flock, and reprove your Adversaries. Therefore as you have been instructed in the Knowledge of that Scripture, you may be greatly assisted by it in doing what I told you.

From the same Principle one may conclude thus: All Scripture, divinely inspired, is useful to teach, and to reprove; but the Scripture of the New Testament is divinely inspired: Therefore it is useful to teach, and to reprove. Whoever then has been instructed in the Knowledge of that Scripture, can be much assisted by it in doing both.

From both Reasonings it appears, that these three Propositions are true, according to the Apostle, 1. That all Scripture divinely inspired, is useful to teach and reprove. 2. That

2. That the Scripture of the Old Teſtament is uſeful to teach, and reprove. 3. That the Scripture of the New Teſtament is uſeful to teach and reprove; whence, as it does not follow the Scripture of the Old Teſtament is uſeful; therefore the Scripture of the New Teſtament is needleſs. Nor on the contrary, the Scripture of the New Teſtament is uſeful: Therefore the Scripture of the Old Teſtament is needleſs. Thus it does not follow likewiſe, both Scriptures are uſeful; therefore Traditions are needleſs: Otherwiſe what the Apoſtle ſays would be needleſs, *keep the Traditions*.

Our next *celebrated Queſtion*, is that relating to the *Judge of our Controverſies* on religious Matters. The Reformed ſay, that the Scripture is the Law and the Judge: And that all the Controverſies of Faith can be decided by the Scripture alone. This they prove, by that God, in the Old Teſtament, refers the *Jews* to the Scripture alone, as to a Judge, *Iſaiah* viii. 20. *To the Law, and Teſtimony*. Chriſt does the ſame in the New, *John* v. 39. *Search the Scriptures*. And this Advice of Chriſt was followed by the *Bereans*, of whom it is wrote, *Acts* xvii. 11. *Searching the Scriptures daily, whether theſe Things were ſo*.

But the Catholicks diſtinguiſh between the Judge and the Rule, or Law. They call him Judge that pronounces the Sentence between two Perſons at Variance; and the Law or Rule, that according to which the Judge pronounces his Sentence. This Diſtinction pre-ſuppoſed, they aſſert three Things: 1. That the Church is Judge of the Controverſies. 2. That the Rule or Law which the Church follows in pronouncing its Sentence, is not the Scripture alone, but the Scripture and Tradition together. 3. That the Church, according to that Rule, can pronounce a Sentence in two Manners, either by the Pope, whom they conſider as the chief Paſtor of the Church, or by the Councils which repreſent the univerſal Church. The firſt Manner of pronouncing is fallible this Side the Mounts, and infallible on the other Side; but the laſt Manner is conſidered as infallible by all the Catholicks, without Exception: Which Infallibility is founded on this Promiſe of Chriſt, *And here I am with you all Days to the Conſummation of the World*.

To confirm this Sentiment, and refute the former, they make uſe of ſix Arguments: The firſt is taken from the Office of a Judge, which does not become the Scripture. The ſecond from the Part of the ſame Scripture, in which two Things are to be conſidered, the Letter, and the Senſe. The Letter kills, according to the Apoſtle: The Senſe is obſcure, ſo that it wants another Judge. The third, from the Part of the Controverſies; for there are ſome of them which cannot be deduced from the Scripture, ſince there is no mention of them in the Scripture. The fourth, from the Uſe and Practice of the Old Teſtament; where the Pontif, and not the Scripture, was acknowledged for Judge. The fifth, from the like Uſage and Practice of the New Teſtament. The ſixth from an Analogy of the Judge of civil and political Controverſies: For the Judge of ſuch Controverſies is not a written Law; but the Prince or the Council of the Prince. Afterwards they'll anſwer the Objections of their Adverſaries.

The *firſt Argument*, taken from the *Office of the Judge*, they propoſe thus:—He that is Judge between two Perſons at Variance, muſt pronounce his Sentence ſo, that both Parties may underſtand it; and one of them confeſs that the Sentence is in his Favour, and the other againſt him, otherwiſe they will not ceaſe diſputing; but both purſue their Cauſe; the Scripture cannot be ſuch a Judge of Controverſies: The major is evident of itſelf. They prove the minor thus; becauſe, ſay they, the *Lutherans* and *Calviniſts* have for ſeveral Years diſputed on theſe Points: 1. Of the Baptiſm of Infants. 2. Of the real Preſence in the Euchariſt. 3. Of the Predeſtination. 4. Of the Perſon of Chriſt. 5. Of Exorciſm. 6. Of the Number and Canon of the Books of the Scripture; notwithſtanding which, the Scripture, which they chuſe for Judge, cannot decide thoſe Controverſies, and we have not heard yet that it has pronounced a Sentence ſo as to oblige either the *Lutherans* or *Calviniſts* to confeſs, that it has pronounced either for or againſt them; which is evident from the Event: For they both continue their Diſputes with the ſame Eagerneſs; which without doubt they would not do, if they thought that the Sentence has been once clearly pronounced: For then they would either deſiſt from their Contention, and acquieſce to the Sentence; or certainly, if they thought that they had been unjuſtly dealt with, would appeal to another Judge; neither of which they have done.

To make the Force of this Argument more evident, there are two Things to be conſidered: One, that the *Lutherans*, as well as the *Calviniſts*, confeſs openly, that they acknowledge no other Judge but the Scripture alone, which Scripture is clear, perſpicuous, and ſufficient of itſelf to ſmother all Controverſies. The other, that notwithſtanding, they both do nothing elſe but diſputing before that Judge, whereby their Jars increaſe daily, and they become ſtill greater Enemies: Whence it neceſſarily follows, either that the Scripture hath not pronounced a clear, perſpicuous, and ſufficient Sentence: Or if it has pronounced it, that the *Lutherans* and *Calviniſts* are litigious Perſons, who refuſe to acquieſce to a clear, perſpicuous, and ſufficient Sentence. Let them chuſe which of theſe two Reaſons they pleaſe, ſince both condemn them, ſay the Catholicks.

The *ſecond Argument* taken from *the Part of the Scripture*, is this:—They ſay that two Things are to be conſidered in the Scripture; the Letter, and the Senſe: As in Man the Body and Soul. Of theſe, according to the common Interpretation, the Apoſtle ſpeaks, 2 *Cor.* iii. 6. when he ſays, *the Letter kills, but the Spirit viviſies*. As if he ſaid, if you follow the true Senſe of the Scripture, which is as the Spirit, and the vivifying Soul, it will be profitable to you to Salvation; but if neglecting the true and genuine Senſe, you adhere only to the outward Letter, and pretend that that is the Senſe expreſſed by the Letter, you'll often err. Which Interpretation St. *Auguſtin* follows, *Serm.* 70. *de temp. I have frequently adviſed your Charity dearly beloved Brethren*, ſays he, *that in the Leſſons, which in theſe Days are recited in the Church, we ſhould not mind ſo much the Sound of the Letter, but drawing off the Veil of the Letter, we ſhould ſearch faithfully the vivifying Spirit. For the Apoſtle ſays this; the Letter kills, but the Spirit viviſies. Laſtly, the unhappy* Jews, *and the more unhappy Hereticks, who while they mind only the Sound of the Letter, like a Body without Soul, have likewiſe remained dead, without the vivifying Spirit*.

This pre-ſuppoſed; two Things remain to be proved. One is, that the Scripture, if the Letter be minded, cannot be the Judge of Controverſies. The other, that neither can it be the Judge of Controverſies, if you mind the Senſe. The former Part they prove thus: That cannot be an infallible Judge of Controverſies, which leads Men into Error and Hereſy (their Imbecillity ſuppoſed) therefore it cannot be an infallible Judge of Controverſies. The major is evident of itſelf; becauſe we ſearch an infallible Judge leſt we ſhould err: Therefore what leads us into Error is not an infallible Judge. The minor is apparent from the Apoſtle, ſince he ſays that the Letter of the Scripture kills, *i. e.* leads into Error.

It thus antiently killed the *Jews*, ſay they, becauſe all that was foretold of Chriſt by *Moſes* and the Prophets, they underſtood according to the outward Letter, and did not diſcover the hidden Senſe. And it is what the Apoſtle ſays, 2 *Cor.* iii. 15. *But even unto this Day, when Moſes is read, the Veil is upon their Heart*; *i. e.* the *Jews* do not underſtand yet *Moſes*, which they read every Day, becauſe they do not penetrate the inward Senſe thereof, but are contented with the Letter. Or clearer; they do not acknowledge Chriſt, who in *Moſes* is hidden under outward Ceremonies and Sacrifices, as under a Veil. They are yet wrapped in that Veil, and do not conſider what is hid under it.

This Chriſt likewiſe objects to them, *John* v. 39. *Search the Scriptures, for in them ye think ye have eternal Life, and they are they which teſtify of me; and ye will not come to me that ye might have Life*. As if he had ſaid, if you will really know that I am the *Meſſiah* whom God has promiſed, of whom *Moſes* and the Prophets have wrote, you muſt not only read the Letter of the Scripture, but much more ſearch the Senſe and Spirit hidden under the Letter, as under a Cloud or Figure. This you have not done yet: For though you were perſuaded

ſuaded that in the Scripture lies the eternal Life, you do not know notwithſtanding in what Part it lies; it does not lie in the Letter, in the external Ceremonies, as you imagine; but in the Spirit, in the Senſe and Myſtery. Search me there, and you'll find me.

It is not the *Jews* alone that the Letter kills; for it kills likewiſe the Hereticks. And ſeveral have periſhed in their Error, becauſe having abandoned the Senſe of the Scripture, which the holy Catholick Church follows, they have embraced a literal Senſe: Which can be proved *en paſſant*, by the Example of ſome of them.

The Sabellians ſaid, that there were not three divine Perſons, but only one, who notwithſtanding had three Names, becauſe of his different Offices, or Operations, for the ſame Perſon was called the Father, Son, and Holy Ghoſt, but with divers Reſpects, *viz.* Father, as being the Author of all Creatures; Son, as having taken the human Nature from the Virgin *Mary*; and Holy Ghoſt, as ſanctifying us by his Grace. From their Sentiment it followed, that the Father had ſuffered, and was dead. For if there is but one Perſon, called Father, Son and Holy Ghoſt; certainly, if that Perſon ſuffered and died, the Father ſuffered and died. Whence proceeded ſo great an Error? From the Letter that kills: For they underſtood in a literal Senſe this Paſſage of *John* x. 30. *I and my Father are one.* From which they inferred, that the Father and the Son (and conſequently the Holy Ghoſt) are but one Perſon; whereas in the Church's Sentiment, they are one in Eſſence and two in Perſon.

The *Arians* ſaid, that *Chriſt* was not God, but inferior to God. Whence this erroneous Sentiment? from their abandoning the Senſe of the Church, to explain literally this Paſſage of St. *John* xiv. 28. *The Father is greater than me*, i. e. abſolutely greater. But the Senſe of the Church is, that Chriſt, according to his Humanity, is leſſer than God the Father, and equal to him according to his Divinity. And in the former Manner is to be underſtood this, *The Father is greater than me*; and in the latter this, *I and the Father are one.*

The *Macedonians* denied the Divinity of the Holy Ghoſt: From what Principle? from the Letter that kills. For they took literally this of the Apoſtle, 1 *Cor.* ii. 10. *For the Spirit ſearches all Things, yea the deep Things of God.* Whence they concluded thus: He that ſearches, doubts: He that doubts is ignorant: He that is ignorant is not God: Therefore the Holy Ghoſt is not God. But the Church interprets this Paſſage thus: *The Spirit ſearches all Things*, i. e. penetrates and comprehends all Things. In which Senſe God is likewiſe ſaid to ſearch all Things, 1 *Chron.* xxviii. 9. *God ſearches the Hearts of all.* And *Pſal.* viii. x. *God ſearches the Hearts and Reins.* And *Jer.* vii. 10. *I am the Lord ſearching the Hearts and Reins.*

The *Manicheans* affirm'd, that the Old Teſtament was contrary to the New. Why? becauſe they underſtood every Thing literally; which if nothing elſe be minded, they ſeem to be repugnant to one another. For the Old ſays, that God created all Things, *Gen.* i. 1. And the New that the Word created all Things, *John* i. 3. Again, the Old ſays, that Man was made after the Image of God, *Gen.* i. 27. And the New ſays, that Man is of the Devil, *John* viii. 44. Likewiſe the Old ſays, that God reſted the ſeventh Day from all Work, *Gen.* ii. 2. The New ſays, that God operates till now, *John* v. 17. againſt thoſe St. *Auguſtin* writes, in his Book againſt *Adimantus*, *Manes*'s Diſciple, and reconciles, in the Senſe of the Catholick Church, thoſe Paſſages which literally ſeem oppoſed to one another. For it is not repugnant that God has created all Things, and did it, notwithſtanding, by the Word, as by his Art or Idea. Neither is it repugnant that Man was made as God's own Image, with regard to his Nature; and be notwithſtanding, of the Devil with regard to his Malice. Laſtly, it is not repugnant that God repoſed himſelf, the ſeventh Day, from the Work of the Creation of the World, and notwithſtanding is always working for the Government and Preſervation of the World.

The *Pelagians* denied the original Sin, affirming that *Adam*'s Sin had affected him only, and not his Poſterity, founded on the Letter that kills; for it is wrote, *Ezek.* xviii. 20. *The Son ſhall not bear the Iniquity of the Father.* But the Senſe of this Paſſage, according to the Catholick Church is, that the Son who is not Partaker of the Sin of the Father, ſhall not bear the Iniquity of the Father. But it appears, that the Poſterity of *Adam* were Partakers of his Sin, from *Rom.* v. 11. *In whom all have ſinned.*

There were likewiſe ancient Hereticks who denied the Reſurrection of the Fleſh: Becauſe it is written, *John* vi. 63. *It is the Spirit that quickeneth, the Fleſh profiteth nothing*; from which Paſſage, underſtood literally, they argued thus: Why ſhould the Fleſh riſe, if it profiteth nothing? From the ſame Place the *Calviniſts* draw this ſemblable Conſequence: Why ſhould Chriſt give us his Fleſh in the Sacrament if it profiteth nothing? The Catholicks pretend, that they have been both deceived by the Letter that kills, otherwiſe it would be lawful to conclude thus: If the Fleſh profiteth nothing, why did Chriſt take it? Why was the Word made Fleſh? Why was he crucify'd for us? Certainly he did not thoſe Things in vain.

Theſe, ſay the Catholicks, ſuffice for the firſt Part of the Argument in which it has been ſhewn as well by the Authority of the Apoſtles, as by ſeveral Examples, that the Scripture, if we mind the Letter, cannot be an infallible Judge of Controverſies, becauſe the Letter kills, and breeds ſeveral Errors.

The other Part, which they endeavour to prove likewiſe, is that the Scripture minding even the Senſe thereof, cannot be Judge of Controverſies; which they prove thus: The Scripture, with regard to its true and genuine Senſe, is often obſcure, and difficult to be underſtood, and therefore, there ariſes often Controverſies on the true and genuine Senſe thereof; but all Controverſy requires ſome Judge: Therefore ſome body muſt judge to decide this to be the true and genuine Senſe, and that not. But the Scripture cannot be that Judge, ſince itſelf occaſions the Controverſy; therefore there muſt be ſome other Judge diſtinct from the Scripture.

In this Reaſoning, they ſay that there are three Principles: The firſt is, that the Scripture, with regard to the Senſe is often obſcure, and difficult to be underſtood; which they prove in the following Manner.

1. By the Example of the Diſciples who were going to *Emmaus*, who did not underſtand *Moſes* and the Prophets, unleſs Chriſt had explained them to them, *Luke* xxiv. 27. 2. By the Example of the Eunuch of the Queen of *Æthiopia*, who when aſked by *Philip*, if he underſtood the Prophet *Iſaiah* he was reading, anſwered *Act* viii. 31. *How can I, except ſome body ſhew it me.* 3. By the Example of the Apoſtles, who could not underſtand ſeveral Things which Chriſt ſaid to them, and which are now written in the Scripture, *Matt.* xvi. 11. and *Luke* xviii. 34. 4. By the Authority of St. *Peter*, who confeſſes, 2 *Pet.* iii. 16. that in the Epiſtles of St. *Paul, there are ſome Things hard to be underſtood; which they that are unlearned and unſtable, wreſt, as they do alſo the other Scriptures unto their own Deſtruction.* 5. By the Conſent of all the Interpreters: For if the Scripture was clear and perſpicuous, there would be no need of ſo many Interpreters and Commentators; nor of ſo many Queſtions and Controverſies. 6. It is certain, by Induction, that the Prophecy of *Ezekiel* of the Viſion of the four Animals is very obſcure: That the Prophecy of *Daniel* of the ſeventy Weeks, and of the Abomination of Deſolation, has puzzled, and puzzle yet, ſeveral very great Genius's. Of which Chriſt ſays, *Matt.* xxiv. 15. *Whoſo readeth, let him underſtand.* That the *Revelations* of St. *John* are full of Myſteries; and, as St. *Jerom* expreſſes himſelf in his Epiſtle to *Paula*, *has as many Enigma's as it has Words.* It is alſo certain, that in the reſt of the Bible there are ſeveral Things very obſcure, ſome of which I'll quote here.

This Paſſage is very obſcure, 1 *Cor.* iii. 12. *Now if a Man build upon this Foundation, Gold, Silver, precious Stones, Wood, Hay, Stubble; every Man's Work ſhall be made manifeſt. For the Day ſhall declare it, becauſe it ſhall be revealed by Fire; and the Fire ſhall try every Man's Work, of what Sort it is. If any Man's Work abideth, which he has built thereupon, he ſhall receive a Reward. If any Man's Work ſhall be burnt, he ſhall ſuffer Loſs: But he himſelf ſhall be ſaved, yet ſo as by Fire.* St. *Auguſtin* obſerves very judiciouſly, *lib. de fid. operib. c.* 15. that

that this Passage is one of those of which St. *Peter* speaks, when he say, that *in the Epistles of St. Paul there are some Things hard to be understood.*

This is equally obscure, 1 *Corinth.* xv. 29. *Else what shall they do which are baptized for the Dead, if the Dead rise not at all? Why are they then baptized for the Dead?* For it is not easy to explain what signifies here *to be baptized*; likewise what *to be baptized from the Dead.*

This is very obscure likewise, *Heb.* vi. 4. *for it is impossible for those who were once enlightened, and have tasted of the heavenly Gift, and were made Partakers of the Holy Ghost, if they shall fall away, to renew them again to Repentance; seeing they crucify to themselves the Son of God afresh,* which Words are very obscure; and from them ill understood, arose the Heresy of the *Novatians* in the Time of St. *Cyprian*, who pretended that those who were fell, were not to be received to Repentance, or forgiven. All which Passages, and six hundred more, I could quote, condemn the perfidious Doctrine of those who teach, that every one that reads the Scripture can understand it, while at the same Time, themselves are busy in interpreting it, which Conduct is an open Contradiction of their Words, since if we understand the Scripture we want no Interpretation; at least they authorise us to think, that our own Interpretation is to the full as good as theirs; and really it is sometimes better, since theirs often serves only to puzzle us more, instead of rendering the Passages clearer.

When the *Catholicks* are asked, whence proceeds the Obscurity of the Scripture, they answer from two principal Chiefs. 1. From the very Things treated in the Scripture. 2. From the Manner of treating them—The Things treated are of four different Kinds. 1. Histories, as it appears in *Genesis*, *Exodus*, *Numbers*, *Deuteronomy*, *Josua*, *the Books of the Judges*, *Kings*, *Chronicles*, *Esdras*, *Judith*, *Tobit*, *Esther*, *Job*, *Maccabees*: And, likewise, in the Gospel, and the *Acts of the Apostles*. 2. The *Prophecies*, contained in the *Psalms*, in the greater and lesser Prophets, and in the *Revelations of St. John*. 3. The Mysteries of the Faith, particularly of the Trinity, Incarnation, Predestination, Justification, and the like. 4. The moral Precepts, and Documents of the Virtues and Vices. For tho', either in these, or in the Histories, there be not, perhaps, a very great Obscurity, from the Part of the *Kings*; there is, notwithstanding, a very great one in the Prophecies and Mysteries of Faith, which surpasses our Capacity, and Understanding.

The Manner of treating those Things is also often very obscure for these Causes. 1. Because in the Scripture there are frequent Tropes, Schemes, Hyperbols, Metaphors, and Allegories, in which several Truths are wrapped, which the Reader cannot immediately discover. This Obscurity is increased by one and the same Word, being, sometimes, used properly, and sometimes figuratively, in the same Sentence, *e. gr.* in this, *John* iv. 13 and 14. *Whosoever drinks of this Water shall thirst again: But whosoever drinks of the Water that I shall give him shall never thirst.* Where Drink and Thirst in the former Part of the Sentence is taken corporally, and spiritually in the latter. Likewise 2 *Corinth.* v. 21. *For he has made him to be sin for us who knew no Sin.* Where Sin in the former Part of the Sentence is taken figuratively for the Sacrifice offered for Sin; and in the latter properly for Sin itself. For the Sense is, that God was willing that Christ, who had not sinned, should be a Sacrifice for the Sin of all the human Race. I omit mentioning several other such Passages of the Scripture.

2. There are Figures found, not only in the Words, and Dictions, but likewise in the Things themselves; for often one Thing is the Figure or Type of another Thing thereby signified, *v. gr.* the Paschal Lamb was the Type of Christ; the red Sea, of Baptism; the Manna, of the Eucharist; the Mount *Sion*, of the Church: And thus of the rest, whence arise three Sorts of Obscurity. The *First*, Because it does not appear presently, which is the Thing that is the Figure of another, *v. gr.* it does not appear that *Agar*, *Abraham*'s Servant, was the Figure of the Synagogue; and *Sarah* his Wife, that of the Church; unless the Apostle, by a special Inspiration of the Holy Ghost, had explained the Thing. *Gal.* iv. 24. The *Second*, that one Thing is sometimes the Figure of several different Things, even repugnant to one another. Thus *Jonas* was the Type of Christ, *Matt.* xii. 40. And likewise the Type of the *Jews*, though contrary to Christ; for as *Jonas* complained of the Repentance of the *Ninevites*, the *Jews*, likewise, complained afterwards of the Vocation of the *Gentiles*. According to St. *Augustin*, *Epist.* 49. *quest.* 6. The *Third*, Because it happens, sometimes, that one Thing, which is the Figure of another, represents in one Person, in one Manner; and, quite otherwise in another. *v. gr.* the fornicatrice Woman, whom the Prophet *Hosea* was commanded to take for his Wife, was the Type of the Synagogue; which she represented in him, because as she had committed carnal Fornication, the Synagogue, likewise, had committed a spiritual one, which consists in the Worship of Idols; but it differ'd in him in this, that the Woman, after she was married to *Hosea*, did not return to carnal Fornication; when as the Synagogue, after it had been reconciled to God, returned to Idolatry.

3. There occurs often, likewise, in the Scripture, seeming Contradictions, which puzzle much the Reader. Of a great Number of them I'll mention here one or two only.—It is wrote, 1 *Sam.* xv. 11. *It repenteth me that I have set up* Saul *to be King.* And on the contrary, *Rom.* xi. 9. *Without Repentance are the Gifts and Vocation of God.* Likewise it is written, 1 *Kings* viii. 9. *There was nothing in the Ark save the two Tables of Stone, which* Moses *put here at* Horeb. And on the contrary, *Heb.* ix. 4. *And the Ark of the Covenant overlaid round about with Gold, wherein was the golden Pot that had Manna, and* Aaron's *Rod that budded, and the Tables of the Covenant.* And several others too numerous to mention in this Place.

4. The Words of the Scripture form sometimes an ambiguous Sense, for want of Distinction, particularly when it is question of God, of Christ, of the Coming of Christ, of the Church, *&c.* for in God can be considered either the Unity of Essence, or the Trinity of Persons. In Christ, either the human Nature, or the divine. There are two Comings of Christ: The first, in his Nativity; the last, on the Day of Judgment. The Church likewise is either militant on Earth, or triumphant in Heaven. Therefore when the Scripture speaks of these Things, it is often dubious and obscure, in what Sense it speaks of them, *viz.* if of God, as he is one in Essence or as he is three in Persons: If of Christ, as he is God, or as he is Man? If of his first Coming, or of his second? If of the militant, or triumphant Church? I'll give an Example of each.

Of God, *Matt.* vi. 9. *Our Father which art in Heaven.* It is dubious whether it is meant of God, with regard to the Unity of Essence, or to the Distinction of Persons; or as the Scholasticks propose it, if the Name of Father be taken there essentially, as common to the three Persons; or personally as it belongs to the first Person only? Of Christ, *Coloss.* i. 15. *Who is the Image of the invisible God, the first-born of every Creature: All Things were created by him, and in him: and he is the Head of the Body, the Church, the first-born from the Dead.* For it is also dubious here, whether these Things must be understood of Christ, according to his Divinity, or according to his Humanity, or according to both? Of the Coming of Christ, *Heb.* i. 6. *And again, when he bringeth in the first begotten into the World, he saith, and let all the Angels of God worship him.* Which some understand of the first Coming of Christ, in his Nativity: Others, of the second, which will happen on the Day of Judgment. If we mind the Particle *again*, it seems to be understood of the second Coming: If the other Circumstances of the first. With regard to the Church, *Galat.* iv. 26. and *Ephes.* v. 2. and *Hebr.* xii. 22. there is the same Difficulty.

There are other Causes of Obscurity, which I'll content myself with insinuating here. 1. Often in the Scripture, when we think it less, a Transition is made from carnal to spiritual Things, from temporal to eternal, from Person to Person; and *vice versâ.* By which Means, *Isaiah* vii. a Transition is made from two Kings to the blessed Virgin, and Chap. 14. from the King of *Babylon* to *Lucifer*; and *Psalm* lxxi. from *Solomon* to *Christ*, and *John* vi. from the Barley Bread to the Eucharist. 2. Often in the *Prophets* there is not an Order of Kings observed, as they have happened. 3. The

The Supputation of Years is not always very clear. 4. There happens often *Hebraisms*, which are not understood by every Body.—Thus far of the first Principle, with Regard to the Obscurity of the Scripture.

The *second Principle*, is that, from that Obscurity, must necessarily arise several Controversies. This wants no other Proofs than a daily Experience. For it is certain that in all Ages, from the Time of the Apostles to ours, there have always been some Controversies of the true and genuine Sense of the Scripture.

The *Third* is, that the Scripture cannot be judge of those Controversies, which the Catholicks prove by two Arguments.

The *First* is taken from what they have said already, that a Judge must clearly pronounce his Sentence, that it may be understood by each of the Parties at Variance: Otherwise it would be in vain to pronounce it: But the Scripture, when the Sense thereof is obscure, cannot pronounce a clear Sentence, so as to be understood by all Parties; for if in that Case it should pronounce a clear Sentence, its Sense would not be obscure, but clear, which is against the Supposition: Therefore in such Case it cannot be judge.

To this it is objected, that though the Sense of the Scripture be sometimes obscure in one Place, it can, notwithstanding, be clear in another, and therefore the Scripture by that Place, which is clear, can decide of another which is obscure. To which they answer, 1. That if it is so, why do not their Adversaries terminate the Controversies, which have so long subsisted between themselves? Why, say they, the *Lutherans* and *Calvinists*, when they dispute on some Passage of the Scripture, which is obscure, have not Recourse to another which is clear? And if they do it, why don't they make an End of their Controversies? To this they do not know what to answer.

Besides, it is another thing for the Words of the Scripture to be clear; and another for the Sense thereof to be clear. For the Clearness of the Words depends of the Knowledge of Grammar; but the Clearness of the Sense, of the Intention and Inspiration of the Holy Ghost. Therefore, in such a Case, the Words of the Scripture may be clear, though the Sense of the Scripture, intended by the Holy Ghost, be not clear, which they confirm by an Example; the Word of Christ in the Gospel are these, *This is my Body, this is my Blood*, which Words, if we mind their natural Signification, are clear and perspicuous, and can be understood by all, not Christians only, but likewise *Jews*, *Turks* and *Pagans*; though there are an almost infinite Number of Controversies among Christians about the Sense of those Words intended by the Holy Ghost.

They add, that it often happens, that the same Place of the Scriptures which one of the Parties believe clear and perspicuous, is accounted obscure and intricate by the other. What must be done in such a Case? Or what Judge shall we choose? We cannot choose the Scripture, since the Sense thereof is controverted, one of the adverse Parties believing it clear, and the other obscure; therefore we must have Recourse to another Judge, one explaining it in one Manner, and the others in another. *v. gr.* There is a great Dispute between the *Catholicks* and the *Calvinists* about the true and local Descent of *Christ* into Hell, which the *Calvinists* deny, and the *Catholicks* maintain; and prove it by two Testimonies, one taken from the Symbol of Faith, *he descended into Hell*; and the other from the *Act of the Apostles*, ii. 27. *Because thou wilt not leave my Soul in Hell.* They say that both these Testimonies are clear and perspicuous; but the *Calvinists* deny both; and by their obscure Interpretation, render both very obscure; for they interpret the former in this Sense, *he descended into Hell*, i. e. *he suffered on the Cross*, the Torments of a Man damned, so as to be forced to cry in his Anguish, *My God, why hast thou forsaken me?* And the latter in this Sense, *thou wilt not leave my Soul in Hell*, i. e. *thou wilt not leave my Body in the Sepulchre.* Thus *Beza*, in his Commentary on this Passage.

What must be done here? Or what Judge shall we appeal to? If we consult the Scripture, it will say nothing more than it has said already; it will not add an *Iota* to it: Though the Controversy be on what it has said already: Therefore the Controversy cannot be decided by what it has said already: Therefore if, after the Controversy have began, the Scripture says nothing new, but continues in its antient Terms, certainly the Dispute cannot be terminated by it, but it is necessary either to apply to another Judge, or for one of the Parties at Variance to give up the Cause, or for both to continue in their Controversy.

The *last Argument* used by the *Catholicks* is this: There are several Testimonies of the Scripture, the true and genuine Sense thereof cannot be understood, but from Tradition and the Authority of the Church; therefore if a Controversy arise about some of those Passages, the Scripture alone cannot be judge, but Recourse must be had to Tradition, and the Authority of the Church, *v. gr. Christ* says, *Matt.* xxvii. 19. *Go ye therefore, and teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost.* The true and genuine Sense is, that in the Administration of Baptism, these Words must be pronounced; *I baptize thee in the Name of the Father, and of the Son, and of the Holy Ghost*; and that Baptism without that Pronounciation is not valid. In this, say the *Roman Catholicks*, our Adversaries agree with us; but if any Body should deny that this is the Sense, and maintain that it is not necessary to pronounce these Words, *In the Name of the Father, and of the Son, and of the Holy Ghost*, but that it suffices, that he who administers the Baptism, should have the Intention of baptising in the Name of the blessed Trinity, how must he be refuted? By the Words of the Scripture only? That cannot be, for those Words, *baptizing them in the Name of the Father, and of the Son*, &c. do not say that the vocal Invocation of the Trinity is required. Whence, then, should it appear? From the Practice and Tradition of the Church. If you reject this; you'll have no Defence against your Adversary, who should deny the Necessity of a vocal Prolation.

Another Example. Christ says, *John* iii. 5. *Except a Man be born of Water, and of the Spirit, he cannot enter into the Kingdom of God.* This Place, according to the true and genuine Sense, is understood of the Necessity of the Baptism of Water, as the *Lutherans* confess with the Catholicks: But the *Calvinists* deny it. How can then the *Lutherans* refute them? Not by the Words quoted: For though the Water be named there, it is not expressly added notwithstanding, that it should be understood of true Water; for it is called Fire in other Places, as *Luke* iii. 16. *He'll baptize you in the Spirit, and Fire*; which, notwithstanding, is not understood a true Fire. Whence then shall it appear, that in the first Place must be understood a true Water? or whence the *Lutherans* shall prove that against the *Calvinists?* From no where else but from the Practice and Tradition of the Church.

Another Example: Christ in the last Supper, not only instituted the Eucharist, but added to it likewise the Washing of the Feet. And said in the Institution of the Eucharist, *eat, and drink.* But in the Washing of the Feet, he added, *you must wash one another's Feet.* Here the Adversaries say, that the former Words contain a Precept; the latter not; and consequently, that the Faithful are obliged, by a divine Precept, to take the Eucharist under both Kinds, but not to the Washing of Feet. The Catholicks say, that if they ask whence this appears to their Adversaries, or under what Pretext they believe themselves obliged to take both Kinds, and be exempted from the Washing of the Feet. They cannot alledge the Words of the Scripture, for those bear rather the contrary; for those Words, *eat and drink*, does not seem to signify more, than as if the Father of a Family was to say to his Guests, *eat and drink, and be merry.* And if he was to speak thus, it would not be reckoned that he would oblige them by a Precept. Therefore Christ having spoke in the same Manner, whence does it appear that he would oblige by a new Precept to both Kinds? But these Words, *you ought to wash one another's Feet*, seem to signify a Precept no less, than if a Master should say to his Servant, *You must cover the Table.* Whence then do they know that they are not obliged by those Words to the Washing of Feet, since those Words import of themselves an Obligation? From the sole Practice and Tradition of the Church: For the Church has never took that Washing for necessary; which

which notwithstanding it had done, if it has thought itself obliged to it by a divine Precept.

The Catholicks say, that they omit several other Examples of that Kind, which occur in the Scripture; and from what they have said conclude in this Manner: That the Scripture can be considered in two Manners: 1. With regard to the Letter. 2. With regard to the Sense intended by the Holy Ghost. In both Manners it cannot be judge of Controversies: Not in the former, because the Letter leads us often into Error: Nor in the latter, because the Sense of the Scripture is often obscure and ambiguous, so that another Judge is wanted to decide, that that one Sense is genuine, and intended by the Holy Ghost, and the other not. Thus much of their second Argument taken from Part of the Scripture.

They draw their third Argument from the Part of the Controversies themselves; which they propose thus: There are several Controversies about the Faith and Religion, of which either there is no mention made in the Scripture, or certainly not sufficient for the Scripture to judge of them; therefore to decide them, another Judge is wanted. Those Sorts of Controversies are the following ones.

The *first*, if the Books of *Tobit*, *Judith*, *Wisdom*, *Ecclesiasticus*, and of the *Maccabees*, be canonical or not? The *Lutherans* and *Calvinists* deny it, and the Catholicks affirm it. Who shall be Judge to decide this Controversy? The Scripture cannot be that Judge; of which the *Lutherans* and *Calvinists* are so conscious, that they do not appeal then to the Scripture, but to the Canon and Tradition of the *Jews*. They say that those Books are not found in the Canon of the *Jews*, and therefore are not canonical. Therefore they acknowledge another Judge in that Cause, besides the Scripture. And what Judge? The Tradition of the *Jews*. A surprizing Thing! they value more the *Jews* than the Christians; and though they will be accounted Christians themselves, (say the *Roman* Catholicks) declared Enemies of the Traditions of the Apostles, they prefer to them the Traditions of the *Jews*.

The *second*. How many Sacraments there are of the new Law? The Reformed say two, Baptism and Eucharist; the Catholicks, seven. What says the Scripture? It defines nothing of that Number, and therefore cannot be Judge in that Cause. Whence then can the Catholicks have their septennary Number, if they have it not from the Scripture? From Tradition, and the Consent of the Church, say they? Whence have their Adversaries their binary Number? It is what they must consider. Certainly, say the *Roman* Catholicks, they have it not from the Scripture as they pretend they have it. For, continue they, let them produce these three Things from the Scripture: 1. Let them shew, from the Scripture, that the Name of Sacrament is attributed to Baptism, and the Eucharist, and not to the others. 2. From the same Scripture let them define Sacrament. 3. Let them shew that the Definition becomes Baptism, and the Eucharist, and not the rest. If they do this, conclude the *Roman* Catholicks, the Dispute on this Point is ended; but they'll never be capable to do it.

The *third*. If Exorcism can be used in the Administration of Baptism? The *Lutherans* say it must be used; the *Calvinists* deny it; and neither of them can prove their Sentiment by the Scripture.

There are other Controversies which cannot be decided by the Scripture, particularly these: 1. If Baptism must be administered with one Immersion, or three? 2. If Christians must keep *Sunday*, in lieu of the *Saturday*? 3. If the Symbol of Faith be truly apostolical? 4. If the blessed *Mary* remained a Virgin after her Delivery, *&c.*

They deduce their fourth Argument from the Practice of the Old Testament; and say, that it is certain, that in the Old Testament all the legal Controversies of any Consequence were decided (according to *Josephus*, *lib.* 2. *contra. Appionem*) by the sovereign Pontiff. As it is expressly ordered in *Deuteronomy* xvii. 8, 9, 10. where three Things are to be observed: 1. That there were different Sorts of Controversies among the *Jews*. Some which arose from the Law of the Decalogue; others from moral Regulations, which are not contained in the Law of the Decalogue; others from ceremonial Precepts; and others from judicial ones, (2 *Chron.* xix. 10.) 2. That in every City inferior Judges were appointed, whose Office was to decide those Kinds of Controversies (*Deut.* xvi. 18. and 2 *Chron.* xix. 5.) 3. That when those inferior Judges could not agree among themselves, nor decide the Controversies brought before them, by reason of some great Difficulties they were attended with; it was necessary to appeal to *Jerusalem* to the superior Judges, where the sovereign Pontiff presided; and the contending Parties were obliged to acquiesce to the Sentence of the Pontiff under pain of Death (*Deut.* xvii. 12.) Whence they infer, that there were two Sorts of Tribunals or Council among the *Jews*; the great Council called *Sanedrin*, or *Synedrion*, or the Council of the Ancients; and the lesser Council; between which there was a great Difference. 1. Because the great Council was always held at *Jerusalem*; and the lesser in every City. 2. The Pontiff presided in the great, and not in the lesser. 3. From the lesser it was allowed to appeal to the greater, but not from the greater to the lesser. 4. The great Council was composed of seventy Persons besides the Pontiff; and the lesser consisted of twenty three only. There is often mention made of the great Council, in the Gospel.

Both Councils had their Origin under *Moses*; and the greater was instituted by God's Command, *Numb.* xi. 16. and the lesser by *Jethro*'s Advice, *Exod.* xviii. 13. but as both in process of Time fell almost to nothing, they were again restored, by *Jehosaphat* King of *Judah*, as we read, 2 *Chron.* xix. 4.

The Catholicks are asked, 1. Whether the Pontiff, who they say was Judge of the Controversies in the Old Testament, was an infallible Judge? Which they answer in the Affirmative, and prove in three Manners. 1. Because when there was some difficult and ambiguous Controversy, God would that the contending Parties should defer it to the sovereign Pontiff presiding in the great Council, with this Promise, that they should receive from him, the *Truth of Judgment*, Deut. xvi. 9. 2. Because God commanded them all to acquiesce to the Sentence of the Pontiff under Pain of Death, *Deut.* xvii. 12. 3. Because if the Pontiff, when he pronounced his Sentence in the Council, had been fallible, the contending Parties had never been safe. Why, then, were they obliged, under Pain of Death to follow his Decisions?

They are asked, 2. Why the Pontiff was rather infallible in deciding the legal Controversies, than the inferior Judges: For there is some Reason to doubt of it; because it could very well happen, that the inferior Judges were as much learned in the Law as the Pontiff himself: Therefore they could be equally infallible; and even more infallible than the Pontiff, if they were more learned than he? To this they answer, that if we mind human Industry only, it is certain that the inferior Judges could as well understand and interpret the Law, as the Pontif himself; but if we mind the Assistance of the Holy Ghost, the chief Thing to be minded in this Case, the Pontiff had a greater Share thereof than the other Judges; of which, say they, we have an Example in *Moses*: For God granted him a greater Assistance, than to the seventy Ancients, who assisted him in his Office; as we learn from this Passage, *Numb.* xi. 17. *And I will take of the Spirit which is upon thee, and will put it upon them; and they shall bear the Burthen of the People with thee.* Where by *Spirit* must be understood some Gift of Grace, which is required in those, who will govern others justly, and decide their Controversies. Therefore, say they, the Sense of the Passage is this; I'll take off thy Spirit, and give it them; *i.e.* I'll give them a Gift of Grace, but inferior to that Gift which you have; for it was necessary to give more to you who is the sovereign Judge, than to them who are subject to you.

They take their *fifth Argument* from the Practice of the *New Testament*. For, say they, as in the *Old Testament*, as already observed, not the Scripture, but the Pontiff, and the Council of Ancients was Judge of Controversies; the same Order has been observed, likewise, in the New, which they endeavour to shew by a short Induction. And, 1. In the Apostles Time, there arose a Controversy about the Circumcision, *viz.* whether the new Christians, who then received the Faith of the Gospel, could not be saved without being circumcised, and observing the legal Ceremonies? Which Controversy was chiefly understood of the *Gentiles* converted to the Faith.

There

There were two different Sentiments on this Subject. One of some of them, who from *Jews* had turned Christians, and who said that the *Gentiles* could not be saved by the Faith of Christ unless they were circumcised, and observed the other Ceremonies of the Law of *Moses*. The other Sentiment was that of *Paul* and *Barnabas*, who maintained that the Circumcision, and the Observance of the legal Ceremonies were needless, *Acts* xv. 1.

How was this great Controversy decided? Ask the *Roman* Catholicks, was it referred to the Scripture alone, as to the common Judge? Not at all, but rather they all agree to send some Deputies of each contending Parties, to the Apostles at *Jerusalem*, who should take Cognizance of that Affair in a solemn Council, and pronounce a definitive Sentence; which was accordingly done: For *Paul* and *Barnabas* were deputed by one Party, and others by the other Party; who all together came to the Apostles at *Jerusalem*. These having assembled the Council, and invoked the Holy Ghost, they answered in these Words, *Acts* xv. 28, 29. *For it seemed good to the Holy Ghost, and to us, to lay upon you no greater Burthen than these necessary Things; that you abstain from Meats offered to Idols, and from Blood, and from Things strangled, and from Fornication.* Which was sent, in Form of an Epistle, to the Christians converted from Paganism, who had been the Occasion of the Council; and the Sense is, we will not impose upon you the Yoke of the Circumcision, and of the Observance of the legal Ceremonies, which is heavy, but that you should abstain from such and such Things, which you may very easily do.

Here, continue the *Roman* Catholicks, two Things are to be observed, which are very much to the Purpose. The first is, that this Controversy of the Circumcision and legal Ceremonies, could very well have been determined by *Paul* and *Barnabas*, who were both Apostles, Prophets, and Doctors, *Acts* xiii. 1. both chosen in a particular Manner by the Holy Ghost, to preach the Gospel to the Gentiles, *Acts* xiii. 2. and who had preached it already in several Provinces and Places, *Acts* xiv. 26. but neither of them would usurp that Office; to teach, by their Example, that those Controversies which regard Faith and Religion, are to be referred to the ordinary Prelates of the Church, or to a Council of Prelates.

The other is, that in the Council of the Apostles, where that Controversy was proposed and decided, there was no Testimony of the Scripture brought, relating directly to Circumcision; though the Scripture could have furnished Testimonies enough in favour of both Parties, if the Dispute should have been decided by them alone. For there could have been brought in favour of Circumcision, this of *Genesis* xvii. 10. *This is my Covenant which ye shall keep between me, and you, and thy Seed after thee; every Man Child among you shall be circumcised. And ye shall circumcise the Flesh of your Foreskin; and it shall be a Token of the Covenant betwixt me and you; he that is born in thy House, and he that is bought with thy Money, must needs be circumcised; and my Covenant shall be in your Flesh for an everlasting Covenant.* But if the Covenant was eternal, as it is said here, it was necessary to keep it always, even in the evangelical Law; not only by the *Jews*, but likewise by those who were not of a *Jewish* Race.

The Testimonies of the Scripture, which could have been alledged against the Circumcision, are these; *Deut.* xxx. 6. *And the Lord thy God will circumcise thine Heart, and the Heart of thy Seed.* Where it is insinuated, that the Circumcision of the Flesh was not to be continued in the New Testament, but the Circumcision of the Heart should succeed it. Likewise, *Jerem.* xliv. *Be circumcised to the Lord, and take off the fore Skin of your Hearts.* As if he said, I do not require the Circumcision of the Flesh, but of the Heart, which consist in an inward Contrition and Repentance. These add, the like Passages could be alledged by the two contending Parties; though it was not done, but the Apostles assembled in Council, by the divine Direction and Assistance, which Christ had promised them and to their Successors, pronounced their Sentence.

After the Time of the Apostles, continue the *Roman* Catholicks, a great Number of other Controversies arose in several different Places, and different Ages, which the ecclesiastical Historians inform us, were all decided by Councils; and those who would not acquiesce to their Decisions were condemned as Hereticks. They produce some Examples of what they alledge, which are the following ones.

The first Controversy, say they, was whether the Feast of *Easter* was to be celebrated with the *Jews* the 14th of the first Month, as some of the Christians of *Asia* wanted it should; which, on that Account, were called *Quartodecimans*: Or only on the *Sunday*, as it is practised at present? This Controversy, after several Councils of Bishops, was at last decided and terminated (according to *Eusebius*, *lib.* 5. *hist. eccles. c.* 23. and following) in the Year 198, by Pope *Victor*.

The *second* was; whether the Church could absolve those who were fallen after their Baptism? This *Novatian* denied, for which he was condemned in a Council at *Rome*, in the Year 255.

The *third*; If there were three Persons really distinct in God? Which *Sabellius* denied, maintaining that there was but one Person, who had three Offices; of Creation, Redemption, and Sanctification; for which he was condemned in the Council of *Alexandria*, held in 1319.

The *fourth*; If Christ be a pure Man, like other Mortals, and had nothing in Nature and Hypostasis but what we have? Which *Paul* of *Samosata* affirmed, and was condemned in the Synod of *Antioch*, in 266.

The *fifth*; If Christ was the eternal Word of the Father, and of the same Substance with the Father? *Arius* denied it; for which he was condemned in the Council of *Nice*, in 323. As may be seen in my Treatise of *Arianism*, under the Letter A.

The *sixth*; If there be two Persons in Christ, as there are two Natures, *viz.* the divine, and the human? *Nestorius* affirmed it, and was condemned in the general Council of *Ephesus*, in 434. As is seen in my Treatise of *Heresies*, under the Letter H.

The *seventh*; If there be two Natures in Christ? *Eutyches* and *Dioscorus* say, that before the hypostatical Union there were two Natures, *viz.* the divine, and the human; but that after the Union a Coalition was made of the two into one; for which they were condemned in the general Council of *Chalcedon*, in 454. As may be seen in my Treatise of *Eutychianism*, under the Letter E.

The *eighth*; If in Christ there be only one Will? *Macarius* Patriarch of *Antioch*, *Cyrus* of *Alexandria*, *Sergius* of *Constantinople*, and several others, though they acknowledged two Natures in Christ, said notwithstanding that there was but one Will, *viz.* the divine; for which they were called *Monothelites*, and condemned in the general Council of *Constantinople*, in 679. As is seen in my Treatise of Heresies.

The *ninth*; if the Holy Ghost is God? The *Macedonians* denied it; for which they were condemned in the first general Council of *Constantinople*, in 383.

The *tenth*; If Baptism could be repeated, or reiterated? Which Controversy can be understood in two Manners. 1. If Baptism, once validly administered, can be repeated? *Marcion* affirmed it. 2. If Baptism administered by Hereticks, can be administered? The *Donatists* affirmed it; who were condemned in a Council at *Rome*, in 313.

The *eleventh*; If a Man, without God's Grace, can by the sole Strength of Nature, observe the Law if he will? *Pelagius* and *Cœlestius* affirmed it; but were condemned in the Council of *Carthage*, and in that of *Milevium*, in 416.

The *twelfth*; If Infants were born in the Original Sin, and wanted Baptism to wash it off? The same *Pelagius* and *Cœlestius* denied it.

In these and the like Controversies, which they omit, say they, for Brevity Sake, there are three Things to consider; 1. That one of the contending Parties was clearly, and perspicuously condemned. 2. That that Condemnation was made by the Catholick Church as a Judge. 3. That the *Lutherans* and *Calvinists* have acknowledged that Condemnation to be just. For they confess that *Novatian*, *Sabellius*, *Paul of Samosata*, *Arius*, *Nestorius*, *Eutyches*, *Dioscorus*, the *Monothelites*, *Macedonians*, *Donatists*, and *Pelagians*, were deservingly condemned, and should be reputed as Hereticks, and no

otherwise

otherwise than by the Decision of the Church; for if the Scripture had been the sole Judge, and the Church had not interposed her Sentence, those Controversies had lasted to these Days; and it would not appear, yet clear to all, that the aforesaid Authors are to be considered as Hereticks, but as they have been convinced by the Church, the Thing is certain, and indubitable.

When the Catholicks are asked; what if the Church had erred in pronouncing her Sentence? They answer, that it is the same as if they were asked, what if Christ, the Apostles, and the Prophets, had been guilty of Falshood? Since themselves have declared, that the Church cannot err, or be mistaken; for that Church, according to Christ himself, is founded on a Rock; and *the Gates of Hell shall not prevail against her*, Matt. xvi. 18. *It is the Pillar and Ground of the Truth*, 1 Tim. iii. 15. *It shall never be confounded, nor put to Shame*, Isaiah liv. 4, 17. *and every Tongue that shall rise against thee, thou shalt condemn.*

They deduce their *sixth Argument*, from the Analogy of a Judge of civil Controversies; which they are of Opinion, contributes much towards clearing up this Point; and, which they propose in this Manner; between the Affairs of Faith and of Religion, on one Part, and between the civil and political Affairs, on the other, several different Sorts of Analogy can be considered. 1. As in political and civil Affairs there arise often Debates and Controversies, which require a Judge to decide between the contending Parties; the same Thing happens, likewise, in Faith, and Religion. 2. As in civil Controversies, these three Things are distinguished; *viz.* the Judge, the written Law, and the common Law, or Custom: Likewise in Controversies of Faith, these three Things are distinguished, the Judge, the Scripture of both Testaments, and the Tradition. 3. As the Prince, or secular Magistrate discharge the Office of Judge, in the Decision of civil Controversies: Likewise an ecclesiastical Synod discharge the Office of Judge, in the Decision of Controversies of Faith. 4. As the written Law, is as the Rule which the secular Judge follows in the Decision of civil Controversies: Likewise the Scripture of both Testaments, is as the Rule which the ecclesiastical Judge follows in deciding Controversies of Faith. 6. As the written Law is not sufficient alone; but the written Law and Customs together: Likewise the Scripture of both Testaments, is not a sufficient Rule of all Controversies of Faith; but the Scripture, and Tradition together.

These, say the Catholicks, are clear; which notwithstanding, least some should doubt of it, they explain thus, in a concise Manner, each Article; and first, that a Prince, or secular Magistrate does the Office of Judge, in civil Controversies, wants no great Proof; since that is witnessed by a daily Experience, in all Kingdoms, and Provinces: For every where civil Contentions and Causes are referred to the Prince, and civil Magistrate; whom the contending Parties acknowledge for their lawful Judge; and which is also confirm'd, by both civil and canonical Law: There being in both Titles, *de officio judicis ordinarii, & delegati*; and there is no-body such a Stranger in those Affairs, as to understand by an ordinary, or delegated Judge, the written Law: Since it is certain, that that is the ordinary Judge, who has the ordinary Jurisdiction and Power; and that is the delegate Judge, who having received Power from the Ordinary, supplies his Place.

Then, it can be easily proved, that the written Law cannot be Judge; especially in three Cases. 1. When that Law is obscure and ambiguous; for, then, another Judge or Interpreter is wanted to explain its Meaning. 2. When one Law seems repugnant to the other, which frequently happens; for then, there must be a Judge capable to reconcile them together. 3. When the Words of the Law, which are general, should be restrained in some Cases, though they be not so of themselves; which happens when some particular Case, which the Legislator, when he made the Law, did not foresee; and if he had foreseen it, would not have included it under that Law; therefore, in such a Case, one must judge contrary to the Words of the Law; and who will be then the Judge? not the Law itself; since it neither destroys nor judges itself; therefore, there must be another Judge distinct from the Law.

Lastly, all Lawyers agree, that the written Law alone, cannot be a sufficient Rule for the Decision of all civil Controversies; but the Custom is required besides, especially in two Cases. 1. When a Controversy arises, of which there is no written Law extant; then the Custom, if there be any, is to have the Force of Law. 2. When there is a written Law, but the Meaning and Sense thereof is ambiguous; and cannot appear but from the Custom and Tradition; then it must be taken for Law.

When they are asked, what is to be done when some Controversy occurs, which can be decided neither by the written Law, nor by the Custom; and what Rule a Judge must then follow? They answer; that the Judge must then form his Sentence on natural Equity; and more particularly, when some Case occurs which is included under the Words of the Law, but not under the Meaning of the Legislator. The same can be done in Controversies of Faith and Religion; for if some Controversy should happen, which can be decided neither from the Scriptures nor from Tradition, recourse must be had to the Assistance of the Holy Ghost; who, though he commonly be present, to those who implore him; he would more particularly then, teach us all Truth, according to the Promise of Christ; which Remedy was used by the Apostles in the Council of *Jerusalem*. All these are Arguments used by the Catholicks, to prove that the Church, and not the Scripture, is Judge of the Controversies of Faith.

Let's hear, at present, how they answer to the Objections of their Adversaries.

The first Objection is taken from this of *Isaiah*, c. viii. v. 20. *To the Law and to the Testimony*: Whence it is inferred, that the *Jews* in the Old Testament, when some Controversy arose, were sent to *the Law and Testimony*, i. e. to the Scripture.

To this the Catholicks answer, that the Objection is an Error of their Adversaries. 1. Because they have proved already, say they, that the Pontiff, and not the Scripture, was the Judge of Controversies in the Old Testament. 2. Because these Words, to *the Law and Testimony*, are to be taken in a Sense quite different from theirs; as it appears from what precedes, which is this, *ver.* 19. *and when they shall say unto you, seek unto them that have familiar Spirits, and unto Wizards that peep, and that mutter; should not a People seek unto their God, for the living to the Dead?* TO THE LAW AND TO THE TESTIMONY: *If they speak not according to this Word, it is because there is no Light in them*; all which is said against those who used to consult Pythonesses, and Jugglers, to know Futurity; and are sent, in Part, to the Law which forbids that, *Deut.* viii. 9. and in Part to the Testimony of the Prophets, whom God had appointed to foretel Futurity.

Therefore, the Sense of those Words, *to the Law and Testimony*, is this; if you will be certain of future Events, you must not consult Pythonesses, as *Saul* did, 1 *Sam.* xxviii. 7. because God has forbid it by his Law, to which I refer you; but consult the Prophets of the Lord, whose Office is to foretel Futurity. But what Report has this to the Judge of Controversies? None at all, answer the *Roman* Catholicks, unless our Adversaries would reason thus; it is not lawful to consult Pythonesses on future Events: Therefore the Scripture alone is judge of Controversies; which is a very ridiculous Reasoning, and is, notwithstanding that of their chief Rabbins.

The second Objection is taken from this of *John*, c. v. 39. *Search* the Scriptures; there, say the *Roman Catholicks* Adversaries, *Christ* refers us to the Scripture, as to the Judge of Controversies. But the *Roman Catholicks* pretend, that they would not speak thus if they understood the Meaning of *Christ*. *Christ*, in that Chapter, disputing with the *Jews*, who denied that he was the Son of God, and he proves himself to be such, by four Testimonies.

1. By the Testimony of *John Baptist*; *you*, says he, have sent to *John*, and he witnessed the Truth. For this was his Testimony, *Behold the Lamb of God*. And again, *John* i. 34. *and I saw, and I bare Record that he is the Son of God.*

2. By the Testimony of the Miracles he operated: *I have*, says he, *a greater Testimony than* John; *for the Works*

Works which the Father has given me to do, witness of me, that the Father has sent me.

3. By the Testimony of God the Father; *he has witnessed of me*, viz. when he has said from Heaven, *Matt.* iii. 17. and *Luke* ix. 35. *This is my beloved Son, in whom I am well pleased.*

4. By the Testimony of the Scriptures of the Old Testament, *search*, says he, *the Scriptures, for in them you think you have eternal Life, and they are they which testify of me*; as if he had said, if you will not receive the two former Testimonies, you cannot reject the Testimonies of the Scriptures of which you boast so much: Those, if you search them with Attention, witness of me that I am the Messiah, why don't you believe them?

Whence the Catholicks conclude that their Adversaries, instead of arguing against them, argue rather against themselves, for they pretend that the Scripture alone is judge of the Controversies, and that Christ refers us to them; when he does quite the contrary; for Christ in the Controversies he had with the *Jews*, whether he was the Son of God, did not refer them to the Scripture alone; but, first, to the Testimony of *John Baptist*; afterwards to that of his Miracles, which shewed that he was God; then to the Testimony of God the Father, who confirmed it by a Voice from Heaven; and lastly, that they may experience all Things, to the Testimony of the Scripture.

The third Objection is taken from this, *Acts* xvii. 11. *And searched the Scriptures daily, whether these Things were so.* Here the Adversaries of the *Roman Catholicks*, say, that the *Bereans* had not believed blindly what the Apostles said; but examined all Things according to the Rules of the Scripture: And therefore it is reasonable we should follow their Example, and acknowledge the Scripture alone for Rule and Judge. The *Roman Catholicks* say that this Reasoning will appear vain, if we inquire into the Merit of the Cause; which is this, the Apostle St. *Paul*, as it is expressly marked in the same Chapter, *reasoned*, first, *with those of* Thessalonica, *and afterwards with those of* Berea, *out of the Scriptures, opening and alledging that Christ must needs have suffered, and risen again from the Dead; and that this Jesus whom he preached unto them was Christ*; what did the People of *Berea? They received the Word with all Readiness of Mind, and searched the Scriptures daily, whether those Things were so.*

Therefore the Sense of that Passage is this: The People of *Berea* hearing the Apostle quote some Testimonies of the *Old Testament*, to prove the Death and Resurrection of Christ; they searched if what the Apostles alledged was uniform to those Testimonies of the Scripture; not as if they doubted of the Death and Resurrection of Christ, which had been sufficiently proved to them by the Miracles which the Apostle had operated (2 *Thessal.* i. 5.) but to confirm themselves more and more in the Faith, if they could find what the Apostle preached had been foretold by the Prophets.

What can our Adversaries, ask the *Roman Catholicks*, conclude from that Sense? Nothing to the Purpose, unless, perhaps, they would conclude thus: The People of *Berea* searched the Testimonies of the Scriptures alledged by St. *Paul*; therefore the Scripture alone is Judge of Controversies, which is the same as if you was to say, the *Lutherans* search the Passages of St. *Augustin*, quoted by *Bellarmine:* Therefore St. *Augustin* is sole Judge of Controversies: Or thus: *Kemnetius*, in his Examen of the Council of *Trent*, searched the *Traditions* alledged by the *Catholicks:* Therefore *Tradition* alone is Judge of Controversies: Or, *lastly* thus, The Disciples of *Cicero* searched the Citations quoted by their Master; therefore *Cicero* is the sole Author of the *Latin* Tongue. Away, away, say the *Roman Catholicks*, with those ridiculous Consequences, which, notwithstanding, are much esteemed by their Adversaries, because they have no better.

The most simple among our Enemies, say the *Roman Catholicks*, reason thus: The Judge of Controversies in Matter of Faith, must be infallible; for if he was subject to Error, all those who should follow his Sentiment, would run the Risk of being led into Error. But it is certain, on one Part, that the Scripture is infallible, since it is the Word of God which cannot err; and, on the other, that Men, far from being infallible, are rather Liars, and subject to Error, according to this, *Rom.* iii. 4. *God is true, but every Man a Liar.* Therefore, the Scripture can be an infallible Judge, but Men, being Liars, cannot: but the Church is but an Assembly of Men: Therefore the Church is a Liar, and can err, and no Body is safe, in Matter of Faith, that follows their Sentiment.

This Objection, says the *Roman Catholicks*, if it be of any Weight, can no less be used against our Adversaries, than they use it against us. For if all Men be Liars, and can err; it follows necessarily, that *Moses*, the Prophets, Evangelists, *Luther*, *Calvin*, and all the *Lutherans* and *Calvinists* Preachers, are Liars, and can err, since they are Men; therefore they are not to be believed or trusted; and all they say must be uncertain and suspicious. Where shall we find the Faith then? It is ridiculous for them to say, that they preach the Word of God, and not that of Man; for if they are Liars, they can lie likewise in Matter of Faith; and therefore nothing is certain.

But God forbid, continue they, we should speak or think thus: Since the Thing is quite otherwise. For, 1. We confess that the Scripture is infallible, because it is the Word of God; but we add, that it is often obscure, and that every Body cannot discover the true Sense thereof. Therefore another Judge is wanted, capable to determine, infallibly, which is the genuine Sense of the Scripture. Every private Person cannot be that judge; otherwise there were as many different Judges, as there are different Chapters, and Sentences; and thus no Controversy could ever be adjusted; for every one would prefer his own Sentiment to that of others: Therefore it is necessary, that there should be some publick Judge invested with the Power of deciding with Authority between the contending Parties.

Then they maintain, *viz.* the *Roman* Catholicks, that Men can be consider'd in two Manners. 1. As being *Adam*'s Children, and subject to several natural Infirmities: And as such have a certain Propensity to Falshood. *Gen.* viii. 21. and *Psalm* xxxix. 6. 2. As they are directed, and govern'd by the Holy Ghost, for the Instruction of others: And thus they are infallible, and without Falshood. Such was in the Old Testament, *Moses*, with the Council of the Antients, *Numb.* xi. 17. such were all the Pontiffs, his Successors, *Deut.* xvii. 9. *Hag.* ii. 12. and *Mal.* ii. 7. such were the Prophets, *Isaiah*, *Jeremiah*, *Ezekiel*, *Daniel*, and others, *Jer.* i. 7. such were in the New Testament, the Apostles, to whom it was said, *John* xv. 26. *But when the Comforter is come, whom I will send unto you from the Father, even the Spirit of Truth, he'll teach you all Truth.* But what says all Truth, exclude all Falshood. Lastly, such was always the Church, and always will be, which because of the continual Assistance and Direction of the Holy Ghost, has never erred, and cannot err, say the *Roman* Catholicks.

When they are asked, whether all, and every one of the Members of the Church have that Assistance and Direction of the Holy Ghost, so as to be incapable to err in the Faith? They answer, that every Member of the Church has that Assistance while they continue in the Church; but that so soon as they separate themselves from the Church, from that very Instant they begin to err. Which they prove by two Similitudes; one taken from the Proportion of the human Body: For if you ask whether every Member of the human Body, have in them the vital and sensitive Spirits, whereby Life is preserv'd? It is answer'd, that they have them, but only dependantly of the Head and Heart, since from the Head and Heart, as from a double Principle, those Spirits flow into the other Members. Whence if they be interrupted, and the Canals through which that Circulation is accomplished, obstructed; the other Members must be deprived of those Spirits, and their Functions suspended. The same Thing happens in the Church; every one of the Faithful, who are like the Members of the Church, have the Assistance and Direction of the Holy Ghost, but dependently of the Church, for while they remain united by the Doctrine of the Councils, they partake of the Assistance of the Holy Ghost, and cannot err in the Faith. But if by Discord, and Stubbornness, they separate themselves from the Church; they stop all the Passages through which

that divine Assistance and Direction could flow to them. As it happen'd to *Arius*, *Nestorius*, *Pelagius*, and six hundred others.

The other Similitude can be taken from a Flock of Sheep, which according to Christ himself, *John* x. represents very well the Church. For as a whole Flock gather'd in the same Sheep-fold, has the continual Assistance of the Shepherd, which with his Crook, and Dogs, defend it against the Wolves: Likewise the whole Church of the Faithful assembled in one same Faith and Spirit, has the continual Assistance of his divine Shepherd, who said, *I am the good Shepherd, and I know my Sheep*, John x. 14. and again, *Matt.* xxviii. 20. *And lo, I am with you always, even unto the End of the World.* And as every Sheep, while they remain in the Flock, under the Care of the Shepherd, are secure against Wolves, and other Enemies: Likewise every Christian, while they remain united with the Church, *i. e.* with the Doctrine and Sentiment of the Church, they are safe against all Danger of Error and Infidelity. Lastly, as the Sheep which err from the Flock are destitute of the Protection of the Pastor, and exposed to all Sorts of Dangers; likewise Christians, who forsake the Doctrine of the Church, are destitute of the Assistance of the Holy Ghost, and exposed to all Sorts of Errors.

Another grand Question is that relating to PURGATORY; which Question is, whether there be some Place, where the Souls of the Just, which have not been sufficiently purged in this Life, are purged afterwards, before they are received into the everlasting Kingdom. The *Lutherans* and *Calvinists* answer this Question in the Negative; and the Catholicks in the Affirmative, and prove their Assertion chiefly by these four Arguments. The first is taken from the Suffrages of the Living for the Dead. The second from that a mortal Sin having been remitted, the whole Punishment due to it is not always remitted. The third from that the Just die sometimes with some venial Sins. And the fourth from the Scripture, and the Fathers.

Therefore the first Argument is this: The Faithful in this Life, pray rightly and usefully for the Dead; but they do not pray for those who are either in Heaven or in Hell: Therefore they pray for those in Purgatory; and, therefore, there is a Purgatory. The Major they prove in two Manners; *viz.* by the Scripture, and by the Practice and Custom of the Church. They quote from the Scripture, *lib.* 2. *Macc.* xii. 43. a very strong and clear Passage, where *Judas Maccabæus* commanded to offer a Sacrifice for the Dead; and his Command is approved of in the same Chapter, in this Word, it is therefore, *a holy and salutary Thought to pray for the Dead, that they may be delivered from their Sins.* By the Practice and Custom of the Church St. *Augustin* writes thus, *lib. de cura pro mortuis, c.* 1. *we read in the Books of the* Maccabees, says he, *that a Sacrifice was offered for the Dead. But if even such a Thing had never been read in the antient Scriptures, the Authority of the universal Church, which is conspicuous in that Custom, is not of a little Weight, where in the Prayers which the Priests offer to the Altar of the Lord God, the Recommendation of the Dead, has likewise its Place.* And in the same Book, Chap. iv. *The Prayers for the Souls of the Dead, which the Church has undertook should be said for all the Dead, in a Christian, and Catholick Society, are not to be forgotten or neglected.*

Their second Argument is this: It happens often, that a Man who has committed a mortal Sin, is absolved of the *mortal Coulpe*, and consequently of the eternal Punishment, notwithstanding which he remains subject to some temporal Punishment; therefore if he dies before he has satisfied for it in this Life, he must do it in the other; which can be done no where else but in Purgatory. This Discourse is founded, say they, on that God remits sometimes a mortal Sin, and the eternal Punishment due to it; so that, notwithstanding, he wills that the Man whom he has forgiven should be punish'd by some temporal Pain, not only to deter him from falling again into the same Faults, but to satisfy, in some Manner, to his Justice. As a Prince forgives sometimes an Offence, and remits the Punishment it has deserved; though that the publick Justice should not appear neglected, he will sometimes punish him either with Exile or Imprisonment. Which can be proved by several Examples of the Scripture. 1. Because *Moses* and *Aaron*, for the Sin of Incredulity, which had been remitted to them, were, notwithstanding, punished with a temporal Death, *Numb.* xx. 12. and *Deut.* xxxii. 48. 2. Because *David*, after he had obtained Forgiveness for his Sin of Adultery and Murder, was notwithstanding punished with the Death of his Son; 2 *Sam.* xxiv. 10.

The third Argument: Because it happens, likewise, sometimes that a just Man die guilty of some venial Sin, or Imperfections, especially when he dies suddenly, and has no Time to recollect himself, or ask Forgiveness, and thus remains subject to the temporal Pain due to those Sins or Imperfections; in such a Case he cannot be admitted into Heaven till he has been purged of those Sins, and the temporal Pain due to them has been remitted. *Rev.* xxi. 27. Neither can he be purged in this Life from a Supposition: And as that Remission can be done, neither in Heaven, nor in Hell; it follows necessarily that it must be in *Purgatory*.

Their fourth Argument is taken from divers Testimonies of the Scripture, whereby the Fathers prove the *Purgatory*. The first, *Matt.* xii. 32. *But whosoever speaketh against the Holy Ghost, it shall not be forgiven him, neither in this World, nor in the World to come*; whence it is inferred, that there are some Sins, which are forgiven in the World to come; as St. *Augustin* urges, *Lib. de civit. Dei. c.* 24. The second, *Luke* xxiii. 42. *Lord remember me when thou comest into thy Kingdom.* Which certainly he had not said, unless he had thought that Christ could remit his Sins after this Life, as the same St. *Augustin* says, *Lib.* 6. *cont. Julian. c.* 15. The third, 1 *Cor.* iii. 15. *But he himself shall be saved; yet so as by Fire.* Which St. *Augustin*, on the *Psalm* xxxviii. and in some other Places, interprets of the Fire of Purgatory. The fourth, 1 *Cor.* xv. 29. *Else what shall they do, which are baptised for the Dead, if the Dead rise not at all?* where to be baptized for the Dead is the same, as to submit oneself to voluntary Afflictions, to deliver them out of Purgatory.

To this Sentiment of the *Roman Catholicks* it is objected, 1. That the Scripture teaches that there are but two Places for departed Souls; one of Beatitude in Heaven; and the other of Damnation in Hell. *Matt.* xxv. 46. *And these shall go away into eternal Punishment, but the Righteous into Life eternal.*

To this the *Catholicks* answer, that after the Day of Judgment there will be only those two Places for the Adults, as it appears from the Text quoted; but that, at present, there are several, as there was in the *Old Testament*. For if there was not, the *Catholicks* ask their Adversaries to be pleased to tell them, where the Souls of those risen from the Dead, were? Where was the Soul of the Son of the Widow of *Sarepta*, before he was risen from the Dead, by the Prophet *Elias*? Where was that of the Son of the *Shunamite*, risen from the Dead by the Prophet *Elisha*? Where was that of the Son of the Widow of *Naim*, risen by *Jesus Christ*? That of the Daughter of *Jairus*, Prince of the Synagogue? That of *Lazarus*? That of *Tabitha*, risen by St. *Peter*? Or where, ask they, could be those Souls before they were recalled to Life again: Not in Hell, since, according to the Scripture, there is no Redemption from thence: Nor in Heaven, otherwise it had not been a Benefit, but rather a Punishment, to make them return from an eternal Felicity to a mortal Life: Therefore there must be another Place distinguished from those two.

2. That the Scripture teaches that the Souls of the just who depart this Life, are immediately received into everlasting Glory, without the least mention of Purgatory. *Luke* xxiii. 43. *To Day shalt thou be with me in Paradise.* And, *Philip.* i. 23. *Having a Desire to depart, and to be with Christ.*

The Answer of the *Catholicks* to this Passage is, that the Scripture does not speak in this Place of all the Elects, but only of some: For those who depart without any Spot, are immediately received into Heaven; and those who have something to expiate, must wait 'till they have accomplished that Expiation, notwithstanding the Passages of the Scripture above quoted: For this, *To Day shalt thou be with me in Paradise*, was a special Privilege granted

granted to the Thief, when Christ forgave him liberally all his Sins, without any further Obligation of a temporal Pain after Death, which is not granted to all, and from this, *having a Desire to depart, and to be with Christ*, nothing can be inferred, but that the Apostle had a great Desire to live with Christ, which every Body can have.

Another *grand Question* in *Theology*, is that which regards *the Merit of good Works*: For it is asked, whether a righteous Man, assisted by the Grace of God, can operate good Works, so as to be meritorious of the eternal Life? Those, who have made a Divorce with the *Roman* Church, answer this Question in the Negative, because they imagine that the original Sin remains in the Righteous, and contaminates all their Actions, so that they rather deserve Death than eternal Life. Such is *Calvin*'s Sentiment, *lib.* 2. *instit. c.* 1. § 9. and *lib.* 3. *c.* 15. § 3. But the *Catholicks* answer the same Question in the Affirmative, and say, 1. That some of the Works of the Righteous are good, honest, and agreeable to God. 2. That the same Works are meritorious of the eternal Life.

They prove the first Part of their Assertion from a contrary Foundation. For it is an Article of Faith, say they, that all Sins are carried off in the Justification, and a Grace or inherent Justice infused, which renders Man agreeable to God, or just and holy; according to this, *Acts* iii. 19. *Repent ye therefore, and be converted, that your Sins may be blotted out.* And *Heb.* ix. 28. *Christ was once offered to blot out the Sins of many.* Whence it follows, that as bad Works proceed from an unrighteous Man; likewise good Works, and agreeable to God, proceed from a righteous Man. According to this of Christ, *Matt.* vii. 18. *A good Tree cannot bear bad Fruit, nor a bad Tree good Fruit.* And *John* xv. 5. *I am the Vine, you are the Branches; he that abideth in me, and I in him, the same bringeth forth much Fruit.* Whence they deduce two Arguments, one, that a good Tree cannot bear bad Fruits; but a righteous Man is a good Tree, *Psalm* xcii. 13. Therefore a righteous Man cannot produce bad Fruits. The other, no Branch of a fruitful Vine can produce bad Fruits; but the Apostles were Branches of a fruitful Vine, *viz. Christ*, therefore the Apostles could not produce bad Fruits; the same may be said of other righteous Men.

To this is objected, this Passage of *Isaiah* lxiv. 6. *But we are all as an unclean Thing, and all our Righteousnesses are filthy Rags.*

To this the *Catholicks* answer, that the Prophet speaks in this Place, of the impious, and not of the righteous; not of all but only of the *Jews*; not of all their Works, but only of their Sacrifices, in which they made all their Righteousness consist; which, notwithstanding God had in Execration; according to this, *Isaiah*, i. 13. *Bring no more vain Oblations, Incense is an Abomination unto me*, &c.

Then they object this of the *Ecclesiastes*, c. vii. 20. *For there is not a just Man upon Earth that doth good, and sinneth not.*

To which the *Catholicks* answer, that this must not be understood of mortal Sins; because of those it is written, 1 *John* iii. 9. *Whosoever is born of God doth not commit Sin.* But of venial Sins, according to this *Proverb*, c. xxiv. 16. *For a just Man falleth seven Times, and rises up again.*

The *Catholicks* prove the last Part of their Assertion, by the eternal Life being called in the Scripture, the Reward or Price of good Works, *Matt.* v. 12. *Rejoice and be exceeding glad: For great is your Reward in Heaven.* And c. xx. 8. *Call the Labourers and give them their Hire.* And *Romans* ii. 6. *Who will render to every Man according to his Deeds: To them who by patient Continuance in well-doing, seek for Glory and Honour, and Immortality; eternal Life*, &c. And 1 *Corinth.* iii. 8. *And every Man shall receive his own Reward according to his own Labour.* And *Galat.* vi. 8. *For he that soweth in the Flesh, shall of the Flesh reap Corruption: but he that soweth in the Spirit, shall of the Spirit reap eternal Life.* And 2 *Tim.* iv. 7. *I have fought a good Fight, I have finished my Course, I have kept the Faith. Henceforth there is laid up for me a Crown of Glory.*

The *first Objection* against this Sentiment of the *Roman Catholicks*, is that the eternal Life is an Inheritance; but an Inheritance is due to the Children, not by Merit, but of Right: Therefore, *&c.*

To this the *Catholicks* answer, that it is an Inheritance, with Respect to Children, who die after they have received Baptism; but not with Respect to the Adults; according to this, *Colos.* iii. 23. *And whatsoever ye do, do it heartily, as to the Lord, and not unto Men; knowing that of the Lord ye shall receive the Reward of the Inheritance: For ye serve the Lord Christ.* And this must not appear surprising, say they, 1. Because the Adults are not the Children of God by Nature, but only by Adoption; for God has adopted them, with this Condition, that they should not enter the Inheritance, unless they would obey his Commands; and by obeying, merit the Inheritance. It is the same of *Christ*; for the hypostatical Union supposed, the Glory of the Body, and the Exaltation of the Name was due to him by Right of Inheritance; notwithstanding which, he has obtained it by his Merits, *Philip.* ii. 8.

The second Objection is, that we are useless Servants; *Luke* xvii. 10. *So likewise ye, when you shall have done those Things which are commanded, you say we are unprofitable Servants.* What then do we merit? Nothing.

The Catholicks answer, that it appears from this Place, how their Adversaries abuse the Scriptures: For a little before that, we were the Children; and that eternal Life was due to us, by a Title of Inheritance, without being obliged to work: And at present they object, that we are *unprofitable Servants*, to whom nothing is due; which they do, conclude they, to oppose the Truth, in whatever Manner it can be done. Then they ask, if Christ calls *unprofitable Servants*, those who keep his Commandments? If the former, then the Servants of God can observe all the Commandments; which, say they, is against their Adversaries: If the latter, it concludes nothing against them; for they confess, that those who do not observe God's Commandments are unprofitable Servants, and do not merit eternal Life.

But to the Purpose, continue they; the Words of Christ can have a triple Sense: The first is, that we are of ourselves unprofitable Servants; for though we observe all that is commanded to us, we do not observe it by our own Strength, but by the Grace of God: According to the Explication of St. *Ambrose*, *lib.* 8. on St. *Luke.* Whence we can consider ourselves in two Manners: 1. With regard to our own Strength, as being born of *Adam*, and thus we are unprofitable Servants. 2. With regard to the Co-operation of the Divine Grace, as being regenerated in Christ; and thus we are profitable Servants. 2 *Tim.* ii. 21.

The second Sense is, that we are unprofitable Servants, with respect to God, though we observe all the Commandments, because we do no Service to God, and he wants none of our good Works. According to the Exposition of *Bede*, in the Commentary. Hence it appears, likewise, that we can be called profitable, and unprofitable Servants; profitable with regard to us, because all the Good we do in observing the Commandments return to our own Profit and Utility; we sow and reap for ourselves: We are unprofitable with respect to God, because all our Labour, and Industry, is of no Service to him.

The third Sense is, that we are unprofitable Servants, even when we observe all the Commandments; because unless he had entered into a liberal Covenant with us, we could not in Justice have expected any Reward from him. According to the Exposition of St. *Augustin*, *serm.* 3. *de verbis Dom.* Whence it appears, again, how we are called profitable, and how unprofitable. For notwithstanding all we do, we are unprofitable with regard to the Reward of eternal Life, the divine Covenant and Promise excluded; and profitable, by the Intervention of that Pact and Promise.

Let our Adversaries, say the *Roman* Catholicks, chuse which they please of those three Senses, and they'll discover easily, that they do nothing against the Merit of good Works. They are surprised, say they, that their Adversaries search so carefully the Testimonies of the Scripture, whereby we are called unprofitable Servants, and dissemble those whereby we are called profitable: *Matt.* xxv. 23. *Well done good and faithful Servant; thou hast*

hast been faithful over a few Things, I will make thee Ruler over many Things; enter thou into the Joy of thy Lord.

Their third Objection is, that the Apostle says, *Rom.* viii. 18. *There are no Passions of this Time proportioned to the future Glory.* Whence it follows, that there is no Proportion between our Works and the eternal Life; but between the Merit and the Reward there must be a Proportion.

The Catholicks answer, that the same Apostle says, 2 *Thess.* i. 5. *That ye may be counted worthy of the Kingdom of God, for which ye also suffer.* Where he seems to acknowledge a Proportion; therefore they must explain, say they, how both Passages are true. And, 1. If we consider the Duration of the Time, there is no Proportion between the present Works, and the future Glory; for this is eternal, and those are momentaneous: But if we consider Grace, from which proceeds all meritorious Works, there is a Proportion between them and the divine Glory; for Grace is the Seed of Glory. Therefore as there is a sufficient Proportion between the Seed and the Tree; likewise between Grace and Glory. That that Proportion is sufficient, though there be no Proportion of Duration, appears from this, 2 *Cor.* iv. 17. *For our light Affliction, which is but for a Moment, worketh for us a far more exceeding, and eternal Weight of Glory.* Here, conclude they, the Apostle confesses what we have said, *viz.* that our Works are momentary, and the Glory eternal; and that though our Works be momentary, they notwithstanding merit eternal Life; and that the Faculty of Meriting, is Grace.

I'll conclude this Course of *Theology* by a concise Treatise on the HEXAMERON, or Work of the six Days; but before we enter into a particular Detale of that Work; we must answer some Questions, which will contribute much towards the Intelligence thereof, *viz.* 1. If God be the immediate Author of all the Things mentioned in the first Chapter of *Genesis*, as produced by him? And whether they were all produced together, and in the same Instant, or successively in different Days? To which,

I answer, 1. That *God is the immediate Author of all the Things mentioned in the first Chapter of Genesis, as produced by him*; because it is wrote so in express Terms in the said Chapter, where it is said, that *in the Beginning God created the Heaven, and the Earth*, &c. And *Psalm* cxlvi. it is said, that *he made the Heaven, and the Earth, the Sea and all the Things which are in them.*

I answer, 2. That *those Works which are said in the First Chapter of Genesis to have been produced by God, were not produced together, and in the same Instant; but successively, and in different Days.* Which I prove by the Fathers, particularly St. *Chrysostom, Homil.* 3. *in Genes.* St. *Ambrose, lib.* 1. *Hexameron, c.* 7. St. *Basil, Homil.* 2. *in Hexamer.* St. *Gregory Nazianzen, orat.* 13.

I prove it likewise by Reason; because *Moses* has wrote historically; therefore properly, and not metaphorically, otherwise we should have nothing certain. Add, that it is expresly said in that first Chapter, that Darkness was some Time on the Face of the Deep, whence it follows that there was no Light yet: Likewise it is said that the Earth was without Form, and void at the Beginning; whence it follows, that there were yet neither Animals nor Plants; and consequently it is to be inferred that all the Things described in that Chapter, as immediately produced by God, were not produced together, and in the same Instant.

Notwithstanding, that St. *Augustin* explains otherwise that first Chapter of *Genesis*, than of six distinct Days; as well because, *lib.* 2. *retract. c.* 24. he retracts in general all those Books of his which have for Title *de Genes. ad Liter.* as because, *lib. de Catechis. rud. c.* 17. he seems to embrace the Sentiment which is the most common; for after he has said that God, after he had worked for six Days successively, reposed himself the seventh, he adds these Words; *for the Omnipotent could make all Things in an Instant of Time*; as if he had said, though he could do it, he notwithstanding would not do it, for a certain Reason, and particularly for that found in *Exod.* xx. *viz.* to teach Men they should work for six Days successively, but should abstain the seventh, from all servile Work, and spend that Day in divine Praises, in Remembrance, and Gratitude of the Benefits of the Creation, which are the Source and Foundation of all others.

As to the Explanation of some Words which are at the Beginning of the Book of *Genesis*; it is asked, 1. What signifies these Words, *God created the Heaven and the Earth?*

I answer, 1. That by those Words is understood that God made first of all, that which is above us, *viz.* the Heaven, and that which is under us, *viz.* the Earth and the Waters, from which the Earth was not yet separated.

It is asked, 2. What signify likewise those other Words, which are read in the same Place; *and the Earth was without Form, and void?*

I answer, that by those Words is understood, that God created the Heavens and Earth, without that Ornament they received afterwards; as is easily inferred from the following Words of the same Chapter.

It is asked, 3. What signify these Words, *and Darkness was upon the Face of the Deep?*

I answer, that by those Words is understood the immense Depth of the Waters; or, according to some other Doctors, that immense and deep Mass, consisting of Earth and Water together, was covered on its Superficy by a thick Darkness, which, occupied all the Place of the Air, because Light was not yet created.

If I be asked, *What must be understood by Darkness?* I'll answer, that by Darkness must be understood the Absence of Light in a diaphane Body, such as the Air, and Water. If God is said, *Isaiah* xlv. to have created Darkness, that must be understood only in the Sense, that he created a diaphane Body without Light. Whence it is not surprising if St. *Augustin, lib.* 1. *contra Epist. fundament. c.* 30. says, that Darkness was not properly created.

It is asked, 4. What signify these Words, *And the Spirit of God moved upon the Face of the Waters?*

I answer, that these Words have almost as many different Interpretations, as there are Authors who have attempted to interpret them. For some are of Opinion, that by the *Spirit* must be understood the Wind which God excited; and this they prove from *Psalm* cxliv. *His Spirit will blow, and the Waters will flow.* But others believe, more probably, that by these Words it must be understood, that that Spirit, who is the third Person of the Trinity, was carried, or cover'd the Water, and fomented it together with the Earth, to render it fertile, and capable of the Production which appeared on the third Day, as it commonly happens from a Mixture of Humidity with a terrestrial Matter. Lastly others, with St. *Augustin, lib.* 1. *de Genes. cont. Manich. c.* 5. & 7. will have the Sense of these Words to be, that the Spirit of God moved upon the Face of the Waters, as the Will of an Artist moves on the Things he is to fabricate. —From this we'll pass to an exact Detail of what was done every Day; asking, 1. *What was done on the first Day?*

To which I answer, that *God on the first Day not only created the Heaven, and Earth, and the Deep*, but *likewise Light, and thus the Morning and Evening were the first Day.* Because it is expresly mentioned in the first Chapter of *Genesis.* But for a clearer Elucidation of these Words,

It may be asked, 1. *What was that Light, which it is certain was not the Sun, which was created but the fourth Day, with the Moon, and Stars?*

To which I answer, that by that Light is understood either some light Body, or rather the Quality itself of Light, from which some Body is called Light; and which was diffused in the greatest Part of Heaven; tho' it must not be imagined that that Light was as bright as is that of the Sun.

It is asked, 2. *Why God, who could have produced all Things perfect at once, would thus proceed by degrees from the imperfect to the perfect?*

To which I answer, that the Reason *a priori*, is God's Will, of which various good Reasons are alledged, the first of which is of St. *Ambrose, lib.* 1. *Hexam. c.* 7. lest if we were to read, that all Things have been created at once, we should be inclined to believe them uncreated. The second, which is that insinuated by St. *Augustin, lib. de Catechis. rud. c.* 17. that we should observe the same Order in our Operations. And the same Father, *lib.*

lib. 1. *cont. adverſ. leg. & prophet. c.* 8. by that Light ſucceeded Darkneſs, teaches what is to be done myſtically in Man, in whom the Light of Truth and Holineſs muſt ſucceed the Darkneſs of Error and Sin; according to this, 2 *Corint.* iv. 6. *For God who commanded the Light to ſhine out of Darkneſs, hath ſhined in our Hearts to give the Light of the Knowledge of the Glory of God, viz.* to expel the Darkneſs of our Errors and Sins, which we had been wrapped in before.

It is aſked, 3. How theſe Words are to be underſtood, *God divided Light from Darkneſs?*

To which I anſwer, that theſe Words are not to be underſtood, that Light and Darkneſs had been together in the ſame Subject, and were afterwards ſeparated; for that cannot be ſaid, ſince the Form and the Privation thereof cannot be together in the ſame Subject. But theſe Words are to be underſtood thus; that God divided Light from Darkneſs, 1. As to the Cauſes. 2. As to the Place. 3. As to the Time. The firſt is apparent, becauſe there was made then a Cauſe of Light, and another of Darkneſs. For Light was in ſome lucid Body, *viz.* either in ſome heavenly Body, or in the greateſt Part of the Heaven, and from that Body it was diffuſed to the Parts underneath: And the efficient Cauſe of Darkneſs was an opake Body oppoſite to the lucid Body; *viz.* the Earth was in ſuch Manner oppoſed to the lucid Body, that it produced Darkneſs, not by ſome true and real Influence, but only by Interpoſition. As to the ſecond and third, there is little or no Difficulty; becauſe while Light and Day were in one Hemiſphere, Darkneſs and Night were in the other; for they could not be together in one and the ſame Place, and at the ſame Time; ſince the Form and Privation thereof cannot be together in the ſame Subject.

If I be aſked, *How, in thoſe three Days, Night and Day ſucceeded each other, ſince there was no Sun yet, which could be moved, and paſs from one Hemiſphere to the other?*

I'll anſwer, that it is probable enough that Day and Night ſucceeded each other by Means of the orbicular Motion of the celeſtial Body, in which exiſted the primordial Light; its making the Day by its Preſence, and the Night by its Abſence: In the ſame Manner the Sun, afterwards, diſtinguiſhed Day and Night.

It is aſked, 4. *Whether Night preceded the Day in the Creation of the World?*

To which I anſwer, that there are two different Sentiments on this Subject; the one negative, becauſe God, in the Scripture, named Day before Night, becauſe Day is preferable to Night: And the other Affirmative, becauſe in the ſame firſt Chapter of *Geneſis*, the Evening is named before the Morning. By Evening is ſignified Night, the Evening being the Beginning of Night; and by Morning is ſignified Day, becauſe the Morning is the Beginning of Day.

From what we have ſaid on this Subject, it can be inferred, that that Light was corporal and ſenſible, and not ſpiritual. For by that Light the three firſt Days are diſtinguiſhed before the Production of the Sun and Stars.

We'll aſk next, *what was done the ſecond Day?*

To which I anſwer, that *the ſecond Day the Firmament was made in the Middle of the Waters, to divide the Waters which are under it, from thoſe which are above it:* Becauſe it is thus expreſly mentioned in the firſt Chapter of *Geneſis*.

I may be aſked, 1. *What is underſtood by the Word Firmament?* To which I anſwer, that there are different Sentiments relating to that Subject: For ſome underſtand by the Name Firmament, the Air, as dividing the inferior Waters, from thoſe which are in the Clouds; and others, which is the more probable Sentiment, underſtand Heaven itſelf, in which God placed the Sun and Stars; not that the Sun and all the Stars be in one and the ſame Heaven, but becauſe they are in ſome Heaven, which is called Firmament.

I may be aſked, 2. *What muſt be underſtood by the Waters which are above the Firmament?*

To which I anſwer, that there are likewiſe different Sentiments on this Subject. For ſome underſtand by thoſe Waters, the Clouds; others the cryſtaline Heaven; and the reſt underſtand by them true Waters, and of the ſame Kind with the inferior and elementary Waters, ſince they were all from the ſame Abyſs upon which the Spirit of God was moved; for no body will believe that a Thing changes its ſpecifical Nature, by a ſingle local Separation; though we do not know for what Reaſon God has left them there.

We'll aſk next, *what was done the third Day?*

To which I anſwer, that two Things were done the third Day, 1. *God gathered the Waters in one Place, to facilitate the Generation of what the Earth was to produce.* 2. *The Plants were produced.* As it is expreſſed likewiſe in the Firſt Chapter of *Geneſis*.

For a clearer Inteliigence of my Anſwer, we muſt obſerve, 1. That it is not to be underſtood, that the Waters were all gathered in one and the ſame Place; but that a great Part thereof was gathered in one Place, and the other Part in another Place; whence God called thoſe gatherings of Waters the Seas in the plural Number; but notwithſtanding with ſome Communication of thoſe Waters between them.

If I be aſked, *how this happened?* I'll anſwer, that by God's Command there were made in the Earth, which had been created perfectly round, ſeveral Cavities, and a great Number of Protuberances, which were called afterwards Mountains, that the Waters might retire into thoſe Cavities.

We muſt obſerve, 2. That God, on the ſame Day, produced actually all Plants in a perfect State, to the Production thereof, the Earth contributed paſſively only by furniſhing the Matter, and not actively. That he produced them in a Degree of Perfection may be inferred, from that the Plants and Herbs were neceſſary to feed the Animals he was to produce ſoon, *viz.* the fifth and ſixth Day.

If I be aſked, *Whether God produced actually Thorns, Thiſtles, and all the other Herbs, which are not proper for Food?* I'll anſwer in the Affirmative; either becauſe God produced no Kinds of Herbs and Plants after that Day; or becauſe though ſome Herbs and Plants be not proper for the Food of Men, they may be notwithſtanding very proper, either for that of Beaſts, or for ſome medicinal Uſes.

We'll aſk next, *what was done the fourth Day?*

To which I anſwer, That the Fourth Day were produced, all the Stars, *viz.* the Sun, Moon, *&c.* and thoſe for ſeveral Ends; as expreſſed in the firſt Chapter of *Geneſis*. For a clearer Elucidation of this Point, we'll make, and anſwer the following Queſtions.

It may be aſked, 1. If, and in what Senſe the Stars are ſaid Chap. i. to have been made for Signs?

To which I anſwer, that they were thus called, becauſe by their Motion, they make the Diviſions, and Differences of Times, they make, *v. gr.* the Days, Months, Years, the Spring, Summer, Autumn, and Winter; and, becauſe, from their riſing and going down, are obſerved the proper Times for ſowing, reaping, planting, ſailing, *&c.* Likewiſe, becauſe from certain Affections of the Planets, are announced Serenity or Tempeſts, Heat or Cold, Winds, Rain, and other ſuch Mutations of the Air, and of the Heavens. *Chriſt* himſelf has approved that Prognoſtick in the Goſpel, *Matt.* xvi. and *Luke* xii.

From this Anſwer we can infer, that the free Actions of Men cannot be influenced by the Planets; becauſe the judiciary Aſtrology is condemned by the Scripture, *Iſaiah* xli. and *Jeremiah* x. 2. in theſe Words, *Learn not the Way of the Heathen, and be not diſmayed at the Signs of Heaven.*

It may be aſked 2. *Whether the Stars have a diſtinct Form from the Form of their Orbits?*

To which I anſwer, that it ſeems very probable they have; becauſe, the Moon alone excepted, all the Stars and Planets are luminous of their Nature; but the Orbits in which they move, are not luminous: Add, that the Stars and Planets have the Virtue to influence the ſublunary Things, but their Orbits have not. Therefore it is inferred hence, and with much Probability, that the Stars differ in Specie from their Orbits, and have particular ſubſtantial Forms, from which that Virtue of Influencing proceeds.

It may be aſked, 3. *Why the Sun and Moon are called great Luminaries?*

To which I anſwer, that they are called great Lumi-

naries or Lights, not that they are the greatest of all; but because being nearer to us than the others, they appear greater.

I may be asked, 4. *Why the Stars were produced after the Production of Plants, and not before?*

To which I answer, that it was lest the Plants should have been thought produced by the Stars, as by some Divinity, which is the Reason alledged by St. *Basil*, St. *Chrysostom*, and St. *Ambrose*.

We'll ask next, *what was done the fifth Day?*

I answer, that the fifth Day were produced the Fishes in Water, and the Fowls in the Air; as mentioned in the First Chapter of *Genesis*. For a clearer Elucidation of this Answer.

It may be asked, 1. *Of what Matter God produced Fowls and Fishes?*

To which I answer, that God produced both Fowl and Fish of Water, according to St. *Augustin*, *lib.* 9. *de Genes. ad lit. c.* 1. therefore it is not surprizing if they agree in several Things, *viz.* that both Fowl and Fish lay Eggs, have neither Milk, Bladder, nor prominent Ears. Notwithstanding this Place of the Scripture, *Genes.* ii. 19. *And out of the Ground the Lord formed every Beast of the Field, and every Fowl of the Air, and brought them unto Adam*, &c. because it cannot be inferred from this Place that the Fowls were produced of the Earth. For though *Moses* does not say here that they were produced of the Waters, he notwithstanding supposes it as already said in the preceding Chapter; and will only repeat here in Abridgment what he had said there in a more prolix Manner.

I may be asked, 2. *Why God created Fishes before Birds, and terrestrial Animals?*

To which I answer, that the Reason is, that God in the Production of his Creatures, would begin by the less perfect, and proceed to the more perfect.

I may be asked, 3. *Why Fishes are reckoned among Reptiles?*

To which I answer, that Fishes are reckoned Reptiles, because they move in almost the same Manner in the Water, as Reptiles do on Earth, *viz.* on their Belly.

I may be asked, 4. Why *Moses* in speaking of Fishes, makes particular Mention of the Whale, and in speaking of Fowls, and Beasts of the Earth, he takes no particular Notice of any Fowl or Beast?

To which I answer, that the Reason might have been that among Fowls and Beasts there are none of so monstrous a Bigness as the Whale is among Fishes.

We'll ask next, *what was done the sixth Day?*

To which I answer, that *the sixth Day God created all the Beasts of the Earth, all Reptiles after their Kind; and lastly Man himself*; as expressly mentioned in the First Chapter of *Genesis*. For a clearer Elucidation of this Article.

It may be asked, 1. *Whether the offensive Animals were produced the sixth Day with the rest?*

Which I answer in the Affirmative; either because we find in *Exodus* ii. that God produced in six Days the Heavens, Earth, Sea, and all the Things contained in them; or because it is wrote in the Third Chapter of *Genesis*, that the Serpent, which is a venemous Beast, and Man's Enemy, existed before *Adam* had sinned. If I be asked, *what, if Man had not sinned?* I'll answer, that if he had not sinned, those Animals had not been offensive, because of the absolute Power he had always preserved over them.

If I be asked, 2. *Why it was rather said to Fowls and Fishes, increase and multiply, than to the Beasts of the Earth?*

I'll answer, 1. That it was said to Fowls and Fishes, to denote their great Fecundity, those Animals being oviparous, and most of them laying a great Number of Eggs at once.

I'll answer, 2. With St. *Augustin*, *lib.* 3. *de Genes. ad lit. c.* 13. that these Words, though not expressly pronounced to the Beasts of the Earth, were notwithstanding subunderstood, because most of those Animals were fruitful enough.

I may be asked, 3. *Whether on the fifth or sixth Day, were produced together with the aforesaid Animals, those which properly are not born, but are generated from Corruption or Evaporation?*

Which I answer in the Negative, because there did not happen so soon a Corruption of Things to facilitate the Generation of those Animals.

We'll treat next of the Creation of Man in particular; and ask, 1. *Of what Matter the Body of the first Man was formed, what Sort of Body it was; and in what State and Age it was formed?*

To which I answer, 1. *That the Body of the first Man was formed of the Dust of the Ground*, as expressly mentioned, *Genes.* ii. If I be asked, *why God would form Man, who is so noble a Creature, of so vile a Matter as is the Dust of the Earth?* I'll answer, that it was done for several Reasons, and particularly for these two. 1. For the Manifestation of the Wisdom and Power of God. 2. To curb thereby Man's Vanity, in case he should be proud of the Excellence of his Nature. For nothing humbles so much, or at least must humble so much a Man, than a serious Reflection on his Origin; as it appears from the Example of *Abraham*; for we read, *Genes.* xviii. that *Abraham*, conscious of his Formation, did not dare to speak to God.

I answer, 2. That it is probable enough, *that God formed the first Man, as to his Body, in that Stature and Bulk, which becomes a perfect Age.* Because that Work which is an immediate Production of God is perfect; for the Works of God are perfect. Whence it follows that the first Man, who was the Work of God, had a Stature neither too short, nor too tall, but very well proportioned.

I answer, 3. That it is very probable that the Body of the first Man appeared to be of that Age, Christ was about the Time of his Death; because it was said to *Adam* and *Eve* immediately after their Formation, increase and multiply; which becomes only a perfect Age: Therefore, *&c.*

We'll ask next, *if at the same Time* Adam's *Body was formed, his Soul was created, and infused into him; and what was that Soul?*

To which I answer, 1. That at the same Time *Adam*'s Body was formed, his Soul was created, and infused into him: Because it is said, *Genes.* ii. 7. that God breathed into his Nostrils the Breath of Life; and Man became a living Soul. And St. *Augustin*, *lib.* 13. *de civit. Dei*, *c.* 14. understands by that *Breath of Life*, the Soul which God had created to inform the Body.

I answer, 2. That *the Soul which God informed the Body of the first Man with was incorporeal, as all our rational Souls are incorporeal:* Because the Scripture, in several Places, call in a special Manner the Soul of Man a Spirit, *Daniel* iii. *Luke* xxiv. *Acts* xxiii. *Hebrews* iv. and xii. but particularly 1 *Cor.* ii. where the Apostle speaks thus, *For what Man knoweth the Things of a Man, save the Spirit of Man which is in him.*

From what we have said, it may be inferred, 1. That the Souls of Men are not propagated, like our Bodies are; but are all created and infused into the Bodies when they are formed; for, as already observed, our Soul is spiritual; whence those who have imagined that the Soul could be propagated, have denied that it was incorporeal.

It may be inferred, 2. That the Soul was not before the Body; notwithstanding what the Royal Prophet says, wishing that his Soul should be delivered from Prison; nor likewise what the Apostle says of himself; *unhappy Man, who shall deliver me from the Body of this Death?* Because what they both say must be understood in a moral Sense, *viz.* in that Sense, that both desire to be in a better State, with respect to which the State of this Life is nothing else but a frightful Prison, and all sort of Misery.

Our next Question is, *where the first Man was created, and in what Place* Eve *was produced, and in what Manner?*

To which I answer, 1. That *the first Man was not created in the Garden of* Eden; because we read, *Genesis* ii. that after his Creation he was placed there.

With regard to the *Garden of Eden*, I may be asked, *whether it was a corporal Place, and where situated?*

To which I answer, that it was a corporal Place; because according to St. *Isidorus*, it was a Place situated in

in the East; and a local Situation imports Corporality.

I may be asked, 2. *Whether that Place was proper for a human Habitation?*

Which I answer in the Affirmative; for according to St. *John Damascenus, lib.* 2. *ortodox. fidei. c.* 11. it was a Place where reigned a continual Spring, and an extreme wholsome Climate; a kind of divine Country, and worthy of him who had been created at the Image of God. It is uncertain whether that charming Place exist still, since it cannot be found; and some are of Opinion, that it was destroyed by the Deluge.

I may be asked, 3. *Why Man after his Creation was placed in the Garden?* To which I answer, that he was placed there, *to dress and keep the Garden*, as expressed, *Genes.* ii. but that Dressing had not been a laborious Work, as it was after he had prevaricated, but only an agreeable Recreation, neither was he to keep it against any Invasion, but take Care only that Man should not lose it by Sin.

I answer, 2. That *Adam and Eve were created the same Day, and the same Day God gave her to Adam for his Wife, and Companion.* According to *Genes.* ii.

I may be asked, 1. *Why God in the first Formation of all Things, would that the Woman should be formed of the Man, rather than in all other Animals?*

To which I answer, that four Reasons can be assigned for it; the first whereof was, to prove a certain Dignity in Man, and that he should be the Principle of his whole Kind, as God is the Principle of the whole Universe. The second, that Man should love her the more, and be inseparable from her, knowing that she was produced from him. The third, that Man should be the Chief and Principle of the Woman. The fourth, that he should be a Type of the Union which was to subsist between Christ and his Church; Christ being the Chi of the Church, as *Adam* was the Chief of the Woman.

I may be asked, 2. *Why God formed Eve of one of Adam's Ribs?* To which I answer, that two principal Reasons are assigned for it, by St. *Thomas, p.* 1. *q.* 92. *art.* 3. The first is, that there should be signified thereby the social Love and Union between Man and Woman, and that the Woman should not over-rule the Man, wherefore she was not formed of the Head; nor be despised by the Man, wherefore she was not formed of the Feet, but of a Rib, which is not far from the Heart, which is the Source and Seat of Love. The second Reason is, that that Formation was the Figure of the Sacraments, which were to flow from the Side of Christ sleeping on the Cross, and whereby the Church was instituted.

Our next Question is, *whether the first Man was created in Grace, and the original Justice; what must be understood by original Justice? And whether in the State of the original Justice he had all the Virtues, and how?*

To which I answer, 1. That *the first Man was created in Grace, and the original Justice*; because according to the *Ecclesiastes* ii. God made Man righteous. But that Righteousness in Man whereby the Reason was subject to God, was not according to Nature alone, but likewise according to a supernatural Gift of Grace. And St. *Augustin, lib.* 12. *de civit. c.* 9. says, that *God was together forming Nature, and giving Grace to the Angels.* And St. *Thomas* says, that Angels and Men had equally their Share of Grace in the Creation.

If I be asked, *what must be understood by the original Justice in which the first Man was created.*

I'll answer, that by the original Justice is understood a perfect Righteousness of the whole Man, consisting in that the Soul of Man was entirely subject to God, his sensitive Appetite entirely subject to the Spirit; and his Body was immortal, and incorruptible. Therefore it can be said that the original Justice was not a single supernatural Habit only, nor a single divine Gift, but an Assemblage of several Habits. It was, *v. gr.* in the Essence of his Soul, a sanctifying Grace: In his Understanding an Habit of Faith and Prudence: In his Will, an Habit of Hope, Charity, Religion, and the like; in his sensitive Appetite there were several Habits subject to his Reason: In his Body Qualities preserving him from Malady and Death.

I answer, 2. That *Man in his State of Innocence was possessed of all Virtues*; because such was the Righteousness of that first State, that the Reason was entirely subject to God; and all the inferior Faculties to Reason. And those Virtues are nothing else but certain Perfections, whereby the Reason is directed towards God; and the inferior Faculties are disposed according to the Rule of Reason; whence the Righteousness of the first State required, that Man should have equally all the Virtues.

But why, say you, is it said *equally?*

I answer, that that Particle, *equally*, has been added, that in that State the Virtues were not all in the same Manner in Man, some of them were in him simply, with respect to the Habit, and to the Act; having of themselves no Imperfection, such are Charity, Justice, and Religion. Some were in him habitually and actually, though they imported some Imperfection either on the Part of the Matter, or on that of the Act; such are Faith and Hope, since Faith is of Things which are not seen; and Hope of Things which we have not: Which notwithstanding the first Man had those two Virtues, because they were not repugnant to the Perfection of his State. Some Virtues were in him habitually only, and not actually; because as Virtue had some Perfection repugnant to the Perfection of the first State; such were Repentance, which is a Sorrow of Sins committed, Compassion, which is a Sorrow of another's Calamities, who doubts that these Virtues were repugnant to the Perfection of the first State?

If I be asked, *in what Manner must be understood that Man in his State of original Innocence, had Virtues habitually only, and not actually?*

I'll answer, that it must be thus understood, that Man was disposed, in case he should be so unfortunate as to sin, to repent of it; and if he was to see the Misery of another to have Compassion on it.

We'll ask next, *whether Man was created in the Likeness, or Similitude of God, and in what consisted that Likeness?*

To which I answer, 1. That *the first Man was created in the Likeness and Similitude of God*; because it is expresly mentioned, *Genes.* ii.

I may be asked, *en passant, whether Eve was created likewise in the Likeness of God?* Which I answer in the Affirmative, because we read, *Genes.* i. 27. *So God created Man in his own Image, in the Image of God created he them*; which does not hinder, notwithstanding, that Man has a greater Right to be said formed in the Image of God than the Woman; because he is the Chief of the Woman, and the Woman has been taken from him.

I answer, 2. That *the Likeness between God and Man consists in that Man is intelligent; has a free Will, and an Authority over all the other Creatures.* Which is the Sentiment of almost all the Fathers of the Church.

From what we have said it may be inferred, that Man was created in the Likeness of God, not only with regard to his Soul, whereby he has the Faculty of Understanding, a Free-will, and an Authority over all the other Creatures: But likewise in some measure by reason of some corporal Quality; such as that of his erect Stature, which God gave to no other Creature: According to this of the Poet;

Pronaque cum spectant animalia cætera terram,
Os homini sublime dedit, cœlumque tueri
Jussit, & erectos tollere ad sidera vultus.

For does not that Stature signify, and the Power over all the Beasts, and the Office of the human Mind, *viz.* the Contemplation of celestial and divine Things.

We'll ask next, *whether Man had been immortal, if he had remained in his State of Innocence, and had not sinned?*

To which I answer, 1. That Man had not died if he had remained in his State of Innocence; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, where it is said, that Sin introduced Death into the World, *Rom.* v. *By one Man Sin has entered into the World, and by Sin Death.* For according to St. *Paul* to the *Romans* vi. *Death is the Reward of Sin*, God has threatned Man with, in these Words, *Genes.* ii. *For in the Day that thou eatest thereof thou shalt surely die*, *i. e.* as St. *Jerom* explains it, *thou shalt be subject to Death.*

By the Councils, particularly those of *Carthage* and of *Milevium*, against the *Pelagians*, where St. *Augustin* assisted.

sisted. These are the Words of that of Milevium, Can. 1. *whoever says that the first Man* Adam *was created mortal, so that whether he had sinned, or not sinned, he had certainly died, not by a Punishment for Sin, but by Necessity of Nature, let him be anathema.*

By the Fathers; particularly St. *Augustin*, lib. 1. *de peccat. merit. & remit.* from Chapter second to Chapter nine, and *in Enchirid.* xxv. 26.

By Reason; because in the State of Innocence, God had given to Man a certain Faculty, whereby he could, provided he had not sinned, have remained incorruptible, and immortal, because there was a certain Virtue which his Soul had received from Heaven, which could preserve his Body from Corruption, while that Soul remained subject to God; and thus could keep the Body above the Nature of a corporal Matter; and hence appears the Difference between the Immortality of Man in the State of Innocence, and that of the glorious Body of the Blessed.

But, say you, Man could have died, at least, by Accident, *viz.* by the Sword, the Fire, the Water, *&c.* not at all; for God had prevented all those Accidents, if Man had not sinned.

From what we have said, it may be probably inferred, that Man had been immortal from a certain inward Cause, which St. *Leo* calls the Gift of Immortality, of which Man was divested, when the Sentence of Death was pronounced against him; which Gift of Immortality was not any Thing *ad extra*, but was inherent in his own Body.

I may be asked here, *if, and in what Manner Man could have acquired Immortality, in the State of Innocence, by the Use of the Tree of Life?*

I answer, that by the Use of the Tree of Life, Man had acquired Immortality for a certain determinate Time, but not an absolute Immortality, the first is evident, from the Doctrine of St. *Augustin, lib.* 14. *de civit.* c. 26. who says, that there was Food for Man, lest he should be hungry; drink, lest he should be thirsty: The Tree of Life, lest he should be overwhelm'd by Age; and *lib. de quest. veter. & novi Testament.* c. 19. he says, that the Tree of Life, like a Kind of Medicine, prevented Man's Corruption; the second is evident, likewise, for neither the Virtue which was inherent to the Soul, to preserve the Body, proceeded from the Tree of Life, nor, likewise, could it give the Body a Disposition to Immortality, so as that it could never die; the Reason is, because the Virtue of all Bodies is finite; Therefore, it cannot give to the Body the Faculty of lasting for ever, but only for a certain determinate Time, which indeed, says St. *Thomas*, Man had been either translated from to a spiritual Life, or had been obliged to take again of the Tree of Life.

I answer, 2. *That if Man had persevered in his State of Innocence, after some Time he had been translated without dying to the eternal Life*, because Angels were thus created for Glory, and Man likewise; whence it follows that the first Man, and his Posterity, if they had persevered in their original Justice, had been translated to a State of eternal Felicity, both Body, and Soul, and that by a Change of the Body and Soul into a better; and when God had judged proper to put a Stop to the Propagation of the human Race, they had been successively and not together translated.

We'll ask next, *whether, and what Science* Adam *had in his Creation?*

I answer, 1. That *Adam had a very extensive Knowledge in his Creation, both of natural and moral Things; but not such, notwithstanding, as to see God, as the Angels do, by Essence.*

I prove the first Part of my Answer, viz. *That* Adam, *in his Creation had a very extensive Knowledge both of natural and moral Things*; because he was created so as to be the Principle of other Men, not only for their Propagation, but for their Instruction likewise; which he could not have done, if he had not had a very extensive Knowledge of Things both natural and moral: Therefore, *&c.*

If I be asked, *how he had that Science?* I'll answer, that he had that Science by Infusion, or by infused Species; and not by acquired ones; which can only be acquired by Experience; which Experience, cannot be gained but in Time.

I prove the second Part, viz. *That* Adam *could not see God by Essence*, because, the Reason why the Blessed in Heaven see God intuitively, or by Essence, is, that they are become impeccable; but as *Adam* sinned, it is certainly a Sign that he never saw God intuitively.

I answer, 2. That *besides the natural Science which* Adam *had in his perfect State, and wherefore he could be called the wisest of all Men; he had likewise, by Faith a supernatural Knowledge of several Mysteries.*

We'll treat next, of the Fall of Man, and of the Cause or Occasion of his Fall; asking first, *whether the first Man fell into Sin, and what Sort of Sin?*

I answer, 1. That the first Man fell into Sin; since it is expresly mentioned so in the Scripture, *Gen.* ii. where it is said, that he prevaricated in eating the forbidden Fruit, which was in the Middle of the Garden.

I answer, 2. That *the Sin of the first Man was Pride, which is the Origin of Disobedience*, for we read, *Tobit* iv. *That all Perdition took its Origin in Pride*, whence the Apostle speaks thus, *Rom.* v. *Several Sinners have been made by the Disobedience of one Man*, &c. it is certain, that Disobedence is an Act of Pride, from that the first Act of Pride, is to refuse to submit to another's Authority.

If I be asked, *in what consisted that Pride?* I'll answer, that it consisted in that our first Parents would be like God, *i. e.* had attempted to some Similitude with God; not that Similitude which is acquired by the Imitation of Virtues, to which we are exhorted by the Scripture, in these Words, *Mat.* v. *Be perfect, as your heavenly Father is perfect*, but that whereby he could have a perfect Knowledge of all Things, like God, and be entirely independant.

I may be asked, *why the Sin of* Adam *is called original; if, and how it is propagated to his Posterity; and what Effects it has?* To which I answer, that I have sufficiently resolved those Difficulties, in my Treatise of Baptism, under the Letter B.

We'll ask next, *what was the Occasion and Cause which could induce our first Parents to Sin?*

To which I answer, that the Temptation and Deceit of the Devil, was the Occasion and Cause of the Sin of our first Parents; *viz.* by their consenting to that Temptation, in eating the forbidden Fruit, because it is thus expresly mentioned in the Scripture, *Gen.* iii. where it is said, that the Devil seduced *Eve* first, and *Eve* seduced *Adam* afterwards; and was, thus, an Homicide from the Beginning, as it is inferred from, *John* viii.

If I be asked, *whether the Serpent under whose Form the Devil appeared, was corporal, and how he could tempt Man?* I'll answer, that it can be easily inferr'd from the Malediction which God fulminated against him, of his crawling on his Breast, eating Earth, *&c.* that he was corporal, for the Devil who is called in the Scripture a Serpent, *viz.* 2 *Cor.* xi. *Apocalypse* xi. 2. made use of a corporal Serpent, and spoke through him to our first Parents, promising them that if they would eat of the forbidden Fruit, they should not die; but rather know Good and Evil, because their Eyes would be opened, and they would become semblable to God.

We'll ask next, *what have been the Effects of* Adam's *Sin?* Before I answer this Question, we must observe, that the Effects of the original Sin, can be considered in two Differences of Time, *viz.* either of this present Life, or of the Life to come, as well with regard to the Body, as with regard to the Soul.—These pre-observ'd,

I answer, 1. That *Adam, by his Sin, was divested of his supernatural Gifts, and wounded in his natural ones—He was divested of his supernatural Gifts*, because he was divested of his original Justice, and consequently of all the Gifts of the Holy Ghost, and of the Virtues infused by themselves.

He was *wounded in his natural ones*; because by that Sin, he received four Wounds in the Faculties of his Soul, *viz.* Ignorance in the Understanding, Malice in the Will, Infirmity in the Irascible, and Concupiscence in the concupiscible Appetite; or, what is the same, a Propensity towards a sensible good, repugnant to right Reason.

It must be observed here, *en passant*, that it is said, that human Nature was wounded in her natural Gifts; to insinuate hereby, that it was not entirely extinct.

I answer

I answer, 2. That with regard to the Body, *all the Miseries, Pains, and Maladies a Man is subject to in this Life, are the Effects of* Adam's *Sin*; as can be seen in several Places of the Scripture, *v. gr.* Gen. ii. *for in the Day that thou eatest thereof, thou shalt surely die*; and ch. iii. *I will greatly multiply thy Sorrow and thy Conception*, &c. *in Sorrow shalt thou eat of it all the Days of thy Life*, Rom. vi. the Reward of Sin is Death, whence St. *Augustin* speaks thus, *Serm.* xi. *de verb. Dom.* ii. *who does not know that the Pain of Sin, is the indisputable Necessity we are reduced to of dying? and what's worse, we do not know when? the Pain is certain, but the Hour is uncertain.*

I answer, 3. That *Adam, by his Sin, became subject to eternal Death, and drew all his Posterity into the same unhappy Fate*; because a mortal Debt, or, which is the same, an Obligation to undergo an eternal Punishment, proceeds from a mortal Sin: Therefore we read *Mat.* xxv. those (*viz.* who have committed a mortal Sin) *shall go into an eternal Punishment.* It may be ask'd, 1. *In what that eternal Punishment consists?* To which I answer, that it consists in two Things, *viz.* in the eternal Privation of the beatifick Vision, and, according to the Scripture, in an eternal Burning.

We'll treat next of something relating to the seventh Day; and ask, *in what Sense is understood, that God reposed himself that Day, and blessed it?*

To which I answer, 2. That *God is said to have ceased from his Work the seventh Day, in that Sense, that he added nothing new to the Works of the six Days*, because it is thus insinuated by the Scripture, *Gen.* ii. in these Words, *And in the seventh Day God ended his Work which he had made, and he rested on the seventh Day from all his Work which he had made, and God blessed the seventh Day*, &c. and because St. *Augustin* explains it thus, *lib.* iv. *Gen. ad lit.* viii. 12. and St. *Chrysostom, homil.* x. *in Gen.* but we must not believe that these Words, *he reposed himself*, imports some Fatigue in God, as it happens after a very laborious Work; for God is no otherwise affected when he works, than he is when he does not work.

It may be objected, that *Eve* was produced on the seventh Day; as it appears from *Gen.* ii. Therefore, that he did not repose himself that Day, but worked.

To which I answer, by denying the Antecedent; and say, that *Eve* was form'd the sixth Day; for it is said, that God having created the Male and Female, and blessed them, *the Evening and the Morning were the sixth Day*, notwithstanding what is said, *ch.* ii. of the Woman having been formed of the Rib of the Man; because, that is to be referred to the History of the Work of the sixth Day; and is said by Manner of Recapitulation.

I answer, 2. *That the seventh Day was sanctified*, because God blessed it, and would have it destined to the divine Worship, and would have the six other Days destined to work; and that Man should be more at Liberty to serve God, he commanded him to abstain the seventh Day from all servile Work.

If I be asked, *when Man contracted that Obligation of sanctifying the seventh Day, by abstaining from all servile Work, and applying himself to the divine Worship?*

I'll answer, that there are two Sentiments on that Subject, for some believe that that Sanctification was made from the Creation of the World; but others, on the contrary, are of Opinion, that it was said by *Moses*, by Anticipation, and that nothing else is signified thereby, but that God afterwards, *viz.* when he gave the Law to the *Hebrews*, commanded, that the seventh Day should be sanctified by abstaining from all servile Work, and apply themselves entirely to the divine Worship, as it may be inferr'd from *Exod.* xx. and as the Fathers, particularly St. *Cyprian*, and *Tertullian*, observe against the *Jews*.

This Order was, in my Opinion, equally political and religious, and calculated as well for the Benefit of Mankind, as for the Glory of God; for the divine Legislator who made it, knew so well all the natural Inclinations of the human Heart, that he thought himself obliged to refrain the Greediness of some Men for Gain, and hinder them from exhausting themselves in a continual Labour, to appoint them a Day of Rest, during which they could refresh themselves, recruit their dissipated Spirits, and acquire new Strength for new Labours.

The Church, afterwards, thinking in her great Wisdom, directed by the Holy Ghost, that a single Day was not sufficient, added several others to it, at different Times of the Year; which she obliged her Children to keep as religiously as the *Sunday* itself; not in carouzing and abandoning themselves to all Sorts of Riots and Extravagancies, but in assisting with Piety and Devotion, to the divine Service, and spending the Intervals between those holy Occupations, in friendly and chearful Conversation; for it was never the Intention of that tender Mother, that the whole Day should be spent, either in singing, or reading; for, then it would not be a Day of Rest; our Spirits being more spent, sometimes in those Occupations, than in the most laborious Work; therefore there should be a Medium between both Excesses, directed by a christian Prudence; the primitive Christians, employ'd the Hours of those Days which were not destined to the divine Worship, in Acts of Charity, in visiting those that were in Affliction, relieving the Poor, and communicating to each other the Progresses they had made in the Christian Virtues.

Most of those Days appointed by the Church for Days of Rest, have been reformed in some Countries, for these two Centuries past; and those which are retained for the Form only, are kept in the same Manner the *Pagans* solemniz'd their *Bacchanalia*; with this Difference only, that the *Pagans* were seen on those Days in their Temples, and that our strictly religious Christians are both heard and seen every where else but at Church.

TORIES.

TORIES, or TORYS, is a Party or Faction in *England* opposite to the *Whigs*.

These two celebrated Parties, which have so long divided the Kingdom, will make a considerable Article in the *English* History; nothing inferior, in many Respects, to that of the *Guelfs* and *Gibellins*. —— The Division has gone so deep, that it is presumed, there is no *Englishman* who has any Concern or Principle at all, but inclines more to one Side than to the other; for which Reason, we shall borrow our Account of them from the Mouths of Foreigners, who may be supposed more impartial; and particularly from M. *de Cire*, a *French* Officer, sometime in the Service of *England*, who has wrote the *History of Whiggism and Torism*, printed at *Leipsic*, *Anno* 1717, and M. *Rapin*, whose *Dissertation sur les* Whigs, *et les* Torys, is very well known.

During the unhappy Wars which brought King *Charles* I. to the Scaffold; the Adherents of that King were first called *Cavaliers*; and those of the Parliament *Round-Heads*; which two Names were afterwards changed into those of *Whigs* and *Tories*, on the following Occasion.

A Kind of Robbers, or Banditti in *Ireland*, who kept on the Mountains, or in the Islands formed by the vast Bogs of that Country, being called *Tories*, a Name which they still bear indifferently with that of *Rapparees*; the King's Enemies accusing him of favouring the Rebellion of *Ireland*, which broke out about that Time, gave his Partisans the Name of *Tories*; and on the other Hand the *Tories*, to be even with their Enemies, who were closely leagued with the *Scots*, gave them the Name of *Whigs*, which is that given in *Scotland* to another Kind of *Banditti*, or rather Fanatics, in that Country.

The *Cavaliers*, or *Tories* had, then, principally in View the political Interest of the King, the Crown, and the Church of *England*; and the Round-Heads or *Whigs*, proposed chiefly the maintaining the Rights and Interests of the People, and of *Protestantism*; nor have the two Factions

Factions yet loſt their firſt Views; though their firſt Names *Cavalier* and *Round-Head* be now entirely diſuſed.

This is the moſt popular Account; and yet it is certain the Names *Whig* and *Tory* were but little known 'till about the Middle of the Reign of King *Charles* II. M. *de Cire* relates, that it was in the Year 1678, that the whole Nation was firſt obſerved to be divided into *Whigs* and *Tories*; and that on Occaſion of the Depoſition of the famous *Salamanca Doctor*, TITUS OATES, who accuſed the *Catholicks* of having conſpired againſt the King and the State. The Appellation *Whig* was given to ſuch as believed the Plot real; and *Tory* to thoſe who held it fictitious.

The Factions we are ſpeaking of, may be conſidered, either with Regard to the *State*, or to *Religion*. The State *Tories* are either violent or moderate: The firſt are accuſed of wanting the Sovereign to be abſolute in *England*, as in other Countries, and his Will to be a Law. This Party, which is not very numerous, has yet been conſiderable; 1. On Account of its Leaders, which have been Lords of the firſt Rank, and generally Miniſters and Favourites. 2. In that being thus in the Miniſtry, it engaged the Church *Tories* to maintain ſtiffly the Doctrine of paſſive Obedience. 3. Becauſe the King has uſually thought it his Intereſt to ſupport them.

The moderate *Tories* would not ſuffer the King to loſe any of his Prerogatives; but neither would they ſacrifice thoſe of the People. Thoſe, ſays M. *Rapin*, are true *Engliſhmen*, have frequently ſaved the State, and will ſave it again whenever it ſhall be in Danger, either from the violent *Tories*, or from the republican *Whigs*.

The State *Whigs* again, are either republican or moderate: The *firſt*, according to our Author, are the Remains of the Party of the long Parliament, who took in Hand to change the Monarchy into a Common-wealth: Theſe make ſo ſlender a Figure, that they only ſerve to ſtrengthen the Party of the other *Whigs*. The *Tories* would perſuade the World that all the *Whigs* are of this Kind; as the *Whigs* would make us believe that all the *Tories* are violent.

The moderate State *Whigs* are much in the ſame Sentiments as the moderate *Tories*; and deſign the Government may be maintained on its antient Foundation: All the Difference is, that the moderate *Tories* lean a little more to the Side of the King, and the moderate *Whigs* to that of the Parliament and People. Theſe laſt are in a perpetual Motion to prevent the Rights of the People from being broke in upon; and have ſometimes taken Precautions at the Expence of the Crown.

Before we conſider our two Parties with Regard to Religion, it muſt be obſerved, that the Reformation as carried on to a greater or leſſer Length, divided the *Engliſh* into *Epiſcopalians* and *Preſbyterians* or *Puritans*. The firſt contended that the Epiſcopal Juriſdiction ſhould be continued on the ſame Footing, and the Church in the ſame Form as before the Reformation: The latter maintained, that all Miniſters or Prieſts had the ſame Authority; and that the Church ought to be governed by *Preſbyterians* or Conſiſtories of Prieſts and Lay-Elders.

After long Diſputes, the more moderate of each Party relaxed a little of their Stiffneſs, and thus formed two Branches of moderate *Whigs* and moderate *Tories* with Regard to Religion; but there was a much greater Number kept to their Principles, with inconceivable Firmneſs: And theſe conſtituted two Branches of rigid *Epiſcopalians*, and *Preſbyterians*, ſubſiſting to this Day; and 'till lately compriſed under the general Names of *Whigs* and *Tories*; in Regard the firſt joined the *Tories*, and the latter the *Whigs*.

From what has been obſerved, ſome Authors conclude, that as the Names *Tories* and *Whigs* have Regard to two different Objects, they are equivocal; and of Conſequence ought never to be applied without expreſſing in which Senſe it is done. For the ſame Perſon may be, in the different Reſpects, both *Whig* and *Tory*.

That a *Preſbyterian*, for Inſtance, who wiſhes the Ruin of the Church of *England*, is certainly on that Score, of the Party of the *Whigs*; yet if he oppoſes the Attempts ſome of his Party would make againſt the Royal Authority, it cannot be denied that he is effectually a *Tory*.

That after the like Manner the *Epiſcopalians* ought to be eſteemed as *Tories*, with Regard to the Church; and yet how many of them are *Whigs* with Regard to the Government?

That for the reſt, the general Motives that have formed and kept up the two Parties, appear, in the main, to be no other than the private Motives of particular Perſons, that Self-Intereſt is the *primum mobile* of all their Actions; ever ſince the Riſe of theſe Factions, each has ſtruggled earneſtly to get the Advantage over the other; inaſmuch as from ſuch Superiority accrue Places, Honour, Promotions, *&c.* which the prevailing Party diſtributes among its own Members, excluſive of the contrary Party.

As to the Characters commonly attributed to the *Whigs* and *Tories*; the *Tories*, ſays M. *Rapin*, appears fierce and haughty: They treat the *Whigs* with the laſt Contempt, and even ſomewhat hard when they have the Advantage over them; they are very hot and vehement, and proceed with a Rapidity, which, yet, is the Effect of Heat and Tranſport, but has its Foundation ſometimes in good Policy: They are very ſubject to change their Principles, as their Party prevails or gives Way.

If the rigid *Preſbyterians* prevail in the *Whig* Party, it would not be leſs hot and zealous than that of the *Tories*; but it is ſaid they have not the Direction thereof; which gives Room to affirm, that thoſe at the Head of the *Whig* Party are more moderate than the Chief of the *Tories*; (it is a Republican that ſpeaks) and that they uſually conduct themſelves on fixed Principles, proceed to their End gradually, and without Violence; and their Slowneſs is not leſs founded on good Politicks, than the Haſtineſs of the *Tories*. Thus much, ſays our Author, may be ſaid to the Advantage of the moderate *Whigs*, that in general they maintain a good Cauſe, *viz.* the Conſtitution of the Government, as by Law eſtabliſhed.

Never was that Diſtinction of Parties into *Whigs* and *Tories* ſo much taken Notice of, and never was ſo great a Struggle between them, to ſupplant one another, as under the Reign of the late Queen *Anne*. That Princeſs, when ſhe aſcended the Throne, took into her Confidence, and placed at the Helm all thoſe who had been the greateſt Sticklers to bring about a Revolution, and dethrone her Father, though moſt of them were indebted to him for their Fortune; and had under the Reign of his Brother *Charles* II. always appeared violent *Tories*; ſome of them, under his, having even carried the Farce ſo far, as to diſguiſe their Religion, to appear ſuch as they were not; for, in Fact, they had no other Principles, either in Matter of Religion or Politicks, but what proceeded from an immoderate Ambition; tho' after they had effectually ſtruck that Blow which ſurpriſed all *Europe*, as the leaſt expected from their Hands, they borrowed the common Maſk of Religion to diſguiſe it; but it had been already ſo much wore in *England*, eſpecially on the like Occaſions, that all the World could ſee through their Perfidy and Ingratitude. Their Ambition, which was inſatiable, being not gratified, according to their Expectation, under the Reign which ſucceeded, immediately, the Revolution, their ſecret Intrigues afterwards leave Room to ſuſpect, that they had been glad of an Opportunity of acting the ſame Tragedy, then, which had ſucceeded them ſo well, under the preceding Reign; but they found that that ſame Throne which they had ſhaken ſo eaſily, while occupied by a weak Prince, was become unmoveable by the Reſolution, Courage and Wiſdom of King *William*; who though he treated them, in Appearance, as his Friends, and rewarded them for the Services they had done him, feared them in ſecret as dangerous Foes, and kept in his own Hand that Government they had aimed at, and which they expected as the only Reward due to their Services. But after many frivolous Attempts, they were forced at laſt, to wait for it, 'till a natural Revolution of Things ſhould place the Princeſs of *Denmark*, to whom, after their Diſappointments, they had devoted themſelves entirely, on the Throne of *Great Britain*, hoping then to govern under her Name; in which they were not mistaken; for, in Fact, ſhe had no ſooner aſcended the Throne, but they

took the whole Management of Affairs in their own Hands; and thought that Princess very well off, that they would leave her still the Name of Sovereign.

These, though they appear to be Friends to Monarchy, at the Helm thereof they were plaged, were notwithstanding, called *Whigs* by the opposite Party, who stiled themselves *Tories*; but could not be called so in the Sense M. *Rapin* understood it; since they encroached as far as they could on the Liberties of the People, when in Compromise with the exorbitant Power they had usurped; Favours, Posts, Preferments, and every Thing else of that Kind was sold for ready Money; and Venality was grown to such a Heighth, that the Queen herself was not allowed to give any Thing of her own Authority, and gratis; it is even said, that the Soldiers themselves, who supported then the Reputation of the *British* Arms, with so much Glory, were deprived of their Subsistance, to the Profit of those who commanded them; 'till, at last, the Clamours of the People grew so loud against the *Whig* Managers, and the Party formed against them so formidable, that they were supplanted by their Antagonists the *Tories*, who, according to Custom, while at the Helm, followed several of the Measures they had condemned in those who had preceded them; which shews plainly that no Party is really actuated by the Motives; they make Use of, either to blind the vulgar, or to gain their End; which once obtain'd, they renounce their former Principles, to follow those which are most agreeable to their Ambition and Interest.

This *Tory* Party to render itself famous, as well at Home as Abroad, made Use of an Ecclesiastick for their Tool, whom they knew bold and enterprising, in which Station he followed so exactly the Instructions of his Upholders, and so well to the Purpose, that he answered their chief Ends; which were to render their Antagonists odious, and make themselves idolized by all those who were Friends to Monarchy, and even by the Rabble, which is Friend to nothing, because it knows nothing. This Party, was, like the other, composed of Members, who had been *Whigs* and *Tories* by Turn, according as it suited best their own private Interests: Whence it is easily concluded, that that Distinction of Parties, which has always divided the *English* Nation, though under different Names, has no other Foundation but the Ambition of their Chiefs, who find always Tools to support or advance it, in Hope of sharing the Favour with them; though that Ambition is always cloak'd under some specious Pretexts, either of Religion or of Patriotism, and very often of both. For that Party that brought *Charles* I. to the Scaffold, did it under Pretence of saving Protestantism from Ruin, and the Subjects from Slavery; tho' the Chiefs of that sacrilegious Enterprize, shewed by their Conduct afterwards, that they had neither Religion, nor the least Notion of true Patriotism, since they violated all the most sacred Laws, and render'd their Government more oppressive than even that of the *Turks*; which made the Nation wish for the Re-establishment of that for which they had inspired her with so much Hatred.

Though that Party was much weakened, and disconcerted by the Restoration of *Charles* II. the Weakness of that Prince in pardoning most of the Murderers of his Father, encouraged them to lift up their Heads under his Reign, and attempt to force him to quit the Throne in the same Manner *Charles* I. had done, if not by open Force, at least by the Craft of an infernal Politick, in making him quarrel with his Neighbours, and rendering the most loyal of his Subjects, and his best Friends suspect him; in which they had infallibly succeeded if the Wisdom and Dexterity of his Ministers, entirely in their Royal Master's Interest (which is the indispensible Duty of a Minister who has the least Sentiments of Honour, Probity and Gratitude) had not awarded the Blow.

James II. fell by the Hands of the same Party, as had done all his Successors, if they had not had more Resolution, and had not known better how to choose their Ministers.

After that unhappy Prince's Flight, a third Party arose in *England*, which was distinguished by the Name of *Non Jurors*, because they refused to take the Oaths to the succeeding Princes, wherefore they were also called *Jacobites*, as supposed to be in his Interest.

At present we hear very little of *Whigs* or *Tories*, and these two Names, which were heretofore so famous, seems to have been changed into *Court* and *Country*; for let a Prince govern his People with ever so much Moderation, Prudence, and Wisdom, there must be always two Parties in *England*; if it was only but for the sake of that favourite Name *Party*; unless it was in his Power to gratify every Body's Ambition, which is utterly impossible; or he could give, at once, the same Post to all that pretend to it; or render those he honours with his Confidence, agreeable to every Body, which is not practicable; but that Distinction of *Parties* is not near so formidable at present as it has been in the preceding Reign; and those who have had the Unhappiness of being engaged in them, must be convinced, that they were only made Tools to the Ambition of certain Men; and that it will be always in the Power of a judicious Prince, to give a mortal Blow to those Parties, or, at least disconcert them extreamly, by giving a Bone to pick to the Chief thereof, which sole Consideration, should be capable to engage the Subjects to unite all into one and the same Party, and espouse no other than that of their Sovereign; which is always the best, and the most agreeable to Reason and Justice; for I cannot imagine what Satisfaction the Subjects can find in clogging the Wheels of a Government; and censuring continually the Measures concerted by it, often for no other Reason than because they are concerted by it, as if no good ones could ever be concerted by it; it is true, that if we are born Subjects, we are not to be treated as Slaves, and it is not natural to suffer Oppression without complaining, but we should not complain without Cause; and when we have Cause to complain, that Cause let it be ever so great, does not authorize us to form Parties to oppose the Measures of our Sovereign, till after we have attempted in vain, all the pacifick Means proposed to loyal and dutiful Subjects; for violent ones are never approved, by a just and impartial World, unless it be against an open Tyranny; for even then violent Means are condemned by the Apostle. I know that this Doctrine will not please every Body; and that some will say, that it suits very well a *French* Constitution, but not an *English* one, as smelling too much of a passive Obedience and arbitrary Power; it is true that there is some Difference between the *French* and *English* Government; but it is equally true, that the *French* are Men like the *English*, and as such cannot better familiarize themselves with Tyranny and Oppression than they do; but, at the same Time, being almost all born with a natural Inclination for their Sovereign, that Inclination hinders them from condemning all his Measures right or wrong, unless they be very oppressive indeed; and then, they have very seldom formed any *Party* against him, but have Recourse to the lawful Means of Intreaties, Remonstrances, *&c.*

I say, that the *French* have seldom formed any Party against their lawful Sovereign; for they have not been entirely free from it; and they'll remember to the latest Ages, those dangerous ones introduced into the Kingdom, by that Religion, which taught the infernal Doctrine of dethroning and murdering Kings by a Principle of Conscience; which was the fatal Signal of those civil Wars, which did put so often the Kingdom of *France* into Mourning, by desolating its most beautiful and fertile Provinces, burning its Cities, and Temples, sacrificing its Priests at the Altar, violating the Monuments of the Dead, and disturbing their Ashes, even the most respectable, arming the Father against the Son, and introducing Division and Hatred into the Royal House; for the Princes of the Blood, and other great Men, laying hold of that specious Pretext of Religion to advance their ambitious Designs, assisted therein by the new Apostles, who instead of preaching the Gospel of Christ, which is a Gospel of Meekness, Patience and Sufferings, founded on the contrary, the Trumpet of Tumults and Sedition, assembled under their rebellious Standards, numerous and formidable Armies, which made the King himself tremble on his Throne; which rebellious Party, occasioned in Process of Time, the forming another to oppose it, which, afterwards became almost equally dangerous, by the Ambition of its Chiefs, I mean the *Holy League*, as it was improperly called; to which the Duke of *Guise* and *Henry* III. fell Victims; the latter to revenge the Death of the former, whom he had caused to be inhumanly and shamefully assassinated.

We had likewise two other Parties, under the Minority

rity of King *Louis* XIV. I mean that of the *Mazarines*, and of the *Froundeurs*, occasioned by the Ambition of the Princes of the Blood, and the Hatred the *French* Nation had conceived, against that excellent Minister the Cardinal *Mazarine*, from whom one of those Parties borrowed its Name, which was given it by the opposite one, who were called *Froundeurs*, because they declared against the King, the Queen his Mother, and his Minister. This Party aimed at nothing less, in fact, than dethroning the King; but as they knew they could not effect their treasonable Designs, while he was assisted by the Advices of a Minister of the Capacity of Cardinal *Mazarine*, and to declare openly their real Scheme, had been running the Risk of revolting the whole Kingdom against them; they pretended that they aimed at nothing else but the Expulsion of Cardinal *Mazarine* out of the Kingdom, making all the while the greatest Protestations of their Loyalty to their Sovereign: But the Dexterity, Resolution and Courage of the Queen, assisted by the great Skill of her faithful Minister, dismounted all the Batteries they had levelled against her Son; and though the Cardinal thought proper for him to yield to the Torrent for a Time, he found the Secret, at last, to ruin that Party, by gratifying the Ambition of the Chiefs thereof, and oblige them thereby to approve his Conduct as openly, and with the same Zeal they had blamed it before.

Ever since the Extinction of the *Froundeurs*, we have heard of no Party in *France*. It is true, that there were then a great Number of *Huguenots* in the Kingdom, who had been very glad to find a favourable Opportunity to stir; but they had received so great a Blow by the Reduction of their great Bulwark, *Rochelle*, under the preceding Reign, where they had lost all their Chiefs, who had either been killed, or were returned sincerely to their Allegiance to their lawful Sovereign; that they were very sensible they could have undertook nothing with the least Appearance of Success. But however, as even in that weak Condition they were still suspicious to *Louis* XIV. who thought they would take the Advantage of the next favourable Opportunity of joining with his foreign Enemies, as they had done under *Louis* XIII. his Father, of glorious Memory, with the King of *Spain*, though a declared Enemy to their Religion; and having his Memory fresh yet, with the bloody Tragedy which their Brethren in Iniquity had so lately acted in *England*, judged proper to expel from his Dominions those Disturbers of the publick Tranquility; and those sacrilegious who made it a Principle of Religion to lay violent Hands on the Lord's Anointed. Though there be yet to my certain Knowledge a vast Number of Huguenots in *France*; the Provinces of *Poitou*, *Normandy*, *Dauphiné*, *Provence*, the *Vivarets*, &c. being full of them; but as it is a kind of new Generation, and that none of the Trumpets of Rebellion are suffered among them, to inspire them with the dangerous Principles of Fanaticism, Disloyalty, and Revolt; they behave as loyal Subjects, and enjoy all the Advantages due to their Loyalty, without being in the least oppressed, disturbed or molested; which must be a very great Subject of Satisfaction for a Prince, who ever since his Accession to the Throne having proved a tender Father to his People, is certainly pleased to find among them no refractory Children, to give him Occasion to use Severity towards them. So that there has been for a long while in *France* no other Party than that of the King, which is no Party at all; since that Word *Party* supposes always some Animosity, or Hatred; and could it be any Animosity or Hatred, where a King reigns in the Hearts of his Subjects with the same Power he does over their Persons? That Love alone of the Subjects for their King, renders all the Difficulties a Government is attended with supportable; and makes them supply with Pleasure and Alacrity the Wants thereof, and sacrifice their Lives and Fortunes, for the Support or Security of the Throne, without the least Reluctancy and Murmur.

There were also in *Italy* two famous Factions, distinguished by the Names of *Guelphs* and *Gibelins*. These two Factions filled all *Italy* with Blood and Carnage for many Years. The *Guelphs* stood for the Pope against the Emperor. Their Rise is referred by some to the Time of *Conrad* III. in the twelfth Century; by others to that of *Frederick* I. and by others to that of his Successor *Frederick* II. in the thirteenth Century.

The Name *Guelph* is commonly said to have been formed from *Welfe*, *welfo*, on the following Occasion: The Emperor *Conrad* III. having taken the Dutchy of *Bavaria* from *Welfe* VI. Brother of *Henry* Duke of *Bavaria*, *Welfe*, assisted by the Forces of *Roger* King of *Sicily*, made War on *Conrad*, and thus gave Birth to the Faction of the *Guelphs*.

Others derive the Name *Guelph* from the *German Wolff*, on account of the grievous Evils committed by that cruel Faction: Others derive that Denomination from that of a *German* called *Guelph*, who lived at *Pistoya*; adding, that his Brother, named *Gibel*, gave his Name to the *Gibelins*.

The Generality of Authors affirm that the *Gibelins* arose about the Year 1240, upon the Emperor *Frederick the Second's* being excommunicated by Pope *Gregory* IX.

That Prince, say they, making a Tour among the Cities of *Italy*, gave the Name of *Gibelins* to such as he found well affected to him; and that of *Guelphs* to those who adhered to the Pope. But as to the Reason and Signification of these Words, there is a deep Silence; *Gibelin* might possibly be formed of *Gebietter*, *Imperator*; whence *Gebieterisch*, *Imperiose*. Of *Gebietter* the *Italians* might make by Corruption *Gibelin*, so that *Gibelin* in this Light should be the same with *Imperialists*, or such as followed the Emperor's Party.

Hernius refers the Names to the War in 1140, between *Henry* the proud Duke of *Bavaria*, and *Saxony*, and *Conrad* III. Duke of *Suabia*. The two Princes being preparing to engage near the Town of *Winsberg*, the *Bavarians* began to cry out *Guelph*, which was the Name of Duke *Henry*'s Brother, as already observed under the Article *Guelph*, and the Partisans of the Emperor *Weibelingen*, the Name of the Place where that Prince was born and bred in the Dutchy of *Wirtenberg*, whose Surname he bore: From which *Weibelingen* the *Italians* at length formed *Gibelin*.

This Account is confirmed by *Martin Crusius*: *Initium Gibelinæ* (*Wibelinæ a patria Conradi regis.*) *Conrad* being of *Weibelingen*, that Word, says *Crusius*, gave Rise to *Sibellingue*, and that to *Gibelling*, *Gibelens*, *Gibellini*.

Others maintain, that the Emperor gave the Appellation *Gibelins*, to those of his Party, from the *German* Word *Gipffel*, signifying Ridge, or Top; by reason the Empire rested on them, as the Rafters of a House lean on the Ridge which join them a top.

Karus, a learned Canon of *Strasbourg*, in the Lives of the Emperors of the House of *Brunswick*, is of the Sentiment related under the Article *Guelph*, viz. that *Conrad* III. marching into *Italy*, in the Year 1139, against the *Neapolitans*, *Roger* Count of *Naples* and *Sicily*, in order to defend his States, called to his Assistance *Guelph* Duke of *Bavaria*; and that one Day when the two Armies were ready to join Battle, the *Bavarians* cried out in *High-Dutch*, *Hie*, *Guelph*; or, as others say, in *Flemish*, *Hier*, *Guelph!* that is, *Here*, *Guelph!* And that the Imperialists answered on their Side with the Word *hie*, or *Hier*, *Gibelin! Here*, *Gibelin*; calling the Emperor by the Name of the Place where he had been bred.

Yet others contend that the Word *Gibelin* is only a softning of the Word *Gibertin*, or *Guibertin*; and that it arose from *Guibert* an Anti-pope, set up by the Emperor *Henry the Third*, in the Year 1080.

Father *Maimbourg*, in his *Hist. de la decad. de l'Emp.* is another Opinion: The two Factions, and their Names, says he, arose from a general Quarrel between two ancient and illustrious Houses, on the Confines of *Germany*, that of *Henry*'s of *Gibelin*, and that of the *Guelphs* of *Adorff*; which Account appears the most probable of them all. But let the Origin of the Names of those two Factions be what it will, it is certain that they spilt so much Blood, and desolated all *Italy* in such a Manner, that their Memory, like that of the Round-heads in *England*, is still detested in all Countries, and will be so to the latest Ages.

TRAVELLING.

TRAVELLING, is the Means of acquiring a perfect Knowledge of all Nations, States, and Countries; of their different Languages, Manners, Customs, Government, Commerce, and of all that's necessary to make an accomplish'd Gentleman.

It must not appear surprizing that I place *Travelling* among the Arts and Sciences; since it is in fact a very great Science, to know how to travel well, and in great measure the Source of all other Sciences: And since the *English* Nation is more inclined to *Travelling* than any other in *Europe*, especially the Nobility and Gentry; it is proper I should give them in this Place some necessary Rules relating thereto.

This Inclination for *Travelling* may have had for Origin that natural Inquietude, Inconstancy, and Curiosity, we are born with; and we may very well suppose, that the first *Travellers* had no other View in quitting their native Country than to change Place; it even seems that it was at first a kind of Malediction from Heaven, since God punished *Cain*'s Fratricide, with that of being a Vagabond upon Earth; knowing perfectly well that nothing can render our Travels agreeable, but the Hope of returning at last to the Place which gave us Birth; and that that Hope once frustrated, all other Countries, even the most agreeable, and most proper to flatter our Curiosity, and indulge all our other favourite Passions, would soon become insupportable to us, as being then considered as Places of Banishment or Exile, for which we have all a natural Antipathy, though perhaps at the same Time far preferable to ours in every Particular.

But those who were not thus confined, and were not necessitated to travel, but undertook it only at first by no other Motive than that of flattering their Curiosity, or indulging their natural Inconstancy, with an entire Liberty of returning whenever they pleased, and without the least Notion of Banishment, or Captivity; could soon discover, when they consulted their Reason, the true Pleasure there is in travelling, and the great and signal Advantages they could reap from it, either for their own Country in general, or for themselves in particular. Agreeably surprized perhaps either at the Fertility of the Countries they first came at, or the Opulency of the Cities, or the Sumptuosity of the Buildings, or the Hospitality and good Manners of their Inhabitants, their Industry, their great Skill in the different Arts they professed, the flourishing State of their Commerce, their Piety towards God, their Equity and Impartiality in the Administration of Justice; their Probity in all their Dealings; they could not hesitate to proceed forwards, not by a Motive of Inconstancy, as they did at first, but a noble and reasonable Desire of knowing if all foreign Countries were agreeable alike; but how much greater was their Surprize, when they found in the next, though contiguous to that they had left, and under the same Climate, a barren Soil, deserted Fields, depopulated ill-built Cities, Inhabitants enervated by Idleness and Effeminacy, the Worship of God neglected, Ignorance, Perfidy, and Injustice, worshipped as Divinities, and all Vices indulged and approved. These among our Travellers born with vicious Inclinations, preferred, we doubt, such a Country so proper to feed them, to the former, and even to their own, if Vice was banished from it; but those among them who were born with more just Notions, and virtuous Inclinations, quitted with Scorn and Precipitation so despicable a Country, capable to debauch soon the best Principles; and travelling always forwards, were alarmed perhaps at their Entrance into another Soil, with the Sound of Trumpets, Kettle-drums, and other warlike Instruments, the Neighing of Horses, the Clashing of Arms, the Groans and Sighs of dying Men, the Shouts of the Victorious. Advancing still forwards, they see Fields running with Blood, and covered with dead Bodies, or Men expiring; afar off, Cities in Flames, or entirely ruinated: The Inhabitants running here and there, not knowing where to shelter themselves against the Rage of those that pursue them; Mothers in Tears with their Children expiring in their Arms; Virgins violated before the Eyes of their Parents, or the Parents falling under the Sword of the Victorious; and every where Desolation, Plunder, and Slaughter; astonished at so frightful and unexpected Spectacle, our *Travellers* return back, imagining, with a very great Appearance of Reason, that it was impossible there should be any Thing more beyond that Land of Destruction, and entertained their Countrymen with the different Qualities of the Countries they had seen, and the different Genius and Manners of their Inhabitants. Their Relations excited the Curiosity of others; and prompted them to undertake the same Journeys: Hence what was at first the Effect of pure Inconstancy, became in process of Time a Custom; and in some Countries a kind of Necessity.

It is true that all Nations are not equally inclined to *Travelling*: For some of them are deterred from it by mere Pusillanimity, or Cowardice; imagining falsely, that they could not leave their native Soil, without exposing themselves to the most imminent Danger; and others, infatuated with the Excellence of their own Country, falsely imagine, that there is nothing good, nothing great, nothing magnificent, nothing beautiful, but what is found among them; and that it is ridiculous to *travel* into other Countries, where nothing is found to be comparable to their own.

Though this be the Sentiment of a great Part of the *English* Nation, there is none, notwithstanding, in the whole World more addicted to *Travelling*; and an *English* Nobleman, or Gentleman, who can bear the Expences of it, would not think himself accomplished if he had not spent six or seven Years in making the Tour of *Europe*. A noble Emulation, which cannot be too much admired and commended, if the *Traveller* do it with a View of rendering his *Travels* advantageous to himself, and to his own Country; which to know, we must follow him closely on his Journey; and examine carefully his Conduct, and the Measures he takes to render himself an accomplished, and useful Gentleman; taking the Liberty sometimes to give him some Instructions, and to reprimand him when we shall find him guilty of some Faults.

The first Thing the Parents of a Gentleman, ready to set out on his *Travels*, into foreign Parts, are to mind, is to chuse him a Governor; which, in fact, should be their first Care; but they must be as careful in that Choice; and not be entirely influenced in it, either by the Recommendation of particular Friends, or the Inclination they have to serve a certain Person, preferable to all others, without the least Regard to his personal Merit or Capacity; which is an unpardonable Fault, always attended with very bad Consequences: For they should consider that *Travelling* is a Kind of School, where they send their Children to study all Sorts of Arts and Sciences; that the several Countries they pass through are so many different Books; as problematick, and unintelligible, as any other; if they have not a Master to explain them, and give them the Solution of the many difficult Problems they are filled with; but which, with that necessary Help, are soon and easily understood; most of them being accompanied with diverting and curious Demonstrations, which seize the Imagination, at the same Time they recreate the Sight. Therefore a Governor should be so thoroughly acquainted with those Sorts of Books (if I be permitted to call them so) as to know them perfectly by Heart, and to meet with them without Difficulty, without which he could not easily solve them to his Pupil.

The next Thing to be considered, in a Governor, is his Age; for he should be neither too young, nor too old; for if too young, it will be very difficult for him to assume over his Pupil that becoming Authority which is necessary to oblige him to mind his Lessons, either for his Instruction in the different Branches of Knowledge he

he is to acquire, either to refrain his Paſſions, or to reprimand him when he has committed any conſiderable Fault, with that Efficacy, as to prevent his being guilty of the ſame again: I ſay, with a becoming Authority, to give them to underſtand the Difference between the inſupportable Arrogancy of a Pedant, which ſerves rather to harden the Pupil, make him hate the Company, and even the Sight of his Tutor, than to make him to mind his Advices and Leſſons; and the gentle Severity of a Gentleman, which is always ſeaſoned with ſome Complaiſance, and good Manners: Beſides, when a Governor is too young, he may flatter the Paſſions of his Pupil, to have Occaſion to indulge his own; and inſtead of bringing home a Gentleman of Merit, Knowledge, and Probity, bring an ignorant and vicious one.

Neither is a Perſon too much advanced in Years proper for a Governor; for, moſt commonly, old Age renders a Man croſs, peeviſh, and burthenſome to himſelf, and to others, more eſpecially to a young Gentleman who loves Mirth and Gaiety: That Age being beſides but too often ſubject to ſeveral Infirmities, which are an Obſtacle to *Travelling*; ſince it hinders a Governor from being as vigilant on his Pupil's Conduct as he ſhould.

It would be alſo very proper that a Governor, if not quite of an equal Birth with his Pupil, ſhould be born a Gentleman, which can claim that Reſpect from his Pupil, which otherwiſe he would be loth perhaps to ſhew him; for it is almoſt impoſſible a Pupil ſhould mind his Governor, if he deſpiſes him. Neither are the Parents to inſiſt, or even expect, the leaſt menial Service from a Governor to his Pupil; ſince it is giving Occaſion to their Son, to conſider and treat as a Servant, a Perſon whom he muſt conſider as his Father, while he continues in that Poſt, and treat him every where as ſuch; ſince it is he who muſt appear firſt every where, in order to introduce him with the Honour due to his Rank: Therefore a Governor, who accepts that Employment on any other Conditions, and would ſuffer himſelf to be maltreated by his Pupil, is not worthy of it.

A particular Care muſt be taken, that a Governor ſhould be addicted to no Vices, particularly Swearing, Gaming, Drinking; for as thoſe Vices are always practiſed publickly, and cannot be hid from a Pupil, it would be a very bad Example for him; and as we have all a natural Propenſity to Evil, he would be expoſed to the Danger of contracting thoſe ill Habits, of which we have an Example in *Charles* IX. King of *France*; who though born with an excellent Genius, and the beſt Inclinations, had notwithſtanding contractedſo great an Habit of Swearing, from thoſe who had been intruſted with his Education, that he could ſcarce ſay any thing afterwards without it.

Piety and Religion are alſo very requiſite in a Governor, eſpecially in this Age, where Atheiſm and Impiety are ſo much in Vogue; but neither of thoſe two Virtues ſhould degenerate into Hypocriſy and Fanaticiſm, which always render a Man odious to the moſt ſenſible Part of Mankind; and makes him condemn the moſt innocent Mirth, and the moſt lawful Pleaſure, as the greateſt Imperfections, or even Vices; whereas, on the contrary, true Piety and Devotion is eaſy, agreeable, pleaſant, and ſociable.

A judicious Parſimony, which has nothing of a ſordid Avarice; and a noble Liberality, without Extravagancy or Prodigality, are likewiſe two eſſential Qualities in the Governor of a young Gentleman; for as he moſt commonly has the Adminiſtration of the Money allowed for the Expences of his Travels, he ſhould be as careful of it as of his own; without either appropriating it to his own Uſe, which is a Breach of the great Truſt repoſed in him, or perhaps a Theft, or expending it without Diſcretion; but as, mean while, he is obliged to ſupport the Credit and Honour of his Pupil, and of his Parents, in foreign Parts, he ſhould not be parſimonious to Exceſs; but, on the contrary, diſburſe liberally what is neceſſary to make him appear in a Figure ſuitable to his Rank, and to the Funds allowed for that Purpoſe, without being obliged to call for new Supplies, if he can poſſibly avoid it; and giving always good Reaſons for it when he does it; keeping, like a truſty Steward, a faithful Account of what he diſburſes, and what he receives, and how and for what expended, for the Satisfaction of thoſe who have commiſſioned him.

A Governor ſhould not be unacquainted with the Genius, Manners, Inclinations, and Cuſtoms, of the different Nations he muſt be obliged to converſe with on his *Travels*, that he may modelize his Conduct, or Behaviour, and that of his Pupil accordingly, and not appear as if he was a perfect Stranger among them; which never fail of cauſing ſome Surprize, let the Nation be ever ſo polite, complaiſant, or ſo well civilized, when they ſee Perſons among them behaving quite otherwiſe than they do.

The next Thing, Parents take Care to ſettle, for the Journies of their Children into foreign Parts, are the Funds to defray all neceſſary Expences; I ſay neceſſary Expences, for they ſhould allow nothing for Luxury, and Extravagancies; otherwiſe, inſtead of a fine and accompliſhed Gentleman they could have expected at his Return, they might chance to have an extravagant or ridiculous Fop, or a Debauchee: For there are Parents ſo exceedingly fond, and ſo extravagantly indulgent to their Children, that they ſettle particular Correſpondents to let them have Money unknown to their Governor, which is the ſureſt Means they could take to render their Travels prejudicial inſtead of beneficial to them; ſince that Money can be of no other Uſe than to help them towards gratifying all their Appetites and moſt favourite Paſſions; which cannot happen when the Governor has the Management of all, ſince the Pupil muſt tell him the Uſe he deſigns to make of the Money he aſks of him.

It is very needleſs to provide a great Number of Cloaths for a young Gentleman who is going to travel, ſince it is very proper he ſhould follow in his Dreſs the Mode of the Nations he is to viſit, eſpecially if he deſigns to ſtay ſome Time among them, not to appear ſingular taking always of thoſe Modes what is followed by Men of Taſte and Judgment, and rejecting all that gives into Extravagancy, or ſmells the Comedian.

Having thus far provided all that is neceſſary for our Gentleman's Departure, he muſt, before he quits his native Shore, renounce entirely all his natural Prejudices, if he be infatuated with any; and conſider himſelf as if he were of no Country, but rather as if he was to be of all the Countries he is to paſs through; otherwiſe he will have no Opportunity of familiariſing himſelf with the Inhabitants of thoſe Countries, which Familiarity is abſolutely neceſſary for his Inſtruction; for every body deſpiſe a Perſon who is continually extolling the Merit and Advantages of his own Country above all others, which is always a Mark either of Ignorance, or of a Weakneſs of Mind, bordering much on Stupidity and Folly. Nay, ſuch an Infatuation is ſometimes attended with very dangerous Conſequences; for the Infatuated, is either laughed at, or elbowed in a Company, and ſometimes worſe uſed. Of which this is an Example, which I judge proper to quote, to caution Gentlemen *Travellers* againſt being guilty of the ſame; and which I know to be fact, ſince I was on the Spot when the Thing happened.

An *Engliſh* Nobleman of the Firſt Rank (though I will not pretend to ſay that he was reckoned of a very ſound Judgment) being in the Preſence-Chamber of the late Grand Duke of *Tuſcany*, his Highneſs gave the Right to an *Italian* Prince who was there preſent, and the Left to the *Engliſh* Nobleman; which he took ſo ill, that he told the Grand Duke that he was greater than any *Italian* Prince, and as ſuch ſhould have the Precedency; to which the Grand Duke made no other Anſwer than by turning his Back to him.

The ſame Nobleman being at *Leghorn*, at a Time when three Galleys of *Malta* were in the Mole, he expreſſed a Deſire of going on board, where he was received with all the Honours which could have been done to the Grand Maſter himſelf; and ſplendidly entertained, though none of the Officers knew him otherwiſe than by his being an *Engliſh* Nobleman of the Firſt Rank, and accompanied by the Chevalier *de Moye*, a Knight of St. *Michael*, then Conſul of *France* in that Port, the Officers of the Galleys being likewiſe all *Frenchmen*. At Table, among other Things, he entertained the

the Company with his naval Exploits (for he had been a Sea Officer) and among others with that of *La Hogue*, where he said he had beat those Officers there present; at first the Company took no Notice of it, till repeating too often that he had beat them; he that commanded in Chief answered him, that he was not born at the Time of the Affair of *La Hogue*, and that he never knew before that the Galleys of *Malta* were there; and the Nobleman insisting still on the same Point, the Commander quitted the Table, and was soon followed by his Officers; none being left with him but the *French* Consul, who could not leave him; so that he was obliged to return on Shore, without any body taking the least Notice of him, though they had proposed to do him the same Honours then, he had received when he came on board.

Our young Gentleman Traveller must likewise take the Resolution before his Departure, to keep his Religion within himself, and never bring that on the Tapis in any Company or Country whatsoever; abstaining above all other Things of turning other Religions into Ridicule, because different from his; for though others have as disadvantageous an Opinion of his as he may have of theirs; I can assure him, that he'll never hear Religion mentioned in any Company he may chance to be in, in foreign Parts; every body there considering religious Controversies as a Bane to Society. Nay, even in the Churches, if his Curiosity lead him thither, to hear some of the best Orators in the whole World, he'll find all their Discourses free from those Invectives and injurious Appellations, wherewith Preachers in some Parts of *Europe* season all theirs.

With these general Instructions we suppose our Gentleman Traveller already landed in some Parts of *France*, perhaps at *Calais*, or *Dunkirk*; if he designs to follow the Profession of Arms, he should begin here his Course of Study, and stay two or three Days in either of those Places, to see the Fortifications, if he be permitted to do it by the Governor or Commandant; which to facilitate, his first Visit should be to those Gentlemen, and let them know his Desire, which they'll certainly gratify if they have no positive Orders to the contrary; and accompany him themselves, or have him accompanied by some Officer of the Garrison. While he walks he should examine with a great Attention all the Works of the Place (for I suppose that he has already some Knowledge of Fortifications) and draw in his Memory a Sketch thereof; for he will not be permitted to do it otherwise, neither is he to let his Guide perceive that he is so attentive, lest it should occasion some Suspicion or Jealousy. Though there are some Officers, when they are afraid of nothing, who give freely their Opinion on the Strength or Weakness of the Place; and the Works which are, or could be added to it; which gives Occasion to the Traveller to ask Questions, and make Objections; though this seldom or never happens in Frontier Places; since there are most commonly positive Orders to the contrary; and the Court is even so strict on that Point, that it is positively forbidden to shew the Fortifications to Foreigners.

If our Traveller is not designed for the Field, he should not stay in those Sea-port Towns, where there is nothing to be learned, and nothing to be seen, but proceed on his Journey to *Paris*. Neither is he to stop in any Town of the Road, if he takes that of *Picardy*, since there is nothing capable to flatter his Curiosity, or that deserves his Attention, except the Woollen Manufacture, of *Vanrobe's* at *Abbeville*, and the Choir of the Cathedral Church of *Beauvois*, which is a good Piece, in the *Gothick* Taste.

At St. *Denis*, the Abbey, which is the Sepulture of the Kings of *France*, is worthy his Notice, as well for the great Number of its fine Monuments as for its rich Treasure, which is shewn to every body *gratis*, by a Monk of the Abbey, every Piece of Curiosity by itself, who explains what it is, by whom given, *&c.* suffer you to handle it, if you desire it, and answer in a polite Manner all the Questions you may be pleased to ask. If the Traveller takes Post he'll pass through *Chantilli*, a Seat of the Duke of *Bourbon*, which is one of the most sumptuous Edifices he'll meet with in all his Travels. The Furniture is also very magnificent and rich, and the Gardens beautiful. If he passes through *St. Omers*, he must see the Abbey, St. *Bertin*, especially the Altar-piece, which is of Silver gilt, set all over with precious Stones; and the Treasure, where there is a Topaz of an extraordinary Bigness.

Arrived at *Paris*, he should lodge in what we call there *Hotel Garnie*; and if he designs to perfect himself in the *French* Language, which I suppose he began to learn in *England*, he must not frequent too much his own Countrymen, tho' we are all but too naturally inclined to it; but endeavour to be introduced into select Companies of *French* Gentlemen and Ladies, especially Ladies, provided they be not Gamesters, whom he must avoid as a most dangerous Plague, as well as those who are addicted to any other Sort of Extravagancy and Debauchery. I must also caution him against a Set of Sharpers, under the Appearance of Gentlemen, of whom there is a great Number at *Paris*, who force themselves into the Company of Foreigners, and accost them in the same free Manner as if they had been always acquainted, and with no other Design than either to spunge upon them or bilk them; for a true *French* Gentleman, though he does all the kind Offices he can to a Foreigner, scorns to put him to any Expences on his Account, but on the contrary, will be at any Expences himself to serve him, and even take it as a great Honour when he is pleased to accept of it. There are some Gaming-Tables at *Paris*, kept even in Houses of Persons of the First Rank, and where a great deal of good Company resort, which should be frequented but seldom by Foreigners; for though they may be suffered two or three Days to be Spectators only; they will scarce suffer them to be so much longer, but both Gentlemen and Ladies use all the Intreaties imaginable to entice them to play, which is a dreadful Labyrinth, out of which, when once engaged, it is very difficult to extricate oneself; and as those Persons are Gamesters of Profession, a Foreigner who is not so, may soon lose very large Sums of Money, for they most commonly play a high Game. This I know by Experience; for having been introduced into one of those Places, even by the Master of the House himself; they suffered me to be there two Days, when I designed to be always a Spectator; but after that Time my Introductor himself teazed me so much to play, for which I had always a mortal Aversion (having for that Reason never learned a Game perfectly) that tired at last with his Intreaties, and his telling me that Ladies did not like the Company of a Gentleman who would not play; I answered him, I did not know how to play, and did not like it; but to oblige him and the Ladies, if he would tell me how much he would have me lose, as I was sure I must, if I should play, I would give the Money, and save myself the Trouble; which being not accepted, I quitted the Company, and never returned into it afterwards.

If the Traveller wants to be introduced at Court, not only at that of *France*, but also at all the other Courts he designs to see, the best Introductor is the Minister of his own Court, to whom he must pay the first Visit. If he travels *incog.* he may go to Court with his Governor, and he'll find always, especially at the Court of *France*, Gentlemen ready to introduce them, and shew them all that is to be seen, without being at any Expence. He should frequent often that Court to learn their Manners, which are easy, agreeable, without any Arrogancy and Affectation, and which are followed by all other Courts of *Europe*. For those affected Airs, attributed to the *French* by their Enemies, who do not see their own, which are much more ridiculous and insupportable, are not the Airs of the *French* Court, nor of the most sensible Part of the Nation; but only of a certain Number of young Fellows, distinguished from the rest by the Name of *petit Maitres*, or Fops; who are as much laughed at in *France* as any where else; tho' most Foreigners are more apt to imitate those than any body else, and by mimicking them, when they return into their own Country, appear still much more ridiculous than their Originals; for those have so much used themselves almost from their very Infancy, to those affected Airs, that they are become natural to them, and therefore are not so disagreeable, nor so much taken Notice of; whereas their Copies, who have but lately borrowed

rowed them, practise them in so awkward a Manner, that they render themselves quite ridiculous. I remember that I have seen at *Turin* one of those ridiculous Copies in the Person of a Nobleman from *Bohemia*, otherwise a Person of a very great Merit, but who had given so much into those Airs of *Petit Maitres* at *Paris*, where he had been lately, that he almost eclipsed, thereby, all his excellent Qualities, at least before those who were not acquainted with them, he had a Wig with a Tail almost as big as my Arm, and reaching farther down than the middle of his Back, with five or six Hairs on each Side his Face, seldom walking otherwise than in the Steps of a Minuet, and seldom without muttering some Song or other. We went once together to the Palace, and the first Thing he did, in entring the Apartments, was to run singing to a Looking-Glass, to put the few Hairs of his Wig in order, though the Place was full of Ladies and Gentlemen, who could not help smiling at it.

I hope my young Gentleman *Traveller*, will forbear learning those bad Manners of our *petit Maitres* of *Paris*.

The Things capable to flatter his Curiosity, at *Paris*, and in the Neighbourhood, are all the Royal Palaces; and those of the Princes of the Blood, *viz.* at *Paris* the *Louvre*, the *Palace of the Tuilleries*, that of the Duke of *Orleans*, call'd the *Royal Palace*, the *Luxembourg*, the *Hotel de Conde*, and several other *Palaces*, and *Hotels* of Persons of the first Rank, the *Hotel of the Invalids*, the *Observatory*, the *Sorbonne*, the *College of the four Nations*, &c. —— and to feed his Understanding, all the different *Academies*, the public Libraries, *&c.*

In the Neighbourhood of *Paris*, St. *Cloud*, a Seat of the Duke of *Orleans*; *Versailles*, *Marly*, *Triannon*, *Meudon*, *Fontainbleau*, *la Meute*, *Choisy Madamoiselle*, &c. —— for a noble Recreation, he may go to the Opera, and to the Comedy; where, in Winter, he is sure to see a very good Company.

He should not leave *France*, 'till he has made some Progress in the *French* Language; since it is spoke in all the other Courts of *Europe*; and on all the Roads; whereas after he has left *Paris*, he could scarce be understood any where else, if he speaks only *English*.

If he takes the Road of *Italy* through *Savoy*, and has no Equipage of his own; the best is, to take the Diligence of *Lyons*; besides that, there is always in that Coach a very good Company.

At *Lyons*, the two best Places to lodge at, are the *Hotel du Parc*, which is the most in vogue, and most frequented by Persons of Condition, because, perhaps, the dearest; and *nôtre Dame de Pitié*, which I think the best, because I have lodged in both; the most curious Thing to be seen there, is the Square of *Belle-Court*, which is very spacious, with the Equestrian Statue of *Louis* XIV. in the Middle, and whence one sees the Junction of the two Rivers, the *Soan* and the *Rhone*. There are also some very antique Buildings; and the *Castle of Pierre Encise*, deserves the Attention of the curious.

A *Traveller* may stay at *Lyons* as long as he pleases, without any Danger, either of Shapers, or Spungers, or any other Persons of that Kind; and meet at the same Time, with the same Civility, Complaisance and good Manners, which he has found at *Paris*; he may also buy here, at a very reasonable Rate, gold and silver Tissue, for Waistcoats, silk Stockings, and all other Sorts of silken Manufactures; and have his Cloaths as neatly made as at *Paris*; and can, if he pleases, take Letters of Credit upon all Parts of *Italy*. —— Here are found Commodities for *Turin*, which are miserable Chaises, drawn by a Mule and a Horse; and which in my Opinion, are a very bad Carriage; though a *Traveller* is forced to take one of them, if he has none of his own, for there are no others. At your Arrival at *Lyons*, you are besieged by five or six Drivers of those dislocated Commodities, who call themselves *Voiturins*, who never cease importuning you till you have taken one of them; two or three of them thrusting into your Hand, each a Piece of Gold, which they call Earnest, for it is they that hire you, and not you them; there you take the Piece of the Person you like best, though for my Part, I like none of them; for they are a Pack of lazy impertinent Fellows; who would tire the Patience of an Angel upon the Road, and not mend their Pace, on any Consideration whatsoever; but go on the Pace of their Fellow Brutes, sometimes sleeping on their Saddle, and sometimes singing to their Mules.

You pass over a Bridge, call'd the Bridge of *la Guilotoirre*, which is a very long one to go to *Pont Beavoisin*, where you lay that Night; and the next Morning you enter the *Alps*, and dine at a very indifferent Inn, or Public House, as you may be pleased to call it, in the Mountains, call'd *les Echelles*; and proceed afterwards on your Journey, where you meet with that famous Passage made by *Charles Emanuel* II. Duke of *Savoy*, call'd *the Grottes*, which is very steep, and all paved, and where two Coaches may pass abreadth; on the Left coming from *les Echelles*, is an Inscription, which informs you that what the *Romans* had attempted, *Charles Emanuel* has accomplish'd.—— You lay that Night at *Chambery*, which is the Capital of *Savoy*, and a pretty City, inclosed with a high Wall, but of no Defence, there are several antient Churches, and public Buildings, which are to be seen, if our *Travellers* have any Time to spare; otherwise, they are not of such Consequence, as to engage them to retard their Journey on Purpose for to see them only: The Inhabitants of *Chambery*, are very courteous, complaisant, good natured and hospitable, without Dissimulation or Deceit. Our *Traveller* must not suffer himself to be directed by his *Voiturin*, with regard to the Inn he is to lodge at, for he will not carry him to the best, but to that he is best acquainted with, which is often the worst; neither must he beat the said *Voiturin*, though he be never so much provoked to it by his Impudence, nor even threaten him; for most of them have certain offensive Weapons in their Pockets, call'd *Stilets*, though forbidden by the King of *Sardinia* under Pain of the Gallies; wherewith they may be capable enough to revenge themselves; those *Stilets*, are Pieces of Steel fastened in the Handle of a Pocket-Knife, about ten or twelve Inches long, and the sixth of an Inch broad; so that the Wound they make is incurable; and they always stab in the Back; though this is not so common since *Victor Amadeus*, the late King of *Sardinia*, made the wholesome Law against it.

There is nothing worthy our *Traveller's* Notice, throughout all *Savoy*, from *Chambery*, till he comes to *Montmellian*, which is a very pretty Town, and very strong, by its Situation; here is drank the best Wine of all *Savoy*, and on all the Road, as well, as here, a *Traveller* may make very good Cheer at a very little Expence, for all Provisions are very cheap, except Bread, which is not the best; for they gather but little Corn in the Valleys. The Money is very rare in those Parts, and the Coin very bad, except the Gold, for there are Pieces of Copper, which are so small that you can scarce feel them between your Fingers; and others of Bell Metal, call'd *Parpailolles*, which are very little bigger; their *Douzous*, which are Twelve-penny Pieces of Silver, are of a very bad Alloy, for I do not believe that there is a third of Silver in it.

When you come at the Foot of the Mount *Cinis*, as the Chaise cannot ascend that steep and high Mountain, you find Chairmen, who carry you in Chairs up the Mountain, over it, and down to the Foot thereof, on the other Side. There is a Sort of *Inn* on the Mountain, call'd the Post-house, where you may rest and refresh yourself; and an Hospital, for the Reception of the Poor that *travel* that Way. —When you are at the Foot of the Mountain, your Chair that had been dismounted on the other Side, and carried on the Horses Back, is put again on its Shaft, to carry you to *Turin*, which is a very neat City, though small, very well fortified, and has one of the best Citadels in *Europe*, with very handsome Souterrains, which are not shewn but by special Favour; the City is adorned with two handsome Palaces, *viz.* that of the King, and the other, call'd of Madame Royale, which was that of the Princesses of *Carignan*, while I was there, two Maiden Ladies, so far advanced in Years, as to be almost out of hope of ever being engag'd in the holy matrimonial State; tho', as far as I could judge, they had no Aversion for it; but it is the unhappy Fate of Princesses, that they are not allowed to marry when they will, and whom they please; so that several of them die, *Virgins and Martyrs*; however, those Princesses deserved a better Fate; for they were very amiable, affable, and complaisant.

The King's Palace, is magnificently furnished; and a *Fo-*

a *Foreigner* may see it, but not like those of the King of *France*, *Gratis*; for the Person who shews it, expects a Gratification, and would even ask for it, if you should forget it: In this Palace, is a sumptuous Chapel, or rather Church, where they say, is deposited the Shrowd of our blessed Saviour; round which burn continually several very rich Lamps; in this Place, and all others of the same Kind, throughout all the *Catholick* Countries, he must behave with a great deal of Modesty, otherwise forbear going into them; for if he was to behave otherwise, he would excite the Indignation of Persons of all Ranks; who in those Countries, are much greater Bigots than in *France*; but as he is not necessitated to visit those Places, he must abstain from it, if he is conscious, that he cannot behave decently.

The Court of *Turin*, is one of the most polite in *Europe*, and imitates that of *France*, in its courteous, easy, and gentle Behaviour, Hospitality, Manners, and Modesty. The late Queen of *Sardinia*, Mother of this present King, was one of the most amiable, affable, and accomplished Princesses in the whole World; and gained the Respect of all who had the Honour to see her. I was told that the late King, when younger than he was then, was also very engaging; but for my Part I saw not the least remain of it; perhaps, because I was a little prejudiced against him; but, however, I was glad to see a Prince, who had always acted in so extraordinary a Manner; as to be suspected even by the Allies, with whom he had entered into a Confederacy to dethrone his own Daughter; a Politick which *Machiavel* himself was unacquainted with: I liked much better the Prince Royal his Son, and thought to find in his Face very great Signs of what he would be, a great Heroe. The *Piedmontese* Women are very agreeable, and not at all cruel. The Men, Nobility and Gentry excepted, are pretty much reserved, and not very ready to contract Friendship or Acquaintance with Foreigners. There are several very neat Coffee-Houses in the City, where there is a great Variety of very agreeable Liquors, and where a Foreigner is sure to find very good Company.

Near *Turin* is the magnificent Royal Palace, called *La Vanerie*, which was burnt by M. *de Catinat*, Marshal of *France*, but which has been rebuilt since. Our *Traveller* must not quit *Turin* before he has seen that Place.

The Service of the King of *Sardinia* is very fatiguing, even in Time of Peace, and the Pay both of the Officers and Soldiers very small.

There is at *Turin* several very handsome Monasteries of both Sexes, and a good University. There is also an Inquisition, as in all other Parts of *Italy*; and Spies of that Tribunal in all Companies, called Knights of the Inquisition; therefore a Foreigner should be very cautious how he speaks on religious Subjects; or rather should never touch that Cord. For I remember, while I was at *Legborn*, that having spoke a little freely in a Company of the Body of St. *Catherine*, which is shewn at *Bologna*, the *French* Consul who was there present, asked me the next Day, if I wanted to be put in the Inquisition? To which having answered in the Negative, he told me that I should not then speak so freely as I did the Night before, and was the first who informed me of those Knights of the Inquisition; for, added he, if you was once there, it would be very difficult for us to take you out. It is true that the good Consul had not the same persuasive Arguments the late Duke of *Vendosme* had; for I have heard my Father say, that while that General commanded in *Italy*, my Father being then along with him, and one of his *Aid de Camps*, an Officer of the Army, was put in the Inquisition for having given the same Liberty to his Tongue, he would have given in *France*, without any Consequence. The Duke, as soon as he was informed of it, sent to demand his Officer; but the Inquisitors answered, that it was not in their Power, after a Person was taken, to set him at Liberty before he had had his Trial; which Answer not appearing satisfactory to the Duke, he ordered that some Field Pieces should be carried before the Palace of the Inquisition, to beat it down to the Ground; but the Inquisitors no sooner heard the Cannon roar, but they sent their Prisoner to the Duke, with Abundance of Submissions and Excuses for their Imprudence.

I had forgot to inform our young *Traveller*, that at his Arrival at *Turin*, he will be stopped at the Gate, and asked, in a very civil Manner, whence he came, his Name, where he designs to go to lodge; which must be answered positively; and as he is a Person of Fashion, they will detain him no longer, but bring him to his Inn, in order to lodge there, which Trouble must be acknowledged with a Gratification in Money; though most commonly it is an Officer of the Place that brings that Order; for it was one that brought me my Order at my Arrival there; and as I knew it had been affronting an Officer in *France* to offer him Money on such an Account, I did not offer any; but he took Care himself to let me know the Custom of the Place, and asked for it; pleading, at the same Time, that their Pay was very small, which I knew perfectly well; so that our *Traveller* should be acquainted with this Particular, to prevent these Gentlemen, and not put them to the Trouble of asking, which really is not much becoming their Profession. The best Inn at *Turin* was then the Sign of the good Woman, or the Woman without a Head.

Our *Traveller* must not begin to learn *Italian* at *Turin*, because the *Piedmontese* do not speak it well.

This City is extremely well governed, and no Disorder committed in it, neither in the Day, nor in the Night Time; but there is a Sort of Ruffians here, as well as in all the other Cities or Towns of *Italy*, who loiter about the Gates of Inns, and get a Livelihood by procuring Ladies of Pleasure to *Travellers*, which I say to caution ours against them. It is forbidden there to carry lighted Flambeaux or Torches through the Streets at Night; in Lieu thereof, there are Lantherns of Paper, called *Cabassas*, carried by Children, who will light any Body for a Trifle. The Streets are extremely clean, and well paved, several of them with five Porches, or Piazzas on both Sides, to shelter from the Rain.

I must inform our *Traveller* before he quits *Turin*, that he must expect to find throughout all *Italy* a great Difference as to the exterior Worship, between the Religion of the *French* and that of the *Italians*, tho' it be in Fact but one and the same Religion; for the *Italians* observe a much greater Number of Ceremonies than the *French*, and among them a great many very ridiculous ones, which are not to be minded, since they do not affect the most essential Part of the Religion; for Example, he'll meet in the Streets idle Fellows, still much more lazy than the rest of their Countrymen, with a Box on their Breast, in which is a *Madona*, with two small wax Tapers lighted on each Side, and a Bell in their Hands, to give you Notice that you should kneel before the *Madona*, and contribute something towards the Maintenance of the *Luminary*, or rather to keep the Fellow in his Idleness. These are Superstitions which the Ignorance of the Rabble has introduced and supported, but which the most sensible Part of the Catholicks despise; but which it is very difficult to reform, particularly in those Parts. At Twenty-four o'Clock (for they tell the Hours throughout all *Italy* from one to Twenty-four) you'll see all on a sudden every body fall on their Knees, whether they be in the Streets, in the publick Places, or in Houses; either in Company, or by themselves, which would surprise a Person, who is not acquainted with it; the Reason of this is, that it is supposed, that at the same Hour the Virgin *Mary*, received the Message of the Angel, and a Bell is rung, then, in all the Catholick Countries, to inform the People that they should say their *Angelus*, which is a short Prayer, containing, in a concise Manner, the History of that great Event, which the *French* say standing, and the *Italians* kneeling; which different Manner of Saying makes no Alteration in the Prayer, which is very good of itself. He'll also find in the Churches several of those *Madona's* placed on a Table, with a Plate before them to receive the Offerings of the Ignorant, which is winked at by the Clergy, who, I suppose, have Part of the Booty. Though I must confess that it is a great Scandal to the Religion; and I have had often a Mind to kick both the Table and the Receiver of the Oblations; but the Inquisition interposed.

At his Departure from *Turin*, if your *Traveller* designs to go to *Milan*, he'll pass through *Chivas*, *Verceille* and *Novarre*.

Chivas belongs to the King of *Sardinia*, and is very ill fortified. Here he'll begin to eat, if he pleases, some Soup, with *Vermicelli*, and some *Parmesan* Cheese (at least

least they call it so) rasped upon it, which makes a kind of Glue a-top, which spins, when you take it with your Spoon, two or three Yards long, and which, according to my Palate, is a very bad Dish. The *Vermicelli*, or *Vermichelly*, are a kind of Mess, prepared of Flower, Cheese, Yolks of Eggs, Sugar, and Saffron; and reduced into little long Pieces, or Threads like Worms, by forcing it with a Piston through a Number of little Holes, in the End of a Pipe made for that Purpose. Though most of the *Vermicellies*, I believe, are only made with Flower and Water, and a little Saffron. They also put *Maccaroni* in their Pottage, which I believe are made of the same Composition, but are flatter and broader. From this Place to *Florence* our Traveller must always ask for *Vino vechio*, otherwise they will give him a sweetish Wine, which is very disagreeable. Here you begin to lie in Beds without Curtains, and two or three Beds in a Room like an Hospital; and see no Women in the Inns, but Men-Servants, called Chamberlains, who in *Italy* do all the Offices of a Servant-Maid in *France* and *England*; Jealousy being there a predominant Passion, therefore it is dangerous to be even common civil to the *Italian* Women; there is no saluting them, not so much as touching their Fingers in publick. A Person who will travel cheap may eat *Al pasto*, which they call in French *Table d'Hoste*, and may do it for a Paulo, a Meal, which is Twelve-pence of their Money; for if a Traveller will eat by himself he'll pay very dear for it, and perhaps be no better treated than those that eat *al Pasto*. If our Traveller loves *Truffles*, of which there is great Plenty in those Countries, he may call for them, and in my Opinion it is one of their best Dishes.

Verceille, was a well fortified Town before it was demolished by the *French*, when they were Masters of the *Milanese* under *Louis* XIV. but when I passed there it was nothing but a Heap of Rubbish.

Novarre, is a good handsome City; they shew you there in the Cathedral Church, the Body of St. *Gaudentius*, Bishop, which though he has been dead for several hundred Years past, is entire. Here they will visit your Portmantle at the Gate of the City, unless to save that Trouble, you give some Money to the Officers.

From *Novarre* you go to *Milan*, which is a very large populous, and trading City, and very strong on account of its Castle, which appears like another Town, and where the Governor of the *Milanese* resides. The General Count *Daun* enjoyed that eminent Post when I was at *Milan*, to whom I had the Honour of being introduced by his Nephew, Count *Cocorsova*, with whom I was intimately acquainted. Our Traveller must pay his Respects to the Governor, or the Commanding Officer, if the Governor is absent, before he can expect to have Leave to see the Castle.

There are several very good Inns at *Milan*, where a Traveller may expect to be elegantly treated if he will pay for it. There are still rather in Proportion a greater Number of Coaches at *Milan* than at *Paris*; for you see scarce any Thing else in the Streets; so that I thought at first every House there kept a Coach. You may hire one for twelve or fourteen Pauls a Day. In all the Towns and Cities of *Italy*, besides your own Servants, it is customary to hire one of the Place, to whom you give half a Crown a Day, without Victuals, to shew you what is to be seen. Besides the Castle, I see nothing in *Milan* deserving much Notice, except the *Dome*, which is a Name given to all the Cathedral Churches in *Italy*; and some other Churches and Convents, *&c.* which your Guide knows by heart, and will shew you.

The Sex is not so reserved, or so circumspect at *Milan*, nor in any of the other trading Cities or Towns of *Italy*, as they are every where else; and the Men not quite so jealous.

Here, and in all other Places of *Italy*, if our Traveller loves Musick, he may be agreeably entertained *gratis*, in the Churches; sometimes in one, and sometimes in another; for as there is a greater Number of *Italian* Saints than of any other Nation; and as they always solemnize the Feasts of those Saints in an elegant Manner, there scarce passes one Day in the Week without some of these Solemnities in one Church or other. A Scaffold is erected at the Bottom of the Church, or in some other commodious Place, which is filled with a great Number of Musicians, both Symphonists and Singers; who most commonly perform extremely well. All the Fault I find in those Ceremonies is, that they are very tedious; and the worst is, that before the Ceremony is half over, a very bad Orator mounts the Pulpit to pronounce the Panegyrick of the Saint, which is commonly very long.

The Opera in *Italy* is very magnificent, and well executed, in the Sentiment of those who have an *Italian* Ear, and an *Italian* Taste; but the Comedy is despicable; for it is scarce any Thing else but the ignorant Romances of four stupid Fellows, *viz.* Dr. *Balouardo*, *Pantalon di Bisignozi*, *Bigarelli*, *Tracagny*, and a couple of *Dulcinea's del Toboso*, who entertain the Company with what comes uppermost in their Imagination, without Rhime or Reason. The Decorations, some painted Cloth, which, I believe, serves sometimes for that Use, and sometimes to cover Waggons; and the Theatre lighted with four yellow Flambeaux: So that if our Traveller has some idle Hours, during which he does not know where to bestow himself, or if he finds himself inclinable to sleep, he may go to the Comedy, and I promise him a very good Nap.

From *Milan*, our young Traveller may go to *Placentia*, from *Placentia* to *Parma*, and between those two Places there is nothing to be seen worthy his Curiosity, but *Colorno*, a Country Palace of the Dukes of *Parma*; which is a beautiful one, and where the late Duke, who was a very affable Prince, received very courteously all Foreigners of any Fashion; and lived in an elegant Manner; not like his Neighbour the late Duke of *Modena*, who would see no body, and whom no body cared to see. All those Cities, viz. *Placentia*, *Parma*, and *Modena*, being very antient, have yet some antique Remains worthy the Notice of our Traveller.

From *Modena* he'll go to *Bologna*, which is a very large and handsome City, full of magnificent Palaces; most of them built in a grand Taste; and where he'll find very good Lessons of Architecture, provided he has already some Notions of that Art; which he can improve there to a great Degree. There is Abundance of Nobility in this City; and I really believe that they are all Marquises, for I never heard any other Title mentioned all the Time I was there, which was pretty considerable, *viz.* Marquis *John Beccari*, Marquis *Peter Beccari*, Marquis *Paul Beccari*, Marquis *Davia*, Marquis *Paleoti*, &c. This Nobility assemble, both Gentlemen and Ladies, every Night in Winter, in a House hired by some of them for that Purpose, either for Gaming or for Conversation; for no body is obliged to play if he don't like it; but a Foreigner is not admitted into those Assemblies, unless he be introduced by some Person of Rank in the Place, who certifies that he knows him for a Nobleman, and afterwards he has free Ingress and Regress, without any more Introduction, into the Assembly whenever he pleases. But a Foreigner must take great Care to behave with a great deal of Circumspection towards the Ladies who frequent those Assemblies, was he even to be ever so well acquainted with them, while their Husbands are present; for a single Glance, or even a Smile, is criminal; the Ladies themselves, at that Time, appear as so many Vestals; but if the Husband happens to quit the Assembly without his Lady, which he seldom does, but on some urging Occasion, then the Scene changes, and the Lady appears as free as she was before reserved and circumspect. I must inform my *Traveller* likewise, that though the *Italians* be jealous of all Foreigners in general, they are still more so of an *Englishman*, or *Frenchman*; therefore if he desires to preserve the Friendship of the Husband, he must take no Notice of the Wife. They even hate you should ask to see them, or enquire after their Health. The Carnaval is excepted of this general Rule; for in those Days of Mirth and Diversion, their Wives may go in Disguise with any body; as if Cuckoldom was frighted at a Mask? But, however, I would advise our *Traveller* to have no Commerce with the *Italian* Ladies, no more in the Carnaval than at other Times; first to avoid the bad Consequences such a Commerce could be attended with; and because those Ladies being most of them interested, their Acquaintance is very expensive. In the Assemblies above-mentioned you meet with none but married

married Ladies, for the maiden ones are not suffered to appear there, most of them (not here only, but throughout all *Italy*) being kept in Monasteries as Nuns, till they are ready to be married, their Lovers being forced to court them at the Grate, and seldom suffered to speak to them without a third Person being present, who is most commonly a Nun, and which I suppose must be a very old one, otherwise the Courtship would chance to inspire her with Thoughts, capable perhaps to make her repent of her Choice.

Our *Traveller* may lodge at *Bologna*, either at the *Image of St. Mark*, or at the *Pilgrim*, which are the two best Inns in the City, and almost over-against one another in the same Street; and where he'll find a Coach to be hired by the Day, or by the Month; which are huge, heavy, ill-shaped, and very incommodious Commodity; as for the Table, it is very good in those two Places; but the Wine is bad, Firing very dear, and the Apartments intolerable; which last Inconveniency is an epidemical Distemper in almost all *Italy*.

There is a Legate of the Pope's in this City, whom our young *Traveller* would do well to visit, and by whom he'll be very well received; though his Eminence (for it is always a Cardinal who fills that eminent Post) and the Nobility are most commonly at Variance; because the *Bolognese* have still a Shadow of Liberty under the Name of Republick, of which they are very jealous, and afraid that the Pope's Authority will make it disappear at last; therefore they hate all those who exercise that Authority in their Territories. But the Politick of the Legates is to foment a Jealousy between the Nobility and the Commons, and to espouse the Interests of the latter against the former; otherwise, if they were both united, they could be capable perhaps, with the Assistance of some neighbouring Prince, to shake off some Time or other the *Romish* Yoke. I found by Experience while I was there, that those who frequent the Court of the Legate are not extremely welcome among the Nobility; but as I was extremely well received by his Eminence, who would have me every Day at his Palace, and found on the other Side, that the Nobility, few excepted, had not the same Complaisance, I preferred the Legate to them; cultivating at the same Time a Friendship I had contracted with the Count *de Salles*, natural Brother of the late King of *Sardinia*, and Knight of the *Annunciade*, a Nobleman of an extraordinary Merit, very affable, and very complaisant, without Affectation or Deceit, and who espoused no Party, and lived very much retired.

Besides the Assemblies heretofore mentioned, there is an Opera, and a miserable Comedy; and from Time to Time Races with *Barbary* Horses, the Beauty whereof consists in the great Number of Coaches full of Gentlemen and Ladies extremely well dressed, which go three or four Times processioning round the Place, where the *Barbs* are to run; and our *Traveller* may make one among them if he pleases, either in his own Coach, or in that of some Acquaintance. As for the Race, in itself it very little deserves Attention; for they only set loose two or three Horses, without a Rider, which strive of themselves to outrun each other, from the Place of their Departure to that where they are to stop; and the first arrived carries off the Prize.

On any of the solemn Feasts of the Year, viz. *Christmas*, *Easter*, &c. our *Traveller* may see, if he goes to the Dome at the Time of high Mass, the Senators of *Bologna* come thither in Ceremony, all dressed still in the antique *Roman* Fashion; which is one of the most agreeable Sights I have seen there; for it recalled to my Memory that great Hero, and unfortunate Man, *Anthony*, whose Patrimony *Bologna* was. In another Church on those same Days, he may see the Legate in all his Pomp, attended with all his Officers and Guards.

There are several very beautiful Churches to be seen at *Bologna*, and magnificent Palaces, particularly that of *Caprara*, which has a Gallery full of the Presents made by the Emperors to the famous General of that Name, consisting most of them in gold-hilted Swords set with Diamonds, and other precious Stones; and with Turbans, Cimetars, and other Spoils which he got from the *Turks* in *Hungary*. None of these Palaces are inaccessible; for they are free enough to shew them, and even leave you by yourselves, to examine all the Rarities thereof at Leisure; any Thing that can flatter your Curiosity you are welcome to see, their Wives excepted; though among these Persons of the First Rank, they are not overscrupulous, and there is a more free Access to the Ladies than among others.

All the *Italian* Ladies of any Rank are dressed in the *French* Mode, without the least Change or Alteration; and have, on high Festivals, a great Quantity of Jewels about them, even Nosegays of Jewels at their Bosom; and these never wear Veils as the common Sort do, whose Dress is very unbecoming, for those Veils hide both their Face and Shape.

They shew at *Bologna*, in the Church of the Nuns of *St. Clair*, as a Miracle, the Body of St. *Catherine* of *Bologna*, which they say is yet entire. But it is so much loaded with Gold and Jewels, and the Place where it is kept is so dark, and it is seen at so great a Distance, that it is not very easy to discover what it is. Every body is allowed to think what he pleases of those Things; for my Part I think nothing of it, and it would be much better to keep them where they should be kept, than to expose them to publick View.

From *Bologna* our *Traveller* may go to *Florence*, which is a very fair and large City, but not paved with Marble, as Bishop *Burnet* has dreamed it, as well as several other Things of the same Kind.

Under the Princes of the House of *Medicis*, the Court of *Florence*, was one of the most magnificent of all *Italy*; and while I was there I thought [illegible] *Versailles* had been transplanted into the Middle of *Italy*, [illegible] bility, Complaisance, noble, good and easy Man[illegible], and a becoming Familiarity; for Jealousy which reigns with so much Empire in most of the neighbouring Parts, seem'd to be quite banish'd from *Florence*, and especially from the Court; where a Foreigner was kindly received and entertained; it is true, that the considerable Alliances contracted from Time to Time between this Court and that of *France*, may have much contributed towards introducing *French* Manners into it; besides that, the House of *Medicis* was indebted for the greatest Part of its Grandeur to the Crown of *France*. But as the present Grand Duke, who is of another House, though much more illustrious, and no less magnificent than that of *Medicis*, does not reside in *Tuscany*, our *Traveller* cannot expect to find a great Court there; but yet there is something in the sumptuous Palace of the Grand Duke's, capable to entertain him for several Days successively, I mean the rich and magnificent Furniture; the beautiful Gallery, where most of the best Pencils of different Ages have exhausted their Strength; for there has been scarce any great Painter in the World who has not one of his Master-pieces in that Gallery, or in the Apartments of the Palace. There is likewise that sumptuous Chapel of Mosaick Work, which, when finished, will be one of the Wonders of the World. The Library of the same Palace is as rich, in a great Number of scarce and valuable Books, as the Gallery is in Paintings.

From *Florence* he may proceed to *Rome*, which is the Capital of all *Italy*, and of the whole World; and where he'll see some Ruins, of what Authors are pleased to tell us of its antient Grandeur; for with regard to it, it is very difficult to find *Rome* in *Rome* itself; tho' there is still enough of it left, to gratify the Curiosity of those who delight in having the Memory of beautiful Things revived by Demonstrations, let them be never so much obliterated.

There are Abundance of Nobility at *Rome* of the First Rank. And whereas *England* has no Minister there to introduce our *Traveller* at Court; he should have took Care on his Journey thither, to procure some Recommendation either to the foreign Ministers at the Court of *Rome*, or to some Person of Rank: Though he could introduce himself without it, but then he would not have the same Agreements. The *Roman* Nobility are pretty haughty, and do not familiarize themselves easily with Foreigners; their Quality of Princes, of whom there is as great a Number at *Rome*, as there is of Marquises in the other Parts of *Italy*, swells them with a certain ridiculous Pride, which is relished neither by the *English* nor by the *French*; and what is the most diverting, for Persons who are not concerned in it, is that they are almost

almost always at Variance among themselves on the Precedency; and that all their Visits, even the most indifferent, are always Visits of Ceremony: Though it must be confessed at the same Time that there are several very noble and antient Houses at *Rome*, but they have much degenerated from their antient Lustre; for they insist on what their Ancestors have been, but not a Word of what they should be themselves. They most of them live in an elegant Manner; and if our *Traveller* designs to introduce himself among them he must make a great Appearance, especially in his Cloaths and Equipage; otherwise he is looked upon by them with Contempt. He should likewise inform himself under-hand of what Party is the Company he wants to frequent, and if they are or not the Partizans of the Chevalier *de St. George*; for if they are, they will infallibly bring him soon into the Conversation, to feel the Pulse of their new Guest; and if they find that his Sentiments are different from theirs, they'll find Means to be rid of him, perhaps in a very disobliging Manner; of which I saw an Instance, not at *Rome*, for the Chevalier was not there then, but at *Leghorn*, in the House of the Marquis *de Sylva*, the *Spanish* Consul; where there was an Assembly every Night, into which an *English* Gentleman having been introduced by some body; and there being in the Apartment where the Assembly was kept, the Chevalier's Picture, with that of his Lady, and of his eldest Son, presented to the Grandmother of the Marquis by the Chevalier himself; and several of the Company who knew that Family, admiring those Pictures as extremely well done, and the *English* Gentleman looking at them himself, without saying any Thing; the old Lady, who was much in the Interests of the Chevalier, asked him, if he found any Fault in them, that he said nothing; to which he answered, that he could not be a Judge of them, since he had never seen the Originals; why, replied the Lady? Because, said he, *I hate the Pretender, and all that belongs to him.* Which answer disconcerted, and at the same Time irritated so much the old Marquess, and almost all those who heard it, that the poor Gentleman was elbowed from one Place to another all the rest of the Evening; and a Message sent to him the next Morning never to appear there again, for fear of worse Usage; tho' I am of Opinion that the Presence of Mr. *Skinner*, the *English* Consul, who was in the Assembly contributed much to that sharp Answer; notwithstanding which he could have moderated it, by contenting himself with the first Part thereof, *viz.* that he had never seen the Originals, because he had never been in Places where he could; reserving to himself his Sentiments, which though they had been much approved in *England*, were not of the Taste of the Company he was in; tho' even at *Leghorn* his Answer had been very well received among a great Number of other Persons of a quite contrary Party. Tho' I don't know if I should have been more prudent than the *English* Gentleman, in question, for I find that it is absolutely impossible for me to disguise my Love for my Prince; though it is sometimes necessary to do it, especially in indifferent Occasions, where neither his Person nor his Glory are attacked: Therefore a *Traveller* should avoid all Companies where he knows he runs the Risk of being put to the Test.

The best Opportunity to see the Pope, is when he gives publick Audience to Embassadors, for then one sees all the Ceremonies used on such Occasions; all the Magnificence of the Court of *Rome* appearing then in its greatest Lustre. Which I have never seen, because while I was there, there was then sitting in St. *Peter*'s Chair that most excellent and pious Pope, *Benedict* XIII. who was an utter Enemy of Pomp and Splendor, as not much becoming St. *Peter*'s Successors: Though I have seen him give Audience to very eminent Persons; but it was done with little or no Ceremony; and he would never suffer them to kiss his Feet. At the Gate of the City where the Chevalier *de St. George* resides, whether at *Rome*, *Albano*, *Bologna*, &c. a *Traveller* is stopped, and obliged to give his Name, and that of his Nation; which is written down, and immediately carried to the Chevalier's Palace, and if the Person be suspected, he is ordered to depart immediately; a Privilege he has throughout all the Pope's Dominions.

Here our *Traveller* may furnish himself, with Antiques of all Kinds, *viz.* Statues, Busto's, Bas-relievo's, Medals, and engraven Stones; but he must have a very great Knowledge of them, or be assisted by those who have it, otherwise he will be terribly cheated; for they know so well at present how to counterfeit all those Things, that unless a *Traveller* be a good Antiquary he'll be deceived in them; and buy Pieces very dear, which are worth nothing at all. He is most commonly besieged by the *Jews*, who will never take the first, second, third, *&c.* Refusal, but return again and again to the Charge, if not always with the same Merchandizes, at least with others; feeding the Servants of the House where he lodges, to have a free Access to his Apartment, as well to *import* as to *export*, if they find something under their Hand, which is of an easy *Exportation.* One may also buy here beautiful Paintings, though they are not so common at present, as they were when the Arts were better encouraged; and likewise fine *Drawings* and *Prints*, though I prefer the Prints of *Paris* to those of *Rome*, and so will all others who have any Taste for those Sorts of Works.

As the King of *France* names for Embassadors to the Court of *Rome* but Persons of the First Rank, who all live in a splendid Manner, a Foreigner of Note, of any Nation whatever, is sure to be very well received at his Palace, and of his Assistance if he wants it; therefore I would advise our *Traveller* to make his first Visit to him, since he can do it without much Ceremony or Introduction; and contract easily an Intimacy with him to see without a Difficulty the best Company. When the late Cardinal *de Polignac* was Embassador at *Rome*, I know perfectly well, that he was the Refuge of all Foreigners of any Note; having almost always some of them in his Coach, or at his Table.

There are a great many Sharpers of all Nations at *Rome*, who are always full of Protestations of Friendship, and of Offers of Service; whose Company must be avoided; though most of them are only Spungers, who do not know very well how to live otherwise. Others are Gamesters by Profession, who are the most dangerous, for if they can once get one unacquainted with their black Dealings, into their Clutches, they will not leave him till they have eased him of all his Money. This Sort of Gentry is most commonly found either in the publick Inns where they make a great Figure, or loitering about the Places which they know *Travellers* have the Curiosity to see. They accost one, by how do you like this Place, my Lord, if they suppose him an *Englishman?* Thinking that that Quality of My Lord, especially if he is not one, will ingratiate them to him: Then they go on with reasoning on the Beauty, or Imperfection of the Architecture, if it be a Piece of Building, or on the History of the Foundation, if it be a Ruin, *&c.* Next they offer to accompany you to other Places; from thence to your Inn or Lodging, where you think yourself obliged in Gratitude to invite them to Supper; and thus introduced you are sure of their Visits every Day, if they be Spungers only, and among them there are really Persons of Merit, whom Necessity, not their Choice, has reduced to that despicable Way of living, and whose Company cannot be disagreeable to a Person who does not mind a Meal. The most troublesome of this first Kind, are those who not contented with your Table, attack your Purse likewise, and borrow Money, which they know they'll never be in a Capacity to return.

Gamesters will trepan you insensibly among their Fraternity, where under Pretence of treating you with Liquors, Sweetmeats, and the like, or perhaps with an elegant Supper, for which you'll pay dear in the End, they engage you at Cards, or other Game, which was their first End, and send you home much lighter than you was when you came.

The *Italians* are pleased to call this City *Roma la Santa*, which must be understood only of the vast Number of Martyrs which sanctified it with their Blood, during the several Persecutions of the *Pagan* Emperors; and of the great Number of Churches it contains at present; but not of the Manners of the Inhabitants, which are much depraved and corrupted, since there is no City in Christendom, where Debauchery and Vices of all Kinds, even the most attrocious, and those which

were

were punished once with Fire from Heaven, reign with more Impunity; though there are many very good Laws made for their Suppression, but they are seldom put in Force.

From *Rome* our *Traveller* may go to *Naples*, which is the wholsomest Climate of all *Italy*; and one of the most fertile Soils. The *Neapolitan* Nobility are magnificent, but retain yet something of the *Spanish* Gravity. They are very hospitable, and receive Foreigners with much Affability and Politeness; but they are as inconstant in their Friendship as in their political Maxims, and are as great Admirers of new Faces as of new Governors. As for the common People there is no trusting to them; tho' perhaps at present that they have a King of their own, and one of the greatest Princes in *Europe*, Things are much altered; however our *Traveller* will have the Pleasure of seeing a splendid Court at *Naples*, which had not been seen there ever since that Kingdom had been made a Branch of the *Spanish* Monarchy, under *Alphonsus* the First, King of *Arragon*, who was the first who took the Title of King of *Naples*. *Charles* VIII. King of *France*, conquered that Kingdom in Person, and defeated at his Return, near *Fornoüe*, with 8000 Men, an Army of 50,000 of his Enemies assembled to oppose his Passage. *Naples* being a very trading City, there is a great Number of Merchants of all Nations settled there, particularly *English*, who have in it very large Warehouses, and a Consul, as well as the *French*, *Spaniards*, *Dutch*, &c. But the Consulship of *England* is worth almost all the others put together; therefore a War with the King of the *Two Sicilies* would be very prejudicial to the Commerce of the *English* Nation. If our *Traveller* be in a precarious State of Health, or of a weak Constitution, there is not a Place in the whole World more proper for his Recovery; but he should retire further into the Country, and not stay at *Naples*, where it would be impossible for him to enjoy that Tranquility necessary in those Occasions.

I would not advise him to pass into *Sicily*, since it can be of no Service either for his Instruction or Pleasure; unless he wants to see the most fertile Soil in the whole Earth, and the most deceitful and perfidious Nation.

But if our *Traveller* will not follow the Road we have marked from *Milan* to *Florence*, he may go from thence to *Genoa*, called by the Italians *Genua la Superba*, by reason of its magnificent Buildings. Here he'll find likewise a great Number of *English* Merchants, and Abundance of very tame Ladies of all Ranks, which it is very dangerous to frequent. The Buildings, and the Beauty of the Port excepted, there is nothing here capable to detain him long; but before his Departure, he may furnish himself with some Pieces of fine Velvet, at a much more reasonable Price than in any other Part of *Italy*.

From *Genoa* he may go to *Venice*, where he'll find some of the best Nobility of all *Italy*; and both Gentlemen and Ladies very affable and complaisant. He'll see likewise at *Venice* a great Number of *Greeks*, *Turks*, and other eastern Nations, in their different Dress. There is a great deal of Diversion at *Venice*, both on Land, and Water in magnificent Gondola's; which are to be hired as Pleasure-Boats here on the River; though it is dangerous to go too far from the Shore, for fear of being taken by the Pirates of *Barbary*.

All sort of honest Liberty is allowed at *Venice*, and one may say what he pleases, provided he does not speak against the State. Though the noble *Venetians* have most of them very considerable Estates, and some of them very rich; they all live, notwithstanding, with a great deal of Œconomy, and are not much addicted to Liberality. The *Venetian* Ladies, are reckoned the handsomest of all *Italy*; and in my Opinion they are really so; but Love Intrigues with them are very dangerous; for *Venice* is never without secret Assassins capable of any bad Action for a Reward; so that though the Sex at *Venice* be very fond of Foreigners, Foreigners should not be very fond of them; we may admire them, and see them in publick Company; but never *a Tête a Tête* with them.

One of the Thing I have admired most at *Venice* is the Arsenal for the Galleys of the Republick, which is a very magnificent one; for by this Time our *Traveller* has seen so many magnificent Buildings, that he can take but little or no Notice of them, since it is seeing the same Thing over and over again; but we cannot say the same Thing of Painting; since those he'll see here are of a Taste quite different from those he has seen already at *Bologna*, *Florence*, and *Rome*; for he'll see at *Venice* the most celebrated Pieces of the *Georgion*, *Titian*, *Tintoretto*, *&c.* both in the Churches, and the publick and private Palaces.

From *Venice* our young *Traveller* may go into *Poland*, where there is nothing to be seen but large and desart Cities; and where a *Traveller* meets with little or no Accommodation on the Road, not even the most necessary; for the Inns every where in that vast Kingdom are miserable Places, not fit to lodge a Servant, much less a Master; and when you are arrived at one of them, perhaps much fatigued, and very hungry, you'll find nothing to eat; so that if it is at Dinner-time, you are obliged to go forward, on the same Uncertainty of meeting with any Thing, which is twenty to one you will not; so that you run the Risk, after having travelled all Day, to be obliged to go starving to Bed at last; unless you follow the Example of the *Polish* Nobility, and carry along with you not only Provisions, but likewise a Cook, and all the Utensils of a Kitchen. It is true that the *Polish* Nobility are very hospitable, and receive Foreigners extremely well; and are never better pleased than when you visit them at their Country-Seats, where they entertain you in a splendid Manner; but who would be subject to that Way of *vicarying*, as they call it in *France*, from one House to another; I am sure that will never suit an *English* Stomach. Therefore he may leave *Poland* where it is, and pass into *Germany*, where he'll find Food, Company, good Cheer, and good Accommodation of all Kinds; and as a good Ally he should visit first the Court of *Vienna*, where he'll find the greatest Princess, and one of the best Princes of the Age.

The Court of *Vienna* has been for several Centuries the Court of the Emperor of *Germany*; and as such the most magnificent of all those Parts; where all Foreigners without Distinction, were kindly received; for, national Prejudices a-part, we must all confess, that almost all the Princes of the House of *Austria* were naturally extremely good, and extremely pious, even beyond what could reasonably be expected from them; and when they have appeared otherwise, it was their Council who acted then, not they; for some of them have been very much imposed upon by their Ministers.

I do not at all question that our young *Traveller* will be still more kindly received than usual, considering the great Services the *English* Nation has done her ever since the Beginning of this War, in supplying her with Money, without which it had been impossible to resist so long to the formidable Powers confederated against her.

But however, notwithstanding all those Obligations, he must use a great deal of Circumspection at the Court of *Vienna*; for all the Persons of the First Rank there, at the Example of their Prince, are much addicted to Piety and Devotion; the least Freedom, either in Speech or Actions, which might have the least Tendency towards Immorality or Irreligion, could not be approved, no more than those against the Catholick Religion, which would be there a capital Crime; for though the House of *Austria* has much Consideration for the Persons of the Protestants, when they are worthy of it, there have never been Princes in Christendom ever since *Luther* made his first Appearance, more averse to their Religion; which has never been so much as tolerated in their hereditary Dominions.

Musick is very much admired, and encouraged at *Vienna*; and there have been always there as good Musicians, as in any Part of *Italy*: Therefore if our *Traveller* loves Musick, he'll be very well entertained. The Palace is full of Paintings of the best Masters of all the Schools; and the Cabinet, commonly called the Emperor's Cabinet, adorned and enriched with Curiosities of all Kinds.

The Place is very well fortified, and could never be taken by the *Turks*, though they have several Times attempted it.

From *Vienna* he may go to the Emperor's Court, and be very well received; for though the *English* Nation

tion in general has not shewed much Affection for his Imperial Majesty ever since his Accession to the Imperial Throne, he has too much Generosity, to shew his Resentment to any particular Person of that Nation.

From *Bavaria* he may proceed to the Court of the Elector *Palatine* of the *Rhine*, to that of *Saxony*; and from thence to that of the King of *Prussia*; though he may chance of having not the Honour to see his *Prussian* Majesty, who is oftener found at the Head of his Armies than in his Palaces among Courtiers and Favourites.

If our young *Traveller* designs to follow the Profession of Arms; he may tarry in *Germany*, and learn to defend a Place of the famous General *Damnitz*, and take the Field under what General he pleases, but always under the Queen of *Hungary*'s Standards; since he'll not be permitted to do it under any other.

As I suppose he cannot be there, but in the Quality of a Volunteer, he should notwithstanding search all Occasions of signalizing himself as much as possible, under the Eyes of the General, desiring to be of all the Expeditions where there is the most Danger, and following then the Impulses of a Courage, directed by a noble Prudence, and not the Sallies of an impetuous Temerity; for true Bravery does not consist in going without Reflection to knock one's Head against a Wall, or exposing oneself at the Mouth of a Cannon, or running head-long on the Sword or Bayonet of the Enemy; for if an Army was composed of none but such, it would be always beaten; but true Bravery consists in following punctually the Orders of the Commanding Officers, in advancing when he judges proper towards the Enemy, with that becoming Intrepidity, which neither Showers of Bullets, nor the Number of Men falling continually before us, and even at our Sides, can in the least disconcert; never faster than it is commanded; for the too great Impetuosity of young Men led rather by a Desire of Glory than by a noble Discretion, have often put a whole Army into Confusion; and sometimes been the Cause of the Loss of a Battle. For they imagine that they have gained a compleat Victory, by driving two or three Batalions, or two or three Squadrons before them; while perhaps on another Side the greatest Part of their Army is routed, or cut to Pieces. He should mind likewise how a good Retreat is managed; for a good Retreat is sometimes worth a Victory, especially when a General finding himself in Sight of an Army, much superior to him in Strength, more advantageously posted, and ready to engage him; avoid the Engagement by making a glorious Retreat, without Confusion or Disorder, without losing but few Men, though he has the Enemy close at his Heels. He should also examine how Defiles are guarded or forced; how Lodgments and Posts are carried off. As for conducting a Siege he could have no better Masters than the *French*, if he was allowed to follow them in those Expeditions; for they seldom or never lay Siege to a Town without carrying it.

Voluntiers, to be the more taken Notice of, go most commonly upon Parties; for as those Parties are composed but of few Troops, every Person of Note who distinguishes himself in a particular Manner is better seen.

The Campaign over, our *Traveller* may pass his Winter Quarters at the Court of any of the ecclesiastick Electors, since they are all three either Neuters, because at present some of them do not dare to be otherwise, or his Allies; but if some of them do not observe the Gospel better than they have done their Neutrality, as I really believe they don't, they are in a poor Way.

The Court of the Elector of *Cologn* was under that excellent Prince *Joseph Clement* of *Bavaria*, Uncle of the present Elector, the most splendid of all the three, and where Foreigners were most chearfully received; for the Prince himself was all Complaisance, all Mirth and Gaiety; but I know nothing else of the present, but that some imagine he loves Money.

Before the Accession of the august House of *Hanover* to the Throne of *Great Britain*, I had willingly made three Tabernacles there; for the Princes of that House have always been very kind to Foreigners, and to the *French* in particular; but it cannot be expected that there should be the same Court there at present as there was then; though all the Nobility of that Electorate, and even all the other Subjects, have always followed the Example of their Princes, with regard to Hospitality, which is as well practised there as in any other Part of *Europe*.

Our *Traveller* must not learn to drink in *Germany*; for the *Germans* in general are reckoned *Bacchus*'s Favourites.

From *Germany* our *Traveller* may pass into *Holland*, which is the chief Magazine, of all the Lampoons, Satyrs, defamatory Libels, Falshoods, Impostures, false and ignorant News, which are sold there wholesale with Impunity, by their Novelists, to be retailed afterwards throughout all *Europe*; and for which their whole Country itself has sometimes severely smarted; though most of the Authors of those scandalous Writings are *French* Monks, or Fryars, who have changed their Frock for a Petticoat; for the first Inventor of the Supplement to the *Gazette* of *Amsterdam*, was a *French Benedictine* Monk, who married *du Brüeil*'s Daughter, and which he invented on purpose to fill it with such infamous Satyrs against the late King of *France* and his Ministers, that even his greatest Enemies were ashamed to read them, and that one would have thought that they were vomited from Hell itself; wherefore it was called originally the *Lardon*, because the Author pretended that he larded severely the King of *France*; but M. *Colbert* found the Secret to coop the Larder, for he had him carried off from *Amsterdam*, even in Time of War; and conducted to Mount St. *Michael*, on the Coast of *Normandy*, to an Abbey of his Monks, where he was shut up in a wooden Cage prepared for that Purpose, and where he died; whence my Pupil *Traveller* will learn, that it is always very dangerous to attack crowned Heads, especially in so outrageous a Manner, and with so much Obstinacy as that insolent Fellow did; and I hope he'll take Care to avoid in *Holland* the Company of those infamous Satyrists, which is neither honourable nor advantageous; and who, though we despise them ever so much, are capable notwithstanding to give us some bad Impression, especially if we be infatuated with some national Prejudices.

There is nothing to be learned in *Holland* but Commerce and Industry; and nothing to be seen but neat Cities and neat Houses. Though the *Dutch* are possessed of an inestimable Treasure, but which can be valued by Foreigners without their going into *Holland*, and that Treasure is their Government; and the great Dexterity and Craft wherewith they manage their Interests at the respective Courts of *Europe*, sometimes negociating, sometimes soliciting or intreating, sometimes threatning, and sometimes cringing, according as it suits best their Turn; humble Suitors to *France* when they wanted its Assistance, either to shake off entirely the *Spanish* Yoke, or to oppose an Invasion; and deserting that Crown on the advantageous Terms offered by their Oppressor, to engage them to turn their Arms against their Deliverer: And at another Time, keeping all *Europe* in Suspence, and pretending Friendship to all, till they have found a favourable Opportunity to play their own Game with Safety. That's the true Maxims in Politicks of their High Mightinesses, which our *Traveller* should not be unacquainted with, but which he'll never learn; for Things are represented there in a quite different Light from what they are in Reality. Another good Maxim of theirs is, that Religion does not exclude from Preferments, except only from the most eminent of the Republick; so that a Catholick, for Example, is excluded from being made one of the States General; not in Hatred of the Religion, but because they are afraid that if the *Roman* Catholicks were at the Helm, they would perhaps bring once more the *Spanish* Monarchy on their Back; but a *Roman* Catholick who has proved himself a gallant Man, is preferred in the Armies of the States General equally as a Protestant.

If instead of coming into *Holland*, our *Traveller* wants to visit the northern Courts, he may go, if he pleases, from *Brandenburg* into *Pomerania*, and from *Pomerania* to *Sweden*; where he'll find that there is very little Difference between the Manners of the *Swedish* Nobility and that of the *French*; the *Swedes*, for the Generality, being very civil and hospitable. The Court of *Sweden* was never very splendid and magnificent; which is owing perhaps to the martial Inclination of their Princes, who,

who, for several Ages successively, were oftener seen in the Fields than in their Palaces, and at the Head of their Armies than in a Drawing-room; always employed either in extending the Limits of their Dominions, or repulsing their ambitious Neighbours.

From *Sweden* he may pass into *Muscovy*, and visit the Court of that vast Country, which has been much civilized ever since *Peter* I. but he must be very cautious how he behaves there, for it is a very slippery Place; witness the Fate of the poor *Chetardie*, who had been received in Triumph, and was turned out as a Vagrant. Poor unhappy *Phaeton*, who had Courage enough to *mount the Chariot of the Sun*, but wanted Prudence to guide it: For I never believe that there was the least Pretence, on his Side, of shedding Blood; and am persuaded, that all that has been said on that Subject were mere Calumnies, invented by his Enemies. But, however, let it be how it will, our *Traveller* may inform us, at his Return, of the real Truth of that Affair; though, without being a Prophet, I guessed at it the first Time it was made public, and blamed much the Indiscretion of my Countryman: What, a great Politician and not Master of his own Secrets! fye upon it.—He'll find a great Difference at the Court of *Russia*, between the Nobility who have never gone out of their own Country, and those who have *Travelled*; for the former are sullen, unsociable, without Politeness or Manners, infatuated with a stupid Pride or Haughtiness, ignorant, indolent, and enamoured with their antient Customs, which borders much on Brutality; whereas the latter are as polite, complaisant, generous, sincere, and accomplished as any in *Europe*. With these he may endeavour to be acquainted, which is not very difficult; but he must neglect those as utter Enemies of a civil Society. The Fair Sex, in those Parts, are not very cruel, and even meet a Foreigner half Way, of whom they are very fond, and well they may, when they compare them to some of their Bears; and though there is not the least Danger in those Love Intrigues, the *Muscovites* being not much addicted to Jealousy, I would advise, notwithstanding, our young *Traveller*, to avoid them as much as possible, for fear he should enervate himself in those Engagements, and impair his Health. For if young Noblemen, who go to travel into foreign Parts, were careful to follow the salutary Advices relating to Love Intrigues, and other Excesses, which I have given them throughout this Treatise, we should not see so many bring nothing home, for the whole Fruit of their Travels, but a broken Constitution; which is the Cause that their Posterity appear rather like walking Skeletons than Men; whereas, if they would lead a sober Life, during the whole Time of their Travels, and avoid carefully all Occasions of Debauchery, as well as the Company of Debauchees, they would bring, at their Return into their native Country, Health and Strength; which in Time would produce a new Generation of strong and healthy Men; which is one of the most beautiful Ornaments of a Country. It is true, that a Governor should hinder his Pupil from abandoning himself to Debauchery or Excesses, since he is given to him, in part, for that purpose; all the Faults he commits being most certainly laid to his Charge, tho' sometimes very unjustly; for there are People who are not to be governed, and will not be governed.

From *Muscovy* our *Traveller* may pass into *Denmark*, which is the most polite and most splendid Court of the North; and where he'll have the Honour and Satisfaction to see, in the present King, a Prince of an extraordinary Merit, and a Nobility, who have not the least of the Imperfections of their Neighbours, I mean of the *Muscovites*; besides, there should be a certain Sympathy between the *English* and the *Danes*; since there is yet in *England* a vast Number of Families whose Origin was *Danish*, ever since the *Danes* conquered *England*; which makes me wonder that the *English* should hate Foreigners, since they have all, without Distinction, a foreign Origin from the different Nations who have conquered the Country, some *Danish*, others *Saxon*, and others *Norman*.

From *Denmark*, he may return among my good Friends the *Germans*, which I say from the Bottom of my Heart, since there is no foreign Nation in the whole World I love better; for I have found among them neither Dissimulation nor Deceit, but an open and free Heart, which was really what it appeared to be; and as he has not seen yet the Court of the Landgrave of *Hesse Cassel*, whom I expect to see soon an Elector of the Empire, in Gratitude for his generous Assistance to the Head thereof, he will do very well to take a Tour thither, since it is one of the most polite in *Germany*, though not the richest; and where he must expect to be the better received, since a Princess of *England* is married with the hereditary Prince of *Hesse Cassel*.

Then he may come to *Holland*, from *Holland* to *Brussels*; here he may stay, if he chuses to make a Campaign in *Flanders*, among his own Countrymen, and under his own Generals; or return into *England*, to the great Joy of his Family, who will be agreeably entertained for a considerable Time, with a succinct Relation of his Voyages, free from those monstrous Romances and Falshoods most *Travellers* season theirs with, imagining falsely that the more Incredibilities their Relations are stuffed with, the more they are admired, which is a scandalous Notion, since none but the ignorant Rabble can be entertained with such ridiculous Fables. Therefore, it is not surprising if Coblers, in Matters of Writing, are continually employed in supplying them with such Stuff, with no other View than to pick their Pockets, which should be punished both as a publick Theft and an Imposture.

If *England* had not been at War with the Catholick King, I should have led my *Traveller* into *Spain*, and accompanied him to the Court of *Madrid*; though few *Travellers*, especially those who are said to make the Tour of *Europe*, care to put into *Spain*, under the false Supposition that there is nothing there worthy the Curiosity of a Foreigner; the *Spaniards*, besides, having always been esteemed the most unhospitable Nation of *Europe*. But it is a Mistake, for the Times are much changed there, ever since the Accession of *Philip* Vth. to the Throne. The *Spaniards* of our Days are a quite new Generation, more affable, sociable and complaisant, and that insupportable Gravity which afforded Matter of Laughter to all other Nations, is at present moderated by a *French* Gaiety, which renders it very agreeable. They are no more so formal in their Manners, nor so much bigotted to their antient Customs and Modes; even the few among them who could never be persuaded to renounce them quite, have reformed them so as to render them less ridiculous. The Palaces of the Grandees are no more inaccessible to Foreigners, neither do they keep them at so great a Distance; for antiently the Grandees of *Spain* were as so many petty Kings, and even claimed, in proportion, greater Homages than the King himself; but at present their insupportable Pride is reduced to keep their own Rank, whereby the Gates of their Palaces are opened to Foreigners, who before, would have scorned to have entered them, on the mean Condition of worshipping *Spanish* Haughtiness.

As Ladies have not been so much confined in *Spain*, under the Reign of this King, as they were before, our *Traveller* may be easily introduced into their Company, and favoured with their Conversation, which is extremely engaging, for they have a great deal of Sincerity and ready Wit, and a very agreeable Manner of expressing themselves.

The Arts are not much encouraged in *Spain*, because the common People are naturally very lazy, and hate Industry; neither are their Universities in a very flourishing State, and the Sciences much cultivated.—He'll see there holy Bishops who lead very pious and exemplary Lives; but the Conduct of the inferior Clergy is quite different, and their Lives a Scandal to their Profession.

From *Spain* it is worth his while to pass into *Portugal*, if it was but only to see the present King, who is one of the greatest Princes of the Age. All these Courts are so extremely pious, that there is not much Mirth at them, and that a Foreigner used to it, is soon tired of them: But our *Traveller* has this Advantage, that he may spend the greatest Part of his Time with his own Countrymen, of which there is a great Number settled at *Lisbon*.—At *Lisbon* he can embark for *England*, since there is always a great many *English* Ships in that Port; the *Portugal* Trade being one of the best Branches of the

the *English* Commerce; for a great deal of Gold, is imported into *England* from hence.

A very essential and necessary Advice, and one of the first I should have given my young *Traveller*, is, that he should never make a Shew of his Money like Children, especially in the Inns where he lodges on the Road; for as all Persons, without Distinction, resort to those publick Places, and are well received and entertained in paying; he does not know, if there are not some Thieves among those before whom he shews his Money, who may wait for him on the Road, on purpose to rob him, and perhaps cut his Throat; there is, besides, another Inconveniency attending this silly Indiscretion, which is, that the Inn-keepers, naturally inclined to impose on *Travellers*, fleece a Person whom they see frosted with so much Money; and not him only, but likewise, those of his Nation, who come after him; for, in some Parts of *Europe*, where some young *English* Noblemen have made Parade of their Money, the Inn-keeper believes, that it is enough to be an *Englishman*, to be loaded with it; and therefore, make them extravagant Bills accordingly, which they season with twenty *My Lords*, thinking that that noble Title will make it be paid without Deduction; though they know very well, at the same Time, that the Person they speak to is no Lord; but however, Lord, or not, no-body is obliged to throw his Money away; and our *Traveller* must not think it beneath him, to curtail the Bills of those Sharpers; in giving them only what is reasonable and just, and no more, it is not at all mean to bargain with them; for if they were once used to it, and their Bills dealt with, very near in the same Manner, we do with those of Apothecaries in *France*, they would make afterwards, more reasonable ones. To avoid these Impositions, our *Traveller* should have a faithful and trusty Servant with him, who should bargain for every Thing before it is carried to his Master's Table; for when the Repast is over without making that Bargain, there is no going back from it, it must be paid; but when you bargain before, rather then lose you, they'll be much more reasonable; and I can assure you, that in a long Journey, you'll find it, at least half in half Difference; and be treated besides, in a much more elegant Manner; for when you don't take those Precautions, they'll cover your Table with any Thing; I mean, that they'll make up a Number of Dishes, and perhaps, not a good one among them all; but when you cheapen Things, and bargain for it, they must dress them, or else not be paid. —— There is another Manner of dealing with Inn keepers, which has diverted me much, and which I learned from a Captain of Cavalry in the King of *France*'s Service; in whose Company I have travelled for very near three hundred Leagues; he made a Bargain, before we sat out, that I should let him deal with the Inn-keepers, which I accepted with Pleasure; therefore he used to call for the Bill, and after he had looked over it, and examined all the Articles, and reduced them to what he thought was honestly due, he used to tell me to lay down so much for my Share, laying down his at the same Time; then ordered our Horses to be brought, making no other Answer, to all the Arguments of the Inn-keeper, than two or three, that's enough, you shall have no more, then we mounted our Horses, and away we went. But one must have a great deal of Resolution, and a certain imposing Air, as he had, to act in that Manner; though at the same Time he acted very honourably and justly, for he scorn'd to do a mean Action, but he would not be imposed upon: I have tried since to follow his Example, especially on the Road from *Calais* to *Paris*, which the *English*, by being lavish of their Money, have rendered a very expensive one; but our Hearts in *Britanny*, being most commonly greater than our Purse is deep, I could not withstand the Importunities of the Inn keepers; therefore I preferr'd my former Manner to it, of bargaining for every Thing, which prevents all Disputes; but in the Neighbourhood of *Paris*, when I went thither for Pleasure, for which they made me pay an extravagant Price, I followed always the latter; for they make one pay there, even for what they call the *Coverts*, i. e. for covering the Table with a Table-cloth, Plates and Napkins, which is an abominable Imposition; as if one could do without it; therefore, I always retrench that from their Bills.

There have been *Travellers*, whose Curiosity being not satisfied with seeing all *Europe*, have led them to the Eastern Courts, *viz.* those of *Constantinople*, *Persia*, *China*, *Siam*, and the *Great Mogul*; but there are few at present, whose Curiosity is so great: The most famous *Travellers* we have had of this Kind, were the celebrated *Tavernier*, *Petit de la Croix*, Sir *John Chardin*, and several Jesuits, who have enriched the learned World with the Relations of their Voyages. Though we have several others Relations printed, but most of them are so much stuffed with Romances, that it is impossible they could gratify the Curiosity of a judicious Reader: Those fabulous Relations have given Occasion to this Proverb, *a great Traveller, a great Liar*. I suppose, that some of them imagine that their Voyages would not be admired, unless they were seasoned with a great many Wonders or Prodigies; which is a gross Mistake, for if such Things gain Credit among an ignorant Rabble, they surfeit a rational Mind. The rare Product of those Countries, the Form of their Governments, the Manners of their Inhabitants so different from ours, are sufficient to gain our Attention, and gratify our Curiosity. Among a Heap of Relations of Voyages which are printed, those which please me most, are of Sir *John Chardin*, and of M. *Petit de la Croix*: Those of Father *Tachard* to *Siam*, though not of so great an Extent, are also very well wrote, and contains nothing incredible: I admire particularly in them, the great Character he gives us of the celebrated M. *Constance*, a *Portuguese* Gentleman, who was then prime Minister to the King of *Siam*; for he lets us see in him, a very great Politician, an honest Man, and very religious besides; three Qualities almost incompatible in Persons raised to that eminent Post; and who, while he consults the Interest of the King his Master, and the Welfare of his Subjects, neglects his own; and prefer'd the Advancement of his Religion, to all human Views whatever.

I have myself travelled into some of those Countries, *viz.* in *Turkey*, and in the States of the *Great Mogul*, but could not find any of those incredible Things, which other *Travellers* have entertained us with. Nay, I have even discovered in *Turkey*, that several Particulars mentioned in *Calchondil*, though accounted a very good Historian, are false; perhaps, because the *Turks* have been much civilized since: I have found in the *Turks*, among several Eastern Manners, which are natural to them, a great deal of the *European* Politeness, especially among Persons in high Posts: I went thither with *Mahomet Reis Effendi*, who was then returning from his Embassy at the Court of *France*, during the Regency, and under the Minority of *Louis* XV. who was an extremely well bred Gentleman, before he came to *Versailles*; for he behav'd in as genteel a Manner at his first Arrival, as if he had been educated at that Court; and I found, while I was at *Constantinople*, that he was not the only polite Gentleman in the *Ottoman* Empire; for he did me the Favour to have me introduced to several *Bashaws*, who treated me in the same polite Manner, and with the same Affability himself always did; he would even have engaged me to have staid there much longer; and when I told him that my Finances would not allow it, he answered in a generous and obliging Manner, which I have found no where since, that that should not be an Obstacle to it, while it should be in his Power to supply that Want; but a certain unhappy Fate which has always accompanied me every where, made me refuse his Offers. I was indebted for his Friendship to my Acquaintance with his Son, who was as Secretary to the Embassy, a Gentleman of a very promising Genius, with whom I had been acquainted accidentally, in the Apartments of *Versailles*; and who parted from me at *Constantinople*, in the same Manner as two Brothers, who love tenderly one another, would have done; he accompanied me on board the Ship, where he sent me all Sorts of Refreshments, and came to see me twice afterwards, before we set sail; which was a great deal from the Son of the high Treasurer of the Empire. I was as elegantly entertained at their Table, and very near in the same Manner, I could have been at that of a Person of the first Rank in *France*; where I drank all Sorts of the best Wines, both *French* and *Greek*: The Father would even force me to accept a Present, which defray'd

defray'd nobly all the Expences of my Voyage, both coming and going back, with a rich *Turkish* Habit; whereby I saw that Haughtiness and Avarice, were not Vices inseperable from a *Turk*. It is true, that I did all in my Power, to express my Gratitude to the Son; to whom I had given some Insight into the Manners of the different Courts of *Europe*, their different Sorts of Governments, the Genius, Laws, Customs, *&c.* of the People; all which he learned with so great Facility, that he soon become my Master in those Things. I promised him I would return to *Constantinople* on the first Opportunity, which I have never found: I have done much more Service to Christians, and even to some *English* Persons in foreign Parts, who to exempt themselves from shewing me their Gratitude, have loaded me with Calumnies and Invectives; which, as they came from Persons who affected much Religion, have done me some Prejudice; though if I had been as ungenerous as they are, I could have revenged myself, in a Manner, which could make them repent all their Life Time of their Ingratitude; but I have learned from my very Infancy, never to be revenged of a mean Action, by another mean Action; which Maxim, I have always practised since; and will do it as long as I live, notwithstanding all the Provocations which could engage me to act otherwise.

TREATIES.

TREATY, is a Covenant between several Nations, of the several Articles, or Conditions, stipulated, and agreed upon between sovereign Powers.

There was never an Age more fertile in *Treaties* than ours; for many Years successively, we have scarce been entertained with any Thing else, but Preliminaries, Conventions, Treaties, Counter-Treaties, Plans, Groundplots, and all the other Terms of a modern Politick, which had been a Kind of Algebra, for the most consummate Politicians of past Ages; all that used to be decided in the Fields, under warlike Princes, has been of late treated in the Cabinet; which is certainly the most judicious and salutary Means, to compose Differences between Sovereigns; since it spares both the Lives and Fortunes of their Subjects, smothers the Jealousy or Animosity, which subsisted between the Nations rival in Glory, and keeps others in Amity; maintains the Fields in their usual Fertility, but too often desolated by the great Disorders which War carries after her; and renders Commerce flourishing, by making the Navigation free, which in Time of War, is obstructed by publick Plunderers and Robbers.

But what has deprived most of those *Treaties* of the Advantages, which the Prince and his Subjects could reasonably have expected from them, and has left room for so many *Treaties*, Counter-Treaties, *&c.* which at last have all proved inconclusive; it is perhaps, that some of the Ministers, appointed to manage these Affairs, had neither Skill nor Experience enough, to treat them as they ought to have done; for I would be loth to suspect them of having treated as some Generals fight, who spin out a War, to be continued longer in their Post; though want of Capacity in a Minister is as great an Evil, as a perfidious Temporization; and the Publick suffers equally by the one as by the other; if he be ignorant, the *Treaties* he concludes are fill'd with so many Blunders committed by him, that the Prince or Nation, whose Interest he was intrusted with, find themselves forced to break them as soon almost as they are concluded; otherwise, they would prove more dangerous and oppressive than the most destructive War.

Therefore, the whole Merit of a *Plenipotentiary* should not consist in the Favour of a Prime Minister, or Secretary of State, as it but too often happens; but the Favour aside, none should be preferred to that great Trust, on which the Honour and Glory of the Prince, and the Welfare and Security of his Subjects and Dominions depend, but those who (besides a perfect Knowledge of the Rights, Pre-eminences, and just Claims of their Sovereign, and of those of all the other Princes they are to treat with) have a great Sagacity to discover all the Finesses, and Artifices of the other Ministers; Fidelity, Probity, and Disinterestedness, to execute punctually all the Articles of his Instructions, without being biassed by any View whatever; a noble and becoming Courage, and Resolution, to insist on what he proposes, without Haughtiness, and to oppose all Sorts of Encroachments; a great Presence of Mind to answer *à propos* all Objections, and solve all Difficulties; and a great Dexterity, accompanied with a becoming Complaisance, to manage all the Minds, and bring them insensibly to his own Terms.

A *Plenipotentiary*, as he represents the Person of his Sovereign, must insist on all the Honours and Precedencies due to him, by the other Princes, without departing in the least from any of them; which requires a great deal of Attention, and that he should be always upon his Guard, on that Respect, lest he should be surprised by the other Plenipotentiaries, who are continually attempting to encroach on those Rights, and Pre-eminences, to make if possible those Encroachments serve as Precedents in future Negotiations: He is even allowed to attempt the same on his Side, to gain as much as he can for his own Master; but he must never insist on ridiculous or insignificant Punctilio's, which serve only to retard a Negotiation, and keep thereby the contracting Parties and their Subjects longer in Suspence.

He should never give up any Point, which is not given up already in his Instructions, on no Consideration whatever, without having received new ones from his Court on that Subject, unless he has *Charte blanche*, and even then he must have Recourse to it, if the Point in Controversy is of great Importance, lest he should be called to an Account for it afterwards, if his Condescention should chance to be found disadvantageous; for he is always allowed to go as far as he pleases, and as he can beyond his Commission, in favour of his Principals, but he cannot act with too much Caution in giving up any material Point; for those Condescensions are but too often the fatal Cause of new Disputes, and sometimes of new Troubles. He must also take Care that no Evasion and mental Reservations, should be inserted in the *Treaties*, unless it is by himself for the Advantage of his Principals. For though he is indispensably obliged to put all in Use to baffle the Finesses and Artifices of the other Ministers, he is not forbid to have Recourse to them himself, and make them subservient to his Purposes if he can; so that he is allowed to consider in himself, as an Effect of his great Dexterity, what appears to him as a Want of Probity in others; provided, however, that the Artifices he uses be not a flagrant Breach of Honour, capable to render his Conduct odious to all *Europe*, and make his Principals ashamed of it, or disapprove it.

He ought not to suffer the *Treaties* to be conceived in ambiguous Terms, which could be interpreted to the Disadvantage of those who have intrusted him with the Care of their Affairs; but, on the contrary, procure that every Thing inserted in them to their Advantage, should admit of no Interpretation, Gloss, and Difficulties; though he may endeavour to do it on his Side, if thro' the Necessity of the Times, and to put an End to a War, in which his Principals have not been successful, he is forced to give up some material Points, which may be recalled in a future Treaty, by interpreting the Articles whereby they were given up; for in those Cases it is reasonable, and even just, to leave Room for future Negotiations; since it is but too common, that in a *Treaty* of Peace, those who have been victorious during the War, take all the Advantage they can of their Successes, by making those who have been beaten, and they know incapable of keeping the Field any longer, buy the Peace at a very dear Rate; as it was proposed

proposed to make the *French* do it in the *Treaty* of *Gertrudemberg*, which the late King of *France*, *Louis* XIV. would never submit to; and rather chose to abandon his whole Kingdom to the Caprices of an inconstant Fortune, though she had often frowned upon him during the Course of the War, than to accept unjust and unreasonable Terms from his victorious Enemies. But when a *Treaty* is set on foot between Parties, very near on a level, and with no other View than to maintain Peace and Tranquility in *Europe*, the Ministers are obliged in Conscience and Honour to concur together, to render such a *Treaty* as clear and intelligible as possible, that he who shall break it first may have all the Blame on his Side; and those who have kept it religiously, just Reason to complain, and to use all the Means God has given them, to force him to fulfil his Engagements.

I cannot believe that it is Prudence in a Prince, or agreeable to his Interests and those of his Subjects, to make particular *Treaties* and Alliances in Time of Peace, unless he sees himself in an imminent Danger of being attacked; for those private *Treaties* and Alliances seldom fail alarming the other Powers, and make them often think of Enterprizes, which otherwise they had never dreamed of. Those private *Treaties* or Alliances are always a Mark either of an unquiet Mind, or of Jealousy, or that the Faith of other Princes is suspected. Hence the Counter-Treaties made by those Princes to strengthen themselves on their Side; hence those unexpected Invasions made by those among them who are the most sensible of the Affront, and the least inclinable to Peace; for which they cannot be blamed by an impartial Mind; since it is but too just we should prevent our Enemy, if we be in a Condition to do it, when we see him strengthen himself to attack us with Advantage. Temporisations in those Affairs serve only to render the Case more dangerous; for if we attack our Enemies while they are meditating to attack us, we may chance by such an unexpected Blow to disconcert their Measures, and force them either to break their private Negociations, or to fight with great Disadvantage: For those they treated with seeing the Enemy at their Gates, before they are in a Condition to repulse him, are forced to drop the Negotiation, and leave the Negotiator to be the Victim of his Jealousy; who often, uncapable to fight alone his own Quarrel, is obliged to listen to any Proposals of an Accommodation, and sometimes to very disadvantageous ones.

A Prince should never make private *Treaties* with two Powers rival in Glory, and whose respective Interests are incompatible; for as those Powers cannot be long at Peace, the Prince who has treated with both, is obliged to espouse the Quarrel of one of them and desert the other; which cannot be done without hazarding his Honour, and making of the Power he deserts without Cause his irreconcilable Enemy, who often is glad of an Opportunity, let it be ever so little favourable, of treating with his principal Enemy, to be more at Liberty to be revenged of his false Friend.

A Prince should never refuse to enter into a *Treaty*, on honourable and equitable Terms, to put an End to a destructive War, let that War be ever so glorious on his Side; since none is sure that Victory, which is as great a Gift as Fortune itself, shall always accompany his Arms; and that favourable Opportunity once neglected, a Turn may happen in the Affairs, which will force him perhaps to make a dishonourable Peace. That *Treaty* of *Gertrudemberg*, above-mentioned, is an Instance of it; for if the grand Alliance had not been then so much elevated with their Successes, and had not rejected the Terms offered by the King of *France*, and proposed them such as he could by no Means accept, they had made a more glorious Peace than they did afterwards. But the Affairs changing Face in *Spain*, by the great Successes of the Arms of *Philip* V. under the Command of the Dukes of *Orleans*, and of *Berwick*; and the Marshal *de Villars* routing the Allies at *Denin* in *Flanders*, made *Louis* XIV. gain the Point at *Utrecht*, which he was willing to give up at *Gertrudemberg*.

We have had of late an Example of the same Kind, for if the Queen of *Hungary* had accepted the Terms proposed to her by the Emperor, and had not been too much elevated by the Successes of her Arms in *Germany*, which were in Part owing to the pacifick Dispositions of the late Cardinal *Fleury*, who did not push the War at first with Vigour as he could have done, in view of bringing that great Princess for whom he had all the Consideration imaginable (and not more than she deserves) to his Terms by other Means, very likely that she had made a better Market than she can expect to make at present.

As there is seldom any considerable *Treaty* made, without *Mediators*, the mediating Powers should be very careful in whose Hands they put that *Mediation*; never intrusting it with ignorant and unskilful Ministers, nor those who are infatuated with national Prejudices, and inclinable to Partiality; for as they are there to compose Differences, and reconcile the Parties at Variance, they must consult the Equity of the Cause, and not their own Inclination, or natural Penchant, never espousing the Interests of the one to the Prejudice of the other, otherwise than they are agreeable to Justice and Reason; behaving in all Occurrences with that Integrity, Moderation, and Impartiality, Affairs of that Importance require. I have always admired the prudent Conduct, Calmness, gentle Behaviour, and great Dexterity of Sir *Leoline Jenkins*, one of the Ministers Mediator of the King of *Great Britain*, *Charles* II. at the *Treaty* of *Nimeguen*. For though he had to compose the Differences of two powerful Houses rival in Glory, one of which, *viz.* that of *France*, on account of her uninterrupted Successes during the whole Course of the War, carried her Pretensions very high; and the other, tho' always beaten, had that natural *Spanish* Haughtiness, which is always loth to descend to any Condescensions, he found Means notwithstanding to compose their Differences without rendering himself suspect to either of them. For though he had three Colleagues in the Mediation, *viz.* Mess. *Hyde*, who was the Chief of the Embassy, *Berkeley*, and Sir *William Temple*, he did alone all the Business, and had all the Honour of the Conclusion of the *Treaty*. All the Plenipotentiaries doing him in publick all the Honours due to the high Dignity of his Royal Master, and to his good Offices as Mediator; and having for him in private all the Deference which his personal Merit deserved; though he had to deal then with some of the ablest Ministers of those Times. And I am apt to think that it was in View of his great Dexterity, that he was alone intrusted with the whole Secret of the Negotiation, which Dexterity appeared in its greatest Lustre, by his engaging the *Dutch* to make a separate *Treaty* with *France*, while his Colleagues were intreating them to stand by their high Allies, *viz.* the Emperor and *Spain*, to the last, and conclude nothing without them.

I cannot approve those Visits of Ceremony made between the Plenipotentiaries at a Congress; as being of no other Service than to defer the Conclusion of a *Treaty*, and occasion Disputes between them; some of them starting always some Difficulties on the Precedency; as it happened at that *Treaty* of *Nimeguen*, between the *French* Plenipotentiaries, and those of the Emperor, and of the Elector of *Brandebourg*, where those of *France* pretended that the Imperialists had failed in the Respect due to the King their Master, and refused to treat the other Embassadors of the Elector, in the same Manner as they would do the first; which caused some Trouble to the Mediator *Jenkins*, who found Fault likewise in the Conduct of the *Spanish* Plenipotentiaries on the same Subject with regard to himself, having visited the Imperialists before him, to whom he thought the first Visit was due as Mediator.

All *Treaties*, of any Consequence, are commonly guarantied by some Powers, who enter into Engagements to see them punctually executed; and even oblige, by open Force, the contracting Parties to do it, and punish the Infringers: But they are not to come to those Extremities, till after they have used pacifick Means to no Purpose; unless they are persuaded, that the Delinquents make a common Practice of breaking *Treaties*, and there is no other Means to bring them to Reason but by Arms.

There are different Sorts of *Treaties*, viz. *Treaties* of Peace, of Marriage, of Confederacy, of Neutrality, of Capitulation, and of Commerce and Navigation; and to

to gratify the Curiosity of the Reader, I'll give here one of each, (not of those lately concluded, for Reasons which my Subscribers may be informed of hereafter) beginning *with a Treaty of Peace, concluded at* Westminster, *the 9th of* February 167$\frac{3}{4}$, *between the King of* Great Britain, Charles II. *and the* States General *of the* United Provinces.

'The Fire of the War which has been kindled for some Time between the most serene and most potent Prince the Lord *Charles* II. King of *Great Britain*, *France*, and *Ireland*, Defender of the Faith, *&c.* and the high and mighty Lords the *States General* of the *United Provinces*, having still the same Heat, not only almost all Christendom have asked by their Vows and Sighs, that it should be soon extinguished; but above all, the most serene Queen and Regent of *Spain*, in View of the antient Alliance which has reigned, at all Times, between the Crowns of *England* and *Spain*, to quiet the Differences excited between the Kingdom of *England*, and the *States General* of the *United Provinces*, and restore Peace in them as soon as possible. And as the said *States General* have required as well by Letters, as by repeated Dispatches, that it should please his *Britannick* Majesty to hear favourably the Conditions of Peace, and have given (to facilitate the happy Success of the Negotiation) to his Excellency Don *Pedro Fernandez de Joüar*, and *Velasco* Marquis of *Fresno*, Lord of the Bed-Chamber to his Catholick Majesty, and Ambassador Extraordinary of the most serene and most potent Prince, the Lord *Charles* II. King of *Spain*, &c. to the Court of the King of *England*, and have given him already full Power to treat on their Part, and in their Name, and to conclude a Peace for them with the most serene King of *Great Britain*: His *Britannick* Majesty having undertook that War with no other View than to procure a solid and permanent Peace, has had such a Regard for the Mediation of Madame the most serene Queen and Regent of *Spain*, that he was pleased to gratify on that Point the Desires of the said States-General. Having named for that Effect, and to begin and conclude the *Treaty* of Peace between his Majesty and the said States General, Commissaries, and Procurators intrusted with full Powers; he has given that Commission to his trusty and beloved *Heneage* Baron *Finch* of *Daventry*, Keeper of the Great Seal of *England*: His trusty and beloved *Thomas* Viscount *Latimer*, High Treasurer of *England*; *James* Duke of *Monmouth*, Captain of the Life-Guards of his Majesty; *James* Duke of *Ormond*, High Steward of the King's Houshold; *Henry* Earl of *Arlington*, one of his Majesty's principal Secretaries of State; and his trusty and beloved *Henry Coventry*, another of his Majesty's principal Secretaries of State. Which Commissaries and Deputies having received from the said *States General* of the United Provinces the same Power given to the said Marquis *de Fresno*, have assembled there, and have agreed on the following Articles.

I. That there shall be henceforward between the said Lord most serene, and most potent King of *Great Britain*, and the high and potent Lords the *States General* of the *United Provinces*, a firm, sincere, and inviolable Peace, Union, and Amity, and between their Subjects respectively, as well within as without *Europe*, in all the Countries and Demains of the one and the other Party.

II. And to the End that that Union between the said Lord the King, and the *States General*, may have its full and entire Effect, they have concluded, and agreed on, that all Acts of Hostility should cease on both Sides immediately after the Publication of this Treaty of Peace; and that no Letter, Commission or Instruction shall be delivered, or countenanced under-hand, or openly, by direct or indirect Means by one of the Parties, to ravage, attack, besiege the other, or to divest him of his Goods and Demains, or his Subjects: But on the contrary, it shall be strictly enjoined to the Subjects of the one and the other Nation, to live together peaceably and amicably, in what Place soever they meet.

III. And because the Distances of Places are such, that it is impossible that the Subjects of the one and the other should receive, at the same Time, the Orders of their Masters, it has been judged proper to prevent the Hostilities and Violences which could be committed against one or the other Party, to fix the following Terms; *viz.* That twelve Days after the Publication of this Treaty, no Hostility shall be committed Westwards, from one of the Ends of the *British* Channel, vulgarly called the *Soundings*, to the other End called *Naza* in *Norway*; nor seven Weeks afterwards in the *Mediteranean*, or elsewhere, from the said *Soundings*; nor in any Place of the World, eight Months afterwards. That if it should happen that after the said Terms, any Act of Hostility was committed, in Virtue of some former Commission, by Right of Reprisals, or under any other Pretence whatever, the said Acts of Hostility shall be reputed unlawful, and the Infringers of the Peace publickly punished.

IV. The said *States General* of the *United Provinces* acknowledge, as they ought, the Right which the said King of *England* claims, that the Honour due to his Flag in the Seas under-mentioned, shall be done to it; and shall declare as they declare at present, and agree, as they agree that all Sorts of Ships and Vessels belonging to the said *United Provinces*, whether equipped in War or not, whether separately or in a Fleet, in the other Seas, from the Cape esteemed the Land's End, to the Middle of the Cape called *Van Staten* in *Norway*, to pass under the Wind of the Ships belonging to the said Lord King of *England*, whether they be in a Fleet or separate, and carry the Flag or Standard of his Majesty called *Jack*, the said Ships of the *United Provinces* shall bring down the Main Sail, and do to the Ships of his Majesty, the same Honour, which the Ships of the said *United Provinces* have always, and in all Places, done to the Ships of his Ancestors.

V. As to the Colony of *Surinam*, the Articles made on its Rendition, in the Year 1667. between *William Biam*, then Chief of the said Colony, on the Part of the King of *Great Britain*, and *Abraham Quirini*, on the Part of the *States General*, having occasioned many Disputes and Differences, when they were to be executed, and ever served of Pretext to the last Misunderstanding happened between his *Britannick* Majesty and the *States General*; to prevent those Sorts of Inconveniency, the said *States General* consent, by these Presents, and agree with his *Britannick* Majesty, that not only the said Articles shall have their full and intire Effect, without any Evasion or Equivocation, but likewise it shall be free for his *Britannick* Majesty to depute to that Place one or several Persons to see in what Condition are his Subjects settled there, and to fix with them the Time of their Departure. Moreover, his Majesty will be at Liberty to send two or three Ships to transport from thence the Subjects of his Majesty, with their Goods, Effects and Servants; and the Chief who shall command there, at that Time, for the said *States General*, shall make no Laws whereby it could be enacted that the buying or selling of Lands, the Payment of Debts, or the Exchange of Goods should be made with regard to the *English*, than according to the Usage and Customs which have always been observed, with regard to the other Inhabitants of that Colony; but that while they stay there, they may enjoy the same Laws and Privileges which the other Inhabitants commonly enjoy, and have the same Right with them to bring Actions and intent Processes for the Payment of what is due to them, and to make all other Records, Contracts and Stipulations. And his *Britannick* Majesty has asked of the *States General* competent and authentick Letters, directed to the Chief of that Colony, as well for the Departure of the *English*, as for the Admission of the Ships which shall be sent thither, for the Reasons above-mentioned; the said *States General* shall deliver to the Chief of the said Colony, in the Time prescribed, the said Letters, and other sufficient Instructions, as well for the free Admission of the said Ships, as to permit the Embarkation of those of his Subjects, who shall want to quit the Place, with their Goods and Servants, to transport them according to the Ordinance of his Majesty.

VI. It is also mutually agreed, that all the Lands, Isles, Cities, Ports, Castles or Forts, which one of the Parties shall take, or may have taken of the other, since the Beginning of this last and unhappy War, either in *Europe* or elsewhere, and before the Expiration of the Terms above-mentioned, with regard to the Cessation of all Acts of Hostility, shall be restored to the Proprietor

prietor and first Master, in the same Condition they'll be found at the Time of the Publication of the Peace. From which Time the Inhabitants shall neither be plundered or robbed; neither shall it be permitted to demolish the Fortifications, carry away the Powder and other Ammunitions which were in the Castle or Fort at the Time of the Capture.

VII. That the Treaty of *Breda*, made in the Year 1667, and likewise all other former Treaties, confirmed by the said Treaty, shall be renewed, and remain in their full and entire Vigour, as they contradict in no Manner to the present Treaty.

VIII. That the Treaty of *Marine*, made at the *Hague* between the said Parties, in the Year 1668, shall be continued nine Months after the Publication of this; unless it be provided otherwise by the following Treaty. That, moreover, what must be changed in that Affair, shall be referred to the Commissioners, who shall decide in the following Articles, what regards the Commerce which shall be carried on in the *East-Indies*. That if those Commissaries, three Months after their meeting, cannot agree on the Conditions of a new Treaty of *Marine*, then that Affair shall be referred to the Arbitration of the most serene Queen of *Spain*, as in the following Articles the Advice of her said Majesty shall be followed, with regard to the Regulation of a Commerce in the *East-Indies*.

IX. And as not only the Plenty but the Peace likewise, of the one and the other Nation, depends much on both Sides on a Liberty of Commerce and Navigation, the one and the other Parties must have nothing more at Heart, than to make a good Regulation for the said Commerce, particularly for that of the *East-Indies*. And because the Thing is of a great Consequence, there shall want much more Time to make Articles which may be firm, permanent and proper to establish the Repose and Security of both Parties; but especially the State of *Europe* being such, that most of its Countries sigh as much after the Peace, as the two Parties engaged in the present War; in that Consideration, the said Lord King of *Great Britain*, willing to favour the Desires of the said *States General*, has consented that an equal Number of Commissaries should be named on both Sides, and that those of the *States General* be sent to *London*, to treat with those of his *Britannick* Majesty, and that in three Months after the Publication of this Treaty; which Commissaries shall be to the Number of Six on each Side. That if three Months after they have conferred together, their Negotiation is not so happy as to bring the Treaty to a Conclusion, the Decision of the Difficulties happened between them, shall be referred to the most serene Queen Madame the Regent of *Spain*, who shall name eleven Commissaries, with an Obligation to both Parties, to follow, indifferently, what the greatest Number of them shall have determined; on Condition, notwithstanding, they give their Advice in six Months Time, to reckon from the first Day of their meeting, and three Months since the most serene Queen and Regent of *Spain*, shall have accepted that Arbitration.

X. Things being thus agreed, by the Care of the most serene Queen Regent of *Spain*; it has been concluded, that the said States General, shall pay to his *Britannick* Majesty, the Sum of eight hundred thousand Patacoons in the Manner following, *viz.* the fourth Part thereof, immediately after the Exchange of the Ratifications of this Treaty; and the rest, in equal Portions, the three Years following.

XI. That the said Lord King of *Great Britain*, and the said high and mighty Lords the States General of the united Provinces, shall observe sincerely, and faithfully, all, and every one of the Articles contained in this Treaty, and take Care to cause them to be observ'd by their Subjects, without any direct or indirect Contravention to it, on their Part, or on that of their Subjects or Inhabitants. As likewise, they shall ratify all and every one of the Points, here above agreed upon, by Letters Patent, signed with their Hands, sealed with their great Seal, and conceived and written in good and due Form, and shall deliver them reciprocally, after the Publication of the Presents, or sooner (if possible) or shall cause them to be delivered faithfully, really, and effectively.

XII. Lastly, immediately after the mutual and reciprocal Exchange of the said Ratifications, the Peace shall be published in four and twenty Hours, after the Ratifications exchanged, and delivered.

Done at *Westminster*, the 9th of *February* 1673-4.

It was signed and sealed,

(L. S.) *H. Finch.*
(L. S.) *Latimer.*
(L. S.) *Monmouth.*
(L. S.) *Ormond.* M. *Marquis d'el Fresno.*
(L. S.) *Arlington.* (L. S.)
(L. S.) *Coventry.*

SECRET ARTICLES *of the preceding Treaty of Peace.*

That the Alliance and Amity between the most serene Prince the Lord *Charles* II. King of *Great Britain*, *France*, and *Ireland*, Defender of the Faith, *&c.* and the high and mighty Lords the States General, may be the much more firm and better founded, and to facilitate the Overture of a secure and lasting Peace in *Christendom*; besides all the Points agreed upon by the Treaty of Peace, lately made and concluded between the two Nations; it has been agreed by this secret Article, that none of the said Parties shall give, nor suffer to be given by their Subjects and Inhabitants, Succours, Favour, or Advice, directly or indirectly, either by Sea or Land, or fresh Water; moreover, that he shall not furnish, nor allow that his Subjects and the Inhabitants of his Lands and Demains, shall furnish to the Enemies of the other Party, of what Quality or Condition whatsoever, Soldiers, Sailors, Provisions, Canons, Gun-powder, or other Ammunitions of War, and the present Article shall have the same Force and Vigour, as if it was inserted in the aforesaid Treaty of Peace, provided, notwithstanding, that it be in Case it does, in no Manner, derogate to any of the Clauses contained in the said *Treaty*: Moreover, it shall be ratified and confirmed by the aforesaid most serene King of *Great Britain*, &c. and the said Lords, the States General at the Time of the Ratification of the Treaty, which has been concluded this Day.

Done at *Westminster*, the 9th of *February* 1673-4.

Sign'd and sealed, as above.

It is to be observ'd here, *en passant*, that the Parliament of *England*, composed then, in part, of the Offspring of the *glorious Assertors of the good old Cause*, who had cut off their King's Head, to establish among them the Reign of King *Jesus*; and had been glad of an Opportunity of restoring that Kingdom by the same Means, forced *Charles* II. to make this Treaty with the *Dutch*, contrary to all Sentiments of Honour and Justice; since he was at that Time in Alliance with *France*, which he had not the least Reason to break, since his most *Christian* Majesty, on his Side, had faithfully and religiously fulfilled all the Engagements he had entered into, and had excused his *Britannick* Majesty from fulfilling several of them, conscious that his Parliament refused him the Supplies necessary to do it. But those *zealous Patriots* knew, that if they could be capable once to break the strict Union and sincere Friendship, which subsisted then between the two Kings, they could be soon in a Condition to execute their pernicious Designs against their Sovereign, and make him share, perhaps, the unhappy Fate of his Royal Father. But they were happily disappointed; for though King *Charles* made this seperate Treaty with the *Dutch*, which was a formal Breach of the Treaty of Alliance between him and the King of *France*, that Breach did not cause the least Alteration in their Friendship; his most Christian Majesty knowing perfectly well, that the King of *Great Britain* had been forced to it by a Parliament of Factious and Republicans, who were entering the Road to Rebellion, which their Parricide Ancestors had shewed them: Therefore, those who expected to outwit their King, were themselves outwitted at last, by his faithful and wise Ministers; for under the Auspices of that Treaty with the *Dutch*, and in hopes of a sudden Rupture with *France*, for which great Preparations were made, they granted the Supplies necessary to carry it on with Vigour, which was what the King

King wanted most; for till then they had almost always took Care to keep him very poor, as they had done his Father before him; while, at the same Time, he negotiated, under Hand, another seperate Treaty between *France* and the *Dutch*, which was concluded before his Forces could take the Field, and which was a very good Excuse for him to keep his Forces at home.

I cannot help blaming the Conduct of a Nation who while they have a good King careful of the Lives and Fortunes of his Subjects, and to make them enjoy the Fruits of their Labours, and Industry, without Fear and Danger, endeavours to live in Amity with the Princes his Neighbours, and disarm his most formidable Enemies, clog the Wheels of his Government, and tired of their own Happiness, call to Arms, with no other View than to make him sit uneasy on his Throne, when they know at the same Time that War carries after her Slaughter, Devastation, and Horror; and that if their Prince suffers by it, they must themselves suffer a great deal more; since, without mentioning the vast Expences they must be at to carry it on, they are exposed daily to be plundered by the Enemy, and their Lives or those of their Fellow-Countrymen, to the most imminent Danger. I am not surprized to see an ambitious Prince undertaking every Day new Conquests, and sacrificing the Lives and Fortunes of his Subjects, and gathering his imaginary Laurels, in Fields which have been overflowed with their Blood; but I cannot conceive how the Subjects who are conscious (unless their unjust Prejudices have darkened their Understanding or silenced their Reason) that they must be the most exposed, and bear the whole Burthen, can wish for a War, which in all Ages has always been represented as a Scourge from Heaven. There are just Wars, it is true, but they are never so but when undertaken to defend our own Frontiers, assert an unquestionable Right, when it cannot be done otherwise, repel Force by Force, and take a just Revenge of a gross Affront: All other Wars are unjust, and those who have been accessary to it, accountable to the Tribunal of that just and impartial Judge, where Disloyalty will find no Access, for all the Disorders it has caused.

To prevent the Conclusion of this separate Treaty of Peace, between *England* and *Holland*, the Marquis *de Ruvigny*, then Envoy extraordinary of *France* to the Court of *England* presented the following Memorial to his *Britannick* Majesty.

The Marquis *de Ruvigny*, Envoy Extraordinary of the most Christian King to the King of *Great Britain*, having made Reflection on the Solicitations of the *Dutch*, to break the Union between *France* and *England*, and on the Declaration of the Intentions of his *Britannick* Majesty to this present Time, as well by the Speeches made by his Majesty to both Houses of his Parliament, as by his Answer to the Letter of the *States General* of the *United Provinces*, finds himself obliged to represent to his Majesty, that the King his Master having made a strict Alliance with him, by the *Treaty* of the 12th of *February* 1672, to bring down the Pride and formidable Power of the *Dutch*, in which all the World knows, that *England* is much more interested than *France*; his *Britannick* Majesty knows better than any body else, that his most Christian Majesty has failed in none of his Promises with regard to the War by Land, nor to joining his Forces to those of the *English* by Sea, nor to the large Sums of Money he had promised to ease the *English* of Part of the Charges of the Maritime War, having not only observed punctually, and satisfied to every Thing, but exceeded besides all his Promises; because his *Britannick* Majesty being obliged by the *Treaty* to raise and maintain at his own Expence 6000 Land Forces; his Most Christian Majesty, at his Request, excused him of that Succours, for the first Campaign, but did bear almost alone all the Charges, and was at all the Expences to transport the *English* Forces to carry on the War by Sea and Land; nothing having been done on the Part of his Most Christian Majesty, nor likewise of his *Britannick* Majesty, but jointly by the Advice and Consent of the two Kings, and in concert with their Ministers. And his most Christian Majesty, in particular, has always publickly declared, that he would make neither Peace nor Truce, but with the Consent of *England*, as the two Kings were obliged by the Treaty; and to the entire Satisfaction of his *Britannick* Majesty. The *Dutch*, on their Part, instead of following the accustomed Ways in semblable Negotiations of Peace, acted very indirectly to cause a Division, not only between *France* and *England*, but likewise between his *Britannick* Majesty and his Subjects. The first thing they did, was to publish in *England*, by Means of their Spies, (some of whom were taken afterwards) that the Intention of the two Kings was to introduce in the Kingdom a despotick and arbitrary Power, *(the usual Cant to this Day)* and change the Religion. And the other, they made several Propositions to his *Britannick* Majesty, to induce and engage him to treat with them separately, to the Exclusion of *France*, with general Offers of part of the Conditions which *England* could have insisted upon. On which his Majesty having remarked, with Justice, in his Answer to their first Letter, that such Propositions were directly contrary to his Honour, since they wanted to engage him to treat separately to the Exclusion of so considerable an Ally, as his Most Christian Majesty, whose Alliance he had so much Reason to be satisfied with; while themselves declared they could not treat to the Exclusion of some Allies, with whom they had contracted an Alliance some Months before. And on the other Part his *Britannick* Majesty, to prevent all Fear and Jealousy which the Enemies wanted to give him of his Alliance with *France*, declared publickly to both Houses of Parliament, the Sincerity of his Intentions against those Intrigues, desiring them to appoint a Committee of both Houses, to whom he could declare the true End of that *Treaty*, that after having been thoroughly acquainted with what has happened on either Side, they might make a serious Reflection upon it, and give him their Advice and Assistance, as much for the Honour of his Majesty, as for the Advantage of the whole Nation; recommending them at the same Time to provide all Things necessary for the Continuation of the War, or to make an advantageous Peace. During that Time the *Dutch*, who searched only to amuse his Majesty with Propositions and Writings, were strengthning themselves with Ships and new Allies, and endeavoured to prevent the Naval Forces being put to Sea. After they had sent to the *Spanish* Embassador a first Reply to the first Answer of his *Britannick* Majesty, in Terms which obliged that Minister to send it back, without presenting it; they sent him a second, conceived in more civil Terms than the first, whereby they had the Assurance (to say nothing more) to insist, contrary to the Declaration his *Britannick* Majesty had made in the View of all *Europe*, to enter into no *Treaty* without *France*; and to press him on that Point; pretending against all Truth, and against the Assurances of his Majesty, and of their Proceeding at the Assembly of *Cologn*, that the most Christian King had offered to treat to the Exclusion of his Majesty; when he never heard, and has never listened to any Propositions of Peace, but with the Consent, and in Concert with his Majesty, and on Condition that the *Dutch* should give him, and to the *English* Nation, an entire Satisfaction. And as his *Britannick* Majesty, agreeable to his Prudence, and to the Confidence he has in his Parliament (as in his great Council) has found proper to communicate to them the Letter and Propositions of the *Dutch*, as he has done likewise the *Treaties* with *France*, recommending to them his Honour, and that of the *English* Nation, which he confesses interested in that Affair.

Things being in that Condition, and the Parliament ready to deliberate on that Point, the said Envoy will not put to the Test, whether it be the true and royal Interest of his Majesty, his Obligation, and that of the Nation, to continue the War against the *Dutch*, and lose no Opportunities to reduce them to such Conditions, that it will not be in their Power afterwards to dispute and make War (as they do) for the Power and Domination of the Sea, and to encroach all the Commerce to themselves. Or if it be more advantageous for *England* to make a Peace, if the Conditions which the *Dutch* propose are satisfactory, since they seem to limitate the Honours of the Flag in the *British* Seas, by general Terms; that to this Day they postpone the Conclusion of the Regulations in the *East-Indies* and other Places, to other Times (as they did at *Breda*) without any precise

Pro-

Propoſition, which could engage them to any Thing: And they have offered nothing lately relating to the Fiſhery, revoking in ſome Manner the Declaration they had made to the Mediators at *Cologn*, that they would not refuſe to ſubmit themſelves on that Point, to the Parliament of *England*.

Theſe are the Intereſts of the *Engliſh* Nation who know very well how to examine and keep *Treaties*, and that they are not to interfere otherwiſe in the Affairs of their Allies, but by ſupporting and aſſiſting them in their juſt Pretenſions.

But the ſaid Envoy finds himſelf obliged to intreat his *Britannick* Majeſty, as he actually intreats him, and aſks him in the Name of the King his Maſter, that in Conformity to what his Majeſty has declared to the whole World, and particularly to the *Dutch*, he would declare more expreſly to his Parliament, that his Honour and his Reputation do not permit him to treat to the Excluſion of *France*; and while they'll examine the *Treaties* made between the two Crowns, and the Propoſitions of the *Dutch* which his Majeſty has communicated to them, that he may take more becoming Reſolutions; he would recommend to them again that without any Delay, they advance what is neceſſary for the Continuation of the War, in order to make an advantageous and ſure Peace, was it only but to prevent the raſh Enterprizes of the *Dutch*, and hinder them from acting in the ſame Manner they did, while the *Treaty* of *Breda* was on the Point of being concluded and ſigned. And the ſaid Envoy declares, on his Part, to his *Britannick* Majeſty, and he to his Parliament, and to the whole Nation, that the Moſt Chriſtian King remains always in the ſame Sentiment of keeping faithfully the *Treaty* of the ſtrict Alliance with *England*, either to continue the War, as it ſhall be judged more advantageous for the Nation, or to make a Peace in Concert, on ſuch Conditions which could be adjuſted by the Advice of the ſame Parliament, and which ſhall be judged more advantageous to the two Kingdoms; and to a Suſpenſion of Arms by Sea, while the Treaty laſts. His Moſt Chriſtian Majeſty wiſhing no leſs the Advantage of his *Britannick* Majeſty and his Subjects, than his own.——*London*, the 30th of *January*, Old Style, 1674.

This Memorial was only for Form's Sake; for the ſeparate *Treaty* with the *Dutch* was near concluded, when it was preſented; and the King of *France* did it with no other View than to ſhew to the moſt ſenſible, and leſs prejudiced Part of the *Engliſh* Nation, that nothing but Fanaticiſm, and a Spirit of Diſloyalty could engage the Parliament to force the King to break his Alliance with *France*, againſt his Honour and Reputation in particular, and that of the whole Nation in general.

The *Dutch*, who have always been very great Negotiators, had concluded two Years before, the following *Treaty* of Alliance, Amity, Confederacy, Commerce, and Navigation, with his Moſt Chriſtian Majeſty, to whom they have always proved very ungrateful, ſince they were indebted for all their Grandeur to his Grandfather *Henry* IV. called the Great.

A Treaty of Amity, Confederacy, Navigation, and Commerce, concluded between the King of France, *and Meſſ. the* States General *of the* United Provinces; Paris, April 27, 1662.

The Affection which the Moſt Chriſtian King at the Example of the Kings his Predeceſſors has always had for the Good and Proſperity of the State of the *United Provinces* of the *Low Countries*; and the Paſſion which the *States General* of the *United Provinces* have always preſerved for the Grandeur of *France*, with Sentiments of Gratitude for the Obligations and conſiderable Advantages they have received; have maintained in ſuch a Manner the good Intelligence between his Majeſty, and the ſaid Lords States, and ſo free and perfect a Correſpondence between their Subjects for ſeveral Years paſt, &c.

In which Preamble it is found, 1. That the *States General* confeſs themſelves the Obligations they have to the Crown of *France*: And 2. That they were not ſtiled yet by his Moſt Chriſtian Majeſty, *High and Mighty Lords*; but only the *Lords States General*; which was a Title higher than that they had under his Father *Louis* XIII. who in all the *Treaties* he concluded with them (which are in great Number) called them only Meſſieurs the *States General*. The *Treaty* being in no manner intereſting, I paſs it over in Silence to come to the famous one of *Piſa*, concluded in that City the 22d of *February* 1664, between the Pope *Alexander* VII. and *Louis* XIV. King of *France*, on Occaſion of the Inſults done to the Lady of the Duke of *Crequi*, the *French* Embaſſador at the Court of *Rome*; where the Curious will ſee, that the Court of *France* is not ſo much bigotted to that of *Rome*, as to ſuffer patiently its Inſults.

TREATY OF PISA, *between our holy Father the Pope* Alexander VII. *and the moſt high, moſt excellent, and moſt potent Prince* Louis XIV. *by the Grace of God, moſt Chriſtian King of* France *and* Navarre.

The DETESTABLE OUTRAGE, committed in *Rome* by the *Corſican* Soldiers the 20th of *Auguſt* 1662, againſt M. the Duke of *Crequi*, Embaſſador Extraordinary of the Moſt Chriſtian King, having given to his Majeſty a juſt Subject of Diſpleaſure, and cauſed a very great Sorrow to his Holineſs: His ſaid Holineſs, as a Father jealous of the Honour of his Child, deſiring to repair entirely ſuch an Injury done to the firſt-born of the Church in the Perſon of his Embaſſador, in order to maintain on his Side, as well as his Majeſty on his, a perfect Intelligence, and prevent all the Evils which Chriſtendom could ſuffer from the Sequel of that Accident, has given full Power and entire Faculty to M. *Raſponi*, to agree with the Plenipotentiary of the moſt Chriſtian King, of the Satisfactions due to his Majeſty for ſo great an Outrage. And M. *de Bourlemont* being furniſhed with the ſame full Power from his Majeſty, for the ſame Ends; the ſaid Plenipotentiaries, after the reſpective Communications of their Powers, of which they are remained ſatisfied, have adjuſted, concluded, and determined the following Articles.

I. His Holineſs, to ſhew his paternal Affection to his Moſt Chriſtian Majeſty, and in Conſideration of what ſhall be ſtipulated, and ſettled by the preſent *Treaty*, immediately after the ſigning thereof, with Deliberation, and with the Conſent of the ſacred College, ſhall *diſincamerate*, i. e. revoke, and annul the *Incameration* of the States of *Caſtro* and *Ranciglione*, and of all their Annexes, Appurtenances, and Dependences, and grant at the ſame Time to M. the Duke of *Parma*, a Delay of eight Years, conformably to that which was granted him by the Contract paſſed between the Reverend Apoſtolical Chamber and him, in which Time he will be allowed to recover and redeem the ſaid States, in returning and paying effectually one Million ſix hundred and twenty-nine thouſand ſeven hundred and fifty Crowns, due to the Apoſtolical Chamber according to the ſaid Contract; and moreover, to oblige the King, ſhall give to the ſaid Duke the Power of making that Redemption, and to pay the ſaid Sum in two different Payments; in ſuch a Manner that having made the firſt Payment one half of the ſaid States ſhall be accounted redeemed, and he'll be intitled to take Poſſeſſion of them, and enjoy them freely; the other half remaining in the Power of the Apoſtolical Chamber, till the Payment of the Surplus. And that the Diviſion which is to be made of the ſaid Eſtates into two equal Portions, may be made ſoon, in two Months, reckoning from the Day of the Ratification of the preſent *Treaty*, the Parties ſhall agree on Viewers to make that Partition with a common Accord, and declare the Appurtenances and Annexes of each Portion, leaving to the Choice of the ſaid Duke to redeem the Part he pleaſes; and if the Viewers do not agree in ſix Months after their Election, either the ſaid Duke ſhall regulate himſelf the Partition of the ſaid Eſtates in two equal Portions, which being thus made, it ſhall belong to the Apoſtolical Chamber to preſcribe to the ſaid Duke the Proportion he ſhall redeem firſt, paying half the ſaid Sum; the other Portion remaining in the Power of the Chamber, till he has paid the Surplus of the ſaid Sum in the Time granted to him; or the ſaid Duke refuſing to make himſelf that Partition, and to accept that Offer; in that Caſe the Chamber ſhall make the two Parts, and it will be free for the ſaid Duke

Duke to chuſe which of the two he'll be willing to redeem firſt, and ſhall be obliged to declare in two Years whether he deſign'd to make the ſaid Partition, or leave it to be made by the Apoſtolical Chamber.

II. His Holineſs likewiſe, in favour of his Majeſty, and in Conſideration, and to account for the Valley of *Comacchio*, and all other Pretenſion and Reaſon which M. the Duke of *Modena* and the Houſe of *Eſte* could have againſt the Apoſtolical Chamber, in what Manner ſoever, ſhall take upon him the Mount *D'Eſte* amounting to three hundred thouſand Crowns, or thereabouts, with all the Commodities and Incommodities which may attend the Extinction of the ſaid Mount, together the Arrears due, and not paid, amounting to very near the Sum of fifty thouſand Crowns, and ſhall give beſides to the ſaid Duke forty thouſand Crowns ready Money, or a Palace in *Rome* of the like Value, at the Choice of his Holineſs, and to the Satisfaction of the ſaid Duke; provided, and on Condition notwithſtanding, that all the Reaſons and Pretenſions, as well of the ſaid Duke againſt the Chamber, either in virtue of *Fideicommis*, or Primogeniture, or of ſome other Chief, Nature, Quality, and Condition whatever; as of the Chamber againſt the ſaid Duke, of what Nature, Quality, or Condition they be, ſhall remain extinct on either Side, by means of the preſent *Treaty*, which the ſaid Parties, their Heirs, and Succeſſors reſpectively, ſhall never be allowed to retract or diſpute under what Pretext ſoever; and that a publick Act thereof ſhall be paſſed by Madame the Ducheſs of *Modena*, and other lawful Tutors of the ſaid Duke, with the neceſſary Clauſes and Solemnities, even for the Security of the Primogeniture, or other Obligations ordered by the Predeceſſors of the ſaid Duke, and with Promiſe to have them ratified by his Highneſs, ſo ſoon as he ſhall be of Age to do it, mean while his Majeſty has for agreeable to give his Word that all ſhall be executed, to render the Accommodation contained in the preſent Articles perpetual and inviolable.

And to oblige ſtill more his Majeſty, his Holineſs ſhall grant to the ſaid Duke and his Succeſſors for ever, the Right of Patronage to the Abbey *della Pompoſa*, and *Della Pieve del Bondeno*, with Power to preſent to them freely, were they even to become vacant *in curia*; as likewiſe with a Decree that they ſhould not be compriſed under the Rules of the Chancery, nor ſubject to any apoſtolical Reſervations, and that at the Conceſſion of the aforeſaid Rights of Patronage, may have all the ſame Prerogatives as if they were to proceed from Donation, Erection or Foundation: His Holineſs derogating for that Effect to all the Conſtitutions, Privileges and Cuſtoms which might be to the contrary, and to all the Derogations of Derogatories, of which ſhall be expedited a Brief in good and due Form; declaring beſides his Holineſs, that neither he, nor his Succeſſors to the Pontificate, for what Cauſe ſoever, ſhall ever contravene to the preſent Treaty; the ſaid Duke declaring the ſame for himſelf, his Heirs and Succeſſors.

III. M. the Cardinal *Chigi*, ſhall go in the Quality of a Legate into *France*, and in the firſt Audience he ſhall have of his Majeſty, ſay to him in proper Terms what follows.

SIRE, *His Holineſs has felt with a very great Grief the unhappy Accidents which have happened; and the Subjects of Diſcontent your Majeſty has had from them, have cauſed him the moſt ſenſible Diſpleaſure he was capable to receive; aſſuring him that it was never the Thought or Intention of his Holineſs, that your Majeſty ſhould be offended, nor M. the Duke of* Crequi *his Embaſſador; his ſaid Holineſs deſiring that for the future there may be on both Sides the ſame good and ſincere Intelligence that has always been. In my own Particular, I proteſt to your Majeſty, with the moſt profound Reſpect I am capable of, the Joy I have to be thus freely admitted to let your Majeſty know by the moſt ſubmiſſive and ſincere Actions of my Obedience, the Veneration I have, and all my Houſe likewiſe, for the glorious Name of your Majeſty; with what Fidelity and Zeal I profeſs all the true Laws of Servitude to the Royal Perſon and Houſe of your Majeſty, how much the Accidents happened at* Rome *have been far from our Sentiments; and with what bitter Sorrow I have learned that myſelf and my Houſe have been, in that charged with ſiniſtrous Imputations, and very remote from that Reverence and Devotion we profeſs, and which we'll have always a particular Deſire and Ambition to profeſs towards your Majeſty. On the contrary, if myſelf or our Houſe had had the leaſt Part in the Outrage of the 20th of* Auguſt, *we would judge ourſelves unworthy of the Forgiveneſs which we would, and had been obliged to aſk your Majeſty; deſiring him to believe that theſe Words and theſe Sentiments are expreſſed with a very ſincere Heart* (let who will believe it, for my Part I don't) *and inclined, as well as all thoſe of my Houſe, to have always a ſingular Veneration and perfect Devotion for your Majeſty.*

IV. The Cardinal *Imperiali* having intreated his Majeſty that he would be pleaſed to admit him to bring himſelf in Perſon to his Majeſty his moſt humble Juſtifications, he ſhall acquit himſelf of it immediately; his Majeſty having for agreeable at preſent that he ſhould do it.

V. His Holineſs, in favour of his Majeſty, ſhall permit preſently the Cardinal *Maldachini* to return to *Rome*, where he ſhall enjoy for the future all the Prerogatives of his Dignity, and exerciſe the Functions of the Cardinalſhip without the leaſt Diſturbance or Moleſtation, by reaſon of any Prejudice he may have incurred for quitting the eccleſiaſtical Dominions, in Obedience to his Majeſty, who had let him know that it was his Intention he ſhould do it. On which, for a greater Security, a Brief ſhall be expedited, according to his Majeſty's Deſire; and he ſhall be reintegrated in his Eſtates, in caſe he had ſuffered ſome Loſſes on account of his leaving the Eccleſiaſtical State.

VI. The Lord *Dom Mario* ſhall declare in Writing, on the Faith of a Chevalier, that he has had no Part in all that happened at *Rome* the 20th of *Auguſt* 1662. And that Writing ſhall be accompanied with a Brief of his Holineſs, where he ſhall teſtify that the ſaid *Dom Mario* is truly innocent of all that was done the ſaid Day. And to ſhew ſtill better the Deſire his Holineſs has to do all Things capable to ſatisfy his Majeſty, he ſhall order the ſaid *Dom Mario* to keep out of *Rome*, till after the ſaid Cardinal *Chigi* has ſeen his Majeſty, and preſented to him his Excuſes, in the Name of all his Family.

VII. The Lord *Dom Auguſtin* ſhall go to meet M. the Embaſſador at *St. Quiricio*, if he comes through *Tuſcany*, and at *Civita Vecchia* if he comes by Sea, and at *Narni*, if he comes to *Romagna* or *Lombardy*, and ſhall expreſs to him the Diſpleaſure of his Holineſs, for the Accident happened the 20th of *Auguſt*.

VIII. The Day of the Arrival of the Lady Embaſſadreſs at *Rome*, the Seignora Donna *Berenice*, or the Princeſs *Farneſe*, ſhall go to meet the ſaid Lady Embaſſadreſs as far as *Pontemole*, and expreſs to her the extreme Diſpleaſure ſhe has, and likewiſe all thoſe of her Houſe, for the Accident of the 20th of *Auguſt*, and the Joy ſhe feels at the Return of her Excellency, *(though ſhe had been better pleaſed to keep that Joy within herſelf).*

IX. His Holineſs ſhall order in a preciſe and efficacious Manner to all his Miniſters, to bear to the Embaſſadors of his Majeſty the Reſpect due to him who repreſents the Perſon of ſo great a King, the firſt-born of the Church, and ſo much loved and eſteemed of his Holineſs.

X. His Holineſs, in Conſideration of his Majeſty ſhall cauſe to be cancelled and annulled all the Proceedings made againſt M. the Duke *Ceſarini*, without any future Moleſtation. As to the Damages which the Miniſters of his Holineſs have cauſed him, he ſhall order that they be repaired in four Months after the Ratification of the preſent *Treaty*, according to the juſt Eſtimation which ſhall be made of them.

XI. All Decrees and other Acts, which may have been made in Conſequence of the Accident of the 20th of *Auguſt*, againſt the *Roman* Barons, and any other Perſons of what Nation and Condition they be, will be cancelled and made void, and neither ſhall they henceforward receive any Prejudice, nor be troubled, nor called to any Account on any Pretence whatever after the ſaid Accident.

XII. The whole *Corſican* Nation ſhall be declared uncapable of ever ſerving, not only in *Rome*, but likewiſe in the whole Eccleſiaſtical State; and the Barigel of *Rome* ſhall be deprived of his Poſt and baniſhed.

XIII. A Pyramid shall be raised at *Rome* over-against the old *Corps de Guard* of the *Corsicans*, with an Inscription on the Terms concerted, which shall contain in Substance the Decree given against the *Corsican* Nation.

XIV. The Most Christian King, immediately after the Legate shall have been seen of his Majesty, shall restore to the Pope and the holy apostolical See, the City of *Avignon* and the County *Venaissin*, with all Appurtenances, and Dependencies, and cause to be cancelled, and made void all Acts and Arrests, and all that has been done by the Parliament of *Aix* relating to that Affair, causing all Obstacles to be raised, that the holy apostolical See may enjoy it as before.

The Inhabitants of the City of *Avignon*, and of the County *Venaissin* of what State, Quality, Condition and Sex they be, as well Ecclesiastick as Laicks, Nobles, or Plebeians, without Exception, or any Person, whether he be born in the said City or County, or settled there, *&c.* shall not be troubled under what Pretence, or questioned about any Thing happened in the said City or County, from the 20th of *August* 1662, to the Day of the Restitution of the said City and County, by the Most Christian King, to the Pope and the holy See.

The said Inhabitants shall enjoy a full, peaceable, and undisturbed Security, in virtue and by the Benefit of the present *Treaty*; and his Holiness shall give faithfully, without any Reservation, either tacit or expressed, all the Orders, Edicts, Declarations, and Assurances, which shall be desired by his Majesty, that the Inhabitants of *Avignon* and of the said County, directly or indirectly, virtually or expressly comprized under the Clauses affixed at the Beginning of the present Article, as well of the City of *Avignon*, and other Cities of the said County, as of the Commonalties, Boroughs, Castles, and other subaltern Places of the Extent thereof, may not receive any Trouble, Pain, and Condemnation of the Officers of his Holiness, either in Judgment or without, neither in their Goods nor Persons, in Hatred, Resentment, or Revenge of all that has been done, and passed in the said City, and the said County, in Consequence of the Affair happened at *Rome* the 20th of *August* 1662, and for the Execution of all the Clauses here above, his Holiness shall give all the said Expeditions, in the best Form, and most authentick, which his Most Christian Majesty shall judge necessary for the Security and Indemnification of the City of *Avignon*, and of the whole County as above-mentioned.

And his Holiness, considering that there is but one Judge in *Avignon*, and another for the whole County, shall give them Assessors, that Justice be better administered.

XV. The said Plenipotentiaries having likewise made Reflection that the Intention of his Most Christian Majesty was always that the Disincameration of *Castro*, with the Concession of a new Delay, should serve of Preliminary to the whole Accommodation which could be made, and that likewise in this *Treaty of Pisa*, the Intention of his said Majesty is to restore the City of *Avignon*, and the whole County to the Pope, and to the holy See; declare for a Eclaircissement of the Things aforesaid, that they have agreed among themselves, that the Disincameration of *Castro*, with the Concession of a new Delay, shall be executed in the Form stipulated, and agreed upon in the first Article, before the Exchange and reciprocal Delivery of the Ratifications; and respectively likewise, the Most Christian King shall restore to the Pope and to the holy apostolical See the City of *Avignon*, and the County *Venessain*, in the Form settled in the fourteenth Article, immediately after the Legate shall have had his Audience of his Majesty.

The said Plenipotentiaries have promised, and promise in virtue of their Commission, and full Powers (a Copy thereof shall be affixed at the End of this present *Treaty*) that as well his Holiness and the holy See, as his Most Christian Majesty, shall fully, and without either direct or indirect Contravention, execute the present *Treaty*, and keep afterwards really and faithfully the Conventions thereof; that all the Points and Articles agreed upon, and settled among them the Plenipotentiaries, shall be without any Modification, Diminution, and Reformation, purely and simply, accepted, confirmed and ratified reciprocally by his Holiness, and by his Most Christian Majesty; and that their Letters of Ratification (in which the present *Treaty* shall be inserted Word for Word) will be dispatched in the most authentick and best Form, *viz.* by his Holiness in the Term of ten Days; and by his Most Christian Majesty in the Term of thirty Days, after the signing of this present *Treaty*, and even sooner if possible: Which Ratifications shall be exchanged on either Side in the said Space of thirty Days. In Faith thereof, the said Plenipotentiaries have signed the present Treaty, and have caused to be affixed to it the Seal of their Arms, at *Pisa* the 22d of *February* 1664.

Signed,

CÆSAR RASPONI, Apostolical Plenipotentiary.
LOUIS DE BOURLEMONT, Plenipotentiary of the Most Christian King.

We see in this Treaty, St. *Peter*, *repenting once more at the crowing of the Cock*; the holy Father prostrated at the Feet of his First born, and imploring his Mercy, and the *Roman* Pride and Insolence, punished in the most violent, tho' the most just Manner. Under a King who had been more bigotted to the Court of *Rome*, more meek, and less jealous of his Honour, than was *Louis* XIV, the Vatican had thundered, and the *French* had employed nothing else to it, but Prayers and Supplications to divert the Tempest; but *Louis* knew by Experience that Prayers were not always efficacious in those dangerous Cases; but on the contrary had served sometimes rather to increase the Storm than to appease it; therefore he had recourse to a sure Preservative in those Cases, *viz.* Iron, whereof he made a very quick and very good Use. All the Pope's Kindred mentioned in the Treaty, and obliged by it to make Satisfaction to his Most Christian Majesty, had been either Actors or Accessaries to the Insult done to the Duchess of *Crequi* the *French* Embassadress, and Pope *Alexander* VII. then sitting on *Peter*'s Chair, who was not thought well affected to the Court of *France*, was suspected of having connived at it: The first Thing the King of *France* did to attain a just Satisfaction of that Affront done to him in the Person of his Embassador, and which he know could never be expected otherwise, was to seize on the City of *Avignon*, and on the whole County *Venaissin*, and forbid all his Subjects to send Money to *Rome* on any Account whatever, either for Bulls, Dispensations, *&c.* threatning even the Pope with a Visit, which had not been very agreeable to him, appealing at the same Time to a future Council, from all the ecclesiastical Censures which the Pope could fulminate against him. This had soon the desired Effect, and brought the Pope to all these Submissions, which till then the Court of *Rome* had thought impracticable, as unbecoming the Dignity of sovereign Pontif, some of whose Successors had been infatuated with the vain and chimerical Idea, that they could dispose of Crowns and Diadems, and trampled on them whenever they pleased. But those Times of a pious Ignorance were no more: For though *Louis* XIV. knew very well the Respect he owed the holy See, for the spiritual; he knew as well what he owed to his royal Dignity, which he holds immediately from God alone; that the Government of the Pope over the Christian World was purely spiritual; and when he attempted to extend it further, he was an Usurper, and deserved to be treated as such. In the former Case his Most Christian Majesty considers himself as the first-born of the Church, and would be loth to vex his holy Mother, and his good Father; but in the latter he has no Notion of such Affinity; and thinks it not a Want of Respect, to resist him when he is unruly, and falls into the Paroxisms of a phrenzical Pride. The Erection of the Pyramid was the most bitter of all those Pills, notwithstanding which the holy Father was obliged to swallow it; and continued standing, till at the Intreaties of Pope *Clement* XI. for whom the King of *France* had a very great Veneration, he permitted that it should be pulled down.

Having done entertaining my Reader with the Differences between the Pope and the King of *France*, and given them the *Treaty* made in consequence thereof; I'll give them another concluded between the *French* Huguenots and the King of *Spain*, though the most implaca-

implacable Enemy of their Religion; to shew the *English* Nation, that the greatest Part of them were more actuated by a Motive of Rebellion, than by one of Religion; and that they wanted to establish the Kingdom of *Jesus* in *France*, on the same Foundation, and in the same Manner their Brethren did afterwards in *England*. —Therefore,

A TREATY *made between the King of* Spain *and the Duke of* Rohan, *in the Name of the Rebels of* France, *at* Madrid *in* Spain, *the* 13*th of* May 1629.

M. *de Clauzel* being come to this Court from the Duke of *Rohan*, to represent to his Catholick Majesty the State of Affairs, and of those of his Party and Adherents, and the *Desire they have to serve his Catholick Majesty*, the said *Clauzel* has made the following Demands and Offers.

I. That the Sieur *de Rohan* most humbly intreats his Catholick Majesty, supposing that the Reason of State should permit him, to succour and assist him with some Sums of Money, to maintain the War he waged in *France* for several Years past, by means whereof he offers his most humble Services to his Catholick Majesty, who then may employ him, when, and how he shall think fit.

II. The said Duke of *Rohan* offers to maintain the War, and continue it for all the Time it shall please his Catholick Majesty, provided he be pleased to assist him with 600,000 Gold Ducats, to be paid in ready Money in two Payments, the first before-hand, on account thereof he shall be obliged to entertain commonly 12,000 Foot, and 1200 Horse, to make what Diversion it shall please his Majesty, either in the Higher or Lower *Languedoc*, *Provence*, *Dauphiny*, at the Choice of his Majesty.

III. Offering besides the said Duke of *Rohan* to his Catholick Majesty, to support at any Time, and with all his Power the Designs of his said Majesty.

IV. Promise besides the said Duke of *Rohan*, to maintain, and give full and entire Liberty of Conscience, as well in the Cities which himself and those of his Party hold, as likewise in all the others which they may acquire hereafter, and in all the Boroughs, Towns and Villages, and other Places possessed at present, and that he or those of his Party may possess afterwards.

V. Promise besides, the said Duke of *Rohan* to preserve the Convents of Religious in the Condition they are, making them enjoy peaceably their Churches, Goods, Possessions, Fruits, and likewise all other Ecclesiasticks, without disturbing them in any Thing.

VI. And the Case happening that the said Duke of *Rohan* and those of his Party, could render themselves so strong, as to be able to canton themselves and form a separate State, in such a Case they promise likewise a Liberty of Conscience, and the free Exercise of their Religion to the Catholicks, and to that Effect the said Exercise can be made in all the Cities, Villages, and other Places they hold, as in those they shall acquire afterwards.

VII. The Catholicks shall enjoy all their Goods present and to come, and shall be treated in all the Charges and Impositions equally with the others, and those of the said Party shall be obliged to preserve all the Religious and Nuns, in their Possessions, Dignities, and Honours.

VIII. The Catholicks shall enter into all the Employments of the Cities, and be admitted to them like the other, and shall be received into all the Presidials, Senechalsees, Parliaments, Chambers of Accounts, and into all other Offices of Justice. Finally the Catholicks shall be maintained in all their Possessions, Honours, and Dignities, like those of the other Party, except in what regards the Security of those of the said Party.

IX. Offering besides the said Duke of *Rohan* to render all Sorts of Services in his Power, and with a very great Affection to his Catholick Majesty.

X. And Case happening that the said Duke of *Rohan* should treat of Peace, with the Knowledge, and Consent of his Catholick Majesty, he shall be obliged to break it, whenever his Catholick Majesty shall think fit, and to continue the War by means of the same Favours, and Help of 600,000 Ducats yearly, so long as it shall please his Catholick Majesty.

XI. And to that End he humbly intreats his Catholick Majesty, that he be pleased to grant him the Graces and Favours, which had been offered to him the preceding Wars, to give him a Pension, to enable him to maintain the Officers, Nobility, and Governors of Places, keep them at his Devotion, and make them play the Game he'll be willing they should with regard to the Service of his Catholick Majesty.

XII. And whereas the said Pensions, Estates and Benefits, are to render himself for ever a faithful and hired Servant of so great a King and foreign Prince, and that he the said Lord runs a Risk, if this was discovered to be declared guilty of High Treason, and lose his Estate, the said M. *Clauzel* humbly prays his Catholick Majesty, in the Name of the said Duke of *Rohan*, that he be pleased to augment his Pension, which was of 40,000 Gold Ducats, of 3 or 4000; and that of M. *de Soubize*, which was of 8000, increase to 10; and that which was of 8000 for the Officers, Nobility, and Governors, increase it likewise to 10,000 particularly at present they are going to serve his Majesty, in such a Manner that they have not perhaps heretofore done it.

XIII. For all which Offers above written, the said M. *Clauzel* engages the Word of a Prince of Honour, and very religious (*mark that gentle Reader, how much Honour and Religion could a Prince have who attempted to dethrone his own Sovereign, and involve his own Country in Desolation and Blood*) signed with the Name of a *Scoundrel*, I should say a Gentleman sent by the said Duke of *Rohan*, who most humbly prays his Catholick Majesty to believe that all this *Treaty* shall be observed exactly by the said Duke of *Rohan*, who will call himself eternally the humble Subject and Servant of his Catholick Majesty.

Signed, CLAUZEL.

His Majesty having seen the Propositions and Offers above-written, made on the Part of the Duke of *Rohan*, by the said *Clauzel*, being, as it is certain, his Catholick Majesty strictly obliged to procure the Preservation of the Estates and Kingdoms, which it has pleased God to give him, and to that Effect make use of all proper, lawful, and necessary Means that offer; considering likewise the great Losses and Damages which his Dominions have received, and receive daily, by means of the Favours and Assistance which the Kings of *France* have given for several Years past, and give the Vassals of his Majesty in *Holland*, against their natural and legitimate Lord; considering besides, that the said Kings seem to have no other End than to protect at all Times, and in all Places against his Majesty, those against whom he is forced by Reason and Justice to employ his Authority and Power, to have restored what belongs to every one, without any other Interest than that of the greatest Glory of God (*mark likewise this Manner of jesting with Heaven*) the whole without his Catholick Majesty having given any Subject to *France* to act thus, and without *France* having any Pretext to do it, as if something was detained from her which belongs to her lawfully, which is not; or that his Majesty had Intention to wrong his Allies, which God forbids; and therefore having his Majesty communicated all this to his Council of Conscience (*which seldom has any*) composed of Persons of great Integrity; they have judged that it was expedient to provide for the just Defence of his Dominions against so unjust an Action as is that of the King of *France* done against all Right and Justice. In that Consideration having resolved to accept, and conclude a *Treaty* between the said Duke of *Rohan*, and those of his Party at their Request, has granted to them the following Capitulations.

I. That's to say, that his Catholick Majesty accepts the Offer of the said Duke of *Rohan* to continue the War he wages at present in *France* for all the Time it shall please his Catholick Majesty, who will pay yearly for that Effect, to the said Duke of *Rohan*, 300,000 Ducats of twelve Reals of *Castille*, to be paid in two Terms of six Months each.

II. His Catholick Majesty accepts likewise, the Offer of the said Duke of *Rohan*, of maintaining by means of the said 300,000 Ducats, an Army to the *pro rata* thereof, *viz.* 6000 Foot and 600 Horse, which those of the said Party of the Duke of *Rohan* shall keep for the same Effect,

Effect of the War, which, to make Diversion, they shall wage in *Provence*, *Dauphiny*, *Languedoc*, or other Places which shall be judged more convenient for the just Designs, and the Defence of the Dominions of his Catholick Majesty, and he shall order; provided notwithstanding, and on express Conditions, that the Catholicks shall in no Manner be disturbed or molested by those of the Party of the said Duke of *Rohan*, in their Religion.

III. And the Case happening that those of the said Party could form a Government a part, in that Case his Catholick Majesty will, and it is his Intention, that those of the said Party shall be obliged to keep all the Articles above-mentioned, with regard to the said Catholicks.

IV. The said Duke of *Rohan*, and those of his Party, shall not treat or conclude a Peace without the Knowledge or Consent of his Catholick Majesty; and the Case happening that such a Thing should be done, even with the Consent of his said Majesty, the said Duke of *Rohan*, and those of his Party, shall be obliged, notwithstanding, to break all the said Treaties, and renew the War whenever it shall please his Catholick Majesty, on consideration of the Payment of the aforesaid three hundred thousand Ducats, and others under granted; and continue it at the Pleasure of his Catholick Majesty.

V. His Catholick Majesty grants, and will cause to be paid to the said Duke, forty thousand Ducats of yearly Pension; and to M. *de Soubize*, his Brother, eight thousand Ducats yearly likewise; which the said Duke may divide among his Captains and Officers, as he'll judge proper.

VI. Of the three hundred thousand Ducats, his Catholick Majesty shall cause to be paid to the Duke of *Rohan*, an hundred and fifty thousand at the Place required by him, either in ready Money, or in Bills of Exchange, at the same Time that the said Duke of *Rohan* shall return the present Treaty by him sworn to, signed with his own Hand, and sealed with the Seal of his Arms, to the Person who shall be sent to him.

VII. The said Duke of *Rohan* shall procure with all his Power, and faithfully, that the Deputies of his Towns shall swear and approve the present Treaty, and submit themselves to the Obedience of his Catholick Majesty, so that no other Consideration may deter them from it, before the second Payment.

VIII. Declaring his Catholick Majesty, that the present Treaty shall be kept; and observed inviolably on both Sides; and that it shall begin to be in Force from that Day it is signed by the said Duke of *Rohan*; to which said Duke his Catholick Majesty promises to execute all that is contained in the said Treaty, *&c.*

All above has been concluded, and settled by Order of his Majesty, by the said M. *Clauzel*, and Don *Juan* of *Billela*, of the Council of State of his Catholick Majesty, and his first Secretary in all his Chanceries.—I have signed the present Treaty in the Name of his said Majesty, as likewise the said *M. de Clauzel*, in the Name of the said Duke of *Rohan*; which the said Duke shall ratify, swear and sign, as above-mentioned.

Done at *Madrid*, the Third Day of *May* 1629.

Signed *DON JUAN BILLELA*, for his Catholick Majesty, and *DE CLAUZEL* for *M. de Rohan*.

We do not find in this *Treaty*, that the *Huguenots*, and their Chief, cloak their Rebellion with the usual Pretext of Religion; which, in Fact, had not been a persuasive Argument at the Court of *Madrid*; but insist all along on the Desire they have to serve the King of *Spain* against their lawful Sovereign, and to forfeit their Allegiance, by becoming the faithful Subjects of a Prince, whom they knew, at the same Time, to be the most mortal Enemy of their Religion; and who, had he succeeded in his Enterprises against *France*, had treated them with the greatest Severity; while under their own natural King, they enjoyed more Privileges, considering their frequent and dangerous Rebellions, than they could reasonably have expected; therefore we can justly conclude, that their Religion, which they had pleaded at the Court of *England*, to execute their sacrilegious Enterprise, at the same Time they were offering to become the faithful Subjects of the Catholick King, which was a declared Enemy of it, was nothing else but a damnable Hypocrisy, and no Religion at all; and the real Truth was, that their whole Design was to dethrone their legitimate Sovereign, as they expreſt in plain Terms, in their second Article, where they say, that *the Case happening that the said Duke of* Rohan, *and those of his Party could become so strong, as to be able to canton themselves, and* FORM A STATE A-PART; which they had certainly done long before that Time, if the greatest and most sensible Part of the *French* Nation had been so little affected to their King, as the *English* were to King *Charles* I. But praised be Heaven, our Kings have all had the Happiness to reign in our Hearts, with a still greater Power, than over our Persons, and a few ambitious Princes and Nobles excepted, who made the Ignorance of the Rabble who marched under their rebellious Standards, subservient to their Ambition, all the rest of their Subjects have always been ready to expose their Lives and Fortunes in their Defence.

Note, That all the Treaties heretofore mentioned being only particular Treaties, I'll give here the famous *general one of* MUNSTER *in Westphalia*, concluded the 24th of *October* 1648, which has served for a Basis for almost all the other general *Treaties* which have been made since.

TREATY OF MUNSTER.

IN the Name of the *most holy* and *indivisible Trinity*.

May it be known to all and every one whom it concerns, or may, in any Manner, concern hereafter, that Discords and civil Dissentions having been excited in the Empire for several Years past, which have increased in such a Manner, that not only all *Germany*, but likewise the neighbouring Kingdoms, and *France* in particular, have been enveloped in the Disorders of a long and cruel War, which was a Sequel thereof; and first, between the most serene and most mighty Prince and Lord *Ferdinand* II. of happy and glorious Memory, elected Emperor of *Germany*, always *Augustus* King of *Germany*, *Hungary*, *Bohemia*, *Dalmatia*, *Croatia*, *Sclavonia*, Arch-Duke of *Austria*, Duke of *Burgundy*, *Styria*, *Carinthia*, *Carniole*, Marquis of *Moravia*, Duke of *Luxemburg*, of the Upper and Lower *Silesia*, of *Wittenberg* and *Tuke*, Prince of *Suabia*, Count of *Hapsbourg*, (*which last is the first Title of the House of* Austria) of *Tyrol*, &c, &c. and the most serene and most mighty Prince and Lord *Louis* XIII. of happy and glorious Memory, most Christian King of *France* and *Navarre*, with their Allies and Adherents on the other Part. And after their Decease, that then the most serene and most mighty Prince and Lord *Ferdinand* III. elected King of the *Romans*, always *Augustus* King of *Germany*, &c. &c. (all the other Titles as above) with his Allies and Adherents on one Part, and the most serene and most mighty Prince and Lord *Lewis* XIV. most Christian King of *France* and *Navarre*, with his Allies and Adherents on the other Part; whence has followed a great Effusion of Christian Blood, and the Desolation of several Provinces. It has happened, at last, by an Effect of the divine Goodness, seconded by the most serene Republick of *Venice*, which, in those bad Times, while all Christendom was in Trouble, has never discontinued to contribute, by her good Advices, to the publick Tranquility, that the Thoughts of a general Peace have been conceived on all Sides, and to that Effect, by a mutual Agreement and Convention of the Parties, that in the Year of our Lord 1641, the 25th of *December*, N. S. and the 15th. O. S. it was resolved at *Hamburgh*, to make an Assembly of Ambassadors Plenipotentiaries, who should resort to *Munster*, and to *Osnaburgh* in *Westphalia*, the 11th of *July*, N. S. and the 1st of the same Month, O. S. 1643, the Ambassadors Plenipotentiaries on either Part duly appointed, appearing then, at the same Time, and on the Part of his Imperial Majesty, the most illustrious and most excellent Lord *Maximilian*, Count of *Trautsmonsdorf* and *Weinsberg*, Baron of *Weithemberg*, &c. &c. Knight of the Golden Fleece, Privy councellor, Chamberlain of his sacred Imperial Majesty, and high Steward of his Houshold. The Lord *John Lewis* Count of *Nassau*, *Catzenellebogen*, *Vianden*, &c. &c. Privy councellor of the Emperor,

Emperor, and Knight of the *Golden Fleece*; and M. *Isaac Volunamarus*, Doctor in Law, Counsellor, and President in the Chamber of the most serene Lord, the Archduke *Ferdinand Charles*. And on the Part of the Most Christian King, the most high Prince and Lord, *Henry* of *Orleans*, Duke of *Longueville*, and *Estouteville*, Prince and sovereign Count of *Neufchastel*, &c. Knight of the King's Orders, *&c.* as likewise the most illustrious and most excellent Lords, *Claudius de Mesmes*, Count *d'Avaux*, Commander of the King's Orders, one of the Superintendants of his Finances, and Minister of the Kingdom of *France*, &c. and *Abel Servien*, Count of *La Roche*, &c. Likewise one of the Ministers of the Kingdom of *France*. And by the Intervention and Mediation of the most illustrious and most excellent Ambassador, and Senator of *Venice*, *Aloysius Contarini*, Knight, who for the Space of five Years, or thereabout, has with a great Diligence, and an entirely disinterested Mind carried himself as Mediator in those Affairs. After having implor'd the divine Assistance, and in a reciprocal Communication of the Letters and Commissions of the Plenipotentiaries, the Copies thereof are inserted Word for Word, at the End of this Treaty, as it should be present, approving, and consenting, the Electors of the sacred *Roman* Empire, the other Princes and States, to the Glory of God, and for the Good of the Christian Commonwealth, it has been consented, and agreed on the reciprocal Conditions of Peace and Amity, in the following Manner.

That there may be an universal Christian Peace, and a perpetual, true, and sincere Friendship between the sacred Imperial Majesty, and the sacred Most Christian Majesty; as likewise between all, and every one of the Allies, and Adherents of the said Imperial Majesty, the House of *Austria*, and her Heirs and Successors, but particularly betweeen the Electors, Princes, and States of the Empire on one Part; and all, and every one of the Allies of the said Most Christian Majesty, and all their Heirs and Successors; particularly between the most serene Queen of *Sweden*, the Electors respectively, the Princes and Electors on the other Part. That that Peace and Amity may be observed and cultivated with such Sincerity and Zeal, that each Part endeavours to procure the Utility, Honour, and Advantage of one another; that thus, on all Sides, the Good of that Peace and Amity may be seen to reflourish in the *Roman* Empire, and in the Kingdom of *France*, by maintaining a good and faithful Neighbourhood.

That there shall be, on either Side, a perpetual Oblivion and Amnesty, or Forgiveness of all that has been done since the Beginning of those Troubles, in what Place or Manner soever the Hostilities have been committed; so that henceforward, neither for any of those Causes, nor under any other Pretence, shall be committed against one another, any Act of Hostility, or any unfriendly Office done, or any Hindrance given, either with Regard to the Persons, or to the Condition, or to the Goods and Security, and that either by oneself, or by others, secretly, or openly, directly, or indirectly, under Appearance or Right, by Way of Fact, either within or without the Extent of the Empire, notwithstanding all contrary Commotions made before. That no Injury or Wrong shall be done, or permitted to be done to any Body: But that all that has happen'd on either Side, as well before, as during the War, either by injurious Words, Writings, or Actions, by Violences, Hostilities, Damages, and Expences, without any Regard to the Persons, and Things, be entirely forgotten, so that what one could ask or pretend on the other, on that Account be buried in an eternal Oblivion.

And that the reciprocal Love between the Emperor and the most Christian King, the Electors, Princes, and States of the Empire, be stronger, and still more sincere (without touching, yet, to the Article of Security, which shall be mentioned hereafter) one shall never assist the Enemies present, or to come of the other, under what Title or Pretence soever, either with Arms, Money, Soldiers, or other Sorts of Ammunitions; and shall not suffer to pass through his Territories, retire, sojourn any Forces Enemy of either of the contracting Parties, and who is a Member of this Pacification. That the Circle of *Burgundy* be, and remain Member of of the Empire, after the Disputes between *France* and *Spain*, comprised in this Treaty, shall be terminated. That, notwithstanding, that neither the Emperor, nor any of the Estates of the Empire, shall meddle in the Wars which are waged at present. That if, hereafter, Disputes should arise between the two Kingdoms, the Necessity of the aforesaid reciprocal Obligation, which is to not help the Enemies of one another, shall always remain firm between the Empire and *France*. That it shall be free, notwithstanding, for the States, each of them in particular, to assist, without the Limits of the Empire, such and such Kingdom; but always according to the Constitutions of the Empire. That the Controversy, with Regard to *Lorrain*, be referred to Arbitrators, named on both Sides, or shall be terminated in the Treaty, between *France* and *Spain*, or by some other amicable Means; and that it shall be free, as well for the Emperor, as for the Electors, Princes, and States of the Empire, to help and forward that Agreement by a friendly Interposition, and other Offices of Pacification, without using, notwithstanding, of Arms and warlike Means.

According to this Foundation of a reciprocal Friendship, and general Amnesty, all, and every one of the Electors of the sacred *Roman* Empire, the Princes, States, (the Nobility which relieve immediately from the Empire included) their Vassals, Subjects, Citizens, Inhabitants, to whom, on Occasion of *Bohemia*, or of the Troubles of *Germany*, or of the Alliances contracted here and there, some Damage or Prejudice has been done by either Party, in any Manner, and under what Pretence soever, as well in their Lordships, Fiefs, Underfiefs, Allodiations, as in their Dignities, Immunities, Rights, and Privileges, be restored, on both Sides, fully in the Ecclesiastical or Laick State, which they enjoy'd, or which they may have lawfully enjoy'd, notwithstanding all Changes, which, in the mean while, have been made to the contrary, which shall remain void.

That if the Possessors of the Estates to be restored, believe, that they have lawful Exceptions, those Exceptions shall not hinder the Restitution, which being made, their Reasons and Exceptions may be examined, afterwards, before the competent Judges, to be determined.

And though by that preceding general Rule, it is easy to judge who are these, and how far Restitution is to be made; however, at the Instance, and in Favour of some Causes of very great Importance, which follow, it has been found proper to make a particular Mention thereof; without, notwithstanding, those who are not expresly named, should be consider'd as excluded and forgotten.

Whereas the Arret, which the Emperor has heretofore caused to be given in the provincial Assembly, against the moveable Goods belonging to the Prince Elector of *Triers*, and transferred to the Dutchy of *Luxembourg*, though given up, and abolished, has, notwithstanding, at the Instance of some, been renewed, and a Sequestration added to it, which the said Assembly has made of the Jurisdiction of *Burch*, belonging to the Archbishoprick, and of half the Lordship of St. *John*, belonging to *John Rheinhard* of *Sacteren*, which is repugnant to the Concordates, made at *Ausbourg*, in the Year 1548; by the publick Intervention of the Empire, between the Electorate of *Triers*, and the Duchy of *Burgundy*. It is agreed, that the aforesaid Arret and Sequestration shall be speedily taken out of the Assembly of *Luxembourg*, that the said Jurisdiction, Lordship, and Electoral and Patrimonial Goods, with the Fruits sequestrated, be given up, and restored to the Lord Elector; and if by Chance something was missing, it shall be fully restored to him; the Impetrators being referred to obtain the Administration of their Right, to the Judge of the Prince Elector, who is Competent in the Empire.

As to what regards the Castles of *Ehrnbetstein*, and of *Hamerstein*, the Emperor shall withdraw, or cause to be withdrawn, the Garrisons, at the Time, and in the Manner, defined hereafter in the Article of the Execution, and shall restore those Castles to the Lord Elector of *Triers*, and to his Metropolitan Chapter, to be in the Guard of the Empire, and of the Electorate; wherefore the Captain, and the new Garrison, which shall be put in

in them by the Elector, shall take, likewise, an Oath of Allegiance to him, and to his Chapter.

After which the Assembly of *Munster*, and of *Osnabrug*, has brought the Palatine Cause to these Terms, that the Dispute which was so long in Agitation, has been terminated in the following Manner.

And first, as to what regards the House of *Bavaria*, the Electoral Dignity, which the Palatine Electors have heretofore enjoyed with all their Regalia, Offices, Precedencies, Arms, and Rights whatsoever, belonging to that Dignity, without Exception, as likewise all the *Upper Palatinate*, and the County of *Cham*, with all their Appurtenances, Regalia, and Rights, shall remain, as heretofore, likewise, for the future, to the Lord *Maximilian*, Count *Palatine* of the *Rhine*, Duke of *Bavaria*, and to his Children, and to all the Line of *William*, while there be in it Male Children.

Reciprocally, the Lord Elector of *Bavaria* shall renounce entirely for himself, and for his Heirs and Successors, to the Debt of thirteen Millions, and to all his Pretensions in the *Higher Austria*, and immediately after the Publication of the Peace, shall give all Acts and Arrets obtained on that Account, to his Imperial Majesty, to be cancell'd, and made void.

As to what regards the *Palatine* House, the Emperor, and the Empire, for the Good of the publick Tranquility, agree, that in Virtue of the present Agreement, there shall be established an eighth Electorate, to be enjoy'd for the future, by the Lord *Charles Louis*, Count *Palatine* of the *Rhine*, and his Heirs and paternal Kin descending from the Branch of *Rudolph*, according to the Order of Succession, expressed in the *Golden Bull*, and that by that Investiture, the Lord *Charles Louis*, and his Heirs shall have no Right, on what has been granted with the Electoral Dignity, to the Lord Elector of *Bavaria*, and to all the Branch of *William*.

Again, that all the *Lower Palatinate*, with all, and every one of the ecclesiastical and secular Goods, Rights, and Appurtenances, which the Princes, and Electors *Palatine* have enjoyed before the Troubles of *Bohemia*; as, likewise, all the Documents, Registers, and Papers, relating to that, shall be fully restored to him, concealing all that has been done against it, and that by the Authority of the Emperor; so that neither the Catholick King, nor any other that retain something of it, may oppose, in any Manner whatever, that Restitution.

But because certain Jurisdictions of *Berg-Stract*, belonging antiently to the Elector of *Mentz*, were in the Year 1463, mortgaged to the *Palatines* for a certain Sum of Money, on Condition of a perpetual Redemption; it has been agreed, that the same Jurisdictions shall remain to the present Lord Elector of *Mayence*, and to his Successors in the Bishoprick of *Mayence*, provided the Price of the Mortgage be paid in ready Money, in the Time prefixed to the Execution of the Peace concluded, and shall ratify all the other Conditions to which he is obliged by the Tenor of the Acts of the Mortgage.

It shall be free, likewise, for the Elector of *Triers*, as Bishop of *Spire*, and for the Bishop of *Worms*, to claim, before the competent Judges, the Rights they pretend to have on certain ecclesiastical Goods, situated in the Territory of the *Lower Palatinate*; unless those Princes should agree among them in an amicable Manner.

That if it should happen that the masculine Branch of *William* should be entirely extinct, the *Palatine* one subsisting still; not only the *Upper Palatinate*, but likewise the Electoral Dignity which belonged to the Duke of *Bavaria*, shall return to the said surviving *Palatines*, possessed at that Time, of their Investiture; but then the eighth Electorate shall be entirely suppressed. That in Case, notwithstanding, of the Return of the *Upper Palatinate*, to the surviving *Palatines*, the Heirs of some allodial States, of the Electors of *Bavaria*, shall remain in Possession of the Rights and Benefices, belonging to them lawfully.

That the Contracts of Family made between the Electoral Houses of *Heidelberg*, and of *Newburg*, relating to the Succession to the Electorate, confirm'd by the preceding Emperors, as likewise all the Rights to the *Rudolphin* Branch, as far as they are not contrary to that Disposition, shall be preserved and maintain'd in full.

Moreover, that if some Fiefs in *Juliers* are found open by lawful Ways, the Questions moved on them, shall be determin'd in Favour of the *Palatines*.

To ease, besides, in some Manner, the Lord *Charles Louis* of the Trouble of providing his Brothers with Appennages; his Imperial Majesty shall cause to be paid to the said Brothers, four hundred thousand Rixdollars in four Years to come, beginning the first of the Year 1648; the Payment to be made of a hundred thousand Rixdollars every Year, with the Interest at Five *per Cent*.

Moreover that all the *Palatinate* House, with all and every one of those who are, or have been in what Manner soever affected to her, especially the Ministers who have served her in this Assembly, as likewise those who have been exiled from the *Palatinate*, shall enjoy the Amnesty above promised, with the same Rights with those comprized in it, or of whom a particular and more ample mention is made in the Article of the Grievances.

Reciprocally the Lord *Charles Louis* and his Brothers, shall pay Obedience, and keep Fidelity to his Imperial Majesty, like the other Electors and Princes of the Empire; and renounce their Pretensions to the High *Palatinate*, as well for themselves as for their Heirs, and that while any legitimate and male Heir of the Branch of *William* remains.

And on the mention made of giving a Dowry, and a Pension to the Widow Mother of the said Prince, and to his Sisters, his sacred Imperial Majesty according to the Affection he bears to the *Palatinate* House, has promised the said Widow Mother, for her Food and Subsistance, to pay once for all, twenty thousand Rixdollars, and to each of the Sisters of the said Lord *Charles Louis*, when they shall be married, ten thousand Rixdollars. The said Prince *Charles* being obliged to satisfy to the Surplus.

That the said Lord *Charles Louis* shall give no manner of Trouble to the Counts of *Leiningen*, and of *Daxburg*, nor to their Successors in the *Low Palatinate*; but shall leave them to enjoy peaceably their Rights, obtained for several Centuries past, and confirmed by the Emperors.

He shall leave inviolably in their former State the free Nobility of the Empire, found in *Franconia*, *Suabia*, and along the *Rhine*, and its Appurtenances.

That the Fiefs given by the Emperor to the Baron *Gerhard* of *Waldemburg*, called *Schenk-heezen*, to *Nicolas George Reygersberg* Chancellor of *Mayence*, and to *Henry Brombser* Baron of *Rudesheim*. Likewise by the Elector of *Bavaria*, to the Baron *John Adolphus Wolff*, called *Metternich*, shall remain firm and stable; that, notwithstanding those Vassals shall be obliged to take the Oath of Allegiance to the Lord *Charles Louis*, and to his Successors, as to their direct Lords, and to ask him the Renewal of their Fiefs.

That those of the Confession of *Ausburg*, and namely, the Inhabitants of *Oppenheim*, shall be re-established in the Possession of their Temples, and in the Ecclesiastical State they were in, in the Year 1624. As likewise the others of the same Confession of *Ausburg*, that will require it, shall be left in the free Exercise of their Religion, as well in publick in the Temples, and at the Hours appointed, as in private in their own Houses, or in others chosen for that Effect by their Ministers, or by those of their Neighbours preaching the Word of God.

That the Paragraphs, *the Prince Louis Philip*, &c. *the Prince Frederick*, &c. and *the Prince Leopold Louis*, &c. be understood as inserted here in the same Manner they are contained in the Instrument or *Treaty* of the Empire with *Sweden*.

That the Dispute in Question between the Bishop of *Bamberg*, and of *Wirtzburg* on one Side, and the Marquis of *Brandenburg Culmbach Onolzbach* on the other, with regard to the Castle, City, Jurisdiction, and Monastery of *Kitzengen* in *Franconia* on the *Main*, shall be determined either in an amicable Manner, or by the Law, in two Years; under the Penalty for him who shall use Delays to lose his Pretensions; and that, mean while, the Fort of *Wiltzburg* shall be restored to the said Lord Marquis, in the same Condition it was taken, as it is agreed and stipulated.

That the Convention made with regard to the Maintenance of the Lord *Christian William* Marquis of *Brandebourg* shall be considered as reiterated in this Place, as stipulated in the 14th Article of the *Treaty* between the Empire and *Sweden*.

The Moſt Chriſtian King ſhall reſtore in its Time, and in the Manner to be deduced hereafter, where we'll ſpeak of withdrawing the Garriſons, to the Duke of *Wittemberg*, the Towns and Forts of *Hohenwil*, *Schorendoff*, *Tubingen*, and all the other Places, without Reſervation, where there is Garriſon in the Dutchy of *Wirtemberg*; as to the reſt, the Paragraph, *the Houſe of* Wirtemberg, *&c.* be underſtood as inſerted in this Place, in the ſame Manner as it is contained in the Treaty of the Empire and *Sweden*.

That the Princes of *Wirtemberg*, of the Houſe of *Montbelliard*, be re-eſtabliſhed in all their Domains in *Alſace*, and wherever they be ſituated; but particularly in the two Fiefs of *Burgundy*, *Clerval* and *Paſſavant*, and that on both Sides he may be reſtored to the Eſtates, Rights and Prerogatives, he enjoyed before the Beginning of thoſe Wars.

That *Frederick* Marquis of *Baden*, and of *Hackberg*, and his Sons and Heirs, with all thoſe who have ſerved him in what Manner ſoever, or ſerve him ſtill, of what Condition they be, ſhall enjoy the Amneſty contained above, in the Second and Third Articles, with all its Clauſes of Benefits; and that in virtue thereof, they be re-eſtabliſhed in the eccleſiaſtical or ſecular State, in which they were before the Beginning of the Troubles in *Bohemia*, the Lord *George-Frederick* Marquis of *Baden*, and *Hackberg*, as to what regards the low Marquiſate of *Baden*, vulgarly called *Dourlach*; and likewiſe as to the Marquiſate of *Hackberg*, and to the Lordſhips of *Rottelen*, *Badenweiller*, and *Sauſenberg*, notwithſtanding, and annulled all Mutations happened to the contrary. Moreover ſhall be reſtored to the Marquis *Frederick* the Juriſdictions of *Stein* and *Renchingen*, without being burthened with the Debts which the Marquis *William* has contracted during that Time, on account of the Fruits, Intereſts, and Expences, mentioned in the Tranſaction made at *Ettlingen* in the Year 1529, and yielded to the ſaid *William* Marquis of *Baden*, with all the Rights, Documents, Writings, and other Things belonging to it: So that all that Action concerning the Expences and Fruits already received, or to be received afterwards, with their Damages and Intereſts, reckoning from the Time of the firſt Occupation, be entirely taken off and aboliſhed.

That the yearly Penſion of the low Marquiſate, to be paid to the high Marquiſate, according to the former Cuſtom, be, in virtue of the preſent Treaty, entirely taken off and annihilated, and that henceforward nothing may be pretended, or exacted, neither for the Time paſt, nor for that to come.

That henceforward the Precedency, and Sitting in the States, and Circles of *Suabia*, and other general or particular Aſſemblies of the Empire, and ſome others whatſoever, be alternately in the two Branches of *Baden*, *viz.* in that of the high, and in that of the low Marquiſate of *Baden*; but notwithſtanding that Precedency ſhall remain at preſent to the Marquis *Frederick* while he lives. With regard to the Barony of *Hohengeroſtregk*, it has been agreed, that if Madame the Princeſs of *Baden* verifies the Rights of her Pretenſions on the ſaid Barony by authentick Documents, ſo ſoon as the Sentence given, Reſtitution ſhall be made to her according to the Right and Strength of the ſaid Documents: That the Cognizance of that Cauſe ſhall be ended in two Years after the Publication of the Peace. Laſtly, that no Actions, Tranſactions, or Exceptions, either general or particular, nor Clauſes comprized in this Treaty of Peace (and by which it might be wanted to derogate to the Strength of this Article) ſhall be at no Time alledged or admitted by any of the Parties againſt this ſpecial Convention.

The Paragraphs, *the Duke of Croy*, &c. *as to the Controverſy of Naſſau-Siegen*, &c. *to the Counts of Naſſau-Sarrepont*, &c. *the Houſe of Hanaut*, &c. *Jehan Albert* Count of *Solms*, &c. as likewiſe, *be reſtored the Houſe of Solms*, *Hohenſolms*, &c. *the Counts of Iſemburg*, &c. *the Rheingraves*, &c. *the Widow of the Count Erneſt of Sainen*, &c. *the Caſtle and County of Falckentein*, &c. *be likewiſe re-eſtabliſhed the Houſe of Waldeck*, &c. *Joachim Erneſt Count of Offingen*, &c. likewiſe *the Houſe of Hohenlo*, &c. *Frederick Louis*, &c. *Ferdinand Charles*, &c. *the Houſe of Rerbac*, &c. *the Widow and Heirs of the Count of* Brandenſtein, *&c. the Baron Paul Kevenhuller*, &c. be ſub-underſtood inſerted in this Place Word for Word, as they are ſet down in the Inſtrument or *Treaty* between the Empire and *Sweden*.

That the Contracts, Exchanges, Tranſactions, Obligations, Treaties, made by Force, or Menaces, and unlawfully extorted from the States and Subjects, as in particular, thoſe of *Spire*, *Weiſemberg* on the *Rhine*, *Landau*, *Reitlingen*, *Heilburn* complained of, be in ſuch a Manner cancelled and aboliſhed, ſo as to be no more enquired after.

That if the Debtors have recovered by Force ſome Obligations of their Creditors, they ſhall be returned, and the Actions ſhall remain on foot.

That the Debts, either by Purchaſe, Sale, Revenues, or by what Name ſoever they be called, if they have been violently extorted by one of the Parties who was at War, and the Debtors alledge, and offer to prove, that they have been really paid, ſhall be no further purſued, till thoſe Exceptions have been previouſly determined. That the Debtors ſhall be obliged to produce their Exceptions in the Term of two Years after the Publication of the Peace, under the Penalty of being condemned afterwards to a perpetual Silence.

That the Law Suits which have been hitherto carried on for that Subject, together with the Tranſactions and Promiſes made for the Reſtitution of the Debts, ſhall be held null, except notwithſtanding the Sums of Money which during the War have been exacted honeſtly, and with a good Intention, by giving them to others, to avoid greater Dangers which threatned the Contributors.

That the Sentences given during the War on Matters purely ſecular, unleſs the Defect of the Proceedings be wholly manifeſt, or cannot be immediately demonſtrated, ſhall not be entirely null; but the Effect thereof ſhall be ſuſpended, till the Pieces of the Proceedings (if one of the Parties aſk the Space of ſix Months from the Publication of the Peace for the Reviſion of his Suit) be reviſed, and weighed in the competent Court, and according to the ordinary or extraordinary Formalities uſed in the Empire, that thus the former Sentences be either confirmed, or corrected, or cancelled, in caſe of Neceſſity.

Likewiſe, if ſome royal or particular Fiefs have not been renewed ſince the Year 1618, nor the Homages payed to whom they belonged, that ſhall bring no Prejudice, and the Inveſtiture ſhall be renewed from the Day of the Concluſion of the Peace.

Finally, all and every one of the Officers, as well military Soldiers, as Men of the Gown, and Eccleſiaſticks of what Condition they be, and ſhall have ſerved in one or the other Party among the Allies, or among their Adherents, either in the Gown or in the Sword, from the greateſt to the meaneſt, and from the meaneſt to the greateſt, without Difference or Exception, with their Wives, Children, Heirs, Succeſſors, Servants, as to Perſons and Goods, ſhall be reſtored on both Sides to the State of Life, Honour, Reputation, Liberty of Conſcience, Rights and Privileges, they enjoyed before the ſaid Troubles: That no Prejudice ſhall be done to their Goods and Perſons, that no Action or Accuſation ſhall be brought againſt them; and again, that under any Pretence whatever, no Pain be inflicted on them, nor any Damage cauſed to them; all which ſhall have its full Effect with Regard to thoſe who are not Subjects and Vaſſals of his Imperial Majeſty, nor of the Houſe of *Auſtria*.

But as to thoſe who are hereditary Subjects and Vaſſals of the Emperor, and of the Houſe of *Auſtria*, they ſhall enjoy the ſame Amneſty as to their Perſons, Lives, Reputation, Honours, and may return in Safety to their antient Country; but they'll be obliged to make it up, and ſubmit themſelves to the particular Laws of the Kingdoms and Provinces where they'll reſide.

As to other Goods, if they had been loſt by Confiſcation, or otherwiſe, before they embraced the Party of the Crown of *France*, or of *Sweden*; though the Plenipotentiaries of *Sweden* have long inſiſted on, that they ſhould be reſtored to them; his ſacred Imperial Majeſty, notwithſtanding, being to receive the Law from no Body; and inſiſting ſtrenuouſly on that Point; the States of the Empire have not thought proper, that for ſuch a Subject the War ſhould be continued; and therefore, that

that those who have lost their Goods, could not recover them to the Prejudice of their late Masters and Possessors: But that the Goods which have been seized on account of having taken Arms in favour of *France* or of *Sweden*, against the Emperor and the House of *Austria*, should be restored such as they are, and without any Restitution of the Fruits, or Disdamagement.

Moreover that in *Bohemia*, and all the other hereditary Provinces of the Emperor, Right and Justice shall be administered without any Regard, as it is done to the Catholicks, to those of the Subjects, Debtors, Heirs, or private Persons of the Confession of *Ausbourg*, if they have some Pretensions, and bring or pursue some Actions to have Justice done them.

But of that general Restitution, shall be excepted the Things which cannot be restored, as Things moveable, Fruits perceived, Things diverted by the Authority of the Chiefs of Party, Things destroyed, ruinated, and converted to other Uses for the publick Security, as publick and particular, sacred and profane Buildings, publick or particular Depositions, which have been by Surprize of the Enemy plundered, confiscated, lawfully sold, or voluntarily given.

And forasmuch as the Affair of the Succession of *Juliers*, among the interested, if it was not regulated, would one Day cause great Troubles in the Empire, it has been agreed, that the Peace being concluded, it shall be determined without any other Delay, either by the common Way before his Imperial Majesty, or in an amicable Manner, or by other lawful Means.

And whereas, for a greater Tranquility of the Empire, in these general Assemblies of the Peace, an Agreement has been made between the Emperor, the Electoral Princes and States of the Empire, which has been inserted in the Instrument and Treaty of Peace made with the Plenipotentiaries of the Queen and Crown of *Sweden*, with regard to the Differences on the ecclesiastical Goods, and the free Exercise of Religion, it was esteemed expedient to confirm and ratify by this present Treaty, in the same Manner the aforesaid Agreement has been passed between the said Crown of *Sweden*, likewise with those called Reformed, as if we were to relate here Word for Word, the Terms of the said Treaty.

With regard to the Affair of *Hesse-Cassel*, it has been agreed upon as follows.

First, The House of *Hesse-Cassel*, and all the Princes thereof, especially Madame *Emilia-Elizabeth*, Landgravine of *Hesse*, and her Son *William*, and his Heirs, his Ministers, Officers, Vassals, Subjects, Soldiers, and others who are affected to his Service, in what Manner soever, without any Exception, notwithstanding contrary Contracts, Processes, Proscriptions, Declarations, Sentences, Executions, and Transactions; but all those, as likewise Actions and Pretensions, for Cause of Damages and Injuries, as well of the Neuters, as of those who did bear Arms, annulled by the last Amnesty heretofore settled, and referred to the Beginning of the War of *Bohemia*, with a full Restitution (except the hereditary Subjects and Vassals of his Imperial Majesty, and of the House of *Austria*, as mentioned in the Paragraph, *tandem omnes, &c. but as to those*, &c. of all the Benefices; the aforesaid shall partake of all the Advantages flowing from this religious Peace, with the same Right the other States enjoyed them; as mentioned in the Article, which begins *unanimi*, &c.

Secondly, the House of *Hesse-Cassel*, and the Successors thereof, shall keep, and for that Effect shall ask, whenever it shall happen, of his Imperial Majesty, the Investiture, and shall take the Oath of Allegiance for the Abby of *Hitsfeld* with all its Dependencies, as well secular as ecclesiastical, situated within or without its Territory (as the Dannery of *Gellingen*) notwithstanding the Right which the House of *Saxony* has possessed Time out of Mind.

Thirdly, the Right of a direct Lordship on the Jurisdictions and Balliwicks of *Schaumburg*, *Buchemburg*, *Saxenhugem*, *Stattenhagen*, heretofore given and adjudged to the Bishop of *Minden*, shall belong henceforward to M. *William* present Landgrave of *Hesse*, and to his Successors, in full Possession, in which he shall be disturbed neither by the said Bishop nor by any other; safe, notwithstanding, the Transaction made between *Christian-Louis* Duke of *Brunswick* and *Lunebourg*, and the Landgrave of *Hesse*, and *Philip* Count of *Lippe*. Remaining likewise firm the Convention made between the said Landgrave and the said Count.

Moreover, it has been agreed, that for the Restitution of the Places occupied during this War, and for the Indemnification of Madame the Landgravine of *Hesse* Tutoress, shall be given to her and to her Son, or to his Successors Princes of *Hesse*, the Sum of six hundred thousand Rixdollars, drawn from the Archbishopricks of *Mayence* and *Cologn*, from the Bishopricks of *Paderborn* and *Munster*, and from the Abbey of *Fulde*, which Sum in the Term of nine Months, reckoning from the Day of the Ratification of the Peace, shall be paid at *Cassel*, at the Peril and Expences of the Solvent, and no Exception nor any Pretext shall be used to avoid paying that Sum promised, much less shall any Attachment be laid on it.

And to the End that Madame the Landgravine be the more secure of the Payment, she shall retain at the following Conditions, *Nuys*, *Coesfeldt*, and *Newhaus*, and in those Places Garrisons entirely of her own; but on this Condition, that besides the Officers and other Persons necessary in Garrison, those of the three Places above-mentioned shall not exceed together the Number of 1200 Foot and 100 Horse, leaving to Madame the Landgravine the Disposition of the Infantry and Cavalry, which she shall be pleased to put in each of those Places, and to appoint the Governor.

The Garrisons shall be maintained according to the Order hitherto observed for the Maintenance of the *Hessian* Officers and Soldiers; and the Things necessary for the Preservation of the Forts, shall be furnished by the Archbishopricks and Bishopricks in which the said Fortresses are situated, without any Diminution of the Sum above-mentioned. The Garrisons shall be allowed to exact from those who shall delay too long, or be stubborn, but not beyond what is agreed. The Rights of Superiority and of Jurisdiction, either ecclesiastical or secular, and the Revenues of the said Castle and said Towns shall remain to the Lord Archbishop of *Cologne*.

So soon as after the Ratification of the Peace three hundred thousand Rixdollars shall have been paid to Madame the Landgravine, she shall restore *Nuys*, and retain only *Coesfeldt* and *Newhaus*; so that notwithstanding she shall not throw the Garrison of *Nuys* into *Newhaus*, or ask any Thing for that Evacuation; and the Garrison of *Coesfeldt* shall not exceed the Number of 600 Foot and 50 Horse; nor that of *Newhaus* the Number of 100 Men.

That if in the Term of nine Months the whole Sum was not paid to Madame the Landgravine; not only *Coesfeldt* and *Newhaus* shall remain to her till entire Payment; but likewise shall be paid to her for the Remainder of the Interest, at the Rate of Five *per Cent.* and in the Balliwicks belonging to the said Archbishopricks, Bishopricks, and Abbey Neighbour of the Principality of *Hesse*, the Treasurers and Receivers shall oblige themselves by Oath to Madame the Landgravine, that of the annual Revenues, they shall pay yearly the Interests of the remaining Sum, notwithstanding the Prohibition of their Masters. That if the Treasurers or Receivers delay the Payment, or divert the Revenues, Madame has Power to force them to pay by all Sorts of Means, without other Damage of the Right of the Lord Proprietor of the Territory.

But as soon as Madame the Langravine shall have received the whole Sum, with the Interest ever since the Delay, she shall restore the Places above-mentioned, which she detained for a Pledge, the Payment of the Interests shall cease, and the Treasurers and Receivers shall be quit of their Oath. That Delay happening, from which Balliwicks shall be drawn the Revenue to pay the Pension, cannot be determined before the Ratification of the Peace, whereof the Convention shall be of no less Force than is this present *Treaty* of Peace.

Besides the Places of Security which shall be left to Madame the Landgravine, and which shall be by her restored after the Payment, she shall restore after the Ratification of the Peace, all the Provinces and Bishopricks, as likewise all their Towns, Balliwicks, Boroughs, Fortresses, Forts, and in a word, all the immoveable

moveable Goods, and all the Rights by her occupied during these Wars: So notwithstanding, that as well from the Places which she shall keep in Hostage, as from the other to be restored, the said Lady Landgravine shall cause to be transported by her Subjects all the Provisions and Ammunitions, which she had put in them, (for as to those which she found in them when she took them, and which are there still, they shall be left) but likewise all the Fortifications and Ramparts raised during the Occupation of those Places shall be destroyed and demolished as much as possible, without exposing the Towns, Boroughs, and Fortresses, to Invasions and Incursions.

And forasmuch as Madame the Landgravine had asked from the Archbishopricks of *Mayence* and of *Cologne*, and from the Bishopricks of *Paderborn* and *Munster*, and from the Abbey of *Fulde*, some Restitution and Indemnification, and would not that any else should pay for any Thing for that Subject, notwithstanding, according to the Equity and Circumstances of Affairs, the Assembly has thought proper that without Prejudice of the Disposition of the preceding Paragraph, which begins *conventum præterea est*, &c. *moreover it has been agreed*, &c. the other States besides, which are on this, and on the other Side the *Rhine*, and which since the first of *March* of this present Year, have paid Contribution to the *Hessians*, shall pay their Cotization *pro rata* of their preceding Contribution, to make up the aforesaid Sum with the Archbishopricks, Bishopricks, and Abbey abovementioned, and help the Payment of the Garrisons of the Places of Hostage. That if some have suffered Damages by the Backwardness of the others who must pay their Portion, the Officers or Soldiers of his Imperial Majesty, of the Most Christian King, and of the Landgravine of *Hesse* shall not hinder from forcing those who shall have been froward; and the *Hessian* Soldiers shall not pretend to exempt any body from that Compulsion, to the Prejudice of this Declaration; and those who shall have duly paid their Cotization, shall be free from all Charges.

As to what regards the Differences moved between the Houses of *Hesse-Cassel* and of *Hesse Darmstadt*, with regard to the Succession of *Marburg*, considering that the 14th of *August* of the last Year, they have been determined at *Cassel* with the reciprocal Consent of the Parties interested; it has been found proper, that that Transaction, with the Annexions and Additions as it has been made and signed at *Cassel* by the Parties, should be insinuated in this Assembly, and that in virtue of the present Treaty, it should have the same Vigour as if it was inserted Word for Word, and shall never be infringed by the Parties, nor by any body else, under any Pretence, either of Contract, or by Oath, or any Thing else; but that it must be faithfully kept by all, though perhaps some of the Interested refuse to confirm it.

As likewise the Transaction between the late M. *William* Landgrave of *Hesse-Cassel*, and Mess. *Christian* and *Wotrard* Counts of *Waldeck*, made the 11th of *April* 1635, and ratified by M. *George* Landgrave of *Hesse* the 14th of *April* 1648, shall no less obtain a full and perpetual Force, in virtue of this Pacification, and no less oblige all the Princes of the House of *Hesse*, and all the Counts of *Waldeck*.

That the Right of Primogeniture introduced into the House of *Hesse-Cassel*, and into that of *Darmstadt*, and confirmed by his Imperial Majesty, shall remain, and be kept firm and inviolable.

And whereas his Imperial Majesty, on the Complaints made in the Name of the City of *Basil*, and of the whole Helvetick Body, in Presence of his Plenipotentiaries deputed to this present Assembly, with regard to some Proceedings and Executions proceeding from the Imperial Chamber against the said City, and the other united Cantons of *Switzerland*, their Citizens and Subjects, having asked the Advice of the States of the Empire; and whereas they are in no Manner subject to the Tribunals and Judgments of the Empire; it has been found proper to insert the same in this Treaty of Peace, and confirm it: And thus cancel and annul all such Proceedings and Arrets given on that Subject, in what Form soever it has been done.

And to prevent the Differences which would happen henceforward in the political State, all, and every one of the Electors, Princes, and States of the *Roman* Empire, are so well established, and confirmed in their antient Rights, Prerogatives, Liberties, Privileges, free Exercise of the territorial Rights, as well ecclesiastical as political, Lordships, Regalia, in virtue of the present Transaction, that they cannot, nor ought to be disturbed in it, by any body, and under any Pretence whatsoever.

They shall enjoy, without Contradiction, the Right of Suffrage in all the Deliberations relating to the Affairs of the Empire, especially when it is Question to make or interpret the Laws, declare War, impose a Tribute, raise or lodge Soldiers, make new Fortifications for the Publick, in the Lordships of the States, or reinforce the Garrisons of the Towns; as, likewise, when a Peace or Alliance is to be made, and treat of such other Affairs; none of those Things, or the like, shall be done henceforward, without the Suffrage and Consent of the free Assembly of the States of the Empire: Especially it shall be always free for each of the Estates of the Empire, to make Alliances with Foreigners for their Preservation and Security; provided, notwithstanding, that those Alliances are not against the Emperor and the Empire, nor against the publick Peace, and this Transaction; and they be made without Prejudice of the Oath, whereby each of them is engaged to the Emperor and the Empire.

The Diets of the Empire shall be held in six Months after the Ratification of the Peace; and henceforward, as often as the Utility or Necessity of Affairs shall require it. In the first Diet, the Mistakes of the former Assemblies shall be chiefly remedied; and there shall be treated, likewise, and settled with the common Consent of the States, the Form of the Election of a King of the *Romans*, by a certain Imperial Form and Resolution, the Manner and Form which must be observed to declare one or several States to be at the Ban of the Empire, besides that described elsewhere in the Constitutions of the Empire, that of renewing the Circles, of renewing the Matricule, of restoring the States suppressed, of the Moderation and remitting the Collections of the Empire, of the Reformation of Justice and Policy, of the Tax of Fees in the Chamber of Justice, of the Instruction due and required of the common Deputies for the Utility of the Republick, of the true Office of the Directors in the College of the Empire, and of such other Affairs which could not be debated here.

That as well the general, and particular Diets, the free Cities of the Empire, as the States thereof, shall have a deliberative Vote; and be left to enjoy the Regalia, Foraines, annual Revenues, Liberties, Privileges of Confiscation, to make Collections, and other Rights depending thereof obtained lawfully of the Emperor, and of the Empire, or claimed before these Troubles, possessed and exercised by a long Custom, with a full Jurisdiction within their Walls, and their own Territories; being cancelled, annulled, and henceforward prohibited all the Things called Represailles, Arrests, Shutting of Passages, and other prejudiciable Acts, either during the War, under what Pretence they have been hitherto done, and attempted by a private Authority, or undertaken without any Formality of Right. Lastly, all the laudable Customs of the sacred *Roman* Empire, Constitutions, and fundamental Laws shall be, for the future, strictly observed, all the Confusions which the War could have introduced, being dissipated.

And as to the Research of an equitable and convenient Means, whereby the suing of Actions against Debtors, ruinated by the Calamities of the War, or overburthen'd with a too great Load of Interests, and whereby those Matters may be terminated with Moderation, to obviate to greater Inconvenience which could result from it, and to provide for the publick Tranquility, his Imperial Majesty shall take Care to take the Advice as well of his Privy-Council, as of the Chamber, and of the States which are to be held, that a certain Constitution may be made on that Matter. And mean while in those Causes carried to the sovereign Courts of the Empire, or to the inferior ones of the States, the Reasons and Circumstances alledged by the Parties, shall be well weighed, that no Body may be oppressed by immoderate Executions.

And

And all that safe, and without Prejudice, to the Constitution of *Alsace*.

And whereas it is important to the Publick, that the Peace being made, the Commerce be again set on Foot; to those Ends it has been agreed, that the Tolls, Forains, as likewise the Abuses of the Bull of *Brabant*, and the Represails and Arrests issued from it, with the foreign Certifications brought, Exactions, Detensions, also the immoderate Charges of the Posts, and other Hindrances of Commerce and Navigation, which have been introduced to its Prejudice, and against the publick Utility, here and there in the Empire, on Occasion of the War, and lately by a private Authority, against the Rights and Privileges, without the Consent of the Emperor, and of the Electors of the Empire, shall be entirely taken off; and the antient Security, Jurisdiction, Usage, such as it was long before these Wars, shall be re established, and inviolably maintain'd in the Provinces, Ports, and Rivers.

The Rights and Privileges of the Territories water'd by Rivers, or otherwise, as the Forains granted by the Emperor and the Electors, especially to the Count of *Oldenburg* at *Wiburg*, and introduced by a long Usage, shall remain in their Vigour and Execution; there shall be a full Liberty of Commerce, secure Passage by Sea and Land; and therefore all, and every one of the Vassals, Subjects, Inhabitants, and Servants of the Allies on both Sides, shall have the Power to go and come, to negotiate and return in Virtue of the present Article, in the same Manner it was permitted before the Troubles of *Germany*. The Magistrates on either Side shall be obliged to protect and defend them against all Sorts of Oppressions, as if they were their own Subjects, without Prejudice to the other Articles of this Convention, and to the Laws and particular Rights of each Place.

And to the End that the said Peace and Amity between the Emperor and the Most Christian King, be the better strengthened, and to provide for the publick Security; with the Consent, Advice, and Will of the Electors, Princes, and States of the Empire, for the Good of the Peace, it has been agreed as follows.

First, that the high Demain, Rights of Sovereignty and all other Rights on the Bishopricks of *Metz*, *Thoul*, and *Verdun*, and on the Cities of that Name, and their Diocese, namely on *Metz*, in the same Manner it belonged heretofore to the Empire, shall henceforward belong to the Crown of *France*, and shall be for ever inviolably incorporated to it, save the Right of Metropolitan, which belongs to the Archbishop of *Triers*.

That *Francis*, Duke of *Lorrain*, be restored into the Possession of the Bishoprick of *Verdun*, as being legitimate Bishop thereof, leaving him to administrate peaceable that Bishoprick and his Abbeys (late the Right of the King, and of the Particulars) and enjoy his patrimonial Goods and other Rights, wherever they be situated (as far as they are not repugnant to the present Cession) his Privileges, Revenues and Fruits, having previously taken the Oath of Allegiance to the King, and provided he undertakes nothing against the good of the State, and the Service of his Majesty.

Secondly, The Emperor and the Empire resign and transfer to the most Christian King, and his Successors to the Kingdom, the direct Right of Lordship and Sovereignty, and all that belonged, or could heretofore belong to himself, or to the sacred *Roman* Empire on *Pignerol*.

Thirdly, The Emperor, as well in his own proper Name, as in that of the most serene House of *Austria*, as likewise of the Empire, resigns all the Rights, Properties, Demains, Possessions, and Jurisdictions which heretofore belonged as well to himself as to the Empire, and to the Family of *Austria*, in the City of *Brisack*, the *Langraviat* of the *Higher* and *Lower Alsace*, *Sutgovy*, and the *Provincial Lordship* of the *ten Imperial Towns* situated in *Alsace*, viz. *Haguenau*, *Calmer*, *Schelstadt*, *Weisemburg*, *Landau*, *Oberenhaim*, *Rosheim*, *Munster* in the Valley of St. *Gregory*, *Kaiserberg*, *Tubinghaim*, and of all the Villages and other Rights depending of the said Mayoralty, transfer them all, and every one of them to the most Christian King, and to the Kingdom of *France*, as likewise the City of *Brisack*, with the Houses of *Hochstat*, *Viederrensing*, *Harlem*, and *Acharron*, belonging to the Commonalty of *Brisack*, with all the antient Territories and Banage, without Prejudice, notwithstanding of the Privileges and Immunities granted antiently to the said City by the House of *Austria*.

Item, The said *Landgraviat* of the one and the other *Alsace* and *Sutgovy*, and likewise the Provincial Mayoralty, on the ten Towns above-mentioned, and their Dependencies. *Item*, all their Vassals, Subjects, Men, Cities, Boroughs, Castles, Houses, Fortresses, Forests, Coppices, Mines of Gold, Silver, and other Minerals, Rivers, Brooks, Pastures, in a Word, all the Rights, Regalia, Appurtenances, without any Reservation, shall belong to the most Christian King, and shall be incorporated for ever to the Crown of *France*, with all Sorts of Jurisdiction, and Sovereignty, and the Emperor, and the Empire, the House of *Austria*, or any other, shall in no Manner contradict it; so that no Emperor, nor any Prince of the House of *Austria*, shall ever usurp or even claim Right, and Power on the said Countries, either beyond, or this Side the *Rhine*.

The most Christian King shall be obliged, notwithstanding, to preserve in all and every one of those Countries, the Catholick Religion, as it was maintained there under the Princes of *Austria*, and to expel from them all the Novelties which have been introduced into them, during the War.

Fourthly, with the Consent of the Emperor, and of the whole Empire, the most Christian King, and his Successors to the Kingdom, shall have a perpetual Right to keep a Garrison in the Castle of *Philisburg* for its Guard, but limitated to a convenient Number of Soldiers, not capable to give Umbrage, and just Suspicion to the Neighbours, which Garrison shall be kept at the Expence of the Crown of *France*. Likewise the Passage shall be open to the King, by Water, into the Empire, whenever he'll be pleas'd to put Soldiers into the Place, or to send Convoys into it, or the Things necessary.

However the King shall not pretend any Thing else but the Protection and Passage of his Garrison into the said Castle of *Philipsburg*: But the Property of the Place, all the Jurisdiction, the Possession, all its Emoluments, Fruits, Acquisitions, Rights, Regalia's, Servitudes, Men, Subjects, Vassals, and all which of old being in the Bishoprick of *Spire*, or could have belonged to it, shall belong, and be preserved whole and inviolable to the Chapter of *Spire*, or could have belonged to it, and be preserv'd whole and inviolable to the same Chapter, save the Right of Protection which the King takes.

The Emperor, the Empire, and M. the Archduke of *Œnipont Ferdinand Charles* respectively, absolve the Orders, Magistrates, Officers, and Subjects of each of the said Lordships and Places, of the Oath of Allegiance and other Ties wherewith they were heretofore tied, and affected to the House of *Austria*, and deliver, and put them under the Subjection, Obedience, and Fidelity they ought to promise to the King and to the Kingdom of *France*; and thereby establish the Crown of *France* in a full and just Power over all the said Places; renouncing from this present Time and for ever, the Rights and Pretensions they had on them; which for themselves and their Descendants, the Emperor, the said Archduke and his Brother (because the said Cession regards them particularly) shall confirm by particular Letters, and cause likewise, that the Catholick King of *Spain* shall give the same Renunciation in a due and authentick Form, which shall be done in the Name of the whole Empire, the very Day of the Ratification of this present Treaty.

For a greater Validity of the said Cessions, and Alienations, the Emperor and the Empire, in Virtue of the present Transaction, derogate all and every one of the Decrees, Constitutions, Statutes, and Customs of the Emperors, their Predecessors, and of the said *Roman* Empire, even those which have been confirmed by Oath, or which shall be confirmed hereafter, namely, to that Article of the imperial Chapter, whereby all Alienation of the Goods and Rights of the Empire is forbidden; and by the same Means they exclude for ever, all Exceptions, on what Right and Title soever they may be founded.

Moreover, it has been agreed that the Ratification hereunder made by the Emperor and the Empire, shall be ratified anew, in the next Diet, the Alienations,

nations of the ſaid Lordſhips and Rights; and therefore, if in the Chapter of the Emperor a Paction be made, or it is propoſed hereafter in the Diets, to recover the Goods and Rights of the Empire, loſt or diverted, it ſhall not include the Thing above mentioned, as having been lawfully, and with the common Advice of the States, for the good of the publick Tranquility, tranſported to another Demain, therefore it is found proper that they be eraſed from the Matricule of the Empire.

Immediately after the Reſtitution of *Benfeldt*, the Fortifications of that Place, and of the Fort of *Rhineau* next to it, ſhall be demoliſhed, as likewiſe of *Tabern* in *Alſace*, of the Caſtle of *Hohemburg*, and of *Nieuburg* on the *Rhine*, and ſhall be no Soldiers in Garriſon, in any of thoſe Places.

The Magiſtrates and the Inhabitants of the ſaid Town of *Tabern*, ſhall obſerve an exact Neutrality, and the Troops of the King may paſs freely through it, whenever it ſhall be required; no Forts ſhall be raiſed on the Borders of the *Rhine*, this Side, from *Baſil* to *Philipsburg*, and no Means uſed to divert the Courſe of the River on either Side.

As to what regards the Debts the Chamber of *Enliſheim* is burthened with, M. the Archduke *Ferdinand Charles* ſhall undertake, with that Part of the Province which the moſt Chriſtian King muſt reſtore to him, to pay a Third thereof without Diſtinction, whether they be Obligations or Mortages, provided they be in an authentick Form, and have a particular Mortgage, whether on the Provinces to be reſtored, or on thoſe which muſt be reſigned, or if there is none on the Books of Accounts anſwering to thoſe of the Receipts of the Chamber of *Enliſheim*, till the Year 1632 expired, the ſaid Parts having been put among the Debts of the Commonality, and the Intereſt having been to be paid by the ſaid Chamber, and the Archduke making that Payment, ſhall acquit the King of his Portion.

The moſt Chriſtian King ſhall reſtore to the Houſe of *Auſtria*, and in particular to M. the Archduke *Ferdinand Charles* the eldeſt, formerly the Son of the Archduke *Leopold*, four Foreſt Towns, *Rheinfelden*, *Sekingen*, *Lauffenberg* and *Waltſhutam*, with all the Territories and Bailliwicks, Houſes, Villages, Mills, Woods, Foreſts, Vaſſals, Subjects, and all the Appurtenances which are on this Side, and beyond the *Rhine*.

Alſo, the County of *Hawenſtein*, the black Foreſt, the higher and lower *Briſgau*, and the Towns ſeated in it, belonging to the Houſe of *Auſtria*, *viz.* *Newburg*, *Friburg*, *Endingen*, *Kendingen*, *Waldkirch*, *Willengen*, *Brecenlingen*, with all their Territories, as likewiſe, with all the Monaſteries, Abbies, Palaces, Deaneries, Knighthoods, Commanderies, with all the Bailliwicks, Baronies, Caſtles, Fortreſſes, Counties, Barons, Nobles, Vaſſals, Men, Subjects, Rivers, Brooks, Foreſts, Woods, and all the Regalia's, Rights, Juriſdictions, Fiefs and Patronages, and all the other Things belonging to the ſovereign Right of Territory, and to the Patrimony of the Houſe of *Auſtria* in all that Tract of Land. Alſo, all the *Ortnavian*, with the imperial Cities of *Offenburg*, *Gengenbach*, *Cellaham* and *Harmerſpack*, inaſmuch as the ſaid Lordſhips depend of that of *Ortnavian*, ſo that no King of *France* ſhall ever, or ought to pretend to uſurp any Right or Power on the ſaid Countries, ſituated on both Sides the *Rhine*, in ſuch a Manner, notwithſtanding that the Princes of *Auſtria* ſhall acquire no new Right upon them, that henceforward on the two Shores of the *Rhine*, and to the adjacent Provinces, the Commerce and tranſport be free to the Inhabitants, eſpecially that the Navigation of the *Rhine* be free; and that none of the Parties ſhall be permitted to hinder the Boats to go up and down, to detain, ſtop, or moleſt them under what Pretence ſoever, except the ſole Inſpection and Viſit, which is uſually made of the Merchandizes; and it ſhall not be allowed to impoſe on the *Rhine*, new and uncommon Tolls, right of Forain, Duties, and other ſuch Exactions; but both Parties ſhall reſt contented with the Tributes, Duties, and common Tolls, before theſe Wars under the Government of the Princes of *Auſtria*.

That all the Vaſſals, Subjects, Citizens, and Inhabitants as well this Side, as beyond the *Rhine*, who were Subjects of the Houſe of *Auſtria*, or relieved immediately from the Empire, or acknowledged for Superiors the other Orders of the Empire, notwithſtanding all Confiſcation, Tranſport, Donation, made by any Captain or General whatever of the *Swediſh* or confederated *Militia*, ſince the taking of the Province, and ratified by the moſt Chriſtian King, or diſcerned of a particular Movement; that immediately after the Publication of the Peace, the aforeſaid Vaſſals ſhall be reſtored to the Poſſeſſion of their immoveable and ſtable Goods, either corporal or incorporal, Farms, Caſtles, Villages, Lands, Poſſeſſions, without any Exception of Meliorations, Expences, and Computation of Charges, that the modern Poſſeſſors could alledge, and without Reſtitution of the moveable Goods and Fruits perceived.

As to the Confiſcation of Things which conſiſt in Weight, Number and Meaſure, Exactions, Concuſſions, and Extortions made during the War, their Repetition is entirely canceled, and taken off on both Sides, to avoid all Law-ſuits and Chicanneries.

That the moſt Chriſtian King be obliged to leave not only the Biſhops of *Straſburg* and of *Baſil*, and the City of *Straſburg*, but, likewiſe, the other Eſtates or Orders, Abbots of *Murbarch* and *Luderen*, who are in the one and the other *Alſace*, relieving immediately from the *Roman* Empire, the Abbeſs of *Andlratian*, the Monaſtery of St. *Benedict* in the Vale St. *George*, the *Palatines* of *Luzelſtain*, the Counts and Barons of *Hanaw*. *Fleckenſteen Oberſtain*, and all the Nobility of the lower *Alſace*. Alſo, the ſaid imperial Cities which depend of the Mayorlty of *Haganaw*, in the Liberty and Poſſeſſion they have hitherto enjoyed of relieving immediately from the *Roman* Empire; ſo that he ſhall no more pretend any royal Authority over them, but content himſelf with the Rights which regards the Houſe of *Auſtria*, and which by this preſent Treaty of Pacification are yielded to the Crown of *France*. So that, notwithſtanding, by that preſent Declaration it is not meant to derogate in any thing to the Right of Sovereign Demain above granted.

Likewiſe the moſt Chriſtian King for the Compenſation of the Parts yielded to him, ſhall cauſe to be paid to the ſaid Lord Archduke *Ferdinand Charles*, three Millions of Livres Tournois in the Years next following, 1649, 1650, 1651, at the Feaſt of St. *John Baptiſt*, paying every Year a Third of the ſaid Sums at *Baſil* in good Money, in the Hands of the Directors of the ſaid Archduke.

Beſides the ſaid Sum, the Moſt Chriſtian King ſhall be obliged to take upon him two Thirds of the Debts of the Chamber of *Enſiſheim* without Diſtinction, whether Obligations or Mortgage, provided they be in due and authentick Form, and have a ſpecial Mortgage either on the Provinces to be reſigned, or on thoſe to be reſtored, or if there be none, provided they are found on the Books of Account anſwering to thoſe of the Receipts of the Chamber of *Enſiſheim* to the Year 1632, the ſaid Parties having been placed among the Debts of the Commonalty, and the Intereſts thereof to have been paid by the ſaid Chamber; and the King making that Payment ſhall hold the Archduke quit for the like Portion. And to the End that this may be quietly executed, Commiſſaries ſhall be appointed on both Sides, immediately after the ſigning the Treaty of Peace, who before the firſt Payment ſhall agree among themſelves which Debts each ſhall pay.

The Moſt Chriſtian King ſhall cauſe to be reſtored faithfully, and without Delay to the ſaid Archduke, all the Papers, Documents, of what Nature they be, belonging to the Lands which muſt be reſtored to him, as many as there will be found in the Chancery, and Government of the Chamber of *Enliſheim* or *Briſack*, or in the Archives of the Officers, Towns and Caſtles occupied by his Troops.

That if ſuch Documents be publick, concerning in common and by *indivis* the Lands granted to the King, authentick Copies thereof ſhall be given to the Archduke whenever he'll aſk for it.

Item, leſt the Differences moved between the Lords Dukes of *Savoy* and *Mantua*, with regard to *Montferrat*, defined and terminated by the Emperor *Ferdinand* II. and *Louis* XIII. Fathers of their Majeſties, ſhould at any Time be renewed, to the Damage of Chriſtendom, it has

has been agreed, that the Treaty of *Cheras* of the 6th of *April* 1631, with the Execution thereof which has followed, shall for ever remain firm in its Articles, except notwithstanding *Pignerol* and its Appurtenances, whereof it has been defined between his Most Christian Majesty and the Lord Duke of *Savoy*; and of which the King of *France* and his Kingdom has made an Acquisition by particular Treaties, which shall remain firm and stable in what regards the Transport or Cession of *Pignerol* and its Appurtenances. But if it was contained something in the said particular Treaties which could disturb the Peace of the Empire, and excite new Troubles in *Italy*, after the present War waged in that Province shall be ended, it shall be held null, and of no Effect; the said Cession notwithstanding remain entire, and likewise the other Conditions agreed upon, as well in favour of the Duke of *Savoy* as of the Most Christian King. Therefore their Imperial and Most Christian Majesties promise reciprocally, that in all the other Things concerning the aforesaid Treaty of *Cheras*, and the Execution thereof, particularly *Albe*, *Trin*, their Territories, and the other Places, shall never contravene to it, either directly or indirectly, by Way of Right, or by way of Fact; and that they'll not succour nor favour the Contravenant; but rather, of their common Authority, endeavour to prevent its being violated under any Pretence whatever. Considering that the Most Christian King has declared, that he was much obliged to forward in all Manners the Execution of the said Treaty, even to maintain it with Force of Arms, to the End, above all Things, that the said Lord Duke of *Savoy*, notwithstanding the preceding Clauses, be always left and maintained in the peaceable Possession of *Trin* and *Albe*, and of the other Places which have been granted and assigned to him by the said Treaty, and by the Investiture, which is a Consequence thereof, of the Dutchy of *Montferrat*.

And to extirpate and root out all Differences and Disputes between those same Dukes, his Most Christian Majesty shall cause to be paid to the said Lord Duke of *Mantua* 494000 Crowns, which the late King of glorious Memory *Louis* XIII. had promised to pay to the Duke of *Mantua*, to the Discharge of the Duke of *Savoy*; and thereby he'll ease the Duke of *Savoy*, his Heirs and Successors, of that Obligation, and save him from all Demand which could be made to him of the said Sum by the said Duke of *Mantua*, or his Successors; so that henceforward on that Subject, and under that Pretence, the Duke of *Savoy*, nor his Heirs and Successors, shall receive any Vexation or Trouble from the Duke of *Mantua*, or his Heirs and Successors; who from this Time, with the Authority and Consent of his Imperial, and Most Christian Majesty, in virtue of this solemn Treaty of Peace, shall have no Action in that Cause against M. the Duke of *Savoy*, his Heirs and Successors.

His Imperial Majesty, after he has been modestly required of it, shall grant to M. the Duke of *Savoy*, with the Investiture of the antient Fiefs and States, which the late *Ferdinand* II. of glorious Memory, had granted to the Duke of *Savoy*, *Victor Amadeus*, the Investiture, likewise, of the Places, Lordships, States, and all other Rights of *Montferrat*, with the Appurtenances, which in virtue of the said Treaty of *Cheras*, and of the Execution which has followed it, have been relinquished to him; as likewise of the Fiefs of *Montferrat* the New, of *Sine*, of *Moncheri*, and of the *Castellet*, with their Appurtenances, according to the Treaty of Acquisition made by the said Duke *Victor Amadeus*, the 13th of *October* 1634, and conformably to the Concessions or Permissions, and Approbations of his Imperial Majesty; with a Confirmation likewise of all the Privileges, which till now have been granted to the Duke of *Savoy*, whenever M. the Duke of *Savoy* shall require it, or ask for it.

Item, it has been agreed that the Duke of *Savoy*, his Heirs and Successors, shall in no Manner be troubled and researched by his Imperial Majesty for the Right of Sovereignty they have on the Fiefs of *Rocheveran*, *Olme*, and *Cæsoles*, and on their Appurtenances, which depend in no Manner of the *Roman* Empire; and that the Donations and Investitures of the said Fiefs being revoked and cancelled, the Lord Duke shall be maintained in the Possession thereof as the true Lord; and if wanted shall be redintegrated in it; for the same Reason his Vassal the Count of *Verrue* shall be re-established and redintegrated, as to the same Fiefs of *Olme* and *Cæsoles*, and in the Possession of a fourth Part of the *Rocheveran*, and of its Revenues.

Item, it has been agreed, that his Imperial Majesty shall cause to be restored to the Counts *Clement* and *Jehan* Sons, and to the Grandsons of the Count *Charles Cocheran* issued from his Son *Octavian*, the whole Fief of the *Roche Arazy*, with its Appurtenances and Dependencies, without any Obstacle.

Likewise the Emperor shall declare, that in the Investiture of the Dutchy of *Mantua*, are comprized the Castles of *Reggioli* and of *Lazzare*, with their Territories and Dependencies, the Possession thereof the Duke of *Guastalla* shall be obliged to restore to the Duke of *Mantua*, reserving to himself notwithstanding, the Right for 6000 Crowns of yearly Pension which he claims; with regard to it, he'll be intitled to plead before his Imperial Majesty against the Duke of *Mantua*.

So soon as this Treaty of Peace shall have been subscribed by Mess. the Plenipotentiaries and Embassadors, all Hostilities shall cease; and all Parties shall go immediately about executing what has been agreed upon; and to the End that it may be better and more quickly executed, the next Day after the Subscription, the Publication of the Peace shall be solemnly made, and in the usual Forms through the Streets of *Munster* and of *Osnabrug*; that after it is known in those two Places that the Treaty of Peace is signed, Couriers shall be immediately dispatched to the Generals of the Armies to inform them that the Peace is concluded, that those Generals may appoint a Day to publish the Peace in their Armies; and command to all and every one of the Officers of War and Justice, and to the Governors of the Forts, to abstain henceforward from all Sorts of Acts of Hostility; and if it happens that after the said Publication any Attempt is made, and something is changed by way of Fact, that shall be immediately repaired and restored to its former State.

The Plenipotentiaries on all Sides shall agree among themselves, between the Time of the Conclusion, and of the Ratification of the Peace, of the Manner, Time, and Securities which shall be taken for the Restitution of the Places, and for dismissing the Troops, so that both Parties may be sure that all Things agreed upon are sincerely executed.

The Emperor in particular shall cause to be published throughout the Empire, and command seriously all those who are obliged to restore or do any Thing else, to obey quickly, between this and the Time of the Ratification of the present Treaty, enjoining as well to the Directors as to the Governors of the Militia of the Circles, to accellerate and accomplish the Restitution due to every one, according to the Order of the Execution, and of these Conventions. And in the Edicts this Clause shall be inserted, that because the Directors of the Circle, or the Governors of the Militia of the Circles, on account of their own proper Restitution, are esteemed less capable of that Execution; in that Case, and likewise if the Directors and Governors of the Militia of the Circles refuse their Commission, the Directors of the neighbouring Circle, or the Governors of the Militia of the Circles shall do that Function, and charge themselves with the Execution of the Research of the Restitutions in the other Circles.

That if any of those to whom Restitution is to be made, think that the Commissaries of the Emperor are necessary to the Execution of some Restitution (which is left to their Choice) Commissaries shall be given to them, in that Case. To the End that the Things transacted meet with less Obstruction, it shall be permitted as well to those who restitute, as to those to whom Restitution is made, immediately after the signing of the Peace, to name two or three Commissaries on each Side, among whom his Imperial Majesty shall chuse one of each Religion, and one of each Party, to whom he shall enjoin to execute without Delay all that must be done in virtue of the present Transaction. That if those who are to make Restitution have neglected to name Commissaries, his Imperial Majesty shall chuse one or two at his Pleasure (minding,

minding, notwithstanding, every where the Diversity of Religion, and chusing an equal Number of each) from among those named by him to whom Restitution is to be made, to whom he shall give the Commission of executing, notwithstanding all Exceptions made to the contrary. Lastly, that those who claim the Restitutions, shall cause to be notified to those who are to restore, immediately after the Conclusion of the Peace, the Contents of these Articles.

Lastly, that all and every one, whether States, or Commonalities, private Persons, Clerks, or Seculars, who, in Virtue of this Transaction, and of these general Rules, or by the express and special Disposition of some of them, are obliged to restore, relinquish, give, do, or execute something, be obliged immediately after the Publication of the Edicts of the Emperor, and the Notification of restoring made, to restore, relinquish, give, do, or execute without any Delay, or evasive Opposition, whether general or particular, contained in the preceding Amnesty, without any Exception, or any Fraud, that to which they are obliged.

No Body, either State or Soldier, especially of the Garrisons, or any Body else shall oppose the Execution of the Directors and Governors of the Militia of the Circles, or of the Commissaries; but rather lend a helping Hand to the Execution, and the said Executors shall be allowed to compel those, who in what Manner soever endeavour to hinder the Execution.

Afterwards, that the Prisoners on all Sides, without Distinction of the Gown, or of the Sword, shall be set at Liberty, in the Manner agreed on, or it shall be agreed by the General of the Armies, with the Approbation of his Imperial, and Most Christian Majesty.

The Restitution made according to the Articles of the Amnesty, and of the Grievances, and the Prisoners being deliver'd, all the Soldiery of the Garrisons, as well of the Emperor, and of his Allies, as of the Most Christian King, and of *Madame* the Landgravine of *Hesse*, and of their Associates and Adherents, or by whosoever it has been put, shall be withdrawn at the same Time, without any Damage, Exception, or Delay, from the Imperial Towns, and all the other Places, which are to be restored.

That even the Places, Towns, Cities, Boroughs, Villages, Castles, Fortresses, and Forts, which have been occupied, and detained, as well in the Kingdom of *Bohemia*, as in the other Territories of the Emperor, and Hereditary Countries of the House of *Austria*, as in the other Circles of the Empire, by the Armies of both Sides, or which have been restored by Composition, be restored without Delay to their former and legitimate Possessors and Lords, whether they be mediately or immediately States of the Empire, ecclesiastick, or secular, the free Nobility of the Empire included; and they shall be left in their free Disposition; whether according to the Right and the Custom, or according to the Vigour which this present Treaty must have; notwithstanding all Donations, Infeodations, Concessions (unless they have been made to somebody, with the free Will of some State) Obligations for Redemption of Prisoners, or to prevent Plunders and Burnings, or such other Titles, acquired to the Prejudice of the former and legitimate Masters and Possessors; ceasing, likewise, all Contracts and Pactions, and all Exceptions contrary to the said Restitution, and all which must be consider'd as void. Save, notwithstanding, the Things whereof in the preceding Articles, with Regard to the Satisfaction of their Imperial and Most Christian Majesty, it has been otherwise disposed, as likewise some Concessions and Compensations, made in Proportion to the Electors and Princes of the Empire. And that the Mention of the Catholick King, and the Name of the Duke of *Lorrain*, qualified such in the Treaty betwen the Emperor and *Sweden*, and less still the Title of Landgrave of *Alsace*, given to the Emperor, shall bring no Prejudice to the Most Christian King. That what has been granted, likewise, with Regard to the Satisfaction of the *Swedish* Troops, shall have no Effect with Respect to his Majesty.

And that Restitution of the Places occupied as well by his Imperial Majesty, as by the Most Christian King, and the Companions, Allies, and Adherents, on either Side, shall be made reciprocally and faithfully.

That the Archives, Papers, and Documents, and the other Things moveable, as likewise the Canons which were found at the Time of the taking of those Places, and which are found yet in Nature, shall be restored. But it shall be permitted to the aforesaid to carry along with them, and caused to be carried off those which after the taking of the Places have been put into them, and which have been taken in Battles, with all the Train, and what depends thereof.

That the Subjects of each Place be obliged, when the Soldiers and Garrisons shall evacuate it, to furnish them without Money, the Waggons, Horses, and Boats, with the Provisions necessary to carry all Things to the Places appointed in the Empire; which Waggons, Horses, and Boats, the Governors of the Garrisons, and the Captain of the Soldiers, who go away, shall restore without Fraud or Deceit. That the Subjects of the States shall ease one another of that Trouble of transporting from one Territory into another, till they be arrived to the Places appointed in the Empire. And it shall not be allowed to the Governors or other Officers to carry along with them the Waggons, Horses, and Boats lent, as well in general, as in particular, nor any other Things they have been accommodated with, without the Limits of those to whom they belong, and less still without those of the Empire.

That the Places which shall have been restored, as well maritime of the Frontier, or in the Heart of the Country, be henceforward, and forever free from all Garrisons, introduced into them during the Wars, and left (without Prejudice to other Things of the Right of every one) in the free Disposition of their Masters.

That it shall not turn hereafter, nor at present, to the Damage and Prejudice of any City, to have been taken and kept by one or the other of the Parties; but that all, and each of them, with all and each of their Citizens and Inhabitants shall enjoy as well the general Benefit of the Amnesty, as the others of the Pacification; and that, besides, all the ecclesiastical and secular Rights and Privileges they have enjoyed before these Troubles, shall be preserved to them safe (notwithstanding the Right of Sovereignty, and what depends thereof) and to the Lord of each of them.

Lastly, that the Troops and Armies of all those who wage War in the Empire, shall be disbanded and dismissed, each sending into his own Dominions so much of them, only, as each Party shall judge necessary for his own Security.

The Ambassadors and Plenipotentiaries of the Emperor, of the King, and of the States of the Empire, promise respectively, and one to the other, to cause to be approved and ratified by the Emperor, the Most Christian King, and the Electors of the sacred *Roman* Empire, and by the Princes and States, the Peace which has been concluded in this Manner, and with a common Consent, and to procure infallibly, that the solemn Acts of Ratification be presented at *Munster*, and exchanged mutually, and in good Form, in the Term of eight Weeks, reckoning from the Day of the Subscription.

To render all, and every one of these Articles more firm, this present Transaction shall serve of perpetual Law, and of a Pragmatick Sanction of the Empire, inserted hereafter in the same Manner like the other fundamental Laws of the Empire, namely, at the next Recess of the Empire, and at the Capitulation of the Emperor, obliging no less the absent than the present, the Ecclesiasticks than the Laicks, whether they be of the States of the Empire or not; and as a Rule prescrib'd, and which shall be perpetually followed, as well by the Imperialists, as by the Counsellors and Officers of the other Lords, as by all the Judges, and Assessors of the Courts of Justice.

No Canon or civil Law, no general or particular Decree of the Councils, no Privileges, no Indulgences, no Edicts, no Commissions, Inhibitions, Mandements, Decrees, Rescripts, Suspensions, and Rights, Sentences in any Time given, Adjudications, Capitulations of the Emperor, and other Rules and Exemptions of religious Orders, Protestations past, or to come, Contradictions, Appeals, Investitures, Transactions, Oaths, Renunciations, Contracts, and less still the Edict of 1629, or the Transf

Transaction of *Prague*, with its Appendices, or the Concordates with the Popes, or the *Interims* of the Year 1548, or any other political Statutes, or ecclesiastical Decrees, Dispenses, Absolutions, or any other Exceptions, under any Pretence or Colour they can be invented, shall be alledged, understood or admitted against this Transaction, nor against any of the Articles and Clauses thereof; and there shall never be undertaken in any Place, any Law-Suits, or Commissions, either inhibitory or other, for a Demand or Possession against this Transaction.

That he who shall have contravened either by his Help, or by his Advice to this publick Transaction and Peace, or shall have resisted to the Execution thereof, and to the aforesaid Restitution, and shall have endeavoured after the Restitution lawfully made, and without Excess, in the Manner heretofore agreed upon, without a lawful Knowledge of the Cause, and out of the ordinary Execution of Justice, aggravate anew the Thing restored, whether ecclesiastical or secular, shall incur the Penalty of Infringer of the Peace, and according to the Constitutions of the Empire, it shall be decreed against him, that the Restitution and Reparation of the Wrong done, may have its full Effect.

That notwithstanding the Peace concluded, shall have its full Effect; and that all the Covenantors of this Transaction be obliged to defend and protect all and every one of the Laws of this Peace against any Body, without Distinction of Religion; and if it should happen that some Point thereof has been violated, the Offender shall be admonished, especially he that offends it by Way of Fact, submitting the Cause to an amicable Composition, or to the ordinary Proceedings of Justice.

However, if in the Space of three Years, the Differences cannot be terminated by any of those Means, all and every one of the Partakers to this Transaction, shall be obliged to join with the Party oppressed, and help him with Advices, and Forces to repel the Injury, previously informing the Oppressed, that pacifick and judiciary Means have availed nothing. Without Prejudice, notwithstanding, of the Jurisdiction of every one, and of the Administration of Justice, competent to the Laws of each Prince and States. And it shall not be allowed to any State of the Empire, to pursue his Right by Force and Arms; but if it has happen'd, or should happen hereafter some Dispute, each shall try the Way of common Justice, and whoever acts otherwise shall be held for an Infringer of the Peace. That whatever is defined by the Sentence of the Judge, shall be put in Execution without Distinction of State, according to the Laws of the Empire relating to the Execution of Arrests and Sentences.

And to the End that the publick Peace be the better preserved entire, the Circles shall be renewed, and so soon as Beginnings of Troubles are perceived, what has been determined in the Constitutions of the Empire relating to the Execution and Preservation of the publick Peace, shall be observed.

And whenever on some Occasion any body shall want to make Soldiers pass through the Territories of another, that Passage shall be made at the Expences of him to whom the Soldiers belong; and that without oppressing or in any manner doing any Damage and Prejudice to those through whose Territories the Soldiers pass. In a Word, all that is determined and ordered in the imperial Constitutions relating to the Preservation of the publick Peace, shall be strictly observed.

In this present Treaty of Peace are included those, who before the Exchange of the Ratification, or in six Months afterwards, shall be named with a common Consent by either Party. And mean while, with a common Accord, is comprised in it the Republick of *Venice* as Mediatrice of this Treaty. It shall not prejudice what shall be done, or is done at present by the Arms of the Dukes of *Savoy*, and of *Modena* in *Italy*, in favour of the Most Christian King.

In witness of all and every one of those Things, and for a greater Force, the Embassadors of their Imperial and Most Christian Majesty; and the Deputies in the Name of all the Electors, Princes and States of the Empire, sent by the said Empire, particularly to this Act (in virtue of what was concluded the 13th of *October* of the Year above-mentioned, and which was given to the Embassador of *France* the same Day of the Subscription under the Seal of the Chancellor of *Mayence*) viz.

For the Elector of *Mayence*, M. *Nicolas George* of *Reigersberg*, Knt. and Chancellor.

For the Elector of *Bavaria*, M. *Jehan Adolphus Krebs*, Privy-Counsellor.

For the Elector of *Brandenburg*, M. *Jehan* Count *de Sain* and *Witgenstein*, Lord of *Homburg* and *Vallendar*, Privy-Counsellor.

In the Name of the *House of Austria*, M. *George Ulric*, Count of *Wolkenstein*, Counsellor of the Court of the Emperor.

M. *Cornelius Gobelius*, Counsellor of the Bishop of *Bamberg*.

M. *Sebastian William Mul*, Privy-Counsellor of the Bishop of *Wirtzburg*.

M. *John Ernest*, Counsellor of the Court of the Duke of *Bavaria*.

M. *Wolffgang Conrad de Tumbsteirn*, Counsellor of the Court of *Saxony*, *Altenburg* and *Coburg*.

M. *Augustus Carprovius*, Counsellor of *Saxe Altemburg* and *Coburg*.

M. *John Fromhold*, Privy-Counsellor of the House of *Brandenburg*, *Culmbac* and *Onolzbac*.

M. *Henry Laugenbeck*, J. C. Privy-Counsellor of the House of *Brunswick Lunenburg*.

M. *James Lampadius*, J. C. Privy-Counsellor of the Branch of *Culember*, and Vice-Chancellor, in the Name of the *Counts of the Bench of Wetteravian*.

M. *Matthew Wesembaus*, J. C. and Counsellor, in the Name of the *one and the other Bench*.

M. *Marc Otto* of *Strasbourg*; M. *John James Wolff* of *Ratisbon*, M. *David Gloxinius* of *Lubec*, and M. *Louis Christopher Krés* of *Kresenstein*, all Senators, Syndics, Counsellors and Advocates of the Republick of *Nuremberg*.

Who with their own Hands and Seals have signed and sealed this present Treaty of Peace. And which said Deputies of the Orders have promised to give the Ratifications of their Superiors in the Time prefixt, in the Manner agreed upon; leaving the Liberty to the other Plenipotentiaries of the States to sign, if they judge proper, and to procure the Ratifications of their Superiors. And on this Condition, and under this Law, that by the Subscription of the said Embassadors and Deputies, all and every one of the other States who shall abstain from signing and ratifying the present Treaty, shall be no less obliged to maintain and observe what is contained in this present Treaty of Pacification, than if they had really signed and ratified it; and no Protestation or Contradiction of the Council of Direction of the *Roman* Empire against the Subscription of the said Deputies, shall be good or received.

Done and concluded at *Munster* in *Westphalia* the 24th of *October* 1648.

I observe in this Treaty, 1. That though the *Swedes* and the *Dutch* had made each their separate Treaty with the Enemies; the King of *France* was still in a Condition to support the just Claims of his faithful Allies, and to force the Emperor and the Empire to do them Justice; and that he espoused their Interests with more Warmth than he did his own.

2. That he procured to the *Palatine* House that Satisfaction which she could have expected, had she even been in a Condition to obtain it by Force of Arms, which was not her Case then, since she had neither Forces nor Money; and that she was indebted to *France* alone, for the Restitution of Part of her Dominions and the Erection thereof into an eighth Electorate, which *England* had never been capable to compass, notwithstanding all the Attempts she had made towards it, either by Negociations or open Force.

3. That the Most Christian King supported the Interests of the Protestants of *Germany*, whom the House of *Austria* wanted to crush; though other Protestants are always ready to espouse the Interests of the House of *Austria* against *France*, which shews, that it is rather by a Motive of Jealousy or Hatred than of Religion; tho' at the same Time they have almost always smarted for it; since for one prosperous War, they have met with three destructive and unprosperous ones.

4. That

4. That that excellent and most virtuous Princess, *Amelia Elizabeth*, Landgravine of *Hesse*, who was justly stiled the Christian Heroine of the Age, refused always with a Resolution, which could not be too much admired, to depart from her Alliance with *France*, though she saw by the Defection of the *Swedes*, the Dominions of the Prince her Son exposed to the greatest Danger of being attacked with Advantage by the Enemies; which Generosity and Magnanimity should never be blotted out of the *French* Annals.

5. That though *Alsace* was yielded to the King of *France* in the most solemn Manner, he restored to the House of *Austria* a far greater Tract of Land, which he had taken from her by his victorious Arms; which were still in a Condition to make new Conquests when he consented to give Peace to Christendom by this Treaty, whereby he gained much less than he could have reasonably expected: The House of *Austria* having seldom been capable to cope with *France* alone, even when her Forces were joined with those of *Spain*, and of the whole Empire, and even sometimes with those of the rest of *Europe*. Witness the War before the Treaty of *Nimeguen*, and that before the Treaty of *Ryswick*.

I'll conclude this Treatise by an excellent Memorial presented to Don *Pedro* Prince of *Portugal*, on account of his Mediation, which he had offered to their Most Christian and Catholick Majesties, for the Peace of *Nimeguen*, which being accepted by *France*, was referred by *Spain* to the Consent of her Allies; in which Memorial is exposed all the Craft and Machiavelian Politicks of the *Spaniards* of those Days. That Memorial is as follows:

Advice given to the Prince Don Pedro, *by one of his Ministers on the State of* Portugal, *in the Year* 1677.

While your Highness is pleased to communicate to his Council his glorious Intentions for the Peace and Tranquility of Christendom; the loyal Passion of a Minister obliges me to interrupt the Course of his noble Thoughts, to engage your Highness to fix them for a Moment on the present State of *Portugal*, and on the Advantages he could procure to it in the Conjuncture which Heaven seems to offer him, by an Effect of that antient Protection, whereof it has so often felt the Effects.

But, my Lord, as the Love for my Country, and my inviolable Affection for the Service of your Highness, are the only Motives which make me take this Liberty; I hope that they'll gain your Approbation; and that at the Example of the most august Senate of the Earth, your Highness shall give Leave to those who enter your Council, not only to give their Advice on the Things proposed, but to represent, with Respect, all that their Zeal can inspire them with the most advantageous and useful for the Good of the State.

Your Highness wants to build a Temple to the universal Peace, and it is a Work worthy his Piety, and that of his glorious Ancestors. But before it can be expected to work with Success to so glorious an Enterprize, it is necessary to take a last Resolution on an Affair so often debated, and whereof all the great Designs you can form must be a Sequel.

It is to know whether *Portugal* in its present Condition ought to keep the Peace with *Castile*, or declare War against it?

Those who support their Party with the specious Name of Peace make Use of two Reasons.

The first is that of Justice, and of the publick Faith, founded on a solemn Treaty of Peace, which your Highness seems obliged to observe, and cause to be observed in all its Parts, unless he wants to wound, at the same Time, Justice, his Conscience, and the Oaths he has made.

The second is founded on the general Good of that Peace, which to obtain, so much Blood and Money have been lavished; on the Repose it must procure to his Subjects; on the Cessation of the Violences and Disorders the War necessarily drags after her; and on the other Advantages which are the ordinary Fruits of Peace.

Those are, my Lord, their most solid Reasons: But I hope to let your Highness know the Nullity thereof, and that they are to be of no Weight, considering the present State of the Kingdom; that all the Motives alledged to support them (though they could be of a great Weight in other Occasions) have neither Force nor Foundation with regard to the Peace we keep with *Castile*, and that they are neither to be admitted nor approved; but rather to be feared as manifest Dispositions to our Destruction.

I do not pretend to answer a great many others which having but the single Appearance, and no other Foundation but the Interests of some private Persons, deserves no Attention, when the publick Good is at stake; whereof, notwithstanding, we should fear the Surprize, because the Venom they contain is much more dangerous that it is hidden.

I believe, that according to the most sacred Laws, and established by the common Consent of Men, your Highness can break the Peace made with *Castile*, and declare War to it, without offending Justice, or wronging your Conscience, that Treaty being but a Shadow of Peace. In effect, we do not see the Execution of the Articles thereof which are the most important to your Crown; but, on the contrary, see the Infraction of the most holy and most essential of them; and if there be any Engagement for your Highness in Treaty, it is only that of revenging the Injustice which has been done to you in the Execution thereof.

The first Injustice done by the *Castilians* is the Usurpation of the Name of King of *Portugal*, whereby they have attacked the Right of his Majesty: Which is justified by the Instances of the Marquis *d'Aronches* your Highness's Embassador at *Madrid*; which were followed by the Expedition of a Decree, whereby in Consideration of the Peace made with *Portugal*, it was forbidden to give the Catholick King in the publick Acts, the Quality of King of *Portugal*. But that Command being not observed in all the Tribunals of *Madrid* (as the Marquis *de Govea*, proved it by the Representation of a Judgment of the royal Council, in which the King of *Castile* was still called King of *Portugal*) he asked for the Execution thereof, and that those who had not obeyed should be severely punished. They contented themselves with answering him, that the necessary Orders should be given for the Execution of that Decree for the future, wherefore those who had violated it were forgiven. Which notwithstanding the Council of *Castile* has had so little Regard to that last, and so precise Resolution, that the same Style forbidden by the Decree, has remained in Practice till now; and all the Orders which were not dispatched for *Portugal*, invested with Seals charged with the Arms of that Kingdom.

From the Usurpation of the Name, the King of *Castile* has passed to that of the Sovereignty, which he pretends still to exercise in your Dominions, giving to Don *Pedro de Menezes* the Quality of Duke *de Caminha*. An Act much more extraordinary, that that Dutchy of *Caminha* being situated in *Portugal*, and having been confiscated on Don *Louis de Menezes* condemned to Death, and executed in 1642, with Don *Miguel de Menezes* Marquis of *Villa-Real* his Father, for having conspired against the Person of the King Don *John*, the said Don *Pedro de Menezes*, their pretended Heir, came into *Portugal* immediately after the Peace of 1668, to claim the Estates of the said Succession. But having himself acknowledged the Injustice of his Pretensions, he had Recourse to the Queen of *Castile*, who made no Difficulty to reward in his Person, by an Usurpation on the Treaty of Peace, the Services which his Ancestors wanted to do to the Crown of *Castile*, by an Action so odious to all Sovereigns.

If the King of *Castile* has thus made Use of an Authority which did not belong to him, he is gone still further, by keeping in his Hands what he was obliged to restore; and the eighth Article of Peace, which bears formally a reciprocal Obligation for the two Kings, to restore to the Subjects of each Crown all the Goods they had been divested of on Occasion of the War, could not engage him to restore to the House of *Medina Sidonia* the Possession of *St. Lucar*, refusing to your own House the Justice which you had stipulated for the meanest of your Subjects.

Your Highness commanded the Marquis *de Govea* to complain of it, who had no other Satisfaction but to learn

learn from the Mouth of the Ministers of the King of *Castile*, that after he had caused that Affair to be examined in his Councils, and particularly in that of Conscience, it had been unanimously determined, that that Restitution could not be included in the said Article of Peace.

Tribunals, the Jurisprudence thereof is not known in the other States of *Europe*, and which perhaps have established Maxims, according to which *Joan Gil Pelamino Saavedra* has been condemned to Death; against the Tenure of the same Article, which bears formally a general Abolition, and against the Right of Hospitality, *Francis* of *Utra*, *Manoel de Souza*, and *Michel James*, Masters of *Portuguese* Ships, which a Tempest had made to fall into their Hands.

Where is then, my Lord, the Execution of a Treaty, which your Highness observes so religiously? The Name of King? *Castile* keeps it. The sovereign Authority? it exercises it. The Security of the Goods of your Friends? it is found in the Confiscations. That of the Persons of your Subjects? it is found in the Prisons of *Castile*. The Peace notwithstanding has produced a great Change in the Affairs of the two Crowns: Those who fled before your Generals have armed all *Madrid* against your Embassador; and those who published that they would reduce your House by the War and open Force, have swore to exterminate it in the Tranquility of a profound Peace.

The 27th of *September* 1673, the House of your Highness's Embassador at *Madrid* was seen invested, attacked with Stones, and at last set on Fire, under the Conduct of a Magistrate, who was obliged by the Laws of Nations to secure it against those Sorts of Insults; in that outrageous Enterprise, the Majesty of a Prince was seen disgraced, and his Authority annihilated in the Outrage made to his Person in that of his Minister, and of such a Minister. *Europe* knows the Satisfaction which has been made yet for such an Insult.

Without having Recourse to antient Examples, to shew how much a War undertaken only for such an Outrage would appear just and glorious, it suffices to set before your Eyes all that in our Days has happened at *Rome*, on account of the Affair of the Duke of *Crequi* Embassador from *France*, to learn that so soon as the Most Christian King was informed of it, he ordered the Nuncio, residing then near his Person, to quit *Paris* immediately, and retire into a Town which was named to him, under Pretence of avoiding the Violences of the Populace against his Person, and that of his Domesticks: On the Difficulties he made of departing with so much Precipitation, he was even let to know, that his Resistance would oblige the King to provide for it by his Authority: That the Most Christian King took the Resolution to render himself Master of the State of *Avignon*, though belonging to the Church; to wage War against the Sovereign Pontiff, which Proceeding was approved by all the Christian Princes as very just: And lastly, to carry Things to the last Extremity, if the Treaty of *Pisa* had not stopped the Effects of so just an Indignation, in procuring Satisfaction from the Chief of the Church to his eldest Son; which for any other Subject had not met with a general Applause.

All *Europe* has known them engraven at *Rome* on Marble, fastened to a Pyramid, erected for so flagrant an Outrage; and which would subsist still, if the particular Love and Esteem of the Most Christian King for Pope *Clement* IX. joined to his Instances, had not obtained the Demolition thereof.

It is by such a Conduct, that the King of *France* has deserved a general Esteem; since the Justice he procured to himself, having been still more publick than the Offence, has given to Posterity, and to all other Sovereigns, a glorious Example, and infinitely worthy of Imitation.

Why should not the same be said of your Highness? Why must it be published, that your Embassador has received private Satisfactions for the Insults he has suffered at *Madrid*? And why should they be known of no Body but himself?

It is to your Highness to account for it to all *Europe*, which admires equally your Patience, and the Temerity of the *Castilians*. For your Patience, my Lord, it may be thought an impenetrable Secret of your royal Prudence; but for the Insolence of the *Castilians* with regard to your Embassador, give me Leave, my Lord, to be a little more surprized at it than the rest of *Europe*: The *Castilians* have thought perhaps that the Marquis *de Govea* was come to *Madrid* with the same Instructions they had given to *Batteville* and *Umanes*. *Batteville* and *Umanes*, who should rather be called the Ministers of the *old Prince of the Mountain*; than Embassadors of the Catholick King, since they are come here to conspire against the State, and against the Life of your Highness, and to revolt Subjects against their Sovereign (as in fact they had too fatally succeeded on the Persons of those whom the Goodness of your Highness could not keep from the Justice due to the Interest of his Kingdom) and perhaps on a great many others, whose Names your Highness would not even know, to practise a Generosity unknown to every body else but Heroes.

They have attempted every Thing to violate the Authority of the Church, to overthrow the fundamental Laws of the State, to extinguish the Succession of your Highness in his own royal Blood, and that of the Infanta; and lastly, heaped up Crimes upon Crimes to secure to themselves the Recovery of *Portugal*.

Afterwards, my Lord, could I dare ask your Highness, if that Scruple of Conscience, made Use of to keep him disarmed, does not awake those great Sentiments of Justice he owes to himself, and to his Dominions? Yes, my Lord, I could dare it, and even perhaps assure your Highness, that he is obliged to hear that generous and just Scruple of Conscience; *i. e.* that Resolution of the late King your Father, for the Defence of the same Justice your Highness owes to his Dominions; for the Conservation of his Reputation, of his Crown, and of his own Person.

Those are the sacred Interests which do not permit your Highness to defer longer (since he is answerable for all the Evils which can happen from such a Delay) leave him no other Party than to oblige *Castile* by the Force of his Arms to give an entire Satisfaction for the Insults received, and to consent to a Peace which may put *Portugal* in a Security subject to no Alteration.

This, my Lord, Justice asks of your Highness; let's see what the general Good of your Dominions can require.

All the Princes which embrace the Peace, are actuated to it by the effective and real Advantage, which they expect to reap from it, or are forced to it by the Necessity they are reduced to by their Weakness, and want of Power.

According to this first Principle I do not pretend to insinuate to your Highness that he should go to War by a Motive of Vanity, nor with the ambitious View of extending the Limits of his Monarchy, which are the most common Views of Princes when they take up Arms. My Intention is, that *Portugal* may gain by the Peace the same Advantages it is flattered with, and obtain the Change of a false and captious Peace into a true and secure one; which cannot be done but by a Declaration of War.

To justify that the Peace made in 1668 is not a Peace for us, but a pure Illusion, wherewith *Castile* covers the inveterate Hatred of its Nation against ours, and the insatiable Desire of our Ruin and our Conquest: I ask, what Utility has accrued to your Dominions from that pretended Peace, for eight Years past, it is talked of, and the Name thereof is seen printed in a Treaty? Have we not always the same Enemies to fight against? And much more dangerous, that we are obliged to defend ourselves at the same Time against their Arms and their Artifices. All the World search that Peace which they have not found yet; and if the People wished for it, it was because they expected to embrace a Divinity; but it was but a Cloud, which has broke into Lightning and Claps of Thunder.

It must not be objected that Peace is the sweetest of all Fruits, but that it is not ripe enough yet to be tasted. There is none in Nature that requires eight Years for its perfect Maturity. In fact, it is not knowing very well the Nature of Peace, to rank it among the Fruits which require Time to be good. Peace (like the Olive which is

is the common Symbol thereof) is a Fruit ripe so soon as it appears.

But if we do not know the Fruits of this pretended Peace; our Enemies are not so, since it has given them room to work in so many different Manners at our Ruin; and which our Posterity will never believe they have done with Impunity; because your Highness would not break the Peace, which we keep so religiously, and which the *Castilians* maintain at present with so much Precaution, and so many Protestations of Friendship: Peace, which is but too real for them, since we abstain from our Conquests, and it deprives your Highness of the Matter of his Triumphs.

In fact, if your Highness wants to know who really enjoy it, he ought but to examine their Conduct, study the Genius of their Ministers, consult the Means they have used to bring it to a Conclusion, and the essential Nullities they have affected to introduce into it, that they may have always a Door open to reclaim, and wait, mean while, for the Occasion to fetter us again, either by open Force or by Finesse.

It is the greatest Piece of their Politicks, and a Mystery they have discovered to us, by the Advices of the Duke of *Medina de las Tores*, of the Marquiss *de Castel Rodrigo*, and of the Count *Raboledo*. Those Ministers represented to the Catholick King, and to those who govern'd the State during his Minority, that his Monarchy was on the Point of its total Ruin, by the powerful Efforts of the Most Christian King in *Flanders*, and the mortal Wounds the victorious Arms of *Portugal* had given to the very Heart of his Dominions: That the Power of *Castile*, heretofore so formidable, was without Troops, without Chiefs, without Money, without Friends or Allies, who would lend them a helping Hand to save them from the Naufrage: That, therefore, in these Circumstances they knew but one Remedy to so many Evils, which was a Peace with *Portugal*; that that Peace breaking our Union with *France*, would render in Time the Conquest of our Kingdom much more easy; that it would increase the Communication of *Castile* with *Portugal*, and thus procure new Intelligences, and facilitate the most difficult Enterprises: That by that Peace a natural Confidence would not fail to incline the *Portuguese* Nation to abandon themselves to Idleness, and to a profound Lethargy; the Soldiers would be disbanded, the Exercise of Arms discontinued, and the Officers drooping by Degrees, the Kingdom would remain, at last, entirely enervated, and destitute of all that could have hinder'd the Conquest thereof. That if even (by a moral Impossibility) all this should fail, we would wage War against ourselves by Discontent, Envy, and Disunion, which Idleness introduces into the most powerful States.

Those Advices given by Ministers faithful to *Castile*, and who knew perfectly well all that could accelerate the Ruin of *Portugal*, carried it against the Sentiments of several others: It was resolved to make a Peace, and they succeeded therein. Thus the vanquished *Castilians* gave the Law to the victorious *Portuguese*, by engaging them to accept of a Treaty composed of thirteen Articles, digested and calculated at *Madrid*, where we had no Body to support our Interests: Whereas those of our Enemies have been managed with so much Dexterity, that they exempted themselves from subscribing to a formal Renunciation to their Pretensions on *Portugal*; a Renunciation whereof they cannot have forgot the Use and Style, and without which the King of *Castile* hopes to remain in all his Rights, and make Use of the Quality of King of all *Spain*; which he has reserved to himself, in the Powers of the Marquiss of *Eliche*, Plenipotentiary for signing the said Treaty, as an authentick Title, to maintain his unjust Pretensions, and reclaim in a favourable Conjuncture, against all that could have been done during the Time of his Minority.

In fact, is it not known that (to give a more apparent Foundation of Justice and of Religion, to what they knew should happen some Time or other) the Universities of *Castile* were consulted on the Project of Peace, and that they judged, that it would leave to the King his Right in its full Force, and in a Condition of being employed for the Recovery of *Portugal*, whenever an Occasion should offer, and that Treaty was no Obstacle to it. It is not to be questioned, that the *Spanish* Politicians, are fallen into the Sentiments of the Universities, and have believed, that the Queen of *Castile*, in the Quality of a Tutoress, could not dispose of the Estates of her Pupil, nor give Power to the Marquiss of *Eliche*, to yield a great Kingdom, which the Catholick Kings had enjoy'd peaceably during 60 Years. Therefore they have made no Difficulty to conclude that Treaty, and will make but very little to break it: The King of *England*, as Mediator, having not obliged himself to maintain the Execution thereof by Arms, as it is almost always stipulated in all other Treaties, which have been sealed for a reciprocal Sincerity.

From all which, it must be concluded, that that Peace being but a Fiction, we should not hesitate to search our Security in the present Conjuncture, by putting *Castile* out of a Condition of waging War against us, and of employing her Forces and Finesses, to deprive us a second Time of our Liberty. And if the *Castilians* confess in their Writings, and in private Assemblies, that the Conquest of this Kingdom is resolved upon, and imprinted into their Hearts; if all *Europe* be convinced of it; would it not be rather a Fatality than a Disgrace for us to be the only ones, who cannot be persuaded of it? And who after so many Hints would blind ourselves so far, as to be the Destroyers of our own Monarchy, and of our Families?

Semblable to an illustrious Nation of *Germany*, which under Pretence of being not attacked by her Neighbours, preferred the Sweetness of a present Peace, to a Security well established by the War, knew, but too late, that Peace was the Cause of her Ruin; thus People, whose Reputation had been very great, had the Displeasure of being accused afterwards of Cowardice and Folly; and, on the contrary, the fortunate Activity of their Neighbours, and the Prosperity of their Arms, was consider'd as an Effect of their Wisdom.

Therefore it is no more the Advantages of the Peace which makes us embrace it; and it remains only to see if our Weakness be so great, as to oblige us to submit ourselves to so rigorous a Law.

How could it be insisted on a Proposition so wide from the Truth? We have actually on Foot half the Forces necessary for an offensive War, and most of which are composed of the best Troops, at the Time of the Reform made at the Peace; it can be said, that Recruits joined to those old Companies, would form Bodies of Armies formidable to our Enemies, by their Valour, Number, and Reputation; to whom they could oppose none but Men compelled to fight, loaded with Chains, and who could not resist Soldiers, who remember yet the Victories they have gained.

Your Highness, by the wise Œconomy of his Ministers, has settled and augmented his Revenues, since the Peace, the most considerable Part thereof is employed to put to Sea, every Year, a Number of Ships capable to destroy entirely the Commerce of the *Castilians*, to carry off their Fleets, and make a Diversion of their Forces in *Spain*, by the Jealousy we can give to all the Places of their Domination, on the Ocean and on the *Mediterranean*; and if those maritime Forces should not answer quite the great Hopes which can be conceived of them; your Highness has the Choice to appoint the Funds thereof, for what he shall judge most proper to draw from them a more immediate Utility.

He shall have the same Right to apply to the most pressing Uses, the two best Funds of his Monarchy; I mean *his Liberalities*, and the *Hearts* of his Subjects. The Liberalities of your Highness, which are pure Effects of his Generosity, will be capable to defray Part of the Expences of the Army; and the Officers and Soldiers, though increased in Number, will, notwithstanding find an ample Reward of their Toils; if those Sources are made use of, which you exhaust daily in Favours; and the Course thereof may be very well diverted for some Time, in order to render it more rapid, afterwards, by the Tranquility and Abundance of a perpetual Peace, which is the sure End of your Arms. As for the Hearts of your Subjects, they are the true Funds, which have always been unalienable, and unexhaustible, ever since the Birth of the *Portuguese* Monarchy, particularly in Enterprises for the Majesty of the State; as have experienced

perienced it among all others, the two Princes *John* I. and *John* IV. Restorers of the Monarchy. Your Highness has had hitherto no less Testimonies of the *Portuguese* Love than those two great Princes; and therefore can expect no less Assistance.

We can besides join to those Funds the sure Resource which we have always found in the Fidelity of our Friends the *French*; who will not fail to succour us, with the same Disinterestedness we have experienced in them, in our most difficult Times.

Lastly, my Lord, to know perfectly what we can expect from our Forces, we must examine likewise those which can be opposed to us, and having discovered how different they are at present, from what they were when we have vanquished them, we must either be blind, or see ourselves victorious if we declare War.

All these Reasonings full of Justice and Zeal for your Highness, and the Good of his Dominions, cannot be opposed but by a single Reason, which is, that it is out of Season to speak of a War against a Prince to whom your Highness has offered his Mediation; the Difficulty is great, since it is the most considerable that can be found in an Enterprise so important as is that in question; therefore, my Lord, we must enter into the most exact and scrupulous Detail, Prudence and Religion can penetrate.

Your Highness has offered his Mediation to *Castile*, i. e. he has shewed himself sensible to the Misfortunes of Christendom, that he is not only ready to forget the Outrages done to his Dignity and to his Person; but to live with the King of *Castile* as a good Brother, and a good Neighbour, and (which surprizes all *Europe*) to lend a helping Hand to that afflicted Monarchy, and relieve a Power, which (to say no more) will be always formidable to your Dominions. It is, if I be not mistaken, what that Word of Mediation can signify with regard to you and to *Castile*, and what your Highness pretend in offering his Mediation. But, my Lord, it is all he should pretend. It is true, that he discharges by those Explications, the Duties of a Christian Prince, of a Prince who believes that the Law of Nations makes no Difference between the Names of Neighbour and of Friend; and indulges the Inclination of a magnanimous Prince. But in those great Views which extend over all *Europe*, will you refuse the least Glance to *Portugal*? Is it enough for her Security that you are a Christian Prince, a magnanimous Prince, and a good Neighbour? No, my Lord; there is wanted besides a clear and precise Declaration, and guaranteed by all *Europe*, that *Portugal* and *Castile* are two Crowns, equally independant from one another as *France* and *Castile*. It is true, that you have one authentick enough in the Treaty of Peace of 1668, to secure your Glory, and calm the Conscience of those who have maintained the Rights of your House. But it wants still what it should have, to cut that Knot of political Finesses, which refine on all Treaties. It wants what it should have, to convince not only the Council, but the People of *Castile*, that all the Wars which might be undertaken for the Conquests of *Portugal*, are Outrages, Injustices, and Usurpations. Your Treaty is full of Honesty on your Part, and of Subtilty on the Part of the *Castilians*; and this has been perceived a long while. But by a Mediation your Highness had found a friendly and just Expedient to supply all those Omissions, which Politicians call essential Faults. It is in that famous Assembly of *Nimeguen*, which attracts the Eyes of all Christendom, that your Embassadors had received an entire Justice, and your Allies an indicible Satisfaction, that publick Congratulation on your Restauration to the Throne of your Ancestors; and what had been disputed for so many Years, had been deferred to you with Pleasure, by all the Princes of *Europe*, and maintained by their Arms.

The *Castilians* were conscious of it, when they have shut that Door against you, which led to the Temple of Peace, by Steps which I most humbly intreat your Highness to examine.

The Council of your Highness received with great Applause, the Communication he was pleased to give him of his Design, relating to the Mediation, and no body could refuse his Suffrage and his Approbation to so useful a Thought, and so glorious to the State. Therefore it was offered the 3d of *August* 1676 to the Kings of *France* and of *Castile*, and to the *States-General*, by Dispatches which your Secretary of State delivered into the Hands of their Ministers. Your Highness caused likewise the Pope's Nuncio, and the Resident of *England* to be acquainted with it, their Masters having been accepted already for Mediators. All those Ministers expressed an extreme Satisfaction of your Proposition, as being very advantageous to their Masters, and very agreeable to the Repose of Christendom. The sole Envoy of *Castile* had different Sentiments, and if some Reflection obliged him to change the Surprize he had shewn, when the Secretary delivered the Dispatch into his own Hands, a kind of Pleasure for that Mark of Friendship of your Highness to his Master; a second Reflection stronger than the first, and perhaps more agreeable to his general Instructions, obliged him the very next Day to speak no more in such positive Terms, and tell your Secretary of State that it would be very difficult for the Catholick King to give an Answer without the Advice of his Allies.

This was, my Lord, the first Step taken in the Name of *Castile*, which has very well justified that they did not think your Highness in a Condition to take so glorious Resolutions.

The 15th of *October*, the Envoy of *Castile* presented to your Highness a Letter of the King his Master; and you had room to believe that it was a formal Acceptation. Which notwithstanding, it contained nothing else but vague Assurances of a Disposition to accept your Mediation; and that before he could explain himself more positively, he had dispatched to all his Allies to know their Sentiment, according to the express Stipulations inserted in the Treaty of Confederation made between them, and to the Method they had followed, when the Pope and the King of *England* had offered their Mediation. A true Reason, or a specious Pretext! but were two Months wanted to bring it to light? unless they would not make Use of the little Distance which is between *Lisbon* and *Madrid*. Perhaps also it had been reserved for a still better Occasion, if the Minister of *Castile* had not been informed, that the most Christian King had already explained himself favourably for that Mediation.

Two Months and a half afterwards, hearing nothing of that Communication, your Secretary of State took the Resolution to let the Envoy of *Castile* know, that there were five Months since you had offered your Mediation, notwithstanding which you had received no positive Answer, though it was a Time more than sufficient to receive Advices from the furthermost Part of *Europe*. His Answer was full of Assurances of Friendship and of good Understanding, under the Shadow thereof, the Conjuration was canvassed. He added only, that he did not question but your Highness would receive in a short Time the positive Answer he expected, because he had been informed of the Communication made on that Subject between the Allies.

The Resident of *Holland* was pressed in the same Manner, and his Answer was much alike, and which we expected.

However, my Lord, your Highness has been flattered with the same vain Hope for very near two other Months: We hear that the Plenipotentiaries are arrived at *Nimeguen*; that the Preliminaries of the Treaty are already settled by the Cares of the Mediators; and I do not question, but at this very Moment they are disputing the different Interests. Thus your Highness loses the Fruit of that Mediation, the Project whereof had been received in your Kingdom, with so general an Applause of the People, though with very different Sentiments. The true *Portuguese* had looked upon it, in the same Manner your Highness and his Ministers had done: The Pensionaries of the Crown of *Castile*, as being more capable than any Thing else to keep your Highness in an Uncertainty, to put him out of Power of taking any just and vigorous Resolution, flattering themselves with the Hope of delaying so long a positive Answer on an Acceptation or Refusal, by affected Delays, or by Difficulties which they would start up on the Part of their Allies, as to give Time to the Plenipotentiaries to put the Treaty out of a Condition of admitting a new Mediator.

There is, my Lord, an Effect of their Lights, the Truth

Truth thereof, is too ſenſibly felt by us, as well as thoſe of one of your Highneſs's Miniſters, who has not heſitated to blame loud the publick Vows; and to diſclaim, with Paſſion, againſt the Propoſition of the Mediation, ſo far as to accuſe it of Folly; and if he has declared his Sentiment more publickly than the Worſhippers of *Caſtile*; it is becauſe he knew better than any Body, the ſure Means the Catholick King had to prevent the Execution thereof, knowing perfectly the Secrets of his Conduct with Regard to the Kingdom of *Portugal*.

I could end here, my Lord, and tell your Highneſs, that I believe I have repreſented to him the principal Reaſons which deſerve to be heard in your Council. But it is difficult to paſs over in Silence, certain Diſcourſes which are inſinuated in your Court. It is ſaid, that it is true, that the Treaty made with *Caſtile*, is a Snare very dexterouſly laid; that the Heat wherewith the People aſked for it, was not without a foreign Motion: That your Ambaſſador has been inſulted, your Perſon attacked, your Mediation eluded, and that there are but few Laws, divine and human, which were not violated by the *Caſtilians*, while *Portugal* ſleeps under the Shadow of her Laurels, and under that of a Treaty: But that it is not a proper Time to reſent it, and that the Lion of *Caſtile* pierced with mortal Wounds, and reduced to Extremity, and in the moſt deplorable Condition, claims your Highneſs's Forgiveneſs; and deſerve rather your Compaſſion than your Anger. How moving are thoſe Diſcourſes, and how agreeable they are to thoſe held at *Madrid* four Years ago, when the Hearts of *Portugal*, and her moſt ardent Vows were offer'd for the Succours of *Caſtile!* But as thoſe Vows have not been heard in Heaven, as one can eaſily judge by the laſt Campaigns, ſome of the ſame Kind are addreſſed at preſent to your Highneſs, to try whether they ſhall not have a better Effect. I don't know if after that Battle ſo fatal for *Africa* and *Portugal*, and fortunate for *Caſtile* alone, our Anceſtors found in the Council of *Madrid*, Interceſſions as pathetical as theſe. The Voice of a King expiring for Chriſtendom, on Heaps of Nobility ſtretched at his Feet; the Sighs of twenty-thouſand Men cover'd with Glory and Blood, ſhould have ſoften'd the Hearts of the *Caſtilians*, and diſpoſed them to terminate in an amicable Manner the unjuſt Pretenſions they had upon us. But thoſe Voices, inſtead of moving them; harden'd. And of all the Propoſitions of his Holineſs, of all the Remonſtrances of *Portugal*, of all the Deciſions of the Lawyers, none was heard but that which eſtabliſhed the Right of *Philip*, on twenty-thouſand Men, and thirty Pieces of Cannon.

Thus, my Lord, a proud Politick ſtopped their Ears; and thus the Prudence of your Highneſs muſt not ſuffer to be conquer'd by Movements, excited by imaginary Misfortunes. *Caſtile* appears weak, becauſe ſhe has *France* to make Head againſt; her Forces are diſpers'd, but not diſſipated; ſhe muſt not be thought in a dying State, becauſe ſhe is afflicted with a voluntary Diſeaſe. Her Sovereignty in *Flanders*, her Uſurpations in *Italy*, her Pretenſions in *Germany*, and her vaſt Dominions in the *Indies*, employ Forces, the broken Remains thereof alone, will make one Time or other the *Portugueſe* ſhed a Flood of Tears, if a vain Compaſſion makes her miſs ſo favourable an Occaſion. Believe me, my Lord, *Caſtile* by that cringing Inſinuation of her Weakneſs, acts like a Giant, who feeling his Strength diminiſhing, fell to the Ground, as if he was dead, and having touched the Earth, roſe again ſtronger, and more terrible. Inſtead of theſe compaſſive Imaginations, follow the Advice of the Oracle of Politicians, who ſays wiſely, that he who has an ambitious and powerful Enemy to encounter with, deceives himſelf, when he pretends to find his Security in the Repoſe; and wherever the Arms can decide, Modeſty and Probity are but the Praiſes of the Conqueror.

Thoſe are the Maxims which your Highneſs muſt follow, and not give Time to the *Caſtilians* to make a general Peace for them, and an eternal War for you, in gathering all their Forces from the four Corners of *Europe*; and taking the Advantage of the great Number of Officers, which a continual War in their Kingdom, or in the Empire muſt furniſh; and by bringing into their Intereſts, Princes who can find great Advantages in the Partition of the Dominions of a Prince, who has Eſtates in the four Parts of the World.

I touch this but *en paſſant*, though I believe, my Lord, that you ſhould make a very ſerious Attention upon it. Incredulous States have ſeen themſelves on the Brink of their Ruin, by believing thoſe Sorts of Confederacy impoſſible. As for me, I judge nothing impoſſible in this Age, which could make ſo ſtrict an Union between *Caſtile* and *Holland*. Laſtly, ſuppoſe that ſuch a Junction could not be made; it is much better to leave the Preſervation of your Dominions to your Prudence, than to the Probity of your Enemies.

You'll prevent, infallibly all thoſe, if you carry your victorious Arms into their Territories. For we muſt not flatter ourſelves that War or Peace are at our Choice. War is certain, at preſent, or hereafter, whether we, or our Enemies declare it. Therefore your Highneſs muſt chuſe what is moſt agreeable to his Reputation, or to the Succeſs of that ſame War, either to have it at our own Gates; or carry it to their own; to undertake it alone, or ſupported by the Arms of ſeveral Princes; to wage it againſt an Enemy, whoſe Forces are divided, or when they ſhall be united: To make it with a moral Certainty of being victorious; or with the Uncertainty which will accompany in another Conjuncture the Fate of Arms: To make it for a long, or for a ſhort Time; and laſtly, to change an uncertain State, into a very certain one, by Means whereof your Highneſs will procure to himſelf, to the Eyes of all *Europe*, the juſt Satisfaction of the Inſults he has diſſembled till now, reſtore the Honour of the *Portugueſe* Nation, and to his Kingdom a ſure Repoſe, and the ſame Abundance we remember to have enjoyed during the War, and we vainly hoped to have ſeen continued in the Peace.

This is, my Lord, what I take the Liberty to repreſent to your Highneſs, with an entire Confidence, that if the Events of the War anſwer my Wiſhes, your Highneſs and his Kingdom ſhall reap ſeveral conſiderable Advantages therefrom; but that if my Vows are not fully heard, at leaſt my Zeal, and the Love I have for your Highneſs, and the Preſervation of your royal Crown, will authoriſe the Sincerity with which I have told my Sentiments, in a Conjuncture ſo important to *Portugal*.

This Memoir, which I have tranſlated as exactly as I could from the *Portugueſe* Original, makes me admire the Love of the Memorialiſt, for his Country, his unfeigned Zeal for the Glory and Intereſts of his Prince, and courageous Manner of declaring it to him, without the leaſt Fear of diſobliging him, though he uſes ſeveral very bold Expreſſions, which in our Age, where ſcarce any Thing is ſuffer'd but what ſmells much of an inſipid Adulation, would be condemn'd, perhaps, as a Kind of treaſonable Temerity; though his Maxims, ſeveral whereof are borrow'd from *Tacitus*, are very juſt and reaſonable. Few Miniſters follow his Example, and few, like him, eſpouſe ſincerely the true Intereſts of their Country, at the Riſk of incurring the Diſpleaſure of their royal Maſters. He tacitly accuſes the Prodigality of his, with Regard to his Favourites; and gives him to underſtand, that the Treaſures he laviſhes among them, would be better employ'd for the Support of his Glory, and the Security of his Dominions; he ſpeaks in *Portugal*, under a monarchical Government, in the ſame courageous Manner, and the ſame plain and perſuaſive Style, *Cato* ſpoke at *Rome*, under a Republican one. He is not an Enemy to Peace, but he would have a laſting and glorious one, which he thinks cannot juſtly be obtained from a crafty, ambitious, and perfidious Nation, ſuch as he repreſents the *Spaniſh*, but by vigorous Means. He paſſes in Review all their Fineſſes, and low Cunning, their Violation of the publick Faith, the little Regard they had to the Law of Nations, which even among the leſs civilized People, has always been conſider'd as inviolable. He cautions his Prince againſt all the Attempts they are capable of; and endeavours to convince him of what they are capable to do; and would revive the *Portugueſe* Courage, which had ſo lately ſignalized itſelf by the many Victories they had gain'd

gained over the *Castilians*, before it was quite buried in a too long Inaction. He refuted with great Solidity and Strength of Reasoning all the Objections which could be made against his Sentiments; and shews clearly, that those who do not agree with him are Enemies both of their Prince and of their Country. That though it becomes very well a great Prince to be a good Christian, his Christianism should not blind him so much as to render him contemptible; that there are even some Maxims of Christianism, which are incompatible with the Dignity of a Crown; and that it is beneath the Majesty of the Throne, when a Prince has been stricken on one Cheek, to present the other; tho' such a Thing be commanded in the Gospel. He would have him be sensible that the Insults done to his Embassadors are done to himself, and be revenged as such. He expresses his Gratitude for the great Succours *Portugal* has always received from *France*, in her greatest Distresses; and insinuates, that the same Succours are always to be expected from the same Side. He hints at the crafty Politicks of the *Dutch*, who never consult any other Interests but their own. And likewise at the unhappy Fate of Don *Sebastian*, of which the *Castilians* took all the Advantage they could. He resents highly, and as he ought, the Affront done to the Prince his Master, by the Catholick King's delaying to accept his Highness's Mediation, under frivolous Pretences; and shews that the only Reason of that insulting Delay, was his Consciousness, was he to accept it, of being obliged to renounce in Form, and in the most authentick Manner, all his Pretensions on *Portugal*, which he could not have revived afterwards, without revolting almost all the Parties interested in that Treaty; who had been obliged in Honour and Justice to maintain their own Work, and grant powerful Succours to the *Portuguese* to enable them to force the *Castilians* to desist; and perhaps make them repent of having violated the publick Faith.

The same Treaty of *Nimeguen* occasioned likewise the following Letter of the Duke of *Hanover* to the King of *France*, on the Neutrality of the Mediation he had accepted.

Hanover, September 23, 1675.

SIRE,

Having nothing more at Heart, ever since I have had the Honour to be in the Alliance of your Majesty, than to observe and accomplish, as much as I could, all the Points and Articles thereof, it cannot be but with an extreme Regret, that I see myself obliged by the Fatality of the present Conjunctures, and the unavoidable Necessity of the Time, to represent to your Majesty the Reasons which hinder me to act henceforward for the Service of your Interests in a Manner equally agreeable to my Zeal and Passion; as to the Expectation of your Majesty, and to the infinite Obligations I must have to his Goodness, and to the Confidence he has honoured me with, I confess, *Sire*, that no greater Misfortune could have happened to me: And I should be inconsolable, was I not to hope, that your Majesty will represent to himself with his usual Lights all the Incidents happened lately; and all the Dangers arising from them to me: Besides what I owe to my Dominions and to my Subjects, in so unhappy a Conjuncture, he will judge with Compassion and Equity, of the Purity of my Intentions, and of my Duty: For your Majesty will have the Goodness to remember, if he pleases, that after I have engaged myself with him in a Neutrality at the Beginning of these Wars; and afterwards in a Treaty of a defensive Alliance, I have not only endeavoured to fulfil all my Engagements, but that even after your Majesty had made a Peace with the Elector of *Brandenburg*, notwithstanding the considerable Obstacle that brought to the Affairs of *Germany*, I have always done what I could to remain firm in the great Inclination I have conceived for his Interests. My Passion in that is gone so far, that when the Fire of the War was carried into the very Heart of the Empire, and made the Diet take the Resolutions which every body knows, I have not even minded the Reservations which your Majesty had granted me in the said Treaty, but preferred the Considerations I had for his Alliance to what I owed to my Country. I have myself searched Means to strengthen it more; and have contracted one with *Sweden*, so soon as she has declared she would espouse the Interests of your Majesty, in Hopes that the Affairs would change Face in the Empire, and that the Members thereof would return to their former good Understanding with him. And as nothing could make me change my Resolution, I have not minded the Defection of the King of *England* from the Alliance of your Majesty, notwithstanding the Alteration it made in the Guarantee of my Treaties, nor the Change happened in the Interests of *Cologn* and *Munster*, and generally of all the Allies of your Majesty in *Germany*: On which, notwithstanding, I had founded the greatest Part of my Security. But, *Sire*, the Junction of my Arms with those of *Sweden*, having been retarded by I don't know what Fatality, but not by my own Fault; and the Disasters happened afterwards having obliged the *Swedish* Army to retire into *Pomerania*, without having been capable to secure a Passage on the *Elbe*, to facilitate their Communication with the Dutchy of *Bremen* and me; the said Crown having been soon after solemnly declared Enemy of the Empire by the Diet of *Ratisbon*, with all those who should give her any Succours; which was immediately followed by the Rupture of *Denmark*, which I had so much wished should be avoided. After all those Circumstances, *Sire*, I must not search other Judges, but the Justice and Equity of your Majesty, to decide himself in what Embarrass of Mind I must have found myself; and what Resolution I could take, when in that unhappy State of Conjunctures, I have seen that *Denmark*, *Brandenburg*, and *Munster*, in the Name of the Emperor and of the Empire, and of the rest of their Allies, were ready to declare to me the most cruel War that can be imagined; there being more than 30,000 Men on my Frontiers, if I would not declare myself neuter, and if I would not recall the Troops I had sent into the Country of *Bremen*, in virtue of my Alliance with *Sweden*. While I had nothing to oppose to so many Dangers but my own Troops, which are but a Handful of Men, in Comparison to so many Enemies; there being not in the Country of *Bremen* more than 2000 Men, of 6000 which were promised to be kept there by the Treaty, always ready to begin the Defence thereof. And seeing me besides cut and separated from the Arms of your Majesty and of *Sweden*, from which I was to expect all my Succours in this State, where the greatest Part of the Powers of the Empire were going to become my Enemies, and in which I was to fear for my own House; ever since the Measures I had concerted with him were unfortunately broken. Seeing besides my own Subjects at my Knees, intreating me to save them from the last Ruin; I could do no less to discharge my Duty and acquit my Conscience, than to enter into a Treaty with the Ministers of the aforesaid Princes, to stop the Course of the Torrent ready to carry me off. Considering besides, that if I had been willing to make a Sacrifice of all that to the Service of your Majesty, it had been in vain; and that my Ruin had not brought the least Advantage to his Interests. Which notwithstanding, I have delayed the Affair with great Difficulty to the third Week, as well to expect some Succours from a Change which the Fate of Arms could cause; as to give Time to the Minister of your Majesty, and to that of *Sweden* to represent to him the State of my Affairs; and procure me a positive and determinate Declaration, on the Requisition of a Succours, which I had made them in virtue of the Treaty. But the present Situation of Affairs having not allowed them to give me any other Answers and Hopes but general ones; which, far from being capable to secure me against a Danger ready to fall upon me, rendered it on the contrary still greater: And those of the contrary Party, who were but too well convinced of it, became bolder to insist and press me on my last Resolution. I was obliged at last to yield to Necessity, notwithstanding my Reluctancy to it, and the Passion I had to preserve myself entire to your Majesty; and to conclude with the said Ministers on the most tolerable Conditions I could, by accepting the Neutrality and Mediation they had offered to me. I caused to be communicated to M. M. his Ministers, the Articles of the Treaty Word for Word, before it was signed, to have their Advice, and see if it was possible to digest it, to the great Satisfaction, and according to the Interest of your Majesty.

jesty. He will see, without doubt, by the Report they'll make of it, that the Neutrality is quite pure; and that in the present Conjunctures there was not a more proper Expedient than the Mediation, to do to your Majesty, by my Offices, for the Peace (if he has the Goodness to agree with them) the most humble Services, which my Passion wishes, and which my Unhappiness hinders me from doing him by the Arms. After, Sir, I most humbly pray your Majesty, that he would not, in the present Conjuncture, occasioned by the Revolution of Affairs, refuse me the Continuation of his good Will and Esteem, which I shall always consider as the greatest Advantage of my Life, and as the most considerable I find in the Neutrality and Mediation I have accepted: And that both may leave me the Way free, to deserve still some Part in his Favour and Confidence. I wait with Respect, what your Majesty will do me the Honour to order me on the one and the other, and refer myself to what I have said more particularly to his Minister. I humbly pray your Majesty to do me the Justice to believe, that I value nothing to the Price of his Favours; and that I am with as much real Inclination and Veneration as ever,

SIR,

Of your Majesty.

TRIGONOMETRY.

TRIGONOMETRY is the Art of finding the Dimensions of the Parts of a Triangle unknown, from other Parts known; or the Art whereby from any three Parts of a Triangle given, all the rest are found.

The Word literally signifies the *measuring of Triangles*, formed from the *Greek* τριγωνον, *Triangle*, and μετρον, *Measure*. Yet does not the Art extend to the measuring of the Area, or Surface of *Triangles*, which comes under *Geometry*: *Trigonometry* only considers the Lines and Angles thereof.

Trigonometry, or the Solution of *Triangles*, is founded on that mutual Proportion, which is between the Sides and Angles of a *Triangle*; which Proportion is known, by finding the Proportion which the Radius of a Circle has to certain other Lines, called *Chords*, *Sines*, *Tangents*, and *Secants*.

This Proportion of the Sines and Tangents to their Radius, is sometimes expressed in common or natural Numbers, which constitute what we call the *Tables of natural Sines and Tangents*, &c. Sometimes it is expressed in Logarithms, and in that Case constitute *the Tables of artificial Sines*, &c.

Lastly, Sometimes the Proportion is not expressed in Numbers; but the several *Sines*, *Tangents*, &c. are actually laid down upon *Lines* or *Scales*; whence the *Line of Sines*, *Tangents*, &c.

Note, That before I proceed to the Division of *Trigonometry*, I must explain what is understood by *Sines*, *Tangents*, and *Secants in Trigonometry*.

SINE, or *right* SINE, in *Trigonometry*, is a right Line drawn from an Extremity of an Arch, perpendicularly upon the Radius drawn from the other Extremity; or the *Sine* is half the Chord of twice the Arch.

Whole SINE, *Sine totus*, is the Sine of a Quadrant, or of 90 Degrees; that is, the whole Sine is the same with the Radius.

Versed SINE is a Part of the whole *Sine* or Radius, intercepted between the right *Sine* and the arch.

It is demonstrated, 1. that the right *Sine*, being perpendicular to the Radius; all *Sines* drawn to the same Radius are parallel to each other.

2. Two Angles contiguous have the same *Sine*.

3. The *Sines* of obtuse Angles are the same with those of their Complements to two right Angles.

4. All *Sines* of similar Arches have the same Ratio to their Radii.

SINE-*Complement*, or *Co*-SINE, is the Sine of an Arch, which is the Complement of another Arch to a Quadrant.

In estimating the Quantity of *Sines*, &c. we assume the Radius for Unity, and determine the Quantity of the *Sines*, *Tangents* and *Secants* in Fractions thereof. From *Ptolemy*'s *Almagest*, we learn that the Antients divided the Radius into 60 Parts, which they called Degrees, and thence determined the Chords in Minutes, Seconds and Thirds, that is in Sexagesimal Fractions of the Radius; which they likewise used in the Resolution of *Triangles*. The *Sines* of half Chords, for ought appears, were first used by the *Saracens*.

Regiomontanus, at first, with the Antients, divided the Radius into 60 Degrees; and determined the *Sines* of the several Degrees into decimal Fractions thereof, but he afterwards found it would be more commodious to assume the Radius for one; and thus introduced the present Method into *Trigonometry*.

In the common Tables of *Sines* and *Tangents* the Radius is conceived divided into 10000000 Parts; beyond which we never go in determining the Quantity of the *Sines* and *Tangents*. Hence, as the Side of a Hexagon subtends the sixth Part of a Circle, and is equal to the Radius; the Sine of 30° is 5000000.

1. *The Sine being given to find the Sine-Complement.* From the Square of the Radius, subtract the Square of the *Sine*: The Remainder will be the Square of the *Sine-Complement*: Whence the Square Root being extracted, gives the *Sine-Complement*.

2. *The Sine of the Arch being given, to find the Sine of the half Arch.* Find the Chord of the Arch, for half of this is its *Sine*.

3. *The Sine of an Arch being given to find the Sine of a double Arch.* This is found by the Rule of *Proportion*.

To construct a Canon of SINES. The *Sines* of 30°, 15°, 45° 36° being had, we can thence construct a Cannon of all the *Sines* to every Minute, or every Second, for from the *Sine* of 36°, we find those of 18°, 9°, 4°, 30′; and 2°, 15′, by the second Problem: The *Sines* of 54°, 72°, 81°, 85°, 30′, and 87°, 45′, *&c.* by the first Problem. Again, from the *Sine* of 45° find the *Sine* of 22°, 30′; 11°, 15′, *&c.* From the *Sines* of 30° and the *Sines* of 54° find the *Sine* of 12°. From the *Sine* of 12° find the *Sines* of 6°, 3°, 1°, 30′, 35′, 78°, *&c.* From the *Sine* of 15° find the *Sine* of 7°, 30′ 45′, *&c.* 'till you have 120 *Sines* succeeding each other orderly, at an Interval of 45 Minutes. Between these find the intermediate *Sine*: Thus will the Cannon be compleat. From the *Sine* I'll pass to the Explication of the *Tangent*.

TANGENT in *Trigonometry*, is a right Line arched perpendicularly on the Extreme of the Diameter of an Arch, and continued to a Point, where it is cut by a Secant, that is, by a Line drawn from the Centre, through the Extremity of the Arch, whereof it is a *Tangent*.

Co-TANGENT, or TANGENT *of the Complement*, is the *Tangent* of an Arch, which is the Complement of another Arch to a Quadrant.

Artificial TANGENTS are the Logarithms of the *Tangents* of Arches.

Sine of TANGENTS is a Sine usually placed on the Sector and Gunter's Scale.

TANGENT *of a Conic Section*, as of a Parabola, is a right Line which only touches or meets the Curve in one Point, and does not cut or enter within the Curve.

The Method of *Tangents* is a Method of determining the Quantity of the *Tangent* of any algebraic Curve; the Equation defining that.

This Method is one of the great Results of the *Calculus differentialis*.

SECANT, in *Trigonometry*, denotes a right Line, drawn from the Centre of a Circle, which cutting the Circumference, proceeds 'till it meets with a Tangent to the same Circle.

To

To find the Logarithm of the *Secant* of any Arch, the Sine of the Complement of the Arch being given, multiply the whole Sine of the Logarithm by two, and from the Product, subtract the Logarithm of the Sine Complement; the Remainder is the Logarithm of the *Secant*. —— from this I'll pass to the Division of *Trigonomery*.

TRIGONOMETRY, is divided into *plain*, and *spherical*; the first considering rectilineal Triangles; and the second spherical ones. —— The first is of obvious and continual Use in Navigation, Measuring, Surveying, and other Operations of Geometry.

The second is only learned with a View to Astronomy, and its kindred Arts, Geography, and Dialing. —— It is generally esteemed exceeding difficult, by reason of the vast Number of Cases wherewith it is perplex'd; but the excellent *Wolfius* has remov'd most of the Difficulties. That Author has not only shewn how all the Cases of rectangled Triangles may be solved the common Way, by the Rules of Sines and Tangents; but has likewise laid down an universal Rule, whereby all Problems, both in plain and spherical rectangled Triangles, are solved; and even obliquangular Triangles he teaches to solve with equal Ease.

Plain TRIGNOMETRY is an Art whereby, from three given Parts of a plain Triangle, we find the rest.

The great Principle of *plain Trigonometry* is, that in every plain Triangle, the Sides are, as the Sines of the opposite Angles: The Doctrine thereof, which is that of the learned *Wolfius*, is contained in the following Problems.

For the *Solution of the plain Triangles*. —— 1. Two Angles being given, together with a Side opposite to one of them; to find the Side opposite to the other, the Rule or Canon is this; as the Sine of the Angle, is to the given Side opposite to the same; so is the Sine of the other Angle, to the Side required; the opposite Side therefore is commodiously found by the Logarithms, from the Rule for finding a fourth proportional to the three Numbers given.

For an Example; suppose one of the given Angles = 78° 35′, and the other = 57° 28, the Side opposite to one of them = 74′, the Operation will stand thus.

Logar. of Sine of one Angle	9. 8750142
Logar. of the opposite Side	1. 8692317
Logar. of Sine of the other Angle	9. 9258681
Sum of Logar. of the opposite Side, and of the Sine of one Angle	11. 7950998
Log. of the Side opposite to the other	1. 9200856

The Number corresponding to which in the Table of Logarithms, is 83, the Quantity of the Side sought.

2. Two Sides together with the Angle opposite to one of them given; to find the other Angles. —— The Rule is this; as one Side is to the Sine of the given Angle opposite thereto; so is the other Side, to the Sine of the Angle required opposite thereto.

For Example, suppose one of the Sides = 94′, and the other Side = 63′, the Angle opposite to one of them = 72° 15′.

Log. of one Side	1. 9731279
Log. of the Sine of the Angle	3. 9788175
Log. of the other Side	1. 8388491
Sum of Loga. of Sine of the opposite Angle, and of one of the Sides	11. 8176666
Logar. of Sine of the other Side	9. 9444387

The Number corresponding to which, in the Table of Logarithms, is 61° 37′, now the given Angle being 72° 15′, the Sum of the two 133° 52′ subtracted from 180°, the Sum of the three gives 46° 8′, for the other Angle sought.

In like Manner, suppose, in a right angled Triangle, that beside the right Angle, is given the Hypothenuse, 49, and the Cathetus, 36, to find the Angle sought; then will the Operation stand thus:

Log. of the Hypot.	1. 6901961
Log. of the whole Sine	10. 0000000
Log. of the Cathetus	1. 5563025
Log. of Sine of the Angle sought	9. 8661064

The corresponding Number to which, in the Table of Logarithms, is 47° 16′.

3. Two Sides, together with the included Angle being given, to find the two remaining Angles. —— 1. If the Triangle be rectangular, take one of the Sides including the right Angle, for Radius, then will the other Side be the Tangent of the opposite Angle. —— The Rule then is, as one Leg is to the other; so is the whole Sine to the Tangent of the opposite Angle.

E. gr. suppose one of the Sines 79. and the other 54.

Log. of one Side	18976271
Log. of the other	17323938
Log. of the whole Sine	100000000
Logar. of Tang. of the Angle sought	9. 8247667

The corresponding Number to which, in the Table of Logarithms, is 34° 21′, therefore one of the Angles of the Triangle is 55° 39′.

II. If the included Angle be Oblique, the Rule is; as the Sum of the given Sides, is to their Difference, so is the Tangent of half the Sum of the sought Angles, to the Tangent of half the Difference; adding, therefore, the half Difference to the half Sum; the Aggregate will be the greater Angle; and subtracting the half Difference from the half Sum, the Remainder is the less Angle.

As for Example, suppose the given Sides = 75′, = 58′, the oblique Angle = 180° 24′, then will the given Sides,

75 = 75			
58 = 58	+	179° 60′	
		118° 24	The oblique Angle
Sum 133	diff. 17	71° 30′	sought Angles
		35° 48′	½ thereof

Log. of the given Sides	2. 1238516
Log. of the Angles sought	1. 2334489
Log. of Tangent ½	9. 8580695
Sum of Log.	12. 0885183
Log. of Tangent ½	8. 9646667

The corresponding Number to which is 5° 16′.

Spherical TRIGONOMETRY, is the Art whereby from the three given Parts of a spherical Triangle, we find the rest, *e. gr.* from two Sides and one Angle, we find the two other Angles, and the third Side.

The Principles of *spherical Trigonometry*, as reformed by *Wolfius*, are as follows. 1. In every rectangled spherical Triangle, the whole Sine, is the Line of the Hypothenuse, as the Sine of either of the acute Angles, is to the Sine of Leg opposite thereto; or the Sine of the Angle to the Sine of its opposite Leg, whence we deduce, that the Rectangle of the whole Sine, into the Sine of one Leg, is equal to the Rectangle of the Sine of the Angle opposite thereto, into the Sine of the Hypothenuse.

2. In every right angled spherical Triangle, none of whose Sides is a Quadrant; if the Complements of the Legs to a Quadrant, be considered as the Legs themselves; the Rectangle of the whole Sine into the Co-sine of the middle Part, is equal to the Rectangle of the Lines, disjunct Parts, or Extremes.

Hence, 1. If the Line be Artificial, that is, the Logarithms of the natural ones; the whole Sine, with the Co-sine of the middle Part, will be equal to the Sines of the disjunct Part.

2. Since, in a rectangular Triangle, the whole Sine is to the Hypothenuse, as the Sine of the Angle, to the Sine of the opposite Leg; if instead of the Sines of the Sides, we take the Sides themselves; here, too, the whole Sine, with the Co-sine of the middle Part, will be equal to the Sine of the disjunct Parts.

This *Wolfius* calls *regula sinuum catholica*, or the first Part of the *Catholick Rule* of Trigonometry; by Means whereof all the Problems of either *Trigonometry* are solved, when the Thing effected by Sines alone. —— My Lord *Napier* had the first Thought of such a Rule; but

but he used the Complements of the Hypothenuse, and the Angles, for the Hypothenuse, and Angles themselves; so that the Tenor of his catholick Rule is this:

The whole Sine, with the Sine of the middle Part, is equal to the Co-sines of the Disjunct, or as he calls them, opposite Parts. — But in this, that Harmony between plain and spherical *Trigonometry*, visible in *Wolfius*'s Rule, does not appear.

3 In a rectangled spherical Triangle, none of whose Sides is a Quadrant; as the whole Sine is to the Sine of the adjacent Leg; so is the Tangent of the adjacent Angle, to the Tangent of the Leg.

Whence, 1. As the Co-tangent of the Angle, is to the whole Sine, as the whole Sine is to the Tangent of the Angle, so is the Sine of the adjacent Leg, to the Tangent of the other Leg; therefore the Co-tangent of the adjacent Angle; will be to the whole Sine, as the Sine of the Leg adjacent thereto, is to the Tangent of the opposite one. 2. The Rectangle, therefore, of the whole Sine, into the Sine of one Leg, is equal to the Rectangle of the Tangent of the other Leg, into the Co-tangent of the Angle opposite to the same. And, in like Manner, the Rectangle of the whole Sine, into the Sine of one of the Legs, is equal to the Rectangle of the Tangent of the adjacent Leg, into the Co-tangent of the Angle sought.

4. In every right angled spherical Triangle, none of whose Sides is a Quadrant; if the Complements of the Legs to a Quadrant, or their Excesses beyond a Quadrant, be consider'd as the Legs themselves; the Rectangle of the whole Sine, into the Co-sine of the middle Part, will be equal to the Rectangle of the Co-tangents of the conjunct Parts. 2. Since in a Rectilinear, right angled Triangle, we use the Tangents, when from the Legs given, the adjacent Angle is to be found; and in that Case the whole Sine is to the Co-tangent of the Angle, as one Leg to the other; therefore, also, in a rectilinear Triangle, if for the Sines and Tangents of the Sides, be taken the Sines themselves; the whole Sine, with the Co-sine of the middle Part, is equal to the Co-tangents of the conjunct Parts.

This *Wolfius* calls *regula Tangentium catholica*, and constitutes the other Part of the catholick Rule of *Trigonometry*; whereby all Problems, in each *Trigonometry*, where Tangents are required, are solved.

My Lord *Napier*'s Rule to the like Effect is thus. — That the whole Sine, with the Sine of the middle Part, is equal to the Tangents of the contiguous Parts.

'Tis therefore a catholick Rule, which holds in all *Trigonometry*, that in a rectangled Triangle, (*notatis notandis*) the whole Sine, with the Co-sine of the mean or middle Part, is equal to the Sines of the disjunct or separate Parts, and the Co-tangents of the conjunct or contiguous Part.

For an Illustration and Application of this Rule, we'll give the Solution of the various Cases of spherical Triangles, *viz.*

Solution of right angled spherical TRIANGLES, by the common Rules, 1. In a right angled *spherical Triangle*, any two Parts, besides the right Angle, being given, to find the rest

1. Consider whether the Parts, which come to the Question be Conjunct or Disjunct. If the Disjunct be opposite to each other; as, if the Hypothenuse and an Angle be given, to find the opposite Leg. Then the Rule is; as the whole Sine is to the Sine of the Hypothenuse, so is the Sine of the Angle to the Sine of the opposite Leg. 2. If the disjunct Parts be not opposite to each other, the Sides of the *Triangle* are to be continued one Way, till they become Quadrants, that you may thus have a new *Triangle*, wherein the Parts that come into the Question, are mutually opposite to each other.

3. If the Hypothenuse be not among the conjunct Parts, as if the Legs be given for an Angle opposite to one of them, the Rule is — As the Sine of one of the Legs is to the whole Sine, so is the Tangent of the other Leg to the Tangent of the Angle.

4. But if the Hypothenuse be found amoug the conjunct Parts, as if the Hypothenuse and the Angle be given, to find the adjacent Side; the Sides of the Triangle are to be continued one Way, till they become Quadrants, that we may have a new *Triangle*, wherein the *Hypothenuse* is not among the Parts that come into the Question; *e. gr.* in our Case, the *Triangle*, wherein are given the Complement of the *Hypothenuse*, and the Complement of an Angle, and another Angle the Complement of the Leg; since then in the *Triangle* the *Hypothenuse* does not come in Question, the Rule is as before.

5. When the Sides of a *Triangle* are to be continued, it is the same Thing which Way soever they be produced, provided no acute Angle come into the Question, otherwise the Sides are to be continued through the other oblique one. If both be in the Connection, the Sides are to be continued through that adjacent to the Side in Question.

By this Means a *Triangle* is always obtained, wherein the Thing requir'd is found, either by the Rules of Sines or Tangents.

Solution of right angled spherical TRIANGLES, *by a catholick Rule.* — Consider, as before, whether the Parts that come in Question be conjunct or disjunct.

If either one, or both the Sides, including the right Angle, come into the Question; for it, among the Data, writes its Complement to a Quadrant. Since, then, by the catholick Rule already deliver'd, the whole Sine, with the Sine Complement of the middle Part, is equal to the Sines of the disjunct Parts, and the Co-tangents of the conjunct Parts; from the Sum of those Data substract the third Datum; the Remainder will be some Sine or Tangent, the Side or Angle corresponding to which, in the artificial Canon of *Triangle*, is the Side or Angle sought.

This universal Rule being of great Service in *Trigonometry*, we shall apply it to the various Cases thereof, and illustrate it with Examples; which Examples in the Case of disjunct or separate Parts, will, at the same Time, illustrate the common Method, but in the Case of contiguous Parts, admit of other Solutions.

1. The *Hypothenuse* 60°, and the Angle 23°, 30′, being given, to find the opposite Leg. Since the opposite Leg is the middle Part, the Angle and Hypothenuse are disjunct; the whole Sine, with the Co-sine of the Complement of the Leg, *i. e.* with the whole Sine of the Leg, is equal to the Sines of the Angle, and Hypothenuse.

Therefore from the Sine of the Angle	96006997
Sine of the Hypothenuse	99375306
Sum	195382303
Substract the whole Sine	100000000
Remain Sine of the Hypoth.	9.5382303, the corresponding Number, to which in the Canon, is 20°, 12′, 6″.

2. Given the Hypothenuse 60°, and one of the Leg 20°, 12′, 6″, to find the opposite Angle. — It is evident from the preceding Problem, that from the Sum of the whole Sine, and the Sine of the Leg, the Sine of the Hypothenuse is to be substracted, the Remainder is the Sine of the Angle. The Example, therefore, of the former Case is easily converted into an Example of this.

3. Given the Leg 20°, 12′, 6″, and the opposite Angle 23°, 30′, to find the Hypothenuse. — 'Tis evident from the first Case, that from the Sum of the whole Sine, and the Sine of the Leg, is to be substracted the Sine of the Angle, and the Remainder is the Sine of the Hypothenuse.

4. Given the Hypothenuse 60°, and one Leg 20°, 12′, 16″, to find the other Leg. — Since the Hypothenuse is a mean Part, and the two Legs are disjunct Parts, the whole Sine, with the Co-sine of the Hypothenuse, are equal to the Sines of the Complements; *i. e.* to the Co-sines of the two Legs.

Therefore from the whole Sine	100000000
Co-sine of the Hypothenuse	96089700
Sum	196989700
Substract Co-sine of a Leg	99724279
Remains Co sine of the other Leg	97265421, the corresponding Number to which, in the Canon, is 32°, 11′, 34″; therefore the Leg sought 57°, 48′, 26″.

5. Given

5. Given this Leg 57° 48′ 26″, and the other Leg 20° 12′ 6″, to find the Hypothenuſe. 'Tis evident from the preceding Caſe, that the whole Sine is to be ſubſtracted, from the Sum of the Co-ſines of the two Legs; the Remainder is the Co-ſine of the Hypothenuſe. The Example, therefore, of the preceding Caſe is eaſily applied to this.

6. Given the Leg 57° 48′ 26″, and the adjacent Angle 23° 30′, to find the oppoſite Angle.—Since the oppoſite Angle is a middle Part, and the Leg and adjacent Angle disjunct Parts; the whole Sine, with the Co-ſine of the oppoſite Angle, is equal to the Sine of the adjacent Angle, and the Sine of the Complement, *i. e.* to the Co-ſine of the Leg.

Therefore from the Sine of the adjacent Angle	96006997
Co-ſine of the Leg	97265421
Sum	193272418
Subſtract the whole Sine	100000000

Remains Co-ſine of the oppoſite Angle } 93272418, the Number correſponding to which, in the Canon, is 12° 15′ 56″; therefore the oppoſite Angle is 77° 44′ 4″.

7. Given the Leg 57° 48′ 26″, and the oppoſite Angle 77° 44′ 4″, to find the adjacent Angle.—'Tis evident from the preceding Caſe, that the Co-ſine of the Leg is to be ſubſtracted from the Sum of the whole Sine, and the Co-ſine of the oppoſite Angle; the Remainder is the Sine of the adjacent Angle. The former Example, therefore, is eaſily accommodated to the preſent Caſe.

8. Given the oblique Angles 77° 44′ 4″, and 23° 30′, to find the Leg adjacent to the other.—From Problem the Sixth, 'tis evident, that the Sine of the Angle 23° 30′, is to be ſubſtracted from the Sum of the whole Sine, and the Co-ſine of the Angle 77° 44′ 4″; and that the Remainder is the Co-ſine of the adjacent Leg. The Example of the ſixth Problem is eaſily applied to this.

9. Given the Leg 57° 48′ 26″, and the adjacent Angle 23° 30′, to find the oppoſite Leg.—Since the Leg 57° 48′ 26″ is a mean Part; and the adjacent Angle and oppoſite Leg conjunct Parts; the whole Sine, with the Sine of the Leg 57° 48′ 26″, is equal to the Co-tangent of the adjacent Angle, and the Tangent of the oppoſite Leg.

Therefore from the whole Sine	100000000
Sine of the Leg 57° 48′ 26″	99275039
Sum,	199275039
Subſtract the Co-tangent of the adjacent Angle	103616981

Remains the Tangent of the oppoſite Leg } 95658058 the which the correſponding Number in the Canon, is, 20° 12′ 6″.

10. Given the Leg 20° 12′ 6″, and the oppoſite Angle 23° 30′, to find the adjacent Leg.—From the Sum of the Co-tangent of the oppoſite Angle, and the Tangent of the given Leg, ſubſtract the whole Sine; the Remainder is the Sine of the adjacent Leg.

11. Given the Legs 20° 12′ 6″, and 57° 48′ 26″, to find the Angle oppoſite to one of them.—From the Sum of the whole Sine, and Sine of the Leg 57° 48′ 26″, ſubſtract the Tangent of the other Leg; the Remainder is the Co-tangent of the oppoſite Angle.

12. Given the Hypothenuſe 60°, and the oblique Angle 23° 30′, to find the adjacent Leg.—Since the oblique Angle is a middle Part; and the Hypothenuſe, and adjacent Leg conjunct Parts, the whole Sine, with the Co-ſine of the oblique Angle, will be equal to the Co-tangent of the adjacent Leg.

Therefore from the whole Sine	100000000
Co-ſine of the oblique Angle	99623978
Sum,	199623978
Subſtract the Co-tangent of the Hypoth.	97614394

Remains the Tangent of the adjacent Leg } 102009594, the Number correſponding to which in the Tables is, 57° 48′ 26″.

13. Given the Leg 57° 48′ 26″, and the adjacent Angle 23° 30′, to find the Hypothenuſe. From the Sum of the whole Sine, and the Co-ſine of the adjacent Angle, ſubſtract the Tangent of the Leg, the Remainder is the Co-tangent of the Hypothenuſe.

14. Given the Hypothenuſe 60°, and the Leg 57° 48′ 26″, to find the adjacent Angle.

From the Sum of the Co-tangent of the Hypothenuſe, and Tangent of the Leg, ſubſtract the whole Sine; the Remainder is the Co-ſine of the adjacent Angle.

15. Given the Hypothenuſe 60°, and one Angle 23° 30′, to find the other Angle.

Since the Hypothenuſe is the middle Part, and both Angles disjunct Parts, the whole Sine, with the Co-ſine of the Hypothenuſe, will be equal to the Co-tangents of the two Angles.

Therefore from the whole Sine	100000000
Co-ſine of the Hypoth.	96989700
Sum,	196989700
Subſtract the Co-tangent of the Angle 23° 30′	103616981

Remain the Co-tangent of the other Angle } 93372719, the correſponding Number, to which, in the Canon, is 12° 15′ 56″; therefore the Angle ſought is 77° 44′ 4″.

16. Given the oblique Angles 77° 44′ 4″, and 23° 30′, to find the Hypothenuſe.—From the Sum of the Co-tangents of the Angles, ſubſtract the whole Sine; the Remainder is the Co-ſine of the Hypothenuſe. From this I'll paſs to the *Solution of the oblique-angled ſpherical Triangles.*

1. In an *oblique-angled ſpherical Triangle*, two Sides being given together with an Angle oppoſite to one of them, to find the other. The Rule is,

As the Sine of one of the Sides, is to the Sine of the oppoſite Angle; ſo is the Sine of the other Side to the Sine of the Angle oppoſite to it, likewiſe.

Suppoſe, for Example, the Side 39° 29′; the oppoſite Angle 43° 20′; the other Side 66° 45; then will,

The Sine of the firſt Side	98033572
The Sine of the oppoſite Angle	98364771
The Sine of the other Side	99632168
Sum,	197996939

Sine of the Angle, oppoſite to the ſecond Side } 99963367, the correſponding Number to which, in the Tables, is 82° 34′ 7″.

2. Given two Angles 82° 34′ 7″, and 43° 20′, together with the Side 60° 44′, oppoſite to one of them; to find the Side oppoſite to the other of them.—Say, as the Sine of the firſt Angle 82° 34′ 7″, is to the Sine of the oppoſite Side 60° 45′; ſo is the Sine of the Angle 43° 20′, to the Sine of the other Side oppoſite to it.—The former Example may ſuffice for the preſent Caſe.

3. Given two Sides 66° 45′, and 39° 29′, together with an Angle oppoſite to one of them 45° 20′; to find the Angle included by them.—Suppoſe the Angle included to be acute, ſince the other Angle is alſo acute, the Perpendicular falls in with the Triangles. In the rectangle Triangle, therefore, from the given Angle and Side, find another Angle. Since the Perpendicular is aſſumed as a lateral Part in the Triangle, the third Angle is a middle Part, and the Side 39° 29′ a conjoint Part; the Co-ſine of the third Angle, and the Co-tangent of the Side 39° 29′; if then the ſecond and third Angles be added together, or in Caſe the Perpendicular falls without the Triangle, be ſubſtracted from each other; you will have the Angle requir'd.

E. gr. the whole Sine	100000000
Co-ſine of the firſt Side	95963154
Sum,	195963154
Co-tangent of the oppoſite Angle	100252805

Co-tangent of the 2d Angle } 95710349, the Number

Number corresponding to which, in the Tables, is 20°, 25′, 35″; the first Side, therefore, is 69°, 34′, 25′.

The Co-Sine of the other Angle	95428300.
The Co-Tang. of the other Side	100141529.
Sum	196269829
Co-Tang. of the first Side	96330085.
Co-Sine of the 3d Angle	99938544.

The Number corresponding to which, in the Tables, is 80°, 24′, 26″.

4. Given two Angles, 43°, 20′, and 79°, 9′, 59″, together with the adjacent Side, 66°, 45′, to find the Side opposite to one of them.

From one of the given Angles, let fall a Perpendicular to the unknown Side, and in the rectangled *Triangle*, from the given Angle, and Hypothenuse, find another Angle, which, substracted from the first Angle, leaves a third Angle; but if the Perpendicular should fall without the *Triangle*, the first Angle should have been substracted, since as the Perpendicular is taken from one of the lateral Parts, the middle Part in the *Triangle* is the Angle 79°, 9′, 59″, the Co-Tangent of the second Side is found by substracting the Co-Sine from the Sum of the Co-Tangent of the adjacent Side, and the Co-Sine of the Angle found first of the other Angles. The Example of the preceding Case is easily applied to this.

5. Given two Sides 66°, 45′, and 39°, 29′, with the Angle opposite to one of them 43°, 20′; to find the third Side.

Letting fall, as before, the Perpendicular; in the rectangled *Triangle*, from the given Angle and Hypothenuse, find another Side. Since assuming the Perpendicular, for a lateral Part in the *Triangle*, the Side 66°, 45′ is the middle Part, and the Side found the separate Part, and the two other Angles a disjunct Part: The Co-Sine of these two Angles is found by substracting the Co-Sine of the first Side, from the Sum of the Co-Sines of the Hypothenuse, and the Side found.

6. Given two Angles 43°, 20′, and 77°, 9′, 59″, together with the Side 39°, 29′, opposite to one of them; to find the Side adjacent to both.

Letting fall the perpendicular, find in the rectangled *Triangle*, the Sequent of the Side sought; which, substracted from the third Side, leaves two Angles. If the Perpendicular falls without the *Triangle*, the third Side is to be substracted from the Side found, since by assuming the Perpendicular for a literal Part in the *Triangle*, the Hypothenuse becomes a middle Part, and the Side found from it and the Angle given, a separate Part.

7. Given two Angles 43°, 20′, and 79°, 9′, 59″, together with the Side 39°, 29′, opposite to one of them, to find the Side adjacent to both.

Letting fall the Perpendicular from the unknown Angle to the opposite Side; and that falling within the *Triangle*; from the given Angle 79°, 9′ and 59″, and the Hypothenuse, seek in the rectangled *Triangle*, the Segment; since assuming the Perpendicular for a lateral Part in one *Triangle*, two Angles of that Triangle are the mean Part, and the Angle 79°, 9′, 59″, a conjunct Part; and in the other Triangle two Angles thereof are the middle Part, and the other Angle a conjunct Part. The Sine of the Segment is found by substracting the Co-Tangent of the Angle 79°, 9′, 59″, from the Sum of the Sine, and the Co-Tangent of the Angle 43°, 20′. If then the two Segments be added, or in Case the Perpendicular fall without the *Triangle*, be substracted from each other, the Result will be in the Side required.

8. Given two Sides 66°, 45′, and 39°, 29′, with the included Angle 49°, 9′, 59″, to find the Angle opposite to one of them.

Letting fall the Perpendicular, find the Segment, as in the preceding Problem. This substracted from the Side 66°, 45′, leaves another Side. If the Perpendicular falls without the Triangle, the Side 66°, 45′, is to be added. And since by assuming the Perpendicular for a lateral Part in the other Triangle, the Segment is the middle Part, and the first Angle given a conjunct Part. The Co-Tangent of this Angle is found by substracting the Sine from the Sum of the Co-Tangent of the other Angle given, and of the other Sine.

9. Given two Angles 43°, 20′, and 79°, 9′, 59″, together with the adjacent Side 66°, 45′, to find the Angle opposite to the same.

From one of the given Angles, letting fall the Perpendicular to the opposite Side; in the rectangled *Triangle* from the first given Angle, and Hypothenuse, we find an Angle; which, substracted from the Triangle, leaves another Angle. In Case the Perpendicular falls without the Triangle, from which this last Angle is taken, the second Angle is to be substracted from the first Angle. Since by assuming the Perpendicular for a lateral Part in the Triangle, the Angle opposite to the second Angle given is the middle Part, and the other Angle a disjunct Part; and in the other Triangle the first Angle given is the middle Part, and the Angle found from the first given Angle, and the Hypothenuse, the disjunct Part: The Co-Sine of the Angle opposite to the second Angle given is found by substracting the Sine of the Angle taken from the first Angle given, and the Hypothenuse from the Sum of the Co-Sine of the first Angle given, and the Sine of the Angle found by the Substraction of that Angle.

1. Given two Angles 43°, 20′, and 82°, 34, together with a Side 66°, 45′, opposite to one of them; to find the other Angle.

From the sought Angle let fall a Perpendicular, and in the right angled Triangle, from the first given Angle and Hypothenuse, find another Angle. Since assuming the Perpendicular for a lateral Part in another Triangle, the second Angle given is the middle Part, and the other Angle a disjunct Part; and in the first Triangle the first Angle given is the middle Part, and the first Angle is found a disjunct Part: The Sine of the second Angle found, is found by substracting the Co Sine of the first Angle given, from the Sum of the Co-Sine of the second Angle given, and of the Sine of the first *Triangle*; if then the two first Angles found be added, or in Case the Perpendicular falls without the *Triangle*, be substracted from each other, the Result will be the Angle required.

2. Given the three Sides, to find an Angle opposite to one of them. 1. If one Side be a Quadrant, and the Leg less than a Quadrant, find the first Angle. Continue the Leg to a certain Distance 'till that Distance and the Beginning of the Leg become equal to a Quadrant, and from the first Pole draw an Arch to cut the Arch of the End of the Leg and the Distance, at right Angles in the Distance. Since in the rectangled *Triangle*, we have given the Hypothenuse, and the Side, or its Complement to a Quadrant, we shall find the Perpendicular, which being the Measure of the Angle sought, that Angle is found of Course.

2. If one Side be a Quadrant, and the other greater than a Quadrant, seek again the first Angle; from the second Side substract a Quadrant, and from the first Angle describe an Arch, cutting that Arch at right Angles. Since in the rectangled *Triangle*, the Hypothenuse and Side, or Excess of the Side beyond a Quadrant is given, the Perpendicular *C.D.* will be found as before, which is the Measure of the Angle required.

Trigonometry is of the utmost Use in various mathematical Arts. It is by Means hereof that most of the Operations of *Geometry* and *Astronomy* are performed. Without it the Magnitude of the Earth and the Stars, with Distances, Motions, Eclipses, *&c.* would be utterly unknown. *Trigonometry* therefore must be owned an Art, whereby the most hidden Things, and those remotest from the Knowledge of Men, are brought to Light. A Person ignorant of *Trigonometry*, can make no great Progress in mixed Mathematicks; but will often be gravelled, even in natural Philosophy, particularly in accounting for the Phænomena of the Rainbow and other Meteors.

TRINITY.

TRINITY, *Trinitas*, or the *Myſtery of the bleſſed Trinity*, is commonly defined, *the Unity of three Perſons really diſtinct*. But, as according to the Fathers of the Church, there is not a more profound and ſublime Myſtery than that of the *bleſſed Trinity*; it would be better to believe it ſimply, and adore it in a reſpectful Silence than to attempt to explain it; if St. *Hilary* had not been pleaſed to ſay, *lib.* 2. *de Trinit.* that the moſt perfect Science is to know three Perſons in one God: For which Reaſon I'll endeavour to explain, with God's Aſſiſtance, what the Church, which is the faithful Interpreter of the Scriptures, teaches us of that great Myſtery.

But to obſerve ſome Order in this Treatiſe, I'll divide it into two Parts.

In the *firſt Part* I'll treat of the *bleſſed Trinity* in general, and of what belongs to the divine Perſons conſidered in common.

In the *laſt Part*, I'll treat of the Perſons in particular, and of the Things which belong to each of them.

In the *firſt Part* I'll explain, 1. The Exiſtence, Eſſence, and Cognoſcibility of the Myſtery of the bleſſed Trinity. 2. The divine Proceſſions and their Principles. 3. The divine Relations. 4. The Number of Subſiſtences or Perſonalities, and likewiſe the Number of Exiſtances, Entities, and Things in the divine Perſons. 5. The Notions, Properties, and notional Acts. 6. The Conſubſtantiality, Equality, Similitude, Circumminceſſion, and Order of the divine Perſons. 7. The Predicability of the Things which are conſidered in the divine Perſons, and the Manner of expreſſing the Things belonging to that Myſtery. And, 8. The Miſſion of the divine Perſons.

In the *laſt Part* I'll treat, 1. Of the firſt Perſon: 2. Of the ſecond Perſon: And, 3. Of the third Perſon. Therefore,

PART I.

1. As to the *Exiſtence, Eſſence, and Cognoſcibility of the Myſtery of the bleſſed Trinity*.—Before we can pretend to proceed further on this Subject, we muſt explain in a conciſe Manner what is to be underſtood by the Name of Eſſence and Perſon, taken in general; and what by the Name of divine Eſſence and Perſon.

The Eſſence of any Thing whatever, is what is firſt in it, or what eſtabliſhes it by itſelf, and diſtinguiſhes it from all other, and is the Source, Origin, and Root of the Properties thereof.

This wants no Proof, nor a clearer Explanation, ſince it can be eaſily underſtood by the ſingle Signification of the Terms.

The *divine Eſſence* preciſely conſidered, can be defined *a Being of itſelf, or a Being entirely independant*, becauſe the Ratio of a Being of itſelf is what is firſt conceived to be in God, and to conſtitute and diſtinguiſh him; and is the Source and Root of all his Perfections: Therefore, *&c.*

A Perſon conſidered, *in concreto*, is defined by *Boetius*, in his Book of the two Natures, and one Perſon in Chriſt, *the individual Subſtance of a rational Nature.*

1. It is called *Subſtance*, to give to underſtand that the *Ratio* of Perſons does not become an Accident; and the Reaſon is, that every Perſon has of itſelf wherewith to be individuated; but an Accident is not to be individuated by its Subject.

2. It is called *individual*, becauſe there is a Diſparity between the Ratio of Perſon and that of Subſtance, becauſe the Name of Subſtance becomes both an univerſal and a particular Subſtance; but Perſon is of the ſingular, and not of univerſal.

3. It is called *rational Nature*, i. e. *intellectual*, to diſtinguiſh Perſon from Suppoſitum, or Hypoſtaſis: For theſe become all Subſtances, whether they be irrational, or inſenſible, or rational: But Perſon become only rational Subſtances; for as that Nature, which is rational or intellectual, is Miſtreſs of her Actions, it muſt be deſigned by ſome particular Name becoming its Dignity.

For a clearer Explanation of our Definition, we may add to it theſe two Terms, *compleat* and *incommunicable*. For, 1. A Perſon ought to be an entire Subſtance, and not Part thereof. Whence neither Matter nor a ſubſtantial Form, taken ſeparately, has the *Ratio* of Perſon, and it muſt be compleat in this Senſe, as to have the laſt Complement of itſelf, *i. e.* an Hypoſtaſis or Perſonality. 2. It muſt be incommunicable to another as to a Suppoſitum; for though Nature be communicable to the Suppoſitum in which it ſubſiſts; the Suppoſitum notwithſtanding, in which Nature ſubſiſts, is incommunicable to another Suppoſitum.

Perſon in abſtracto or *Perſonality*, can be defined, *the Hypoſtaſis of an intellectual Nature.* Becauſe Perſonality is like a certain ſubſtantial Mode giving its laſt Complement to an intellectual Nature, with regard to Subſtance, or with regard to its exiſting by itſelf, and incommunicably.

From what we have ſaid it is eaſily inferred, what is a divine Perſon *in concreto*, and *in abſtracto*. But for a better and clearer Intelligence thereof,

We'll aſk, 1. Whether the Name of Perſon is to be introduced in the Godhead? Which I anſwer in the Affirmative. Becauſe what is the moſt excellent in the Creature muſt not be denied to God; but the *Ratio* of Perſon is what is the moſt excellent in the Creature; for Perſon ſays two Things, *viz.* an intellectual Nature; and a very perfect Manner of exiſting, *viz.* the Manner of exiſting in itſelf.

It may be objected, that Perſon ſays ſomething compoſed; and as we are not to admit a Compoſition in God, we are not therefore to admit Perſon.

Which Objection I anſwer by a Diſtinction, *viz.* Perſon ſays ſomething compoſed in Things material and created, but not in the immaterial and increated.

We'll aſk, 2. *If, and how the Name of Perſon in God, ſignifies both Relation and Eſſence?*

To which I anſwer, that *the Name of Perſon, in recto, ſignifies a certain Relation*, not by manner of Relation, but by manner of Subſiſtence; and ſignifies Eſſence *in obliquo. It ſignifies a Relation, in recto*; becauſe that Name ſignifies that *in recto*, which it is principally appointed to ſignify; but the Name of Perſon is appointed to ſignify, *in recto*, ſomething relative in God: Therefore, *&c.*

It can be objected againſt this firſt Part, *that Perſon, in general*, i. e. *as abſtracted from created, and divine, does not ſay a Relation*, in recto, *as it does not ſay a created Perſon: And therefore not an increated one.*

I anſwer this Objection by denying the Conſequence: The Reaſon of the Diſparity is, that Perſon, in general, ſignifies neither a Thing relative, nor abſolute, but is abſtracted from both, as ſignifying only ſomething indiſtinct in itſelf, and diſtinct from another: A created Perſon ſays ſomething abſolute; but a divine Perſon ſays, *in recto*, ſomething relative; as it will appear hereafter.

I prove the ſecond Part of my Anſwer, viz. *that Perſon which*, in recto, *ſignifies a Relation, does not ſignify it by manner of Relation, but by manner of Subſiſtence or Hypoſtaſis*; becauſe it ſignifies it, not as it has a Report to another, but as it makes it ſubſiſt.

I prove the third Part, *viz.* that *the Name of Perſon ſignifies Eſſence in obliquo.* Becauſe it is certain that it ſignifies it, as it appears by itſelf; but does not ſignify it, *in recto*, ſince it ſignifies only a certain Relation, not by manner of Relation, but by manner of Subſiſtence: Therefore it ſignifies it *in obliquo.*—Theſe pre-obſerved,

We'll aſk, *if there be a Myſtery of the bleſſed Trinity?*

Which to anſwer pertinently, we'll obſerve that it is queſtion here of a Myſtery which the *Jews*, *Gentiles*, and ſome Hereticks deny; and therefore muſt be proved by ſeveral Arguments. For we muſt uſe againſt the *Jews*, Arguments taken from the Old Teſtament, ſince they reject the New: Againſt the Hereticks, Arguments taken from both Teſtaments, ſince they admit of both: And againſt the *Gentiles*, we muſt argue rather negatively by

solving their Objections, than positively by quoting the Authorities of the Scripture, since they reject both Testaments. These pre-observed,

I answer, that *there is a Mystery of the blessed Trinity:* Because there are in the Divinity three Persons really distinct in one and the same Essence; as it can be proved by several Passages of both the Old and New Testament.

Genes. i. we read these Words, *in the Beginning God created the Heaven and the Earth*; and towards the latter End of the same Chapter these, *Let us make Man in our Image after our Likeness.* The former Passage designs God's Unity in the singular Number; and the latter the *Trinity* of Persons in the plural.

If you object with the *Jews*, that those Terms, *let us make*, are used in the plural Number not to design a Plurality, but the Majesty of God, according to the usual Manner of speaking of Princes and illustrious Persons: I'll answer that those Terms are not to be taken otherwise in this Place than they are taken, *Genes.* iii. 22. *And the Lord God said, behold the Man is become as one of us, to know Good and Evil.* But these Words indicate several Persons, as it appears of itself: Therefore, *&c.*— Likewise from all these Places where the three Persons of the *Trinity* are expressed, *Matt.* the last Chapter, *Go ye teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost.* John xv. 26. *But when the Comforter is come,* says he, *whom I will send unto you from the Father, even the Spirit of Truth, he shall testify of me.* And 1 *John* v. 7. *For there are three that bear Record in Heaven, the Father, the Word, and the Holy Ghost; and these three are one.* Three in Reality, and not by Name only; *as there are three that bear Testimony on Earth,* that Christ is both God and Man, viz. *the Spirit, Blood, and Water.* That Spirit which Christ gave up on the Cross, and the Blood and Water which flowed from his Side.

From what I have said it can be inferred, 1. That there are not only three Persons in the Divinity, but likewise, that those three Persons are but one and the same God; for each of them has one and the same divine Essence. None of the Hereticks deny it of the Father. And it is proved of the Son, *Rom.* ix. in these Words, *of which is Christ, who is above all Things a blessed God for ever.* And because he is coeternal to the Father, *John* i. 1. *In the Beginning was the Word, and the Word was with God, and the Word was God.* It is likewise certain of the Holy Ghost, *Acts* v. 3. where St. *Peter* speaks thus to *Ananias, Why hath Satan filled thine Heart to lie to the Holy Ghost,* &c. *thou hast not lied unto Men, but unto God.*

From what we have said it is easily inferred, how great was the Error of the *Sabellians*, and of several other Hereticks, who affirmed that there was but one Person in the Deity, but who had different Names according to his different Offices. Whence they said that the Father had suffered for us on the Cross.

It can be objected against my Proposition, where I affirm that there is a *Trinity*; that if there were several Persons in God really distinct, it would follow hence, that none of them, or at least some of them were not God; because none of them could be infinitely perfect, and possess entirely all sort of Perfection: Therefore it is a Sign that there is no *Trinity*.

I answer to this Objection, by *denying the Sequel of the Major*; because that real Distinction of the divine Persons is not on the Part of the Essence, but on the Part of the Persons. Therefore, though one Person be not really the other Person, he is notwithstanding the same Thing essentially with him; whence all the Perfection which is in one, is likewise really in the other; because of the supreme and most simple Unity of the divine Essence. Therefore St. *Gregory Nazianzen* says excellently well, *Serm.* 17. *num.* 21. that though the *Father be not the Son, he is notwithstanding what the Son is.*

We'll ask next, *whether the Mystery of the blessed Trinity can be naturally known or demonstrated?* Which to answer pertinently we must observe,

1. That what can be proved can be known; and that something can be proved in two Manners. 1. *Negatively*, by solving all the Objections made against the Truth thereof. 2. Positively by Arguments which prove its Existence.

2. That something can be proved positively in two Manners, 1. By a Demonstration either *a priori*, or *a posteriori*. 2. By some likely Proof.

3. That the Question proposed can be considered as made, either the Faith of the Mystery of the blessed Trinity already supposed or not supposed.—These pre-observed,

I answer, 1. That *the Mystery of the blessed Trinity, the Faith thereof not yet supposed, cannot be known naturally, or positively demonstrated.* This Answer is against *Raimond Lully*, who (according to *Nicolas Emery*) pretended that all the Articles of Faith could be proved by necessary, demonstrative, and evident Reasons. Which Answer I prove by the Scripture, by the Fathers, and by Reason.

By the Scripture, which requires the Revelation of the Father, or of the Son, for the Knowledge of the Mystery of the Trinity, *Matt.* xi. 27. *Neither knoweth any Man the Father, save the Son, and he to whomsoever the Son will reveal him.* And xvi. *Peter* having answered him in these Words, *Thou art Christ the Son of the living God,* immediately Christ concluded, *Blessed art thou Simon Bar-jona; for Flesh and Blood has not revealed it unto thee, but my Father which is in Heaven.*

By the Fathers, particularly St. *Hilary, lib.* 1. *de Trin.* where he speaks thus: *Man must not imagine that by his own Understanding he can gain a Knowledge of the Mystery of the divine Generation.* And St. *Augustin, lib.* 8. *de Trinit. c.* 5. *We must sooner believe,* says he, *than understand.* And *lib.* 7. the last Chapter, *if it cannot be understood it must be believed, till he, who said unless you believe you'll not understand, enlighten our Hearts.*

By Reason, because if it could be demonstrated, it would be either *a priori*, or *a posteriori*; but it can be demonstrated neither *a priori* nor *a posteriori*; therefore, *&c.*

I prove the first Part of the minor, *viz.* that it cannot be demonstrated *a priori*; because there is no Cause which shews to us that Mystery as its Effect. Notwithstanding that the divine Essence can be said the virtual Principle of the divine Persons; for we do not know it as such a Principle.

I prove the second Part of the minor, *viz.* that it cannot be proved *a posteriori*, because there is no Effect in Nature which informs us that God is one in Essence, and three in Persons; and the Reason is, that the Works of God, *ad extra*, are common to all the Persons, and undivided; for God does not operate, *ad extra*, as three, but as one. All God's Work flow from his Power which is an Attribute essential and common to the whole Trinity: Therefore is those Works of God, *ad extra*, cannot lead us to the Knowledge of the three Persons, and no Reason can be deduced from them, to demonstrate that God be together one in Essence, and three in Persons.

To this it may be objected, 1. That several heathen Philosophers, as *Trismegistus, Plato*, and others, had some Knowledge of the *Trinity*, as it can be inferred from their Writings: Which Knowledge they must have had naturally, since they were not enlightened by Faith: Therefore the Mystery of the Trinity can be both known and demonstrated naturally, without Faith being supposed.

I answer to the major, that those Philosophers have either only known some of the Attributes which are appropriated to the Persons, but not the Persons themselves in one and the same Essence, according to St. *Paul*, 1 *Cor.* ii. *We speak the Wisdom of God, which none of the Princes* (i. e. of the Philosophers) *have known*; or if they have known them, I say that it was by some Revelation made immediately to them, as some Mysteries were immediately revealed to the Sibyls, particularly to that of *Erytræa*, according to St. *Augustin, lib.* 18. *de civit. c.* 23. and St. *Jerom, lib. cont. Jovin.* where he says that Revelations were made to the Sibyls in Consideration of their Virginity; or have known it by Revelation made to some others, from whom they have learned the said Mystery, as *Plato* learned several Things from the Books of *Moses*, according to *Justin* the Martyr, in his Exhortation to the *Greeks*; though he must have learned them by Interpreters, for the Books of *Moses* were not yet translated into *Greek* in *Moses*'s Time,

as

as St. *Augustin* observes, *lib.* 8. *de civit. c.* 11.

It is objected, 2. That there are some very certain Principles naturally known, which lead us to the Knowledge of the Mystery of the blessed *Trinity*; therefore that Mystery can be demonstrated. They prove the Antecedent of this Antimema, by an Enumeration of those Principles, 1. That it is certain God is intelligent and willing. 2. That he that is intelligent and willing, produces a Term. 3. That he that produces, and he that's produced, are reallydistinguished. 4. That there is no accidental Term in God, but must be a Substance. 5. That there are not several Substances in God, but only one.

To this I answer, by denying the *Antecedent*; and say, that the *Gentiles* can very reasonably revoke in doubt, at least some of the five Principles, enumerated in the Objection. For they can very reasonably doubt of the second, since it is not certain whether there be in Things created a Term of Intellection and Volition; several denying that there is a Term of the beatifick Vision. Some of the others can be also revoked in doubt. Add, that though those Principles should seem certain to the *Gentiles* in Things created; they could be, notwithstanding, very suspect to them in the Divines.

I answer, 2. *That Faith, even supposed, the Mystery of the Trinity cannot be naturally positively demonstrated.* Because Faith even supposed, the antient Fathers, and other Theologians confess, notwithstanding, their Ignorance on that Mystery; at it appears from St. *Hilary*, *Lib.* 2. *de Trinit.* and because that, notwithstanding, the Revelation being supposed, likewise, there is no Reason capable to demonstrate *a priori*, or *a posteriori*, that there are three Persons really distinct in one and the same particular Essence, wherewith they are really and formally identified. Which does not hinder, notwithstanding, the Revelation from being of some Service, for it engages us to be more attentive to the natural Reasons; and hinders us from listening to those alledged against the Truth of that great Mystery.

But, say you, *the Faith supposed, cannot the Mystery of the Trinity be persuaded?* yes, for the Reasons abovemention'd.

I answer, 3. *That though the Mystery of the Trinity cannot be positively proved, it can be proved, notwithstanding, negatively:* Either because it can be proved by solving the Objections, or because it can be shewn, that that Mystery is not contrary to the natural Truth. For what is likely, cannot be repugnant to the natural Truth, since the true cannot be repugnant to the true: But the Mystery of the *Trinity* is very true: Therefore it is not repugnant to the natural Truth, and involves no Contradiction.

From what we have said, it may be inferred, that this Mystery is so sublime, that it can scarce be conceiv'd by a human Understanding. Whence St. *Augustin*, *Lib.* 3. against *Maximinus* the *Arian*, after he has explained that Mystery, adds these Words, which we may very well use here, and at the End of this Treatise; and say, *that he who has Wisdom enough may understand it; and he that cannot, believe and pray, that he may understand what he believes.*

But though, as already observ'd, the Sublimity of this Mystery, be greater than the Capacity of our Understanding; I'll endeavour, notwithstanding (the Faith thereof always supposed) to explain it in the best Manner I can, in the Sequel of this Treatise; beginning by the *Explication of the divine Processions, and of their Principles.*

Therefore I'll ask first, *if, and how many Processions there are in the Divinity?*

Before I can pretend to answer this Question, we must observe, 1. That by the Name of *Procession*, we generally understand the Origin or Emanation of one from the other, as from a Principle or Cause.

2. That *Procession* taken in general can be consider'd double in the Creatures, *viz.* one immanent, *i. e.* remaining within its Principle or Cause; such is the Procession of the Word of the Mind of a created Understanding: And the other passing, *i. e.* as going out of its Principle or Cause; such is the Procession of Heat from the Fire.

3. That the immanent Procession in the Divinity, can be consider'd in two Manners, 1. As it is common to the Procession of the Son, and of the Holy Ghost. 2. As by the Church, it is appropriated to the sole Procession of the Holy Ghost, which is said in the Symbol of St. *Athanasius*, *not made, not created, not begotten, but proceeding.* We'll take here the Procession, according to the former Manner; and explain it afterwards, according to the latter.——These pre-observ'd,

I answer, 1. That *there is found in the Divinity, some true, and properly called immanent Procession.* Which I prove by the Scripture, the Councils, and Symbols; by the Fathers, and by Reason.

By the Scripture, *John* xvi. 28. where Christ speaks thus of himself. *I came forth from the Father, and am come into the World.* By these Words is shewn his Procession from the Father. For if he had spoke only of his Incarnation in this Text of the Scripture, he had not said, *I came forth from the Father*; but had only said *I am come into the World*, according to St. *Augustin*'s Remark, *Tract.* 42. *in Joan.* and of the Holy Ghost, it is said expresly, *John* xv. that he proceeds.

By the Councils and Symbols, and particularly the first of *Nice*, the first of *Constantinople*, the first of *Ephesus*, the first of *Chalcedon.* And likewise by the Symbol of *Nice*, which says, that the Son is born of the Father before all Ages, and that the Holy Ghost proceeds from the Father, and from the Son.

By the Fathers, particularly St. *Augustin*, *Tract.* 1. *in Joan*, and St. *Hilary*, *Lib.* 4. *de Trinit.* towards the End, in these Words, *For God is not in a Dwelling of a different and foreign Nature from him, but God dwells in him, and in a God begotten from him, because he is God of God.*

By Reason, because there is in God an Intellection and Volition simply infinite: Therefore productive of the Word and Love *ad intra*; and consequently there is an immanent Procession, which answers to such a productive Action.

If I be asked, *whether the Procession be from the producing, as from a Principle, and not as from a Cause?* I'll answer in the Affirmative; and the Reason is, because the Procession, which is from the producing as from a Principle, argues no Imperfection: Whereas that which is from the producing as from a Cause, not only imports some Imperfection, *viz.* a Dependance from that Cause, but likewise a Diversity of Nature between the producing and the proceeding.

It may be objected, 1. That whatever has the Ratio of a first Principle, since it is God himself, it cannot proceed from another; and that every Thing that is in God, having the Ratio of a first Principle, since it is God himself, it cannot proceed from another: And consequently there can be no immanent Procession in God.

I answer this Objection by a *Distinction of the Major*; it cannot proceed from another as from something foreign, and different in Nature, that's true; but it can proceed from another, intimate and the same in Nature.

It may be objected, 2. If there was a Procession of Persons in the Divinity, it would follow, that the divine Person proceeding would be from another, and not from himself: But that cannot be said, since to be produced, and be from another, imports an Imperfection; therefore, *&c.*

I answer this Objection by a Distinction of the *Minor*, it would be from another as from a Principle that's true; but not from another, as from a Cause. For there is no Imperfection in a divine Person to be from another, as from a Principle producing, wherewith he has the same Nature, and that numerically. In that Hypothesis, the divine Nature is not produced, but only communicated: The Person alone is produced, and that indicates a great, supreme, and infinite Fecundity of the divine Nature in itself.

I answer, 2. That *there are two Processions in God, neither more, nor less.*

I prove the first Part of this Answer, *viz.* that *there are two Processions in God*; because there are two immanent productive Actions, *viz.* the Intellection and Volition, to which so many Processions answer. Mention is made of those two Processions in the Scripture, as shewn in the preceding Article.

It is objected, that the divine Intellection, and the divine Volition, are really but one and the same Action: Therefore there cannot be two Processions from them.

I answer by *denying the Consequence*; because those two Actions are virtually distinguished, and that's sufficient to

to eſtabliſh two diſtinct Proceſſions.

I prove the ſecond Part of my Anſwer, *viz.* that *there are neither more nor leſs than two Proceſſions in God.* Becauſe there are no more immanent productive Actions in an intellectual Nature, than theſe two, *viz.* Intellection, and Volition, whence it follows, that there are only two immanent Proceſſions anſwering to theſe two immanent productive Actions.

It is objected, that though there be within us but one Underſtanding, and one Will, there are, notwithſtanding, ſeveral Proceſſions of both Faculties; why not likewiſe in God in whom we ſuppoſe a *greater Fecundity?*

I anſwer this Objection by denying the Conſequence: And the Reaſon of the Diſparity is, that we cannot underſtand, and will all Things by the ſame Act; but want various Acts to underſtand various Things; *v. gr.* we underſtand God by one Act, and a Lion by another: Likewiſe, we will ſomething by one Act, and ſome other Thing by another Act. But God, by Reaſon of his infinite Power and Perfection, underſtands all the Things he underſtands by one and the ſame Act, and loves all the Things he loves, by one and the ſame Act. Whence it happens, that there is only one Proceſſion by the Underſtanding, and one by the Will.

It is objected, 2. That beſides the two Proceſſions mention'd, there is another, *viz.* the Emanation of the Paternity from the Eſſence; therefore there are more than two Proceſſions.

I anſwer this Objection, by diſtinguiſhing the antecedent; there is another Proceſſion improperly ſo called, and virtual only, that's true; but there is no other properly ſo called, and importing a real Diſtinction between the producing, and the produced.

We'll aſk next, *whether the Proceſſion of the ſecond Perſon in God be properly a Generation?* Which to anſwer, pertinently, we muſt obſerve,

1. That it is not queſtion here of every Generation, without Diſtinction, from a ſubſtantial *non eſſe*, to a ſubſtantial *eſſe*, as it becomes both the Things that live, and thoſe which do not live; but only of that Generation properly and ſtrictly taken, which becomes the Living only.

2. That Generation, properly taken, is commonly defined, *the Origin or Proceſſion of the Living, from a living Principle, joined in Similitude of Nature.* Theſe pre-obſerv'd,

I anſwer, *that the Proceſſion of the ſecond Perſon is a Generation.* Which Propoſition is of Faith; and which I prove by the Scripture, the Symbols, the Fathers, and by Reaſon.

By the Scripture, *Pſalm* ii. *Thou art my Son, this Day have I begotten thee.* And *Iſaiah* iii. *Who ſhall recount his Generation?* And from all the Places of the Scripture, in which the firſt Perſon is called Father, and the ſecond Perſon, Son.

By the Symbols, *viz.* of the Apoſtles, of *Nice*, and of St. *Athanaſius*; in which the ſecond Perſon is called Son, and even only Son.

By the Fathers, particularly St. *Auguſtin, Lib.* 2. *de Trinit. c.* 2. *Lib.* 5. *c.* 6. and *Tract.* 19. *in Joan.*

By Reaſon, becauſe the Definition of Generation, properly ſaid, becomes the Proceſſion of the Son: Therefore it is a Generation, properly ſaid. That the Definition of Generation becomes the Proceſſion of the Son appears, becauſe,

1. That Generation of the Son, is a Proceſſion of a Living from a Living; becauſe it is a certain Emanation of a living Perſon, behaving himſelf in a living Manner, as it appears from *John* vi. *As the living Father has ſent me, and I live by the Father:* And *c.* 5. *for as the Father hath Life in himſelf; ſo hath he given to the Son to have Life in himſelf.*

2. That Proceſſion of the *Son is from a Principle of Life joined.* Becauſe he has the whole Subſtance of the Father, as he witneſſes of himſelf, *John* xiv. *I*, ſays he, *in the Father, and the Father is in me.*

3. That Proceſſion of the *Son is in Similitude of Nature*; becauſe the Nature of both, which identifies to itſelf the Perſonalities, is not only one in Species, but likewiſe numerically. Theſe Words, *John* x. *I and the Father are one*, ſhew that Identity.

To theſe can be added, that the Son proceeds formally from the Father in Similitude of Nature, *i. e.* by Virtue of his Proceſſion, becauſe the Son proceeds by the Underſtanding, which tends towards the Word, or expreſſed Species, which is the moſt perfect Repreſentation of the Object; and thereby ſeveral Objections are obviated; becauſe thoſe Objections ſhew only that the Proceſſion of the Son or Word, is free from the Imperfections which are found in the Generation of the Creatures.

We'll aſk next, *whether the Proceſſion of the third Perſon of the Trinity be properly a Generation?*

Which I anſwer in the Negative; and I prove my Anſwer by the Scripture, by all the Symbols, by the Fathers, and by Reaſon.

By the Scripture, which in ſeveral Places, particularly *John* i. and iii. and 1 *John* iv. calls the Son *the only begotten.*

By the Symbols, which call him *the only*, and *the only begotten Son.*

By the Fathers, particularly St. *Auguſtin, Lib. de fidei Symb. c.* 9.

By Reaſon, becauſe the Definition of Generation does not become the Proceſſion of the Holy Ghoſt.—For the Holy Ghoſt, by Virtue of his Proceſſion, does not formally proceed ſemblable in Nature, but only materially and identically; ſince the Volition whereby the Father wills likewiſe himſelf, is not an Action, which by itſelf expreſſes a Similitude; but is only a Tendency towards the Thing loved; according to this of St. *Auguſtin*; *my Tendency is my Love, wherever I am carried, I am carried thither.*

It is objected, that in ſeveral Places of the Scripture, and particularly *Matt.* and *Luke* i. the Son is called Firſt-born; therefore it is a Sign, that there is beſides another Proceſſion which is a Generation, whereby another is likewiſe ſaid begotten.

I anſwer this Objection by a Diſtinction of the Antecedent; it is called Firſt-born negatively, becauſe there is no other before him, that's true; but not poſitively, as if there were others poſterior to him.

It is objected, 2. That the Definition of Generation becomes the Proceſſion of the Holy Ghoſt; for the Spirit is Love; and the Proceſſion of Love tends towards its ſemblable: Therefore the Proceſſion of the Holy Ghoſt is properly a Generation.

I anſwer, by denying the *Antecedent*; becauſe the Proceſſion of the Holy Ghoſt is not formally in the Similitude of Nature, as already obſerv'd. Notwithſtanding what is ſaid, that the Holy Ghoſt is Love; for as Love, he does not otherwiſe tend towards the ſemblable that he produces, than materially and identically.

This will appear clearer in the following Article; in which we'll explain more diſtinctly, and more at large, *Why the Proceſſion of the Son of God be rather called a Generation, than the Proceſſion of the Holy Ghoſt. Explaining, at the ſame Time, the different Opinions which are contrary to ours, and ſolving all the Objections.* Therefore,

The Proceſſion of the Son is a true Generation, properly ſo called, and the Son is properly ſaid begotten, becauſe by Virtue of his Proceſſion, he formally proceeds ſemblable to his Father in Nature: And the Proceſſion of the Holy Ghoſt is not properly a Generation; and the Holy Ghoſt is not properly begotten, becauſe, by Virtue of his Proceſſion, he does not proceed ſemblable to the Father, and to the Son in Nature.

I prove the firſt Part of my Aſſertion, *viz. that the Proceſſion of the Son is properly a Generation, becauſe by it, and by Virtue thereof, the Son proceeds formally ſemblable to the Father in Nature*; becauſe it is of the Ratio of a very perfect Underſtanding, to have the Term of his Intellection perfectly ſemblable in Nature, by Virtue of his Proceſſion formally, if the Object requires by itſelf to be perfectly united to it: But in the Divinity, the Underſtanding of the Father is moſt perfect, and even of an infinite Perfection, and the divine Nature requires by itſelf in the Ratio of an intelligible Object to be perfectly united to it, is in fact ſubſtantially united, and ſo neceſſarily ſubſtantially united, that it cannot be otherwiſe united to it, or by another Form, as by an impreſſed Species, than by itſelf: Therefore it muſt produce a ſubſtantial Similitude; and conſequently a Similitude in Nature.

If

If I be asked, *Whether the divine Understanding, by a generical Ratio, has wherewith to produce necessarily a Term perfectly semblable in Nature?* I'll answer in the *Negative*, because it has that only from a special Ratio of the divine Understanding; for the Understanding consider'd generically, is abstracted from a Term semblable in Nature, and accidentally semblable.

It is objected, that though the Father, in the Divinity, knows the Thing possible; the Son, notwithstanding, is not semblable to the Things possible: Therefore the Son, likewise, will not be semblable in Nature to the Father, from that the Father understands his Nature.

I answer, by denying the *Consequence*; the Reason of the Disparity is, that the divine Essence is not only known by the Father, but the divine Understanding is informed by the divine Essence, as by its Object, and thus expresses that same divine Essence: But the divine Understanding is not inform'd of the Things possible; therefore it is not necessary that it should contain their Nature in itself, but it is sufficient, that it should express those whereby it is informed, and whereby, likewise, it knows the Things possible, *v. gr.* expresses the Omnipotency, in which, as in the Essence, it knows the Things possible, *&c.*

I prove the second Part, *viz. that the Procession of the Holy Ghost is not properly a Generation, and therefore the Holy Ghost is not properly begotten, because by Virtue of his Procession, or Volition, he does not proceed formally semblable in Nature to the Father, and to the Son.* Because the Holy Ghost proceeds only as Love. But the divine Love, by Virtue of his Procession, is not semblable in Nature to his Principle, *viz.* the Father, and the Son. For if the Will, in general, does not produce by itself a Similitude, but is only carried towards the Thing loved; and if, consequently, Love in general is not, by itself, a Similitude, but only some Tendency and Impulse towards the Thing loved: It can be said, that Will in particular, *viz.* Will as divine, does not produce a Similitude by itself, and of Consequence it can be said, that Love in particular, *viz.* Love as divine, is not, by itself, semblable in Nature, by Virtue of its Procession.

It is objected, 1. That the Understanding considered in general, tends towards some Similitude; and the Understanding considered in particular, *v. gr.* as divine tends towards a semblable in Nature: Therefore the Will considered in general, tends likewise towards some Similitude, and the Will considered in particular, especially as divine, tends towards something that's one in Nature.

To which I answer, by *denying the Consequence*; because Will in general does not make one otherwise than metaphorically, *viz.* inasmuch as it produces some Tendency; and does not make one otherwise than as the Person that loves, and the Person that's loved, become in some measure one; but becomes one only metephorically, as it can be inferred from this Passage of the Scripture, *Matt.* vi. *Where your Treasure is, there will your Heart be also.* The same must be said of the Will considered in particular, *and as divine*; for as it is infinite, it makes one according to the infinite Propensity towards the Thing loved.

It is objected, 2. That he who is God by himself, is God by virtue of his Procession, and consequently is semblable in Nature to his productive Principles; but the Holy Ghost is God by himself: Therefore is God by virtue of his Procession, and consequently semblable in Nature to his Principle, *viz.* to the Father and to the Son.

I answer by a Distinction of the major; if his Procession requires by itself, and of its Nature, a Similitude in Nature with the productive Principle, the major is true; but not if it does not require it: But the Holy Ghost is God by himself, in that Sense that he is God in himself, and according to his Entity, so that he must necessarily be God; but he is not God by himself in that Sense that he is such by a Procession, which of its Nature requires a Similitude in Nature with its productive Principle. And this is illustrated by the Example of *Eve*, who by herself, and essentially, was a Man; and notwithstanding was not such, by virtue of her Procession from the Rib of *Adam*, which did not require necessarily the human Nature, for God could have made something else of that Rib.

If I be asked, *Whence, then, the Holy Ghost has his Divinity?* I'll answer, that he has it from the divine Nature that is communicated to him; which identifies to itself all that is in God.

From what we have said it can be inferred, 1. That we reject the Opinion of *Richard* of *St. Victor*, of *Alensis*, and *Major*, who affirm that the Procession of the Son is more properly a Generation than that of the Holy Ghost, and consequently, that the Son is properly called begotten, because he has received from the Father a second Nature, such as the Holy Ghost has not received from the Father and the Son. How little probable does that Opinion appear, particularly from that though the Son should not receive a fecund Nature from the Father, he should still be begotten, and his Procession be a Generation, because it would be the Origin of a Living from a Living in a Similitude of Nature. For that Fecundity is not absolutely required in the Begotten.

To these can be added, that if the Son must have the Fecundity of his Generation, that he may be called begotten, he should have it such as it is in the Father, to be entirely semblable to him in Nature: But he has not such a Fecundity, since the Father has a Fecundity for Generation and Spiration; and the Son for Spiration only: Whence it follows, that the Son is not precisely to be said begotten, because he receives a fecund Nature from the Father. It can likewise be added, that it would follow hence that the Son is said begotten, because he is spiritual, since he is no otherwise fecund but as Spirator; which would be an Absurdity; since he is Son by that Relation only, which regards precisely the Father, and whereby he is established in the Ratio of the second Person: But he does not regard the Father, and is not established in the Ratio of the second Person by Spiration, but by Filiation: Therefore, *&c.*

It may be inferred, 2. That we reject likewise the Opinion of *Suarez*, who maintains that the Son is, and is said begotten, because he receives formally the last Difference of the divine Essence, *viz.* the actual Intellection, which he imagines to be the last constitutive Difference of the divine Essence; the Reason I have for rejecting this Sentiment is, because Generation does not only import a Similitude in a differential Degree of Nature, but likewise in a generical Degree: And because that Opinion supposes a differential Degree of Nature, and constitutive of the actual Intellection.

Notwithstanding what St. *Augustin* says, *lib.* 15. *de civit. c.* 6. that the Wisdom of God be nothing else but his Essence; for he only understands it in a real and identical, and not in a formal and virtual Sense. And if you say that the Intellection of God is of his Essence precisely considered; I'll answer that that is true of the radical Intellection, but not of the actual.

But, say you, *is not Life or actual Intellection, one of God's great Perfections, therefore it must be his Difference?*

I answer by a Distinction; in the Affirmative, if it be understood of those Perfections, which are like Properties: And in the Negative, if by Perfections are understood substantial Perfections. For as in Man there is a radical Intellection, which is a substantial Perfection constituting Man; and an actual Intellection which is in the Manner of an Accident: Likewise in God there is a radical Intellection, which is like a substantial Degree, constituting God; and there is an actual Intellection which is like a Property, and is conceived to flow from a substantial Degree.

It can be insisted, that there is no greater Reason why the actual Existence in God be an essential Degree of Being; and the actual Intellection not an essential Degree of Understanding: Therefore, *&c.*

I answer this in denying the Major; and the Reason of the Disparity is, that unless the actual Existence was essential to the Degree of Being; it would follow that it would be as accidental; and follow hence, that God's Being should be reduced to an actual Existence by another Being: As the Creatures, because they do not exist essentially, receive their Existence from another; and how much this is repugnant to the divine Perfection is apparent, from what I have said in my Treatise of *God*

and his Attributes, under the Letter G. But no Repugnance follows from the Distinction made between radical and actual Intellection.

It is inferred, 3. That we reject likewise the Opinion of *Torres* and others, who affirm, that the Procession of the Son is called Generation rather than that of the Holy Ghost; because by it the Son proceeds as an Image representing the proper Characters of the Father: But the Holy Ghost does not proceed in the same Manner. The Reason we have for not approving this Sentiment is, that the Ratio of Generation does not require essentially such a Representation, but only a Representation and Similitude in Nature; as it appears from our Definition of Generation. And it can even be said, that when the Fathers require in general, in the Son, a Representation of the Characters of the Fathers, they only require that Representation which is according to Nature, and not that according to the proper and personal Characters of the Father.

We'll ask next, *which are the Principles of the divine Processions?*

Before I answer this Question, we must observe, 1. That by the Name of Principle is understood here that whence something is.—2. That as in human Things we consider two Principles, *viz.* The Principle *quod*, or which produces in his Person: And the Principle *quo*, or whereby, either remote or near; the remote Principle is Nature itself, and the near is the productive Power: Likewise in the Divinity we can consider the same Number of Principles.—We ask here, what must be established in the Divinity for the Principle *quod* of the divine Processions; and what for the Principle *quo*, either near or remote? These pre-observed,

I answer, *That the Principle* quod *of the divine Processions, is the Person producing*, v. gr. *the Father is the Principle* quod *of the Procession of the Son; and the Father and the Son the Principle* quod *of the Procession of the Holy Ghost. The remote Principle* quo, *is the divine Essence, and the nearest is the Understanding and Will.*

I prove the first Part of my Answer, viz. *that the productive Person is the Principle* quod, v. gr. *the Father is the Principle* quod *of the Procession of the Son, and the Father and the Son the Principle* quod *of the Procession of the Holy Ghost:* Because the Principle *quod* is that to which belongs the Virtue of producing, and which is said to produce by itself: But to the Father, with respect to the Son, belongs the Virtue of producing, and the Father is said to produce by himself. Likewise, the Father and the Son, with respect to the Holy Ghost, are said to breathe by themselves: Therefore, *&c.*

I prove the second Part, *viz.* that *the divine Essence is the remote Principle* quo *of the divine Procession*; because that is the remote Principle *quó* that produces something, if not immediately by itself, at least by other Principles of which it is the Root, as it appears from the Example of human Nature; for by the generative Power whereof it is the Root, it reaches the Generation of Man: But the divine Nature, if not immediately by itself, at least by some other Principles, whereof it is the Root, reaches the divine Essence; therefore, *&c.*

I prove the third Part, *viz.* that *the near Principle* quo *of the divine Processions, is the divine Understanding and Will.* Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *John* i. *In the Beginning was the Word, and the Word was with God, and the Word was God.* And 1 *John* v. *For there are three that bear Record in Heaven, the Father, the Word, and the Holy Ghost.* Where the Son is called Word; but the Word has the Understanding or intellective Power for his immediate Principle: Therefore, *&c.*—And the Holy Ghost, *Rom.* v. and xv. is particularly called Charity; and to it as to a Cause, the created Charity is attributed; and thus he is understood to be an uncreated Charity, and consequently proceeding from the Will.

By the Fathers, particularly St. *Chrysostom, lib.* 7. *Thesaur. c.* 1. and St. *Basil* on this of *John* i. *In the Beginning was the Word. Why*, says he, *the Word? That what proceeds from the Mind may be understood.* By St. *Cyril, The Son*, says he, *is called Word and Wisdom, because he is immediately, and indivisibly from the Understanding.*

By Reason, because the Understanding and Will are that whereby the Suppositum produces immediately the Terms. For the Understanding is that whereby the Father produces immediately the Son, which for that is called the *Word. John* i. and *Apocalyp.* 15. he is also called *Wisdom. Prov.* viii. and *Eccles.* xxiv. the *Image*, *Hebr.* i. for the Ratio of Image belongs properly to the Understanding; for the Knowledge of the Understanding is by the Assimulation of the Understanding with the Object, and by an expressed vital Species. The Will is that whereby the Father and Son produce the Holy Ghost, whereby the Holy Ghost is commonly called the Love and Charity of God.

This is confirmed from that unless the Son should proceed by the Understanding, and the Holy Ghost by the Will, we could not explain why the Procession of the Son should be rather called a Generation than that of the Holy Ghost; nor say why the Holy Ghost should be called Love rather than the Son; likewise why there should be rather two Processions than one; and why not more than two.

From what we have said it is easily inferred how much our Sentiment differs from that of *Durand*, who pretends that the proximum Principle *quo*, of the divine Processions is the divine Nature as fecund, and not the Understanding and Will; which Sentiment is very near a-kin to Error, and dangerous in the Faith.

It is objected, that what is common to all the Persons is not a Principle of Production; otherwise each divine Person should be said generating and spirating; but the Understanding and Will are common to all the divine Persons, since each of them is intelligent and willing: Therefore, *&c.*

I answer by a Distinction of the major; in the Affirmative, if what's common be not considered as having some Adjunct, *v. gr.* a Relation to the Term; but in the Negative, if it be considered as having some Adjunct, *v. gr.* the aforesaid Relation. To the minor, I say, that it is true that the Understanding and Will are common to the three Persons, when they have a single Relation to the Object known and willed; but it must be confessed that they are not common, when besides that Relation to the Object, they have likewise another Relation, *viz.* to the Term produced.

From this Answer it is inferred, that these two Principles of the divine Processions, *viz.* the *Diction* which is an Act of the Understanding; and *Spiration*, which is an Act of the Will, are notional Acts.

If I be asked, whether they be distinct from the *essential Intellection and Volition?* I'll answer, that they are only distinguished as the including and included; for the Diction and Spiration import and include Intellection and Volition, but are not included in the essential Intellection and Volition; since besides Intellection and Volition, they import something else, which is not included in the essential Intellection and Volition, *viz.* a Relation to the Term produced.

From this I'll pass to the *divine Relations*; asking first *what*, and *how many there are Relations in general?*

To which I answer, 1. *That Relation, taken in general, is that the whole Being thereof is to refer the Subject in which it is, to another as to a Term.*

I answer, 2. *That Relation considered in general, is divided into several; and particularly*, 1. *Into a real Relation, and a Relation of Reason.* 2. *Into a transcendant, and a categorical.*

I prove the first Part, or first Division of Relation into *real, and Relation of Reason.* Because Relation is either that which imports an Habit of something to another independantly of the Operation of the Understanding, and thus is real, as *v. gr.* the Relation of the Image to the Original: Or is that Habit of something to another, which is only imagined in the Mind, and has no Reality on the Part of the Thing, and that is a Relation of Reason, such is the Relation of the Species to the Genus, and of the Predicate to the Subject.

I prove the second Part, or the second Division of Relation, which is into *transcendental, and categorical, or predicamental*; because Relation is either that which consists in the essential Habit of a Thing to another, and thus is *transcendental*, such is the Relation of the Matter

Matter to the Form of the Creature to God, and of the Power to its Effect.

If I be asked, *Why it is called Transcendental?* I'll answer, that it is called *Transcendental*, because it is not confined within the Limits of a single Category, but runs through several Categories; for Matter is in the Predicament of Substance, and Power in the Predicament of Quality. Or Relation is that which consists in a certain accidental Habit of a Thing to another, and the whole Being thereof depends from another, and thus is a categorical or predicamental Relation; such is Paternity, the whole thereof depends from the Son, to whom it refers the Fathers.

From this Definition of both *Relations*, is inferred a double Difference between them. 1. That the *transcendental Relation* is essential to the Subject, and inseparable from it; but the *categorical*, accidental, and separable. 2. That the *transcendental* does not require necessarily that its Term should exist actually, as it appears from the Example of the Power of generating, for though it should be reduced to Action, it would notwithstanding retain always a Relation to it: But the *categorical* requires a Term actually existing, as it appears from the Example of the Relation which the Image has to its Original; for that Relation of both Extremes requires an Existence.

I answer, 3. That *Relation considered in a more particular Manner*, viz. *as it is in God, is of two Sorts*, viz. *one* ad intra, *and the other* ad extra. Because the *divine Relation* is either that, which in God has a Subject and Term, and thus is *ad extra*, such is the Relation of the Father to the Son, and of the Father and Son to the Holy Ghost, and *vice versâ*; or is that the Term thereof is without God, and that is *ad extra*, such is the Relation of the Creator.

But the Relation which is *ad extra*, is subdivided into that of Origin, and that which is not of Origin; for it is either that which is founded on the Production either active or passive, and has an Analogy with the created Relation, which is founded on the Action and Passion, and thus is a Relation of Origin; or is that, which tho' it be in God, is not, notwithstanding, founded on the Production, either active or passive, such is the Relation of Similitude and Equality between the divine Persons.

Note, En passant, that we are to treat here of that Relation only which is *ad intra*, and particularly of that of Origin. Therefore these pre-observ'd,

We'll ask, *If, and how many real Relations there are in the Divinity, and whether they be all Perfections?*

To which I answer, 1. That *there are in God certain real Relations between the Persons*; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture; which call the divine Persons by the relative Names of Father, Son, and Holy Ghost, *Matt.* the last Chapter. For it is certain, that the Father is the Father of some Son, and the Son the Son of some Father. It appears, likewise, of the Holy Ghost, that he is from some Spiration, since he proceeds by Love, he imports a Relation to his Principle, or that Love is of somebody that loves.

By the Councils, particularly the second of *Toledo*, who says in his Confession of Faith, that the divine Persons are referred to one another by Relations. And by that of *Florence*, *Sess.* 18. where *John* the *Theologian*, speaking for the *Latins*, says, that it is certain among all the Doctors, that the sole Relation multiply the divine Persons.

By the Fathers, particularly St. *Augustin*, *Lib.* 5. *de Trin. c.* 5. where he says, that the Father and Son are not thus called according to their Substance, or absolute Being, but according to their relative Being.

By Reason; because the divine Persons are distinguished really between themselves, as we have proved already: But they are not really distinguished but by real Relations, since they are not distinguished between themselves by the divine Essence, which is common to all the Persons; and there is no other Foundation of a real Distinction between the said divine Persons: Whence it follows, that no Body dares to say, without rendering himself suspect of *Sabellianism*, that God is Father only, or that the Son is Son only, according to Reason, and not according to the Thing, *i. e.* mentally, and not really.

It is objected, that according to the Philosophers, all real Relation supposes two Extreams really distinct between them: But the divine Relations, *viz.* Paternity and Filiation, do not suppose, but constitute two Extreams really distinct between them; because the Father and Son are no otherwise distinguished than by those Relations: Therefore the divine Relations, *viz.* Paternity and Filiation, are not real.

I answer by a Distinction of the *Major*, in the *Affirmative*, in the Things created; and in the *Negative*, in the divine. The Reason of this Distinction is taken from that created Relations are Accidents; therefore it is not surprising, if they suppose Subjects in which they are inherent, and real Subjects, if the Relations be real, and even require subjects *realiter* distinct, if they be opposed really, since Things really opposed, cannot be in the same Subject. But the divine Relations are Substances, and not Accidents; therefore do not suppose Subjects to which they are inherent, but subsist by themselves, and are distinguished by themselves.

I answer, 2. That *there are four Relations of Origin in the Divinity*, viz. *Paternity, Filiation, active Spiration, and passive Spiration.* Because there are only two Processions in the Divinity, each whereof has two opposite Respects, *viz.* of the proceeding to his Principle, and of the Principle to his proceeding Term: Therefore there are only four Relations of Origin.

It is objected, that if there were four Relations in the Divinity, there should be four Things, four real Beings in God: Which cannot be said without Absurdity; therefore, *&c.*

I answer by denying the *Major*; because tho' every one of them be real; every one of them, notwithstanding, is not distinguished really from the other; for the active Spiration is not distinguished really from Paternity and Filiation, as the Essence is not distinguished really from the three Persons, though the Essence be real, and the Persons real. Whence we do not say that they are four Things, but three only. For there only is a Multiplication of Things, where a real Distinction is found.

I answer, 3. *That every one of the said Relations, as well according to their being* in, *as according to their being* ad, *are Perfections, though not simply simple.*

I prove the first Part, *viz. that the said Relations, considered according to their being* in, *are Perfections*; because thus consider'd, they are certain hypostatical Forms terminating the divine Nature. It matters not whether they be distinct from the divine Nature or not, they are always real Perfection.

I prove the second Part, *viz. that consider'd according to their being* ad, *they are Perfections likewise.* Because it is the Sentiment of the Fathers, and particularly of St. *Cyril, Lib.* 1. *Thesaur. c.* 6. where he says, that the Father is perfect, not only as God, but likewise as Father. It is also the Sentiment of *John Damascenus, Lib.* 1. *de fide, c.* 11. where he calls Perfections the personal Properties of the Father, of the Son, and of the Holy Ghost. And because that which has the Ratio of a true Being, has, likewise, some Perfection, since by his Perfection he is established in the Ratio of such a Being: But the Relations of Origin consider'd likewise, according to their being *ad*, have the Ratio of a true Being, since consider'd thus, they are real; therefore they are Perfections. I prove the third Part, *viz. that tho' those Relations be Perfections, they are not notwithstanding Perfections simply simple.* Because Perfections, simply simple, according to St. *Anselm*, in the *Menologium*, are such as are better than those which are opposed to them, and which do not exclude from the Subject in which they are, an equal Perfection, but are compatible with it: But the Perfections of the Relations are not so: For, *v. gr.* the Paternity is not better than the Filiation which is opposed to it, and expels it from the Subject in which it is, because it is not compatible with it in the same Subject. Therefore the Perfections of the Relations are not simply simple.—What are they then? they are only simple Perfections.—If I be asked, *what's understood by such Perfections?* I'll answer, that by them are understood, either those which have something of Imperfection,

fection; or those which exclude an equal or a greater Perfection from the Subject they are in. But I must not be understood in this Place, as if I called the Perfections of the divine Relations simple, because they have something of Imperfection; since I call them simple, only because they exclude an equal or greater Perfection from the Subject they are in, and are incompatible with it.

I may be asked here, *which is the Foundation of such Relations?*

To which I answer, that Diction and Spiration, or what is the same, notional Intellection, and notional Volition, are commonly established for Foundation of those Relations; because, in some Measure, we must reason of the divine Relations of Origin, as we do of the created: But the created Relations are founded on Action; therefore, *&c.*

We'll ask next, *If, and how the divine Relations are distinguished, either between themselves, or from the Essence, and from the essential Attributes?*

To which I answer, *that the divine Relations, at least those which are of Origin, are really distinguished between themselves.* Because those Things are really distinguished between themselves, between which there is some real Opposition; but between the divine Relations, and even those which are of Origin, there is some real Opposition; for it is of the Ratio of every Relation that there should be a relative Opposition between the relative Terms; therefore the divine Relations are distinguished really between themselves: And thus Paternity is distinguished really from Filiation, and likewise the active Spiration from the passive.

Notwithstanding that the active Spiration be not distinguished really from Paternity and Filiation; because the active Relation has no Opposition with those two Relations, as it has with the passive Spiration.

I confirm this by the Council of *Lateran*, held under *Innocent* III. which *Cap. Damnamus*, forbids admitting a Quaternity of Things in the Divinity; and it would be a Quaternity, if the active Spiration was distinguished from Paternity and Filiation; therefore, *&c.*

It is objected against my Answer, that the Things which are the same with one Third, are the same between themselves; but the divine Relations are the same Thing with the divine Essence as with a Third; for the divine Essence is really the Paternity, Filiation, and passive Spiration: Therefore they are not really distinguished between themselves.

To which I answer by a Distinction of the major, *viz.* in the Affirmative, in Things created and finite; and in the Negative with regard to the Mystery of the blessed Trinity. The Reason of the Negation is, that the divine Relations have an Opposition between themselves, wherefore they cannot be mutually identified, tho' they have no Opposition with the Essence, and therefore are identified with it.

I answer, 2. That *the divine Relations are not distinguished really from the divine Essence, and from the essential Attributes, but virtually only.* Which Answer is sufficiently proved in my Treatise of God, and of the divine Attributes under the Letter G.

I may be asked here, *Whether the Attributes, either absolute or relative, include the Essence in their Conception and Mission.*

To which I answer by a *Distinction:* In the *Affirmative*, in an identical Sense; and in the *Negative*, in a virtual Sense.

I prove the first Part of my Answer, *viz.* that *they include it in an identical Sense*, because St. *Augustin* insinuates it, *lib. 6. de Trin. c.* 10. in these Words: *They are single*, says he, *in the single, and all in the single, and single in all, and all in all, and one All*; and because the Essence and all the Attributes, either absolute or relative, are one and the same very simple Entity, in an identical Sense, since they have no Distinction between themselves from the Part of the Thing.

I prove the second Part, *viz.* that *the Attributes, either absolute or relative, do not include the Essence when conceived virtually, nor vicissim.* By what I have said on this Subject, in my Treatise of God and his Attributes, where I have taken Notice of various Kinds of Distinctions, and of those which are essentially included in the Essence of God, and of the Predicability of the Attributes.

From this I'll pass to the *Number of Subsistances or Personalities, and likewise to the Number of Existences, Entities, and Things in God.* Asking first, *whether there be only three Subsistances in the Divinity, and those relative; and whether there be not likewise an absolute one?*

To which I answer, 1. *That there are only three Subsistances or Personalities in God, and those relative.*

I prove the first Part, *viz. that there are three Subsistences in God*; because the Councils insinuate it, and particularly the second of *Constantinople, Can.* 8. *Anath.* 1. where we read these Words: *Whoever does not confess that one Deity is to be adored in three Subsistences or Persons, let him be Anathema.* The same Thing is found, though in different Terms, in the second Epistle of Pope *Agathon*, approved by the third Council of *Constantinople, Act.* 8. where it is said, that the hypostatical Union is made in the Subsistence, wherefore it is called hypostatical; and because, as we have proved in the Beginning of this Treatise, there are in this Mystery three Persons in one Essence, and therefore three Personalities or Subsistences; for the Persons are formally constituted by the Subsistences in the Ratio of the subsisting; and in the Mystery of the blessed Trinity the Concrete or constituted, substantively taken, are not multiplied, unless the Forms whereby they are constituted be multiplied.

I prove the second Part, *viz.* that *those three Subsistences or Personalities which are in God are relative.* Because there is no absolute Subsistence in God, as I'll prove hereafter; which is confirmed by the Mystery of the Incarnation, in which that of Subsistence of the Word which terminates both Naures, *viz.* the divine and the human, is not absolute and essential, otherwise it would be common to the three Persons, and it could be inferred hence that they were all three incarnated, which is an Heresy.

I prove the third Part, *viz.* that *there are no more nor no less than three Persons*; because suppose that there are two Processions properly said in God, it follows that there are no less than three Persons, for there must be first one to produce the second, and a first and second together to produce a third. And suppose that there be no more than two Processions, it follows that there are no more than three Persons, the first to produce the second, and the same first and second together to produce a third; because there is but one Term of one immanent divine Procession, exhausting the productive Faculty of that Power whereby it is produced, since the Term produced is as infinite as the productive Power.

I answer, 2. That *besides those three relative Subsistences above-mentioned, there is no absolute one in God*: Because a Person properly said, constitute a Person in an intellectual Nature; for what makes the compleat intellectual Nature subsist, the same Thing constitutes the Person: But there is no absolute Person in God, otherwise there would be four Persons, against what has been defined by the Church: Therefore there is no absolute Subsistence in God, but only three relative ones.

This Sentiment is confirmed from that if besides the relative Subsistences, and antecedently to the others, there was some absolute Subsistence, it would be inconceivable how the divine Essence could be communicated besides to the three divine Persons, since that absolute Subsistence would render the divine Nature incommunicable to another as to a Suppositum. Or certainly it could not have the Ratio of a proper Subsistence, since it is of the Ratio of a Subsistence as such, and consequently of the Ratio of a divine Subsistence, to render the Nature incommunicable to another as to a Suppositum: But it is of Faith, that it is communicable, and is communicated to all the three Persons; therefore it must be inferred, that besides those three relative Subsistences, which constitute the Persons in God, and antecedently to them, there is no absolute Subsistence.

It is objected, 1. That it is not of the Ratio of a Subsistence as such, to render the Nature incommunicable to another as to a Suppositum, otherwise it should become each Subsistence; for what becomes the superior essentially, becomes likewise the inferiors: But that does not become each Subsistence, since it does not become the Subsistence of the Father, the Subsistence of the Father not

not hindering the divine Nature from being communicable, since it is actually communicated to the Son: Therefore, &c.

To which I answer by denying the Major; and say that that becomes likewise the Subsistence of the Father; for though the Subsistence of the Father in the Divinity does not hinder the divine Nature which is in the Father from being communicated, *viz.* to the Son and the Holy Ghost, as I have proved it when I have treated of the divine Fecundity, and divine Processions; it hinders notwithstanding, the divine Nature as affected by the Personality of the Father, from being communicable. For the Father neither does, nor can communicate his Subsistence to the Son and to the Holy Ghost. Therefore, &c.

It is objected, 2. That no Perfection is to be denied to the Divinity; and that an absolute Subsistence being a Perfection; it should be admitted in the Divinity.

To which I answer, that no Perfection excluding an Imperfection, ought to be denied to the Divinity; but not otherwise, and an absolute Subsistence being not a Perfection which excludes all Imperfection; it ought not to be admitted in the Divinity. That an absolute Subsistence does not exclude all Imperfection, appears from that it is needless, and what it could do, is supplied by the relative Subsistences; and because it would introduce something repugnant in God, by rendering, and not rendering the Nature incommunicable. It would render the Nature incommunicable, for that's the Office of a Subsistence; it would not render it, because it would be communicated to the relative Subsistences, and thus would become a Term, so as to be notwithstanding terminated further.

It is objected, 3. That a created Nature exists before it has its Faculties to operate, and produce a Term: Therefore likewise, the divine Nature subsists before the divine Processions are established; and as it cannot subsist first but by an absolute Subsistence: There must be then an absolute Subsistence in God.

I answer this, by *denying the Consequence*; the Reason of the Disparity is, that the Faculties, Operations, and Terms of Operations of a created Nature are Accidents, whence it is not surprizing if a created Nature subsists before it has its Faculties, Operations, and Terms of Operations; for a Thing must be compleated substantially before it has its Accidents. But in the Divinity the Faculties, Operations, and Terms of Operations are Substances, and thus do not suppose a previous Subsistence of the divine Nature; for who could believe that a Subsistence precedes a Substance which it terminates?

We'll ask next, *If besides the absolute Existence, which is in God, there are also three relative Existences; and whether the three Persons can be said three Beings, three Things, and three Unities?*

Before I answer this Question, we must observe that it is not asked here, whether there be an absolute Existence in God, since I have proved sufficiently that there is, in my Treatise of God and his Attributes, otherwise it could not be conceived how there could be an Eternity and an absolute Immensity, which supposes God existent. But the Question is, whether there *be three relative Existences in God?* These pre-observed,

I answer 1. That *there are not three relative Existences in God*; for the Manner of existing does not add a new Existence to the Thing which it modifies, as it appears from various Examples. Human Nature, *v. gr.* whether it exists by itself, as in us, or in another as in Christ, does not acquire a new Existence, but only a new Manner of existing: But the divine Subsistances are the Manner of God's Existence: Therefore they do not add a new Existence, but modify, only, the absolute Existence of God. Whence it is not surprising if the antient Fathers make no Mention of relative Existences in God.

Which Sentiment I confirm by this reasoning: Because if there were three relative Existences really distinct in God, there would be likewise three Durations really distinct, since each Existence has its Duration, as Duration being nothing else but a Continuation of Existence; and thus it would follow that there were three Eternities, and consequently three Eternals, as there are three Persons, because of the three divine Personalities: and to admit three Eternals, is against this of St. *Athanasius* in his Symbol, *not three Eternals, but one Eternal*, which must be understood substantively.

I answer 2. That *the three Persons in God can be called three Things not simply, but with Addition, and relatively.* Because the antient Fathers insinuate it, particularly St. *Augustin, lib.* 1. *de doct. Christ.* Where he says, that the Father and the Son, and the Holy Ghost, are three Things to be enjoy'd; and St. *Anselmus, lib. de incarnat. verbi, c.* 3. where he speaks thus, *Nothing forbids calling the two Persons the Father, and the Son, two Things*; and because, unless the three Persons were three Things, they could not be distinguish'd between them really; but they are distinguished really: Therefore they are three Things.

But I have said, *not simply, but with Addition and relatively*, to give to understand, that though they are said three Things, they are notwithstanding but one in Essence; and they differ in that from the Things created, which if they be supposed to be several, can be said simply several, since they can be in no one Thing, at least a singular one, one and the same Thing.

I answer, 3. That *the three divine Persons can be said three Things, but with Addition and relatively.* Because these Terms *Thing* and *Being*, and even *one, true*, God, are transcendental Terms, which, in some Manner, reciprocate; and this is true, whether the Existences be multiplied or not.

From this I'll pass to *Notions, and to those Properties and Acts which are called notional.* Asking first, *what is understood by Notion, and whether, and how many Notions are to be admitted in the Divinity?*

Before I answer this Question, we must observe, that by the Name of Notion in God, is understood the Manner of knowing one Person as distinct from the other, or others, according to St. *Augustin, lib.* 5. *de Trinit. c.* 6. Therefore two Things are required to a Notion, 1. That that which is a Notion be signified *in abstracto*, because it must be signified as a Form, or *quasi* Form of this or that Person, whereby it is distinguished from the others. 2. That it should belong to the Origin, since it must signify the Distinction of one Person from the other; for the Persons are distinguished by the Origin. In a Word, by the Notions meant here, are understood some certain personal Properties, and like as certain Marks, whereby the divine Persons are distinguished among themselves, according to our Manner of understanding Things. These pre-observed,

I answer 1. *that some Notions are to be admitted in God.* Because it is the Sentiment of the Fathers, particularly St. *Augustin, lib.* 5. *de Trinit. c.* 6. where he says, that other is the Notion whereby the Father is understood to beget, and other that whereby he is said unbegotten; and that the former becomes him by his Relation to the Son, and the latter absolutely with Regard to himself. And St. *Basil. Epist.* 43. where he calls Notion, the Form and Mark of the Person, or his distinctive Character or Sign: and says, that the Notions are Necessary to have an unconfuse Knowledge of the Mystery of the blessed Trinity. And because our Understanding is assisted in the Knowledge of that Mystery, according to its Capacity, by inadequate Conception, and rendered capable to explain it distinctly, as it will appear in the Sequel.

I answer, 2. That *no more, nor less than five Notions are to be admitted in God*; viz. *Inascibility, Paternity, Filiation, active Spiration, and passive Spiration.* Because the antient Fathers assign that Number; and because by them only is understood the Number of three Persons distinct between themselves. Add, that so many Notions are admitted in the Divinity as there are founded on these two Respects *from whom another*, and *be from another*, since the Notions import a Regard to the divine Processions: But there are five Notions founded on the two aforesaid Respects, whereby the divine Persons are known to us as distinct, for the Father is known to us by a triple Notion, *viz.* 1. That by his Inascibility, *he is not from another*, being himself a Principle without a Principle. 2. That by Paternity and Generation *he is the Principle of the Son.* The Son is known to us by a double Notion, *viz.* 1. *As he from another*, *viz.* the Father, by passive Generation or Filiation. 2. As he is *the Principle of the Holy Ghost* by active Spiration, which he

he has in common with the Father. *Lastly*, The Holy Ghost is known to us, *by that he is from another*, viz. *from the Father and the Son*, by a passive Spiration, which is his proper and sole Notion. Therefore five Notions are to be admitted in the Divinity, four of which, *viz. Paternity, Filiation, active Spiration, and passive Spiration*, shew sufficiently that there are three Persons really distinct, since none of the Persons can be properly said to proceed from herself by a true, and properly said Procession. But the fifth, *viz. Inascibility* shews that there are no more than three Persons; otherwise there should be assigned some other Principle distinct from the Understanding and Will, whereby the Person said inascible could be said to proceed from another.

It is objected 1. That Inascibility is nothing positive; therefore cannot be a Notion, and thus there would be but four Notions in God.

I answer, by denying the Consequence; and the Reason is, that it suffices for a Notion that it should distinguish the Person, that it should distinguish with Regard to the Origins, and that it should do it to fix a certain Number of Persons: But this can become Inascibility, though it be not positive: Therefore nothing hinders Inascibility from being called a Notion, as Unity and Simplicity, which, formally taken, are Negations, are notwithstanding admitted for Notions of the divine Essence.

It is objected 2. That Improductivity in the Holy Ghost can as well be called a Notion, as Inascibility in the Father: Therefore there are more than five Notions.

I answer, by *denying the antecedent*; the Reason of the Disparity is, that Improductivity is not necessary, as is Inascibility; for, Inascibility supposed, with the other four Notions abovementioned, is sufficiently understood the *Trinity* of Persons, their Distinctions, and the Processions of the Son and of the Holy Ghost, without the Intervention of the Improductivity. And because every Negation ought not to be ranked among the Notions, but that only which imports some Perfection, or exhibits some Dignity: And such is Inascibility, but not Improductivity, for Inascibility signifies that the Father is the Principle of the whole Deity, and himself has none. Though we must not infer hence, that the Father is more excellent than the other Persons, since there is a sovereign and most perfect Equality in all the Persons, by Reason of the Simplicity of the divine Essence, which is common to all three, and identifies them to itself.

It may be asked here, *how many of the said five Notions are to be called Relations, Properties and Persons.*

And I'll answer, that of these five Notions, four can be called Relations, as many Property, and three Persons.

I prove the first Part of my Answer, *viz. That of these five Notions four can be called Relations*; because Inascibility is not a Relation, but is rather a Negation of Relation, or the Negation of a passive Production from another Person.

I prove the second Part, *viz.* That *of those five Notions, four only are personal Properties*, viz. *Inascibility, Paternity, Filiation*, and *passive Spiration*; because of those the active Spiration is not a personal Property, it being common to the Father, and to the Son.

I prove the third Part, *viz. that of those five Notions, three only can be called Persons.* Because of those five, Inascibility and active Spiration, do not constitute Persons, as it will appear by the Sequel.

From what has been said in my Answer, it is inferred, that one Thing, *viz.* Paternity, can be called a Notion, a Relation, a Propriety, and even a personal one. A Notion, as being a Means to know the Father as distinct from the other Persons. A Relation, as being a Mean of relating the Father and Son. A Property, as becoming one Person only. And lastly, a personal Property as constituting a Person in the Being of a Person.

We'll ask next, *If, and how many, and which are the notional Acts in God; and whether it be a Power in God, with Respect to notional Acts?*

To which I answer, 1. That *there are notional Acts, which are attributed to the divine Persons*; because there are Origins in God taken both actively and passively, whereby the divine Persons are distinguished between themselves, *v. gr.* to generate, and be generated, to spirate and be spirated; which Origins are notional Acts: Therefore there are notional Acts in God.

I answer, 2. That *there are two notional Acts.* Because there are so many national Acts as there are active and passive Origins; and there being two active, and two passive Origins, there are therefore two rational Acts; consequently two more than divine Processions, which are only taken passively.

I may be asked, *If the notional Acts be of something, and in what Manner?*

To which I answer, that the notional Acts are of something, *v. gr.* the Son of God is not produced of nothing, but he is produced of the Substance of the Father. Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *Psalm* cxix. *From the Womb, before the Morning, I have begotten thee*; for it is not the same as if he had said I have begotten thee of my Substance?

By the Symbols, particularly that of *Nice*, where the Son of God is said *God of God, Light of Light.*

By Reason; because the Son of God is not only of the Substance of the Father, but of his whole Substance; in which he differs from a Son created, who is not of the whole Substance of his Father.

I answer, 3. That *there is a Power in the Divinity, with Respect to the notional Acts.* Because there is a productive Power, where there is a productive Principle; but there is such a Principle in God: For is not the Father the Principle of the Son; and the Father and Son the Principle of the Holy Ghost? Therefore there is a Power in God with Respect to the notional Acts; as it can be inferred from the Doctrine of the Fathers; for St. *Athanasius, Dialog.* 1. *de Sanct. Trinit.* says, that by the Name of Womb, which is attributed to the Father by the Scripture, is understood the Power of generating. St. *Augustin, Lib.* 3. *cont. Max. c.* 12. speaks thus, *If God the Father could not have generated a Son equal to himself, where is the Power of God the Father?* That his Omnipotency extends itself to all Faculties of producing. And St. *Cyril, Dialog.* 1. *de Trinit.* says, that those offend the Nature of God, who deprive it of a Fecundity, and Faculty of generating.

I may be asked, 1. *What signifies the Power of generating?*

To which I answer, that it signifies not only a Relation, or the sole Essence, but the Essence with a Relation, which is like a common Principle, and not as a mere Condition.

I prove the first Part of my Answer, *viz. that the Power of generating does not signify a single Relation*; because the Essence likewise, not by itself, but with the Understanding, is the Principle of Generation, or of generating, since it is the productive Principle of the Diction whereby the Verb proceeds. For we must reason of the divine Essence, as to that, in the same Manner as we do of the Soul, which by means of a created Understanding produce Intellection: Therefore by the Understanding it is the Principle of Intellection, and consequently of the Diction; since Diction, taken at least unadequately, is Intellection, as already observed; therefore the Power of generating is not the sole Relation.

I prove the second Part, *viz.* that *the Power of generating is not the sole Essence, even as joined with the essential Understanding:* Because if the sole Essence thus taken was the Power of generating, that Power should be found in all the Persons, since the Essence is found in all the Persons: But it is false to say that the Power of generating is found in all the Persons, for it excludes it from the Son, and admitting only the Power of generating, where he is generated, but not whereby he generates. Whence it is not surprizing, if St. *John Damascenus, lib. de Duab. Christ. Volunt.* says, that all the Father has is in the Son, except the sole Virtue of generating, whence it follows that there is something relative included in the Power of generating.

I prove the third Part, *viz.* that *the Power of generating is together Essence and Relation, Essence joined with the Understanding:* Because, as already observed, it does not consist in the Essence alone, nor in the Relation alone.

Whence

Whence it follows, that it consists in both together, since it requires and embraces both.

I prove the fourth Part, *viz.* that *the Relation in which the Power of generating consists in Part, is as a Comprinciple, and not as a Condition.* Because of both is formed an entire Principle.

If I be asked, *Whether a Relation*, v. gr. *Paternity, as it is a Relation, compleats the Essence with regard to its being a Principle?*

I'll answer in the *Negative*; because it belongs only to a Relation to relate, and not to produce. Therefore it compleats it as it is an Hypothesis, or an hypostatical Form to which it belongs to be together, and a Manner compleating the divine Substance, and a certain productive Faculty, which joined with the Essence, forms a compleat Power, not only to be the Principle of Production, but likewise of Communication.

It may be asked, 2. *What must be established for Principle, and Term of notional Acts?*

I answer, 1. That the Principle *quod*, v. gr. of the divine Generation, is the Father himself: and the Understanding and Relation, are the Principle *quo*; that the Essence and Understanding are like a Form, in which the produced must be assimilated to the producing, with this Difference, notwithstanding, that the Essence be the remote, and the Understanding be the nearest Principle *quo*; and the Relation like the Form whereby the producing is distinguished from the produced. This Answer appears from what has been said already; for I have said that the principle *quod* of the divine Procession is that which acts, and to which it is attributed as to a Suppositum; and the Principle *quo*, that productive Faculty from which the Action proceeds.

I answer, 2. That the total Term of Generation is the Son, but that the Term which is not total is double, *viz.* one of Communication, *i. e.* the Essence with the absolute Attributes; and the other of Production, *viz.* the Hypothesis of the Son or Filiation.

I answer, 3. That the Principle *quod* of the Spiration is the Father and the Son; but that the Principle *quo* is the Will and the Relation of the active Spiration, in the same Manner, in some Measure, as it is said of the Principle *quod* and *quo* of the divine Generation. For the divine Essence joined with the Will is not a Principle sufficiently compleat, but is compleated by the Relation of the divine Spiration, not as by a single Condition *sine qua non*, but as by a Comprinciple, for the Reasons already alledged in the fourth Part of my Answer to the first Question.

I answer, 4. That the total Term of the active Spiration is nothing else but the Holy Ghost: But the partial Term is double, *viz.* one of Communication, and the other of Production. The former Term is the Essence with the absolute Attributes; and the latter is the Hypothesis of the Holy Ghost, or passive Spiration.

We'll treat next of *the Consubstantiality, Equality, Similitude, Circumincession, and Order of the three Persons in God:* Asking, first, *If there are three consubstantial Persons, equal and semblable?*

To which I answer, that *there are three consubstantial Persons*: Because the three Persons in God have equally one and the same divine Nature, and each of them is God, and the three together are but one God. It is not necessary to dwell longer on the Proof of this Answer, since we have sufficiently proved it, when we have treated of the Existence and Definition of the blessed *Trinity*, where I have shewn that it is nothing else but the three Persons really distinct between them, in one and the same divine Essence. And that against several Hereticks, particularly against the *Arians* and *Macedonians*; for the *Arians* denied the Divinity of the Son of God, as mentioned at large in my Treatise of *Arianism*, under the Letter A; and the *Macedonians*, that of the Holy Ghost, as mentioned in my Treatise of *Heresies*, under the Letter *H*.

I answer, 2. That *the divine Persons are equal among themselves and semblable.* Because that Equality and Similitude is excellently well proved in the Symbol of St. *Athanasius*; and because it suffices for a real Equality and Similitude between the divine Persons, that they be distinguished really, and agree in something that is Quantity and Quality, or in like Quantity and Quality; which is the Case of the divine Persons, who are distinguished really between themselves, and agree in Quantity, not of Bulk, but of Virtue, and in divine Perfections, as in Quality; whence St. *Fulgentius, lib. de Fide, ad Petrum, c.* 1. *Equality is understood in the Father and the Son*, says he, in that *none of them precedes by Eternity, exceeds in Magnitude, or surpasses in Power.*

Which the better to understand, we must observe, 1. That there are two Sorts of Quantity, one of Bulk, which belongs to Bodies only; and the other of Virtue, which is considered according to the Virtue and Perfection of some Nature or Form.

2. That Quality can be considered, likewise, in two Manners, *viz.* one accidental or natural, such as Heat, or supernatural, such as the sanctifying Grace; and the other substantial, such as a divine Attribute.

It may be objected against my Answer, that where a Person has more Perfections than another, there is no Equality and Similitude among the Persons; and that being the Case in God, where the Father and the Son have more Perfections than the Holy Ghost, the Father having a generative Power, and the Father and Son an active spirative one; the Father, Son, and Holy Ghost are neither equal nor alike.

I answer this Objection by a Distinction of the *major*: in the *affirmative*, if the Perfections, which are extensively more, be likewise intensively greater in one Person than in the other: And in the *negative*, if they be not greater intensively, I confess that there are extensively more Perfections in God, in one Person than in another, but I deny their being intensively greater; whence it must be said that there remains always an Equality and Similitude in all those Persons.

If I be asked here, *whether the Equality and Similitude be real Relations?* I'll answer in the *Negative*, because a real Relation of Equality and Similitude supposes Foundations really distinct; but the Foundations of the Relation of Equality and Similitude in God, are not really distinct; for the absolute Perfections in which they are equal, are not distinct really in each Person; for the Father has not a Justice, Omnipotency, *&c.* different from the Justice, Omnipotency, *&c.* of the Son: Therefore it follows that the Relations of Equality and Similitude are only Relations of Reason.

From what we have said, it is inferred, that the Persons are equal among themselves, not only in Magnitude, but in Power likewise; *for he thought it no Robbery* (v. gr. the Son) *to be equal with God*, says St. *Paul, Philip.* 2. And *John* 5. *For what Thing soever the Father doth, these also doth the Son likewise.*

We'll ask next, *If there is some Order and Priority between the divine Persons?*

Which to answer pertinently, we must observe, 1. That by the Name of Order, taken in general, is understood an Habit or Disposition of Things to some Principle, and between themselves according to Priority, and Posteriority either of Origin, or of Nature, or of Causality, or of Duration, or of Time, or of Dignity, or of Dependency, or of Situation, *&c.*

2. That by the Name of Order, and of Origin, taken in general, is understood an Habit of several Things between themselves, one of which is the Principle producing, and the other the produced; and not *vice versa.* These pre-observed,

I answer, 1. That, in God, *there is some Order, and even Order of Nature.*

I prove the first Part, *viz. that there is an Order in God*; because there is an Order where there is a Multitude without Confusion; but there is a Multitude without Confusion in God, since there are three Persons; and that Multitude imports no Imperfection, which is repugnant to God; therefore there is an Order in God.

I prove the second Part, *viz.* that *that Order is of Nature, or of natural Origin*; because it is necessary, not free; and because it is such as Nature requires, for the Father to be the first, the Son the second, and the Holy Ghost the third Person. For this Order was not invented by Men, but the Nature itself requires it; since the second Person proceeds necessarily from the first, and the third necessarily from the first and second.

If I be asked, *why that Order is rather called an Order of Nature than of Essence?* I'll answer that the Nature, and

and not the Essence, imports a Ratio of Principle. Whence St. *Thomas* (not the Apostle) observes, that that Order is called Order of Nature, not that Nature itself properly orders it, but because the Persons are ordered according to the natural Origin.

From what we have said here, that that Order is not an Order of Causality, or Dependency, or Duration, or Term, or Dignity, or Situation, *&c.* since such an Order would argue some Imperfection in God;

I answer, 2. That *in God there is no Priority, or Posteriority, properly taken, but improperly only.*

I prove the first Part, *viz.* that *there is no Priority or Posteriority, properly said, in God.*

1. From the Symbol of St. *Athanasius*, where it is said, that in the Mystery of the blessed Trinity, *there is nothing prior or posterior, nothing greater or lesser, but the three Persons are coeternal and coequal.*

2. By the Fathers, particularly St. *Augustin, lib.* 3. *cont. Maxim. c.* 14. where he says, that *there is no Inequality of Substance, but an Order of Nature; not that one be prior to the other; but that one is from the other.*

3. By Reason, because if there was some Priority properly said in God, it would be either a Priority *in quo*, or a Priority *à quo*; but neither is in God: Not a Priority *in quo*, as it appears by itself, because Priority *in quo*, is that whereby one is prior to the other by Situation, or Time: But such a Priority cannot be found in God, since all the Persons are immense and eternal: Therefore, *&c.* Nor likewise the Priority *a quo*, properly said, which is also accounted a Priority of Nature; since that Priority is that whereby one Thing precedes the other, which depends of it; but that Priority cannot be in God, because one Person does not depend on the other. For if he was dependant of another, it would be conceived dependant, either by reason of Relation or of Essence; which cannot be said; not the former, because the related are together by Nature: Nor likewise the latter, because the three Persons have but one Essence, and the same Thing cannot properly depend on itself.

I prove the second Part, that *in God there is some Priority improperly so called*; for there is a Priority of Origin, which though real in God, cannot be properly called, notwithstanding, a Priority, since it has not the Ratio of a Priority properly so called. Whence St. *Thomas* chose rather to call that Priority in God, an Order of Nature according to Origin, than a Priority.

We'll ask next, *if there be a Circumincession of Persons in God; and what is understood by Circumincession?*

Which to answer pertinently, we must observe, that by the Name of *Circumincession*, is understood an intimate Inexistence of the divine Persons in themselves mutually: Wherefore two Things are required for it, 1. The Identity of Essence, or ὁμόσια, *i. e.* Consubstantiality. 2. A Distinction of Persons.—These pre-observed,

I answer, that there is a Circumincession of Persons in God; which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *John* xiv. *Philip, he that has seen me, has seen the Father: believeth thou not that I am in the Father, and the Father in me.* Whence it is not surprizing, if the Church sings in that Hymn composed by St. *Ambrose*, *The whole Son is in the Father, and the whole Father in the Word.*

By the Fathers, particularly St. *Hilary, lib.* 7. *de Trinit.* and St. *Fulgentius, lib. de fide ad Petrum. c.* 1. in these Words, *The whole Father is in the Son and the Holy Ghost, the whole Son is in the Father and the Holy Ghost, and the whole Holy Ghost in the Father and Son.*

By Reason, because those Persons are within one another mutually, by Circumincession, or, as others express themselves, by Circuminfusion, and Circumexistence, and Inhabitation, who have one and the same Essence, numerically, placed in an indivisible and impartible to which it is identified; but the divine Persons, though really distinct between them, have such an Essence, to which they are perfectly and really identified, therefore they are within one another mutually by Circumincession, *&c.*

I may be asked, *how that happens that Persons thus really distinct between them by reason of the relative Opposition they have to one another, exist mutually within one another?*

To which I answer, that it does not proceed from that those Persons are relatively opposed to one another, and distinguished, but from that they have one and the same indivisible and impartible Essence, with which they are one really and formally.

From what I have said it is inferred, that that *Circumincession* is founded in the Identity of Nature, and not in any other Thing; for, *v. gr.* it is not founded in that mutual Consequence of existing, which is found between Relatives, for by it follows that one Person existing, the other exists likewise, but it does not follow that one exists in the other: Neither is it founded in Origin, because though the Word requires to be in the saying, it does not require, notwithstanding, that the Saying should be in the Word, otherwise than intentionally. Lastly, it is not founded in Immensity, because though Immensity should be supposed precise, the Persons notwithstanding, should continue to be within one another, because of the Identity of the Essence to which all the Persons are identified.

We'll treat next, *of the Predicability of the Things which are considered in God, and of the Manner of speaking of those Things which belong to the Mystery of the blessed Trinity:* Asking first, *whether essential Names can be predicated of the divine Persons; and vicissim, whether the divine Persons can be predicated of essential Names?*

Which to answer pertinently, we must observe, 1. That by essential Names, are understood here those Names which are not relative, but absolute.

2. That of essential Names in God, some are concrete and others abstract.

3. That of concrete essential Names, some signify Essence substantively, as this Name, *God*, signifies it; and some adjectively, as these Terms, *having the Deity*, signify it. Which to understand better, you'll observe, that those Names are said to signify the Essence substantively, which signify some Form existing by itself: And those adjectively, which signify a Form by manner of Accident. These pre-observed,

I answer, 1. That *the concrete and substantive essential Names are predicated, in the singular, of the three Persons, but not in the plural*, v. gr. *the Father, and Son, and Holy Ghost, are one God and one Creator, not three Gods, nor three Creators:* Because such Names have but one single Form, *v. gr.* this Name, *God*, has but one Divinity, and *Creator* one Omnipotency; therefore they only can be said in the singular, of the three Persons, and not in the plural; since the Singularity and Plurality of concrete essential Names, substantively taken, is taken from the Singularity and Plurality of Forms.

I answer, 2. That *the concrete essential Names, taken adjectively, are said in the plural, of the three Persons*, v. gr. *the Father, and Son, and Holy Ghost, are creating.* Because in adjective Names, the Plurality and Singularity are taken from the Singularity and Plurality of the Suppositums, by reason that the Accidents have their Being in the Subject.

But, say you, *are not the Father, the Son, and the Holy Ghost, called in the Symbol of St.* Athanasius, *one eternal and one immense, and not three eternal and three immense?* And can we not then infer hence, that the adjective essential Names of the three divine Persons, are enunced likewise in the singular?

To which I answer by denying the Consequence; because *immense* and *eternal* are substantively taken in the Symbol of St. *Athanasius*, or if they be taken adjectively, the Name *God*, must be subunderstood, so as for the Sense to be, that the Father, and the Son, and the Holy Ghost, are one eternal God, and one immense God.

I answer, 3. That *the Persons can be predicated of essential Names, either in concreto or in abstracto.* Because between the Persons, or Personalities, or Relations, and the Essence, there is a real Identity, and there is no other Distinction but a virtual one; whence it can be rightly said, that the divine Essence, or God, are three Persons, Father, Son, and Holy Ghost.

We'll ask next, *Whether the essential Names, considered either in concreto or abstracto, can suppose for the Person?*

To which I answer, that *the concrete essential Names can some-*

sometimes suppose for the Essence, and sometimes for the Person. Because whenever in some Enunciation the Subject is indifferent towards supposing, either for the Essence or for the Person, it can suppose for either, and be determined by either, since the Subject is determined by the Attribute. But in God the concrete essential Names are of that Kind, since they suppose neither the Essence alone, nor the Person alone: Therefore they sometimes suppose for the Essence, and sometimes for the Person, according as they are determined by something essential, or by something personal, which is like a Predicate. All this is illustrated by Examples, *v. gr.* this Name *God* supposes for the Essence in this Example, *God creates*, because the Predicate becomes the Subject in the Ratio of the Form signified. But it supposes for the Person in this Example, *God generates*, because the Predicate in this Example becomes the Subject in the Ratio of a Person, since to the Person belongs to generate, and to be generated, and not to the Essence.

I answer, 2. That *an abstract essential Name, and particularly this Name* divine Essence, *or* Deity, *does not suppose for the Person:* Because from such a Thing would follow a great Absurdity; for, *v. gr.* it would follow, that the divine Essence would be said to generate, and then there would be Diversity of Essence; for either the Essence would generate itself, or generate another Essence: But neither can be said; not the first, according to St. *Augustin, lib.* 1. *de Trinit. c.* 1. where he says, that there is not one Thing that generates itself, for nothing can have together the Ratio of Principle, and of Term. Nor the second, because according to *Euthimius*, 1 *part. Pancpl. Titul.* 7. it does belong to the Person, not to Nature to generate.

It may be asked, *Whether the essential Names are to be appropriated to the Persons?*

Which I answer in the Affirmative, because the Scripture insinuates it in these Words, 1 *Cor.* i. *We preach Christ*, says the Apostle, *the Virtue and Wisdom of God.* And because the Fathers attribute Omnipotency to the Father, Wisdom to the Son, and Love and Goodness to the Holy Ghost; which are all essential Attributes: Therefore, *&c.*

We'll answer next, some little Questions relating to the Manner of speaking of the Things which pertain to the Mystery of the blessed Trinity.

And ask, 1. *If the Name of Person be common to the three divine Persons, and that univocally?*

I answer in the Affirmative; because it is supposed so in the Councils, who either say that there are three Persons in God, or that other is the Person of the Father, other of the Son, and other of the Holy Ghost.

It is objected, that what is not communicable cannot be common; that a Person is not communicable, since of its Ratio it is incommunicable: Therefore that Name of Person, and the Ratio thereby signified is not common.

I answer by a Distinction of the Major. In the Affirmative, if by common is understood a Community of the Thing; and in the Negative, if it is understood a Community of Reason. The Minor and Consequence are distinguished likewise: For though the Person be uncommunicable, the Manner of existing incommunicably can, notwithstanding, be common to several.

It may be asked, 2. If we can say *a trine God?*

I answer by a Distinction; in the *Affirmative*, if by a trine Deity is understood a Deity subsisting in three Persons, and common to the three Persons. And *negatively*, if by a trine Deity are understood three Gods or three divine Essences. For this Rule is proposed by St. *Augustin, lib.* 5. *de Trinit. c.* 8. that whatever is said in God substantially, and *ad se*, is said in the singular, not in the plural Number: But the Deity is said substantially, and *ad se*; therefore it must be said in the singular, not in the plural; and therefore we must say one Deity, not a trine one.

It may be asked, 4. *If the Deity can be called triple?* Which I answer in the Negative, because that Word, according to the common Manner of speaking, imports a Diversity of Essence.

It is asked, 5. *If the Son of God can be said other from the Father?* Which I answer in the Affirmative, because that Word *other* does not import a Diversity of Essence, but only a Diversity of Suppositum.

It is asked, 6. *If the Son be another Thing than the Father?* Which I answer in the Negative, because those Words *another Thing* import a Diversity of Nature; and the Son has not a Nature different from that of the Father: Therefore, *&c.*

From this I'll pass to *the Mission of the divine Persons*; and ask, first, *What is the Mission, particularly the passive one, of the divine Persons, and what Persons it becomes?*

To which I answer, that *the passive Mission can be defined a Procession of a divine Person from some Habit to a Term, in which he begins to be in some new Manner, or such as he was not in before.* Because a Mission must import two Sorts of Habits, one to the Principle sending, *i. e.* to the productive Principle, or to the Person originating: The other to the extrinsick Term, *i. e.* to the Person, or to the Place, where it begins to be in another Manner than it was there before, by Essence, Presence, and Power, or to operate in some Place where it did not operate, or to operate in another Manner than it operated before: Which double Habit is expressed in our Definition of Mission: Therefore, *&c.*

From that Definition it is inferred, 1. That the Mission of the divine Persons is distinguished from a *simple Coming*; because he that comes can come of himself; but he that is sent must come from another. Therefore *to come* may be proper to the divine Father, but not to be sent. Whence we read *John* xiv. *We'll come to him and we'll stay with him.*

It is inferred, 2. That *Mission* is distinguished likewise from a simple Procession, *v. gr.* a passive Generation; because a simple Procession says only an Habit to the Principle; but a Mission does not only say an Order or Habit to the Principle, but to a Term or some temporal Effect, which is not common to all the Persons, but is specifically attributed to the Person sent; for if it was common, it would not signify as a certain Separation of the Person sent from the Person that sends; which Separation, as it cannot be with regard to the Substance and Place, must be with regard to some temporal Effect which is proper to the Person sent, otherwise the Person that sends would be rather said to come along with her, than to send her. All which is confirmed by this Passage of the Scripture, *John* xvi. *I came forth from the Father, and am come into the World.* I came forth from the Father, shews the Procession; and am come into the World, denotes a temporal Effect, according to St. *Augustin, lib.* 4. *de Trinit. c.* 20.

It is inferred, 3. That the Mission is something notional, because what is proper to one Person is called notional in God: But the Mission is proper to one Person; for it is either taken actively, and thus is proper to the Person that sends; or passively, and thus is proper to the Person produced and sent. Notwithstanding that the temporal Effect to which the Person sent is sufficiently common to all the Persons; for it suffices that it be proper to the Person sent according to that special Manner whereby the Person sent exists in it. As it appears by the Example of Christ's Humanity; which as an Effect created by God, was of all the Persons: But as assumed was of the Word alone.

It is inferred, 4. That the Mission can be said in part eternal, and in part temporal, but it is to be said simply temporal. The first is apparent, because the Procession of the divine Persons is eternal; the second is proved by what we have said; the third, *viz.* that it must be said simply temporal, is inferred from the Scripture, which proposes it as temporal, *Gal.* iv. *But when the Fulness of the Time was come, God sent forth his Son.* John xiv. *The Holy Ghost whom the Father will send in my Name.* These Words, *has sent, he'll send*, signify something temporal.

It is inferred, 5. That that Mission does not happen by Command or Advice, because those two Manners import some Imperfection, from that, Command supposes a Subjection in the Person sent; and Advice Ignorance in the Person that sends: But there is no such Imperfection in the divine Persons, since the Person that proceeds has one and the same Essence with the Person from whom he proceeds: Therefore, *&c.*

I answer,

I anſwer, 2. That *there is a Miſſion in God*; becauſe there is in God a Proceſſion of ſome Perſon from another, with an Habit to the temporal Effect or Term in which he begins to be, or to be in another new Manner than he was before, as it appears from ſeveral Paſſages of the Scripture, *John* viii. Chriſt ſpeaks thus of himſelf, *For I am not alone, but I, and the Father that ſent me.* And *John* 15. *But when the Comforter is come whom I will ſend unto you from the Father.*

I anſwer, 3. That *it does not become every Perſon to be ſent, but only to the Son and to the Holy Ghoſt.* Becauſe it becomes thoſe two Perſons only to proceed from another. Whence St. *Auguſtin* ſays, *lib.* 2. *de Trinit. c.* 5. that we never read the Father was ſent.

We'll aſk next, *How many Miſſions there are in God, particularly paſſive ones, and in what Manner each of them happens?*

To which I anſwer, that *a divine Miſſion is divided in two Manners.* 1. *By reaſon of the Perſon, into active and paſſive. By reaſon of the Effect into viſible and inviſible.*

I prove the firſt Part, or firſt Diviſion, which is *into active and paſſive:* Becauſe the Miſſion is either of the Perſon that ſends, and thus is active; or of the Perſon ſent, and thus is paſſive.

I prove the ſecond Part, or ſecond Diviſion of Miſſion, particularly paſſive into *viſible* and *inviſible:* Becauſe either a Miſſion is that whereby a divine Perſon is ſent to ſanctify the Souls inwardly without any ſenſible Sign, and thus is ſaid *inviſible:* Or is that which is done in one of thoſe two Manners, *viz.* or with ſome ſenſible Sign, or when the temporal Term thereof is ſomething ſenſible. Let the Deſcent of the Holy Ghoſt, in Form of a Dove on Chriſt, and of fiery Tongues on the Apoſtles, be an Example of the former: And the Miſſion whereby Chriſt came into the World in the human Fleſh be an Example of the latter.

But we muſt obſerve, *en paſſant*, that a divine Perſon is never ſent viſibly, without being ſent inviſibly likewiſe, by the Gifts of Grace, according to St. *Thomas*, *p.* 1. *q.* 43. *art.* 7. *ad.* 6. where he ſays, that it is not neceſſary that the inviſible Miſſion ſhould happen at the ſame Time of the viſible one; but that it ſuffices that the viſible Miſſion ſhould ſignify or confer Grace, *de facto*, or that it has been conferred before: In that Manner the Holy Ghoſt ſent to Chriſt in Form of a Dove conferred no Grace, becauſe he had already a Plenitude thereof from the Inſtant of his Conception as due to him by reaſon of the hypoſtatical Union: But he indicated only that he had already that Plenitude of Grace.

I may be aſked, 1. *How that inviſible Miſſion happens?*

To which I anſwer, that it happens in two Manners, 1. Perfectly. 2. Imperfectly. It happens perfectly, when it happens by the juſtifying Grace, whereby, *v. gr.* the Holy Ghoſt dwells within us as in a Temple, according to this, 1 *Cor.* iii. *Know ye not that ye are the Temple of God, and that the Spirit of God dwelleth in you.* And whereby we are made God's Friends, for Love is the Cauſe of the Union between Friends according to the Affection, and according to the Preſence. And thus the Bleſſed are united to God by the Force of Grace, ſo that if through an Impoſſibility God was not every where, he would exiſt by the ſanctifying Grace in the Soul of the Elect. The inviſible Miſſion happens imperfectly, and diſpoſitively only, when it happens by an exiſting Grace, whereby he wants to prepare a Temple for himſelf to dwell, unleſs we exclude him, according to this, *Revel.* iii. *Behold I ſtand at the Door, and knock, if any Man hear my Voice, and open the Door, I will come in to him.*

It is aſked, 2. *How the viſible Miſſion happens?*

I anſwer, that the viſible Miſſion happens by ſomething external and corporal, as when, *v. gr.* the Son was ſent in the human Fleſh; and the Holy Ghoſt in four Manners. 1. In the Form of a Dove, when Chriſt was baptized. The Dove was the Figure of the Fecundity which is in the Baptiſm. 2. In Form of a light Cloud, when Chriſt was tranſfigurated on the Mount, to ſhew his Majeſty and Divinity. 3. In Form of a Breath, when the Apoſtles received the Power of remitting Sins. 4. In Form of fiery Tongues, when the Apoſtles received the Gift of ſpeaking ſeveral Languages for the Converſion of the whole World.

From what we have ſaid it is inferred, that a divine Perſon is primarily ſent to confer Grace; whence when the Scripture ſpeaks of the Miſſion of ſome divine Perſon, it commonly joins that Effect, *v. gr. John* v. *I am come that they may have Life. Rom.* v. *The Love of God is diffuſed in our Hearts by the Holy Ghoſt, which is given us.* And ſecondarily, that the Perſon is ſent to all the other Effects, which a divine Perſon ſent can operate in the Creatures.

It is aſked, 3. *If the Son and the Holy Ghoſt can be ſaid ſent in thoſe two Manners,* viz. *viſible and inviſible?*

Which I anſwer in the Affirmative; becauſe, 1. Chriſt was not only ſent viſibly in the Incarnation; but inviſibly likewiſe, by reaſon of the Gifts of the Underſtanding, according to St. *Auguſtin, lib.* 4. *de Trinit. c.* 26. and St. *Thomas, q.* 28. *art.* 5. *ad.* 2. where he inſinuates this, and ſhews how it happens, informing us at the ſame Time that the Son is not ſent according to the Perfection of the Underſtanding; but according to that Inſtruction whereby he breaks into an Effect of Love, ſince the Son in God is not every Word indifferently, but is a Word ſpiring Love. 2. The Holy Ghoſt is not only ſent inviſibly by Grace, but viſibly likewiſe, in the aforeſaid four Manners; as it appears from the Paſſage of the Scripture already quoted.

It is aſked, 4. *If the inviſible Miſſion happens to all thoſe who are Partakers of Grace?*

Which I anſwer in the Affirmative, becauſe ſuch a Miſſion happens for the Sanctification of the Creature, according to St. *Auguſtin, lib.* 3. *de Trinit. c.* 4. but all thoſe who are Partakers of Grace are ſanctified; therefore an inviſible Miſſion happens to them. For to thoſe that Miſſion happens in whom the Holy Ghoſt dwells in ſome new Manner; but the Holy Ghoſt dwells in ſome new Manner, *viz.* by Grace, in thoſe who are Partakers of Grace; therefore, *&c.*

Note, That having thus far treated of the divine Perſons in general, I'll treat next of them in particular, beginning by the Perſon of the Father who is the firſt Perſon. Therefore, *&c.*

I'll aſk, 1. *If, and in what Manner the Ratio of innaſcible and unbegotten, become the Father, or firſt Perſon; and if it be proper to him alone?*

Which to anſwer pertinently, we muſt obſerve, 1. That *unbegotten* can be conſidered in two Manners: 1. *Negatively.* 2. *Privatively.* Unbegotten negatively, is that which excludes entirely all Aptitude towards being produced: And unbegotten privatively, is that which if not of its proper and ſpecifick Ratio, at leaſt of its common, and as generical Condition, has an Aptitude towards being produced, or, which is the ſame, is apt to be produced, or in fact is not produced.

2. That unbegotten, privately taken, can be conſidered in two Manners; 1. For that which is not produced as an Effect from its Cauſe. 2. For that which is not produced by Generation. Theſe pre-obſerved,

I anſwer, 1. That *the Name of unbegotten, in whatever Manner it may be conſidered, becomes the Father from his proper Condition.* Becauſe he is not from another, and has no Aptitude, at leaſt of his own proper Condition, towards being produced of another.

I have ſaid, *of his own proper Condition*, to give to underſtand, that the Father by the common, and as a generical Ratio of Perſon, has ſome Aptitude towards being produced, ſince the divine Perſons, conſidered in common, have no Repugnance towards being produced, as the Poſſibility of producing is not repugnant to him.

I anſwer, 2. That *the Name of unbegotten taken for that he has no Aptitude towards being produced, or taken for that which is not produced, like an Effect from a Cauſe, or for that which is not produced by Generation, is not proper to the Father alone: But is proper to him, when taken for that which is in no Manner produced.* Becauſe it becomes likewiſe the divine Nature conſidered in itſelf, ſince it can be produced neither from its proper, nor from its common Ratio, though it can be communicated. And that's the Proof of the firſt Part of my Anſwer.

I prove the ſecond Part, *viz.* that *the Name of unbegotten,*

gotten, taken privately for that which is not produced like an Effect from its Cause, is not proper to the Father, because that's also common to the Son and to the Holy Ghost; which though they be produced, do not proceed, notwithstanding, as an Effect from a Cause, otherwise they would be posterior in Nature to the Person that produces, and would be dependent of him, of a proper Dependency; as the Effect is posterior in Nature to its Cause, and depends of it of a proper Dependency: But it is an Absurdity to say that of the divine Persons, since between the Person producing, and the Person produced there is only a Priority of Origin, which imports no Dependency, properly said, of its Principle: Therefore, *&c.*

I prove the third Part, *viz. privately taken for that which is not produced by a Generation properly so called, does not become the Father alone:* Because it belongs likewise to the Holy Ghost. St. *Jerome*, in the Rules of Definitions among the Hereticks, and St. *Gregory Nazianzene, Serm. de Epiphan.* calls the Holy Ghost unbegotten.

I have said *by Generation, properly so called*, to give to understand that the Name of unbegotten, most commonly taken by the Church for that which is in no Manner from another, does not at all become the Holy Ghost. Whence, according to St. *Augustin, lib.* 15. *de Trinit. c.* 16. it is not allowed to say, without some Distinction, that the Holy Ghost is unbegotten.

I prove the fourth Part, *viz.* that *the Name of Unbegotten taken privatively, for that which is in no manner produced, becomes the Father alone.* Because the Fathers call him in that Sense unbegotten; and will not have the Holy Ghost called begotten or unbegotten; especially St. *Athanasius* in his Symbol, St. *Hilary, lib.* 4. *de Trinit.* and the second Council of *Toledo*, in the Confession of Faith. And because the Father, as such, is in no manner produced; neither by another Person, for then there would be four Persons, and even more, to be multiplied *in infinitum*; nor likewise by the Nature, since the Nature is not the Principle *quod* of the divine Production, as it appears from the Council of *Lateran*, under *Innocentius* III. *c. damnamus de summa Trinitate.* For there the divine Productions are attributed to the Persons alone, and not to the Nature.

I may be asked, *if the Ratio of Unbegotten and Inascibility puts something formally in God?*

Which I answer in the *Negative*; because it is not a constitutive Property, but only a notificative one; and put nothing formally in God, since it is only a Negation of Privation; which does not hinder it, notwithstanding, from having some Foundation in God, as some other Negations have: Which Foundation is the divine Paternity, for the divine Paternity requires not to be produced, because it constitutes the Father as the Principle of the first Production, and thus renders him inept towards being produced, and in that differs from a created Paternity, which does not require that the Father should not be produced.

It is asked, 2. *Why these two Names of Unbegotten and Inascible, taken in the aforesaid Signification, are attributed to the Father by the Church?*

I answer that it was occasioned by the Heresy of *Sabellius*; for *Sabellius* affirming that the Father was born of the Virgin *Mary*, the Orthodox, to condemn that Error, declared that the Father was Unbegotten and Inascible.

We'll ask next, *Whether the Name of Father becomes the first Person, and is proper to him alone?*

Which to answer pertinently, we must observe that the Name of Father, in God, can be consider'd in two Manners, 1. In order to the Creatures, from that he is the Creator, Conservator, Governor, Sanctificator, and Glorificator, of those which are intellectual. 2. In order to the inward Generation; from that, in God, one Person is generating, and the other begotten. These pre-observed,

I answer, that *the Name of Father, considered in Order, or with Respect to the Creatures, is not proper to the first Person alone, but only as considered with Respect to an inward Generation.*

I prove the first Part, *viz.* That *the Name of Father, considered with Respect to the Creatures, is not proper to the first Person alone*; because it is common to the other Persons. For does not the whole *Trinity* create, preserve, govern, sanctify, glorify, *&c.* and are not all those Actions, which are *ad extra*, common to the whole *Trinity?* Does not God operate *ad extra*, as *one*, and not as *Trinity?* whence Christ speaks thus, *Matt.* xxiii. *For one is your Father, which is in Heaven*, and teaches us to pray thus, *Mat.* xvi. *Our Father which art in Heaven*, &c. *Lastly*, Does he not adopt us for his Children, and make us Heirs of the eternal Life?

I prove the second Part, *viz. That the Name of Father, with Respect to the inward Generation, is proper to the first Person alone?* Because that Name is proper and notional to that Person, to whom properly belongs an active Generation, properly so called, which tends of itself towards producing a living Term of the same Nature with itself; but such a Generation becomes the first Person alone, and does not become the other Persons, with Respect to the Creatures, but metaphorically, and by some Similitude: Therefore the Name of Father, taken with Regard to the inward Generation, is proper, and personal to the first Person alone, according to this Passage of the Scripture, *Matt.* the last Chapter, *Baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost.*

I may be asked, 1. *Whether the Name of Father is said first, and principally of the first Person, with Respect to the Son, than of God with Respect to the Creatures.*

Which I answer in the *Affirmative*, because that Name being analogous, must be first and principally attributed to that Person, in whom is found the whole Signification of Generation, properly so called, and not only of a metaphorical one; but in the first Person is found the whole and proper Signification of Generation, properly so called, and not a metaphorical one only: Therefore the Name of Father must be sooner attributed to the first Person than to God: That the whole Signification of Generation, properly said, becomes most perfectly the Father; and becomes God but improperly and metaphorically, with Respect to the Creatures, is easily proved; because the first Person by the active Generation produces a Term perfectly like him in Nature; but God does not produce the Creatures of the same Nature with himself.

It is objected, the common Names in God, in our Manner of conceiving, are prior to the proper Names: But the Name of Father taken essentially, is common to the whole *Trinity*, and taken personally, is proper to the first Person; therefore the Name of Father must be said before of God, than of the first Person.

To which I answer, by a Distinction of the *major*, in the *Affirmative*, if the common Names be absolute, such as the Understanding, Will, Wisdom, Power, and Eternity, because those Names are included in the Persons, and not the Persons included in those Names: And in the *Negative*, if the common Names be respective towards the Creatures, such as these Names, Lord and Creator; because these Names become God freely, and those which thus become God freely, are posterior to those which become God naturally.

We'll ask next, *If Name and Ratio of Principle become the first Person of the Trinity; and that Name and Ratio be proper to him?*

Which to answer pertinently, we must observe, 1. That by the Name of Principle, taken in general, is understood by *Aristotle*, 4. *Metaphys. A first Thing whence something is, or happens, or is known*; therefore we commonly distinguish three Sorts of Principles, *viz.* of Composition, of Production, and of Knowledge.

2. That the divine Production can be considered in two Manners, viz. *ad intra*, and with respect to the immanent Actions, and *ad extra*, or with respect to the Creatures, as already observed.

3. That it is asked here, if the Principle both *ad intra* and *ad extra*, becomes the Father, and becomes him alone properly.—These pre-observed,

I answer, that *it becomes the Father to be a Principle*, ad extra, *but that is not proper to him; it becomes him likewise to be Principle*, ad intra, *neither is that proper to him; and it becomes him to be the Principle of the Son, and that is proper to him alone.*

I prove the first Part, *viz.* that *it becomes the Father to*

to be o Principle, ad extra, *but that it is not proper to him*; because all Sorts of Creatures must be produced by the whole Trinity, as already observed.

I prove the second Part, *viz.* that *it becomes the Father to be the Holy Ghost, but that it is not proper to him*; because it becomes the Son likewise, to be with the Father one and the same Principle of the Holy Ghost; as we shall see hereafter.

I prove the third Part, *viz.* that *it becomes properly the Father alone to be the Principle of the Son*; because to him alone belongs properly the active Generation, as already observed.

From what we have said it is inferred, 1. That tho' it be common to the Father and to the Son to be the Principle of some eternal Production *ad intra*, it is notwithstanding, proper to him to be a Principle without a Principle, and is called by the holy Fathers the Principle of the whole Deity, particularly by St. *Athanasius* against *Sabellius*; not that the Deity proceeds from him, for it would be an Heresy to believe it; but because he is the Principle of the other Persons to whom he communicates the whole Deity. Whence St. *Denis*, *lib.* 1. *de divin. hierarch.* says, *that the Father is the Fountain, and Principle of the Divinity*; and St. *Augustin*, *lib.* 4. *de Trinit. c.* 20. says, *that the Father is the Principle of the whole Divinity.*

It is inferred 2. That the Name of Principle is analogous, because the Relation of Principle to the Son and to the Holy Ghost is real; but the Relation of Principle to the Creatures is of Reason; and there is nothing univocal to a real Being, and to a Being of Reason: Therefore, *&c.*

It is inferred, 3. That the Person producing is the Principle *quod* of a divine Production; the Power the nearest Principle *quo*, and the Essence the remote Principle *quo*.

It is inferred, 4. That the Father, to whom belongs entirely the Name and Ratio of Principle, cannot be said properly the Author and efficient Cause of the Son and of the Holy Ghost; the Reason is, because either Name, according to its common Acceptation, imports a Diversity of Substance, and a Dependency of one from the other, and consequently a Priority and Posteriority of Nature, which we have already said, cannot be in the Divinity. Notwithstanding that the *Greeks* call the Father the Cause of the Son; and St. *Augustin*, *lib.* 7. *de Trinit. c.* 1. calls him the Cause of his own Wisdom; because the *Greeks* take the Name of Cause for that which is signified by the Name of Principle; and because St. *Augustin* does not speak here of a Cause properly said, but of that which is conceived as a Cause, according to our Manner of conceiving. We conceive the Essence of God as an efficient Cause, from which, as from a remote Principle, and from the Understanding as from the nearest Principle, the divine Wisdom, *i. e.* the Son of God emanates. Notwithstanding also, that the Father is called by the antient Fathers the Author of the Son; because they take the Name of Author in that Sense that he is that Person, from whom another Person is; as St. *Augustin* informs us, *lib.* 3. *cont. Maxim. c.* 14. *If*, says he, *he says that God the Father is the Author of the Son, because that he has begot, and this is begotten; because this is of that, and not that of this, I agree with them: But if by the Name of Author you will make the Son less, and the Father greater, and not of the same Substance with the Son whose Father he is, I'll detest and reject him.*

From the first Person I'll pass to the second, asking first, *Which are the Names of the second Person of the blessed Trinity; whether these three Names*, viz. *of Son, Word, and Image properly become him?*

To which I answer, that *the second Person is truly called, and truly is the Son of God the Father?* Which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, *Matt.* the last Chapter, *Go ye teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost. John* iii. *God has thus loved the World, as to give him his only begotten Son.*

By the Councils, particularly that of *Nice*, where this is expressly mentioned.

By the Fathers, particularly St. *Augustin*, *lib.* 6. *de Trinit. c.* 1. and *lib. de Hæres. c.* 11. where he reckons the Alogians among the Hereticks, because they denied that the Word in the Divinity was properly the Son of God.

By Reason; because he that proceeds from the Father by way of Generation, is to be called the Son of God the Father: But the second Person proceeds that Way from the Father, as already proved: Therefore the second Person of the Trinity must be called, and is truly the Son of God.

I answer, 2. That *the second Person of the Trinity must be called, and is truly the Word of the Father.* Which I prove by the Scripture, the Fathers, and by Reason.

By the Scripture, *John* i. *In the Beginning was the Word, and the Word was with God, and the Word was God.* And a little lower, *and the Word was made Flesh.*

By the Fathers, particularly St. *Augustin*, in the Places above quoted.

By Reason; because that must be called the *Word*, which is the Term of the divine Understanding, not only simply intelligent, but saying likewise, *i. e.* intelligent notionally; but the second Person of the Trinity is the Term of the Understanding of God the Father, not simply intelligent only, but saying; for the divine Father by Understanding himself, produces within himself the Word, which is his express Image; not an accidental one as it is in us, but an Image consubstantial to him: Therefore the second Person of the Trinity must be called, and is the internal Word of the divine Father. Which to understand better, you must observe that there is a great Difference between understanding simply, and saying; since understanding simply imports only an Habit of the Person that understands towards the Thing understood, and thus imports no Ratio of Origin. But to say truly, imports an Habit, not only to the Thing understood, but to the Word conceived, or the Term of the divine Intellection, and thus imports a Ratio of Origin: Whence it follows, that to understand simply becomes all the Persons; and to say, becomes the first Person alone. It follows likewise, that all the Persons can be understood simple; and the second Person alone can be said properly.

I answer, 3. That *the second Person must be said, and is properly an Image.* Which I prove by the Scriptures, the Fathers, and by Reason.

By the Scripture, particularly from the first Chapter of the Epistle to the *Hebrews*, where he is called, *the Splendor of Glory, and the Figure of his Substance.* Coloss. ii. *Who is the Image of the invisible God.*

By the Fathers, particularly St. *Augustin*, *lib.* 6. *de Trinit. c.* and St. *Thomas*, *p.* 1. *q.* 35. *art.* 2. where they say that Image in the Divinity is said personally of the Son, and becomes him alone, because said of him relatively.

By Reason; because the Son is a co-essential Similitude of the Father, produced like him by the Understanding, and consequently formally by the Force of his Procession; since it is of the Ratio of the Understanding to assimilate to itself the Thing understood. And in that the Son differs from the Holy Ghost, because tho' the Holy Ghost proceeds semblable and consubstantial to the Father and Son; he does not, notwithstanding, proceed thus from both formally by the Force of his Procession, since it is not of the Ratio of the Will to assimilate to itself the Thing willed and loved, but only to be carried towards it, according to this of St. *Augustin*, *My Penchant is my Love, I am carried thither, wherever I am carried.* Notwithstanding that St. *Basil* and St. *John Damascenus*, call the Holy Ghost Image; because they do not speak of an Image properly said.

It may be asked here, if the Son by reason of his Essence, has that of being the Image of the Father, or whether he has it by a Relation of Reason?

To which I answer, that the Son has it by reason of both jointly, though in a different Manner. And the Reason is, because those two Things are required for an Image. 1. That it be produced from another and distinct from it. 2. That it be something semblable to the Thing in whose Similitude it is produced. The first becomes the Son, by reason of Relation; and the other becomes him by reason of the Essence; according to the Sentiment of St. *Augustin*, and of St. *Thomas*.

From

From what we have ſaid it is eaſily inferred, that the Name of Image is a perſonal Name.

If it be objected, that that Name is a common Name to the three divine Perſons, according to this Text of the Scripture, *Geneſ.* 1. *Let us make Man in our Image.*

I'll anſwer, that in this Place the Name of *Image* is improperly taken, *viz.* for an Exemplar, which differs from an Image in this particularly, that Image be ſome Similitude produced of the Imitation of another; and exemplar that in whoſe Imitation ſomething is produced: Whence the divine Word is called Image with reſpect to the divine Father; from that it is produced at his Imitation; and it is called exemplar with reſpect to the Creatures, becauſe the Creatures are produced at his Imitation; according to St. *Auguſtin, lib. de fide ad Petrum*, in theſe Words, *There is one Divinity and Image of the bleſſed Trinity, according to which Man was formed.*

We'll propoſe next, and ſolve ſome Difficulties relating to the Name of the Word above-mentioned; and aſk, 1. *If the Name of Word be ſo perſonal, as to be proper to the Son as Son?*

I anſwer this Queſtion in the Affirmative; becauſe the Fathers infer it from the Scripture, particularly St. *Auguſtin, lib.* 6. & 7. *de Trin. c.* 2. and becauſe, as already obſerved, it is not of the Word to underſtand himſelf, but to be ſomething produced by Underſtanding, as the expreſs Image of the Thing underſtood, *viz.* the Subſtance of the Father; but ſuch Ratio of the Word becomes the Son; therefore the Name of Son in God is ſo perſonal, as to be proper to the Son.

Notwithſtanding, 1. That Love is ſaid eſſentially, or of the Love whereby God loves himſelf, and the Creatures; and perſonally of the Holy Ghoſt, becauſe there is a different Ratio of the Love and Word: For Love ſignifies two Things, *viz.* the Act of loving, and the Term thereof, for want of Words, wherefore both are called by the Name of Love; but the Name of Word ſignifies only the Term of Intellection, but not the Act of Underſtanding; whence it is that Word in God, is ſaid perſonally only; and love eſſentially and perſonally.

Notwithſtanding, 2. That ſome Fathers, particularly St. *Anſelm*, in *Monol. c.* 6. ſays that the Father, Son, and Holy Ghoſt underſtand and ſay, becauſe he takes that Term for a ſimple Intellection, and not for a Diction ſtrictly taken.

It is aſked, 2. From the Knowledge of which Things the Word proceeds?

To which I anſwer, that he proceeds from the Knowledge of the divine Eſſence of the three Perſons, and of the Creatures poſſible; and that formally. But that he does not thus proceed from the Knowledge of the Creatures exiſting in ſome Difference of Time.

I prove the firſt Part, *viz.* that *the divine Word proceeds from the Knowledge of the divine Eſſence, and of all the eſſential Perfections*; becauſe if the divine Word proceeds from the Knowledge of ſome Object, as he muſt proceed in the Ratio of Words: It follows that he proceeds particularly from the Knowledge of the Eſſence, which, with its abſolute and common Perfections, is the primary Object of the divine Intellection.

I prove the ſecond Part, *viz.* that *the divine Word proceeds from the Knowledge of the three Perſons*; becauſe he proceeds from the comprehenſive Knowledge of the Eſſence, and his being a Word infinitely perfect he requires to proceed from ſuch Knowledge; therefore he muſt proceed from the Knowledge of the three Perſons, which are identified with the divine Eſſence; otherwiſe that Knowledge from which he ſhould proceed would not be comprehenſive, and ſince to the Comprehenſion of the Eſſence is required not only the Knowledge of the Eſſence, but likewiſe the Knowledge of the Things contained formally in the Eſſence, and connected with it. Add that the divine Eſſence cannot be known comprehenſively, without its being known requiring to exiſt actually in the three Perſons; ſince it is the proper Ratio of the divine Subſtance, to require three Subſiſtences in which it exiſts actually: But that cannot be perfectly known without knowing the three Perſons: Therefore, *&c.*

It may be objected againſt this ſecond Part of my Anſwer, that the Word proceeds from the Knowledge of that Object whereof he is the Image; but he is not the Image of all the Perſons, ſince he is not his own Image, nor that of the Holy Ghoſt: Therefore he does not proceed from the Knowledge of the three Perſons.

I anſwer, 1. By a Diſtinction of the Major; in the Affirmative, if it be underſtood either a Repreſentative or natural Image; and in the Negative, if it be underſtood a natural Image only.

I anſwer, 2. By diſtinguiſhing likewiſe the Minor, and ſay that it is true that the Word is not the natural Image of the three Perſons; but he is the repreſentative one: Therefore I deny the Conſequence, becauſe for the Son to proceed from the Knowledge of the three Perſons, it ſuffices that he be the repreſentative Image of them. Which to underſtand better, you muſt obſerve, that it ſuffices for a repreſentative Image to proceed objectively, as a Word, in us, is ſaid the Image of the Thing known. But for a natural Image it is required that it ſhould proceed actively and productively, according to St. *Anſelm* in *Monol. c.* 6. where he teaches that the Word is the natural Image of the Father, but not his own natural Image or that of the Holy Ghoſt, from that the Son is not born, and does not proceed actively from himſelf and from the Holy Ghoſt, but from the Father. Which is illuſtrated by the Example of a Child which his Parents think ſemblable, or like a Stranger; that Child is only called the repreſentative Image of that Stranger, and the natural Image of his Parents.

If I be aſked, *Whether the Knowledge of the Perſon from which the Word proceeds be intuitive, and of Viſion?* I'll anſwer in the Affirmative; becauſe the Word proceeds from an intuitive Knowledge of the Eſſence: Therefore from the intuitive Knowledge of the three Perſons, becauſe he that knows intuitively the Eſſence, knows it as it is in itſelf: And that Eſſence is in fact in the three Perſons, and God himſelf is the three Perſons: Therefore, *&c.*

To confirm this Anſwer, I ſay, that the Word proceeds from the intuitive Knowledge of the Father; therefore from the intuitive Knowledge of the Son, and of the Holy Ghoſt; becauſe one Relative is known in the ſame Manner as the other Relative is known, as it appears from Things created; for, *v. gr.* if you know confuſedly the Father, you know confuſedly the Son: If you know diſtinctly the Father, you know diſtinctly the Son.

I prove the third Part, *viz.* that *the Word proceeds from the Knowledge of the Creatures poſſible*; becauſe he proceeds from the comprehenſive Knowledge of the Eſſence, and of all the Attributes, and conſequently of the Omnipotency, and in courſe of all Things poſſible; for the Omnipotency cannot be conceived, without conceiving likewiſe the Things poſſible. Whence it is not ſurprizing if the Word be expreſſive of all the Creatures poſſible, according to St. *Auguſtin, lib.* 11. *Confeſſ. c.* 7. *The Word*, ſays he, *is ſaid without End.*

It is objected againſt this third Part of my Anſwer, that the divine Eſſence is known by the divine Father before the poſſible Creatures; but in that firſt Knowledge the Word proceeds: Therefore it follows that the Word does not proceed from the Knowledge of the poſſible Creatures.

To which I anſwer by denying the Major; becauſe though the Eſſence be the primary Object, and the poſſible Creatures the ſecondary one; it does not follow hence, notwithſtanding, that the Eſſence is ſeen before the poſſible Things, ſince the divine Eſſence be like a Looking-Glaſs, in which the Things poſſible are ſeen; but a Mirror is not ſeen before the Image, though the Mirror be as the Cauſe of the Image: Therefore ſome anſwer to the minor that the Word proceeds unadequately in that prior State. But others more rightly deny the Minor, from that the divine Word proceeds infinitely perfect, and conſequently from the Knowledge of all the Things poſſible, which relate to the comprehenſive Knowledge of the divine Eſſence and Omnipotency.

It is objected, 2. That if the divine Word proceeds from the Knowledge of the Things poſſible, it follows that the Things poſſible are prior to the Word; which cannot be ſaid, ſince the Word is from all Eternity. According to *John* i. *In the Beginning was the Word*, &c. Therefore, *&c.*

I an-

I answer by a Distinction of *the Sequel of the Major:* In the Affirmative, if meant according to our imperfect Knowledge, whereby we commonly conceive the divine Things, as we do the created Things to which we are used, and in which the Object is prior to the Knowledge, whereof it is the Knowledge: And in the Negative, if meant according to itself: The Reason is because the known Things are not before they are known by the Understanding of the Father.

I prove the fourth Part of my Answer, *viz.* that *the divine Word does not proceed formally from the Knowledge of the Creatures existing in some Difference of Time.* Because he does not proceed from the Knowledge which pre-supposes the Word already produced; but the Knowledge of the Creatures existing in some Difference of Time pre-supposes the Word already produced, since it pre-supposes a free Decree of producing the Creatures, which is from the whole Trinity, since the Creation is from the whole Trinity: Therefore, *&c.*

It is objected against this fourth Part of my Answer, that the Knowledge from which the Word proceeds is comprehensive: But that it cannot be such, unless it reaches the Creatures existing in some Difference of Time, since they are the Effects towards which the Essence and Omnipotency are ordained; therefore the Word proceeds from the Knowledge of the Creatures existing in some Difference of Time.

To which I answer by a *Distinction of the Major*; in the Affirmative, if it be understood that it is comprehensive of a necessary Comprehension; and in the Negative, if it be understood that it is both necessary and contingent: I distinguish likewise the Minor; it cannot be comprehensive, unless, *&c.* of a Comprehension both necessary and contingent, that's true; of a Comprehension simply necessary, I deny it. Which to understand better, you must observe, 1. That that Comprehension is said necessary, whereby are known the Things necessary, and which have a necessary Connection with them; and that it is said both contingent and necessary, whereby are known comprehensively the Things which are necessary, and have only a contingent Connection, with the divine Essence and Omnipotency, and depending on the Will.

From these you'll observe, 2. And infer that the Word as it is really, is the Term of a necessary Comprehension: And that he is not the Term of a contingent Comprehension, but only according to some Respect of Reason posterior to the Production of the Word.

You'll observe, 3. That the Things contingent are only contingently connected with the divine Essence and Omnipotency: Because though those contingent Things require necessarily the divine Essence and Omnipotency; they are not, notwithstanding, necessarily required by the divine Essence and Omnipotency.

We'll consider next, *some Things which are Articles of Faith, with regard to the second Person of the Trinity.*

From what we have said it is inferred, 1. That the second Person of the Trinity is the true and natural Son of the Father begotten by him, according to this *Psalm* ii. *Thou art my Son, this Day have I begotten thee.* And *Matt.* iii. *This is my beloved Son.* Which Words St. *Leo* explains thus, in his Homily on the Transfiguration. *This is my beloved Son* (says he) *not an Adoptive, but a proper one; not created, but begotten.* For if he was not a natural Son, but only an adoptive one, he could not be called begotten. That he is the only Son appears from *John* iii. *God has thus loved the World, as to give it his only Son.*

It is inferred, 2. That the second Person of the Trinity is consubstantial to the Father, *i. e.* of the same Substance and Nature, according to this Passage of *John* i. *I and the Father are one.* St. *Augustin* says, *Tract.* 56. *in Joan.* that by that Passage we are delivered from the Errors of *Arius* and *Sabellius*, and from *Scylla* and *Charybdis*; because what says *one*, signifies an Unity of Essence and Nature, and consequently the Consubstantiality, which *Arius* denied. And what says *we are*, denotes a Distinction of Persons, which *Sabellius* denied. Likewise St. *Athanasius*, *Serm.* 4. *cont. Arian.* and St. *Hilary*, *lib.* 7. *de Trinit.* Whence it is not surprizing if that Truth was defined in the first Council of *Nice* against the *Arians*, by using the Word (*consubstantial*) in the Symbol which was received afterwards with an unanimous Consent in all the other Councils.

It is inferred, 3. That the only Son of God is coeternal to the Father, as it appears from the Scripture, *Mic.* v. *Whose Goings forth have been from all Eternity.* And *John* i. *In the Beginning was the Word*, &c. The former Passage St. *Jerom* interprets, of the Generation of the Son; and the latter St. *Augustin* with the other Fathers make use of, to prove the Eternity of the Word.

It is inferred, 4. That the Son is equal in all Things to the Father, according to this Testimony of the Scripture, *Philip* ii. *Who being in the Form of God, thought it no Robbery to be equal with God*, i. e. as St. *Chrysostom* and St. *Ambrose* explains, as he was of the same Nature and Substance with God the Father, he arrogated to himself nothing undue to him, when he believed himself equal to God in all Things; whence St. *Augustin* in *Psalm* cxxvi. *Why*, says he, *is it not a Robbery? Because it is Nature:* And *lib.* 3. *cont. Maxim.* the *Arian* answering to the Objection of the *Arians*, who said that the Son was lesser than the Father, because he had received all he had from him, *He that received*, says he, *cannot be unequal to him who gave, because he has received it to be equal; but he that says that all that the Father has are his, cannot have less.*

It is inferred, 5. That the Son is a true God, and one with the Father, as it may be inferred from the Passages of the Scripture already quoted; and from the Answer of the Apostle St. *Thomas, My Lord, and my God.* And from these Words, *Rom.* ix. *Of which is Christ according to the Flesh, who is above all Things God blessed for ever.* And 1 *John* v. *And we be in his true Son, who is true God.*

We'll treat next of the *Person* of the *Holy Ghost*, and ask, first, *If of several Names, these three particular ones, of Holy Ghost, Love, and Gift, become the third Person of the Trinity, and become him alone?*

To which I answer 1. *That the Name of Holy Ghost, taken and composed of two Words is common to the three Persons, and taken for a single Name composed of two, by the Appropriation of the Church, and of the holy Fathers, it is personal, and becomes the third Person alone.*

I prove the first Part of my Answer, *viz. That the Name of holy Spirit, taken as composed of two Words is common to the three Persons*; because the Scripture attributes the Name of Spirit to God, and consequently to all the three Persons. It is attributed to the Father, *John* iv. *God is Spirit, and the Father searches those who adore him in Spirit and Truth.* To the Son, *Thren.* 4. *The Spirit of our Face, Christ.* To the Holy Ghost likewise, *John* iv. *The holy Spirit whom the Father will send in my Name.* And because the Name of holy is attributed likewise to all the Persons in that Trisagion of *Isaiah* vi. *Holy, Holy, Holy, the Lord*, &c. And because that has the Ratio of Spirit, which is free from Matter, and has the Name and Ratio of Holiness which is pure and free from all Spot; but the three Persons are thus: Therefore the said Name taken complexively is common to the three Persons.

I prove the second Part, *viz.* that *the Name of the Holy Ghost taken for a single Word becomes the third Person alone*; and that by the Scripture, the Fathers, and by Reason.

By the Scripture, which commonly uses that Expression, for by it, it designs the third Person distinct from the Father and Son, *Matt.* the last Chapter, in these Words, *Go ye, teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost.* And 1 *John* v. *There are three that bear Witness in Heaven, the Father, the Son, and the Holy Ghost, and those three are one.*

By the Fathers, particularly St. *Ambrose*, *lib. in Symbol. Apost. c.* 1. *Though*, says he, *the Father be Spirit, the Son be Spirit; and the Father be holy, and the Son be holy; the third Person, notwithstanding, is properly called the Holy Ghost.* And St. *Augustin*, *lib.* 15. *de Trinit. c.* 19. where he says very near the same Thing. Likewise, *lib.* 11. *Confess. c.* 10. where we read these Words, *The Spirit of the Father, and of the Son, is called in the sacred Writs the holy Spirit, by a certain proper Notion of that Name.*

By Reason, because on account of the Scarcity of Words,

Words, the third Person in the Scriptures and Councils, is designed by that Name as distinct from the others; and because, according to the Reason of Congruency alledged by St. *Thomas*, he is thus called, because he proceeds from the Father and the Son, by Way of the Will, and the Terms of Spirit and Holiness belong properly to the Will. For a Man is called Holy from the Operation of his Will, and not from that of his Understanding; and to breathe sometimes signifies to love with Passion, or to desire with Violence; as when we commonly say to breathe Revenge and Death, or when we say, on the contrary, that holy Men breathe Charity, Piety, *&c.*

I answer 2. *That the Name of Love is sometimes taken essentially, and thus is common to all the Persons; and sometimes notionally and actively, and thus becomes the Father, and the Son alone; and sometimes personally and passively, and thus is proper to the third Person alone.*

I prove the first Part, *viz. That the Name of Love is sometimes taken essentially, and thus is common to all the Persons*; because the Name of Love is sometimes taken for the Act of the Will, whereby the Will loves formally, and wills good; but that Act is common to all the Persons that are in God, as one and the same essential Will is common to all; since there is none of them who does not love the Saints, and will them good; Therefore, *&c.*

I prove the second Part, *viz.* That Love sometimes is taken notionally and actively, and thus is only common to the Father and to the Son; because Love is taken, in God, for an active Spiration, which becomes the Father and Son alone.

I prove the third Part, *viz. That the Name of Love is sometimes taken personally and passively, and thus becomes the third Person alone:* Because the Name of Love is taken for the Term itself of the Love wherewith the Father and Son love mutually one another: And thus taken, the Name of Love is taken personally, and becomes the third Person alone: Therefore, *&c.*

It is objected against this third Part, that by the Term of Love is to be understood the Act of loving; but the Act of loving is not something proper to the third Person, but is something common to the three Persons; therefore the Name of Love is not a personal Name, becoming the third divine Person alone.

I answer to the *major*, that the Name of Love does not become the Act of loving only, but the Term of Love; and that by Reason of the Scarcity of Terms.

From what we have said, it is inferred that the Name of Love, taken essentially, becomes the whole *Trinity*, but is, notwithstanding, oftener attributed to the Holy Ghost; because he proceeds by manner of Love, because the Charity shines in Men's Sanctification, which is attributed to the Holy Ghost. It is inferred likewise that the Name of Love, taken for the Term of that Love, whereby the Father and Son, in God, love themselves mutually, is the proper Name of the third Person, and is attributed to him only. Hence St. *Augustin* expresses himself excellently well on that Subject, *lib.* 15. *de Trinit. c.* 14. *What can be more convenient*, says he, *that he who is properly called Charity, who is a Spirit common to both.*

It may be asked here, *In what Sense must be understood what is said that the Father and Son love one another by the Holy Ghost?*

To which I answer, that that can be said truly and properly, if the Term be taken notionally, but not if taken essentially; because the Father and Son love one another relatively and notionally by the Holy Ghost, as by the Term of their mutual Dilection; for what is to love notionally, but by loving to produce the Terms of one's Love, or Love itself: As to understand notionally, is, by understanding, to produce the Term of Intellection? Therefore as the Father and Son cannot love mutually one another notionally, unless by producing Love which is the Holy Ghost; thus they cannot love themselves mutually but by the Holy Ghost, as by the Term produced. Hence *Synesius*, *Hym.* 4. calls the Holy Ghost, *The Center of the Begetter, and of the Begotten.* And St. *Bernard*, *Serm.* 8. in *Cant.* on these Words, *let him kiss me with a Kiss of his Mouth*, speaks thus, *if we take rightly the Father kissing, and the Son kissed, it will not be void from the Thing, to understand the Holy Ghost to be the Kiss; his being the unperturbable Peace of the Father, and of the Son, their individual Love, and undivisible Unity.*

It may be asked here, *From the Love of whose Things the Holy Ghost proceeds?*

To which I answer, that he proceeds from the Love of the Essence, embracing all the essential Perfections of the three Persons, and of the Creatures possible; but not from the Love of the Creatures existing in a Difference of Time, at least formally. Because he proceeds from a Love necessarily very perfect, and not from a free and contingent Love, such as is the Love of the Creatures existing in some Difference of Time, which Love is likewise posterior to the Production of the Word; since the Creatures are not discerned, nor consequently loved of a free Love, unless it be by Persons existing, because the Decree is common to all the Persons.

I answer, 3. *That, in God, the Name of Gift is sometimes taken essentially, and thus is common to the three Persons; and sometimes notionally; and thus becomes the Son and Holy Ghost alone; and sometimes personally; and thus becomes the Holy Ghost alone, and is proper to him.*

I prove the first Part, *viz. That the Name of Gift is taken sometimes essentially, and thus is common to all the Persons*; because by the Name of Gift, essentially taken, is understood a proper Good conferred on another, or to be conferred, or apt to be given: But such a Good, in God, is common to all the Persons, since all the Persons have Goods proper to themselves, apt from all Eternity, to be given, and given gratuitely in Time.

If it be objected, that the Ratio of Gift becomes in no Manner the Father; because there must be a Distinction between him that gives, and the Thing given: I'll deny the whole Objection, because a Person can give his own proper and personal Good to another, by giving himself liberally; for it is not necessary to the Ratio of Gift, that it should be given by another, thus the divine Father can have the Ratio of Gift.

I prove the second Part, *viz. That the Name of Gift is sometimes taken notionally, and thus becomes only the Son and the Holy Ghost*; because by the Name of Gift notionally taken, is understood that Thing which is proper to Somebody by Origin, is given to another liberally, or apt to be conferred and given: But there is such a Gift in God, and becomes the Son and the Holy Ghost only: For it becomes those two Persons to proceed from one another, and to be his proper Good by Origin, *v. gr.* It becomes the Son to be the proper Thing of the Father, by Reason of his Procession from him, and he is given liberally to us by him, according to this of *John* iii. *God has thus loved the World as to give him his only Son.* It becomes, likewise, the Holy Ghost to be the proper Thing of the Father, and of the Son, by Reason of his Procession from both, and he is given liberally to us from both. As it appears from *John* xv. *But when the Comforter is come whom I'll send unto you from the Father, even the Spirit of Truth.* Galat. iv. *He sent the Spirit of the Son.* John xx. *Receive the Holy Ghost.*

I prove the third Part, *viz. That the Name of Gift is sometimes taken personally, and thus becomes the third Person alone, and is proper to him alone*, because the Name of Gift, personally taken, is understood, in God, that Suppositum, which, by Virtue of his Procession, proceeds as a Gift: But there is some Suppositum in God which proceeds by manner of Gift, and it becomes the third Person alone to be such a Gift, because it becomes him alone to proceed in Virtue of his Procession, by manner of Love, and consequently by manner of first Gift, since Love is a first Gift, because the first Thing we give to him, to whom we will Good, is Love, which is the first of all liberal and gratuite Donation; for the Rest are given by Love. Whence it is not surprising if the Holy Ghost is so often called a Gift in the Scripture, *Acts* ii. *you'll receive the Gift of the Holy Ghost.* And c. viii. *You believed that the Gift of God could be purchased with Money.*

From what we have said, it is inferred, 1. That the Ratio of Gift does not become equally the Son, and the Holy Ghost; because though the Son proceeds donable, he

he does not, notwithstanding, as donable by Virtue of his Procession, since he does not proceed as Love, as the Holy Ghost proceeds.

It is inferred, 2. That the Name of Gift, at least as becoming the Holy Ghost, includes two Relations, one to the Giver, and the other to him who receives. The former is real, indistinct, notwithstanding, from that which the Holy Ghost has to the Father and to the Son on account of his Origin; according to this of St. *Augustin*, *lib.* 4. *de Trin. c.* 20. but the latter, whereby it is referred to us to whom it is given, is of Reason.

It is inferred, 3. That the said former Relation becomes the Holy Ghost from all Eternity, and the latter in Time; because the Holy Ghost proceeds from all Eternity from the Father and the Son, and is given to us in Time.

We'll ask next, *If the Holy Ghost proceeds from the Father, and the Son, as from one Principle, and as a true God, consubstantial and equal to both in all Things?*

To which I answer, 1. That *the Holy Ghost proceeds from both the Father and the Son*; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, particularly from those Places in which the Holy Ghost is said to be sent and given; since notional Mission and Gift in God imports a Procession, as shewn in the Passages already quoted, *John* xv. *When the Comforter is come whom I will send unto you from the Father.* And *John* xvi. *He shall glorify me*, says Christ, *for he shall receive of mine.* St. *Ambrose*, *lib.* 1. *de Spirit. Sanct.* and St. *Augustin*, *Tract.* 99. *in Joan. c.* 12. have understood this Passage of the Holy Ghost.

Notwithstanding what is said in the Scripture, *I'll send*, and *he'll receive*, in the future Tense, and not I have sent, and he was received, in the Preterit; because as St. *Augustin* observes in the Place above quoted, the Word being eternal in whatever Tense he be put, whether preterit, present, or future, he is not put falsely. Add, that the Mission of the Holy Ghost is eternal and temporal under divers Respects; eternal, if he that sends, and he that is sent be considered; and temporal, if we consider those to whom he is sent; whence it is not surprizing if his Mission to the Apostles be expressed in the future Tense, since such a Mission was to happen.

By the Councils, particularly that of *Ephesus*, in which was read and received the Epistle of St. *Cyril* to *Nestorius*, in which was very well proved the Procession of the Holy Ghost from the Father, and from the Son. Likewise by that of *Chalcedon*, *Act.* 5. in which the same Epistle was received and confirmed. Lastly, by the Council of *Florence*, in which the same Truth was simply and absolutely received by both the *Greeks* and *Latins*. Though the *Greeks* afterwards unfortunately renounced that Faith.

By the Fathers, particularly St. *Basil*, *lib.* 3. *cont. Eunom.* St. *Chrysostom*, *Homil.* 4. *de Symbol.* and a great Number of other Fathers, whose Doctrine is declared at large in the said Council of *Florence*.

By Reason; because though that Truth is not expressly marked in the Scripture; it can be inferred from thence notwithstanding, that the Holy Ghost proceeds from the Father and the Son, particularly from these Words, *All that the Father has are mine*, except the Paternity, says St. *Augustin*; but the Father has the spirative Power, therefore and the Son; and thus it must be said that the Holy Ghost proceeds from the Father and the Son. Because if the Holy Ghost was not to proceed from the Son, he would not be distinguished from him, since between both Persons there would be no relative Opposition, which in God is the Foundation of a real Distinction.

I answer, 2. That *the Holy Ghost proceeds from the Father and the Son, as from a sole Principle*; which I prove by the Scripture, the Councils, the Fathers, and by Reason.

By the Scripture, particularly by those Places already quoted; from which it appears that he has been sent, and given by the Father and the Son.

By the Councils, particularly the general one of *Lions*, *c. unic. de summa Trinit. & fide Catholic.* And likewise by that of *Florence*, in the Letters of Union where this is expressly defined.

By the Fathers, particularly St. *Augustin*, *lib.* 5. *de Trinit. c.* 14. where he speaks thus, *As the Father and Son, and the Holy Ghost, are one Creator and one Lord; likewise the Father and the Son, are the sole Principle of the Holy Ghost, and not two Principles.*

By Reason; because the spirative Faculty whereby the Holy Ghost is produced, is one and the same numerically in the Father and Son: Notwithstanding that the Father and Son are two distinct Persons, having between them the Faculty of Breathing; because it cannot be concluded hence, that they are two breathing, because when there are divers Suppositums, and the Forms are not diverse, the adjective Name can be put in the plural, but not the substantive; which require that not only the Suppositums, but the Form likewise, which they signify, should be multiplied: Whence as there are two Suppositts breathing in God, *viz.* the Father and the Son, and there be but one Form whereby they breathe, whence the spirative Power; hence it is that they are rightly called two breathing and one Spirator, and not two Spirators.

From what we have said it is inferred, that the Father and Son are not only the sole, but also the immediate Principle of the Holy Ghost, as having one and the same Faculty of breathing. Notwithstanding what St. *Thomas* says after St. *Hilary*, that the Holy Ghost proceeds from the Father through the Son, because it is only said in that Sense, that the Father is the first Person, who produces his Son before the Holy Ghost, by a Priority of Origin: And thus nothing hinders the third Person from proceeding properly and immediately from both.

I answer, 3. That *the Holy Ghost proceeds from the Father and Son a true God, consubstantial, and equal in all Things to the Father and Son.*

This Proposition wants no farther Proof, since it has been sufficiently proved already, by what we have said on this Subject.

We'll ask next, *If the Holy Ghost is distinguished really from the Father and Son, and whether he would be really distinguished from the Son, if through Impossibility he was not to proceed from him?*

To which I answer, 1. That the Holy Ghost is really distinguished from the Father and Son; because he proceeds from both, and thus has with both a relative Opposition, which in God is the Foundation of a real Distinction, according to St. *Anselm*, *lib. de Process. Spirit. Sanct. c.* 2. where he says, *that all Things are one, where there is not a relative Opposition.*

I answer, 2. That if the Holy Ghost was not to proceed from the Son, he would not be distinguished from him; because, as already observed, according to St. *Anselmus*'s Doctrine, the Persons in God are not distinguished, nor can be distinguished really, but where there is a relative Opposition; but if the Holy Ghost was not to proceed from the Son, there would be no relative Opposition between both, because a relative Opposition happens only between the Person producing and the Person produced: Therefore, *&c.*

This Sentiment is confirmed from that unlike Relations, such as are, *v. gr.* the active Generation, and the active Spiration in God, are not distinguished really between them, because one is not from the other, as Intellection and Volition are not distinguished really between them, because neither proceeds from the other, and thus are not relatively opposed to one another; because a relative Opposition is only between two, one of whom proceeds from the other, either immediately or mediately. Immediately, as between Paternity and Filiation; likewise by the active Spiration which is in the Father and Son, and the passive Spiration; and mediately between the Filiation and passive Spiration; which has no otherwise a relative Opposition with the Filiation, but by means of the active Spiration. Likewise between the Paternity and the passive Spiration, which has no otherwise a relative Opposition with the divine Paternity, but by means of the active Spiration.

It is objected, 1. That if the Holy Ghost should proceed from the Son alone, and not from the Father, he would be still distinguished from the Father; therefore if he should proceed from the Father alone, and not from the

the Son, he would be likewise still distinguished from the Son.

I answer by denying the Consequence; the Reason of the Disparity is, that if even the Holy Ghost should proceed immediately from the Son alone, he should notwithstanding proceed immediately from the Father, because he should proceed from the Son by the Faculty of Breathing communicated necessarily, and not by Accident, to the Son, which would be sufficient to establish a real Distinction between the Father and the Holy Ghost. But if it was supposed that the Holy Ghost proceeds immediately from the Father alone, he could not be said that he proceeds in any Manner from the Son, because the Father has not the Faculty of Breathing communicated to him by the Son, and thus would have no relative Opposition; and therefore there would be no Reason why he should be really distinguished from him.

It is objected, 2. That when the same Constitution of a Thing remains, there remains likewise the Distinctive of the same Thing from another Thing; but suppose that the Holy Ghost should not proceed from the Son, there would remain in the Holy Ghost the same Constitutive, *viz.* the passive Spiration: Therefore the same Distinctive would remain in him, and thus would be distinguished from the Son, as he is now.

I answer, by *denying the Minor*; because there would not be in the Holy Ghost the same passive Spiration; because he would not require to be, then, from the Son, as it requires it now; and *vicissim*, the Filiation, in that Hypothesis, would not require to be the Principle of the Holy Ghost, as he requires it now. Whence it follows, that he would not be the same Constitutive, at least in Species, or *quasi* Species; and in that Hypothesis, to the utmost, the passive Spiration which would be then, should agree generically with the passive Spiration that now is; and thus it appears that there would not remain the same Constitutive, nor consequently the same Distinctive; and therefore the Holy Ghost would not be distinguished from the Son.

Many of the Heathens seem to have had a Notion of a *Trinity*. — *Stach. Eugub. de Peren. Philosoph. lib.* 1. *c.* 3. observes, that there is nothing in all Theology more deeply grounded, or more generally allowed by them, than the Mystery of the *Trinity*. The *Chaldeans*, *Hebrews*, *Phœnicians*, *Greeks*, and *Romans*, both in their Writings, and their Oracles, acknowledged that the supreme Being had begot another Being from all Eternity, which they sometimes called the *Son of God*, sometimes the *Word*, sometimes the *Mind*, and sometimes the *Wisdom of God*, and asserted it to be the Creator of all Things.

Among the Sayings of the Magi, the Descendants of *Zoroaster*, this is one; Παντα εξετελεσε πατερ και νυν παρεδωκε δευτερω: *The Father finished all Things, and delivered them to the Second Mind.* — The *Egyptians* called their Trinity *Hemphta*, and represented it by a Globe, a Serpent, and a Wing disposed into an hieroglyphical Symbol. — *Kircher*, *Gale*, &c. denote the *Egyptians* learned their Doctrine of the *Trinity* from *Joseph*, and the *Hebrews*.

The Philosophers, says St. *Cyril*, owned three Hypostases, or Persons: They have extended their Divinity to three Persons, and even sometimes used the Term *Trias*, Trinity: They wanted nothing but to admit the Consubstantiality of the three Hypostases, to signify the Unity of the Divine Nature, in Exclusion of all Triplicity with regard to the Difference of Nature; and not to hold it necessary to conceive any Inferiority of Hypostasis.

In Effect, *Plato*, and some of his Followers, speaks of a *Trinity* in such Terms, that the Primitive Fathers have been accused of borrowing the very Doctrine from the *Platonick* School; but Father *Morgues*, who has examined the Point, asserts, that nothing can be more stupid, than to suppose the *Platonick Trinity* brought into the Church, and to have Recourse to the Platonism of the Fathers to discredit their Authority with regard to the Dogma.

But let the *Trinity* of the Heathens be how it will, it is certain they had some Notion, though very imperfect, of that august Mystery, which though one of the most incomprehensible of the Christian Religion, and is equally the Object of our Faith, with the Existence of a supreme Being, both being equally true, and equally warranted by the Scripture, and the Authority of the universal Church: Therefore I cannot conceive how those who profess themselves Christians, can have the sacrilegious Presumption to deny the *Trinity*, under Pretence that they cannot conceive that Mystery; but could it be a Mystery if it was comprehensible? And is it not because it is above a natural Comprehension, that it is called a Mystery? there has never been a Religion without Mysteries; that of the *Hebrews*, which was then the true Religion, was full of them; which they had thought a sacrilegious Temerity in them to attempt to fathom; the Christians alone have endeavoured, and endeavour still every Day, to pry with a criminal Curiosity, into what God, in his supreme Wisdom, has thought fit to hide from them; and by that Means endeavour to destroy the Faith on which the Christian Religion is founded. We have still among us *Arians*, *Sabellians*, *Samosatians*, &c. who improve on the Errors of those first Enemies of the Blessed Trinity; notwithstanding the frequent Anathema's thunder'd against them by the universal Church.

TURNING.

TURNING, is the Art of fashioning hard Bodies, as Brass, Ivory, Wood, *&c.* into a round or oval Form in a Lathe.

The *Lathe* is composed of two wooden Cheeks, or Sides, parallel to the Horizon, having a Groove or Opening between; perpendicular to these, are two other Pieces, called *Puppets*, made to slide between the Cheeks, and to be fixed down at any Point at Pleasure.

These have two Points, between which the Piece to be turned is sustained; the Piece is turned round, backwards and forwards, by Means of a String put round it, and fastened above to the End of a pliable Pole, and underneath to a Tredle or Board, moved with the Foot: There is also a Rest which bears up the Tool, and keeps it steady.

Note, That the Invention of the *Lathe* is very antient: *Diodorus Siculus* says, the first who used it was a Grandson of *Dædalus*, named *Talus*. *Pliny* ascribes it to *Theodore* of *Samos*, and mentions one *Thericles*, who rendered himself very famous by his Dexterity in managing the *Lathe*. — With this Instrument the Antients turned all Kinds of Vases, many whereof they enriched with Figures and Ornaments in Basso relievo. Thus *Virgil*,

Lenta quibus turno facili superaddita vitis.

the *Greek* and *Latin* Authors make frequent Mention of the *Lathe*; and *Cicero* calls the Workmen, who used it, *Vascularii*. It was a Proverb among the Ancients, to say one Thing was formed in the *Lathe*, to express its Delicacy and Justness. The same Proverb is retained to this Day among the *French*; and we even say of a Man, who is exceedingly well shaped, *il est fait au Tour*.

There is a Kind of wooden Pulley, making a Member of the *Turner's* Lathe, which is called *Mandrel*. Of these there are several Kinds, as

Flat Mandrels which have three or more little Pegs or Points, near the Verge, and are used for turning flat Boards on.

Pin Mandrels, which have a long wooden Shank to fit into a round Hole made in the Work to be done.

Hollow

Hollow Mandrels, which are hollow of themselves, and used for turning hollow Work.

Screw Mandrels, for turning Screws.

The other Instruments used in *Turning*, are Chissels of different Kinds.

Turning is performed, by putting the Substance to be turned upon two Points, as an Axis; and moving it about on that Axis, while an Edge-tool, set steady to the Outside of the Substance, in a Circumvolution thereof, cuts off all the Parts that lie farther off the Axis, and makes the Outside of that Substance, concentrick to the Axis.

The Workman stands, or is seated at his *Lathe*, with his right Foot on the Treddle to give the Motion, which must be very moderate and even; he places his Chissel on a Rest, fastened to the *Lathe*, some Distance from his Piece which is to be worked, and a little underneath it he approaches gently his Chissel to the Piece, so that the Edge thereof may reach it; and goes on gradually to work, without leaving any Ridges, but when a Piece is to be cut off quite; and when he meets with a Knot, he must go on still more gently, otherwise he would run the Risk of splitting his Work, and notch his Tool.

The Invention of *Turning* appears to be very antient. Some, indeed, to do Honour to the Age, will have it brought to Perfection by the Moderns; but if what *Pliny*, and some other antient Authors relate, be true, that the Antients turned those precious Vases, enriched with Figures and Ornaments in Relievo, which we still see in the Cabinets of the curious; it must be owned that all that has been added in these Ages makes but a poor Amends for what we have lost of the Manner of *Turning* of the Antients.

UNIVERSITY.

UNIVERSITY, UNIVERSITAS, is a collective Term, applied to an Assemblage of several Colleges, established in a City or Town, wherein are Professors of several Sciences, appointed to teach them as Students; and where Degrees or Certificates of Study, in the divers Faculties, are taken up.

They are called *Universities*, or *universal Schools*, by Reason the four *Faculties*, which are *Theology*, *Medicine*, *Law*, and the *Arts* and *Sciences*, are supposed to make the World, or whole Compass of Study.

The four most famous *Universities* in *Europe*, are those of *Paris* in *France*, *Oxford* in *England*, *Bologna* in *Italy*, and *Salamanca* in *Spain*.

That of *Paris* is reckoned the first of the four, and considered as such by all *Europe*, as being the most antient, having been instituted by *Charlemagne*, in the Year of Christ 814.

Besides the Universities of *Paris*, there are in the Kingdom of *France* these others following. *viz. Toulouse*, *Bourdeaux*, *Poitiers*, *Orleans*, famous for the civil Law, *Bourges*, *Angiers*, *Caën*, *Montpelier*, famous for the Faculty of Medicine, *Cahors*, *Nantz*, *Reims*, *Valence*, *Aix*, *Douay*, *Dole*, &c.

But to inform the Reader of the Exercises practised in those Universities, it suffices to give a concise Description of those of the *University* of *Paris*, which is the Mother of all the others, and on which they are all modelized, beginning by those of the Faculty of *Theology*: Therefore,

Ever since the Institution of this *University*, the Faculty of *Theology* has always flourished in it; and all Disputes in religious Matters have always been referred from all Parts of the Christian World to its Decisions; *Luther* himself calling it the Mother of Learning, and the Source of Truth, and pretending to be ready to submit himself to its Judgment, on the Points controverted between the Catholick Church and him.

This Faculty acquired a very great Lustre in the Time of *Peter Lombard*, Bishop of *Paris*, commonly called *Master of the Sentences*, because he composed a Book of them, and who died in 1164; and instead of losing any of that Lustre, as several other *Universities* have done, it has preserved it to this Day.

Though the *Theology* may be taught in several Colleges of the *University*, the two most celebrated Schools of that Kind, are those of *Sorbonne* and of *Navarre*. The greatest Part of the Doctors have espoused no Houses; which, notwithstanding, there are several of the House and Society of *Sorbonne*, and several of the House of *Navarre*.

There are, besides, some Doctors, who have only the Right of *Hospitality*, and call themselves of the House of *Sorbonne*, *Sorbonici*, or *Hospites*, or *è familiâ Sorbonicâ*, but not *Socii*, of the Society of *Sorbonne*.

If the House of *Sorbonne*, founded in 1254, by *Robert de Sorbone*, is the most famous for Persons eminent in Learning and Virtue; it is no less so for the Elegance and Beauty of its sumptuous Edifice, the magnificent Structure of its great Halls, where publick Disputations are held, and Lessons given, as well as the other Parts of the Building of that House, and of its Church; the Cupola thereof is of an extraordinary Heighth, shews very well the Magnificence of the Cardinal *Richelieu*, who has immortalised himself in that Work, and has made of it a Temple, dedicated to his Memory.

The Provisor of the House of *Sorbonne*, and of that of *Navarre*, (who is like the Chancellor of the *University* of *Oxford*) is most commonly the Archbishop of *Paris*.

There are six Doctors, Professors in *Sorbonne*, who give Lessons every Day, during an Hour and half; *viz.* Three in the Morning, and three in the Afternoon: And four Professors in *Navarre*, two in the Morning, and two in the Afternoon.

The Colleges for the Canonical and Civil Laws, which are in the Street of *St. John de Beauvois*, have also six Professors, who give publick Lessons, three in the Morning and three in the Afternoon. The late King *Louis* XIV. instituted a Professorship for the *French* Law, called *Le droit François*.

The *Faculty of* MEDICINE, is as antient as the Institution of the *University*, the College thereof is in the Street of the *Bucherie*, ever since 1469, where several eminent Physicians have been educated, particularly the learned *Fernel*, Physician to King *Henry* II. In 1608 a large anatomical Theatre was erected in that College.

There are besides publick Lessons of Botany given, at the royal Garden of medicinal Plants at *Paris*; as also Lessons of Pharmacy and Anatomy.

The *Faculty of Arts*, is the Mother of all the others, and for which the Schools were first founded. The Chief of the whole *University*, called *Rector*, is always taken from that Body, and never from the other Faculties. The Day of the Procession of the Rector, which is made four Times a Year, the Professors give no Lesson: But that Day all the Faculties meet at the Convent of the *Mathurins* in *St. James's-Street*, whence they proceed in Order to the Church appointed by the Rector, each Faculty in their Formalities, and the Doctors of every Faculty with their Mantelets of Ermines.

The Rector, as Chief of the *University*, which the Kings of *France* call their eldest Daughter, has the Precedency of all Sorts of Persons, the Princes of the Blood excepted; it is even said that he has a Right to precede at the publick Acts, the Pope's Nuncio, the Embassadors, and the Dukes and Peers of *France*. At the King's Funeral, he walks even with the Archbishop of *Paris*, and by his Side.

He wears, while invested with his Dignity, a violet Sash, his Robes of Ceremony are a Violet Gown girdled with his Violet Sash, with Gold Glands at both Ends. To his Side is tied an old fashion Purse, called *Escarcelle*, of Violet Velvet, garnished with Gold Lace and Buttons, his Mantelet of white Ermine, comes down all round as far as the Middle of his Arms.

This

This Dignity is elective, and lasts but three Months, unless it was judged proper to continue the same Person, six or nine Months.

The Faculty of Arts is divided into four Nations: 1. The Nation of *France*. 2. The Nation of *Picardy*. 3. The Nation of *Normandy*. 4. The Nation of *Germany*, which includes all the other foreign Nations, *viz. English*, *Irish*, *Scotch*, *Italians*, &c. which Nations are divided besides into very large Provinces.

The Titles or Epithets which those different Nations take, when their Procurator speaks in the publick Assemblies, are: *Honoranda Gallorum Natio*, for the Nation of *France*: *Fidelissima Picardorum Natio*, for that of *Picardy*: *Veneranda Normanorum Natio*, for that of *Normandy*: And *Constantissima Germanorum Natio*, for that of *Germany*.

The three superior Faculties take their Titles likewise: And when that of Theology speaks, she styles herself, *Sacra Theologiæ Facultas*: That of the Law, *Consultissima Decretorum Facultas*: And that of Medicine, *Saluberrima Medicorum Facultas*.

The University of *Paris* consists of 55 Colleges; that of *Sorbonne* is the most celebrated of them all, as already mentioned, being the first in Rank.

The House of *Navarre* is the next; and was founded by *Jane* of *Navarre*, Countess Palatine of *Champagne* and *Brie*, Wife of *Philip the Fair*, King of *France*, in 1304.

Roul of *Harcourt*, Prebend of the Cathedral Church of *Paris* founded in 1280, in the Street of *La Harpe*, the College of *Harcourt*, in favour of the poor Students of the four Dioceses, of *Coutances*, *Bayeux*, *Evreux*, and *Roüen*, in *Normandy*.

Charles le Moyne, Cardinal and Legate in *France*, bought in the Year 1302, under the Reign of *Philip the Fair*, the antient House of the Hermits of St. *Augustin*, and founded there the College, which bears the Name of *Cardinal le Moyne* to this Day; which on one Side reaches to the River *Seine*, joining the Gate of St. *Bernard*, and on the other the Street of *St. Victor*, near the Gate of the same Name.

William Bonnet, Bishop of *Bayeux*, in *Normandy*, founded the College of the same Name in the Street of *La Harpe*, in the Year 1308, for the poor Scholars of the Dioceses of *Le Mans* and *Angiers*; because he was born in the City of *Mans*, and had studied at *Angiers*.

Guy of *Laon*, and *Roul* of *Presle*, two Advocates in the Parliament of *Paris*, founded in 1339 the antient College of *Laon*, at present called *Beauvois*; but the Misunderstanding between the Pursers occasioned that it was divided in two, each of the Name of its Founder. And *Gerard* of *Montague*, Advocate-General in Parliament, and Prebend of the Churches of *Paris* and of *Rheims*, left by his Will, in the Year 1339, his Palace of the *Golden Lion*, to the Scholars of the said College of *Laon*, on Condition that they should go and lodge in it, and establish their Schools there a Year after; which was executed by the Commissary of the Bishop of *Laon* their Superior.

Giles Asselin, Archbishop of *Roüen*, of the House of *Montague*, otherwise called *Listenois*, founded in the Year 1314, that College, which for a considerable Time was called of the *Asselins*, and afterwards of *Montague*. *Peter* of *Montague*, Cardinal and Bishop of *Laon*, had it rebuilt in 1388, and afterwards his Nephew and Heir, *Louis* of *Montague*, caused it to be much increased in the Year 1392. *John Standoc*, Doctor of the Faculty of Theology, and Lord of *Villette*, repaired it in the Year 1480, and instituted in it the Order of the Poor of *Montague*, vulgarly called *Capettes*.

M. *Bertrand*, Archbishop of *Narbonne*, founded in the Year 1317, the College of the same Name, in the Street *La Harpe*, in favour of the poor Scholars of *Languedoc*. A Cardinal of the House of *Lorrain*, and Archbishop of the same City of *Narbonne*, has restored it.

Geoffroy du Plessis, Secretary of King *Philip* V. having embraced the monastick Life in the Monastery of *Marmoutier*, gave one of his Houses at *Paris* the 14th of *August* 1331, for a College in favour of the Monks of the said Monastery.

He gave likewise another House for another College, under the Name of *St. Martin*; but after his Death, it was called by the Name of *Plessis*, to render his Memory more considerable.

Jane Queen of *France* and *Navarre*, Countess of *Arras*, Palatine of *Burgundy*, and Lady of *Salins*, Wife of *Philip* of *Valois* King of *France*, founded the College of *Burgundy*, for those of the *Franche counté*, in the Year 1331.

The other Colleges are, that of the *four Mendicants*, founded by *St. Louis* King of *France*, at the same Time with the *Sorbonne*, of the *Bernardins*, of the *Norbertins* or *Premonstré*, founded in the Year 1256; of *Clugny*, founded in the Year 1269, of the Treasurer of *Notre-Dame* of *Roüen*, founded by *William* of *Saone*, Treasurer of *Notre-Dame* of *Rouen*: Of *Cholets*, founded in 1289, by *John Cholet*, Bishop of *Beauvais*, Cardinal and Legate in *France*: Of *Beauvais* or *Dormans*, founded by *John* of *Dormans*, Bishop of *Beauvais*, and Chancellor of *France*, in the Year 1365. Of *Arras*, founded in the Year 1332, by *Nicolas* Abbot of *St. Wast* of *Arras*: Of the *Lombards*, founded in the Year 1333, by *Andrew Chini* born at *Florence*, and Bishop of *Arras*, for the poor Scholars of *Italy*: Of *Tours*, founded in the Year 1333, by *Stephen* of *Bourgueil*, Archbishop of *Tours*: Of the *Ave Maria*, founded by *John* of *Hubaut*, President in the Inquests, in the Year 1339: Of *Authun*, or Cardinal *Bertrand*, founded in 1341 by *Peter Bertrand* Cardinal, and Bishop of *Authun*: *Mignon*, founded in 1343, by *Michel Mignon*: Of *Cambray*, or of the *three Bishops*, founded in 1356, by *Hugues* of *Pommareo* Bishop of *Langres*, by *Hugues* of *Arciaco* Bishop of *Laon*, and afterwards Archbishop of *Rheims*, and by *William* of *Auxona*, Bishop of *Cambray*: Of *Becourt*, or *Boncourt*, founded by *Peter* of *Boncourt*, Knight: Of *Tournay*: Of *Justice*, founded by *John* of *Justice*, Chancellor of the Cathedral Church of *Bayeux*, and Prebend of our Lady at *Paris*, in the Year 1353: Of *Boissy*, founded by *Stephen* of *Boissy* in 1354. Of *Master Gervois*, founded in 1370, by M. *Gervois Christien*, a Prebend of the Cathedral Churches of *Paris* and *Bayeux*, and first Physician to King *Charles* V. Of *Damville*, founded by *John* of *Damville*, Secretary of King *Charles* V. Of *Cannal*, which was begun in 1380 by *Galeran Nicolas*, called *Gravia*; and augmented afterwards by *John Guyse*, Doctor in Physick, and Prebend of the Cathedral Churches of *Paris*, *Nantes*, and *Cornwal* in *Britanny*: Of *Fortet*, founded in 1391 by *Peter Fortet*: Of St. *Michel*, founded in 1404, by *William* of *Chanac* Bishop of *Paris*, in honour of the Archangel St. *Michel*, which is called still of his Name *Chanac*, and of *Pompadour*, the Title of his illustrious House: Of *Treguier*, founded by *William Coetman*, Chantor of the Cathedral Church of *Treguier* in *Britanny* in the Year 1411, to which in 1570 was annexed another small College of *Britons*, called of *Leon*, or *Kembrec*, near St. *Hilary*: Of *Lisieux*, or *Torcy*, founded in 1414, by *William* of *Estouteville*, Bishop of *Lisieux*; which *l'Estoille* Abbot of *Fescam*, and *Colard* of *Estouteville*, Knight, Lord of *Torcy*, his two Brothers, finished after his Death: Of *Rheims*, founded by *Guy* of *Roye*, Archbishop of *Rheims*, in the Year 1412, which having been ruinated by the *English*, *Charles* VII. united to it that of *Rhetel*, already founded by *Walter* of *Launoy*, Knight: Of *Coqueret*, founded by *Nicole Coqueret*, Prevost and Prebend of the Cathedral Church of *Amiens*: Of *La Marche*, and *Winville*, founded in 1423 by *William* of *La Marche*, a Prebend of the Church of *Toul*; and by M. *Beuve* of *Winville*, born at *Winville* in *Lorrain*: Of *Sees*, founded by *Gregory l'Anglois*, and finished by his Brother *John l'Anglois* in 1427. Of *La Mercy*, founded by the Prince *Alain*, Lord of *Albret*, in favour of the Religious of the Order of *La Mercy*: Of the *Mans*, founded by the Testament of *Philip* of *Luxembourg*, Cardinal and Bishop of *Mans*, in the Year 1526: Of *St. Barbe*, founded by *Robert de Gast* in 1556: Of the *Grassins*, founded by *Peter Grassin*, Counsellor in Parliament, for the poor Scholars of *Sens* in *Burgundy*, in the Year 1569.

These are very near all the Colleges of the *University* of *Paris*, which *Philip* the Fourth, by an Edict of the Year 1295, *Louis Hutin* his Son, and *Philip* of *Valois*, in 1340; honoured with very great Privileges. The Provost of *Paris* bears the Title of Conservator of the University; where it must be observed, that almost all the

the Colleges have been founded for poor Students, who alone enjoy the Benefits of the Foundation; all others who ſtudy in thoſe Colleges being obliged to pay for their Board, Lodging, *&c.* Learning being given *gratis* in all thoſe Colleges to every Body, without Diſtinction; except the Expences, thoſe who will take their Degrees, in any of the four Faculties, which are pretty great, particularly thoſe of Doctor in Theology. It muſt be obſerved likewiſe, that there are ſeveral Colleges founded for Foreigners, which laudable Example has not been followed by any other Univerſities in the Chriſtian World; and that only for poor Foreigners, leſt thoſe who are always ready to give a bad Senſe to the beſt Intentions of the *French*, ſhould ſay that it was done with the View of engaging Foreigners to come and ſpend their Money in *France*, under Pretence of ſtudying in the Univerſity. Though a great Number of rich Foreigners come to ſtudy in *Sorbonne*, on purpoſe to have the Honour to take up their Degrees in that College, which before the Reformation was always conſidered as the moſt celebrated College in the Chriſtian World; and is accounted ſuch ſtill, by all the States who profeſs the *Roman* Catholick Religion, all the greateſt Difficulties in Matters of Religion, or on Points of Conſcience, being referred from all thoſe Parts to the Deciſion of the Society of *Sorbonne*. *Henry* VIII. King of *England*, conſulted them on his Divorce, thinking that if he could have it approved by them, he wanted no better Authority; but he was diſappointed.

Montpelier, for the Faculty of Medicine, was for ſeveral Ages the moſt famous of all *Europe*; and not only the Kings of *France*, but likewiſe all other Sovereigns, have granted to it ſeveral very great Privileges, among which this is one, that a Phyſician who has took up his Degrees at *Montpelier*, ſhould practiſe Medicine in their Dominions, without undergoing an Examen, or being obliged to obtain any other Licence.

Philip the Fair, the Protector of the Muſes, founded the Univerſity of *Orleans* in 1312, to which he granted a great many Privileges, in favour of thoſe, who applied themſelves to teach the Imperial Laws. He eſtabliſhed royal Judges in it, only to be the Protectors and Conſervators of the Privileges granted to the Scholars. Pope *Clement* V. born at *Bourdeaux*, who had ſtudied at *Orleans*, confirmed by a Bull given at *Lyons* in 1367, what his Predeceſſors and King *Philip* had done in favour of the *Univerſity*.

The *Univerſity of Orleans*, was founded on the Model of that of *Paris*; it has the ſame Dignities, and the Civil Law is taught in it by four Profeſſors of Juriſprudence; but it has no Faculty of Medicine.

The *Germans*, above all other Nations, enjoy very conſiderable Privileges in it, granted to them by our Kings; and authentickly confirmed by *Henry* IV. by his Letters Patent of the 15th of *July* 1608, and by thoſe of the Month of *June* 1616, dated at *Paris*. They have in it a very handſome Library, very well furniſhed with uſeful, valuable, and curious Books for the Uſe of the Scholars of their Nation. Formerly the great Number of Scholars who flocked thither from all Parts, were compriſed under ten Nations, *viz.* the *French*, *German*, *Lorrain*, *Bourguinone*, *Champenoiſe*, *Normandy*, *Picardy*, *Tourangoiſe*, *Aquitanick*, and *Scotch*: But ſince by an Arret of the Parliament of *Paris*, in the Year 1538, under the Reign of *Francis* I. they were reduced to four, *viz.* the *French*, which includes the *Bourguinons*, *Gaſcons*, and *Teurangeaux*: The *German*, which includes the *Lorrains*: *Picardy*, which includes the *Champenois*: And the *Normand*, which includes the *Scotch*.

The *Univerſity of Angiers*, was founded in 1348, by *Louis* II. Duke of *Anjou*, Son of *Louis* I. and Grandſon of King *John*; in favour whereof he obtained from the King and from the Pope, the Privileges and Immunities of the Students; and royal and apoſtolical Conſervators to maintain them in thoſe Privileges. *Henry* Duke of *Anjou* Brother of King *Charles* IX. favoured and increaſed the ſaid *Univerſity*, to which was added the Faculty of Medicine; its firſt Inſtitution being only for the Law. It has three famous Colleges, *viz.* the *New College*, the *College of the Iron Gate*, and the *College of the Fromageric*. That Univerſity has produced very great Lawyers, as *Boyer* Chancellor of *France*, *Lazarus Bouf*, *Francis Baldouin*, *Eghinard Baron*, *John Bodin*, and others.

The ſecond Univerſity in *Europe*, is that of OXFORD, in *England*, according to Mr. *Chamberlayne*, who ſays that it hath been very antiently reckoned the ſecond *Univerſity* among the four Principal of *Europe*, *Paris* having been uſually named in the firſt Place.

Oxford, ſays he, is an antient City, conſiſting of two Sorts of Inhabitants, viz. *Students* and *Citizens*, living among one another, though wholly ſeparate for Government and Manners; for when the Kings of *England* perceived that they could not (as at *Paris*) be ſeparated by a River, they thought proper to make them ſeparate Bodies, by different Privileges, and a different Form of Government; ſo that they have both different Limits, a different Manner of adminiſtring Juſtice, different Power, and different Magiſtrates; the Chancellor of the *Univerſity*, and in his Abſence, the Vice-Chancellor, being ſuperior to the Mayor of the Town in Affairs of Moment, even thoſe that concern the City itſelf.

Over the *Univerſity*, next under the King, is the Chancellor, who is always a Perſon of the firſt Rank, elected by the Students in a Convocation, which eminent Poſt is for Life. His Office is to take Care of the Government of the whole *Univerſity*, to maintain the Liberties and Privileges thereof, to call Aſſemblies, to hear and determine Controverſies, to ſummon the Courts, puniſh Delinquents, *&c.*

This great Honour is enjoyed at preſent by —— *Butler*, Earl of *Arran*.

The next in Dignity among the Officers of the Univerſity of *Oxford*, is the High Steward, who is at the Nomination of the Chancellor, and muſt be approved by the *Univerſity*; which Office is alſo for Life. He is to aſſiſt the Chancellor, Vice-Chancellor, and Proctors, in the Execution of their reſpective Offices; and alſo hear and determine capital Cauſes, according to the Laws of the Realm, and the Privileges of the *Univerſity*, whenever the Chancellor requires it.

The third Office is that of Vice-Chancellor, who is nominated every Year by the Chancellor, and is commonly the Head of ſome College. He is to ſupply the Place of the Chancellor in his Abſence; to take Care that Sermons, Lectures, Diſputations, and other Exerciſes, be performed; that Hereticks, Fanaticks, Nonconformiſts, Panders, Bawds, and Whores, *&c.* be expelled the *Univerſity*, and kept from the Converſation of the Students; that the Proctors, other Officers, and publick Servants of the *Univerſity*, perform their reſpective Duties; that Courts be duly called, and Law-Suits determined without Delay.

Next are the two Proctors, choſen every Year out of the ſeveral Colleges, by Turns; theſe are to aſſiſt in the Government of the *Univerſity*, more particularly in what regards ſcholaſtick Exerciſes, and taking of Degrees. It is alſo their Office to puniſh all Infringers of the Statutes, or Privileges of the *Univerſities*; all Night-walkers, *&c.* and leſt the Students ſhould be wronged, they are to examine carefully all Weights and Meaſures.

Next is the publick Orator; whoſe Office is to write Letters, when commanded by the Convocation or Congregation; and alſo make ſolemn Harangues at the Reception of Princes, or other great Perſon that comes to ſee the Univerſity.

There is a Cuſtos Archivorum, or Keeper of Records, whoſe Office is not only to collect and keep the Charters, Privileges, and Records of the *Univerſity*, but alſo to be always ready to produce them before the chief Officers, and plead the Rights and Privileges of the ſaid *Univerſity*.

Laſtly, is the Regiſterer of the *Univerſity*, whoſe Office is to regiſter all the Tranſactions in Convocations, Congregations, Delegacies, *&c.*

Beſides the great Officers above-mentioned, there are certain publick Servants of the *Univerſity*, called *Beadles*, to ſummon, admoniſh, or pray: They are ſix in Number, three whereof are called *Squire Beadles*, and carry large Maces of Silver gilt; the other three are ſtiled *Yeomen Beadles*, and carry large Silver Maces ungilt.

Their Office is to wait always on the Vice-Chancellor in publick, and at his Command to ſeize any Delinquent, and

and carry him to Prison, to publish the Calling of Courts or Convocations, to conduct Preachers to Church, or Professors to School, &c.

On more solemn Occasions there is a seventh, that carries in his Hand a Silver Rod, and is thence called the *Verger*, who with the other Six attend the Chancellor, and are ready to execute his Commands, and to wait on grand Compounders, &c.

Several of the Kings of *England* having been very learned themselves, and therefore great Encouragers of Learning, and Protectors of the Learned, have enlarged from Time to Time the Privileges of the *Universities*.

By a Charter of *Edward* III. the Mayor of *Oxford* is to obey the Orders of the Vice-Chancellor, and to be subject to him.

The Mayor, together with the Burgesses of *Oxford*, and the High Sheriff of *Oxfordshire*, take every Year, in a solemn Manner, an Oath, administered by the Vice-Chancellor, to observe and preserve the Rights, Privileges, and Liberties of the *University* of *Oxford*.

And every Year, on the Day of St. *Scholastica*, which is the 10th of *February*, a certain Number of the principal Burgesses pay publickly, and in a solemn Manner, a Penny to each, in Token of their Submission to the *University*.

No Provisions to be taken by the King's Purveyors, within five Miles of *Oxford*, unless the King himself comes thither.

King *James* I. honoured both *Universities* with the Privilege of sending each two Burgesses to Parliament.

Both *Universities* are free from the Jurisdiction and Visitation of any but the King himself, or whom he pleases to appoint.

By Charter of *Henry* IV. it is left to the Choice of the Vice Chancellor, whether any Member of the *University*, actually residing in it, accused of Felony or High-Treason, shall be tried by the Laws of the Realm, or by the Laws or Customs of the *University*; though at present where Life or Limb is concerned, the Criminal is left to be tried by the Laws of the Realm.

No Students of *Oxford* may be sued at common Law for Debts, Accounts, Contracts, Injuries, &c. but only in the Court of the Vice-Chancellor, who has Power to determine Causes, to imprison, to inflict corporal Punishment, to excommunicate, to suspend, and to banish.

Antiently in *Oxford* the Students, without any Distinction of Habit, lived in Citizens Houses, and had publick Places where they met to hear Lectures, and dispute. Afterwards they lived together in divers Houses, called either *Jins* from the *Saxon*, or *Hostels* from the *French*, and at present are named *Halls*, where every Student lived wholly at his own Expence; till by a noble Emulation among the *English* Nobility and Gentry, Colleges were founded at different Times, to maintain such Students as by *Merit and Worth should be chosen* (not for poor Students, as in *France*) in Lodging, Diet, Cloaths and Books, and Professors to instruct them.

Of such *endowed Colleges*, there are eighteen in *Oxford*, and seven Halls, where, with the like Discipline, Students live upon their Means, excepting only some certain Exhibitions, or annual Pensions, annexed to some of them.

The *Colleges* are those which follow, according to the Order of their Foundation.

University College, founded Nobody knows when; for some Authors will have it, under King *Alfred*, by *William* Archdeacon of *Durham*, in the Year 873, which is a Fable; others in the 12th Year of *William the Conqueror*, by another *William*, Bishop of *Durham* in 1081, which is another Fable; and the Generality of them, in the 12th Century, without marking precisely the Year.

Baliol College, founded in 1263, under King *Edward* I. by *John Baliol*, Father to *John Baliol* King of *Scotland*.

Merton College, founded in 1277, in the Reign of *Henry* III. by *Walter Merton*, Canon of St. *Paul*, and of *Salisbury*.

Exeter College, founded in 1316, under *Edward* II. by *Walter Stapleton*, Bishop of *Exeter*; and augmented by Sir *William Peter*, Knight, in 1566, under Queen *Elizabeth*.

Oriel College, founded in 1323, under *Edward* II. by Sir *Adam Browne*, the King's Almoner; though the Record attributes this Foundation to the King himself.

Queen's College, founded in 1340, under *Edward* III. by *Robert Englishfield* (on his own Ground) the Queen's Chaplain.

New College, founded in 1379 in the Reign of *Richard* II. by *William Wickham*, Bishop of *Winchester*.—He also founded a College in *Winchester* in 1389, which he called by the same Name of *New College*.

Lincoln College, founded in the Year 1430, under *Henry* V. by *Richard Fleming* Bishop of *Lincoln*; and augmented in 1479, in *Richard* the Third's Time, by *Thomas Rotheram*, also Bishop of *Lincoln*.

All Souls College, founded in the Year 1437, in the Reign of *Henry* VI. by *Henry Chichely*, Archbishop of *Canterbury*. The King himself gave to it four Priories, viz. *Alberbury* in *Salop*, *Romney* in *Kent*, *Languenith* in *South Wales*, *Weden Pinkney* in *Northamptonshire*: Wherefore the Foundation of this College was attributed to his Majesty, as appears by the Charter kept in the Tower of *London* among the Records. He also founded *Bernard College*, since suppressed by *Henry* VIII. and re-edified afterwards by Sir *William White*, under the Name of *St. John's College*. Moreover he founded a College at *Higham Feris*, with Alms-houses.

Magdalen College, founded in the Year 1459, under *Henry* VI. by *William Wainflet* Bishop of *Winchester*. He built likewise a great Part of *Eaton* School, began by *Henry* VI. and a Free School at *Wainflet* in *Lincolnshire*, seven Miles from *Alford* towards *Boston*.

Brazen-Nose College, was founded in the Reign of *Henry* VII. by *William Smith* Bishop of *Lincoln*, who died in the Year 1513.

Corpus Christi College, was founded in the Reign of *Henry* VII. by *Richard Fox* Bishop of *Winchester*; and he endowed it with 110 *l.* 8 *s.* 11 *d.* of a yearly Revenue, for ever.

Trinity College, was founded in the Year 1556, under Queen *Mary*, by Sir *Thomas Pope*, Knight; which College was first founded in 1370, in the Time of King *Edward* III. by *Thomas Hatfield* Bishop of *Durham*, and by him named *Durham College*, for eight Monks and seven Clerks, admitted by the Prior of *Durham*. *Robert Walworth* Prior of *Durham*, endowed it with three Boviates of Land, with the Advowson of the Church of *Radington*: Which College at the Suppression by *Henry* VIII. was estimated by the Visitors at 115 *l.* 4 *s.* 4 *d.* of yearly Revenue.

St. John's College, was founded in the Year 1557, under Queen *Mary*, by Sir *Thomas White* Merchant Taylor, who endowed it with 600 *l. per Annum*.

Wadham College, founded by *Nicolas Wadham* of *Merefield* in the County of *Somerset*, Esq; and finished in 1613, by his Widow the Lady *Dorothy*, Sister to the Right Honourable *John* Lord *Peter* of *Writle*, who endowed it with 800 *l.* of yearly Revenue for ever.

The *Halls* are seven in Number, *viz.*

1. *Magdalen Hall.*
2. *Edmond Hall.*
3. *Alban Hall.*
4. *New Inn.*
5. *Gloucester Hall.*
6. *St. Mary Hall.*
7. *Hart Hall.*

Each of them has its particular Head or Chief, called Principal.

These Colleges have each their Lectures, Disputations, &c. and in some of them publick Lectures for all Comers.

The Discipline of these Colleges and Halls, is as follows:

First, all that intend to take any Degree, are to take their Diet and Lodging, and have a Tutor constantly in some College or Hall: Then they are to attend all Exercises, to be subject to all Statutes, and to the Head of the House.

Next they are to be subject to the chief Magistrate of the University, and to perform publick Exercises. To suffer to be shut up by Night in their several Houses; never to be seen abroad out of their Chambers, much less out of their Colleges, without their Cap and Gown, which is to be black; only the Sons of the first Nobility being indulged therein, except the Doctors who are allowed to wear Scarlet Gowns.

The Degrees taken in the University of *Oxford*, are only

only two in the four Faculties, viz. *Bachelor* and *Master*, in the Arts; and *Bachelor* and *Doctor* in Theology or Divinity, Medicine, and Law. In the *French* Universities there is but one Degree in the Arts, *viz.* that of *Master*; and three in the other Faculties, viz. *Bachelor*, *Licentiate*, and *Doctor*.

Every Year at the Act or Time compleating the Degree of Master, both in the three Professions and Arts (which is always the *Monday* after the 6th of *July*) there are (unless something happens extraordinary) great Solemnities, not only for publick Exercises, but Feastings, Comedies, and a mighty Concourse of Strangers from all Parts; whereby and with the set Fees on such Occasion, it costs a Doctor of Divinity, Physick, or Law, about a hundred Pounds Sterling, and a Master of Arts twenty or thirty Pounds Sterling.

Such Solemnities in the *French* Universities, are usually preceded by three very severe Examens, and as many publick Disputations, where the Candidate is obliged to answer to all those who are pleased to dispute against him, without the Assistance of his Professor; and I know of no other Feasting but a Treat he gives to the College to which he belongs, and to the Doctors who have examined him, and assisted at his Theses. In *Sorbonne* the Expences on such Occasions exceed very often three or four hundred Pounds Sterling.

The Time required by the Statute for studying in the University, before the taking up of the afore-mentioned Degrees, is as follows:

To take the Degree of *Bachelor of Arts*, four Years are required, and three Years more for to be *Master of Arts*.

Now the Year is divided into four Terms. The first begins the 10th of *October*, and ends the 17th of *December*; and is called *Michaelmas Term*.—The second called *Hilary* or *Lent Term*, begins the 14th of *January*, and ends the *Saturday* before *Palm-Sunday*: The third, called *Easter-Term*; the fourth is called *Trinity Term*, which begins the *Wednesday* after *Trinity Sunday*, and ends after the Act, sooner or later, as the Vice-Chancellor and Convocation thinks proper.

To take the Degree of *Doctor of Divinity*, the Student must have first taken the Degree of *Master of Arts*, and then after seven Years more, he is capable of being *Bachelor of Divinity*; and then four Years more are requisite to take the Degree of *Doctor*.

To take the Degree of Doctor in *Medicine*, and of Law; three Years after *Master of Arts*, one may take the Degree of *Bachelor*, and four Years afterwards that of *Doctor*.

In the *French* Universities, the Intervals of Time are not so much minded (though there are some requisite, but not such long ones) as the Capacity of the Candidates; for if he be not capable to undergo his several Examens, which are very severe, particularly in Theology, and maintain his *Publick Theses*, with a general Applause, he must not expect to be admitted to receive his Degrees. Besides, when he has began his Studies he must go through it, without those long Intervals, in which one may forget what he has learned in the Schools.

What has been said of the *University* of *Oxford*, may be said likewise of that of CAMBRIDGE; except in the following Particulars.

That the Chancellor of *Cambridge* is not so *durante Vita*, but may be elected every three Years; or remain in the said Office, with the tacit Consent of the *University*. He has under him a Commissary, who holds a Court of Record of Civil Causes, for all privileged Persons, and Scholars under the Degree of Master of Arts, where all Causes are tried and determined by the Civil and Statute Laws, and by the Customs of the *University*.

They have also a *High Steward*, chosen by the Senate, and holds by Patent from the *University*.

The *Vice Chancellor* is chosen every Year, on the Third of *November*, by the Senate, out of two Persons nominated by the Heads of the several *Colleges* and *Halls*.

The two *Proctors* are chosen every Year, as at *Oxford*, according to the Circles of *Colleges*, and *Halls*.

There are chosen, after the same Manner, two called *Taxers*, who, with the Proctors, have the Care of Weights and Measures, as Clerks of the Market.

There is a *Custos Archivorum*, or *University Register*.

There are, also, three *Squire Beadles*; and one *Yeoman Beadle*.

This *University*, like that of *Oxford*, enjoys many Privileges granted by the Kings of *England*; among which these are the principal: Every *Michaelmas-Day* the Mayor of the Town of *Cambridge*, at his Entrance into his Office, takes a solemn Oath before the Vice-chancellor, to observe and maintain the Privileges, Liberties, and Customs of the University.—On the *Friday* before St. *Simon* and St. *Jude*, at a *Magna Congregatio*, in the Church of St. *Mary*, appointed for the Assembly of the whole *University*, the Mayor brings with him two Aldermen, four Burgesses, and two of every Parish, to take their Oath before the Vice-Chancellor, for the Search of Vagabonds, suspected Persons, *&c.* at the same Time are sworn fourteen Persons for the University, and fourteen for the Town, for the cleansing and paving the Streets.

The *University* has also a Court-leet held twice a Year, which takes Notice of all Nusances, *&c.*

In *Cambridge*, there are none unendowed Houses appointed for Students, as in *Oxford*, and the Houses endowed are no more than sixteen; but those generally so large, that the Number of Students is commonly little different from those of *Oxford*, the Halls being endowed, and privileged as the Colleges, and differ only in Name: They are as follows, according to their Antiquity.

St. Peter College, was founded in the Year 1256, under King *Henry* III. by *Hugh Balsham* Prior of *Ely*; and afterwards enlarged by *Edward* II. by *Walter Robert Lyrling*, who gave a House with the Appurtenances, sometimes inhabited by the Religious called *Fratres de sacco*. The Founder was made afterwards Bishop of *Ely*; and he finished the College in 1284.

The *College of St. Michael*, was founded by *Herveus de Stanton*, some Time Chancellor of the Exchequer, and a Canon of *York* and *Wells*; who obtained a Licence from King *Edw.* II. in the 17th Year of his Reign, to build that College for a certain Number of Scholars and Chaplains, according to the Rules he should prescribe; granting further, by the same Licence, to the said *Harvey*, Power to unite to the said College the Advowson of *St. Michael*'s Church in *Cambridge*. The said College was afterwards more enlarged, and taken in process of Time, into *Trinity College*, founded by *Henry* VIII.

University-Hall, or *College*, founded in 1326, by the Chancellor and Masters of the University of *Cambridge*. King *Edward* III. in the 20th Year of his Reign, gave Licence of *Mortmain*, to the Master and Scholars of the said College, to take Lands and Tenements, to the yearly Revenue of forty Pounds. Since that Time it was much increased by Master *Walter Tacksteed*, Master of the same College. But now it is united to the Foundation of the Lady *Elizabeth del Burgo*, Countess of *Clare*.

King's Hall, or College, had its first Beginning of King *Edw.* II. who maintained there for a Time 32 Scholars, who afterwards were paid sometimes by the Sheriff of *Cambridge*, sometimes by the Prior and Convent of *St. Medu*, and sometimes out of the Exchequer. But King *Edw.* III. by his Charter, dated the 7th Day of *December*, in the eleventh Year of his Reign, erected there a College to the Honour of God, his blessed Mother the Virgin *Mary*, and all the Saints, for a Master and 32 Scholars, calling it *King's Hall*, the Ground whereof he purchased of Master *Gilbert Croiland*, and endowed it afterwards with Lands and Possessions; and it continued a College till the Time of King *Henry* VIII. who united it to his own Foundation of *Trinity College*.

Clare Hall, was founded by Lady *Elizabeth de Burgo*, some Time Wife of *John de Burgo* Earl of *Veton* in *Ireland*, Daughter of Sir *Gilbert* of *Clare* Earl of *Gloucester*, and one of the Heirs of Sir *Gilbert* of *Clare* her Brother. She was first married to *John Burgh*, Earl of *Ulster* in *Ireland*, afterwards to *Theobald* of *Verdon*, and thirdly to Sir *Roger Damary*. She taking into her Foundation the afore-mentioned *University Hall*, by the Resignation of Master *Walter Thacksteed*, Master thereof, and with the Consent of Mr. *Richard Baden*, the first Founder, called it *Clare Hall*; and became the only Founder thereof in the Time of King *Edw.* III. about the Year 1347.

Pembroke-Hall, was founded by the Lady *Mary* of

of *Valentia*, Countess of *Pembroke*, Wife of *Audomare*, of *Valentia*, Earl of *Pembroke*, and Daughter of *Guido*, Earl of St. *Paul* in *France*. She obtained a Privilege of King *Edward* III. (whose Cousin she was) to found this College for a Master and Thirty Scholars, or more, at her Pleasure: And to assign them, for their Abode, a Place in *Cambridge* of her own Inheritance, with three other Messuages, which she purchased, and 100 *l.* of Yearly Revenue, *Anno* 1347.

Corpus Christi College, commonly called *Bennet-College*, was founded by the Alderman and Brethren of *Corpus Christi Guilde*, and the Brethren of our Lady *Guilde*, in *Cambridge*, at the Instance of *Henry* Duke of *Lancaster*, who in the 26th Year of King *Edward* III. obtained a Licence of Mortmaine for the said Alderman and Brethren, that upon a Messuage to them belonging in *Cambridge*, they might build a College for Scholars, Chaplains, and others, to be governed by a Master, according to their Rules. By the same Licence was also appropriated unto the *College* for ever, the Advowson of St. *Bennet*'s Church standing before their Gate. This Duke of *Lancaster*, in the 28th Year of the said King *Edward* III. was elected Alderman of the said Guilds, who recognized the Statutes of the said Guilds, says my Author.

Trinity-Hall, was in antient Times an Hôtel or House of Study; and in the Reign of *Edward* III. *John Crandell*, Prior of *Ely*, and his Convent, procured the said Hôtel for a *College* for the *Monks*; to this House were added three other dwelling Houses, by Master *Richard Ling*, Chancellor of the University, and *Archibald* of *Norwich*, Master *Walter Elveden*, and M. *Simon Rekingal*, Rector of *Rolesby*. —— In the 28th Year of the said King, Mr. *Robert Stratton*, *J. Trunch*, *Walter Backton*, *Walter de Aldeby*, and *Peter Pitterings*, gave towards the Enlargment thereof, one Messuage, and seven Paces of void Ground; and likewise the said *Walter Backton*, *Peter Pitterings*, and *Thomas Walsingham*, gave another Messuage, called *Drake's* Entry; all which being thus laid together, were purchased afterwards, by Master *William Bateman*, Bishop of *Norwich*, who by the King's Licence, built there the *College*, for the most Part, as it now stands; and indow'd it with Lands and Possessions, and was the Founder thereof; he died at *Avignon* in *France*, the 6th of *January* 1345.

Gonville Hall, was founded by *Edmund Gonville*, Parson of *Tarington* in *Norfolk*, in the 22d Year of *Edward* III. who obtained a Licence at the Suit of Sir *Walter de Manny*, to build a *College* for a Master and 30 Scholars; where sometimes stood three Houses, and a Garden in *Lurthrow Lane*, which he purchased with his own Money, and in the 26th Year of the same King, that *College* was enlarged with two other Houses, one of them given by the Chancellor and Masters of the University, and the other by the Masters and Brethren of St. *John*'s Hospital in *Cambridge*. This *Edmund Gonville*, left at his Death a considerable Sum to *William Bateman* Bishop of *Norwich*, to finish the said *College*, which he did accordingly, and called it *Gonville Hall*; it was united afterwards to *Caius College*, under the Name of *Gonville* and *Caius*.

The *College of God's House*, was first founded by *William Bingham*, Parson of St. *John Zachary* in *London*, on a Tenement, and three Gardens he purchased with his own Money, in *Miln street*; and obtained a Licence of King *Henry* VI. in the twentieth Year of his Reign, to build thereon a *College* for 25 Scholars and a Provost, to be governed by such Rules and Statutes, made by the said *William Bingham*, *William Wimbel*, *William Millington*, and *William Gull*, Doctors of Divinity, and *John Tilney* Doctor of Law, and the longest Liver of them. —— This *College* was chiefly erected for a Grammar School; few Years afterwards, King *Henry* being determined to found his *College* of our Lady, and St. *Nicholas*, obtained of the said *William Bingham*, a Resignation of the House and Ground, and in lieu thereof, gave him two other Places in *Preachers-street*, one of them belonging to the Abbot of *Tiltie*, and the other to the Prioress of *Deny*, together with a Licence of *Mortmaine* for 100 *l.* *per Annum* for ever, towards maintaining his *College*; but shortly afterwards, *viz.* in 1447. the said *William Bingham* resigned likewise, his new *College* to the King, that his Majesty should be accounted the Founder thereof, as he really was; but now, it is annexed to *Christ's College*, founded by the Lady *Margaret*, Countess of *Richmond* and *Derby*.

The *King's-College*, of *our blessed Lady and St. Nicholas*, was founded by King *Henry* VI. in the 19th Year of his Regin, but the said *College* having incurred the Displeasure of *Edward* IVth, his Majesty took from it all the Lands which the Founder had given them; and restored them again afterwards, to the yearly Revenue of five hundred Marks. *Henry* VII. finished the fine Chapel began by *Henry* VI. And King *Henry* VIII. had it glazed and paved with Marble; King *Henry* VIth's Design was, that this *College* should be one of the finest Buildings in the Kingdom.

The *College of St. Margaret and St. Bernard*, commonly called *Queen's-College*, was first began by Queen *Margaret*, Wife of *Henry* VI. and Daughter of *Regnier* King of *Sicily* and *Jerusalem*; who procured a *Mortmaine* for the same, in 1441, for 100 *l.* annual Revenue, at the Intercession of Mr. *Andrew Ducker*, Parson of St. *Butolph*, in *Cambridge*, sometime Principal of *Bernard Hôtel*, which he purchased and gave to the said College; and purchased likewise, with the Assistance of some others, certain other Tenements, whereupon he built the College, being himself the first President thereof; giving to it afterwards, as well in his Life-time, as by his Will, divers Sums of Money and Parcels of Land; and engaging, besides, *George* Duke of *Clarence*, *Cecil* Dutchess of *York*, *Richard* Duke of *Gloucester*, and *Anne* his Wife, *Edward* Earl of *Salisbury*, *Maud* Countess of *Oxford*, and *Marmaduke Lumley*, Bishop of *Lincoln*, sometime Chancellor of the University, to be all Benefactors to it. But this Foundation was since attributed to *Henry* VI. as appears by his Charters dated the third Day of *December*, in the 25th Year of his Reign, who built on his own Ground, where it stands now, in *Miln-street*, for a President, and four Fellows or more, according to the Extent of the Revenues; and to follow the Rules, and Statutes, which were to be devised by Master *John Somerset*, Chancellor of the Exchequer, *John Langton* Chancellor of the University, *Richard Candry*, *Peter Harford*, *Gilbert Northington*, and *Thomas Bolyn*, or by the longest Liver of them; Queen *Elizabeth*, Wife of King *Edward* IV. finished afterwards, what was left imperfect in the Year 1465. and King *Richard* III. endowed it with 500 Marks of annual Revenue in Lands.

Katherine-Hall, in the Reign of *Edward* IV. and in the Year 1475. by *Robert Woollark*, Doctor of Divinity, Chancellor of the University, and Provost of *King's College*, in the Honour of our blessed Lady and St. *Katherine*, Virgin and Martyr; it was founded for a Master and three Fellows, or more, on a Messuage in *Miln-street*, which he purchased with his own Money; obtaining likewise, of the King, a Licence of *Mortmaine* for 40 Marks of annual Revenue for ever, for the Support of his *College*, which was afterwards enlarged by other Benefactors.

Jesus-College, was antiently a Monastery of Nuns of St. *Radegunde*, but the Monastery having been deserted by the Nuns for want of Subsistance, *John Alcocke*, Bishop of *Ely*, obtained Leave of King *Henry* VII. in the Year 1407. to build on the Ground of that ruinated Edifice, a *College*, in Honour of the Holy Trinity, of our blessed Lady, of St. *John the Evangelist*, and of St. *Radegunde*, Virgin, for a Master, Six Fellows, and a certain Number of Scholars, to be governed by such Rules and Statutes, he should digest for them: The Revenues of this College, and the Number of Fellows, were augmented afterwards, at different Times, by Sir *Robert Read*, Bart. Lord Chief Justice of the Common Pleas, Dr. *Elefon*, Dr. *Royston*, and Dr. *Fuller*.

Christ's College, was first begun by *Henry* VI. and after his Decease, continued by Lady *Margaret*, Countess of *Richmond* and *Derby*, Daughter and Heiress of *John* Duke of *Somerset*, and Mother of King *Henry* VII. on the same Ground where the College of *God's House* stood, in *Preachers-Street*; for which she obtained of the King her Son, a Charter dated the 1st of *May*, in the 20th Year of his Reign, and of Christ 1505, giving to it by her Will a Competency for 60 Students, with Servants and other Necessaries. The Abby of

Creke having been diſſolved, the Lands thereof were given to this College.

St. John's College, was antiently a Monaſtery of regular Canons, founded by *Nigellus* ſecond Biſhop of *Ely*, and Treaſurer of King *Henry* I. in the Year 1134, many Years afterwards, *Hugh Balſham*, otherwiſe *Norwold*, Biſhop of *Ely*, obtained Leave of King *Edward* I. in the Year 1280, to place a certain Number of Scholars in that Houſe, to live with the Monks, dividing between them and the Scholars, with their unanimous Conſent, the Lands and Goods of the Monaſtery; leſt by expelling the Monks quite, and transferring them to another Place, as he had done Part of them, the Poor ſhould have been deprived of the daily Relief which the Monaſtery allowed them.

The Lady *Margaret* Counteſs of *Richmond* and *Derby*, being informed that the Number of Monks was reduced to two only, the Houſe decay'd, and the Lands and Goods waſted, obtained Leave of her Nephew King *Henry* VIII. to build in the ſame Place a College in Honour of St. *John* the Evangeliſt; but having been prevented by Death, ſhe left the Execution of her pious Deſign to her Executors, *Richard Fox* Biſhop of *Wincheſter*, *John Fiſher* Biſhop of *Rocheſter*, *Charles Somerſet* Lord *Herbert*, afterwards created Earl of *Worceſter*, Sir *Thomas Lovel*, Sir *Henry Marney*, and Sir *John St. John*, Knights, *Henry Homby* and *Hugh Aſhton*, Clerks; who with the Money ſhe had left, finiſhed the Building, endowed the College with her own Lands, and founded it in 1509, for a Maſter and 50 Scholars.

Magdalen College, was firſt an Hoſtel, or Hall, inhabited by Monks of ſeveral different Monaſteries (and therefore called then Monks College) who were ſent thither from their reſpective Abbies, to ſtudy in the Univerſity.

Edward Duke of *Buckingham*, built the Hall of this College in 1519, wherefore it was called for a Time *Buckingham College*. But the Buildings which were left imperfect by the Duke, were perfected afterwards by the Prior of *Ely*, and Abbots of *Ramſey* and *Walden*; and thus continued a Place of Study for the Monks, till the general Suppreſſion of Monaſteries made by *Henry* VIII.

At laſt, the Lord *T. Audeley* Baron of *Walden*, and Chancellor of *England*, founded there a College under the Name of St. *Mary Magdalen*, and endowed with Poſſeſſions in the Year 1542; but being prevented by Death from finiſhing what he had begun, Sir *Chriſtopher Wray* Lord Chief Juſtice of *England*, repaired and beautified it.

Trinity College, was founded by *Henry* VIII. in the Year 1546, and erected on the ſame Spot of Ground, where *Edward* III. had built his College, called *King's Hall*; whereunto was joined another College, called *Michael Houſe*, founded by *Harvey de Stanton*, in the Time of *Edward* II. and another Houſe called *Phiſwick Hoſtel*; all which three Houſes the King took into his new College, with the Poſſeſſions and Buildings belonging thereto, and called it *Trinity College*: The Poſſeſſions thereof were much augmented by Queen *Mary*, who gave it three hundred and thirty-eight Pounds of annual Revenue in Lands; and under whoſe Reign was built likewiſe the ſtately Chapel of that College, *viz.* in the Year of Chriſt 1557.

Gonvile and *Caius College*, was firſt begun by *Edmond Gonvile*, as heretofore mentioned. *John Caius*, Doctor in Phyſick, who had been Fellow and Maſter of the ſaid College, enlarged the Houſe and made it a new Foundation, by giving to it certain Manors and Lands, in the Year 1557, calling it by the Name of *Gonvile*, and *Caius College*.

Emanuel College, was founded by Sir *Walter Mildmay*, Knight, Chancellor and under Treaſurer of the Exchequer, and Privy-Counſellor to Queen *Elizabeth*, about the Year of our Lord 1584, on the Ground where the Convent of the Friar Preachers, or Dominicans ſtood, in *Preachers-Street*.

Suſſex Sidney College, was founded in the Year 1598, by the Lady *Frances Sidney* Counteſs of *Suſſex*, by whoſe Foundation it has a Maſter, ten Fellowſhips, and twenty Scholarſhips; to which Sir *John Hart* added afterwards two Fellowſhips and four Scholarſhips; ſeveral other Perſons having been ſince Benefactors to this College.

The Degrees are uſually taken at *Cambridge*, as at *Oxford*, except in Law and Phyſick, whereof, after ſix Years, they may take the Degree of *Bachelor*, and after five Years more that of *Doctor*.

In this *Univerſity* the *Lent-Term* begins the 13th of *January*, and ends the Friday before *Palm-Sunday*.—*Eaſter-Term* begins the *Wedneſday* after *Eaſter* Week, and ends the Week before *Whitſun-tide*. *Trinity Term*, they have none at *Cambridge*, for from *Eaſter* to the Commencement is but one Term with them. *Michaelmas-Term* begins the 10th of *October*, and ends the 16th of *December*.

The firſt *Tueſday* of *July* is always *Dies Comitiorum*, there called the Commencement, wherein the Maſters of Arts, and the Doctors of all Faculties compleat their Degrees reſpectively; and the *Bachelors of Arts* do theirs in *Lent*, beginning at *Aſh-wedneſday*.

I will not have the Preſumption to give the Precedency to one of thoſe two celebrated *Univerſities* over the other, ſince I know nothing of them but what I have learned from Authors, and common Report; tho' that of *Oxford* has always been reckoned the firſt; and has always produced, and produces ſtill very eminent Perſons in all Faculties; though perhaps that of *Cambridge* is not inferior to it on that Article; and if the Number of eminent Perſons is not ſo great from *Cambridge* as from *Oxford*, it is not for want of Capacity in the Profeſſors; but becauſe *Cambridge* is not ſo much frequented as *Oxford*, and therefore has not ſo great a Number of Students. *Oxford* was always certainly, and without the leaſt Partiality, an *Univerſity* of very great Reputation, and even now, that moſt of the moſt famous *Univerſities* of *Europe* have loſt a great deal of their antient Luſtre, that of *Oxford* may be put on a Par with the *Univerſity* of *Paris*; and that of *Cambridge* next.

Beſides theſe two *celebrated Univerſities*, there are ſome very conſiderable Schools in *England*, viz.

Eaton School, founded by King *Henry* VI. in 1443.

Weſtminſter School, founded by Queen *Elizabeth*.

Wincheſter School, founded by *William Wickham* Biſhop of *Wincheſter*.

St. *Paul's School*, in *London*, founded by *John Collet* in 1510.

St. *Anthony's School*, in *London*, founded by *John Tate*.

Merchant Taylors School, founded by the Merchant Taylors in 1560.

Beſides which there is a Free *Grammar School* in *Shrewſbury* in the County of *Salop*, founded by King *Edward* VI. in the ſixth Year of his Reign, and of Chriſt 1552, and much augmented ſince by Queen *Elizabeth*, in the thirteenth of her Reign, and of Chriſt 1571.

From this I'll paſs to the Foundations of all the Colleges, privileged Schools, *&c.* within the City of *London*, beginning by the *Inns of Court*, as they are commonly called, ſince they are Colleges for the Inſtruction of young Lawyers in the Practice of their Profeſſion; and as the Temple is the moſt antient, the firſt in Order, and accounted the moſt famous; I'll begin with the *Temple*.

The TEMPLE, was antiently a Houſe belonging to the Knights Templars of *Jeruſalem*, built by them, together with the beautiful Chapel belonging to it, as it now ſtands, which was dedicated to the Service of God, by *Heraclius* Patriarch of *Jeruſalem*, in 1185, and where they continued in great Honour and Opulency for the Space of 100 Years, *i. e.* to the Time of their Suppreſſion, which happened at the Council of *Vienna*, as mentioned in my Treatiſe of *Orders* under the Letter O.

After this Suppreſſion, this Houſe of the Templars was occupied by divers Lords ſucceſſively. Firſt by *Thomas Plantagenet*, Earl of *Lancaſter*, and Couſin of the then reigning King; but being ſoon afterwards attainted of Treaſon, he enjoyed it but a ſhort Time.

It fell next to *Hugh Spencer*, Earl of *Glouceſter*, who being likewiſe, ſoon after, attainted and executed for Treaſon, it came afterwards in the Poſſeſſion of *Aymar of Valence*, of the illuſtrious Houſe of *Luſignan* in *France*,

France, Earl of *Pembroke*, in *England*; who having enjoyed it for a while, some Professors of the Law obtained under *Edward* III. a long Lease of two Parts of the *Temple*, *viz.* of the *middle* and inner *Temple* from the Knights of St. *John* of *Jerusalem*, to whom it had been given in Property, at the Dissolution of the Templars, on Condition of paying to them a yearly Revenue of ten Pounds: Dr. *Stapleton*, Bishop of *Exeter*, having got Possession, under *Edward* II. of what is called at present the *outward Temple*, and converted it into a House for him, and his Successors Bishops of *Exeter*, in whose Possession it continued under the Name of *Exeter-Inn*, until Queen *Mary*'s Time, when the Lord *Paget*, principal Secretary of State, having found Means to have it conveyed to him and his Heirs, re-edified it; afterwards it came by Purchase under Queen *Elizabeth*, to *Thomas* Earl of *Norfolk*, who passed it over to the Earl of *Leicester*, and he gave it to his Son, Sir *Robert Dudley*, of whom the famous Earl of *Essex* purchased it, for which it was called *Essex-House*.

The next *College* or *Inn* of *Court*, is *Lincoln*'s-*Inn*, situated in *New-street*, or *Chancery-lane*, part thereof was antiently the Messuage or Mansion-House of a Gentleman called *William de Hoverstyle*, Treasurer to King *Henry* III. who was attainted of Treason, and his House and Lands confiscated to the King, who gave his House to *Ralph de Nova Villa*, Chancellor of *England*, and Bishop of *Chichester*, who built on the same Ground a fine House for him, and his Successors Bishops of *Chichester*, in whose Possession it continued till the Reign of King *Henry* VII. when it was conveyed to Judge *Suliard*, which Judge and his Posterity enjoyed it till the Reign of Queen *Elizabeth*, when Sir *Edward Suliard* of *Essex*, sold it to the Benchers of *Lincoln's-Inn*; and notwithstanding, that Part of the Inheritance of this House belonged first to *Hiverhyll*, and afterwards to the Bishops of *Chichester*, yet the Professors and Students of the House called it *Lincoln's-Inn*, though it never belonged to any of the Earls of *Lincoln*; not but Sir *Henry Lacy*, Earl of *Lincoln*, enjoyed that Part of it which was made out of the old Monastery of the black Friars, given to him by King *Edward* I. which Friars left that and went into the new Monastery of *Black-Friars* founded then in *London*, by Dr. *Kilnarby*, Archbishop of *Canterbury*; and it is likely enough that this Earl of *Lincoln*, got some Part of the Bishops of *Chichester*'s Ground, towards enlarging his new House in *Lincoln's Inn*, which he built in the Reign of King *Edward* I. and where he died, in the Year 1310, and not only that House, but likewise *Chichester-Inn*, and other Messuages purchased by the Benchers of this *College*, were joined afterwards into one and the same Building, and called *Lincoln's-Inn* to this Day.

We have no mention made on Record, of the flourishing State of this *Inn*, until King *Henry* VIth Reign; when it appears by the Records of the House, that it was then a flourishing, and well established *College*, provided with famous Professors, and full of Students of the municipal Laws of *England*.

Since that Time it has been much enlarged and beautified with fair Buildings; for in the Reign of King *Henry* VIII. Sir *Thomas Lovel*, who had been Fellow of this House, built the Gate-House, and set up in the Frontispiece, the Arms of the aforesaid Earl of *Lincoln*, as the Arms of the House with his own Arms; since which Time the Benchers have augmented the House with Buildings and Chambers.

Grays-Inn, was antiently the *Inn* or House of the antient Barons the Lords *Gray*, whence it took the Name.

It is situated within the Manor of *Pirpool* in *Holbourn*, being an antient Prebend of the Cathedral Church of St. *Paul* in *London*; it is at present a very sumptuous Building, with a beautiful Garden, and kept in good Order, where all Persons of Fashion are suffered to walk and take the Air; of this *Inn*, if I be rightly informed, was the infamous Serjeant *Bradshaw*, who was President of that sacrilegious, and mock Court, who committed that horrid Crime which irritated Heaven, and shocked the whole Earth; for which the Benchers, and other Gentlemen of that celebrated *Inn* are not to be reflected upon; since there is not in the whole Kingdom, greater Friends to Monarchy and more loyal Subjects.

The Exercises practised in these three *Inns of Court*, whither resort the Sons of the best Gentry in the Kingdom, which is easily known by their good Manners, and noble and gentle Behaviour, are the Study of the municipal Laws of *England*; in which after they have employed some Years, they obtain the Degree and Title of *inner Barristers*, and at the End of seven Years, become *outward Barristers*, and are then called to the Bar, and soon after are allowed to practise openly the Law in all the Courts of Judicature, and to give Counsel, wherefore they are called learned Counsellors at Law: After some Years more, and as they grow in Learning and Reputation, they are allowed to read the Law publickly in their Halls, and therefore are called *Readers*. If afterwards they read again, they are called *double Readers*, and lastly, *Benchers*; being called then to the Government of the Affairs of their Society, to reform the Abuses and Irregularities introduced into it, to punish Offenders, *&c.*

But many of these Professors are preferred by the King, in Consideration of their great Merit and Reputation, to serve him in higher Offices, in his Court of *King's-Bench*, *Common-Pleas*, *Exchequer*, *Chancery*, &c. under the Name of *Serjeants at Law*, and wear a *Coif* for Marks of their Dignity, and a scarlet Gown on solemn Occasions.

But to enter into a more exact Detail of their Exercises in their *Inns*; they have Conferences and Disputations, which they call *Meotes*, *Pleadings*, *putting Cases*, &c.

As to the *Inns of Chancery*, *Thavie's-Inn* is reckon'd the first as to Antiquity, it was antiently the Mansion-House of an honest Citizen, called *John Thavies*, an Armourer by Profession; and was rented of him in the Reign of King *Edward* III. by the chief Professors then of the Law; as it may be seen yet in a Record in the *Hustings*. But it was purchased afterwards, for the Students and Professors of the Law of *Chancery*, by the *Benchers* of *Lincoln's-Inn*, about the Reign of King *Henry* VII. retaining still the Name of the old Landlord or Proprietor, *Master Thavies*.

Furnival's-Inn (as it appears upon Record of the sixth Year of King *Richard* II.) was the House of Sir *William Furnival*, Knight, without any other Addition or Title of Honour; but doubtless that Sir *William*, Owner of this *Inn*, was Baron and Lord *Furnival*, whose Heiress was married to *John* Lord *Talbot*, created Earl of *Shrewsbury*, by King *Henry* VI. and the Earl had this House, and other large Estates in Dowry with his Wife, Daughter and Heiress of the Lord *Furnival*. *George Talbot*, Earl of *Shrewsbury*, sold this House, in the Beginning of Queen *Elizabeth*'s Reign, or thereabouts, to the Benchers of *Lincoln's-Inn*, for a College for the Gentlemen Students of the Law of Chancery.

Bernard's-Inn, first called *Mackworth's-Inn*, was, in the Reign of King *Henry* VI. a Messuage belonging to Dr. *John Mackworth*, Dean of *Lincoln*, and being in the Occupation of one *Bernard*, at the Time of the Conversion thereof, into our *Inn* of Chancery, it bears the Name of *Bernard's-Inn* to this Day.

Staple-Inn, or Hôtel of the Merchants of the *Staple*; which is all I can learn of the Antiquity of this House: To which, however, it must be added, that it is the fairest of all the *Inns* of Chancery.

Clifford's-Inn, was first the House of *Mallon de Hersey*, and was resigned to King *Edward* I. for Debts; and it is commonly said to have been the Palace or House of the Lord *Clifford*; but in the Records of the Reign of King *Edward* II. it is said, that this House was given by the King to *Robert Clifford*, without any Addition of Title; and let afterwards to Students in the Law by Dame *Isabel*, Widow of the said *Robert Clifford*, in the eighteenth Year of King *Edward* II. for four Pounds of annual Rent. Yet the Opinion of those who hold it to have been the House of the antient Lords *Cliffords*, Earls of *Cumberland*, is not to be rejected; for the antique Buildings belonging to it, and the antient and honourable Coats of Arms set up in the Hall and other Places of the House, shew it to have been the Mansion of some noble Personage.

Clement's Inn, was a Meſſuage belonging to the Pariſh of *Clement's Dane*. I find nothing elſe in Authors relating to it.

New Inn, was a publick Inn for Travellers, the Sign whereof was the Picture of our Lady, and thereupon it was called our *Lady's Inn*. It was purchaſed or hired by Sir *John Finure*, Chief Juſtice of *England*, in the Reign of King *Edward* IV. for 6 *l. per Annum*, for a Houſe for thoſe Students of the Law who were lodged in the *Little Old Bailey*, in a Houſe called *St. George's Inn*, at the upper End of *St. George's Lane*. But ſome ſay, the going in was over-againſt *St. Sepulchre's* Church, and reputed to have been the moſt antient Inn of Chancery while it ſtood: But it has been long ſince converted into Tenements; and I don't know if at preſent there is any Remains thereof.

Lyon's Inn, was alſo a publick Inn for Travellers, which had a Lion for the Sign; but purchaſed afterwards by Gentlemen Profeſſors and Students in the Law, in the Reign of King *Henry* VIII. and converted into an Inn of Chancery.

As to the Rules obſerved in theſe Inns of Chancery, and the Exerciſes practiſed therein; each Inn has a Chief or Governor, called Principal; and here young Students make their firſt Eſſay of the Study of the Law, which if they like and deſign to proceed, they remove ſoon after to one of the *Inns of Court*, to which that Houſe of Chancery belongs; for they can take no Degree in an *Inn of Chancery*. Every *Inn of Court* has two or three *Inns of Chancery* belonging to it, *viz.* to the *Middle Temple* belongs *New Inn*; to the *Inner Temple* belongs *Clifford's Inn*, *Lion's Inn*, and *Clement's Inn*. *Thavie's Inn*, and *Furnival's Inn*, are Members of *Lincoln's Inn*; *Staple's Inn*, and *Bernard's Inn* belonging to *Gray's Inn*. Wherefore ſeveral are of Opinion, that all theſe Houſes of Chancery were founded, purchaſed, and eſtabliſhed by the Profeſſors, and Gentlemen of theſe *Inns of Court*; and to confirm their Opinion, twice every Year, *viz.* in *Lent* and in *Auguſt*, a learned Gentleman is choſen among the Counſellors, to come and hear the *Meotes* and Diſputations, and give Leſſons in each of theſe Houſes of Chancery belonging to that *Inn of Court*, from which this Profeſſor is ſent.

There is no Neceſſity for young Students firſt educated in one of theſe inferior Inns, to remove to a ſuperior one; but they may continue in the Inn they have choſen firſt; but if they remove to another their Admiſſion into it will be attended with more Expences.

The *Six Clerks Office*, is alſo an Inn of Chancery, where Gentlemen learned in the Law, and belonging to that high Court, live in common, and were in their firſt Inſtitution Prieſts; whence they have been called *Clerks*. This Inn is ſituated in *Chancery-Lane*, and was purchaſed for them by Mr. *John Kederminſter*, Eſq; one of their Society, a moſt ſkilful Man in his Profeſſion, very faithful to his Friends, and very juſt to his Clients. This Houſe was antiently the Palace of the Abbot of *Nectan* in *Lincolnſhire*; and afterwards the Houſe of one *Herſleete*.

To the ſaid Six Clerks Office may be added *Curſitors*, or rather *Coriſters Inn*, founded by Sir *Nicolas Bacon*, Knight, Lord Keeper of the Great Seal of *England*; and ſituated in *Chancery-Lane* over-againſt *Lincoln's Inn*. The Office of the *Curſitors* is to make all original Writs which are to be ſent into all Parts of *England*.

Some chuſe rather to call theſe Gentlemen *Coriſters* than *Curſitors*, becauſe, ſay they, they are neither Meſſengers nor Poſtmen; and ſupport their Sentiment on that antiently moſt of the Officers of Chancery, or Court of Conſcience, were Eccleſiaſticks, Divines, and Canoniſts; for Example, the firſt Officer of this Court was a Biſhop, and was called *Cancellarius*, a *Cancellis*, becauſe he ſet *intra cancellos*, i. e. in Chancels. The ſecond Officer is the *Maſter of the Rolls*, who was either a Dean or Warden, or Provoſt of ſome Cathedral, or Collegiate Church. The Maſters of Chancery were Doctors of Divinity, and of the common Law, and had Prebends and Dignities in the Churches aforeſaid. The *Six Clerks* were ſecular Prieſts, as it appeared by their Habits and ſhaved Crowns, to be ſeen yet on their Tombs in the Temple Church, and elſewhere. Whence it is concluded, that it was proper that among all theſe Eccleſiaſticks, and next to them ſhould be Choriſters, becauſe there was then no conſiderable Church without them.

Next come the *College of Civilians*, called *Doctors Commons*, ſituated upon *St. Bennet's Hill* near *Paul's Wharf*; which was purchaſed for them about the Beginning of Queen *Elizabeth*'s Reign, by Mr. *Henry Harvey*, Doctor of the Civil and Canon Law, Maſter of *Trinity Hall* in *Cambridge*, Prebendary of *Ely*, and Dean of the Arches; before which Time the *Civilians* and Canoniſts were lodged in *Pater-noſter-Row*.

Dr. *Harvey* obtained a Leaſe of this new College of *Civilians* for 100 Years, of the Dean and Chapter of St. *Paul*, for the annual Rent of five Marks; in which are lodged, and live in common, the *Judge of the High Court of Admiralty*, who is always a Doctor of the Civil Law, and Deputy of the Lord High Admiral of *England*, for Matters of Law and Judicature in maritime Affairs, whether criminal, civil, or capital. *Item*, the *Dean of the Arches*: The *Commiſſioners* delegate, or Judges of the Court of Delegates: The *Vicar-General*; *Chancellors* of the Archbiſhop of *Canterbury*, and the Lord Biſhop of *London*: The *Maſter* or *Cuſtos*, or Commiſſary of the Prerogative Court of *Canterbury*: The *Auditor Cauſarum*, or Judge of the Court of Audience; and ſo many of the Judges of the Court of High Commiſſion as are profeſſed *Civilians*: As alſo the Doctors of Civil and Canon Law, who are Advocates in all theſe ſeveral Courts; together with the *Procurators* or *Proctors* in theſe Courts, commonly called *Licentiates* and *Bachelors* in the Civil and Canon Law.

Note, That having taken Notice of the *College of Phyſicans*, in my Treatiſe of Apothecaries, and of Phyſick; it would be needleſs to repeat here what I have ſaid in thoſe two Places; therefore I'll paſs it over in Silence, to come to *Greſham College*.

Greſham College, in *Biſhopſgate-Street*, was founded by Sir *Thomas Greſham*, Knight and Merchant of *London*, in 1579, for ſeven Lectures of ſeven different Faculties and Arts, to be read publickly, *viz.* a Lecture of *Divinity*, a Lecture of the *Civil Law*, a Lecture of *Phyſick*, a Lecture of *Rhetorick*, one of *Aſtronomy*, one of *Geometry*, and one of *Muſick*; by ſeven different Profeſſors of thoſe ſeveral Arts and Sciences: Thoſe Lectures to be read only in Term-time; each Profeſſor being allowed by the worthy Founder fifty Pounds a Year, with a commodious Lodging in the fine College he cauſed to be built for that Purpoſe.

Sion College, ſituate in the Pariſh of St. *Alphage* within *Cripplegate*, has been a religious Houſe Time out of Mind, ſometimes under the Denomination of a Priory or College; ſometimes under that of a Spittle or Hoſpital, as at its Diſſolution 31 *Henry* VIII. it was called *Elſying-Spittle*, from *William Elſying*, Mercer, who founded it *Anno* 1329, 3 *Edward* III.

'Tis now, and has been 6 *Carol.* I. a Complication of both: 'Tis a College for the Uſe of all the *London* Miniſters, Rectors, Vicars, Lecturers, and Curates, canonically inſtituted and inducted, or that have Licence to preach within the City of *London*, from the Lord Biſhop of that Dioceſe, who were incorporated by *Charles* I. 1631, under the Name of *Preſident and Fellows of Sion College*, within the City of *London*, at the Prayer of Dr. *Thomas White*, Vicar of St. *Dunſtan's* in the Weſt, and one of the Reſidentiaries of the Cathedral Church of St. *Paul*; 'tis an Hoſpital likewiſe for ten poor Men and ten poor Women (the former within, the latter without the Gates of the Houſe) whereof four are to be nominated by the City of *Briſtol*, where Doctor *White* was born; eight by the Merchant Taylor's Company, ſix by the Pariſh of *St. Dunſtan's* in the Weſt, where he was Miniſter 49 Years, and two by *St. Gregory's* near St. *Paul's*, where he lived about 20 Years, unleſs any of his poor Kindred appear, who are always firſt to be conſidered by the Electors, the Preſident, two Deans, and four Aſſiſtants, who are annually choſen out of the Rectors and Vicars of *London*, as Governors of this College and Hoſpital, ſubject to the Viſitation of the Lord Biſhop of *London*.

Mr.

Mr. *John Simpson*, Rector of St. *Olave*'s in *Hart-Street*, and one of Dr. *White*'s Executors, built here a ſtately Library for the Clergy principally, without excluding other Students, who have the free Uſe of it under certain Reſtrictions, which are printed, and hung up in that fair Room, not inferior to many of the beſt Libraries in either of the two Univerſities.

This Library was at firſt well ſtocked by the Founder thereof, and many other Benefactors, *viz.* Sir *Paul Bayning*, Viſcount *Sudbury*, his Viſcounteſs, Sir *Paul Pindar* Sir *George Croke*, *Elizabeth* Viſcounteſs *Camden*, *Brion Walton*, Lord Biſhop of *Cheſter*, ſeveral Aldermen of *London*, with moſt of the Clergy thereof. At length it was ſo augmented by the Books belonging to the Cathedral of St. *Paul*, which were carried firſt to *Camden-Houſe*, and then brought thither in 1647; that ſoon after, *viz. Anno* 1656, the then Library-Keeper, Mr. *Spencer*, publiſh'd a large Catalogue of them in Quarto.

Merchant-Taylors School, ſituate near *Cannon-ſtreet*, was built by Sir *Thomas White*, Alderman, and Merchant-Taylor of *London*, the Founder of St. *John Baptiſt College* in *Oxford*. Here are 300 Scholars taught; 100 *gratis*, 100 at 2*s.* 6*d.* a Quarter, and 100 at 5*s.* a Quarter.

To this School belongs 37 Fellowſhips in the ſaid College at *Oxford*; two Scholars are from hence yearly elected as Places become vacant. One Side of it ſtands upon great ſtone Pillars, in a large Court paved with Free-Stone. It has a good Library belonging to it, and a large Houſe for the Maſter, with Apartments for each of the three Uſhers.

At *Mercers-Chapel*, in *Cheapſide*, is a good School belonging to the Company of *Mercers*.

The *Charter-Houſe* was antiently a Monaſtery of *Carthuſian Monks*, whence it is called, by Corruption, the *Charter-Houſe*. It is ſituated without the Walls of *London*, and is alſo called *Sutton*'s-*Hoſpital*; it conſiſts of a Maſter, a Governor, a Chaplain, and ſeveral other Officers; alſo a Maſter and Uſher to inſtruct 44 Scholars, beſides 80 decayed Gentlemen, Soldiers, and Merchants, (at leaſt it was the Intention of the noble Founder, which is at preſent much fruſtrated) who have all a plentiful Maintenance of Diet, Lodging, Cloaths and Phyſick, *&c.* and live all in a Collegiate Manner: And the 44 Scholars have not only Neceſſaries while they are here taught, but if they become fit for the Univerſities, there is alſo for each of them, out of the yearly Revenue of this College, 20 *l.* a Year, to keep them eight Years at the Univerſity; and to others fitter for Trades is allowed a conſiderable Sum of Money to bind them Apprentices.

There are, beſides, all Sorts of Officers neceſſary for ſuch a Society, as Phyſician, Apothecary, Steward, Cooks, Butlers, *&c.* who have all competent Salaries.

This vaſt Revenue was the ſole Gift of *Thomas Sutton*, Eſq; a *Lincolnſhire* Gentleman. The Houſe coſt him at firſt 13000 *l.* and the fitting it up for this Purpoſe about 7000 *l.* more, in all 20,000 *l.* and was endowed by him with 4000 *l. per Annum*, which has been much improved ſince. The Founder died the 12th of *December* 1611. His Foundation having been kept entire, and maintained with his own Revenue, without admitting any other Addition of Charity; and is of ſuch Reputation, that the Kings of *England* judged it proper to appoint, by Letters Patent under the great Seal, Perſons of the firſt Rank, and in the moſt eminent Poſts of the Kingdom, to be the Overſeers and Governors of this Society. Their Number muſt be 16, and all the Vacancies ſupplied by the Election of the remaining Governors.

The *Univerſities* of *Scotland* are four, *viz.* St. *Andrews*, *Glaſgow*, *Aberdeen* and *Edinburgh*.

The *Univerſity of St. Andrews*, was founded by Biſhop *Henry Wardlow*, in the Year of Chriſt, 1412, and endowed with very ample Privileges. The Archbiſhops of St. *Andrews*, were formerly Chancellors of the Univerſity; but now it is governed by a Rector, choſen every Year, and has the ſame Authority as the Vice-Chancellors of *Oxford* and *Cambridge*, and by the Statutes of the Univerſity, ought to be one of the Principals of the Colleges. A Profeſſor of Mathematicks was lately added to this Univerſity.

It has three Colleges, St. *Salvator's*, St. *Leonard's*, and St. *Mary's* College; St. *Salvator's*, commonly called the *Old College*, was founded by *James Kennedy*, Archbiſhop of St. *Andrews*, who built the Edifice, together with a Church, wherein he has a curious Monument; he furniſhed it with Ornaments, and endowed it with a ſufficient Revenue for the Maintenance of a Provoſt, Maſters and Profeſſors. At the firſt Foundation, it was endowed with a Doctor, Batchelor and Licentiate in Divinity; four Profeſſors of Philoſophy, and eight poor Scholars, called *Burſars*, who are here inſtructed *gratis*. Dr. *Skene*, late Principal of this College, repaired and augmented it, and alſo founded a Library, which is now well furniſhed with Books.

St. *Leonard's-College*, was founded by *John Hepburn*, Prior of St. *Andrews*, in 1524, who endowed it with a Maintenance for a Principal or Warden, who is always to be a Doctor of Divinity, four Profeſſors of Philoſophy, called *Regents*, and eight poor Scholars. Sir *John Scot*, added a Profeſſor of Philoſophy, with a liberal Maintenance, and augmented the Library with ſeveral valuable Volumes; which was ſince increaſed by the Collection of Books left to it, by Sir *John Wedderburn*.

St. *Mary's*, a new College, was founded by *James Beaton*, Archbiſhop of St. *Andrews*, in 1536, and endowed with a Maintenance for two Profeſſors, who are to be Doctors of Divinity, one ſtiled principal Profeſſor of Theology, the other only Profeſſor of Theology, to theſe was lately added a Profeſſor of Mathematicks; for the Improvement of which Science, the firſt Profeſſor Mr. *James Gregory*, procured an Obſervatory to be erected in the College Garden, furniſhed with many Mathematical Inſtruments. —— No Philoſophy is taught in this College.

The *Univerſity of Glaſgow*, was erected by a Bull of Pope *Nicholas* V. dated *Septimo Calendas Januarii*, A. D. 1451, at the Deſire of King *James* II. of *Scotland*: Dr. *Turnbull*, Biſhop of *Glaſgow*, ſupplying the whole Charges of the Foundation. By the Pope's ſaid Bull, he and his Succeſſors in the Biſhoprick of *Glaſgow*, were conſtituted Chancellors of the Univerſity, with all the ſame Powers enjoyed by the *Rectores dicti Cancellarii* of the Univerſity of *Bononia*. And there were erected, "*Studium generale in Theologia, Jure Canonico & Civili* "*artibus, atque quavis alia licita Facultate.*" And all Powers, Privileges, and Immunities, which had at any Time been granted by the holy See, to the Univerſity of *Bononia*, all granted to this Univerſity of *Glaſgow*.

The ſaid Prelate procured likewiſe a Charter, under the Great Seal of *Scotland*, of moſt ample Privileges to this Univerſity, from King *James* II. dated at *Sterling*, *April*, 21, 1453. The Biſhop alſo, with the Conſent of the Dean and Chapter, gave the Univerſity another Charter of Privileges under their Seal, *December* 1, 1453. all which Charters were confirmed by Charters from ſucceeding Kings and Archbiſhops.

The Univerſity was at firſt, compoſed of the Clergy of the Cathedral, and the neighbouring Countries, among whom were Mr. *Patrick Latt*, then Chancellor of the Dioceſe, afterwards Chancellor of *Scotland*, and M. *David Cadzon* or *Stago*, Precentor of the Cathedral, who was the firſt Doctor, and afterwards a great Benefactor to the Univerſity. Mr. *William Elphinſton*, was firſt Dean of the Faculty of Arts, then Rector of this Univerſity. The Abbot of *Kilwinning*, and ſome of thoſe of the Abbey of *Melroſs*, were Members of this Univerſity at its firſt Foundation. In the Year 1457, is found inmatriculated into this Univerſity, *Andreas Stuart*, *Subdecanus Glaſguenſis*, *frater Sereniſſimi Regis Scotorum*, *Jacobi Secundi*.

There is in the Records of the Univerſity, ſtill extant, the original Rector Book in Vellum, containing a regular Journal of all Proceedings in the Univerſity's Congregations, from the Foundation, to very near the Time the modern Apoſtles gained Ground there.

In 1560, when they conquered the whole Kingdom, every body knows in what Manner they ſeized all the Revenues of the Church, and of religious Houſes, and turned out the Catholick Clergy; the Members of this Univerſity fled to *France*; wherefore the Buildings were neglected, and great Part of the Salaries of the Maſters and Scholars were ſeized. Queen *Mary*, by her Letters to

to the Lords of the Council, dated *July* 13, 1563, granted again *for the Maintenance of Scholars* (called *Bursars* here) certain *Lands and Annuities, belonging to the Dominican Friars at* Glasgow, *together with their Houses and Dwellings.* Some few Years after, they also obtained a Grant of all the Lands, Houses, Annuities, *&c.* which had formerly belonged to any Chapel, Altarages, Prebendaries in any Churches or Monasteries found in *Glasgow.*

King *James* VI. of *Scotland*, by his Charter, dated at *Dalkeith July*, 13, 1577, confirming the former Donations, granted to the College erected in the University, the Tythes of the Parish of *Govan*, for maintaining the Principal, Regents, Bursars or Scholars and Servants; this Charter was ratified in his next Parliament. Also, the said King, with Advice and Consent of Parliament, dated *June* 28, 1617, grants to the said College, the whole Tythes of the Parishes of *Renfrew* and *Kilbride*, reserving Stipends to the Ministers.

By several other generous Donations, the Funds of this College were augmented: The Reverend Mr. *Zaccharias Boyle*, gave above 1600 l. Sterling before the Civil Wars; by which, and some other Funds, were purchased the Tythes of three other Parishes. *William*, Earl of *Dondenal*, gave about 60 l. Sterling *per Annum*, for the Maintenance of Bursars in Philosophy and Theology. *Anne*, Dutchess of *Hamilton*, gave 1000 l. Sterling, for the Maintenance of three Students in Theology; this Fund is now augmented, by careful Management, to near 1500 l. Capital.

The late King *William*, gave to the College a Grant of 300 l. Sterling, *per Annum*, out of the Rents of the Archbishoprick, for several Purposes about the College, and among others, 70 l. Sterling *per Annum*, to maintain four Students in Theology. The late Queen *Anne*, upon Representation made to her, that the *Scotch* Parliament, before the Union, had resolved to give some Augmentation to the *Scotch* Universities and Colleges, gave a Grant of 210 l. *per Annum*, to each of them during her Life. This has been continued by King *George* I. and his present Majesty. — That good Prince King *George* I. gave also a very handsome Fund for a Professorship of Ecclesiastical History.

Before the Revolution, Mr. *John Snell*, devised to *Baliol* College in *Oxford*, certain Lands for the Maintenance of *Scotch* Students: These Lands now maintain four Scholars at 40 l. *per Annum*, each for eleven Years: And upon the Death of his Daughter, two other Scholarships will be added. These Scholars are limited to be of *Scotch* Parents born in *Scotland*, and to have studied two Years in *Glasgow*; reserving to this College the Right of nominating them to the Masters and Fellows of *Baliol.*

The late Dr. *Daniel William* devised, for the Maintenance of Students in Theology, certain Lands to this College, the Value of which is not yet fully ascertained.

His Grace the late Duke of *Chandos*, gave 500 l. Sterling to this University, which is employed towards building a Library, which is a very beautiful Superstructure.

John Arr, of *Barrowfield*, Esq; Rector of this *University*, gave 500 *l.* Sterling for a Fund; the Interest of which is yearly to be added to the former Fund for buying Books. The late Mr. *John* Sterling, Principal thereof, left 165 *l.* Sterling to the same Purpose.

The *University* Officers are the Chancellor, who is elected for Life, and whose Power is chiefly in conferring Academical Honours.

The Rector, who is elected annually in *Comitiis*, where all the matriculated Members have Votes, has near the same Power as the Vice-Chancellor of *Oxford*, being the chief Magistrate in the *University*.

The Dean of the Faculty, who is elected annually by the *University* Meeting, or the *Senatus Academicus*, composed of the Rector, and of all the Regents and Professors. His Business is to preside in all Affairs of Literature and publick Examinations. The Chancellor has also the Power to nominate a Vice-Chancellor to act in his Absence.

The Professors are thirteen, and, by a late Statute, take Place according to the Seniority of their Admission, except the Principal, and the second Professor of *Theology*, who are always ranked first.

There are besides, upon the Foundation, and upon Funds since added, a Library-Keeper, a Bedellus, about 30 Bursaries of one Sort or other, and a Janitor, besides inferior Servants.

In this *University*, there is only one College, the Professors are all elected by the Faculty, or *Senatus Academicus*, except the Principal, and those of ecclesiastical History and Anatomy.

The Buildings of this College are much better than those of any College in *Scotland*; they consist of three Squares, two old ones, and one lately built, but not yet finished; the old Buildings in Queen *Mary*'s, or King *James*'s VI. Days, have probably been separated from the Town by a high Wall, but now, the College fronts the principal old Street of *Glasgow*; the old Front to the Street, which is a very stately Edifice, three Stories high, and about 130 Feet in length, was built in the Year 1653. together with the outer Square of the Court; but the inner Sides of the other Court are much older; the latest built Part of these three Sides, is above a hundred Years old, of hewn Stone, all three Stories high, and more decent than most Buildings of that Time, the outer Court, is about 85 Feet in Breadth, in the Area within the Buildings; to the Front is added streetwards on the South side, the Principal's House large and convenient; to the North Side is built the new Court, not yet finished; in which are at present six very large and convenient Houses, for the Professors: The Area of this Court, within the Buildings, is about 65 Feet in breadth, and about 180 in depth, retiring further back from the Street, than the Depth of both the old Courts, there is lately built, but not quite finished, the Duke of *Chandos*'s Library, on the South Side Corner of the old Square, quite separated from the older Buildings, and fronting to the Gardens; it is 60 Feet long, 38 wide, and 33 Feet high to the Cornice; the old Fabrick of the three Courts stands upon an Area of 270 Feet, towards the Street, and as much in Depth; behind the Buildings is a spacious Garden of near nine *English* Acres, inclosed with a Wall of hewn Stone, about eight Foot high, and laid out into beautiful Walks, adorned with Hedges; adjacent to this is a Physick Garden: In the Buildings are nine large Houses for the Professors; a *University-Hall*, very spacious and well finish'd; a common Hall, two Libraries, and six convenient Schools or Churches for teaching, with about 40 large Chambers for Lodgings for the Students, a Printing-House, and a public Kitchen; the Tower, or Steeple standing between the two old Courts, is tolerably stately, being about 80 Feet high, of Stone-work, besides the Spire.

The Library consists of about 9000 Volumes.

In this College there is a curious Collection of Stones with Roman Inscriptions, found in the Roman Wall near *Glasgow*, most of which are printed in some late Collections of the *British* Antiquities.

The Scholars in *Glasgow* all wear red Gowns while they are under-Graduates; and the Professors wear black Gowns, like those of Doctors of Civil Law.

The *University and King's College of Aberdeen* was founded in 1494, at which Time *James* IV. King of *Scotland*, procured from Pope *Alexander* VI. a Bull, dated 4 *id. Febr.* of the aforesaid Year, erecting in the City of *Old Aberdeen*, an *University* (*Universitas Studii generalis*) wherein *Theology*, the *canon* and *civil Laws*, *Medicine*, *Philosophy*, and all other liberal Arts and Sciences should be publickly taught and professed; allowing both Professors and Students in ample Form, all the Privileges, Liberties, Immunities, and Exemptions, enjoyed by any *University* whatsoever, particularly the *Universities* of *Paris* and *Bolognia*; all which Privileges the King himself confirmed by his Royal Authority, allowing the *University* all the Powers and Liberties which the most Christian Kings of *France* had conferred on the *University* of *Paris*, or his Royal Progenitors, King *James* I. and II. on the *Universities* of St. *Andrews* and *Glasgow*.

The celebrated Bishop *Elphinston*, established Doctors and Professors in the several Faculties, Masters and Students, to the Number at first of 36, which he afterwards augmented to 42. These Persons founded more, 1. Four Doctors, the *First*, Doctor of *Theology*, who is Principal

Principal of the whole College: The *Second*, Doctor of *Common Law*: The *Third*, of *Civil Law*: And the *Fourth*, of *Medicine*. 2. Eight *Masters of Arts*; of which *First*, was the *Sub-Principal*; the *Second*, Professor of *Humanity*; the other six Students of *Theology*; out of which are chosen the Regents, who, together with the Sub-Principal, were to teach *Philosophy* and the *Arts*. 3. Three *Bachelors*, Students of the *Laws*, two of the *Civil Law*, and one of the *Canon*. 4. Thirteen Students of *Philosophy* and *Arts*. 5. Eight Prebendary Priests, *(Sacerdotes Prebendarii)* the first whereof was *Cantor*, the second *Sacrist*, the other six were called *Capellani Chori*, one of which was *Organist*. 6. Six Singing Boys *(sex Pueri Choreales)* who were to assist with the aforesaid Priests at all Hours of Divine Service, in the Chapel of the College.

For the Accommodation of all those founded Members, the said Bishop *Elphinston*, mostly at his own Charge, built a stately College, consisting of an entire Court, a handsome College richly furnished, a lofty Steeple, with a noble *Cupola* in Form of an imperial Crown, supported with arched Pillars, rising cross ways from the Battlement, and a Set of fine large Bells; of large publick Halls and convenient Apartments for the Principal, Sub-Principal, Regents, Students of *Theology* and *Philosophy*, to whom alone he assigned Lodgings within the Gates of the said College. For the other Masters, *viz.* the Canonist, Civilian, Physician, and Grammarian, with their Students, he caused to be built, without the College, but within the Precinct of the *University*, separate Chancels, with Gardens, and other Conveniences, where the said Professors were to have their Lessons, and live in Commonalty with their Students. He likewise appointed Chambers for the eight Prebendary Chaplains, and six Singing-Boys, without the College: Assigning to each of those founded Members, out of the Revenues given, or procured by the King, and himself, several distinct Salaries, sufficient, at that Time, considering the Value of Money then, but now small and inconsiderable.

His Majesty's *Mareschal-College* in *Aberdeen* was founded the 2d of *April* 1593, by *George* Earl *Mareschal*, which Foundation was confirmed by the King and Parliament, the 2d of *July* of the same Year; as likewise by King *Charles* II. and his Parliament, in 1661: So that it is a distinct University from the other College, in the neighbouring Village, commonly called the *King's College*, or old College of *Aberdeen*.

Both Colleges were united, and called the *Caroline University* by King *Charles* I. who in the last Parliament held by him, in *Scotland*, declared them one *University*, under that Name, and bestowed on them the Revenues of the Bishoprick of *Aberdeen*; but all this was reversed at the Restauration of King *Charles* II.

At first the *Mareschal College* consisted of a Chancellor, Rector, Dean of Faculty, four Assessors to the Rector, the Principal, and three Regents, to teach the Languages and Philosophy, six Bursars, an Œconomus, a Butler, and a Cook. The Chancellor, Rector, Dean of Faculty, and Assessors are annual Magistrates of the *University*, chosen by the Students with the Concurrence of the Principal, and other Masters. The Dean of Faculty is only chosen by the Rector, Principal, Masters, and Minister of *Aberdeen*, called Parson of St. *Nicholas*. The Election of these Magistrates is made every Year on the 1st of *March*.

Besides these Members, the College now consists of a Principal, a Professor of Divinity, a Professor of Medicine, Mathematicks, three Professors of Philosophy, one of Greek, and one of Oriental Languages, which Professor was lately founded by Mr. *Gilbert Ramsay*, Minister of the Gospel in *Barbadoes*; who provided likewise, 15 *l. per Annum*, for each of four *Bursars*, in Philosophy; and 25 *l. per Annum*, for each of two *Bursars*, in Theology, in the said *University*; a Library-Keeper, a Porter, and a Servant under him.

There are a great many more *Bursars* in his Majesty's *Mareschal College*; the most considerable were founded by *Irwine* of *Drum*, Esq; *Turnerhall*, and the late Bishop of *Sarum*, Dr. *Gilbert Burnet*, and Mr. *Lorimer*.

The Earl *Mareschal*, Founder of the said College, bestowed for the Maintainance of the Principal, three Regents, &c. several Lands, with the *Grey-Friars* Convent, &c. which had been given to him by the Provost, Bailiffs, Council, and Community of *Aberdeen*, to be annexed to the College, as the Acts of Parliament abovementioned, more fully bear, but the Earl *Mareschal*'s Donation out of his own Lands, for six Bursars did not take place.

The principal Professors of Medicine, Philosophy, and *Greek*, are now presented to their respective Offices by his Majesty, since the Forfeiture of the Earl *Mareschal*.

The Magistrates and Town-Councils, as Patrons, present the Professor of Divinity; which Office was first founded by one Mr. *Pat. Copland*.

The Library of this College, as well as a Salary for the Keeper thereof, was first founded Mr. *Thomas Reid*, Secretary to King *James* VI. for the *Latin* Tongue.

The Principal and Professors wear black Cloth Gowns: The Students red ones.

The *University of Edinburgh*, was founded by *James* VI. in 1582; which Erection was afterwards confirmed by several Acts of Parliament, and last of all by the Union Act, in 1706.—The royal Founder endowed his own *University* with as ample Privileges as enjoyed by any other in his Dominions. The Magistrates and Town-Council of *Edinburgh* are perpetual Curators, and the Lord Provost of the City is Chancellor of the *University*.

At its first Institution, the *University* consisted of a Principal, who was also Professor of Divinity, and four Professors of Philosophy, to whom, soon after, was added a Professor of Humanity and Rhetorick; and these five were commonly called Regents.

As the Reputation of the *University*, and Number of Students increased, several new Professorships were instituted and endowed, partly by the royal Bounty, and partly by the Curators of the *University*, assisted therein by the large Donations and Liberalities of many of the Nobility, Gentry, Clergy, and Citizens, who either had their Education in the *University*, or were zealous to promote Learning. Out of these Benefactions were allotted Funds for many Scholarships or Bursaries; and a publick Library was founded, and by Degrees well furnished with useful and curious Books.

The Principal is always first Professor of Divinity, by his Office, he presides in the Meetings of the Faculties; confers all Degrees, in the Presence, and by the Appointment of the Faculties, appoints the publick Exercises, visits the Classes, and takes an Account of the Behaviour of the Students.

The Professors of Divinity, Ecclesiastick History, and oriental Languages, are obliged by the Constitution, to teach publickly in the *University*, and to instruct all Students who attend their Schools in their several Professions, without any *Præmium*.

The ordinary Professor of Divinity attends in the publick Schools five Days of the Week, reads Lectures of Divinity, explains some System (says my Author, for I did not know before that there were Systems in Theology) appoints Exercises for the Students, proposes Questions, and solves Difficulties.

The Regius Professor of Divinity, has for his particular Province Church History, on which he has publick Discourses during the Session.

The Professor of oriental Languages, teaches the Students of Divinity the *Hebrew*, *Syriack*, &c.

Of the five Regents, there are three Professors of Philosophy, a Professor of *Greek*, and a Professor of Humanity.

The Humanity is the first or lowest Class, in which one of the best *Roman* Authors are explained and illustrated, and the Youth exercised in writing *Latin* and *English*.

In the Bajan or *Greek* Class, the Youths are taught the Principles of that Language, and brought to explain *Greek* Authors, and to translate *Latin* into *Greek*. Such as have already some Knowledge of the Language are attended by the Professor at other Hours, and assisted in reading the best *Greek* Orators, Historians, Poets, Philosophers, and Physicians.

The Course of Philosophy is divided among the three Professors, each minding that Branch to which he has been named, while the Students every Year rise from one Professor and School to another.

The

The Professor of Mathematicks usually teaches three Classes, and sometimes four, according to the Number of Years his Scholars apply themselves to that Study. Besides that one or two of these Classes are sometimes sub-divided by reason of the Number of Scholars or other Circumstances.

There are three Professors of Law in this *University*, one of the Law of Nature and Nations; one of the Civil and Canon Law; the third of the municipal or common Law. The first of these Professors was established, and liberally endowed by the late Queen *Anne*, and is in the Gift of the Crown; the other two, as also a Professor of Universal History, and *Roman* Antiquities, was settled and endowed by Act of Parliament, by which it is appointed, that upon a Vacancy in any of these Employments, the Faculty of Advocates shall nominate two Persons whom they judge qualified for the Office, and the Town-Council of *Edinburgh* is to chuse one of these for the Professorship. These Professors regularly begin their private Lessons about the Beginning of *November*.

There is a Professor of Anatomy, and four Professors of Physick in the *University*, who concert together the most proper Order and Method to teach Medicine, and teach every Year a compleat Course of it in all its Branches, beginning about the Middle of *October*.

During the Session, or Term-time, the Principal has some *Latin* Discourses in the common Hall, where all the Professors and Students are convened: Afterwards the Professors, in their Turn, harangue in publick every *Wednesday* till *May*; when the publick Examinations and Disputations begin.

Towards the End of the Sessions is the usual Time to take Degrees in Arts: Upon Application, the principal Summons a Meeting of the Faculties, to whom the Promoter reports the Names and Standing of the Candidates: Examiners are appointed to make Trial of their Qualifications, and to report at the next Meeting. If the Candidates are approved they have it in their Option, to be admitted in a publick and solemn Manner, or in a private one: If they chuse the first, some one or more of the Candidates must publish a Dissertation or Thesis on some Subject of Philosophy. Upon the Day appointed, all the Professors and Students are convened in the common Hall, and the Magistrates of the City and Persons of Note and Learning, are invited to be present. Some of the Candidates, or others present, are at Liberty to propose Objections against the Thesis, which are answered by one of the Defendants: The Promoter moderates in the Dispute, and determines upon Questions. After this, the Opinion of the Professors being asked, the Principal proceeds to the Solemnity of admitting the Candidates to the Degree of *Master of Arts*. But this publick Solemnity is of late rarely chosen. So if the Examinators find the Candidates qualified, the Faculty acquiesce in their Report, and the Principal confers the Degree in their Presence.

WEAVING.

WEAVING, is the Art or Act of working a Web of Cloth, Silk, Linen, or other Stuff, on a Loom with a Shuttle.

I'll explain all these different Manners of *Weaving*, each in Order, beginning by that of weaving of Cloth, which though not the most curious of them all, deserves notwithstanding, the first Rank, as being the best and richest Manufacture in *England*.

Cloth, as understood here, is a Web, or a Tissue of woollen Threads, interwoven; whereof some called the *Warp* are extended lengthways, from one End of the Piece to the other; the rest called the *Woof*, disposed a-cross the first, a Breadthways of the Piece. *Cloths* are woven on the Loom, as well as Linens, Druggets, Serges, Camblets, *&c.* they are of various Qualities, fine, coarse, strong, *&c.* Some are made of Wool, and these of different Colours; the Wools being dyed, and dress'd, are first spun, then wove; others are work'd White, designed to be died in Scarlet, Black, Blue, Green, Yellow, *&c.*

To manufacture Cloth for dying, the best Wools for the Purpose, are those of *England* and *Spain*, especially those of *Lincolnshire* and *Segovia*. —— To use them to the best Advantage; when taken out of the Bales, they must be scoured by putting them into a Liquor somewhat more than lukewarm, composed of three Parts of fair Water and one of Urine; after the Wool has continued long enough in the Liquor to dissolve and loosen the Grease, it is taken out, drained, and washed in running Water; it is known to be well scoured, when it feels dry to the Touch, and has no Smell, but the natural Smell of the Ship: In this State it is hung out to dry in the Shade; the Heat of the Sun being apt to make it harsh, and untractable: When dry it is beat with Rods on Hurdles of Wood, or on Ropes, to clear out the Dust, and grosser Filth; the more it is thus beat, and cleared, the more soft it becomes, and the better it spins. —— After beating it is well picked, to clear the rest of the Filth, that had escaped the Rods.

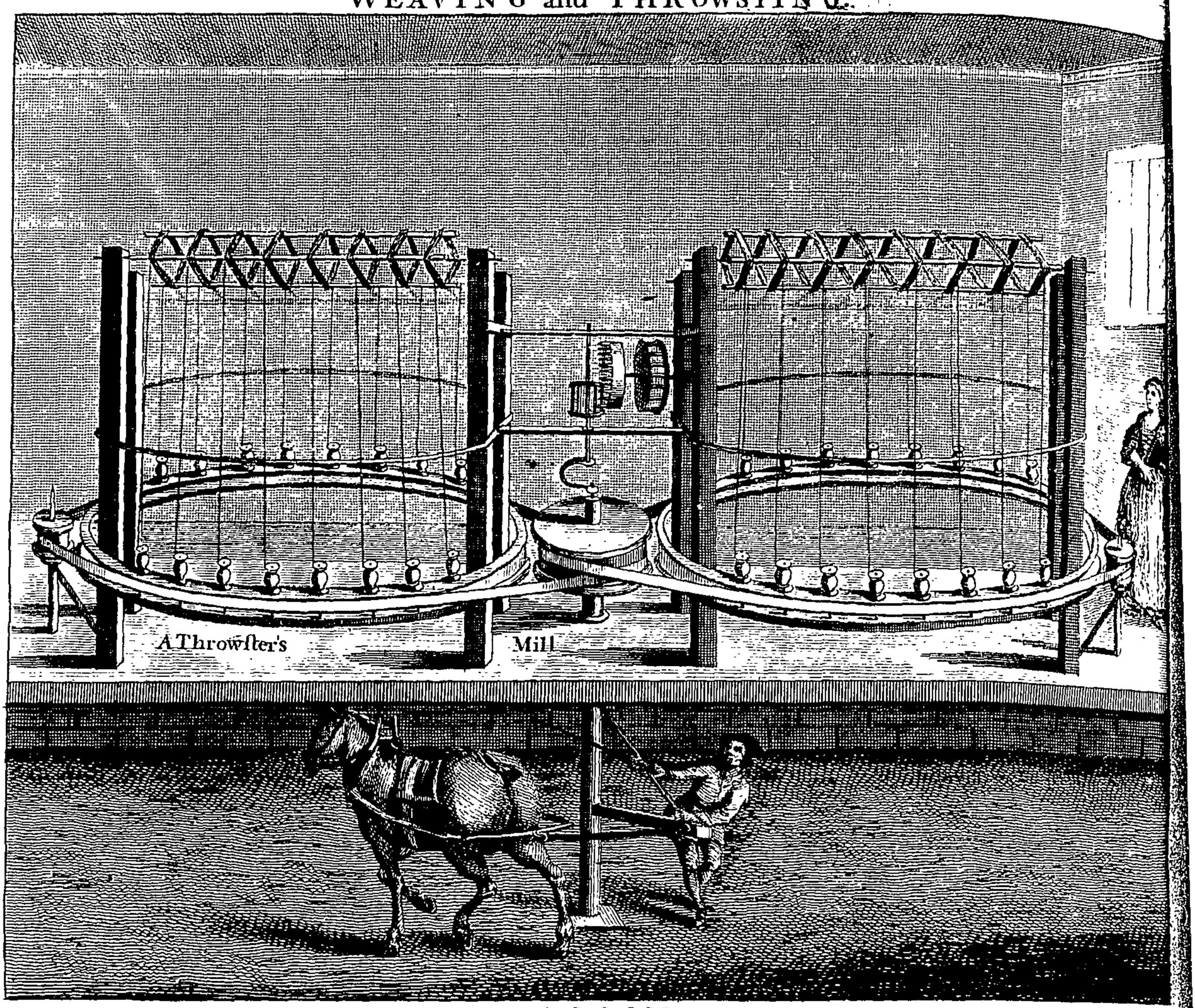
It is now in a State to be oiled, whereof one fourth of the Weight of the Wool is required, for Wool designed for the *Woof*; and one Eighth for that of the *Warp*. — The Wool thus oiled, is to be *carded*; which Operation is performed by Means of two Instruments called *Cards*, all which has a double Row, of long Points, or Teeth, ranged against one another, and fastened in a wooden Handle, taking up the whole Breadth of the Handle a Top, but narrower at the End. These two Cards they put to heat, *i. e.* the Extremity thereof, in a Furnace made for the Purpose; on the fore Part thereof, is a Slit, nearer the Bottom than the Top, through which the Extremity of the Card is introduced, the other Part thereof being supported by Stones, or something else, placed underneath; when the Cards are hot enough, the Carder takes out one of them, seats himself on a Chair, or Bench, and laying the Head of the Card on his Knees, the Extremity thereof upwards, holding the Handle with his left Hand, he takes with the Right a handful of the Wool, placed near him, and lays that Wool on his Card, by striking the Card with it, which lays hold of the Wool; and thus continue taking Wool, and striking in on the Card, 'till it very near reaches the End which has been heated. This done, he puts again the Extremity of the Card, thus filled, to heat, and takes out another Card, which he fills in the same Manner; which done, he takes the first filled from off the Fire, fastens it to a Hook made for the Purpose, one Part thereof enters the Handle of the Card, and the other, lays hold of that Part, where the Spindles are fastened; then draws off the Wool.

The Wool thus carded, is spun on the Wheel; observing to make the Thread of the Warps smaller by one third than that of the Woof, and much closer twisted; in order to this, the latter must be spun with the Band or String open, and the former with it crossed.

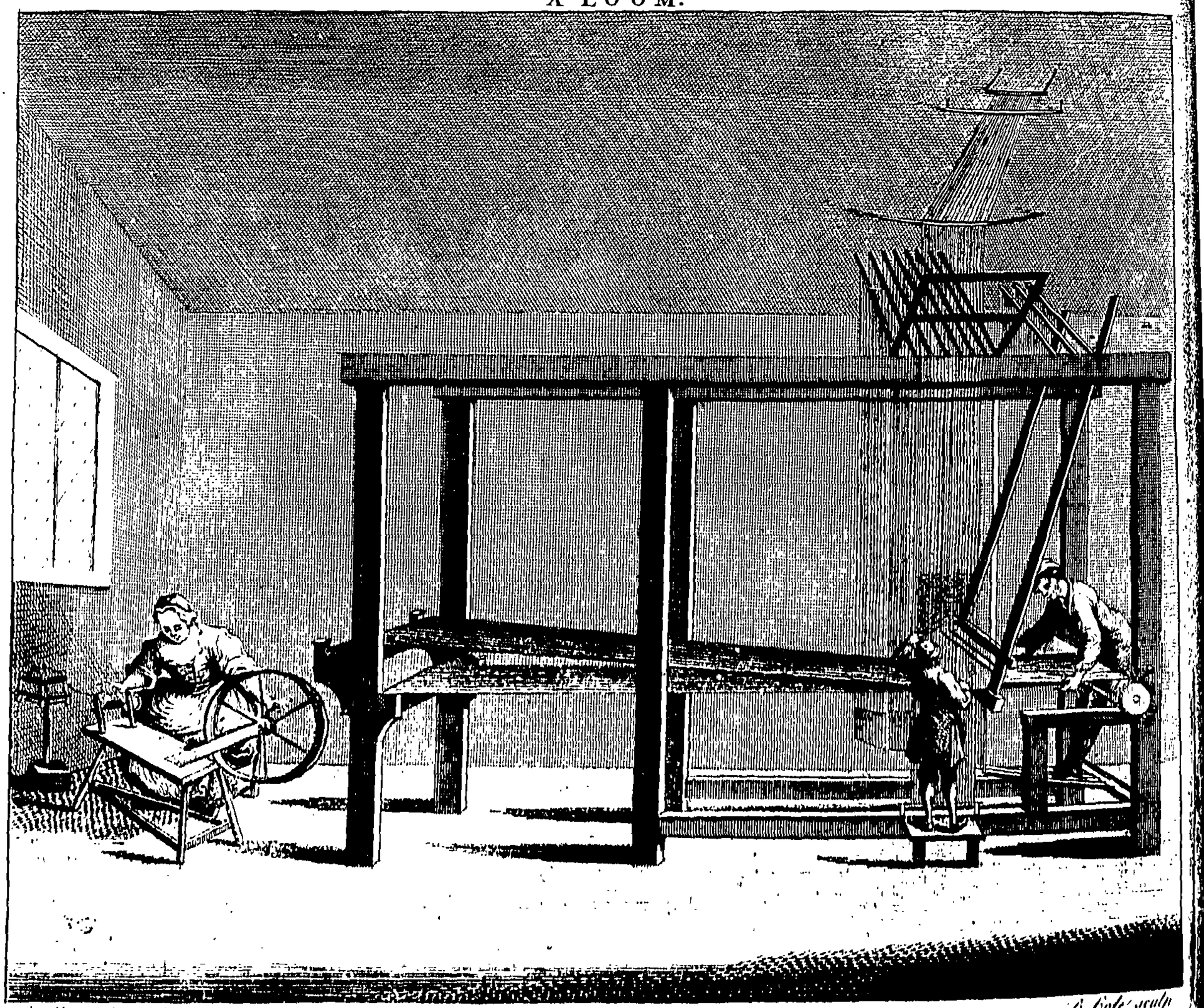
The Thread thus spun, reel'd, and made into Skains; that designed for the Woof is wound on *Spools*, i. e. on little Tubes, or Pieces of Paper, or Rushes, so disposed as that they may be easily put in the Eye of the Shuttle. —— That for the Warp is wound on a Kind of Rochets, or large wooden Bobbins, to dispose it for warping. When warped, it is stiffened with Size, whereof that made of Shreds of Parchment is the best; and when dry, it is given to the Weavers, who mount it on the Loom.

The Warp being on the Loom, the Weavers, who are two to each Loom, one on each Side, tread at the same Time alternately, on the same Threads, *i. e.* now on the right Step, and now on the Left, which raises and lowers the Threads of the Warp equally, between which they throw, transversly the Shuttle, one to the other; and each Time that the Shuttle is thrown, and so a Thread of the Woof inserted within the Warps, they strike it conjointly with the same Thread, wherein is fastened the Comb, or Reed, between whose Teeth the Threads of the Warp are passed; repeating the Stroke as

WEAVING and THROWSTING.



A LOOM.



J. Harvenia del. B. Cole sculp.

as often as is necessary; in some Cloths, no less than twelve or thirteen Times, *viz.* Six with the Warp open and seven shut.

It may be observed, that the more the Threads of the Woof are struck against each other, the closer the Cloth is; hence it becomes enabled to sustain the Violence of the Fulling-Mill, as well as of the Teazle, or Fulling-Thistle, without freting or opening.

The Weavers having continued their Work till the whole Warp is filled with Woof, the *Cloth* is finished; it is taken off the Loom, by unrolling it from the Beam whereon it had been rolled, in Proportion as it was wove; and now given to be cleared of the Knots, Ends of Thread, Straws, and other Filth; which is done with little Iron Nippers.

In this Condition it is carried to the Fullery, to be scoured with Urine, or a Kind of Potter's Clay, well cleaned and steeped in Water, put along with the *Cloth* in the Trough, wherein it is fulled.

The *Cloth* being again cleared from the Earth, or Urine, by washing it in Water, is returned to the former Hands, to have the lesser Filth, small Straws, and almost imperceptible Knots taken off as before; then it is returned to the Fuller, to be beat and fulled with hot Water, wherein five or six Pound of Soap have been dissolved. The Soaps most esteemed for this Operation is the White, especially that of *Genoa*. After fulling an Hour and a Half, it is taken out to be smoothed, *i. e.* to be pulled by the Lists lengthways, to take out the Wrinkles and Cracks occasioned by the Force of the Mallets, or Pestles falling on the Cloth when in the Troughs.

The smoothing is repeated every two Hours, till the Fulling be finished, and the *Cloth* brought to its proper breadth; after which it is washed in clear Water, to purge it of the Soap, and given all wet, to the Carders, to raise the Hair or Nap, on the right Side, with the Thistle, or Wad, wherewith they give it two Rubs or Courses, the first against the Grain, the second with the Grain.

The *Cloth* being dried, after this Preparation, the Cloth-worker takes it, and gives it its first Cut, or Sheering. —— This done the Carders resume it, and after wetting it, give it as many more Rubs or Courses with the Teazle, as the Quality of the Stuff requires; always observing to begin against the Hair, and to end with it; and to begin with a smoother Thistle, proceeding still to a sharper, and sharper, as far as the sixth Degree.

After this, the *Cloth* being dried, is returned to the *Cloth-worker*, who sheers it a second Time, and returns it to the Carder; who, wetting it, gives it as many Courses as he thinks fit, dries it, and gives it back again to the Cloth-worker, who after sheering it the third and last Time, returns it to the Carders, who repeat their Operation as before, 'till the Hair or Nap be well ranged on the Surface of the *Cloth*, from one End of the Piece to the other.

It must be observed, that it is indispensably necessary the *Cloth* be wet, while in the Carder's Hands; in Order to which it is sprinkled from Time to Time with Water.

The Nap finished, and the *Cloth* dried, the Cloth-worker gives it as many Cuts as he thinks requisite for the Perfection of the Stuff. It must also be observed, that all the Sheerings must be on the right Side, except the two last, which must be on the other, and that the *Cloth* cannot be too dry for Sheering.

The *Cloth*, thus wove, scowr'd, napp'd, and shorne, is sent to the Dyer. When dyed it is washed in fair Water, and the Cloth-worker takes it again, wet as it is, lays the Hair or Nap with a Brush on a Table, and hangs it on the Tenters; where it is stretched both in Length and Breadth, enough to smooth it, set it square, and bring it to its proper Dimensions, without straining it too much; observing to brush it a-fresh, the Way of the Hair, while yet a little moist on the Tenter.

When quite dry, the *Cloth* is taken off from the Tenter, and brushed again on a Table, to finish the laying of the Nap; It is then folded, and laid cold under a Press, to make it perfectly smooth and even, and to give it a little Gloss. The Gloss is given by laying a Leaf of Vellum or Cap-paper in each Plait of the Piece; and over the whole a square Plank of Wood: On which, by Means of a Lever, the Screw of a Press is brought down with the Degree of Force judged necessary, with Regard to the Quality of the *Cloth*. In *France* none but scarlet, green, blue, *&c.* receive this last Preparation; blacks being judged better without it.

Lastly, The *Cloth* being taken out of the *Press*, and the Papers removed, it is in a Condition for Sale or Use.

As to the Manufacture of *mixt* CLOTHS, or those wherein the Wools are first dy'd, then mixed, spun and wove of the Colours intended; the Process, except in what relates to the Colour, is mostly the same with that just spoke of.

The Method of adjusting the Mixture, is first by making a Felt or Flock of the Colours of the intended *Cloth*, as a Specimen: The Wool of each Colour is weighed; and when the Specimen is to the Manufacturer's Mind, he mixes, for Use, a Quantity in the same Proportion, estimating each Grain of the Specimen at 20 Pounds weight of the same Wool in the *Cloth* to be made.

Thus, if he would mix three Colours, *v. gr.* Coffee-Colour, Feuille-mort, and pale Blue, the first to be the prevailing Colour; he weighs a Quantity of each: For Instance, 70 Grains of the first, 25 of the second, and 20 of the third, then multiply each by 20 Pounds of Wool, and thus gains 1400 Pounds for the Coffee-wool, 500 Pounds for the Feuille-mort, and 400 Pounds for the pale Blue.

The Wools of the Specimen thus weighed, are mixed, oiled, carded, moistened with clear Water, rubbed with black Soap, and in this State wrought a long Time in the Hands, 'till they be reduced into a Piece of Felt, like that used by Hatters.

It is then rinsed in Water, to purge out the Oil and Soap; and when dry, the Hair or Nap is carded out with the Teazle; then shorn once again, 'till the Ground appear, and the several Colours be discernable.

Lastly, Wetting it a little, and pressing it, he examines it well, and if he be not contented with it, makes another Felt; if he be, he proceeds to mix Wools; when mixed it is beat on Hurdles, cleaned, oiled, carded, spun, wove, *&c.* as in white *Cloth*.

The Goodness of *Cloth* consists, 1. In the Wool being fine and well dressed. 2. In its being spun equally; always observing, however, that the Thread of the Warp be finer, and better twisted than that of the Woof. 3. In the *Cloth* being well wrought and beaten on the Loom, so as to be every where close and compact. 4. In the Wool's not being finer and better at one End of the Piece than in the Rest. 5. In the Lists being sufficiently strong, and of the same Length with the Stuff; and that they consist of good Matter, as Wool, Hair, or Ostrich Feathers, or the Hair of *Danish* Dogs, which last is the best. 6. In the *Cloth* being well cleared of Knots and other Imperfections. 7. In its being first well scour'd with good Fuller's Earth, then fulled with the best white Soap, and washed out in clear Water. 8. In the Hair or Nap being well drawn out with the Teazle or Thistle on the Pole, without being too much opened. 9. In its not being stretched or pulled farther than is necessary to set it square, and bring it to its just Length and Breadth. 10. In its being only pressed cold.

The *English Cloth* is preferred throughout all *Europe*, especially the best Sorts to all others: Though the Manufacture of *Vanrobes* at *Abbeville*, in *Picardy*, is arrived to a great Degree of Perfection; but the *French* black *Cloth* is preferred to all others for the Beauty of the Colour.

From *Cloth* I'll pass to CAMBLET, which is a Stuff, sometimes of Wool, sometimes Silk, and sometimes Hair, especially that of Goats with Wool or Silk: In others the Warp is Silk and Wool twisted together, and the Woof Hair. *France*, *England*, *Flanders* and *Holland* are the chief Places of this Manufacture; *Brussels* exceeds them all in the Beauty and Quality of its *Camblets*.

There are different Sorts of *Camblets*, viz. *figur'd Camblets*, *Water-Camblets* and *wove Camblets*.

Figured CAMBLETS are those of one Colour, whereon are stamped various Figures, Flowers, Foliages, *&c.* by means of hot Irons, which are a Kind of Moulds, pressed together with the Stuff under a Press. These are chiefly

chiefly brought from *Amiens* and *Flanders*; the Commerce of these was antiently much more considerable than at present.

Water CAMBLETS are those which, after woven, receive a certain Preparation with Water, and are afterwards pressed under a hot Press, which gives them a Smoothness and Lustre.

Waved CAMBLETS, are those whereon Waves are impressed, as on Tabbies; by means of a Calender, under which they are passed and repassed several Times.

The Manufacturers, *&c.* of *Camblets*, are to take Care they do not acquire any false and needless Plaits; it being almost impossible to get them out again.

From this I'll pass to DRUGGETS, which is a Sort of Stuff, very thin and narrow, usually all Wool, and sometimes half Wool and half Silk; having sometimes the Whale, but more usually without; and woven on a worsted Chain. Those without the Whale are wove on a Loom with two Treddles, after the same Manner as Linnen, Camblet, *&c.*—Mr. *Savary* invented a kind of Gold and Silver *Druggets*; the Warp being partly Gold and Silver Thread. and the Woof Linnen.

Next comes SERGE, which is a woollen quilted Stuff, manufactured on a Loom with four Treddles, after the Manner of Rateens, and other Stuffs that have Whale.

In regard to the Manufacture of the *London Serges.*—For Wool, the longest is chosen for the Warp, and the shortest for the Woof. Ere either Kind is used, it is first scoured, by putting it in a Copper of Liquor, somewhat more than luke-warm, composed of three Quarts of fair Water, and one of Urine. After having staid therein long enough to dissolve, and take off the Grease, *&c.* it is stirred briskly with a wooden Peel; taken out of the Liquor, drained and washed in a running Water; dried in the Shade, beaten with Sticks on a wooden Rack, to drive out the coarser Dust and Filth; and then picked clean with the Hand. Thus far prepared, it is greased with Oil of Olives, and the longest Part destined for the Warp, combed in the Manner mentioned under the Article Cloth.—To clear off the Oil again the Wool is put in a Liquor composed of hot Water, with Soap melted therein: Whence being taken out, wrung, and dried, it is spun on the Wheel.

As to the shortest Wool intended for the Woof, it is only carded on the Knee with small fine Cards, then spun on the Wheel, without being scoured of its Oil.

The Wool both for the Warp and Woof being spun, and the Threads divided into Skains; that of the Woof is put on Spools (unless it has been spun upon them) fit for the Cavity or Eye of the Shuttle; and that for the Warp wound on a kind of wooden Bobins, to fit it for warping. When warped, it is stiffened with a kind of Size, used for the Warp of Cloth; and when dry it is put on the Loom.

When mounted on the Loom, the Workman raising and falling the Threads (which are passed through a Reed) by means of four Treddles placed underneath the Loom, which he makes to work transversely equally, and alternately, one after another, with his Feet, in Proportion as the Threads are raised and lowered, throws the Shuttle a-cross, from one Side to the other; and each Time that the Shuttle is thrown, and the Threads of the Woof crossed between those of the Warp, strikes it with the Frame to which the Reed is fastened, thro' whose Teeth the Threads of the Warp pass; and this Stroke he repeats twice or thrice, or even more, till he judges the crossing of the *Serge* sufficiently clod. Thus he proceeds till the Warp is all filled with Woof.

The *Serge* now taken off the Loom, is carried to the Fuller, who fulls or scours it in the Trough of his Mill, with a kind of fat Earth for the Purpose, first purged of all Stones and Filth. After three or four Hours scouring, the Fuller's-Earth is washed out in fair Water, brought by little and little into the Trough, out of which it is taken when all the Earth is cleared: Then with a kind of Iron Pincers or Plyers, they pull off all the Knots, Ends, Straws, *&c.* sticking out on the Surface on either Side: Then return it into the fulling Trough, where it is worked with Water somewhat more than luke-warm with Soap dissolved therein for near two Hours. It is then washed out till such Time as the Water becomes quite clear, and there be no Signs of Soap left: Then it is taken out of the Trough, the Knots, *&c.* pulled off, and then put on the Tenter to dry, taking Care as fast as it dries, to stretch it out both in Length and Breadth, till it be brought to its just Dimensions. When half dried it is taken off the Tenter, dyed, sheared and pressed.

There are various Kinds of *Serges* denominated either from the Qualities thereof, or from the Places where they are wrought.—The most considerable is the *London Serge*, now highly valued abroad, particularly in *France*, where the Manufacture is carried on with good Success, under the Title of *Serge Façon de Londres.*—The Goodness of *Serge* is known by the Quilting, as that of Cloths by the Spinning.

Next comes RATEEN, which is a thick woollen Stuff quilted, wove on a Loom with four Treddles, like Serges and other Stuffs, that have the Whale or Quilting. There are some *Rateens* dressed, and prepared like Cloth; others left simply in Hair, and others where the Hair or Nap is freezed.—*Rateens* are chiefly manufactured in *France*, *Holland*, and *Italy*; and are mostly used in Linings.

From Rateens I'll pass to FRIZE, or FREEZE, which is a kind of woollen Cloth or Stuff for Winter's Wear, being frized or napt on one Side; whence in all Probability it derives its Name.

Of *Frizes* some are crossed, others not crossed. The former are chiefly of *English* Manufacture; the latter of *Irish*.

As to *freezing* of Cloth, it is forming the Nap of a Cloth or Stuff into a Number of little hard Burs, or Prominences, covering almost the whole Ground thereof.

Some Cloths are only *freezed* on the Back-side, as black Cloths; others on the Right-Side, as coloured and mixed Cloths, Rateens, Bays, Frizes, *&c.*

Freezing may be performed two Ways; one with the Hand, *i. e.* by means of two Workmen, who conduct a kind of Plank, that serve as a frizing Instrument. The other by a Mill, worked either by Water or a Horse; or sometimes by Men. This latter is esteemed the better Way of frizing; by reason the Motion being uniform and regular, the little Knots of the *Freezing* are formed more equably, and alike. The Structure of this useful Machine is as follows.

The three principal Parts are, the *Freezer* or *Crisper*, the *Freezing-Table*, and the *Drawer* or *Beam.*—The two first are two equal Planks or Boards, each about 10 Foot long, and 15 Inches broad; differing only in this, that the *Frizing-Table* is lined or covered with a kind of coarse woollen Stuff, or a rough sturdy Nap; and that the *Frizer* is incrustated with a kind of Cement, composed of Glue, Gum arabick, and yellow Sand, with a little Aqua vitæ, or Urine. The Beam, or Drawer, thus called by reason it draws the Stuff from between the *Frizer* and *Frizing-Table*, is a wooden Roller, beset all over with little fine short Points or Ends of Wire, like those of Cards used in carding of Wool.

Next come BAYS, which is a kind of coarse, open woollen Stuff, having a long Nap; sometimes frized on one Side, and sometimes not frized, according to the Uses it is intended for.—This Stuff is without Wale, being wrought on a Loom with two Treddles, like Flannel. The Manufacture of *Bays* is very considerable in *England*, particularly about *Colchester*; and in *Flanders* about *Lisle*, and *Tournay*, &c.

Formerly the *French*, as well as *Italians*, were furnished with *Bays* from *England*; but of late the *French* Workmen have undertaken to counterfeit them, and set up Manufactures of their own; and that with Success, especially at *Nismes*, *Montpelier*, &c.

The Export of *Bays* is very considerable to *Spain*, *Portugal*, and *Italy*. Their chief Use is for Linings, especially in the Army: The Looking-Glass-Makers also use them behind their Glasses, to preserve the Tin or Quicksilver; and the Case-Makers to line their Cases.

FLANEL, or FLANNEL, is next, which is a kind of slight, loose, woollen Stuff, not quilted, but very warm; composed of a Woof and Warp, and wove on a Loom with two Treddles, after the Manner of Bays, *&c.*

SAY, or SAYE, is a kind of Serge, or a very light crossed Stuff, all Wool; much used abroad for Linings, and by the Religious for Shirts; and in *England* the Quakers

Quakers for Aprons, for which Purpose it is usually green.

There are very considerable Manufactures hereof at *Sudbury* near *Colchester*; also at *Ypres*, *Hondscot*, &c. in *Flanders*, &c.—Those made in *England* are chiefly exported to *Portugal* and *Leghorn*.

The Working of the several Commodities heretofore mentioned, and of many others, is called *Woollen Manufactory*; which makes the principal Article in the foreign and domestick Trade of *Great Britain*; being that which furnishes the Cargoes of their Vessels, that employs their People, *&c.* and may be said to have had its Rise in the 15th Century.

Till that Time the *English* Wool was all sold in the Fleece, to such of their Neighbours as came to fetch it. Among their Customers however, the principal were the *Flemings* and *Brabanters*; and particularly the Merchants of *Ghent* and *Louvain*; who took off vast Quantities to supply two Manufactories that had flourished in these two Cities from the 10th Century; and had furnished the greatest Part of *Europe*, and even *England* itself, with all Sorts of woollen Cloths, *&c.*—But the Richness of the Manufactories of *Ghent*, and the incredible Number of Hands employed therein, having spirited up the Inhabitants to revolt divers Times against their Sovereign, on account of certain Taxes which they refused to pay; the Seditious were at length punished and dispersed, and Part of them took Refuge in *Holland*, and the rest in *Louvain*.

These last, together with their Art of manufacturing Cloths, carried with them their Spirit of Sedition; and it was not long ere several of them, to avoid the Punishment they had deserved for killing some of the Magistrates, removed into *England*; where they instructed the *English* how to work their own Wool.

This Establishment is referred to the Year 1420, from which Time no Endeavours have been spared to keep the *English* Wool in the Kingdom.

The President *Thuanus* makes this Epocha 100 Years later; and attributes the Establishment of the *Woollen Manufacture* in *England* to Queen *Elizabeth*, and the Troubles about Religion, which the Severity of the Duke of *Alva*, and the *Spanish* Inquisition had occasioned, and kept up so long in the *Low Countries*.—But what that noble Author says, is rather to be understood of their Perfection than their first Establishment; and of the several great Manufactories then set up at *Norwich*, *Colchester*, *Sandwich*, *Hampton*, &c.—For in the *English* and *Flemish* Historians, we find mention made of the Manufactures of *London*, long before any Part of the seventeen Provinces had attempted to throw off the *Spanish* Yoke.

As this Manufacture now stands, Dr. *Davenant* and Mr. *King* computes the Product thereof to be eight Millions *per Annum*; three Fourths whereof are consumed at home, and the rest exported.

So jealous are now the *English* of their Woollens, that besides the Precautions taken to use all their own Wool themselves, they have added that of selling them themselves, and of carrying them to the Places where they are required; not admitting Strangers to come and buy any in *England*.

And hence the Establishment of those famous Magazines in *Holland*, the *Levant*, and the North, where their Woollen are reposited, to be vended by Factors or Commissioners. The Magazine in *Holland* has changed Place divers Times; and it has been successively at *Middleburgh*, *Delf*, *Rotterdam*, and *Dort*, where it now remains; and where all the *Germans* come to furnish themselves.—That for the *Levant* is at *Smyrna*; and that for the North at *Archangel*.

From the Woollen Manufactures I'll pass to the Silk ones, informing ourselves, previously to it, what *Silk* is; and how many different Sorts of *Silks* there are?

SILK, *Sericum*, is a very soft, fine, bright, delicate Thread; the Work of an Insect called *Bombyx*, or the *Silk-worm*.

The Antients were but little acquainted with the Use and Manufacture of *Silk*: They took it for the Work of a Sort of Spider or Beetle, who spun it out of its Entrails, and wound it with its Feet about the little Branches of Trees.—This Insect they called *Ser*, from *Seres*, a People in *Scythia*, who kept it; whence the *Silk* itself they called *Sericum*.—But the *Ser* has very little Affinity with our *Silk-worm*, *Bombyx*: The former living five Years, but the latter dying annually, enveloped in a yellowish Bag, or Ball; which wound out into little Threads, makes what we call *Silk*.

It was in the Isle of *Cos*, that the Art of manufacturing *Silk* was first invented; and *Pamphila*, Daughter of *Platis*, is honoured as the Inventor. The Discovery was not long unknown to the *Romans*. *Silk* was brought them from *Serica*, where the Worm was a Native. But so far were they from profiting by the Discovery, that they could not be induced to believe that so fine a Thread should be the Work of a Worm, and thereupon formed a thousand chimerical Conjectures of their own.

This Temper rendered *Silk* a very scarce Commodity among them for many Ages; it was even sold Weight for Weight with Gold, insomuch that *Vopiscus* tells us, the Emperor *Aurelian* refused the Empress his Spouse a Suit of *Silk*, which she solicited of him with much Earnestness; merely on account of its Dearness. At length two Monks coming from the *Indies* to *Constantinople* in 555, brought with them great Quantities of *Silk-worms*, with Instructions for the hatching of their Eggs, rearing and feeding the Worms, drawing out the *Silk*, spinning and working it. Upon this Manufactures were set up at *Athens*, *Thebes*, and *Corinth*.

About the Year 1130, *Roger* King of *Sicily* established a Silk Manufacture at *Palermo*, and another in *Calabria*, managed by Workmen who were Part of the Plunder brought from *Athens*, *Corinth*, &c. whereof that Prince made a Conquest, in his Expedition to the Holy Land. By Degrees, *Mezeray* adds, the rest of *Italy* and *Spain* learned from the *Sicilians* and *Calabrians*, the Management of the *Silk-worms* and the working of *Silk*: And at length the *French*, by Right of Neighbourhood, a little before the Reign of *Francis* I. began to imitate them.

The great Advantage the new Manufacture turned to, made *James* I. King of *England*, very earnest for its being introduced into his Dominions: Accordingly it was recommended several Times from the Throne, and in the most earnest Terms to plant Mulberry-Trees, *&c.* for the Propagation of *Silk-worms*; but unhappily without Effect; though from the various Experiments we meet withal in the Philosophical Transactions and other Places, it appears that the *Silk-worm* thrives, and works as well in all Respects in *England*, as in any other Part of *Europe*.

In ten Days Time the *Silk-worm* having brought its Ball to its Perfection, it must be taken down from the Branches of the Mulberry-Tree, where it is hung. But this Point requires a deal of Attention; for there are some Worms more lazy than others; and it is very dangerous waiting till they make themselves a Passage; which usually happens about the 15th Day of the Month.

The first, finest, and strongest Balls are kept for the Grain; the rest are carefully wound: Or, if it is desired to keep them all, or if there be more than can be well wound at once; they lay them for some Time in an Oven moderately hot, or else expose them for several Days successively to the greatest Heat of the Sun, in order to kill the Insect; which, without this Precaution, would not fail to open itself a Way to go, and use all those new Wings abroad it has acquired within.

Ordinarily, they only wind the more perfect Balls. Those that are double, or too weak, or too coarse, are laid aside; not as altogether useless, but that being improper for Winding, they are reserved to be drawn out into Skains.

The Balls are of different Colours; the most common are yellow, Orange colour, Isabella, and Flesh-colour. There are some also of a Sea-green; others of a Sulphur-colour, and others white: But there is no Necessity for separating the Colours and Shades to wind them apart; as all the Colours are to be lost in the future scouring and preparing of the *Silk*.

To wind the *Silk* from off the Balls, two Machines are necessary; the one a Furnace, with its Copper; the other a Reel or Frame to draw the *Silk*. The Winder then seated near the Furnace, throws into the Copper of Water over the Furnace (first heated and boiled to a

certain

certain Degree, which Custom alone can teach) a Handful or two of Balls which have been first well purged of their loose furry Substance. He then stirs the whole very briskly about with birchen Rods, bound and cut like Brushes; and when the Heat and Agitation have detached the Ends of the *Silk* off the Rods, which are apt to catch on the Rods, he draws them forth; and joining ten or twelve, or even fourteen of them together, he forms them into Threads, according to the Bigness required, to the Work they are destined for: Eight Ends sufficing for Ribbands; and Velvets, *&c.* requiring no less than fourteen. The Ends thus joined into two or three Threads, are first passed into the Holes of three Iron Rods, in the fore Part of the Reel, then upon the Bobbins or Pullies, and at last are drawn out to the Reel itself, and there fastened; each to an End of an Arm or Branch of the Reel. Thus disposed, the Workman giving Motion to the Reel, by turning the Handle, guides his Threads; substitutes new ones when any of them break, or any of the Balls are wound out; strengthens them where necessary, by adding others; and takes away the Balls worn out, or that having been pierced are full of Water.

In this Manner two Workmen will spin and reel three Pounds of *Silk* in a Day; which is another quicker Dispatch than is made by the Spinning-wheel, or Distaff. Indeed all *Silks* cannot be spun and reeled after this Manner: Either by reason the Balls have been perforated by the *Silk-Worms* themselves, or because they are double, or too weak to bear the Water; or because they are coarse, *&c.* of all these together, they make a particular Kind of *Silk* called *Floretta*; which being carded or even spun on the Distaff, or the Wheel, in the Condition it comes from the Ball, makes a tolerable *Silk*.

As to the Balls, after opening them with Scissars, and taking out the Insects (which are of some Use for the feeding of Poultry) they are steeped three or four Days in Troughs, the Water whereof is changed every Day, to prevent their stinking.

When they are all well softened by this scouring, and cleared of that gummy Matter the Worm had lined the Inside withal, and which renders it impenetrable to the Water, and even to Air itself, they boil them half an Hour in a Lye of Ashes, very clear, and well strained: And after washing them out in the River, and drying them in the Sun, they card, and spin them on the Wheel, *&c.* and thus make another kind of *Floretta*, somewhat inferior to the former.

The several Preparations which *Silks* undergo, to fit them to be used in the Manufacture of Silken Stuffs, are *Spinning*, *Reeling*, *Milling*, *Bleaching*, and *Dying*.

The two first we have already spoke of, as they are concerned in drawing the *Silks* from off the Balls. As to the *spinning* and *reeling* of *raw Silk* off the Balls, such as they are brought hither from *Italy*, the *Levant*, &c. the first is chiefly performed on the Spinning-Wheel; and the latter, either on Hand-reels, or on Reels mounted on Machines, which serve to reel several Skains at the same Time.

Milling, or *throwing of Silk*, is the last Preparation thereof before dying; serving to twist it more or less, according to the Work it is intended for.

To prepare the *Silk* for Milling, they are put in Water, inclosed between two Linnen Cloths.—The Mill is a square Machine, composed of several Pieces of Wood mortised in each other, so as to form a kind of large Cage, in the Center whereof are two Wheels, placed parallel over each other, whose Axis bears on two Posts. When the Machine is simple, a single Man turns those Wheels by means of a little Cogg, in which they catch, and a large Handle.

The Wheels put in Motion by the Handle, communicate their Motion to eight Windles or Reels, or even more, according to the Largeness of the Machine; the Flights or Arms whereof the Silk is wound, from off two Rows of Bobbins placed on each Side the Machine, each Row at the Height of one of the two Wheels in the Center. These Bobbins have their Motion by means of leathern Thongs, which beat on little Cylinders of Wood that support them, and turn at length on the two Wheels at the Center, so that the *Silk* on each Bobbin twists, as it winds and forms its separate Skain.

The smallest Wheel moves two hundred of these Bobbins, over which a single Person is sufficient to inspect, to put new Bobbins or Pools, in lieu of those discharged of their Silk, and to knot the Ends when they break.

For white Stuffs the *Silk* is bleached, which is done while it is yet raw, by putting it in a thin Linnen Bag, and thrown into a Vessel of boiling River Water, wherein Soap has been dissolved, then boiled two or three Hours, and the Bag being turned several Times, taken out, beaten, and washed in cold Water, mixed with Soap and a little Indigo: The Indigo gives it the bluish Cast always observed in white Silks. After taking it out of the second Vessel it is wrung out, and all the Water and Soap expressed, shook out to untwist and separate the Threads, and hung out in the Air, in a kind of Stove made on purpose, wherein is burnt Sulphur; the Vapour whereof gives the last Degree of Whiteness to the *Silk*.

There are several Sorts of *Silks*, viz. *raw Silk*, *boiled Silk*, *trowed* or *twisted Silk*, *slack Silk*, *Eastern*, *French*, *Sicilian*, *Italian*, *Spanish*, *Turky*, *China*, *Japan*, and *Indian Silks*.

Raw SILK, is that taken from the Ball, without any Coction; such as is most, if not all, that is brought into *England* from the *Levant*.

In the French *Silk-Works*, the greatest Part of this raw Silk passes for little better than a kind of fine Floretta; yet, when spun, it makes a fine Thread, and serves for the Manufacture of Stuffs of moderate Value and Lustre. But the *raw Silks* of the *Levant*, whence most of the *English* come, are exceeding fine and beautiful.—This Difference arises hence, that in *France* the best Balls are spun and wound in boiling Water, and only the Refuse made into *raw Silk*: Whereas in the *Levant*, there is no such Thing as spinning and winding on the Fire; but the Silks are all sent in Bales or Packs, as they are drawn from off the Balls: So that they are only distinguished by their Quality of fine, middling, and coarse.

Boiled SILK, is that which has been boiled in Water, to facilitate the spinning and winding. This is the finest of all the Sorts of Silks manufactured in *France*, and is seldom used but in the richest Stuffs; as Velvets, Taffaties, Damasks, Brocades, *&c.*—There is also another Kind of *boiled Silk*, which is prepared by boiling to be milled; and which cannot receive that Preparation without being first passed through hot Water.—By the Laws of *France*, it is prohibited to mix raw with boiled Silk; both as such a Practice spoils the dying, and as the raw Silk corrupts and cuts the boiled.

Thrown, or *Twisted* SILKS, are such, as besides their spinning and winding, have received their Milling or Throwing.

This they receive in a different Degree, as they are passed oftener or seldomer over the Mill; properly, however, *thrown Silks* are those wherein the Threads are pretty thick thrown, and are twisted several Times.

Slack SILKS, are such as are not twisted, but are prepared and dyed, for Tapestry, and other Works with the Needle.

Eastern, or *East-India* SILK, properly so called, is not the Work of the *Silk-Worm*, but comes from a Plant that produces it, in Pods, much like those of the Cotton-Tree. The Matter this Pod contains is extremely white, and moderately glossy; it spins easily, and is made into a kind of *Silk*, that enters the Manufacture of several *Indian* and *Chinese* Stuffs.

French SILKS, are those of the Provinces of *Languedoc*, *Dauphiné*, *Provence*, *Avignon*, *Savoy*, and *Lyons*.—This last Place indeed furnishes very few *Silks* of its own Growth; but is the great Staple whence the Merchants of *Paris*, and the other Cities are to fetch them: At least they are obliged to have them pass through *Lyons*, if they bring them from elsewhere, either by Land or Sea.—There are computed to enter *Lyons*, *communibus Annis*, 6000 Bales; the Bale valued at 160 lb weight: Of which 6000 Bales, there are 1400 from the *Levant*, 1600 from *Sicily*, 1500 from *Italy*, 300 from *Spain*, and 1200 from *Languedoc*, *Provence*, and *Dauphiné*.

At the Time when the Manufactures of *Lyons* were in the Height of their Prosperity, there were reckoned 18,000 Looms employed in the Silk Manufacture; but ever since several other Nations, who had no Notion of those

those Manufactures, have been instructed in it, by the *French* who have deserted their own Country, either by a Motive of Religion, or on some other Account, the Number of Looms has been considerably reduced at *Lyons*; so that at present there are not above 8000 going. Though there be no Silk Manufacture in any Country whatever which comes near that of *Lyons*, either for the Strength of the Stuffs, the Beauty of the Pattern, and the Vivacity of the Colours.—They had formerly at *Tours* 700 Mills for winding and preparing the *Silks*; 8000 Looms to weave them, and 40,000 Persons employed in the Preparation and Manufacturing thereof; which Number is also considerably reduced.

The Commerce of the *Silks* of *Sicily* is very considerable; and the *Florentines*, *Genoese*, and *Lucese*, are the People who chiefly make it. Great Quantities are yearly brought thence, especially from *Messina*; part whereof they use in their own Manufactures, and sell the rest to their Neighbours the *French*, &c. with Profit.—The *Italians* have this Advantage, especially the *Genoese*, over other People, that having large Establishments in the Island, they are reputed as Natives, and pay no Duty for the Export.—Part of the *Sicilian Silks* are raw; the rest spun and milled; of which last Kind those of *S. Lucia* and *Messina* are the most valued. The raw unwrought Silks are always sold for ready Money; the others sometimes in Exchange for other Goods.—The *Silks* brought from *Italy* are partly wrought, and partly raw, and unwrought. *Milan*, *Parma*, *Lucca*, and *Modena*, furnishes none but the latter Kind; *Genoa* most of the former; *Bologna* affords both Kinds.

The *Spanish* SILKS, are all raw; and are spun, milled, *&c.* in *England*, according to the several Works they are to be used in.

Turky SILKS, are all raw.—One Advantage the *English* say they have in the Commerce of the *Levant*, in *Silks*, wanting in those of *Sicily*, is, that the latter is confined to a particular Season of the Year; whereas the former are brought at all Times. They are brought from *Aleppo*, *Tripoli*, *Sayda*, from the Isles of *Cyprus*, *Candia*, &c.—But the principal Place of Commerce, especially for the *Persian Silks*, is *Smyrna*. The *Silks* are brought hither in Caravans, from the Month of *January* to *September*. The Caravans in *January* are loaded with the finest *Silks*; those of *February* and *March* being indifferent ones; the rest the coarsest.

They all come from the several Provinces of *Persia*, chiefly those of *Quillan* and *Schiruvan*, and the City of *Schamachia*, situate near the Edge of the *Caspian* Sea, from which three Places, a *Dutch* Author assures us, there do not come less than 30,000 Bales of *Silk* in a Year. *Ardenil*, or *Ardebil*, another City of *Persia*, not far distant from these Silk Countries, is the Place where these *Silks* are laid up, and whence the Caravans set out for *Smyrna*, *Aleppo*, and *Constantinople*; and it is this City, with *Schamachia*, that have always been esteemed the Center of the *Silk* Trade; which has been several Times attempted to be removed from *Smyrna*, and the *Mediterranean*, in favour of *Archangel* and the *White Sea*, by carrying them across *Muscovy*, by the *Volga* and *Dwina*, two Rivers that traverse the principal Provinces of that vast Empire.

This new Course of the *Persian Silks* into *Europe*, was first proposed by *Paolo Centurio*, a *Genoese*, to the Czar *Basil*, under the Pontificate of *Leo* X. The *French* had the same Design in 1626. The Duke of *Holstein*, in 1633, sent Embassadors to the Court of *Persia*, purely with the same View: And in 1668, the Czar *Alexis Michael* attempted the Thing himself; but was disappointed by the Rebellion of the *Cossacks*, and the Surprize of *Astracan*.

In 1688, the Commerce of *Persian Silks* had like to have been removed from *Smyrna* by an Earthquake, which almost overturned the whole City: And doubtless the Removal had been effected, but for the vigorous Means used by the *Turks* to prevent it.—*Smyrna*, however, still remains in its antient Possession; and the several Nations of *Europe* continue every Year to send their Fleets to fetch away the *Silks*; and Matters are like to remain so, unless the Conquests made by *Peter the Great*, along the *Caspian Sea*, enable his Successors, as it is certain himself had such a Thing in View, to put this great Design in Execution.

Several Provinces of *China* are so fertile in Mulberry-Trees, and their Climate so agreeable to the Nature of *Silk-Worms*, that the Quantity of *Silk* here produced is incredible: The single Province of *Tchekiam* might supply all *China*, and even a great Part of *Europe* with this Commodity. The *Silks* of this Province are the most esteemed, though those of *Nanquin* and *Canton* be excellent.

The *Silk* Trade is the principal in *China*, and that which employs the most Hands: But the *European* Merchants who deal in it, especially in wrought *Silks*, are to be careful of the spinning, *&c.* the Waste being usually very great, as the *French East-India* Company lately found to their Cost.

Japan would not afford fewer *Silks* than *China*; but that the *Japanese*, a barbarous and distrustful People, have interdicted all Commerce with Strangers, especially with *Europeans*; excepting with the *Dutch*, who are said to be admitted on certain impious Terms, related by *Tavernier*.

The *Silks* of the State of the Great Mogul are brought almost wholly from *Kasem-bazar*, a *Mediterranean* Place, whence they are conveyed by a Canal of 15 Leagues, into the *Ganges*, by which they are forwarded 15 Leagues further, to the Mouth of the famous River of *Indostan*. The *Silk* of *Kasem-bazar* is yellowish, as are also those of *Persia* and *Sicily*; there being none, as we know of, naturally white, but that of *Palestine*. The *Indians*, however, whiten it with a Lye made of the Ashes of a Tree, called *Adam's Fig-Tree*; but as the Tree is pretty scarce, the *Europeans* are forced to take the greatest Part of their *Silks* in the native Yellow.

Kasem-bazar alone is computed to furnish every Year 22,000 Bales of *Silk*, each Bale weighing 100 lb. The *Dutch* buy it almost all up; not to bring it into *Europe* no more than they do that of *Japan*; but to exchange it for other rich Merchandizes, particularly Bars of Silver, *&c.*

Thus furnished with all Sorts of *Silks* at our Choice, we'll set ourselves to work; beginning by the most easy Manufacture, which is that of *Ribbands*.

RIBBAND, or *Ribbond*, is a narrow sort of Silk, chiefly used for Head-Ornaments, Badges of Chivalry, *&c.*

There are plain *Ribbands* and figured *Ribbands*; which are all wove in the same Manner, the Difference consisting only in the passing of the Threads, agreeable to the Design proposed.

Next comes TAFFETY, or TAFFATY, is a kind of fine, smooth, silken Stuff; having usually a remarkable Lustre or Gloss.

There are *Taffaties* of all Colours, some plain, others striped with Gold, Silver, Silk, *&c.* others chequered, others flowered, others in the *Chinese* Point, others the *Hungarian*; with various others, to which the Mode or the Caprice of the Workman, gives such whimsical Names, that it would be as difficult as it is useless to rehearse them; besides that, they seldom hold beyond the Year wherein they first rose. The old Names of *Taffeties*, and which still subsist, are *Taffeties* of *Lyons*, *Spain*, *England*, *Florence*, *Avignon*, &c.

The chief Consumption of *Taffeties* is in Summer-Dresses for Women, in Linings, Scarves, Coifs, Window-Curtains, *&c.*

There are three Things which contribute chiefly to the Perfection of *Taffeties*, viz. the Silk, the Water, and the Fire. The Silk is not only to be of the finest Kind, but it must be worked a long Time, and very much, before it be used. The watering, besides that it is to be given very lightly, seems only intended to give that fine Lustre, by a particular Property not found in all Waters. Lastly, the Fire, which is passed under it to dry the Water, has its particular Manner of Application, whereon the Perfection of the Stuff depends very much.

Octavio May of *Lyons* is held the first Author of the Manufacture of glossy *Taffeties*, and Tradition tells us the Occasion of it.—*Octavio*, it seems, going backward in the World, and not able to retrieve himself by the Manufacture of Taffeties, such as were then made, was one Day musing on his Misfortunes, and in musing, chanced to chew a few Hairs of Silk which he had in his Mouth. His Reverie being over, the Silk he spit out

out seemed to shine, and on that Account engaged his Attention. He was soon led to reflect on the Reason; and, after a good deal of Thought, concluded that the Lustre of that Silk must come, 1. From his having pressed it between his Teeth. 2. From his having wet it with his *Saliva*, which had something glutinous in it: And 3. From its having been heated by the natural Warmth of his Mouth. All this he executed upon the next *Taffeties* he made; and immediately acquired immense Riches to himself, and to the City of *Lyons* the Reputation it still maintains, of giving the Gloss to *Taffeties*, better than any other City in the World.

It will not, we conceive, be less useful than curious, to give here the Description of the Engine contrived by *Ottavio* to give the Gloss to *Taffety*; to add the Manner of applying it, and the Composition of the Water used therein.

The Machine is much like a Silk Loom, except that instead of Iron Points, here are used a Kind of crooked Needles, to prevent the *Taffety* from slipping: At the two Extremities are two Beams; on one of which is rolled the *Taffety* to take the Gloss; and on the other, the same *Taffety* as fast as it had received it. The first Beam is kept firm by a Weight of about 200 Pounds; and the other turned by means of a little Lever passing through Mortices, at each End. The more the *Taffety* is stretched, the greater Lustre it takes; Care however is to be used it be not over-stretched.

Besides this Instrument for keeping the Stuff stretched, there is another to give it the Fire: This is a Kind of Carriage in Form of a long Square, and the Breadth of the *Taffeties*. It moves on Trundles, and carries a Charcoal Fire under the *Taffety*, at the Distance of about half a Foot.

The two Machines prepared, and the *Taffety* mounted, the Lustre is given it by rubbing it gently with a Ball, or Handful of Lists of fine Cloth, as it rolls from one Beam to the other, the Fire, at the same Time, being carried underneath it to dry it. As soon as the Piece has its Lustre, it is put on new Beams to be stretched a Day or two, and the oftener this last Preparation is repeated, the more it increases the Gloss.

For black *Taffeties*, the Gloss is given with double Beer, and Orange or Lemon Juice; but this last is the least proper, as being apt to whiten. The Proportion of these two Liquors is a Gallon of Orange-Juice to a Pint of Beer, to be boiled together to the Consistence of a Broth. For colour'd *Taffeties* they use Gourd-Water distilled in an Alembick.

Next comes SATTIN, or SATIN, which is a Kind of Silken Stuff, very smooth and shining, the Warp whereof is very fine, and stands out, the Woof coarser, and hid underneath; on which depends that Gloss and Beauty which gives it its Price. There are *Sattins* quite plain, others wrought, some flowered with Gold or Silk, others strip'd, *&c.* All the Varieties in the Fabrick of *Sattins* are made by using new Warps or Woofs. The finest *Sattins* are those of *Florence* and *Genoa*; yet the *French* will not allow those of *Lyons* any Thing inferior thereto. The *Sattins* of *Bruges* have their Warp of Silk, and their Woof of Thread.

Indian Sattins, or *Sattins* of *China*, are silken Stuffs, much like those manufactured in *Europe*. Of these some are plain, either white, or of other Colours; others worked, either with Gold or Silk, flower'd, damask'd, strip'd, *&c.* They are mostly valued because of their cleaning and bleaching easily, without losing any Thing of their Lustre. In other Respects they are inferior to those of *Europe*.

Father *Le Comte* observes, that the *Chinese* prepare their *Sattins* in Oil, to give them the greater Lustre; but this makes the Dust liable to hang to them.

SATTINET, or SATTINADE, is a very slight, thin Sort of *Sattin*, chiefly used by the Ladies for Summer Night-Gowns, *&c.* and ordinarily strip'd.

We'll pass from this to *Damask*, which is a Sort of silken Stuff, having some Parts raised above the Ground, representing Flowers, or other Figures.

Damask is properly a Sort of Mohair and Sattin intermixed, in such Manner as that what is not Sattin on one Side, is on the other. The Elevation which the Sattin makes on one Side is the Ground on the other. The Flowers have a Sattin Grain, and the Ground a Grain of Taffetas. It has its Name from its being originally brought from *Damascus* in *Syria*.

Next comes BROCADE, which is a Sort of Stuff or Cloth of Gold, Silver, or Silk, raised and enriched with Flowers, Foliages, or other Figures, according to the Fancy of the Manufacturer.

Formerly the Term was restrained to Cloth wove, either wholly of Gold, both Woof and Warp, or of Silver, or of both together; but by Degrees it came likewise to pass for such as had Silk intermixed, to fill up, and terminate the Flowers of Gold and Silver.

At present, any Stuff of Silk, Sattin, or even simple *Taffety*, when wrought and enriched with Flowers, *&c.* obtains the Denomination of *Brocade*.

Next comes TABBY, which is a Kind of coarse Taffety water'd. It is manufactured like the common Taffety, excepting that it is stronger and thicker both in the Woof and Warp.

The Watering is given it by Means of a Calender, the Rolls whereof are of Iron or Copper, variously engraven, which, bearing unequally on the Stuff, renders the Surface thereof unequal, so as to reflect the Rays of Light differently.

MOHAIR is a Kind of Stuff, ordinarily of Silk, both Woof and Warp, having its Grain wove very close.

There are two Kinds of *Mohairs*, the one smooth and plain, the other water'd like Tabbies: The Difference between the two only consists in this, that the latter is calendered, the other not. There are also *Mohairs* both plain and water'd, whose Woof is woollen, Cotton or Thread.

From this I'll pass to VELVET, which is a rich Kind of Stuff, all Silk, cover'd on the Outside with a close, short, fine, soft Shag; the other Side being a very strong close Tissue.

The Nap or Shag, called also the *velveting* of this Stuff, is formed of Part of the Threads of the Warp, which the Workman puts on a long channelled Ruler or Needle; and which he afterwards cuts, by drawing a sharp steel Tool along the Channel of the Needle to the End of the Warp.

The principal and best Manufactories of *Velvet* are in *France* and *Italy*, particularly at *Venice*, *Milan*, *Florence*, *Genoa* and *Lucca*: There are others in *Holland*, set up by the *French* Refugees; whereof that at *Haerlem* is the most considerable: But these all come short (says an *English* Author) of the Beauty of those of *France*; and accordingly are sold for 10 or 15 *per Cent.* less. There are even some brought from *China*, but they are the worst of all.

There are *Velvets* of various Kinds, as *plain*, that is uniform and smooth, without either Figures or Stripes.

Figur'd VELVET, that is adorned and worked with divers Figures; though the Grounds be the same with the Figures; that is the whole Surface velveted.

Ramaged or *branched* VELVET, representing long Stalks, Branches, *&c.* on a Sattin Ground, which is sometimes of the same Colour with the *Velvet*, but more usually of a different one. Sometimes, instead of Sattin, they make the Ground of Gold and Silver; whence the Denomination of *Velvets* with gold Ground, *&c.*

Shorn Velvet, is that wherein the Threads, that make the *velveting*, have been ranged in the channelled Ruler, but not cut there.

Strip'd VELVET, is that wherein there are Stripes of divers Colours running along the Warp; whether those Stripes be partly *Velvet*, and partly Sattin, or all *velveted*.

Cut VELVET, is that wherein the Ground is a Kind of Taffety, or *Gros de Tours*, and the Figures *Velvet*.

Velvets are likewise distinguished, with Regard to their different Degrees of Strength and Goodness; into *Velvets* of four Threads, three Threads, two Threads, and a Thread and half: The first are those where there are eighteen Threads of Shag, or *Velveting* to each Tooth of the Reed; and the Second have only Six, and the Rest four. In General, all *Velvets* both worked and cut, shorn and flowered, have their Warp and Shag of Organism, spun and twisted, or thrown in the Mill; and their Woof of Silk well boiled, *&c.* They are all of the same Breadth.

All

All *Europe* agree that the *French* excel in all these Manufactures, which the *French* Refugees have carried every where, particularly into *England*, where they have met with great Encouragement, several of them having made considerable Fortunes. The *French* excel in an extraordinary Manner in the Manufactures of gold and silver Brocades, gold and silver Laces, *&c.* No other Nation having found the Secret yet to give them the same Lustre and Beauty.

From the Silk Manufactures, I'll pass to the *Linen ones.*

The *Linen* MANUFACTURE borrows its Name from *Line*, *Linum*, which is a Plant with a slender hollow Stem, usually about two Foot high (though I have seen some which measured above three Foot) whose Bark consists of Fibres or Threads, much like those of Hemp; which being dressed and worked in due Manner, makes that noble Commodity *Linen-cloth.* The Preparations *Line* must undergo to fit it for Spinning, are pulling, drying, and swingling; which Operations are inserted in my Treatise of Agriculture under the Letter A.

Line, after it has been prepared fit for Spinning, is called Flax, of which there is different Sorts, with Regard to the Degrees of Fineness; which Degrees it acquir'd through the Cards, which Card is much like that of Perriwig-makers, except that the Points are longer. For if the *Flax* be designed for fine Thread, it must pass through a closer Card, than when for coarse Thread.

Flax is spun either with the Distaff or the Wheel, and the Thread acquires its Degree of Fineness between the Fingers of the Operator. Of this Thread the *Linen-cloth* is wove on a Loom, with two Treddles, the Warp being always coarser than the Woof. If the Cloth is to be very white, the Thread is bleached before it is wove; if not, it is wove as it comes from off the Distaff without any other Preparation.

The finest of all *Linen-cloth* is commonly Cambrick, because wove of the finest Thread that can be spun; and the best Manufactures of this Sort of Cloth are in *French Flanders.*

The *Linen-Cloth*, commonly called *Holland*, is next to *Cambrick* for Fineness; and there are even *Hollands* much finer than some *Cambricks.* This Sort of *Linen-cloth* is chiefly wrought in the Provinces of *Holland*, *Frizeland*, and other Parts of the United Provinces, whence the Appellation. The principal Mart or Staple of this Cloth is at *Haerlem*, whither it is sent from most other Parts as soon as wove, there to be whitened the ensuing Spring.

That Manufacture in *Frizeland* is the most esteemed, and called *Frize-Holland.* It is the strongest and the best coloured of any of that Fineness. It is never calender'd nor thickened as the rest, but is imported just as it comes from the Whitster. It is distinguished by its being Yard, quarter and half wide, which is a half quarter more than those commonly called *Frize-Hollands*, which are not right.

Guilix HOLLAND is very white and fine, and is chiefly used for Shirts, being the Strongest of any for its Fineness, except true *Frieze.* It is just Yard wide.

Allemacr HOLLAND is a very strong *Cloth*, and wears exceeding well. It is about Yard, quarter, and half wide.

There is a Manufacture of *Linen-cloth* at *Pontivy* in *Lower Britany*, which is nothing inferior to those of *Holland*, and which even excels in the Strength of the Cloth, which wears to the full as well, and is of much more Service, though not so dear.

I have been informed that they have brought lately the *Linen Manufacture* to a very great Perfection, both in *Scotland* and *Ireland*; and that those of Sir *William Dalrymple*, in *Scotland*, are still preferable to any of the others; which, if true, I do not at all question but the *English* Nation will encourage those Manufactures, since it will be a Means to maintain a great Number of poor Families, which will be employ'd in those *Manufactures*, and keep them from starving, besides the Advantage of not being obliged to have Recourse to Foreign Parts, and pay very dear for Things which we can have of our own at a reasonable Rate.

After *Hollands*, or *fine Linnens* are taken from the Loom, while yet raw, they are steeped a Day in fair Water, washed out and cleared of their Filth, and thrown into a Bucking Tub, filled with cold Lixivium, or Lye of Wood-ashes and Water; when taken out of the Lye, they are washed in clear Water, spread in a Meadow, and watered from Time to Time, with Water from little Dishes, or Canals along the Ground, by means of Scoops, or hollow Peels of Wood, called by the *Dutch*, who pretend to be the Inventors of them, *Gieter*: After lying a certain Time on the Ground, they are passed through a new Lye poured on hot; and again washed in clear Water, and laid a second Time on the Ground, and every Thing repeated as before; then passed through a soft gentle Lye, to dispose them to resume the Softness which the other harshest Lye had taken from them, washed in clear Water, soaped with black Soap, and that Soap again washed out in clear Water; they are then steeped in Cow's Milk, the Cream first skimmed off, which finishes their Whitening; and Scowering gives them a Softness, and makes them cast a little Nap: When taken out of the Milk, they are washed in clear Water for the last Time. After all this Process, they give the Linnen its first Blue, by passing it through a Water wherein a little Starch, Smalt, and *Dutch* Lapis have been steeped. Lastly, the proper Stiffness and Lustre is given with Starch, pale Smalt, and other Gums, the Quantity and Quality whereof may be adjusted according to Occasion.

In fine Weather, the whole Process of *Bleaching* is compleated in a Month's Time; in bad Weather it takes up six Weeks, or more.

To *bleach coarse Linnens*; they are taken from the Loom and laid in wooden Frames, full of cold Water; where, by means of wooden Hammers, worked by a Water Mill, they are beat so, as insensibly to wash and purge them of their Filth, then spread on the Ground, where the Dew, which they receive for eight Days, takes off more of their Impurity; then put in a kind of wooden Tubs or Pans, with a hot Lye over them, thus lixiviated, they are again purged in the Milk, laid afresh on the Ground, and after eight Days more, passed through a second Lye, and all Things repeated, till such Time as they have acquired a just Degree of Whiteness.

Persons appointed by the Trustees, for improving the Hempen and Flaxen Manufactures in *Scotland*, may enter into any Bleach Yard, back House, *&c.* and search all Rooms, Reives, and Boilers therein, and view the Lies, Refuse, and Dregs thereof; to see whether there have been any Lime, Pigeons Dung, or Soap-dregs used in the *bleaching* of Linnen Cloth or Yarn, contrary to the Statutes, 13 *G. c.* 26. § 16.

MUSLIN is also a fine Sort of Cloth, wholly Cotton; so called as not being bare, but having a downy Nap on its Surface, resembling Moss, which the *French* call *Mousse.*

There are various Kinds of *Muslins* brought from the *East Indies*, *Chyly*, *Bengal*, *Betelles*, *Tarnatans*, *Mulmuls*, *Tangeels*, *Terrindans*, *Douas*, &c.

XEROPHAGIA.

XEROPHAGIA, XEROPHAGY (from ξηρὸς, *Siccus*, dry, and φαγω, I eat) is the feeding on dry Food.

In the first Ages of Christianity, some not contented with simple Fasting, added the *Xerophagy* thereto; abstaining not only from Flesh and Wine, but also from all Flesh, succulent and vinous Fruits. And even brought themselves to bare Bread and Water; particularly most of the *Anachorets* of the Desarts of *Thebaides*; as St. *Paul* the Hermit, *Hilarion*, &c. Whence the Practice

Practice of Fasting and Abstinence was brought into the West; where it was never so severe as in the East, except among few Christians, who embraced the anachoretical Life, and retired into Desarts, or unfrequented Places; and in the celebrated Monastery of *La Trape* in *Normandy*, which is a Reformation of the Order of *Cisteaux*, and where the Monks to this Day abstain from Flesh, Fish, Butter, Wine, *&c.* and live wholly on Bread and Pulses. Though there is retained yet in the Church a certain Sort of Abstinence and Fast, but not near so rigorous as was that of the primitive Christians.

Father *Thomassin* observes, that the antient *Fast* was to sup without dining, *i. e.* only to take one Meal, and that not till Afternoon: Adding, that to dine without supping was a Breach of the Fast. The Practice of the *Latin* Church was to fast 36 Days in the Year; which is as it were the Tithe of the Year.

The antient Catholicks allowed of no obligatory or commanded Fast, besides that preceding *Easter*, since called *Lent*; the Terms of which were to forbear eating till the Evening.

According to St. *Jerom*, St. *Leo*, St. *Augustin*, and others, *Lent* must have been instituted by the Apostles. Their Way of reasoning is thus: Whatever is generally received throughout the whole Church, and whose Institution we do not find in any Council; must be esteemed to have been established by the Apostles; now such, they say, is the Fast of *Lent*. Its Institution is not spoke of in any Council; but many of the antient Councils, particularly that of *Nice*, that of *Laodicea*, &c. and some of the oldest Fathers, particularly *Tertullian*, speaks of it as a Thing of old Standing.

Some will have *Lent* to have been first instituted by Pope *Thelesphorus*, in the second Century; others, who own that there was a kind of Abstinence observed in the antient Church before *Easter*, yet contend that it was voluntary, and was never enjoined by any Law, till the third Century.

There was some Difference between the Practice of the *Greek* and *Latin* Churches, as to the Observance of *Lent*; the *Greek* beginning a Week sooner, but at the same Time allowing more Days of Intermission than the *Latins*: Those who held it seven Weeks did not fast on *Saturdays*, as those who observed it but six did.

The antient *Latin* Monks had three *Lents*; the grand *Lent* before *Easter*, another before *Christmas*, called the *Lent of St. Martin*; and a third after *Whitsunday*, called the *Lent of St. John Baptist*: Each of which consisted of forty Days.

The *Greeks*, besides that before *Easter*, observed four others; that of the *Apostles*, of the *Assumption*, of *Christmas*, and of the *Transfiguration*; but they reduced each of them to the Space of seven Days. The *Jacobites* added a fifth, which they called the *Repentance of Nineveh*; and the *Maronites* a sixth, called the *Exaltation of the holy Cross*.

By the ninth Canon of the Council of *Toledo* it is ordained, *that if any Persons, without evident Necessity, eat Flesh in Lent, they shall be deprived the Use of it all the rest of the Year.*

The antient Catholicks allowed of no obligatory or commanded Fasts besides *Lent*: The other Fasts observed were only of Devotion: Such were the fourth and fifth *Feriæ*, i. e. *Wednesdays* and *Fridays*. This Fast was called *Station*. Besides these, there were occasional *Fasts* enjoined by the Bishops, *&c.*

The three *Feriæ* above-mentioned are seldom fasted at present, unless in what the *English* call *Ember-Week*, and the French *Quatre tems*; which are *Wednesday*, *Friday*, and *Saturday*, after *Quadragesima-Sunday*, after *Whitsunday*, after *Holy Rood* Day, in *September*; and after St. *Lucia*'s Day, in *December*: which four Times answer well enough to the four Quarters of the Year, Spring, Summer, Autumn, and Winter.

M. *Somner* thinks they were originally *Fasts* instituted to beg God's Blessing on the Fruits of the Earth. Agreeably to which *Skinner* supposes the Word *Ember* taken from the Ashes *Embers*, then strewed on the Head.

These *Ember Weeks* are now chiefly taken Notice of, on account of the Ordination celebrated at those Times, which in the Catholick Church is always the *Saturday* in the *Ember-Week*; and in the Church of *England* the *Sunday* following.

In the Book of *Hermas*, called the Pastor, the Angel tells him, The Day thou fasteſt thou shalt take nothing but Bread and Water; and having computed the usual Expences of each Day, thou shalt lay aside so much for the Widow, the Orphan, or the Poor.

In the same Passage the *Fast* is called *Station*, and the Person who fasted is enjoined to begin early in the Morning to retire to Prayer.

St. *Fructuosus*, *Fleury* tells us, going to suffer, some People, out of a Principle of Charity, offered him Drink to support him; but he refused it, saying, it is not yet Time to break *Fast*; for it was but Ten in the Morning, and it was *Friday*, Station-Day. Which shews the Exactness of the primitive Christians in this Point; and that Drinking was held breaking of *Fast*.

The Practice of *Fasting* is more antient than Christianity. The *Israelites* fasted often, and had their stated Fast-Days. The Day of Attonement, which they called *Kipyarim*, was a Day of fasting, enjoined in *Levit.* xxiii. 27, *&c.* Some will have this the Day St. *Paul* refers to in *Acts* xxvii. 9. The *Jews* had likewise *Fasts* instituted by Precepts of the Synagogue: Such were those of the fourth, fifth, and tenth of the Month, mentioned by *Zechariah* vii. 3. and viii. 19.

The Heathens adopted the same Custom, in all Probability, from the People of God; though, like some Christian Sects, they were more inclined to feasting than to fasting; because among the latter *Fasting* smells as much of Popery, as it smelled of *Judaism* among the former.—Yet they fasted in the *Eleusinia*, as appears from *Arnobius*, and *Clemens Alexand.*

The *Fasts* of the *Calogeri* are so severe, that they remain seven Days without eating at all.

The *Turks* are so scrupulous on the Point of fasting, that they will not so much as take the Smell of any Perfume by the Nose. They hold that Odours themselves break *Fast*. If they bathe, it is forbid to put the Head under Water, for fear of swallowing any of it: And as for Women, they are forbid to bathe at all on Fast-Days, for a Reason peculiar to the Sex. This Custom of fasting, the *Turks* have borrowed from the *Jews* and Christians; their Legislator, the impious Monk *Sergius*, having compiled their ridiculous Religion from all other Religions existing then in the World, *viz.* Christianity, Judaism, and Paganism; with the Addition of a great Number of Absurdities and Impieties of his own.

YAWNING.

YAWNING, *Oscitatio*, is an unvoluntary opening of the Mouth, occasioned by a Vapour, or Ventosity, endeavouring to escape; and generally witnessing an irksome Wearinesſ, or an Inclination to sleep.

Yawning is performed by expanding almost all the Muscles of the voluntary Motion at the same Time; but most considerably those of the Lungs; by springing a great Quantity of Air, very slowly, and after retaining it some Time, and rarifying it, by expelling it again slowly, and restoring the Muscles to their natural State.

Hence its Effects are to move, accelerate, and distribute all the Humours of the Body, equably thro' all the Vessels; thereby disposing the Organs of Sensation, and all the Muscles of the Body for the Performance of their respective Functions.

The nervous Membrane of the Œsophagus has been held the Seat of *Yawning*, which, according to the usual System, is produced whenever any Irritation determines the Spirits to flow thither in too great Abundance. The Cause of the Irritation is supposed to be some troublesome

ſome Humour wetting the inner Membrane of the Œſophagus; which Humour may proceed either from the Glands ſpread throughout the Membrane, or from acid Vapours ariſing from the Stomach, and condenſing on the Sides of the Œſophagus. By ſuch Means the nervous Fibres of the Membrane of the Gullet being irritated, dilate the Gullet; and the Mouth is conſtrained to follow the ſame Motion, as being lined with the ſame Membrane.

The Remedy *Hippocrates* preſcribes againſt continual *Yawning*, is to make long Breathings or Reſpirations.

YNCA.

YNCA, INCAN, or INCA, is an Appellation antiently given to the Kings of *Peru*, and the Princes of their Blood; the Word ſignifying literally, *Lord*, *King*, *Emperor*, and *Royal Blood*.

The King himſelf was particularly called *Capac Yuca*, *i. e.* Great Lord.—His Wife *Pallas*, and the Princes ſimply *Yuca's*. Theſe *Yucas*, before the Arrival of the *Spaniards*, were exceedingly powerful. Their People revered them to Exceſs, as believing them to be Sons of the Sun, and never to have committed any Fault.—If any Perſon offended the Royal Majeſty in the ſmalleſt Matter, the City he belonged to was totally demoliſhed.

When they travelled, whatever Chamber they lay in on the Road was walled up, as ſoon as they departed, that no Body might ever enter it after them. The like was done to the Room wherein the King died; in which, likewiſe, all the gold, ſilver, and precious Furniture was immured; and a new Apartment built for his Succeſſor.

His beloved Wives, Domeſticks, *&c.* likewiſe ſacrificed themſelves; and were buried alive in the ſame Tomb along with him.

ZOOTOMY.

ZOOTOMY, is the Art or Act of diſſecting living Creatures.

Zootomy amounts to the ſame with *comparative Anatomy*, which is that Branch of Anatomy which conſiders the ſame Parts of different Animals, with relation to the particular Structure and Formation, which is beſt ſuited to the Manner of living, and to the Neceſſity of every Creature.

Thus in the *comparative Anatomy* of Stomachs, for Inſtance, it is remarkable that thoſe Creatures which have the Opportunities of frequent feeding, have their Stomach very ſmall, in compariſon to ſome Creatures of Prey, which probably may be under a Neceſſity of faſting a long Time; and therefore have Stomachs large enough to hold Food ſufficient for ſuch a Time.

Ruminating Animals, have four Stomachs; yet it is obſerved that ſome of theſe, which have four in *Europe*, have only two in *Africa*, probably by reaſon the Herbs in *Africa* are more nouriſhing.

Ruminants, Mr. *Ray* obſerves, are all quadrupedal, hairy, and viviparous; ſome with hollow and perpetual Horns, others with decidious ones.

The horned Ruminants have all four Stomachs, appropriated to the Office, *viz.* 1. The *Rumen*, *Venter Magnus*, or what is called in *Engliſh* the *Paunch*, or inward, which receives the Meat ſlightly chewed, retains it awhile, and then delivers back again into the Mouth, which is called in *Engliſh* the *Cud*, to be re-chewed.—2. The *Reticulum*, called in *Engliſh* the *Honey-comb*, from its internal Coat being divided into Cells, like Honey-combs.—3. What is commonly called *Abaſus*, and Mr. *Ray*, *Echinus*; this being difficult to clear, is commonly thrown away, and called the Manifold.—4. That which *Gaza* calls *Abamaſus*, the *Engliſh* call the *Maw*.

The Rumen or Paunch is much the largeſt of all the Stomachs; as being to contain both the Drink, and the whole crude Maſs of Aliment, which there lie and macerate together; to be thence remitted to the Mouth, to be rechewed and comminuted, in order to their further Digeſtion in the other Ventricles.

In the *Rumen*, or firſt Ventricle of Camels, are found divers Sacculi, which contain a conſiderable Quantity of Water; an admirable Contrivance for the Neceſſities of that Animal, which living in dry Countries, and feeding on dry hard Food, would be in Danger of periſhing, but for thoſe Reſervoirs of Water.

Burnet, in his *Theſaur. Med.* gives ſeveral Inſtances of Men that ruminated, from *Salmuth*, *Rhodrics*, &c.—Dr. *Slare*, in the *Philoſophical Tranſactions*, gives us a freſher Inſtance, in an *Engliſhman* living at *Briſtol*. His Account as it is curious, and may let us ſee a little how it fares with ruminating Animals, we ſhall here add.

'He begins to chew his Meat over again within a 'Quarter of an Hour after Meals, if he drinks with it; 'if not, ſomewhat later. His chewing after a full 'Meal laſts about an Hour and a half: And if he goes 'to Bed preſently after Meals, he cannot ſleep till the 'uſual Time of chewing be over. The Victuals upon 'the Return, taſte ſomewhat more pleaſantly than at 'firſt, Bread, Meat, Cheeſe, and Drink, return much 'of ſuch Colours as they would be of, were they mixed 'together in a Mortar. Liquids, as Spoon-meat, re-'turn to his Mouth all one as dry and ſolid Food. The 'Victuals ſeem to him to lie heavy till they have paſſed 'the ſecond chewing; after that they paſs clean away. 'If he eats Variety of Things, that which paſſes down 'firſt comes up again firſt. If the ruminating Faculty 'chance to leave him, it ſignifies Sickneſs; and it is 'never well with him till it return. He is about 20 'Years of Age, and was always thus ſince he can re-'member. His Father does the like ſometimes, but in 'ſmall Quantities.'

Birds that live ordinarily on Seeds with a tough Rind, have a kind of Stomach called the *Crop* or *Gizzard*, conſiſting of four large Muſcles without-ſide, and a hard callous Membrane within.—Such as live on Fleſh, as Eagles, Vultures, *&c.* have only one.

ASTRONOMICAL TABLES, referr'd to in the First Volume, *p.* 291. of this Work.

First EQUATION of the apparent Time.

Substract from the apparent, if it be the mean Anomaly of the Sun.

Sign.	0	1	2	3	4	5	
°	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
0	0 00	3 46	6 34	7 40	6 42	3 54	30
1	0 03	3 53	6 38	7 40	6 38	3 47	29
2	0 16	3 59	6 42	7 40	6 34	3 40	28
3	0 23	4 06	6 46	7 40	6 30	3 33	27
4	0 31	4 13	6 49	7 39	6 26	3 25	26
5	0 39	4 19	6 53	7 39	6 21	3 18	25
6	0 47	4 26	6 57	7 38	6 17	3 11	24
7	0 55	4 32	7 00	7 38	6 12	3 03	23
8	1 03	4 38	7 03	7 37	6 07	2 56	22
9	1 10	4 45	7 06	7 36	6 02	2 48	21
10	1 18	4 51	7 09	7 34	5 57	2 40	20
11	1 26	4 57	7 12	7 33	5 52	2 33	19
12	1 34	5 03	7 14	7 32	5 46	2 25	18
13	1 41	5 09	7 17	7 30	5 41	2 17	17
14	1 49	5 15	7 19	7 28	5 36	2 09	16
15	1 57	5 20	7 22	7 26	5 30	2 01	15
16	2 04	5 26	7 24	7 24	5 24	1 53	14
17	2 12	5 32	7 26	7 22	5 18	1 45	13
18	2 19	5 37	7 28	7 20	5 12	1 37	12
19	2 27	5 42	7 30	7 18	5 06	1 29	11
20	2 34	5 48	7 31	7 15	5 00	1 21	10
21	2 42	5 53	7 33	7 12	4 54	1 13	9
22	2 49	5 58	7 34	7 10	4 48	1 05	8
23	2 56	6 03	7 35	7 07	4 41	0 57	7
24	3 03	6 07	7 36	7 04	4 35	0 49	6
25	3 11	6 12	7 37	7 00	4 28	0 41	5
26	3 18	6 17	7 38	6 57	4 22	0 33	4
27	3 25	6 21	7 39	6 54	4 15	0 24	3
28	3 32	6 26	7 40	6 50	4 08	0 16	2
29	3 39	6 30	7 40	6 46	4 01	0 08	1
30	3 46	6 34	7 40	6 42	3 54	0 00	0
	11	10	9	8	7	6	

Add to the apparent Time, if it be the mean Anomaly of the Sun.

Last EQUATION of the apparent Time.

Substract from the apparent, if it be the Place of the Sun.

	♈ ♎	♉ ♏	♊ ♐	
	′ ″	′ ″	′ ″	′ ″
0	0 00	8 24	8 46	30
1	0 20	8 35	8 36	29
2	0 40	8 45	8 25	28
3	1 00	8 54	8 14	27
4	1 19	9 03	8 01	26
5	1 39	9 11	7 49	25
6	1 59	9 18	7 35	24
7	2 18	9 25	7 21	23
8	2 37	9 31	7 06	22
9	2 57	9 36	6 51	21
10	3 16	9 41	6 35	20
11	3 34	9 45	6 19	19
12	3 53	9 49	6 02	18
13	4 11	9 51	5 45	17
14	4 29	9 53	5 27	16
15	4 47	9 55	5 09	15
16	5 04	9 55	4 50	14
17	5 21	9 55	4 31	13
18	5 38	9 54	4 12	12
19	5 54	9 52	3 52	11
20	6 10	9 50	3 32	10
21	6 26	9 47	1 12	9
22	6 41	9 43	3 51	8
23	6 55	9 38	2 30	7
24	7 10	9 33	2 09	6
25	7 23	9 27	2 48	5
26	7 36	9 20	1 27	4
27	7 49	9 13	1 05	3
28	8 01	9 05	0 43	2
29	8 13	8 56	0 22	1
30	8 21	8 46	0 00	0
	♓ ♍	♒ ♌	♑ ♋	

TABLE of Equation of Days.

G	♈ ′S″	♉ ′A″	♊ ′A′	♋ ′S″	♌ ′S″	♍ ′S″
0	7 45	1 11	4 3	0 59	5 43	2 8
1	7 26	1 24	4 0	1 15	5 45	1 55
2	7 7	1 37	3 56	1 29	5 46	1 37
3	6 48	1 49	3 51	1 42	5 47	1 21
4	6 29	2 1	3 45	1 54	5 48	1 5
5	6 10	2 12	3 39	2 6	5 48	0 48
6	5 51	2 23	3 32	2 19	5 48	0 30
7	5 31	2 33	3 25	2 32	5 46	0 12
8	5 11	2 43	3 17	2 44	5 44	0A 7
9	4 51	2 53	3 9	2 56	5 40	0 26
10	4 31	3 3	3 0	3 8	5 36	0 45
11	4 11	3 13	2 51	3 20	5 31	1 3
12	3 52	3 22	2 41	3 32	5 25	1 21
13	3 33	3 30	2 31	3 43	5 19	1 40
14	3 14	3 37	2 21	3 54	5 13	1 59
15	2 55	3 43	2 10	4 4	5 6	2 19
16	2 37	3 48	2 0	4 14	4 58	2 40
17	2 19	3 53	1 49	4 24	4 49	3 1
18	2 1	3 57	1 37	4 34	4 39	3 22
19	1 43	4 1	1 25	4 43	4 30	3 44
20	1 26	4 5	1 13	4 51	4 20	4 6
21	1 9	4 8	1 1	4 59	4 9	4 29
22	0 52	4 10	0 49	5 6	3 57	4 51
23	0 35	4 12	0 37	5 13	3 45	5 13
24	0 19	4 13	0 24	5 19	3 32	5 35
25	0 3	4 11	0 10	5 24	3 19	5 57
26	0A 12	4 9	0S 3	5 29	3 5	6 19
27	0 27	4 8	0 16	5 33	2 51	6 41
28	0 42	4 6	0 29	5 37	2 37	7 2
29	0 57	4 5	0 44	5 40	2 23	7 23
30	1 11	4 3	0 59	5 43	2 8	7 44

TABLE of Equation of Days.

G	♎ ′A″	♏ ′A″	♐ ′A″	♑ ′A″	♒ ′S″	♓ ′S″
0	7 44	15 34	13 25	0 59	11 48	14 26
1	8 5	15 42	13 7	0 27	12 4	14 29
2	8 25	15 48	12 48	0S 5	12 19	14 21
3	8 45	15 53	12 29	0 35	12 35	14 13
4	9 5	15 57	12 10	1 4	12 50	14 4
5	9 25	16 1	11 50	1 33	13 5	13 55
6	9 44	16 5	11 30	2 3	13 19	13 46
7	10 3	16 7	11 10	2 32	13 32	13 37
8	10 22	16 8	10 49	3 1	13 44	13 27
9	10 41	16 9	10 28	3 29	13 55	13 17
10	11 0	16 9	10 6	3 57	14 5	13 7
11	11 19	16 9	9 42	4 25	14 14	12 56
12	11 38	16 8	9 17	4 53	14 22	12 44
13	11 57	16 7	8 51	5 20	14 29	12 32
14	12 15	16 5	8 25	5 48	14 35	12 19
15	12 33	16 1	7 58	6 15	14 40	12 6
16	12 50	15 56	7 31	6 42	14 45	11 52
17	13 7	15 50	7 5	7 9	14 50	11 37
18	13 22	15 44	6 38	7 34	14 54	11 21
19	13 36	15 37	6 12	7 58	14 56	11 4
20	13 49	15 30	5 45	8 21	14 58	10 46
21	14 2	15 22	5 19	8 45	14 59	10 28
22	14 14	15 13	4 52	9 8	15 0	10 10
23	14 26	15 3	4 26	9 31	15 0	9 52
24	14 37	14 52	3 58	9 53	15 0	9 34
25	14 47	14 40	3 30	10 13	14 58	9 16
26	14 57	14 27	3 1	10 32	14 55	8 58
27	15 7	14 13	2 31	10 51	14 51	8 40
28	15 16	13 58	2 1	11 10	14 47	8 22
29	15 25	13 42	1 30	11 29	14 42	8 4
30	15 34	13 25	0 59	11 48	14 36	7 45

TABLE of the mean Motions of the Earth; of the Place of the PERIHELION, and of the Precession of the EQUINOX from the first Star of *Aries*.

Years of Christ. Curr.	*Mean Motion of the Earth, from the vernal Equinox.*				*Motion of the Perihelion of the Earth from the vernal Equinox.*			
	s	°	′	″	s	°	′	″
1	9	7	53	3	2	14	3	30
1501	9	19	13	9	3	4	53	30
1581	9	19	49	26	3	6	0	10
1601	9	19	58	30	3	6	16	50
1621	9	20	7	34	3	6	33	30
1641	9	20	16	38	3	6	50	10
1661	9	20	25	42	3	7	6	50
1681	9	20	34	46	3	7	23	30
1701	9	20	43	50	3	7	40	10
1721	9	20	52	54	3	7	56	50
1741	9	21	1	58	3	8	13	30
1761	9	21	11	2	3	8	30	10
1781	9	21	20	6	3	8	46	50
1801	9	21	29	11	3	9	3	30

Years expand.	*Mean Motions for the Years expand.*				*Motions of the Perihelion, and of the fixed Stars for the Years expand.*			
	s	°	′	″	s	°	′	″
1	11	29	45	40	00	00	00	50
2	11	29	37	20	00	00	1	40
3	11	29	17	00	00	00	2	30
4	00	00	1	48	00	00	3	20
5	11	29	47	28	00	00	4	10
6	11	29	33	8	00	00	5	00
7	11	29	18	48	00	00	5	50
8	00	00	3	36	00	00	6	40
9	11	29	49	16	00	00	7	30
10	11	29	34	57	00	00	8	20
11	11	29	20	37	00	00	9	10
12	00	00	5	26	00	00	10	00
13	11	29	51	6	00	00	10	50
14	11	29	36	46	00	00	11	40
15	11	29	22	26	00	00	12	30
16	00	00	7	14	00	00	13	20
17	11	29	52	54	00	00	14	10
18	11	29	38	34	00	00	15	00
19	11	29	24	14	00	00	15	50
20	00	00	9	4	00	00	16	40
40	00	00	18	8	00	00	33	20
60	00	00	27	12	00	00	50	00
80	00	00	36	16	00	01	6	40
100	00	00	45	20	00	01	23	20
200	00	1	30	41	00	02	46	40
300	00	2	16	6	00	04	10	00
400	00	3	1	22	00	05	33	20
500	00	3	46	42	00	06	56	40
600	00	4	32	3	00	08	20	00
700	00	5	17	23	00	09	43	20
800	00	6	2	44	00	11	6	40
900	00	6	48	4	00	12	29	00
1000	00	7	33	25	00	13	53	20
2000	00	15	6	50	00	27	46	40
3000	00	22	40	15	1	11	40	4[illegible]
4000	01	00	13	41	1	25	33	20
5000	01	7	47	[illegible]	1	9	26	40

TABLE of the mean Motions of the Earth for every Day of the Year.

Days	JANUARY. Mean Motions of the Earth.				M. P.	FEBRUARY Mean Motions of the Earth.				M. P.	MARCH Mean Motions of the Earth.				M. P.
	s	°	′	″	′	s	°	′	″	′	s	°	′	″	″
1	0	00	59	08	00	1	01	32	27	04	1	29	08	20	08
2	0	01	58	17	00	1	02	31	25	05	2	00	07	28	08
3	0	02	57	25	00	1	03	30	43	05	2	01	06	36	08
4	0	03	56	33	01	1	04	29	52	05	2	02	05	43	09
5	0	04	55	42	01	1	05	29	00	05	2	03	04	53	09
6	0	05	54	50	01	1	06	28	08	05	2	04	04	01	09
7	0	06	53	58	01	1	07	27	16	05	2	05	03	10	09
8	0	07	53	07	01	1	08	26	25	05	2	06	02	18	09
9	0	08	52	15	01	1	09	25	33	06	2	07	01	26	09
10	0	09	51	23	01	1	10	24	41	06	2	08	00	35	09
11	0	10	50	32	02	1	11	23	50	06	2	08	59	43	10
12	0	11	49	40	02	1	12	22	58	06	2	09	58	51	10
13	0	12	48	48	02	1	13	22	6	06	2	10	58	00	10
14	0	13	47	57	02	1	14	21	15	06	2	11	57	08	10
15	0	14	47	05	02	1	15	20	23	06	2	12	56	16	10
16	0	15	46	13	02	1	16	19	31	06	2	13	55	25	10
17	0	16	45	22	02	1	17	18	40	07	2	14	54	33	10
18	0	17	44	30	02	1	18	17	48	07	2	15	53	41	11
19	0	18	43	38	03	1	19	16	56	07	2	16	52	50	11
20	0	19	42	47	03	1	20	16	04	07	2	17	51	58	11
21	0	20	41	55	03	1	21	15	13	07	2	18	51	06	11
22	0	21	41	03	03	1	22	14	21	07	2	19	50	15	11
23	0	22	40	12	03	1	23	13	30	07	2	20	49	23	11
24	0	23	39	20	03	1	24	12	38	08	2	21	48	31	11
25	0	24	38	28	03	1	25	11	46	08	2	22	47	40	11
26	0	25	37	37	04	1	26	10	55	08	2	23	46	48	12
27	0	26	36	45	04	1	27	10	03	08	2	24	45	56	12
28	0	27	35	53	04	1	28	09	11	08	2	25	45	05	12
29	0	28	35	02	04						2	26	44	13	12
30	0	29	34	10	04						2	27	43	21	12
31	1	00	33	18	04						2	28	42	30	12

Days	APRIL. Mean Motions of the Earth.				M. P.	MAY Mean Motions of the Earth.				M. P.	JUNE. Mean Motions of the Earth.				M. P.
	s	°	′	″	″	s	°	′	″	′	s	°	′	″	′
1	2	29	41	38	13	3	29	15	48	17	4	29	49	06	21
2	3	00	40	46	13	4	00	14	56	17	5	00	48	14	21
3	3	01	39	55	13	4	01	14	04	17	5	01	47	23	21
4	3	02	39	03	13	4	02	13	13	17	5	02	46	31	21
5	3	03	38	11	13	4	03	12	21	17	5	03	45	39	21
6	3	04	37	20	13	4	04	11	29	17	5	04	44	48	21
7	3	05	36	27	13	4	05	10	38	17	5	05	43	56	22
8	3	06	35	36	13	4	06	09	46	17	5	06	43	04	22
9	3	07	34	45	13	4	07	08	54	18	5	07	42	13	22
10	3	08	33	53	14	4	08	08	03	18	5	08	41	21	22
11	3	09	33	01	14	4	09	07	11	18	5	09	40	29	22
12	3	10	32	10	14	4	10	06	19	18	5	10	39	38	22
13	3	11	31	18	14	4	11	05	28	18	5	11	38	46	22
14	3	12	30	26	14	4	12	04	36	18	5	12	37	54	23
15	3	13	29	34	14	4	13	03	44	18	5	13	37	03	23
16	3	14	28	43	14	4	14	02	53	19	5	14	36	11	23
17	3	15	27	51	15	4	15	02	01	19	5	15	35	19	23
18	3	16	27	00	15	4	16	01	09	19	5	16	34	28	23
19	3	17	26	08	15	4	17	00	18	19	5	17	33	36	23
20	3	18	25	16	15	4	17	59	26	19	5	18	32	41	23
21	3	19	24	24	15	4	18	58	34	19	5	19	31	53	24
22	3	20	23	33	15	4	19	57	42	19	5	20	31	01	24
23	3	21	22	41	15	4	20	56	51	20	5	21	30	09	24
24	3	22	21	49	16	4	21	55	59	20	5	22	29	18	24
25	3	23	20	58	16	4	22	55	08	20	5	23	28	26	24
26	3	24	20	06	16	4	23	54	16	20	5	24	27	34	24
27	3	25	19	14	16	4	24	53	24	20	5	25	26	43	24
28	3	25	18	23	16	4	25	52	33	20	5	26	25	51	24
29	3	28	17	31	16	4	26	51	41	20	5	27	24	59	25
30	3	27	16	39	16	4	27	50	49	21	5	28	24	08	25
31						4	28	49	58	21					

TABLE of the mean Motions of the Earth for every Day of the Year.

Days	July. Mean Motion of the Earth.				M. P.	August. Mean Motion of the Earth.				M. P.	September. Mean Motion of the Earth.				M. P.
"	s	°	′	"	"	s	°	′	"	"	s	°	′	"	"
1	5	29	23	16	25	6	29	56	31	29	8	00	29	52	33
2	6	00	22	24	25	7	00	55	42	29	8	01	29	01	34
3	6	01	21	32	25	7	01	54	51	29	8	02	28	09	34
4	6	02	20	40	25	7	02	53	59	30	8	03	27	17	34
5	6	03	19	49	25	7	03	53	07	30	8	04	26	36	34
6	6	04	18	57	26	7	04	52	16	30	8	05	25	34	34
7	6	05	18	06	26	7	05	51	24	30	8	06	24	42	34
8	6	06	17	14	26	7	06	50	32	30	8	07	23	51	34
9	6	07	16	22	26	7	07	49	41	30	8	08	22	59	35
10	6	08	15	31	26	7	08	48	49	30	8	09	22	07	35
11	6	09	14	39	26	7	09	47	57	31	8	10	21	16	35
12	6	10	13	47	26	7	10	47	06	31	8	11	20	24	35
13	6	11	12	56	27	7	11	46	14	31	8	12	19	32	35
14	6	12	12	04	27	7	12	45	22	31	8	13	18	41	35
15	6	13	11	12	27	7	13	44	31	31	8	14	17	49	35
16	6	14	10	21	27	7	14	43	39	31	8	15	16	57	36
17	6	15	09	29	27	7	15	42	47	31	8	16	16	05	36
18	6	16	08	37	27	7	16	42	56	31	8	17	15	14	36
19	6	17	07	46	27	7	17	41	04	32	8	18	14	22	36
20	6	18	06	54	28	7	18	40	12	32	8	19	13	30	36
21	6	19	06	02	28	7	19	39	21	32	8	20	12	39	36
22	6	20	05	11	28	7	20	38	25	32	8	21	11	47	36
23	6	21	04	19	28	7	21	37	37	32	8	22	10	55	36
24	6	22	03	27	28	7	22	36	46	32	8	23	10	04	37
25	6	23	02	36	28	7	23	35	54	32	8	24	09	12	37
26	6	24	01	44	28	7	24	35	02	33	8	25	08	20	37
27	6	25	00	52	28	7	25	34	11	33	8	26	07	29	37
28	6	26	00	01	29	7	26	33	19	33	8	27	06	37	37
29	6	26	59	09	29	7	27	32	27	33	8	28	05	45	37
30	6	27	58	17	29	7	28	31	36	33	8	29	04	54	37
31	6	28	57	26	29	7	29	30	44	33					

Days	October. Mean Motion of the Earth.				M P.	November. Mean Motion of the Earth.				M P.	December. Mean Motion of the Earth.				M P
"	s	°	′	"	"	s	°	′	"	"	s	°	′	"	"
1	9	00	04	02	38	10	00	37	20	42	11	00	11	30	46
2	9	01	03	10	38	10	01	36	29	42	11	01	10	38	46
3	9	02	02	19	38	10	02	35	37	42	11	02	09	47	46
4	9	03	01	27	38	10	03	34	45	42	11	03	08	55	46
5	9	04	00	35	38	10	04	33	54	42	11	04	08	03	46
6	9	04	59	44	38	10	05	33	02	42	11	05	07	12	47
7	9	05	58	52	38	10	06	32	10	43	11	06	06	20	47
8	9	06	58	00	38	10	07	31	19	43	11	07	05	28	47
9	9	07	57	08	39	10	08	30	27	43	11	08	04	37	47
10	9	08	56	17	39	10	09	29	35	43	11	09	03	45	47
11	9	09	55	25	39	10	10	28	41	43	11	10	02	53	47
12	9	10	54	34	39	10	11	27	52	43	11	11	02	02	47
13	9	11	53	42	39	10	12	27	00	43	11	12	01	10	47
14	9	12	52	50	39	10	13	26	09	44	11	13	00	18	48
15	9	13	51	59	39	10	14	25	17	44	11	13	59	27	48
16	9	14	51	07	40	10	15	24	25	44	11	14	58	35	48
17	9	15	50	15	40	10	16	23	34	44	11	15	57	03	48
18	9	16	49	24	40	10	17	22	42	44	11	16	56	52	48
19	9	17	48	32	40	10	18	21	50	44	11	17	56	00	48
20	9	18	47	40	40	10	19	20	59	44	11	18	55	08	48
21	9	19	46	49	40	10	20	20	07	44	11	19	54	17	49
22	9	20	45	54	40	10	21	19	15	45	11	20	53	25	49
23	9	21	45	05	41	10	22	18	24	45	11	21	52	33	49
24	9	22	44	14	41	10	23	17	32	45	11	22	51	42	49
25	9	23	43	22	41	10	24	16	40	45	11	23	50	50	49
26	9	24	42	30	41	10	25	15	49	45	11	24	49	58	49
27	9	25	41	39	41	10	26	14	57	45	11	25	49	07	49
28	9	26	40	47	41	10	27	14	05	45	11	26	48	15	49
29	9	27	39	55	41	10	28	13	13	46	11	27	47	23	50
30	9	28	39	04	41	10	29	12	22	46	11	28	46	32	50
31	9	29	38	12	42						11	29	45	40	50

A TABLE of the Horary mean Motion of the Earth.

H.	°	′	″	H	°	′	″
	′	″	‴		′	″	‴
″	″	‴	⁗	″	″	‴	⁗
0	0	00	00	30	1	13	55
1	0	02	28	31	1	16	23
2	0	04	57	32	1	18	51
3	0	07	24	33	1	21	19
4	0	09	51	34	1	23	47
5	0	12	19	35	1	26	14
6	0	14	47	36	1	28	42
7	0	17	15	37	1	31	10
8	0	19	43	38	1	33	38
9	0	22	11	39	1	36	06
10	0	24	38	40	1	38	34
11	0	27	06	41	1	41	02
12	0	29	34	42	1	43	29
13	0	32	02	43	1	45	57
14	0	34	30	44	1	48	25
15	0	36	58	45	1	50	53
16	0	39	25	46	1	53	21
17	0	41	53	47	1	55	49
18	0	44	21	48	1	58	16
19	0	46	49	49	2	00	44
20	0	49	17	50	2	03	12
21	0	51	15	51	2	05	40
22	0	51	13	52	2	08	08
23	0	56	40	53	2	10	36
24	0	59	08	54	2	13	03
25	1	01	36	55	2	15	31
26	1	04	04	56	2	17	59
27	1	06	32	57	2	20	27
28	1	09	00	58	2	25	55
29	1	11	27	59	2	22	23
30	1	13	55	60	2	25	50

In the Bissextile Year, after Feb. 28, you must add a Day, and the Motion of a Day to the Time given.

Equation of the Terrestrial Orbit.

Substract.

	Sign, 0			1			2			3			4			5			
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	
0	0	00	00	0	56	56	1	39	28	1	56	20	1	41	34	0	59	02	30
1	0	01	58	0	58	39	1	40	28	1	56	20	1	40	33	0	57	14	29
2	0	03	57	1	00	21	1	41	27	1	56	20	1	39	30	0	55	26	28
3	0	05	56	1	02	03	1	42	24	1	56	17	1	38	26	0	53	37	27
4	0	07	55	1	03	43	1	43	21	1	56	13	1	37	20	0	51	47	26
5	0	09	54	1	05	22	1	44	15	1	56	04	1	36	11	0	49	55	25
6	0	11	53	1	07	00	1	45	08	1	55	54	1	35	01	0	48	03	24
7	0	13	51	1	08	37	1	45	58	1	55	42	1	33	49	0	46	10	23
8	0	15	48	1	10	13	1	46	47	1	55	28	1	32	36	0	44	16	22
9	0	17	46	1	11	48	1	47	33	1	55	12	1	31	20	0	42	21	21
10	0	19	44	1	13	22	1	48	19	1	55	53	1	30	03	0	40	26	20
11	0	21	40	1	14	53	1	49	01	1	54	32	1	28	45	0	38	30	19
12	0	23	36	1	16	24	1	49	42	1	54	10	1	27	25	0	36	32	18
13	0	25	33	1	17	53	1	50	22	1	53	46	1	26	03	0	34	34	17
14	0	27	29	1	19	22	1	50	59	1	53	19	1	24	39	0	32	36	16
15	0	29	24	1	20	49	1	51	34	1	52	15	1	23	14	0	30	36	15
16	0	31	19	1	22	14	1	52	07	1	52	10	1	21	47	0	28	37	14
17	0	33	13	1	23	38	1	52	38	1	51	46	1	20	19	0	26	37	13
18	0	35	07	1	25	00	1	53	08	1	51	11	1	18	48	0	24	36	12
19	0	37	01	1	26	22	1	53	38	1	50	35	1	17	17	0	22	34	11
20	0	38	54	1	27	42	1	54	00	1	49	56	1	15	41	0	20	32	10
21	0	40	44	1	28	58	1	54	23	1	49	14	1	14	10	0	18	30	9
22	0	42	35	1	30	06	1	54	44	1	48	31	1	12	34	0	16	28	8
23	0	44	26	1	31	20	1	55	03	1	47	4	1	10	57	0	14	26	7
24	0	46	16	1	32	42	1	55	21	1	46	50	1	09	19	0	12	22	6
25	0	48	05	1	33	54	1	55	35	1	45	16	1	07	39	0	10	19	5
26	0	49	52	1	35	0	1	55	48	1	45	20	1	05	58	0	08	16	4
27	0	51	40	1	36	12	1	55	59	1	44	26	1	04	16	0	06	12	3
28	0	53	26	1	37	19	1	56	09	1	43	31	1	02	32	0	04	08	2
29	0	55	11	1	38	23	1	56	15	1	42	31	1	00	45	0	02	04	1
30	0	56	56	1	39	28	1	56	20	1	41	35	1	59	03	0	00	00	0
	Sign 11			10			9			8			7			6			

TABLE of the mean Motion of the Moon, and of the Apogæum and Node.

Years of the Christian Æra.	Motion of the Moon from the Vernal Equinox.				Motion of the Apogæe from the Vernal Equinox.				Motion of the Node from the Vernal Equinox.			
	s	°	′	″	s	°	′	″	s	°	′	″
1	4	02	02	45	9	12	07	05	08	28	36	04
1501	1	29	39	08	3	29	55	50	01	25	46	43
1581	7	23	55	20	4	15	16	50	10	08	25	47
1601	0	07	29	25	7	19	07	05	09	11	35	31
21	4	21	03	30	10	22	57	20	08	14	45	19
41	9	04	37	35	01	26	47	35	07	17	55	03
61	1	18	11	40	05	00	37	50	06	21	04	47
81	6	01	45	45	08	04	28	05	05	24	14	35
1701	10	15	19	50	11	08	18	20	04	27	24	20
1721	02	28	53	55	02	12	08	06	04	00	34	06
1741	07	12	28	00	05	15	59	21	03	03	43	51
1761	11	26	02	05	08	19	42	36	02	06	53	35
1781	04	09	36	10	11	23	39	51	01	10	03	20
1801	08	23	10	15	02	27	30	06	00	13	13	04

TABLE of the mean Motion of the Moon.

Years expand.	Mean Motion of the Moon.				Mean Motion of the Apogæum.				Mean Motion of the Node.			
	s	°	′	″	s	°	′	″	s	°	′	″
1	04	09	23	4	01	10	39	51	00	19	59	43
2	08	18	46	7	02	20	19	41	01	08	39	26
3	00	28	09	10	04	01	59	32	01	27	59	09
4	05	20	42	49	05	12	46	04	02	17	22	03
5	10	00	05	52	06	23	25	54	03	06	41	46
6	02	09	28	55	08	04	05	44	03	06	01	29
7	06	18	51	59	09	14	45	35	04	15	21	12
8	11	11	25	37	10	25	32	07	05	04	44	05
9	03	20	48	41	00	06	11	57	05	24	03	49
10	08	00	11	44	01	16	51	47	06	13	23	33
11	00	09	34	48	02	27	31	38	07	02	43	16
12	05	02	18	27	04	08	18	10	07	22	06	09
13	09	11	31	30	05	18	58	00	08	11	25	52
14	01	20	54	34	06	29	37	50	09	00	45	35
15	06	00	17	37	08	10	17	41	09	20	05	18
16	10	22	51	16	09	21	04	13	10	09	28	12
17	03	02	14	19	11	01	44	03	10	28	47	56
18	07	11	37	22	00	12	23	53	11	18	07	39
19	11	21	00	26	01	23	03	44	00	07	27	22
20	04	13	34	05	03	03	50	15	00	26	50	15
40	08	27	08	10	06	07	40	30	01	23	40	31
60	01	10	42	15	09	11	30	45	02	20	30	46
80	05	24	16	20	00	15	21	00	03	17	21	02
100	10	07	50	25	03	19	11	15	04	14	11	17
200	08	15	40	50	07	08	22	30	08	28	22	33
300	06	23	31	15	10	27	33	45	01	12	33	50
400	05	01	21	40	02	16	45	00	05	26	45	07
500	03	09	12	05	06	05	56	15	10	10	56	23
600	01	25	07	30	09	25	07	30	02	25	07	40
700	11	14	18	55	01	14	18	45	07	09	18	57
800	10	03	30	20	05	03	30	00	11	23	30	13
900	08	22	41	45	08	22	41	15	04	07	41	30
1000	06	18	24	10	00	11	52	30	08	21	52	47
2000	01	06	48	20	00	23	45	00	05	13	45	44
3000	07	25	12	30	01	05	37	30	02	05	38	30
4000	02	13	36	40	01	17	30	00	10	27	31	27
5000	09	2	00	50	01	29	22	30	07	20	24	14

TABLE of the mean Motions of the Moon for every Day of the Year.

JANUARY.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
″	s	°	′	″	°	′	″	°	′	″
1	00	13	10	35	00	06	41	00	03	11
2	00	26	21	10	00	13	22	00	06	21
3	01	09	31	45	00	20	03	00	09	32
4	01	22	42	20	00	26	44	00	12	43
5	02	05	52	55	00	33	25	00	15	53
6	02	19	03	30	00	40	06	00	19	04
7	03	02	14	05	00	46	48	00	22	14
8	03	15	24	40	00	53	29	00	25	25
9	03	28	35	15	01	00	10	00	28	36
10	04	11	45	50	01	06	51	00	31	46
11	04	24	56	25	01	13	32	00	34	57
12	05	08	07	00	01	20	13	00	38	08
13	05	21	17	35	01	26	54	00	41	18
14	06	04	28	10	01	33	35	00	44	29
15	06	17	38	45	01	40	16	00	47	40
16	07	00	49	20	01	46	57	00	50	50
17	07	13	59	55	01	53	38	00	54	01
18	07	27	10	30	02	00	19	00	57	11
19	08	10	21	05	02	07	00	01	00	22
20	08	23	31	40	02	13	41	01	03	33
21	09	06	42	15	02	20	23	01	06	43
22	09	19	52	50	02	27	04	01	09	54
23	10	03	03	25	02	33	45	01	13	05
24	10	16	14	00	02	40	26	01	16	15
25	10	29	24	35	02	47	07	01	19	26
26	11	12	35	10	02	53	48	01	22	37
27	11	25	45	45	03	00	29	01	25	47
28	00	08	56	20	03	07	10	01	28	58
29	00	22	06	55	03	13	51	01	32	09
30	01	05	17	31	03	20	32	01	35	19
31	01	18	28	06	03	27	13	01	38	30

FEBRUARY.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
″	s	°	′	″	°	′	″	°	′	″
1	02	01	38	41	03	33	54	01	41	40
2	02	14	49	16	03	40	35	01	44	50
3	02	27	59	51	03	47	16	01	48	01
4	03	11	10	26	03	53	57	01	51	12
5	03	24	21	01	04	00	38	01	54	23
6	04	07	31	36	04	07	19	01	57	33
7	04	20	42	11	04	14	00	02	00	44
8	05	03	52	46	04	20	41	02	03	54
9	05	17	03	21	04	27	22	02	07	06
10	06	00	13	56	04	34	04	02	10	16
11	06	13	24	31	04	40	45	02	15	27
12	06	26	35	06	04	47	26	02	16	37
13	07	09	45	41	04	54	07	02	19	48
14	07	22	56	15	05	00	48	02	22	59
15	08	06	06	50	05	07	29	02	26	09
16	08	19	17	26	05	14	10	02	29	20
17	09	02	28	01	05	20	51	02	32	30
18	09	15	38	36	05	27	32	02	35	41
19	09	28	49	11	05	34	13	02	38	52
20	10	11	59	46	05	40	54	02	42	02
21	10	25	10	21	05	47	36	02	45	13
22	11	08	20	56	05	54	17	02	48	23
23	11	21	31	31	06	00	58	02	51	34
24	00	04	42	06	06	07	39	02	54	45
25	00	17	52	41	06	14	20	02	57	55
26	01	01	03	16	06	21	01	03	01	06
27	01	14	13	51	06	27	42	03	04	16
28	01	27	24	26	06	34	23	03	07	27

TABLE of the mean Motions of the Moon for every Day in the Year.

MARCH.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
"	s	°	′	″	°	′	″	°	′	″
1	02	10	35	01	06	41	04	03	10	38
2	02	23	45	36	06	47	45	03	13	49
3	03	06	56	11	06	54	26	03	16	59
4	03	20	06	46	07	01	07	03	20	10
5	04	03	17	21	07	07	48	03	23	20
6	04	16	27	56	07	14	29	03	26	31
7	04	29	38	31	07	21	11	03	29	42
8	05	12	49	06	07	27	52	03	32	52
9	05	25	59	41	07	34	33	03	36	03
10	06	09	10	16	07	41	14	03	39	14
11	06	22	20	51	07	47	55	03	42	25
12	07	05	31	26	07	54	36	03	45	36
13	07	18	42	01	08	01	17	03	48	46
14	08	01	52	36	08	07	58	03	51	56
15	08	15	03	11	08	14	39	03	55	07
16	08	28	13	46	08	21	20	03	58	18
17	09	11	24	21	08	28	01	04	01	28
18	09	24	34	56	08	34	42	04	04	39
19	10	07	45	31	08	41	23	04	07	49
20	10	20	56	07	08	48	04	04	11	00
21	11	04	06	42	08	54	45	04	14	11
22	11	17	17	17	09	01	27	04	17	22
23	00	00	27	52	09	08	08	04	20	32
24	00	13	38	27	09	14	49	04	23	43
25	00	26	49	02	09	21	30	04	26	53
26	01	09	59	37	09	28	11	04	30	04
27	01	23	10	12	09	34	52	04	33	15
28	02	06	20	47	09	41	33	04	36	25
29	02	19	31	22	09	48	14	04	39	36
30	03	02	41	57	09	54	55	04	42	47
31	03	15	52	32	10	01	36	04	45	58

APRIL.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
"	s	°	′	″	°	′	″	°	′	″
1	03	29	03	07	10	08	17	04	49	08
2	04	12	13	42	10	14	58	04	52	19
3	04	25	24	17	10	21	39	04	55	29
4	05	08	34	52	10	28	20	04	58	40
5	05	21	45	27	10	35	02	05	01	51
6	06	04	56	02	10	41	43	05	05	01
7	06	18	06	38	10	48	24	05	08	12
8	07	01	17	12	10	55	05	05	11	22
9	07	14	27	47	11	01	46	05	14	33
10	07	27	38	22	11	08	27	05	17	44
11	08	10	48	57	11	15	08	05	20	54
12	08	23	59	32	11	21	49	05	24	05
13	09	07	10	07	11	28	30	05	27	16
14	09	20	20	42	11	35	11	05	30	26
15	10	03	31	17	11	41	52	05	33	37
16	10	16	41	52	11	48	33	05	36	48
17	10	29	52	27	11	55	14	05	39	58
18	11	13	03	02	12	01	55	05	43	09
19	11	26	13	37	12	08	36	05	46	19
20	00	09	24	12	12	15	18	05	49	31
21	00	22	34	47	12	21	59	05	52	41
22	01	05	45	22	12	28	40	05	55	52
23	01	18	55	57	12	35	21	05	59	02
24	02	02	06	37	12	42	02	06	02	13
25	02	15	17	07	12	48	43	06	05	24
26	02	28	27	42	12	55	24	06	08	34
27	03	11	38	17	13	02	05	06	11	45
28	03	24	48	52	13	08	46	06	14	56
29	04	07	59	27	13	15	27	06	18	06
30	04	21	10	03	13	22	08	06	21	17

MAY.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
"	s	°	′	″	°	′	″	°	′	″
1	05	04	20	37	13	28	49	06	24	27
2	05	17	31	12	13	35	30	06	27	38
3	06	00	41	47	13	42	11	06	30	48
4	06	13	52	22	13	48	52	06	33	59
5	06	27	02	57	13	55	34	06	37	10
6	07	10	13	32	14	02	15	06	40	20
7	07	23	24	07	14	08	56	06	43	31
8	08	06	34	42	14	15	37	06	46	41
9	08	19	45	17	14	22	18	06	49	52
10	09	02	55	53	14	28	59	06	53	03
11	09	16	06	27	14	35	40	06	56	14
12	09	29	17	03	14	42	21	06	59	24
13	10	12	27	38	14	49	02	07	02	34
14	10	25	38	13	14	55	43	07	05	45
15	11	08	48	48	15	02	24	07	08	56
16	11	21	59	23	15	09	05	07	12	06
17	00	05	09	58	15	15	46	07	15	17
18	00	18	20	33	15	22	28	07	18	27
19	01	01	31	08	15	29	09	07	21	38
20	01	14	41	43	15	35	50	07	24	49
21	01	27	52	18	15	42	31	07	28	00
22	02	11	02	53	15	49	12	07	31	10
23	02	24	13	28	15	55	53	07	34	21
24	03	07	24	03	16	02	34	07	37	32
25	03	20	34	38	16	09	15	07	40	43
26	04	03	45	13	16	15	56	07	43	53
27	04	16	55	48	16	22	37	07	47	04
28	05	00	06	23	16	29	18	07	50	14
29	05	13	16	58	16	35	59	07	53	25
30	05	26	27	33	16	42	40	07	56	36
31	06	09	38	08	16	49	21	07	59	46

JUNE.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
"	s	°	′	″	°	′	″	°	′	″
1	06	22	48	43	16	56	03	08	02	56
2	07	05	59	18	17	02	44	08	06	07
3	07	19	09	53	17	09	25	08	09	18
4	08	02	20	28	17	16	06	08	12	29
5	08	15	31	03	17	22	47	08	15	39
6	08	28	41	38	17	29	28	08	18	50
7	09	11	52	13	17	36	09	08	22	00
8	09	25	02	48	17	42	50	08	25	11
9	10	08	13	23	17	49	31	08	28	22
10	10	21	23	58	17	56	12	08	31	32
11	11	04	34	33	18	02	53	08	34	43
12	11	17	45	08	18	09	34	08	37	54
13	00	00	55	43	18	16	15	08	41	05
14	00	14	06	18	18	22	56	08	44	16
15	00	27	16	53	18	29	37	08	47	26
16	01	10	27	28	18	36	19	08	50	37
17	01	23	38	03	18	43	00	08	53	47
18	02	06	48	38	18	49	41	08	56	58
19	02	19	59	13	18	56	22	09	00	09
20	03	03	09	48	19	03	03	09	03	19
21	03	16	20	23	19	09	44	09	06	30
22	03	29	30	58	19	16	25	09	09	40
23	04	12	41	33	19	23	06	09	13	51
24	04	25	52	08	19	29	47	09	16	02
25	05	09	02	43	19	36	28	09	19	12
26	05	22	13	18	19	43	09	09	22	23
27	06	05	23	53	19	49	50	09	25	34
28	06	18	34	28	19	56	31	09	28	45
29	07	01	45	04	20	03	12	09	31	55
30	07	14	55	39	20	09	54	09	35	06

TABLE of the mean Motions of the Moon for every Day of the Year.

JULY.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
	s	°	′	″	°	′	″	°	′	″
1	07	27	06	14	20	16	35	09	38	16
2	08	11	16	49	20	23	16	09	41	27
3	08	24	27	24	20	29	57	09	44	37
4	09	07	37	59	20	36	38	09	47	48
5	09	20	48	34	20	43	19	09	50	19
6	10	03	59	09	20	50	00	09	54	09
7	10	17	09	44	20	56	41	09	57	20
8	11	00	20	19	21	03	22	10	00	30
9	11	13	30	54	21	10	03	10	03	41
10	11	26	41	29	21	16	44	10	06	51
11	00	09	52	04	21	23	25	10	10	02
12	00	23	02	39	21	30	06	10	13	13
13	01	06	13	14	21	36	47	10	16	24
14	01	19	23	49	21	43	28	10	19	35
15	02	02	34	24	21	50	09	10	22	45
16	02	15	44	59	21	56	52	10	25	56
17	02	28	55	34	22	03	32	10	29	06
18	03	12	06	09	22	10	13	10	32	17
19	03	25	16	44	22	16	54	10	35	28
20	04	08	27	19	22	23	35	10	38	39
21	04	21	37	54	22	30	15	10	41	49
22	05	04	48	29	22	36	56	10	45	00
23	05	17	59	04	22	43	37	10	48	11
24	06	10	09	39	22	50	19	10	51	21
25	06	14	20	14	22	57	00	10	54	32
26	06	27	30	49	23	03	41	10	57	42
27	07	10	41	20	23	10	22	11	00	53
28	07	23	51	59	23	17	03	11	04	03
29	08	07	02	34	23	23	44	11	07	14
30	08	20	13	09	23	30	25	11	10	25
31	09	03	23	44	23	37	06	11	13	36

AUGUST.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
	s	°	′	″	°	′	″	°	′	″
1	09	16	34	19	23	43	47	11	16	47
2	09	29	44	54	23	50	28	11	19	58
3	10	12	55	29	23	57	09	11	23	08
4	10	26	06	04	24	03	51	11	26	19
5	11	09	16	39	24	10	32	11	29	29
6	11	22	27	14	24	17	13	11	32	40
7	00	05	37	49	24	23	54	11	35	51
8	00	18	48	24	24	30	35	11	39	02
9	01	01	58	59	24	37	16	11	42	12
10	01	15	09	34	24	43	57	11	45	23
11	01	28	20	09	24	50	38	11	48	33
12	02	11	30	44	24	57	19	11	51	44
13	02	24	41	19	25	04	00	11	54	54
14	03	07	51	54	25	10	42	11	58	05
15	03	21	02	29	25	17	23	12	01	15
16	04	04	13	04	25	24	04	12	04	26
17	04	17	23	40	25	30	45	12	07	36
18	05	00	34	15	25	37	26	12	10	47
19	05	13	44	50	25	44	07	12	13	58
20	05	26	55	25	25	50	48	12	17	08
21	06	10	06	00	25	57	29	12	20	19
22	06	23	16	35	26	04	10	12	23	29
23	07	06	27	10	26	10	51	12	26	40
24	07	19	37	45	26	17	32	12	29	51
25	08	02	48	20	26	24	13	12	33	01
26	08	15	58	55	26	30	55	12	36	12
27	08	29	09	30	26	37	36	12	39	23
28	09	12	20	05	26	44	17	12	42	34
29	09	25	30	40	26	50	58	12	45	44
30	10	08	41	15	26	57	39	12	48	55
31	10	21	51	50	27	04	20	12	52	05

SEPTEMBER.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
	s	°	′	″	s	°	′	″	°	′	″
1	11	05	02	25	00	27	11	01	12	55	16
2	11	18	13	00	00	27	17	42	12	58	27
3	00	01	23	35	00	27	24	23	13	01	37
4	00	14	34	10	00	27	31	04	13	04	48
5	00	27	44	45	00	27	37	45	13	07	58
6	01	10	55	20	00	27	44	26	13	11	09
7	01	24	05	55	00	27	51	07	13	14	20
8	02	07	16	30	00	27	57	48	13	17	31
9	02	20	27	05	00	28	04	29	13	20	41
10	03	03	37	40	00	28	11	11	13	23	52
11	03	16	48	15	00	28	17	52	13	27	03
12	03	28	58	50	00	28	24	33	13	30	14
13	04	13	09	25	00	28	31	14	13	33	24
14	04	26	20	00	00	28	37	55	13	36	35
15	05	09	30	35	00	28	44	36	13	39	45
16	05	22	41	10	00	28	51	17	13	42	56
17	06	05	51	45	00	28	57	58	13	46	07
18	06	19	02	20	00	29	04	39	13	49	17
19	07	02	12	55	00	29	11	20	13	52	28
20	07	15	23	30	00	29	18	01	13	55	38
21	07	28	34	05	00	29	24	42	13	58	49
22	08	11	44	40	00	29	31	23	14	02	00
23	08	24	55	15	00	29	38	04	14	05	10
24	09	08	05	50	00	29	44	45	14	08	21
25	09	21	16	25	00	29	51	27	14	11	31
26	10	04	27	00	00	29	58	08	14	14	42
27	10	17	37	35	01	00	04	49	14	17	53
28	11	00	48	10	01	00	11	30	14	21	03
29	11	13	58	45	01	00	18	11	14	24	14
30	11	27	09	20	01	00	24	52	14	27	24

OCTOBER.

Days	Mean Motion of the Moon.				Apog.			Nod. Retrog.		
	s	°	′	″	s	°	′	″	°	′	″
1	00	10	19	55	01	00	31	37	14	30	35
2	00	23	30	30	01	00	38	14	14	33	46
3	01	06	41	05	01	00	44	55	14	36	56
4	01	19	51	40	01	00	51	36	14	40	07
5	02	03	02	15	01	00	58	17	14	43	17
6	02	16	12	50	01	01	04	58	14	46	28
7	02	29	23	26	01	01	11	39	14	49	39
8	03	12	34	01	01	01	18	20	14	52	50
9	03	25	44	36	01	01	25	02	14	56	00
10	04	08	55	11	01	01	31	43	14	59	11
11	04	22	05	46	01	01	38	24	15	02	21
12	05	05	16	21	01	01	45	05	15	05	32
13	05	18	26	56	01	01	51	46	15	08	43
14	06	01	37	36	01	01	58	27	15	11	53
15	06	14	48	06	01	02	05	08	15	15	04
16	06	27	58	41	01	02	11	49	15	18	15
17	07	11	09	16	01	02	18	30	15	21	26
18	07	24	19	51	01	02	25	11	15	24	36
19	08	07	30	26	01	02	31	52	15	27	47
20	08	20	41	01	01	02	38	33	15	30	57
21	09	03	51	36	01	02	45	14	15	34	08
22	09	17	02	11	01	02	51	55	15	37	19
23	10	00	12	46	01	03	58	36	15	40	29
24	10	13	23	21	01	03	05	17	15	43	40
25	10	26	33	56	01	03	11	58	15	46	50
26	11	09	44	31	01	03	18	39	15	50	01
27	11	22	55	06	01	03	25	21	15	53	12
28	00	06	05	41	01	03	32	02	15	56	22
29	00	19	16	16	01	03	38	43	15	59	33
30	01	02	26	51	01	03	45	24	16	02	43
31	01	15	37	26	01	03	52	05	16	05	54

TABLE of the mean Motions of the Moon for every Day in the Year.

NOVEMBER.

Days	Mean Motion of the Moon.				Apog.				Nod. Retrog.		
	s	°	′	″	s	°	′	″	°	′	″
1	01	28	48	01	01	03	58	46	16	09	05
2	02	11	59	36	01	04	05	27	16	12	16
3	02	25	09	11	01	04	12	08	16	15	26
4	03	08	19	46	01	04	18	49	16	18	37
5	03	21	30	21	01	04	25	30	16	21	48
6	04	04	40	56	01	04	32	11	16	24	59
7	04	17	51	31	01	04	38	53	16	28	09
8	05	01	02	06	01	04	45	34	16	31	20
9	05	14	12	41	01	04	52	15	16	34	30
10	05	27	23	16	01	04	58	56	16	37	41
11	06	10	33	51	01	05	05	37	16	40	52
12	06	23	44	26	01	05	12	10	16	44	02
13	07	06	55	01	01	05	18	59	16	47	13
14	07	20	05	36	01	05	25	40	16	50	23
15	08	03	16	11	01	05	32	21	16	53	34
16	08	16	26	46	01	05	39	02	16	56	45
17	08	29	37	21	01	05	45	43	16	59	55
18	09	12	47	56	01	05	52	24	17	03	06
19	09	25	58	31	01	05	59	05	17	06	16
20	10	09	09	06	01	06	05	46	17	09	27
21	10	22	19	41	01	06	12	27	17	12	38
22	11	05	30	16	01	06	19	09	17	15	49
23	11	18	40	51	01	06	25	50	17	18	59
24	00	01	51	26	01	06	32	31	17	22	10
25	00	15	02	02	01	06	39	12	17	25	21
26	00	28	12	37	01	06	45	53	17	28	32
27	01	11	23	12	01	06	52	34	17	31	42
28	01	24	33	47	01	06	59	15	17	34	53
29	02	07	44	22	01	07	05	56	17	38	03
30	02	20	54	57	01	07	12	37	17	41	14

DECEMBER.

Days	Mean Motion of the Moon.				Apog.				Nod. Retrog.		
	s	°	′	″	s	°	′	″	°	′	″
1	03	04	05	32	01	07	19	18	17	44	25
2	03	17	16	07	01	07	25	59	17	47	35
3	04	00	26	42	01	07	32	40	17	50	46
4	04	13	37	17	01	07	39	21	17	53	56
5	04	26	47	52	01	07	46	02	17	57	07
6	05	09	58	27	01	07	52	43	18	00	18
7	05	23	09	02	01	07	59	24	18	03	28
8	06	06	19	37	01	08	06	06	18	06	39
9	06	19	30	12	01	08	12	47	18	09	49
10	07	02	40	47	01	08	19	28	18	13	00
11	07	15	51	22	01	08	26	09	18	16	11
12	07	29	01	57	01	08	32	50	18	19	21
13	08	12	12	32	01	08	39	31	18	22	32
14	08	25	23	07	01	08	46	12	18	25	42
15	09	08	33	42	01	08	52	53	18	28	53
16	09	21	44	17	01	08	59	34	18	32	04
17	10	04	54	52	01	09	06	15	18	35	15
18	10	18	05	27	01	09	12	56	18	38	25
19	11	01	16	02	01	09	19	38	18	41	36
20	11	14	26	37	01	09	26	19	18	44	47
21	11	27	37	12	01	09	33	00	18	47	58
22	00	10	47	47	01	09	39	41	18	51	09
23	00	23	58	22	01	09	46	22	18	54	19
24	01	07	08	57	01	09	53	03	18	57	30
25	01	20	19	32	01	09	59	44	19	00	41
26	02	03	30	07	01	10	06	25	19	03	51
27	02	16	40	42	01	10	13	06	19	07	02
28	02	29	51	17	01	10	19	47	19	10	12
29	03	13	01	52	01	10	26	28	19	13	23
30	03	26	12	27	01	10	33	09	19	16	34
31	04	09	23	02	01	10	39	50	19	19	45

A Table of the mean Motion of the Moon by Hours, and Parts of an Hour.

H	° ′ ″ ‴	′ ″ ‴	′ ″ ‴	H	° ′ ″ ‴	′ ″ ‴	′ ″ ‴
0	0 00 00	0 00	0 00	30	16 28 14	8 21	3 58
1	0 32 56	0 17	0 08	31	17 01 10	8 38	4 06
2	1 05 53	0 33	0 16	32	17 34 07	8 54	4 14
3	1 38 49	0 50	0 24	33	18 07 03	9 11	4 22
4	2 11 46	1 07	0 32	34	18 39 59	9 28	4 30
5	2 44 42	1 24	0 40	35	19 12 55	9 45	4 38
6	3 17 39	1 40	0 48	36	19 45 52	10 02	4 46
7	3 50 35	1 57	0 56	37	20 18 48	10 19	4 54
8	4 23 32	2 14	1 04	38	20 51 45	10 36	5 02
9	4 56 28	2 30	1 12	39	21 24 41	10 52	5 10
10	5 29 25	2 47	1 19	40	21 57 38	11 08	5 18
11	6 02 21	3 04	1 27	41	22 30 34	11 25	5 26
12	6 35 18	3 21	1 35	42	23 03 31	11 42	5 34
13	7 08 14	3 37	1 43	43	23 36 27	11 59	5 42
14	7 41 10	3 54	1 51	44	24 09 24	12 16	5 50
15	8 14 07	4 11	1 59	45	24 42 20	12 32	5 58
16	8 47 03	4 27	2 07	46	25 15 17	12 41	6 06
17	9 20 00	4 44	2 15	47	25 48 13	13 05	6 14
18	9 52 56	5 01	2 23	48	26 21 10	13 22	6 22
19	10 25 53	5 18	2 31	49	26 54 06	13 39	6 30
20	10 58 49	5 34	2 39	50	27 27 03	13 56	6 38
21	11 31 46	5 51	2 47	51	27 59 59	14 13	6 46
22	12 04 42	6 08	2 55	52	28 39 56	14 30	6 54
23	12 37 39	6 24	3 03	53	29 05 52	14 40	7 01
24	13 10 35	6 41	3 11	54	29 38 49	15 02	7 08
25	13 43 32	6 58	3 19	55	30 11 45	15 19	7 16
26	14 16 28	7 15	3 27	56	30 44 42	15 36	7 24
27	14 49 24	7 31	3 34	57	31 17 38	15 53	7 32
28	15 22 21	7 48	3 42	58	31 50 34	16 10	7 40
29	15 55 17	8 05	3 50	59	32 23 31	16 26	7 48
30	16 28 14	8 21	3 58	60	32 56 27	16 43	7 56

In the Bissextile Year after *February*, add a Day to the Time given, and its Motion to the Motions collected.

Physical Parts to be added to, or subtracted from the mean Motion of the Moon, according to the mean Anamoly of the Sun.

Mean Ana. of the Sun.	Add. 0	1	2	3	4	5	
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
0	0 00	5 36	9 51	11 30	10 04	5 51	30
1	0 12	5 47	9 57	11 30	9 58	5 40	29
2	0 23	5 58	10 03	11 30	9 51	5 30	28
3	0 35	6 09	10 09	11 30	9 45	5 19	27
4	0 47	6 19	10 14	11 29	9 39	5 08	26
5	0 59	6 29	10 19	11 28	9 32	4 57	25
6	1 10	6 39	10 25	11 27	9 25	4 46	24
7	1 22	6 48	10 30	11 26	9 18	4 35	23
8	1 33	6 58	10 34	11 25	9 11	4 23	22
9	1 45	7 07	10 39	11 24	9 03	4 12	21
10	1 56	7 16	10 43	11 22	8 55	4 00	20
11	2 08	7 25	10 48	11 20	8 48	3 49	19
12	2 19	7 34	10 52	11 18	8 40	3 37	18
13	2 31	7 43	10 56	11 15	8 32	3 25	17
14	2 42	7 52	10 59	11 13	8 23	3 14	16
15	2 54	8 01	11 02	11 10	8 15	3 02	15
16	3 05	8 09	11 06	11 07	8 06	2 50	14
17	3 16	8 17	11 09	11 04	7 58	2 38	13
18	3 27	8 25	11 12	11 00	7 49	2 26	12
19	3 39	8 33	11 14	10 57	7 40	2 14	11
20	3 50	8 41	11 17	10 53	7 30	2 02	10
21	4 01	8 49	11 19	10 50	7 21	1 50	9
22	4 12	8 57	11 21	10 45	7 12	1 38	8
23	4 22	9 04	11 23	10 40	7 02	1 26	7
24	4 33	9 11	11 24	10 35	6 52	1 13	6
25	4 44	9 18	11 26	10 31	6 42	1 01	5
26	4 55	9 25	11 27	10 26	6 32	0 49	4
27	5 05	9 32	11 28	10 20	6 22	0 37	3
28	5 16	9 38	11 29	10 15	6 12	0 24	2
29	5 26	9 45	11 29	10 09	6 02	0 12	1
30	5 36	9 51	11 30	10 04	5 51	0 00	0
	11	10	9	8	7	6	

Subtract

Equations of the Lunar Apogæum, and Eccentricities of the Orbit, in such Parts, as the Radius contains 100,000 of them.

Add the Equations of the Apogæum.

Argum. of the Year.	Sign 0/6. ° ′ ″	Eccentricity. Parts.	Sign 1/7. ° ′ ″	Eccentricity. Parts.	Sign 2/8. ° ′ ″	Eccentricity. Parts.	Argum. of the Year.
0	00 00 00	66854	09 07 14	61045	11 08 55	49429	30
1	00 20 21	66847	09 20 52	60691	10 59 46	49082	29
2	00 40 42	66826	09 34 01	60330	10 49 35	48741	28
3	01 01 01	66791	09 46 40	59962	10 38 22	48408	27
4	01 21 17	66741	09 58 49	59689	10 26 07	48085	26
5	01 14 31	66678	10 10 24	59210	10 12 50	47769	25
6	02 01 40	66600	10 21 29	58827	09 58 31	47653	24
7	02 21 44	66509	10 31 58	58439	09 43 10	47167	23
8	02 41 42	66404	10 41 50	58047	09 26 48	46880	22
9	03 01 34	66286	10 51 08	57652	09 09 24	46604	21
10	03 21 18	66154	10 59 48	57254	08 51 00	46337	20
11	03 40 54	66008	11 07 47	56854	08 31 36	46082	19
12	04 00 12	65850	11 15 07	56451	08 11 14	45838	18
13	04 19 38	65679	11 21 45	56047	07 49 55	45606	17
14	04 38 44	65495	11 27 40	55642	07 27 40	45385	16
15	04 57 38	65298	11 32 51	55237	07 04 31	45176	15
16	05 16 20	65089	11 37 17	54832	06 40 30	44979	14
17	05 34 49	64868	11 30 55	54427	06 15 40	44794	13
18	05 53 02	64636	11 43 47	54023	05 50 02	44623	12
19	06 11 01	64392	11 45 49	53620	05 23 39	44466	11
20	06 28 43	64137	11 47 01	53220	04 56 34	44320	10
21	06 46 08	63870	11 47 22	52822	04 28 51	44188	9
22	07 03 15	63594	11 46 50	52427	04 00 32	44070	8
23	07 20 03	63307	11 45 24	52035	03 31 40	43965	7
24	07 36 30	63011	11 43 04	51647	03 02 20	43874	6
25	07 52 36	62705	11 39 47	51264	02 03 26	43796	5
26	08 08 20	62389	11 35 34	50885	02 02 30	43733	4
27	08 23 41	62066	11 30 23	50512	01 32 08	43683	3
28	08 38 38	61733	11 24 14	50144	01 01 30	43648	2
29	08 53 08	61392	11 17 05	49783	00 30 45	43627	1
30	09 07 14	61045	11 08 55	49429	00 00 00	43619	0
	Sign 5/11.		Sign 4/10.		Sign 3/9.		

Subtract the Equations of the Apogæum.

TABLE of Equations of the Centre of the Moon.

Subtract.

Mean Anomaly	Sign. 0. Left.Ecc. 43619 ° ′ ″	Sign. 0. Mean 55237 ° ′ ″	Sign. 0. Great 66854 ° ′ ″	Sign. 1. Left.Ecc. 43619 ° ′ ″	Sign. 1. Mean 55237 ° ′ ″	Sign. 1. Great 66854 ° ′ ″	Mean Anomaly
0	0 00 00	0 00 00	0 00 00	2 23 08	2 59 04	3 34 08	30
1	0 04 58	0 06 12	0 07 24	2 27 32	3 04 33	3 40 43	29
2	0 09 56	0 12 24	0 14 48	2 31 50	3 10 00	3 47 15	28
3	0 14 53	0 18 35	0 22 12	2 36 07	3 15 23	3 53 43	27
4	0 19 50	0 24 47	0 29 30	2 40 22	3 20 44	4 00 08	26
5	0 24 48	0 30 58	0 30 58	2 44 35	3 26 01	4 06 30	25
6	0 29 44	0 37 09	0 44 20	2 48 48	3 31 16	4 12 47	24
7	0 34 39	0 43 19	0 51 42	2 52 53	3 36 27	4 19 01	23
8	0 39 34	0 49 27	0 59 04	2 56 54	3 41 35	4 25 12	22
9	0 44 30	0 55 36	1 06 25	3 00 58	3 46 39	4 31 18	21
10	0 49 25	1 01 43	1 13 45	3 04 55	3 51 39	4 37 20	20
11	0 54 19	1 07 51	1 21 02	3 08 53	3 56 36	4 43 18	19
12	0 59 13	1 13 57	1 28 18	3 12 46	4 01 30	4 49 12	18
13	1 04 04	1 20 02	1 35 34	3 16 35	4 06 20	4 55 01	17
14	1 08 56	1 26 05	1 42 49	3 20 22	4 11 06	5 00 46	16
15	1 13 45	1 32 07	1 50 02	3 24 05	4 15 47	5 06 26	15
19	1 18 33	1 38 08	1 57 13	3 27 44	4 20 24	5 12 01	14
17	1 23 20	1 44 08	2 04 23	3 31 20	4 24 58	5 17 32	13
18	1 28 06	1 50 06	2 11 31	3 34 53	4 29 28	5 22 59	12
19	1 32 50	1 56 02	2 18 37	3 38 22	4 33 53	5 28 20	12
20	1 37 32	1 01 56	2 25 41	3 41 47	4 38 14	5 33 36	10
21	1 42 13	2 07 49	2 32 43	3 45 09	4 42 31	5 38 47	9
22	1 46 52	2 13 39	2 39 4	3 48 28	4 46 43	5 43 5[illegible]	8
23	1 51 3	2 19 27	2 46 40	3 51 43	4 50 50	5 48 5[illegible]	7
24	1 56 0[illegible]	2 25 14	2 53 35	3 54 55	4 54 53	5 53 48	6
25	2 00 4	2 30 58	3 00 28	3 58 03	4 58 55	5 58 38	5
26	2 05 1[illegible]	2 36 41	3 07 18	4 01 06	5 02 43	6 03 21	4
27	2 09 4[illegible]	2 42 21	3 14 05	4 04 05	5 06 32	6 07 59	3
28	2 14 1[illegible]	2 47 58	3 20 49	4 07 00	5 10 15	6 12 31	2
29	2 18 4[illegible]	2 53 32	3 27 30	4 09 51	5 13 54	6 16 58	1
30	2 23 0[illegible]	2 59 04	3 34 08	4 12 40	5 17 27	6 21 18	0
		Sign. 11.			Sign. 10.		

Add

Subtract.

Mean Anomaly	Sign. 2. Left.Ecc. 43619 ° ′ ″	Sign. 2. Mean 55237 ° ′ ″	Sign. 2. Great 66854 ° ′ ″	Sign. 3. Left.Ecc. 43619 ° ′ ″	Sign. 3. Mean 55237 ° ′ ″	Sign. 3. Great 66854 ° ′ ″	Mean Anomaly
0	4 12 40	5 17 27	6 21 18	4 59 30	6 18 59	7 38 17	30
1	4 15 18	5 20 54	6 25 32	4 59 48	6 19 23	7 38 52	29
2	4 17 56	5 24 17	6 29 39	4 59 56	6 19 40	7 39 20	28
3	4 20 28	5 27 35	6 33 40	4 59 59	6 19 50	7 39 40	27
4	4 23 00	5 30 47	6 37 36	4 59 58	6 19 54	7 39 51	26
5	4 25 24	5 33 53	6 41 25	4 59 49	6 19 51	7 39 53	25
6	4 27 44	5 36 54	6 45 08	4 59 36	6 19 40	7 39 47	24
7	4 30 00	5 39 49	6 48 44	4 59 20	6 19 23	7 39 33	23
8	4 32 12	5 42 39	6 52 14	4 58 53	6 18 57	7 39 09	22
9	4 34 19	5 45 24	6 55 36	4 58 24	6 18 25	7 38 37	21
10	4 36 21	5 48 02	6 58 52	4 57 48	6 17 40	7 37 58	20
11	4 38 18	5 50 35	7 02 01	4 57 06	6 17 00	7 37 09	19
12	4 40 12	5 53 02	7 05 03	4 56 19	6 16 08	7 36 12	18
13	4 41 58	5 55 22	7 07 57	4 55 27	6 15 08	7 35 06	17
14	4 43 41	5 57 36	7 10 45	4 54 30	6 14 00	7 33 52	16
15	4 45 19	5 59 44	7 13 25	4 53 27	6 12 46	7 32 29	15
16	4 46 53	6 01 46	7 15 58	4 52 19	6 11 25	7 30 57	14
17	4 48 22	6 03 42	7 18 24	4 51 03	6 09 56	7 29 17	13
18	4 49 44	6 05 31	7 20 42	4 49 45	6 08 20	7 27 28	12
19	4 51 02	6 07 15	7 22 53	4 48 21	6 06 37	7 25 30	11
20	4 52 15	6 08 52	7 24 50	4 46 51	6 04 48	7 23 23	10
21	4 53 22	6 10 23	7 26 52	4 45 16	6 02 51	7 21 08	9
22	4 54 23	6 11 46	7 28 39	4 43 34	6 00 48	7 18 44	8
23	4 55 20	6 13 03	7 30 20	4 41 44	5 58 37	7 16 12	7
24	4 56 12	6 14 14	7 31 57	4 39 56	5 56 19	7 13 30	6
25	4 56 59	6 15 19	7 33 1[illegible]	4 37 58	5 53 54	7 10 40	5
26	4 57 38	6 16 17	7 34 32	4 35 56	5 51 23	7 07 42	4
27	4 58 14	6 17 08	7 35 4[illegible]	4 33 47	5 48 43	7 04 35	3
28	4 58 45	6 17 52	7 36 41	4 31 33	5 45 57	7 01 19	2
29	4 59 10	6 18 29	7 37 3[illegible]	4 29 13	5 43 04	6 57 55	1
30	4 59 30	6 18 59	7 38 1[illegible]	4 26 49	5 40 05	6 54 23	0
		Sign. 9.			Sign 10.		

Add

Subtract.

Mean Anomaly.	Sign. 4. Left.Ecc. 43619 ° ′ ″	Sign. 4. Mean 55237 ° ′ ″	Sign. 4. Great 66854 ° ′ ″	Sign 5. Left.Ecc. 43619 ° ′ ″	Sign 5. Mean 55237 ° ′ ″	Sign 5. Great 66854 ° ′ ″	Mean Anomaly.
0	4 26 49	5 40 05	6 54 23	2 37 10	3 21 48	4 07 29	30
1	4 24 19	5 37 00	6 50 44	2 32 27	3 15 48	4 00 10	29
2	4 21 43	5 33 46	6 46 52	2 27 42	3 09 41	3 52 35	28
3	4 19 01	5 30 25	6 42 54	2 22 54	3 03 36	3 45 14	27
4	4 16 14	5 26 57	6 38 48	2 18 03	2 57 24	3 37 39	26
5	4 13 22	5 23 24	6 34 34	2 13 09	2 51 06	3 29 59	25
6	4 10 25	5 19 43	6 30 11	2 08 13	2 44 45	3 22 14	24
7	4 07 24	5 15 58	6 25 40	2 03 14	2 38 22	3 14 24	23
8	4 04 18	5 12 06	6 21 01	1 58 12	2 31 25	3 06 30	22
9	4 01 08	5 08 07	6 16 14	1 53 07	2 25 24	2 58 31	21
10	3 57 53	5 04 00	6 11 20	1 48 01	2 18 32	2 50 29	20
11	3 54 32	4 59 48	6 06 16	1 42 52	2 12 13	2 42 23	19
12	3 51 07	4 55 30	6 01 06	1 37 41	2 05 32	2 34 12	18
13	3 47 38	4 51 06	5 55 49	1 32 27	1 58 49	2 25 58	17
14	3 44 04	4 46 36	5 50 21	1 27 11	1 52 05	2 17 41	16
15	3 40 27	4 42 00	5 44 48	1 21 54	1 45 17	2 09 21	15
16	3 36 43	4 37 17	5 39 06	1 16 35	1 38 26	2 00 58	14
17	3 32 55	4 32 27	5 33 17	1 11 14	1 31 33	1 52 31	13
18	3 29 02	4 27 32	5 27 22	1 05 55	1 24 38	1 44 01	12
19	3 25 05	4 22 33	5 21 19	1 00 27	1 17 42	1 35 29	11
20	3 21 04	4 17 28	5 15 09	0 55 02	1 10 44	1 26 55	10
21	3 16 59	4 12 17	5 08 52	0 49 34	1 03 43	1 18 19	9
22	3 12 48	4 07 01	5 02 28	0 44 07	0 56 42	1 09 42	8
23	3 08 34	4 01 40	4 55 58	0 38 37	0 49 40	1 01 03	7
24	3 04 16	3 56 13	4 49 21	0 33 08	0 42 36	0 52 22	6
25	2 59 53	3 50 40	4 42 38	0 27 38	0 35 30	0 43 40	5
26	2 55 27	3 45 03	4 35 48	0 22 08	0 28 25	0 34 57	4
27	2 50 58	3 39 21	4 28 52	0 16 37	0 21 19	0 26 13	3
28	2 46 26	3 33 34	4 21 49	0 11 04	0 14 13	0 17 29	2
29	2 41 50	3 27 43	4 14 41	0 05 32	0 07 07	0 08 38	1
30	2 37 10	3 21 48	4 07 29	0 00 00	0 00 00	0 00 00	0
		Sign 7.			Sign 6.		

Add.

A Table of Variation.

	Sign ♑		Sign ♋		Sign ♎		
	′	″	′	″	′	″	
0	00	00	32	54	32	54	30
1	01	20	33	33	32	13	29
2	02	39	34	09	31	30	28
3	03	59	34	42	30	45	27
4	05	18	35	13	29	57	26
5	06	36	35	42	29	07	25
6	07	54	36	09	28	14	24
7	09	11	36	32	27	20	23
8	10	28	36	52	26	24	22
9	11	44	37	10	25	26	21
10	13	00	37	25	24	25	20
11	14	14	37	38	23	23	19
12	15	27	37	48	22	20	18
13	16	40	37	55	21	15	17
14	17	51	37	59	20	08	16
15	19	00	38	00	19	00	15
16	20	08	37	59	17	51	14
17	21	15	37	55	16	40	13
18	22	20	37	48	15	27	12
19	23	23	37	38	14	14	11
20	24	25	37	25	13	00	10
21	25	26	37	10	11	44	9
22	26	24	36	52	10	28	8
23	27	20	36	32	09	11	7
24	28	14	36	09	07	54	6
25	29	07	35	42	06	36	5
26	29	57	35	13	05	18	4
27	30	45	34	42	03	59	3
28	31	30	34	09	02	39	2
29	32	13	33	33	01	20	1
30	32	54	32	54	00	00	0
	Sign ♈		Sign ♌		Sign ♐		

Table of Equation of the Node, and the Inclination of the Limits above five Degrees.

Add the Equation of the Node.

Diff. ☉ from ☊	Sign ♑ Equat. of ☊	Sign ♑ Inclin. Limit.	Sign ♋ Equat. of ☊	Sign ♋ Inclin. Limit.	Sign ♎ Equat. of ☊	Sign ♎ Inclin. Limit.	Diff. ☉ from ☊
	° ′ ″	′ ″	° ′ ″	′ ″	° ′ ″	′ ″	
0	0 00 00	18 00	1 25 12	13 30	1 26 50	04 30	30
1	0 03 28	18 00	1 27 00	13 14	1 25 01	04 14	29
2	0 06 56	17 59	1 28 37	13 57	1 23 06	03 59	28
3	0 10 23	17 59	1 30 04	12 40	1 21 06	03 41	27
4	0 13 49	17 55	1 31 22	12 23	1 19 03	03 28	26
5	0 17 11	17 52	1 32 30	12 05	1 46 56	03 13	25
6	0 20 31	17 48	1 33 34	11 47	1 14 44	02 59	24
7	0 23 48	17 43	1 34 31	11 29	1 12 26	02 45	23
8	0 27 02	17 38	1 35 31	11 11	1 10 02	02 32	22
9	0 30 13	17 34	1 36 25	10 53	1 07 31	02 19	21
10	0 33 22	17 28	1 37 15	10 34	1 04 53	02 06	20
11	0 36 29	17 21	1 37 59	10 14	1 02 09	01 54	19
12	0 39 34	17 13	1 38 37	09 55	0 59 19	01 43	18
13	0 42 37	17 05	1 39 09	09 37	0 56 23	01 32	17
14	0 45 38	16 57	1 39 33	09 18	0 53 21	01 22	16
15	0 48 37	16 48	1 39 46	09 00	0 50 15	01 12	15
16	0 51 33	16 38	1 39 34	08 42	0 47 06	01 03	14
17	0 54 27	16 28	1 39 11	08 23	0 43 56	00 55	13
18	0 57 17	16 17	1 38 41	08 05	0 40 44	00 47	12
19	1 00 06	16 06	1 38 05	07 46	0 37 29	00 39	11
20	1 02 51	15 54	1 37 23	07 26	0 44 12	00 32	10
21	1 05 31	15 41	1 36 34	07 07	0 30 53	00 26	9
22	1 08 04	15 28	1 35 46	06 49	0 27 32	00 22	8
23	1 10 29	15 15	1 34 56	06 31	0 24 09	00 17	7
24	1 12 48	15 01	1 34 03	06 13	0 20 44	00 12	6
25	1 15 01	14 47	1 33 06	05 55	0 17 18	00 08	5
26	1 17 08	14 32	1 32 05	05 37	0 13 51	00 05	4
27	1 19 12	14 17	1 31 00	05 20	0 10 24	00 03	3
28	1 21 14	14 01	1 29 47	05 03	0 06 57	00 01	2
29	1 23 14	13 46	1 28 21	04 46	0 03 29	00 00	
30	1 25 12	13 30	1 26 50	04 30	0 00 00	00 00	0
	Sign ♑		Sign ♋		Sign ♎		

Subſtract the Equation of the Node.

Table of the ſimple Latitude of the Moon, appropriated to the leſs Inclination of the Orbit, witth an Increaſe, becoming the greateſt Inclination.

Argum. Lat.	North Sign ♑ South Lat. of the Moon.	Increm. or Parts added	North Sign ♋ South Lat. of the Moon.	Increm. or Parts added	North Sign ♎ South Lat. of the Moon.	Increm. or Parts added	Argum. Lat.
	° ′ ″	′ ″	° ′ ″	′ ″	° ′ ″	′ ″	
0	0 00 00	0 00	2 29 51	9 00	4 19 44	15 36	30
1	00 05 14	0 19	02 34 22	09 16	04 22 18	15 45	29
2	00 10 28	0 37	02 38 50	09 32	04 24 49	15 54	28
3	00 15 42	0 56	02 43 15	09 48	04 27 14	16 02	27
4	00 20 55	1 15	02 47 37	10 03	04 29 34	16 11	26
5	00 26 08	1 34	02 51 56	10 19	04 31 50	16 19	25
6	00 31 20	1 53	02 56 11	10 34	04 34 00	16 27	24
7	00 36 32	2 11	03 00 24	10 49	04 36 06	16 34	23
8	00 41 43	2 30	03 04 33	11 04	04 38 06	16 42	22
9	00 46 53	2 49	03 08 39	11 19	04 40 02	16 49	21
10	00 52 02	3 08	03 12 42	11 34	04 41 52	16 55	20
11	00 57 10	3 26	03 16 41	11 48	04 43 37	17 01	19
12	01 02 18	3 55	03 20 36	12 02	04 45 17	17 07	18
13	01 07 24	4 03	03 24 38	12 16	04 46 52	17 12	17
14	01 12 29	4 21	03 28 16	12 30	04 48 21	17 18	16
15	01 17 33	4 39	03 32 00	12 44	04 49 45	17 23	15
16	01 22 36	4 57	03 35 40	12 56	04 51 04	17 28	14
17	01 27 37	5 15	03 39 17	13 09	04 52 18	17 33	13
18	01 32 37	5 33	03 42 49	13 22	04 53 26	17 37	12
19	01 37 34	5 51	03 46 17	13 35	04 54 28	17 40	11
20	01 42 29	6 09	03 49 42	13 47	04 55 26	17 44	10
21	01 47 23	6 27	03 53 02	13 59	04 56 18	17 47	9
22	01 52 16	6 45	03 56 17	14 11	04 57 04	17 50	8
23	01 57 06	7 02	03 59 26	14 23	04 57 45	17 52	7
24	02 01 54	7 19	04 02 31	14 34	04 58 21	17 54	6
25	02 06 39	7 36	04 05 30	14 45	04 58 51	17 56	5
26	02 11 23	7 53	04 08 37	14 56	04 59 16	17 58	4
27	02 16 02	8 09	04 11 30	15 06	04 59 36	17 59	3
28	02 20 42	8 26	04 14 19	15 17	04 59 49	17 59	2
29	02 25 18	8 43	04 17 04	15 26	04 59 57	18 00	1
30	02 29 51	9 00	04 19 44	15 36	05 00 00	18 00	0
	North Sign ♈ South		North Sign ♌ South		North Sign ♐ South		

Table of Reduction, appropriated to the leſſer Inclination of the Orbit, with the Exceſs becoming the greater Inclination.

Argum. Lat.	Sign ♑ Subtr. Reduct.	Exceſs.	Sign ♋ Subtr. Reduct.	Exceſs.	Sign ♎ Subtr. Reduct.	Exceſs.	Argum. Lat.
	′ ″	″	′ ″		′ ″	″	
0	0 00	00	5 40	42	5 41	42	30
1	00 14	02	05 47	43	05 34	41	29
2	00 27	04	05 53	44	05 26	40	28
3	00 41	06	05 59	45	05 18	39	27
4	00 55	08	06 04	46	05 10	38	26
5	01 08	09	06 09	46	05 02	37	25
6	01 22	11	06 14	46	04 53	36	24
7	01 35	12	06 18	47	04 43	35	23
8	01 48	13	06 21	47	04 34	34	22
9	02 01	15	06 24	47	04 23	33	21
10	02 14	17	06 27	48	04 13	31	20
11	02 27	19	06 29	48	04 02	30	19
12	02 40	20	06 31	48	03 51	29	18
13	02 52	22	06 32	48	03 40	28	17
14	03 04	23	06 33	49	03 29	26	16
15	03 16	24	06 33	49	03 17	24	15
16	03 28	26	06 33	49	03 05	23	14
17	03 40	28	06 32	49	02 53	22	13
18	03 51	29	06 31	49	02 40	20	12
19	04 02	30	06 29	48	02 28	19	11
20	04 12	31	06 27	48	02 15	17	10
21	04 23	33	06 25	47	02 02	15	9
22	04 33	34	06 22	47	01 49	13	8
23	04 44	35	06 18	47	01 35	12	7
24	04 52	36	06 14	46	01 22	11	6
25	05 01	37	06 10	46	01 08	09	5
26	05 09	38	06 05	46	00 55	8	4
27	05 18	39	06 00	45	00 41	6	3
28	05 26	40	05 54	44	00 27	4	2
29	05 33	41	05 47	43	00 14	2	1
30	05 40	42	05 41	42	00 00	0	0
	Sign ♑		Sign ♋		Sign ♎		

Add.

TABLE of the true Horary Motion of the Moon in the Eclipses, to the lesser and greater Eccentricity; with the true Horary Motion of the Sun, and the Semi-diameter.

Mean Anomaly.	True Horary Motion of the Earth.	Semi-diameter of the Sun.	True horary Motion of the Moon. Eccentricity. 4362	6685	Mean Anomaly.
s °	′ ″	′ ″	′ ″	′ ″	s °
0 00	02 23	15 50	30 51	29 30	12 00
06	02 23	15 50	30 52	29 31	24
12	02 23	15 50	30 55	29 33	18
18	02 23	15 50	30 59	29 39	12
24	02 23	15 51	31 03	29 47	06
1 00	02 23	15 52	31 10	29 57	11 00
06	02 24	15 53	31 19	30 09	24
12	02 24	15 54	31 29	30 22	18
18	02 24	15 55	31 40	30 37	12
24	02 25	15 56	31 52	30 55	06
2 00	02 25	15 58	32 06	31 15	10 00
06	02 26	15 59	32 21	31 36	24
12	02 26	16 01	32 36	31 59	18
18	02 27	16 02	32 54	32 24	12
24	02 27	16 04	33 11	32 50	06
3 00	02 28	16 06	33 29	33 18	9 00
06	02 28	16 08	33 47	33 47	24
12	02 29	16 09	34 07	34 15	18
18	02 29	16 11	34 26	34 43	12
24	02 30	16 13	34 45	34 12	06
4 00	02 30	16 14	35 03	35 42	8 00
06	02 31	16 15	35 20	36 10	24
12	02 31	16 17	35 36	36 36	18
18	02 32	16 19	35 51	37 01	12
24	02 32	16 20	36 05	37 24	06
5 00	02 32	16 21	36 17	37 45	7 00
06	02 33	16 21	36 27	38 02	24
12	02 33	16 22	36 34	38 15	18
18	02 33	16 22	36 39	38 25	12
24	02 33	16 23	36 43	38 31	06
6 00	02 33	16 23½	36 44	38 32	6 00

TABLE of the Horizontal Paralaxes, and Semi-diameters of the Moon.

Mean Anomaly.	Horizont. Parallax of the Moon. Eccentricity. 4362	6685	Horizont. Semi-diam. of the Moon Eccentricity. 4362	6685	Mean Anomaly.
s °	′ ″	′ ″	′ ″	′ ″	s °
12 00	55 35	54 23	15 04	14 45	0 00
24	55 35	54 23	15 05	14 45	06
18	55 38	54 26	15 05	14 46	12
12	55 43	54 31	15 06	14 47	18
06	55 48	54 38	15 08	14 49	24
11 00	55 54	54 47	15 10	14 52	1 00
24	56 01	54 58	15 12	14 55	06
18	56 09	55 11	15 14	14 58	12
12	56 19	55 25	15 16	15 02	18
06	56 30	55 41	15 19	15 06	24
10 00	56 42	55 58	15 23	15 11	2 00
24	56 56	56 17	15 27	15 16	06
18	57 10	56 37	15 30	15 21	12
12	57 25	56 59	15 34	15 27	18
06	57 39	57 22	15 38	15 34	24
9 00	57 54	57 45	15 42	15 40	3 00
24	58 10	58 10	15 4	15 46	06
18	58 27	58 35	15 51	15 53	12
12	58 43	59 01	15 55	16 01	18
06	58 58	59 25	16 00	16 07	24
8 00	59 13	59 48	16 04	16 14	4 00
24	59 28	60 12	16 08	16 20	06
18	59 43	60 35	16 12	16 26	12
12	59 56	60 56	16 16	16 32	18
06	60 07	61 14	16 19	16 37	24
7 00	60 16	61 30	16 21	16 41	5 00
24	60 24	61 44	16 23	16 45	06
18	60 30	61 55	16 25	16 48	12
12	60 35	62 03	16 26	16 50	18
06	60 38	62 08	16 27	16 51	24
6 00	60 39	62 10	16 27	16 52	6 00

TABLE of the Angle which the true Motion of the Moon from the Sun forms with the Ecliptick in the Syzigies.

Argum. of Latitude.	True Horary Motion of the Moon from the Sun. 27′	28′	29′	30′	31′	32′	33′	34′	35′	36′	Argum. of Latitude.
Sign 0	27′	28′	29′	30′	31′	32′	33′	34′	35′	36′	Sig. 5
Sign 6	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	Sig. 11
Degr. 0	s 45	s 45	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	Degr. 30
1	s 46	s 45	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	29
2	s 46	s 45	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	28
3	s 46	s 45	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	27
4	s 45	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	s 36	26
5	s 45	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	s 36	25
6	s 44	s 43	s 42	s 41	s 40	s 39	s 38	s 37	s 36	s 35	24
7	s 45	s 43	s 42	s 41	s 40	s 39	s 38	s 37	s 36	s 35	23
8	s 42	s 42	s 41	s 40	s 39	s 38	s 37	s 36	s 35	s 34	22
9	s 41	s 41	s 40	s 39	s 38	s 37	s 36	s 35	s 34	s 33	21
10	s 40	s 40	s 39	s 38	s 37	s 36	s 35	s 34	s 33	s 32	20
11	s 39	s 39	s 38	s 37	s 36	s 35	s 34	s 33	s 32	s 31	19
12	s 38	s 38	s 37	s 36	s 35	s 34	s 33	s 32	s 31	s 30	18

TABLE of Temporary Reduction between the true Syzygies of the Luminaries, and the greatest Approximation of the Centres.

Argum. of Latitude.	Subtract from the Time of a true Sizygy in the Orbit. True Horary Motion of the Moon from the Sun. 27′	28′	29′	30′	31′	32′	33′	34′	35′	36′	Argum. of Latitude.
Sign 0	27′	28′	29′	30′	31′	32′	33′	34′	35′	36′	Sig. 5
Sign 6	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	Sig. 11
Degr. 0	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	Degr. 30
1	0 35	0 34	0 33	0 31	0 30	0 29	0 28	0 27	0 26	0 26	29
2	1 10	1 07	1 05	1 03	1 00	0 58	0 56	0 55	0 53	0 51	28
3	2 45	1 41	1 37	1 34	1 30	1 27	1 25	1 22	1 19	1 17	27
4	2 20	2 15	2 10	2 05	2 00	1 56	1 53	1 49	1 45	1 42	26
5	3 35	2 48	2 42	2 36	2 30	2 25	2 21	2 16	2 12	2 08	25
6	3 29	3 21	3 14	3 07	3 00	2 54	2 48	2 43	3 38	2 33	24
7	4 04	3 54	3 45	3 38	3 30	3 23	3 16	3 10	3 04	2 58	23
8	4 38	4 27	4 17	4 08	3 59	3 51	3 43	3 36	3 09	3 25	22
9	5 11	4 59	4 48	4 38	4 28	4 19	4 10	4 02	3 54	3 47	21
10	5 44	5 31	5 19	5 07	4 56	4 46	4 37	4 28	4 19	4 21	20
11	6 17	6 03	5 49	5 37	5 25	5 14	5 03	4 53	4 44	4 35	19
12	6 15	6 34	6 19	6 06	5 53	5 41	5 29	5 19	5 09	4 30	18

Add to the Time of the true Syzygy in the Orbit.

TABLE of the mean Motion of the Moon from the Sun.

Years of the Christian Æra Current	Mean Motion of the Moon from the Sun. s	°	′	″
1	6	24	09	42
1501	4	10	25	59
1581	10	04	05	54
1601	2	17	30	55
1621	07	00	55	56
1641	11	14	20	57
1661	03	27	45	58
1681	08	11	10	59
1701	00	24	36	00
1721	05	08	01	01
1741	09	21	26	02
1761	02	04	51	03
1781	06	18	16	04
1801	11	01	41	04

Julian Years Expand.	Mean Motion of the Moon from the Sun. s	°	′	″
20	04	13	26	13
40	08	26	50	26
60	01	10	15	39
80	05	23	40	52
100	10	07	06	05
200	08	14	12	10
300	06	21	18	15
400	04	28	24	20
500	03	05	30	25
600	01	12	36	30
700	11	19	42	35
800	09	26	48	40
900	08	03	54	45
1000	06	11	00	50
2000	00	22	01	40
3000	17	03	02	03
4000	01	14	02	52
5000	07	25	03	43

Julian Years expand.	Mean Motion of the Moon from the Sun. s	°	′	″
1	04	09	37	25
2	08	19	14	48
3	00	28	52	11
4	05	20	41	03
5	10	00	18	27
6	02	09	55	50
7	06	19	33	14
8	11	11	22	05
9	03	20	59	30
10	08	00	36	53
11	00	10	14	17
12	05	02	03	07
13	09	11	40	32
14	01	21	17	55
15	06	00	55	18
16	10	22	44	10
17	03	02	21	35
18	07	11	58	58
19	11	21	36	21
20	04	13	25	13

Months	Mean Motion of the Moon from the Sun s	°	′	″
January	00	00	00	00
February	00	17	54	47
March	11	29	15	14
April	00	17	10	02
May	00	22	53	23
June	01	10	48	11
July	01	16	31	33
August	02	04	26	19
Sept.	02	21	21	07
October	02	28	04	28
Nov.	03	15	59	16
Decemb.	03	21	42	36

In the Bissextile Year, after *February*, add a Day to the Time given, and the Motion of a Day to the Motions collected.

Days	Mean Motion of the Moon from the Sun. s	°	′	″	H. ′ ″	Mean Motion. ° ′ ″ ′ ″ ‴ ″ ″ ‴ ⁗	H. ′ ″	Mean Motion. ° ′ ″ ′ ″ ‴ ″ ″ ‴ ⁗
1	00	12	11	27	1	00 30 29	31	15 44 47
2	00	24	22	53	2	01 00 57	32	16 15 16
3	01	06	34	20	3	01 31 26	33	16 45 44
4	01	18	45	47	4	02 01 54	34	17 16 13
5	02	00	57	13	5	02 32 23	35	17 46 42
6	02	13	08	40	6	03 02 57	36	18 17 10
7	02	25	20	07	7	03 33 20	37	18 47 39
8	03	07	31	33	8	04 03 49	38	19 18 07
9	03	19	43	00	9	04 34 18	39	19 48 36
10	04	01	54	27	10	05 04 46	40	20 19 05
11	04	14	05	53	11	05 35 15	41	20 49 33
12	04	26	17	20	12	06 05 43	42	21 20 02
13	05	08	28	47	13	06 36 12	43	21 50 31
14	05	20	40	13	14	07 06 41	44	22 20 59
15	06	02	51	40	15	07 37 09	45	22 51 28
16	06	15	03	07	16	08 07 38	46	23 21 56
17	06	27	14	33	17	08 38 06	47	23 52 25
18	07	09	26	00	18	09 08 35	48	24 22 54
19	07	21	37	27	19	09 39 04	49	24 53 22
20	08	03	48	53	20	10 09 32	50	25 23 51
21	08	16	00	20	21	10 40 01	51	25 54 19
22	08	28	11	47	22	11 10 30	52	26 24 48
23	09	10	23	13	23	11 40 58	53	26 55 17
24	09	22	34	40	24	12 11 27	54	27 25 45
25	10	04	46	07	25	12 41 55	55	27 56 13
26	10	16	57	33	26	13 12 24	56	28 26 42
27	10	29	09	00	27	13 42 53	57	28 57 11
28	11	11	20	27	28	14 13 21	58	29 27 40
29	11	23	31	53	29	14 43 50	59	29 58 08
30	00	05	43	20	30	15 44 19	60	30 28 37
31	00	17	54	47				
32	01	00	06	13				

In the Bissextile Year to the Time given, add a Day, and to the Motion of a Day, the Motions collected.

TABLE of the Mean Motion of Saturn's Satellites, discovered by *Huygens*, from the first Star of Aries.

Year of Christ Curr.	Epocha's s	°	′
1641	08	29	17
1661	10	14	10
1681	11	29	03
1701	01	13	56
1721	02	28	49
1741	04	13	42
1761	05	28	35
1781	07	13	28
1801	08	28	21

Months	Mean Motion		
Jan.	00	00	00
Feb	11	09	53
March	03	12	02
April	[illegible]	21	56
May	05	09	14
June	05	19	10
July	04	05	26
August	03	16	19
Septemb.	02	26	12
Octob.	01	13	31
Nov.	00	23	24
Decemb	11	10	13

Years.	Mean Motion s	°	′
1	10	20	36
2	09	11	12
3	08	01	48
4	07	14	59
5	06	05	35
6	04	26	11
7	03	16	47
8	02	26	57
9	01	20	23
10	00	11	09
11	11	01	45
12	10	14	56
13	09	05	32
14	07	26	08
15	06	16	44
16	05	29	54
17	04	20	30
18	03	11	06
19	02	01	42
20	[illegible]	34	50

Years.	Mean Motion s	°	′
1	00	22	35
2	01	15	09
3	02	07	44
4	03	00	18
5	03	22	53
6	04	15	28
7	05	08	02
8	06	00	37
9	06	23	12
10	07	15	46
11	08	08	21
12	09	00	55
13	09	23	30
14	10	16	15
15	11	08	31
16	00	01	14
17	00	23	48
18	01	16	23
19	02	08	58
20	03	04	53
21	03	24	07
22	04	16	42
23	05	09	16
24	06	01	51
25	06	24	25
26	07	17	00
27	08	09	35
28	09	02	09
29	09	24	44
30	10	17	18
31	11	09	53
32	00	02	28

H. M.	M. Mot. ° ′ ′ ″	H. M.	M. Mot. ′ ′
1	0 56	31	29 10
2	1 53	32	30 06
3	2 49	33	31 03
4	3 46	34	31 59
5	4 42	35	32 55
6	5 39	36	33 52
7	6 35	37	34 48
8	7 32	38	35 45
9	8 28	39	36 41
10	9 24	40	37 38
11	10 21	41	38 34
12	11 17	42	39 31
13	12 14	43	40 27
14	13 10	44	41 24
15	14 07	45	42 20
16	15 03	46	43 17
17	16 00	47	44 13
18	16 56	48	45 10
19	17 52	49	46 06
20	18 49	50	47 03
21	19 45	51	47 59
22	20 42	52	48 56
23	21 38	53	49 52
24	22 35	54	50 49
25	23 31	55	51 45
26	24 25	56	52 42
27	25 24	57	53 38
28	26 20	58	54 35
29	27 17	59	55 31
30	28 13	60	56 27

In a Bissextile Year, after *February*, add a Day and the Motion agreeable to it.

Declination of the Points of the Ecliptick of Saturn, from its Equator, or Ring.

Deg. of the Eclip.	Declination. ° ′	Deg. of the Eclip.	Declination. ° ′	Deg. of the Eclip.	Declination. ° ′
1	00 31	31	15 23	61	26 46
2	01 02	32	15 50	62	27 02
3	01 33	33	16 17	63	27 18
4	02 04	34	16 44	64	27 34
5	02 34	35	17 11	65	27 50
6	03 05	36	17 37	66	28 05
7	03 36	37	18 03	67	28 19
8	04 07	38	18 29	68	28 32
9	04 38	39	18 55	69	28 45
10	05 08	40	19 20	70	28 57
11	05 39	41	19 45	71	29 09
21	06 09	42	20 09	72	29 20
13	06 39	43	20 33	73	29 30
14	07 09	44	20 57	74	29 40
15	07 39	45	21 21	75	29 50
16	08 09	46	21 44	76	29 59
17	08 39	47	22 07	77	30 07
18	09 09	48	22 30	78	30 14
19	09 39	49	22 52	79	30 21
20	10 08	50	23 14	80	30 28
21	10 38	51	23 35	81	30 34
22	11 07	52	23 56	82	30 39
23	11 36	53	24 17	83	30 44
24	12 05	54	24 37	84	30 48
25	12 34	55	24 57	85	30 52
26	13 03	56	25 16	86	30 55
27	13 31	57	25 35	87	30 57
28	13 59	58	25 53	88	30 59
29	14 27	59	26 11	89	30 59
30	14 55	60	26 29	90	31 00

Epocha's of the Revolutions of the first *Satellites*, at *Jupiter*'s Shadow, under the Meridian of *London*.

Julian Years current.	D.	H.	′	″	Numb. I.	Numb. II.
1660	0	11	5	48	968	200,6
61	0	1	17	24	1174	181,2
62	1	9	57	36	1381	162,9
63	1	0	9	12	1587	143,5
1664	1	8	49	24	1794	125,1
65	0	23	1	00	2000	105,7
66	0	13	12	36	2206	86,4
67	0	3	24	12	2412	67,0
68	0	12	4	24	171	48,6
1669	0	2	16	00	377	29,2
70	1	10	56	12	584	10,9
71	1	1	7	48	790	216,9
72	1	9	48	00	997	198,5
73	0	23	59	36	1203	179,1
1674	0	14	11	12	1409	159,7
75	0	4	22	48	1615	140,3
76	0	13	3	00	1822	121,9
77	0	3	14	36	2028	102,5
78	1	11	54	48	2235	84,1
1679	1	2	6	24	2441	64,7
80	1	10	46	36	200	46,4
81	1	00	58	12	406	27,0
82	0	15	9	48	612	7,6
83	0	5	21	24	818	213,6
1684	0	14	1	36	1025	195,3
85	0	4	13	12	1231	175,9
86	1	12	53	24	1438	157,5
87	1	3	5	00	1644	138,1
88	1	11	45	12	1851	119,7
1689	1	1	56	48	2057	100,4

Julian Years current.	D.	H.	′	″	Numb. I.	Numb. II.
1690	0	16	8	24	2263	81,0
91	0	6	20	00	21	61,6
92	0	15	00	12	228	43,3
93	0	5	11	48	434	23,9
94	1	13	52	00	641	5,5
1695	1	4	3	36	847	211,5
96	1	12	43	48	1054	193,1
97	1	2	55	24	1260	173,7
98	0	17	7	00	1466	154,4
99	0	7	18	36	1672	136,0
1700	0	15	58	48	1879	116,6
01	0	6	10	24	2085	97,3
02	1	14	50	36	2292	78,9
03	1	5	2	12	50	59,5
04	1	13	42	24	257	41,1
1705	1	3	54	00	463	21,8
06	0	18	5	36	669	2,4
07	0	8	17	12	875	208,4
08	0	16	57	24	1082	190,0
09	0	7	9	00	1288	170,6
1710	1	15	49	12	1495	152,3
11	1	6	00	48	1701	132,9
12	1	14	41	00	1908	114,5
13	1	4	52	36	2114	95,1
14	0	19	4	12	2320	75,8
1715	0	9	15	48	78	56,4
16	0	17	56	0	285	38,0
17	0	8	7	36	491	18,6
18	1	16	47	48	698	0,3
19	1	6	59	24	904	206,3
1720	1	15	39	36	1111	187,9

TABLE of the Revolutions of the first Satellites of *Jupiter*, in a Year.

January. D.	H.	′	″	Numb. I.	Numb. II.
0	0	0	0	0	0,0
1	18	28	36	1	1,0
3	12	57	12	2	2,1
5	7	25	48	3	3,1
7	1	54	24	4	4,1
8	20	23	0	5	5,2
10	14	51	36	6	6,2
12	9	20	12	7	7,2
14	3	48	48	8	8,2
15	22	17	24	9	9,3
17	16	46	0	10	10,3
19	11	14	36	11	11,3
21	5	43	12	12	12,3
23	0	11	48	13	13,4
24	18	40	24	14	14,4
26	13	9	0	15	15,4
28	7	37	36	16	16,5
30	2	6	12	17	17,5
31	20	34	48	18	18,5
February.					
0	20	34	48	18	18,5
2	15	3	24	19	19,6
4	9	32	0	20	20,6
6	4	0	36	21	21,6
7	22	29	12	22	22,6
9	16	57	48	23	23,7
11	11	26	24	24	24,7
13	5	55	0	25	25,7

February. D.	H.	′	″	Numb. I.	Numb. II.
13	5	55	0	25	25,7
15	0	23	36	26	26,7
16	18	52	12	27	27,7
18	13	20	48	28	28,7
20	7	49	24	29	29,7
22	2	18	0	30	30,8
23	20	46	36	31	31,8
25	15	15	12	32	32,8
27	9	43	48	33	33,8
March.					
1	4	12	24	34	34,8
2	22	41	0	35	35,8
4	17	9	36	36	36,8
6	11	38	12	37	37,9
8	6	6	48	38	38,9
10	0	35	24	39	39,9
11	19	4	0	40	40,9
13	13	32	36	41	41,9
15	8	1	12	42	42,9
17	2	29	48	43	43,9
18	20	58	24	44	44,9
20	15	27	0	45	45,9
22	9	55	36	46	46,9
24	4	24	12	47	47,9
25	22	52	48	48	48,9
27	17	21	24	49	49,9
29	11	50	0	50	50,9
31	6	18	36	51	51,9

April. D.	H.	′	″	Numb. I.	Numb. II.
0	6	18	36	51	51,9
2	0	47	12	52	52,9
3	19	15	48	53	53,9
5	13	44	24	54	54,9
7	8	13	0	55	55,9
9	2	41	36	56	56,9
10	21	10	12	57	57,9
12	15	38	48	58	58,9
14	10	7	24	59	59,9
16	4	36	0	60	60,8
17	23	4	36	61	61,8
19	17	33	12	62	62,8
21	12	1	48	63	63,8
23	6	30	24	64	64,8
25	0	59	0	65	65,7
26	19	27	36	66	66,7
28	13	56	12	67	67,7
30	8	24	48	68	68,6
May.					
0	8	24	48	68	68,6
2	2	53	24	69	69,6
3	21	22	0	70	70,6
5	15	50	36	71	71,6
7	10	19	12	72	72,5
9	4	47	48	73	73,5
10	23	16	24	74	74,5
12	17	45	0	75	75,5
14	12	13	36	76	76,4

May. D.	H.	′	″	Numb. I.	Numb. II.
14	12	13	36	76	76,4
16	6	42	12	77	77,4
18	1	10	48	78	78,4
19	19	39	24	79	79,3
21	14	8	0	80	80,3
23	8	36	36	81	81,3
25	3	5	12	82	82,3
26	21	33	48	83	83,3
28	16	2	24	84	84,2
30	10	31	0	85	85,2
June.					
1	4	59	36	86	86,1
2	23	28	12	87	87,1
4	17	56	48	88	88,0
6	12	25	24	89	89,0
8	6	54	0	90	90,0
10	1	22	36	91	90,9
11	19	51	12	92	91,9
13	14	19	48	93	92,9
15	8	48	24	94	93,8
17	3	17	0	95	94,8
18	21	45	36	96	95,7
20	16	14	12	97	96,7
22	10	42	48	98	97,7
24	5	11	24	99	98,6
25	23	40	0	100	99,6
27	18	8	36	101	100,6
29	12	37	12	102	101,5

TABLE of the Revolution of the first Satellites of *Jupiter*, in a Year.

July. D.	H.	′	″	Number I.	Number II.
1	7	5	48	103	102,5
3	1	34	24	104	103,5
4	20	3	0	105	104,5
6	14	31	36	106	105,4
8	9	0	12	107	106,4
10	3	28	48	108	107,3
11	21	57	24	109	108,3
13	16	26	0	110	109,3
15	10	54	36	111	110,2
17	5	23	12	112	111,2
18	23	51	48	113	112,2
20	18	20	24	114	113,1
22	12	49	0	114	114,1
24	7	17	36	116	115,1
26	1	46	12	117	116,0
27	20	14	48	118	117,0
29	14	43	24	119	118,0
31	9	12	0	120	119,0
August.					
0	9	12	0	120	119,0
2	3	40	36	121	119,9
3	22	9	12	122	120,9
5	16	37	48	123	121,9
7	11	6	24	124	122,9
9	5	35	0	125	123,8
11	0	3	36	126	124,8
12	18	32	12	127	125,8
14	3	0	48	128	126,8

August. D.	H.	′	″	Number I.	Number II.
14	13	0	48	128	126,8
16	7	29	24	129	127,7
18	1	58	0	130	128,7
19	20	26	36	131	129,7
21	14	55	12	132	130,7
23	9	23	48	133	131,7
25	3	52	24	134	132,7
26	22	21	0	135	133,6
28	16	49	36	136	134,6
30	11	18	12	137	135,6
September.					
1	5	46	48	138	136,6
3	0	47	24	139	137,6
4	18	14	0	140	138,6
6	13	12	36	141	139,6
8	7	41	12	142	140,6
10	2	9	48	143	141,5
11	20	38	24	144	142,5
13	15	7	0	145	143,5
15	9	35	36	146	144,5
17	4	4	12	147	145,5
18	22	32	48	148	146,5
20	17	1	24	149	147,5
22	11	30	0	150	148,5
24	5	58	36	151	149,5
26	0	27	12	152	150,5
27	18	55	48	153	151,5
29	13	24	24	154	152,5

October. D.	H.	′	″	Number I.	Number II.
1	7	53	0	155	153,5
3	2	21	36	156	154,5
4	20	50	12	157	155,5
6	15	18	48	158	156,5
8	9	47	24	159	157,5
10	4	16	0	160	158,5
11	22	44	36	161	159,5
13	17	13	12	162	160,5
15	11	41	48	163	161,6
17	6	10	24	164	162,6
19	0	39	0	165	163,6
20	19	7	36	166	164,6
22	13	36	12	167	165,6
24	8	4	48	168	166,6
26	2	23	24	169	167,7
27	21	2	0	170	168,7
29	15	30	36	171	169,7
31	9	59	12	172	170,7
November.					
0	9	59	12	172	170,7
2	4	27	48	173	171,8
3	22	56	24	174	172,8
5	17	25	0	175	173,8
7	11	53	36	176	174,8
9	6	22	12	177	175,9
11	0	50	48	178	176,9
12	19	19	24	179	177,9
14	13	48	0	180	178,9
16	8	16	36	181	180,0

November. D.	H.	′	″	Number I.	Number II.
16	8	16	36	181	180,0
18	2	45	12	182	181,0
19	21	13	48	183	182,0
21	15	42	24	184	183,0
23	10	11	0	185	184,0
25	4	39	36	186	185,1
26	23	8	12	187	136,1
28	17	36	48	188	187,2
30	12	5	24	189	188,2
December.					
0	12	5	24	189	188,2
2	6	34	0	190	189,2
4	1	2	36	191	190,3
5	19	31	12	192	191,3
7	13	59	48	193	192,3
9	8	28	24	194	193,4
11	2	57	0	195	194,4
12	21	25	36	196	195,5
14	15	54	12	197	196,5
16	10	22	48	198	197,6
18	4	51	24	199	198,6
19	23	20	0	200	199,7
21	17	48	36	201	200,7
23	12	17	12	202	201,8
25	6	45	48	203	202,8
27	1	14	24	204	203,9
28	19	43	0	205	204,9
30	14	11	36	206	206,0

TABLE of first Equation of the Conjunctions of the first Satellites with *Jupiter*.

Numb. I.	Equat. ′	″	Numb. I.	Equat. ′	″	Numb. I.	Equat. ′	″	Numb. I.	Equat. ′	″
0	0	0	300	28	9	610	39	5	920	26	37
10	1	3	310	28	54	620	39	3	930	25	53
20	2	5	320	29	35	630	38	58	940	25	8
30	3	8	330	30	11	640	38	51	950	24	23
40	4	12	340	30	45	650	38	44	960	23	37
50	5	15	350	31	28	660	38	34	970	22	50
60	6	16	360	32	10	670	38	24	980	22	3
70	7	19	370	32	44	680	38	10	990	21	15
80	8	20	380	33	15	690	37	56	1000	20	26
90	9	23	390	33	49	700	37	40	1010	19	37
100	10	25	400	34	20	710	37	24	1020	18	47
110	11	25	410	34	51	720	37	5	1030	17	56
120	12	25	420	35	21	730	36	45	1040	17	5
130	13	25	430	35	47	740	36	25	1050	16	13
140	14	25	440	36	6	750	36	4	1060	15	19
150	15	22	450	36	26	760	35	40	1070	14	25
160	16	18	460	36	47	770	35	15	1080	13	32
170	17	17	470	37	8	780	34	49	1090	12	37
180	18	11	480	37	29	790	34	19	1100	11	42
190	19	9	490	37	41	800	33	49	1110	10	47
200	20	5	500	37	50	810	33	21	1120	9	52
210	20	56	510	38	1	820	32	50	1130	8	57
220	21	49	520	38	20	830	32	17	1140	8	0
230	22	41	530	38	32	840	31	44	1150	7	3
240	23	32	540	38	40	850	31	10	1160	6	7
250	24	20	550	38	5	860	30	32	1170	5	10
260	25	7	560	38	50	870	29	56	1180	4	13
270	25	57	570	39	3	880	29	19	1190	3	15
280	26	43	580	39	6	890	28	40	1200	2	19
290	27	27	590	39	8	900	27	59	1210	1	21
300	28	9	600	39	7	910	27	19	1220	0	24
			610	39	5	920	26	37	1224	0	0

TABLE of second Equation of the Conjunctions of the first Satellites with *Jupiter*.

Numb. II.	Equat. add. ′	″	Numb. II.	Equat. add. ′	″	Numb. II.	Equnt. add. ′	″	Numb. II.	Equat. add. ′	″
0	0′	″	28	2′	4″	56	7′	0″	84	12′	0″
1	00	0	29	02	13	57	07	12	85	12	9
2	00	1	30	02	21	58	07	24	86	12	16
3	00	2	31	02	30	59	07	36	87	12	24
4	00	3	32	02	39	60	07	47	88	12	32
5	00	4	33	02	48	61	07	59	89	12	40
6	00	6	34	02	58	62	08	11	90	12	47
7	00	8	35	03	8	63	08	22	91	12	55
8	00	10	36	03	17	64	08	34	92	13	0
9	00	14	37	03	27	65	08	36	93	13	6
10	00	17	38	03	37	66	08	57	94	13	13
11	00	20	39	03	48	67	09	8	95	13	19
12	00	23	40	03	59	68	09	20	96	13	24
13	00	27	41	04	9	69	09	32	97	13	30
14	00	32	42	04	20	70	09	44	98	13	35
15	00	37	43	04	31	71	09	54	99	13	39
16	00	42	44	04	41	72	10	3	100	13	45
17	00	47	45	04	53	73	10	14	101	13	48
18	00	53	46	05	4	74	10	25	102	13	51
19	00	58	47	05	15	75	10	35	103	13	54
20	00	7	48	05	27	76	10	45	104	13	57
21	01	11	49	05	39	77	10	55	105	14	0
22	01	18	50	05	50	78	11	5	106	14	3
23	01	25	51	06	2	79	11	15	107	14	5
24	01	32	52	06	14	80	11	25	108	14	7
25	01	40	53	06	25	81	11	34	109	14	8
26	01	47	54	06	37	82	11	43	110	14	9
27	01	56	55	06	49	83	11	52	111	14	10
28	02	4	56	07	0	84	12	0	112	14	10

TABLE of the half Stay of the first *Satellites* in the Shadow of *Jupiter*.

Num. I.	H.	′	″	Num. I.	H.	′	″
0	1	4	56	1200	1	5	06
40	1	4	33	1240	1	4	48
80	1	4	12	1280	1	4	26
120	1	3	59	1320	1	4	07
160	1	3	48	1360	1	3	54
200	1	3	39	1400	1	3	38
240	1	3	38	1440	1	3	38
280	1	3	48	1480	1	3	44
320	1	4	01	1520	1	3	52
360	1	4	16	1560	1	4	07
400	1	4	36	1600	1	4	24
440	1	4	56	1640	1	4	42
480	1	5	18	1680	1	5	00
520	1	5	41	1720	1	5	22
560	1	6	01	1760	1	5	46
600	1	6	21	1800	1	6	10
640	1	6	39	1840	1	6	28
680	1	6	53	1880	1	6	45
720	1	7	03	1920	1	6	57
760	1	7	11	1960	1	7	07
800	1	7	15	2000	1	7	13
840	1	7	13	2040	1	7	14
880	1	7	09	2080	1	7	15
920	1	7	02	2120	1	7	15
960	1	6	54	2160	1	7	10
1000	1	6	39	2200	1	6	49
1040	1	6	22	2240	1	6	32
1080	1	6	05	2280	1	6	15
1120	1	5	45	2320	1	5	58
1160	1	5	26	2360	1	5	38
1200	1	5	06	2400	1	5	18
				2440	1	5	02

TABLE of the mean Motion of *Saturn* from the *Aphelion*.

Years of Christ current.	Anomaly ♄ s	°	′	″	In the Years	Mot. of the Anom. s	°	′	″
1	6	8	34	18	1	0	12	12	46
1501	5	10	11	48	2	0	24	25	32
1581	1	27	53	0	3	1	6	38	17
1601	10	2	18	18	4	1	18	53	4
1621	6	6	43	36	5	2	1	5	49
1641	2	11	8	54	6	2	13	18	35
1661	10	15	34	12	7	2	25	31	21
1681	6	19	59	30	8	3	7	46	7
1701	2	24	24	48	9	3	19	58	53
1721	10	28	50	6	10	4	2	11	39
1741	7	3	15	24	11	4	14	24	25
1761	3	7	40	42	12	4	26	39	11
1781	11	12	6	0	13	5	8	51	57
1801	7	16	31	18	14	5	21	4	42
1901	0	8	37	48	15	6	3	17	28
2001	5	0	44	18	16	6	15	32	14
In the Years	Motion of the Anomaly.				17	6	27	45	0
					18	7	9	57	46
20	8	4	25	18	19	7	22	10	32
40	4	8	50	36	20	8	4	25	18
60	0	13	15	54	Months of the common Year	Mot. of the Anom. s	°	′	″
80	8	17	41	12					
100	4	22	6	30	*January*		0	0	0
200	9	14	13	0	*February*		1	2	14
300	2	6	19	30	*March*		1	58	27
400	6	28	26	0	*April*		3	0	41
500	11	20	32	30	*May*		4	0	55
600	4	12	39	0	*June*		5	3	9
700	9	4	45	30	*July*		6	3	22
800	1	26	52	0	*August*		7	5	36
900	6	18	58	30	*September*		8	7	50
1000	11	11	5	0	*October*		9	8	4
2000	10	22	10	0	*November*		10	10	18
3000	10	3	15	0	*December*		11	10	32
4000	9	14	20	0	In the Bissextile Year, after *February*, add a Day, and the Motion of a Day.				
5000	8	25	25	0					
6000	8	6	30	0					

TABLE of the mean Motion of *Saturn* from the *Aphelion*.

Days.	Mot. of the Anomaly. °	′	″	H. ′	Motion of the Anom. ′	″	H. ′	Motion of the Anom. ′	″
1	0	2	0		″	‴		″	‴
2	0	4	1						
3	0	6	1	1	0	05	31	2	36
4	0	8	2	2	0	10	32	2	41
5	0	10	2	3	0	15	33	2	46
6	0	12	3	4	0	20	34	2	51
7	0	14	3	5	0	25	35	2	56
8	0	16	4	6	0	30	36	3	1
9	0	18	4	7	0	35	37	3	6
10	0	20	5	8	0	40	38	3	11
11	0	22	5	9	0	45	39	3	16
12	0	24	5	10	0	50	40	3	21
13	0	26	6	11	0	55	41	3	26
14	0	28	6	12	1	0	42	3	31
15	0	30	7	13	1	5	43	3	36
16	0	32	7	14	1	10	44	3	41
17	0	34	8	15	1	15	45	3	46
18	0	36	8	16	1	20	46	3	51
19	0	38	9	17	1	25	47	3	56
20	0	40	9	18	1	30	48	4	1
21	0	42	10	19	1	35	49	4	6
22	0	44	10	20	1	40	50	4	11
23	0	46	10	21	1	45	51	4	16
24	0	48	11	22	1	50	52	4	21
25	0	50	11	23	1	55	53	4	26
26	0	52	12	24	2	0	54	4	31
27	0	54	12	25	2	5	55	4	36
28	0	56	13	26	2	10	56	4	41
29	0	58	13	27	2	16	57	4	46
30	1	00	14	28	2	21	58	4	51
31	1	2	14	29	2	26	59	4	56
32	2	4	15	30	2	31	60	5	1

	s	°	′	″
Longit. Aph. ♄ from the 1 ✱ ♈	7	28	30	0
Longit. ☊ ♄ from ☉	2	22	30	0
Inclination of the Orbit ♄		2	30	0
Mean Distance ♄ from ☉	953800			
Eccentricity	54700			

TABLE of the Heliocentrick Place of *Saturn*.

Mean Anom.	Sign. ° Longit. ♄ from 1 ✱ ♈ s	°	′	″	Northern Inc. °	′	″	Dist. from ☉ curt. Logarithm.
0	7	28	31	13	1	1	0	6. 003608
1	7	29	24	46	0	58	51	6. 003609
2	8	0	18	19	0	56	42	6. 003605
3	8	1	11	52	0	54	31	6. 003593
4	8	2	5	24	0	52	20	6. 003575
5	8	2	58	58	0	50	9	6. 003550
6	8	3	52	32	0	47	56	6. 003519
7	8	4	46	6	0	45	43	6. 003481
8	8	5	39	41	0	43	29	6. 003435
9	8	6	33	16	0	41	14	6. 003386
10	8	7	26	52	0	38	59	6. 003328
11	8	8	20	30	0	36	43	6. 003263
12	8	9	14	8	0	34	26	6. 003193
13	8	10	7	48	0	32	9	6. 003115
14	8	11	1	28	0	29	52	6. 003032
15	8	11	55	10	0	27	34	6. 002942
16	8	12	48	53	0	25	15	6. 002845
17	8	13	42	37	0	22	56	6. 002743
18	8	14	36	24	0	20	37	6. 002633
19	8	15	30	13	0	18	17	6. 002517
20	8	16	24	2	0	15	57	6, 002395
21	8	17	17	53	0	13	37	6. 002267
22	8	18	11	47	0	11	16	6. 002131
23	8	19	5	43	0	8	55	6. 001990
24	8	19	59	40	0	6	34	6. 001842
25	8	20	53	40	0	4	12	6. 001688
26	8	21	47	42	0	1	51	6. 001527
27	8	22	41	47	South		31	6. 001361
28	8	23	35	54	0	2	53	6. 001188
29	8	24	30	4	0	5	15	6. 001009
30	8	25	24	16	0	7	36	6. 000822

TABLE of the Heliocentrick Place of *Saturn*.

Mean Anom	Sign. 1.							
	Long. ♄ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	08	25	24	16	00	07	36	6.000823
1	08	26	18	32	00	09	58	6.000632
2	08	27	12	50	00	12	20	6.000435
3	08	28	07	11	00	14	42	6.000232
4	08	29	01	36	00	17	04	6.000022
5	08	29	56	03	00	19	25	5.999806
6	09	00	50	34	00	21	47	5.999555
7	09	01	45	08	00	24	08	5.999358
8	09	02	39	46	00	26	29	5.999125
9	09	03	34	27	00	28	50	5.998887
10	09	04	29	11	00	31	10	5.998642
11	09	05	24	00	00	33	30	5.998391
12	09	06	18	53	00	35	50	5.998135
13	09	07	13	49	00	38	10	5.997874
14	09	08	08	49	00	40	29	5.997607
15	09	09	03	53	00	42	47	5.997334
16	09	09	59	02	00	45	05	5.997056
17	09	10	54	15	00	47	23	5.996772
18	09	11	49	32	00	49	40	5.996484
19	09	12	44	54	00	51	57	5.996189
20	09	13	40	20	00	54	12	5.995890
21	09	14	35	51	00	56	27	5.995585
22	09	15	31	26	00	58	42	5.995277
23	09	16	27	06	01	00	56	5.994962
24	09	17	22	52	01	03	09	5.994643
25	09	18	18	42	01	05	21	5.994319
26	09	19	14	38	01	07	32	5.993989
27	09	20	10	39	01	09	42	5.993656
28	09	21	06	43	01	11	52	5.993317
29	09	22	02	54	01	14	01	5.992973
30	09	22	59	10	01	16	08	5.992625

Mean Anom	Sign. 2.							
	Long. ♄ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	09	22	59	10	01	16	08	5.992625.
1	09	23	55	32	01	18	15	5.992273
2	09	24	52	00	01	20	20	5.991917
3	09	25	48	32	01	22	25	5.991557
4	09	26	45	10	01	24	28	5.991192
5	09	27	41	55	01	26	30	5.990824.
6	09	28	38	45	01	28	31	5.990451
7	09	29	35	41	01	30	30	5.990074
8	10	00	32	42	01	32	29	5.989694
9	10	01	29	50	01	34	26	5.989310
10	10	02	27	04	01	36	21	5.988922.
11	10	03	24	24	01	38	16	5.988532
12	10	04	21	50	01	40	08	5.988137
13	10	05	19	23	01	42	00	5.987739
14	10	06	17	03	01	43	50	5.987338
15	10	07	14	48	01	45	38	5.986934
16	10	08	12	40	01	47	24	5.986527
17	10	09	10	38	01	49	09	5.986117
18	10	10	08	44	01	50	53	5.985704
19	10	11	06	56	01	52	35	5.985288
20	10	12	05	14	01	54	14	5.984870.
21	10	13	03	40	01	55	53	5.984450
22	10	14	02	13	01	57	29	5.984027
23	10	15	00	52	01	59	03	5.983603
24	10	15	59	38	02	00	36	5.983176
25	10	16	58	30	02	02	06	5.982747.
26	10	17	57	29	02	03	35	5.982315
27	10	18	56	37	02	05	02	5.981883
28	10	19	55	50	02	06	26	5.981448
29	10	20	55	12	02	07	48	5.981013
30	10	21	54	42	02	09	09	5.980576.

Mean Anom	Sign. 3.							
	Long. ♄ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur
°	s	°	′	″	°	′	″	Logarithm
0	10	21	54	42	02	09	09	5.980576.
1	10	22	54	18	02	10	27	5.980139
2	10	23	54	01	02	11	43	5.979700
3	10	24	53	51	02	12	57	5.979260
4	10	25	53	49	02	14	08	5.978819
5	10	26	53	54	02	15	17	5.978378
6	10	27	54	06	02	16	24	5.977936
7	10	28	54	25	02	17	29	5.977494
8	10	29	54	52	02	18	31	5.977051
9	11	00	55	27	02	19	30	5.976609
10	11	01	56	08	02	20	27	5.976166
11	11	02	56	58	02	21	22	5.975724
12	11	03	57	51	02	22	14	5.975282
13	11	04	58	59	02	23	03	5.974841
14	11	06	00	12	02	23	50	5.974400
15	11	07	01	31	02	24	34	5.973960
16	11	08	02	58	02	25	16	5.973520
17	11	09	04	32	02	25	54	5.973083
18	11	10	06	13	02	26	30	5.972647
19	11	11	08	02	02	27	01	5.972211
20	11	12	10	00	02	27	34	5.971777.
21	11	13	12	03	02	28	02	5.971345
22	11	14	14	15	02	28	27	5.970915
23	11	15	16	33	02	28	49	5.970487
24	11	16	18	59	02	29	08	5.970060
25	11	17	21	31	02	29	24	5.969637
26	11	18	24	14	02	29	37	5.969216
27	11	19	27	03	02	29	47	5.968798
28	11	20	29	57	02	29	55	5.968382
29	11	21	33	01	02	29	59	5.967970
30	11	22	36	10	02	30	00	5.967559

Mean Anom	Sign. 4.							
	Long. ♄ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	11	22	36	10	02	30	00	5.967559
1	11	23	39	27	02	29	58	5.967153
2	11	24	42	52	02	29	53	5.966750
3	11	25	46	22	02	29	45	5.966350
4	11	26	50	00	02	29	34	5.965954
5	11	27	53	45	02	29	20	5.965562
6	11	28	57	38	02	29	03	5.965175
7	00	00	01	37	02	28	43	5.964791
8	00	01	05	42	02	28	19	5.964412
9	00	02	09	54	02	27	52	5.964036
10	00	03	14	13	02	27	23	5.963666
11	00	04	18	37	02	26	50	5.963300
12	00	05	23	10	02	26	14	5.962939
13	00	06	27	48	02	25	34	5.962584
14	00	07	32	32	02	24	52	5.962233
15	00	08	37	23	02	24	06	5.961888
16	00	09	42	20	02	23	18	5.961549
17	00	10	47	23	02	22	26	5.961214
18	00	11	52	32	02	21	21	5.960886
19	00	12	57	46	02	20	33	5.960564
20	00	14	03	06	02	19	31	5.960248
21	00	15	08	33	02	18	27	5.959938
22	00	16	14	04	02	17	20	5.959634
23	00	17	19	42	02	16	09	5.959337
24	00	18	25	24	02	14	55	5.959046
25	00	19	31	11	02	13	39	5.958762
26	00	20	37	03	02	12	19	5.958484
27	00	21	43	01	02	10	56	5.958214
28	00	22	49	04	02	09	30	5.957951
29	00	23	55	11	02	08	02	5.957695
30	00	25	01	23	02	06	30	5.957445

TABLES of the Heliocentrick Place of *Saturn*.

Mean Anom.	Sign 5							
	Longit. ♄ from ♈ *				Southern Inc.			Dist. from ☉ curt.
°	s	°	′	″	°	′	″	Logarithm.
0	0	25	1	23	2	6	30	5·957445
1	0	26	7	40	2	4	55	5·957203
2	0	27	14	0	2	3	18	5·956969
3	0	28	20	25	2	1	37	5·956742
4	0	29	26	53	1	59	54	5·956523
5	1	0	33	26	1	58	8	5·956312
6	1	1	40	3	1	56	20	5·956107
7	1	2	46	44	1	54	28	5·955912
8	1	3	53	27	1	52	34	5·955724
9	1	5	0	15	1	50	37	5·955544
10	1	6	7	5	1	48	38	5·955373
11	1	7	13	58	1	46	36	5·955210
12	1	8	20	55	1	44	31	5·955055
13	1	9	27	54	1	42	24	5·954910
14	1	10	34	57	1	40	15	5·954771
15	1	11	42	1	1	38	3	5·954641
16	1	12	49	8	1	35	49	5·954520
17	1	13	56	16	1	33	32	5·954408
18	1	15	3	26	1	31	14	5·954304
19	1	16	10	38	1	28	53	5·954209
20	1	17	17	53	1	26	30	5·954122
21	1	18	25	9	1	24	5	5·954044
22	1	19	32	27	1	21	39	5·953974
23	1	20	39	45	1	19	10	5·953914
24	1	21	47	4	1	16	39	5·953862
25	1	22	54	24	1	14	7	5·953819
26	1	24	1	45	1	11	32	5·953786
27	1	25	9	7	1	8	57	5·953761
28	1	26	16	28	1	6	19	5·953745
29	1	27	23	50	1	3	40	5·953738
30	1	28	31	13	1	1	0	5·953740

Mean Anom	Sign 6.							
	Longit. ♄ from ♈ *				Southern Inc.			Dist. from ☉ curt.
°	s	°	′	″	°	′	″	Logarithm.
0	1	28	31	13	1	1	0	5·953740
1	1	29	38	36	0	58	18	5·953750
2	2	0	45	57	0	55	35	5·953769
3	2	1	53	18	0	52	50	5·953797
4	2	3	0	39	0	50	4	5·953834
5	2	4	7	59	0	47	18	5·953879
6	2	5	15	18	0	44	30	5·953934
7	2	6	22	35	0	41	41	5·953997
8	2	7	29	52	0	38	51	5·954069
9	2	8	37	8	0	36	0	5·954150
10	2	9	44	21	0	33	9	5·954239
11	2	10	51	34	0	30	27	5·954337
12	2	11	58	43	0	27	24	5·954443
13	2	13	5	51	0	24	31	5,954558
14	2	14	12	57	0	21	38	5·954680
15	2	15	20	0	0	18	44	5,954812
16	2	16	27	1	0	15	49	5·954951
17	2	17	34	1	0	12	54	5·955099
18	2	18	40	56	0	10	0	5·955254
19	2	19	47	49	0	7	5	5·955418
20	2	20	54	38	0	4	10	5·955590
21	2	22	1	25	0	1	15	5·955769
22	2	23	8	8	Nor.	1	40	5·955957
23	2	24	14	47	0	4	35	5·956153
24	2	25	21	23	0	7	29	5·956355
25	2	26	27	55	0	10	23	5·356566
26	2	27	34	24	0	13	16	5·956784
27	2	28	40	47	0	16	9	5·957009
28	2	29	47	7	0	19	2	5·957241
29	3	0	53	23	0	21	54	5·957481
30	3	1	59	34	0	24	45	5·957728

Mean Anom	Sign 7.							
	Longit. ♄ from ♈ *				Northern Inc.			Dist. from ☉ curt.
°	s	°	′	″	°	′	″	Logarithm.
0	3	1	59	34	0	24	45	5·957728
1	3	3	5	40	0	27	36	5·957982
2	3	4	11	42	0	30	25	5·958242
3	3	5	17	40	0	33	14	5·958509
4	3	6	23	32	0	36	2	5·958782
5	3	7	29	19	0	38	49	5·959062
6	3	8	35	0	0	41	35	5·959349
7	3	9	40	37	0	44	19	5·959642
8	3	10	46	9	0	47	3	5·959940
9	3	11	51	35	0	49	45	5·960245
10	3	12	56	57	0	52	26	5·960555
11	3	14	2	11	0	55	6	5·960871
12	3	15	7	20	0	57	44	5·961193
13	3	16	12	24	1	0	20	5·961520
14	3	17	17	21	1	2	55	5·961853
15	3	18	22	12	1	5	29	5·962191
16	3	19	26	58	1	18	1	5·962534
17	3	20	31	37	1	10	31	5·962882
18	3	21	36	10	1	13	0	5·963234
19	3	22	40	37	1	15	26	5·963592
20	3	23	44	56	1	17	51	5·963954
21	3	24	49	10	1	20	14	5·964320
22	3	25	53	17	1	22	35	5·964691
23	3	26	57	18	1	24	54	5·965065
24	3	28	1	11	1	27	11	5·965443
25	3	29	4	59	1	29	26	5·965825
26	4	0	8	40	1	31	39	5·966211
27	4	1	12	13	1	33	50	5·966600
28	4	2	15	39	1	35	58	5·966993
29	4	3	19	1	1	38	5	5·967389
30	4	4	22	12	1	40	9	5·967789

Mean Anom	Sign 8.							
	Longit. ♄ from ♈ *				Northern Inc.			Dist. from ☉ curt.
°	s	°	′	″	°	′	″	Logarithm.
0	4	4	22	12	1	40	9	5·967789
1	4	5	25	18	1	42	11	5·968191
2	4	6	28	18	1	44	11	5·968595
3	4	7	31	9	1	46	8	5·969003
4	4	8	33	54	1	48	3	5·969412
5	4	9	36	31	1	49	56	5·969825
6	4	10	39	2	1	51	46	5·970240
7	4	11	41	25	1	53	34	5·970657
8	4	12	43	40	1	55	19	5·971076
9	4	13	45	50	1	57	2	5·971496
10	4	14	47	51	1	58	42	5·971918
11	4	15	49	46	2	0	20	5·972343
12	4	16	51	33	2	1	56	5·972768
13	4	17	53	12	2	3	29	5·973194
14	4	18	54	44	2	4	59	5·973621
15	4	19	56	10	2	6	27	5·974050
16	4	20	57	27	2	7	52	5·974480
17	4	21	58	38	2	9	14	5·974910
18	4	22	59	42	2	10	34	5·975341
19	4	24	0	38	2	11	51	5·975771
20	4	25	1	27	2	13	6	5·976203
21	4	26	2	8	2	14	18	5·976635
22	4	27	2	42	2	15	27	5·977067
23	4	28	3	9	2	16	34	5·977498
24	4	29	3	28	2	17	38	5·977930
25	5	0	3	41	2	18	39	5·978361
26	5	1	3	46	2	19	38	5·978792
27	5	2	3	45	2	20	34	5·979222
28	5	3	3	35	2	21	27	5·979651
29	5	4	3	19	2	22	18	5·980080
30	5	5	2	16	2	23	6	5·980507

TABLES of the Heliocentrick Place of *Saturn.*

Mean Anom	Sign. 9.							
	Longit ♄ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	5	5	2	56	2	23	6	5 980507
1	5	6	2	27	2	23	52	5. 980933
2	5	7	1	50	2	24	34	5. 981358
3	5	8	1	5	2	25	14	5. 981789
4	5	9	0	14	2	25	52	5. 982205
5	5	9	59	15	2	26	27	5. 982627
6	5	10	58	10	2	26	59	5. 983046
7	5	11	56	58	2	27	28	5. 983463
8	5	12	55	40	2	27	55	5. 983879
9	5	13	54	15	2	28	19	5. 984293
10	5	14	52	43	2	28	41	5. 984704
11	5	15	51	4	2	29	0	5. 985113
12	5	16	49	19	2	29	16	5. 985520
13	5	17	47	28	2	29	30	5. 985925
14	5	18	45	29	2	29	41	5. 986327
15	5	19	43	25	2	29	49	5. 986726
16	5	20	41	13	2	29	56	5. 987123
17	5	21	38	56	2	29	59	5. 987517
18	5	22	36	32	2	30	0	5. 987907
19	5	23	34	3	2	29	58	5. 988296
20	5	24	31	36	2	29	54	5. 988680
21	5	25	28	44	2	29	48	5. 989062
22	5	26	25	57	2	29	39	5. 989439
23	5	27	23	2	2	29	27	5. 989814
24	5	28	20	1	2	29	13	5. 990186
25	5	29	16	56	2	28	57	5. 990553
26	6	0	13	45	2	28	38	5 990917
27	6	1	10	27	2	28	17	5 991278
28	6	2	7	4	2	27	54	5. 991634
29	6	3	3	36	2	27	28	5. 991986
30	6	4	0	2	2	27	0	5. 992335

Mean Anom	Sign 10							
	Longit. ♄ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	6	4	0	2	2	27	0	5. 992335
1	6	4	56	23	2	26	29	5. 992680
2	6	5	52	39	2	25	56	5. 993021
3	6	6	48	48	2	25	21	5. 993357
4	6	7	44	53	2	24	44	5. 993688
5	6	8	40	54	2	24	4	5. 994016
6	6	9	36	48	2	23	22	5. 994338
7	6	10	32	39	2	22	38	5. 994656
8	6	11	28	24	2	21	52	5. 994970
9	6	12	24	4	2	21	3	5. 995278
10	6	13	19	39	2	20	13	5. 995583
11	6	14	15	9	2	19	20	5. 995882
12	6	15	10	36	2	18	25	5. 996177
13	6	16	5	58	2	17	28	5. 996466
14	6	17	1	16	2	16	29	5. 996751
15	6	17	56	29	2	15	28	5. 997031
16	6	18	51	38	2	14	25	5. 997305
17	6	19	46	43	2	13	20	5. 997574
18	6	20	41	43	2	12	13	5. 997838
19	6	21	36	40	2	11	4	5. 998096
20	6	22	31	34	2	9	53	5. 998350
21	6	23	26	23	2	8	41	5. 998598
22	6	24	21	8	2	7	26	5. 998840
23	6	25	15	50	2	6	10	5. 999076
24	6	26	10	29	2	4	51	5. 999308
25	6	27	5	4	2	3	31	5. 999533
26	6	27	59	34	2	2	9	5. 999753
27	6	28	54	3	2	0	46	5. 999968
28	6	29	48	28	1	59	20	6. 000176
29	7	0	42	50	1	57	53	6. 000379
30	7	1	37	10	1	56	24	6. 000575

TABLE of the Heliocentrick Place of *Saturn.*

Mean Anom	Sign. 11.							
	Longit. ♄ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	7	1	37	10	1	56	24	6. 000575
1	7	2	31	26	1	54	54	6. 000767
2	7	3	25	39	1	53	22	6. 000951
3	7	4	19	50	1	51	48	6. 001131
4	7	5	13	58	1	50	13	6. 001304
5	7	6	8	4	1	48	36	6. 001472
6	7	7	2	7	1	46	57	6. 001632
7	7	7	56	7	1	45	17	6. 001787
8	7	8	50	6	1	43	30	6. 001936
9	7	9	44	3	1	41	53	6. 002079
10	7	10	37	57	1	40	9	6. 002216
11	7	11	31	49	1	38	23	6. 002345
12	7	12	25	40	1	36	36	6. 002470
13	7	13	19	28	1	34	47	6. 002588
14	7	14	13	14	1	32	58	6. 002698
15	7	15	7	0	1	31	7	6. 002803
16	7	16	0	44	1	29	14	6. 002902
17	7	16	54	26	1	27	20	6. 001994
18	7	17	48	8	1	25	25	6. 003081
19	7	18	41	48	1	23	29	6. 003160
20	7	19	35	27	1	21	32	6. 003234
21	7	20	29	4	1	19	34	6. 003301
22	7	21	22	41	1	17	34	6. 003360
23	7	22	16	17	1	15	33	6. 003414
24	7	23	9	52	1	13	31	6. 003462
25	7	24	3	23	1	11	29	6. 003502
26	7	24	57	0	1	9	25	6. 003536
27	7	25	50	33	1	7	20	6. 003565
28	7	26	44	7	1	5	14	6. 003585
29	7	27	37	40	1	3	7	6. 003600
30	7	28	31	13	1	1	0	6. 003608

TABLE of the mean Motion of *Jupiter* from the *Aphelion.*

Years of Christ current.	Anomaly ♄ s	°	′	″	In the Years	Mot. of the Anom. s	°	′	″
1	0	13	54	30	1	1	0	19	44
1501	5	28	17	0	2	2	0	39	27
1581	2	26	15	0	3	3	0	59	11
1601	11	3	14	30	4	4	1	23	54
1621	7	10	14	0	5	5	1	43	38
1641	3	17	13	30	6	6	2	3	21
1661	11	24	13	0	7	7	2	23	5
1681	8	1	12	30	8	8	2	47	48
1701	4	8	12	0	9	9	3	7	32
1721	0	15	11	30	10	10	3	27	15
1741	8	22	11	0	11	11	3	46	59
1761	4	29	10	30	12	0	4	11	42
1781	1	6	10	0	13	1	4	31	26
1801	9	13	9	30	14	2	4	51	9
1901	2	18	7	0	15	3	5	10	53
2001	7	23	4	30	16	4	5	35	36
In the Years	Motion of the Anomaly.				17	5	5	55	20
					18	6	6	15	3
20	8	6	59	30	19	7	6	34	47
40	4	13	59	0	20	8	6	59	30
60	0	20	58	30	Months of the common Year	Mot. of the Anom. °	′	″	
80	8	27	58	0					
100	5	4	57	30	*January*	0	0	0	
200	10	9	55	0	*February*	2	34	33	
300	3	14	52	30	*March*	4	54	9	
400	8	19	50	0	*April*	7	28	42	
500	1	24	47	30	*May*	9	58	16	
600	6	29	45	0	*June*	12	32	49	
700	0	4	42	30	*July*	15	2	23	
800	5	9	40	0	*August*	17	36	56	
900	10	14	37	30	*September*	20	11	29	
1000	3	19	35	0	*October*	22	41	3	
2000	7	9	10	0	*November*	25	15	37	
3000	10	28	45	0	*December*	27	45	11	
4000	2	18	20	0	In the Bissextile Year, after *February*, add a Day, and the Motion of a Day.				
5000	6	7	55	0					
6000	9	27	30	0					

TABLE of the mean Motion of *Jupiter* from the *Aphelion*.

Days.	Mot. of the Anomaly. ° ′ ″			H. ′	Motion of the Anom. ′ ″ ″ ‴		H. ′	Motion of the Anom. ′ ″ ″ ‴	
1	0	14	59						
2	0	19	58						
3	0	14	57	1	0	12	31	6	26
4	0	19	57	2	0	25	32	6	39
5	0	24	56	3	0	37	33	6	51
6	0	29	55	4	0	50	34	7	4
7	0	34	54	5	1	02	35	7	16
8	0	34	53	6	1	15	36	7	29
9	0	44	52	7	1	27	37	7	41
10	0	49	51	8	1	40	38	7	54
11	0	54	50	9	1	52	39	8	6
12	0	59	50	10	2	05	40	8	19
13	1	4	49	11	2	17	41	8	31
14	1	9	48	12	2	30	42	8	43
15	1	14	47	13	2	42	43	8	56
16	1	19	46	14	2	54	44	9	8
17	1	24	45	15	3	07	45	9	21
18	1	29	44	16	3	19	46	9	33
19	1	34	44	17	3	32	47	9	46
20	1	39	43	18	3	44	48	9	58
21	1	44	42	19	3	57	49	10	11
22	1	49	41	20	4	09	50	10	23
23	1	54	40	21	4	22	51	10	36
24	1	59	39	22	4	34	52	10	48
25	2	14	38	23	4	47	53	11	1
26	2	09	37	24	4	59	54	11	13
27	2	14	37	25	5	12	55	11	26
28	2	19	36	26	5	24	56	11	38
29	2	34	35	27	5	37	57	11	50
30	2	29	34	28	5	49	58	11	3
31	2	54	33	29	6	01	59	12	15
32	2	39	32	30	6	14	60	12	28

	s	°	′	″
Longit. Aph. ♄ from the 1 ✱ ♈	5	9	50	0
Longit. ☊ ♄ from the 1 ✱ ♈	2	8	00	0
Inclination of the Orbit ♄		1	20	0
Mean Distance ♄ from ☉		520110		
Eccentricity		25050		

TABLE of the Heliocentrick Place of *Jupiter*.

Mean Anom	Sign. 0. Long. ♄ fr. 1 ✱ ♈				North inc.			Dis. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	05	09	50	02	01	19	58	5.736406
1	05	10	44	36	01	19	55	5.736403
2	05	11	39	10	01	19	51	5.736395
3	05	12	33	44	01	19	45	5.736381
4	05	13	28	18	01	19	38	5.736362
5	05	14	22	53	01	19	30	5.736338
6	05	15	17	28	01	19	21	5.736308
7	05	16	12	04	01	19	11	5.736273
8	05	17	06	40	01	18	59	5.736231
9	05	18	01	17	01	18	47	5.736185
10	05	18	55	55	01	18	33	5.736134
11	05	19	50	32	01	18	18	5.736076
12	05	20	45	11	01	18	02	5.736014
13	05	21	39	52	01	17	44	5.735947
14	05	22	34	33	01	17	26	5.735873
15	05	23	29	15	01	17	06	5.735795
16	05	24	23	59	01	16	45	5.735710
17	05	25	18	44	01	16	23	5.735621
18	05	26	13	30	01	15	59	5.735526
19	05	27	08	18	01	15	35	5.735426
20	05	28	03	08	01	15	09	5.735321
21	05	28	57	59	01	14	42	5.735210
22	05	29	52	52	01	14	14	5.735094
23	06	00	47	46	01	13	45	5.734973
24	06	01	42	43	01	13	15	5.734846
25	06	02	37	40	01	12	44	5.734714
26	06	03	32	41	01	12	11	5.734577
27	06	04	27	43	01	11	37	5.734436
28	06	05	42	47	01	11	02	5.734289
29	06	06	17	55	01	10	27	5.734137
30	06	07	13	04	01	09	50	5.733980

TABLES of the Heliocentrick Place of *Jupiter*.

Mean Anom	Sign. 1. Long. ♄ fr 1 ✱ ♈				North inc.			Dis. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	06	07	13	04	01	09	50	5.733980
1	06	08	08	15	01	09	11	5.733818
2	06	09	03	30	01	08	32	5.733652
3	06	09	58	46	01	07	52	5.733479
4	06	10	54	05	01	07	10	5.733302
5	06	11	49	28	01	06	28	5.733120
6	06	12	44	53	01	05	44	5.732934
7	06	13	40	20	01	05	00	5.732741
8	06	14	35	52	01	04	14	5.732545
9	06	15	31	26	01	03	27	5.732344
10	06	16	27	03	01	02	39	5.732139
11	06	17	22	43	01	01	51	5.731928
12	06	18	18	26	01	01	01	5.731713
13	06	19	14	14	01	00	10	5.731492
14	06	20	10	04	00	59	18	5.731268
15	06	21	05	58	00	58	25	5.731039
16	06	22	01	55	00	57	31	5.730807
17	06	22	57	56	00	56	36	5.730570
18	06	23	54	01	00	55	41	5.730327
19	06	24	50	09	00	54	44	5.730081
20	06	25	46	22	00	53	46	5.729831
21	06	26	42	38	00	52	48	5.729576
22	06	27	38	57	00	51	48	5.729318
23	06	28	35	21	00	50	48	5.729055
24	06	29	31	50	00	49	46	5.728788
25	07	00	28	23	00	48	44	5.728517
26	07	01	25	00	00	47	41	5.728243
27	07	02	21	41	00	46	37	5.727965
28	07	03	18	26	00	45	32	5.727683
29	07	04	15	17	00	44	27	5.727397
30	07	05	12	10	00	43	20	5.727106

Mean Anom	Sign. 2. Long. ♄ fr. 1 ✱ ♈				North inc.			Dis. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	07	05	12	10	00	43	20	5.727106
1	07	06	09	10	00	42	13	5.726813
2	07	07	06	14	00	41	05	5.726517
3	07	08	03	22	00	39	56	5.726216
4	07	09	00	36	00	38	47	5.725912
5	07	09	57	54	00	37	36	5.725907
6	07	10	55	16	00	36	25	5.725927
7	07	11	52	45	00	35	14	5.724983
8	07	12	50	17	00	34	01	5.724667
9	07	13	47	56	00	32	48	5.724348
10	07	14	45	39	00	31	34	5.724026
11	07	15	43	28	00	30	20	5.723700
12	07	16	41	21	00	29	05	5.723372
13	07	17	39	19	00	27	49	5.723043
14	07	18	37	23	00	26	33	5.722709
15	07	19	35	32	00	25	16	5.722373
16	07	20	33	48	00	23	59	5.722035
17	07	21	32	08	00	22	41	5.721696
18	07	22	30	34	00	21	22	5.721354
19	07	23	29	06	00	20	03	5.721009
20	07	24	27	43	00	18	44	5.720662
21	07	25	26	26	00	17	24	5.720312
22	07	26	25	14	00	16	04	5.719962
23	07	27	24	09	00	14	43	5.719610
24	07	28	23	09	00	13	22	5.719256
25	07	29	22	14	00	12	00	5.718900
26	08	00	21	26	00	10	39	5.718543
27	08	01	20	43	00	09	16	5.718184
28	08	02	20	07	00	07	54	5.717825
29	08	03	19	36	00	06	31	5.717463
30	08	04	19	11	00	05	08	5.717101

TABLES of the Heliocentrick Place of *Jupiter*.

Mean Anom	Sign 3.							
	Long. ♃ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur
°	s	°	′	″	°	′	″	Logarithm.
0	8	4	19	11	0	5	8	5. 717101
1	8	5	18	52	00	3	45	5. 716738
2	8	6	18	39	00	2	22	5. 716374
3	8	7	18	32	00	0	58	5. 716009
4	8	8	18	32	South	0	26	5. 715644
5	8	9	18	37	00	1	50	5. 715278
6	8	10	18	49	00	3	14	5. 714911
7	8	11	19	6	00	4	38	5. 714545
8	8	12	19	30	00	6	2	5. 714177
9	8	13	20	0	00	7	26	5. 713809
10	8	14	20	36	00	8	50	5. 713443
11	8	15	21	18	00	10	15	5. 713076
12	8	16	22	6	00	11	39	5. 712710
13	8	17	23	1	00	13	3	5. 112342
14	8	18	24	2	00	14	27	5. 711976
15	8	19	25	9	00	15	50	5. 711611
16	8	20	26	22	00	17	14	3. 711248
17	8	21	27	41	00	18	38	5. 710884
18	8	22	29	6	00	20	1	5. 710521
19	8	23	30	38	00	21	24	5. 710159
20	8	24	32	15	00	22	47	5. 700798
21	8	25	34	0	00	24	9	5. 709439
22	8	26	35	50	00	25	31	5. 709081
23	8	27	37	46	00	26	53	5. 708725
24	8	28	39	48	00	28	14	5. 708371
25	8	29	41	56	00	29	35	5. 708018
26	9	0	44	11	00	30	55	5. 707667
27	9	1	46	31	00	32	15	5. 707319
28	9	2	48	58	00	33	35	5. 706972
29	9	3	51	30	00	34	54	5. 706629
30	9	4	54	9	00	36	12	5. 706287

Mean Anom	Sign 4.							
	Long. ♃ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	9	4	54	9	0	36	12	5. 706287
1	9	5	56	53	00	37	30	5. 705948
2	9	6	59	43	00	38	47	5. 705611
3	9	8	2	39	00	40	4	5. 705278
4	9	9	5	40	00	41	19	5. 704948
5	9	10	8	48	00	42	34	5. 704620
6	9	11	12	1	00	43	49	5. 704296
7	9	12	15	19	00	45	2	5. 703975
8	9	13	18	44	00	46	15	5. 703658
9	9	14	22	14	00	47	27	5. 703344
10	9	15	25	49	00	48	38	5. 703034
11	9	16	29	30	00	49	48	5. 702727
12	9	17	33	16	00	50	57	5. 702424
13	9	18	37	7	00	52	5	5. 702126
14	9	19	41	4	00	53	12	5. 701832
15	9	20	45	6	00	54	19	5. 701542
16	9	21	49	13	00	55	24	5. 701257
17	9	22	53	24	00	56	28	5. 700974
18	9	23	57	41	00	57	31	5. 700698
19	9	25	2	3	00	58	33	5. 700427
20	9	26	6	29	00	59	33	5. 700160
21	9	27	11	1	01	0	33	5. 699899
22	9	28	15	37	01	1	31	5. 690642
23	9	29	20	17	01	2	28	5. 699391
24	10	0	25	2	01	3	24	5. 699145
25	10	1	29	52	01	4	19	5. 698904
26	10	2	34	45	01	5	12	5. 698669
27	10	3	39	41	01	6	4	5. 698440
28	10	4	44	44	01	6	54	5. 698216
29	10	5	49	49	01	7	43	5. 697999
30	10	6	54	58	01	8	31	5. 697786

Mean Anom	Sign 5.							
	Long. ♃ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	10	6	54	58	1	8	31	5. 697786
1	10	8	0	12	01	9	17	5. 697580
2	10	9	5	28	01	10	2	5. 697380
3	10	10	10	49	01	10	45	5. 697186
4	10	11	16	13	91	11	27	5. 696998
5	10	12	21	39	01	12	8	5. 696817
6	10	13	27	10	01	12	46	5. 696643
7	10	14	32	44	01	13	24	5. 696474
8	10	15	38	19	01	13	59	5. 696313
9	10	16	43	59	01	14	33	5. 696159
10	10	17	49	41	01	15	6	5. 696010
11	10	18	55	26	01	15	36	5. 695869
12	10	20	1	13	01	16	6	5. 695734
13	10	21	7	2	01	16	33	5. 695606
14	10	22	12	53	01	16	59	5. 695486
15	10	23	18	47	01	17	23	5. 695372
16	10	24	24	43	01	17	46	5. 695266
17	10	25	30	41	01	18	6	5. 695167
18	10	26	36	41	01	18	26	5. 695074
19	10	27	42	42	01	18	43	5. 694987
20	10	28	48	41	01	18	58	5. 694911
21	10	29	54	48	01	19	12	5. 694842
22	11	1	0	53	01	19	24	5. 694779
23	11	2	6	59	01	19	35	5. 694723
24	11	3	13	6	01	19	43	5. 694675
25	11	4	19	14	01	19	50	5. 694631
26	11	5	25	23	01	19	55	5. 694600
27	11	6	31	33	01	19	58	5. 694575
28	11	7	37	42	01	20	0	5. 694555
29	11	8	43	52	01	20	0	5. 694544
30	11	9	50	2	01	19	58	5. 694540

Mean Anom	Sign 6.							
	Long. ♃ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	11	9	50	2	1	19	58	5. 694540
1	11	10	56	12	01	19	54	5. 694545
2	11	12	2	22	01	19	48	5. 694556
3	11	13	8	31	01	19	41	5. 694576
4	11	14	14	40	01	19	32	5. 694602
5	11	15	20	49	01	19	21	5. 694635
6	11	16	26	57	01	19	8	5. 694677
7	11	17	33	4	01	18	53	5. 694725
8	11	18	39	10	01	18	37	5. 694781
9	11	19	45	15	01	18	19	5. 694844
10	11	20	51	19	01	18	0	5. 694914
11	11	21	57	21	01	17	38	5. 694992
12	11	23	3	22	01	17	15	5. 695077
13	11	24	9	22	01	16	51	5. 695171
14	11	25	15	20	01	16	24	5. 695270
15	11	26	21	15	01	15	56	5. 695376
16	11	27	27	9	01	15	26	5. 695490
17	11	28	33	0	01	14	55	5. 695611
18	11	29	38	50	01	14	22	5. 695738
19	0	0	44	37	01	13	47	5. 695847
20	0	1	50	22	01	13	11	5. 696016
21	0	2	56	3	01	12	33	5. 696164
22	0	4	1	43	01	11	53	5. 696319
23	0	5	7	18	01	11	12	5. 696481
24	0	6	12	52	01	10	30	5. 696649
25	0	7	18	23	01	9	46	5. 696824
26	0	8	23	49	01	9	0	5. 697005
27	0	9	29	13	01	8	14	5. 697192
28	0	10	34	33	01	7	25	5. 697386
29	0	11	39	50	01	6	35	5. 697587
30	0	12	45	3	01	5	44	5. 697793

TABLES of the Heliocentrick Place of *Jupiter*.

Mean Anom	Sign 7.							
	Longit. ♃ from 1 ✱ ♈				Southern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	0	12	45	3	1	5	44	5. 697793
1	0	13	50	12	1	4	52	5. 698006
2	0	14	55	18	1	3	58	5. 698223
3	0	16	0	20	1	3	2	5. 698447
4	0	17	5	16	1	2	6	5. 698676
5	0	18	10	9	1	1	8	5. 698911
6	0	19	14	59	1	0	9	5. 699153
7	0	20	19	44	0	59	9	5. 699399
8	0	21	24	24	0	58	7	5. 699650
9	0	22	28	59	0	57	5	5. 699906
10	0	23	33	31	0	56	1	5. 700167
11	0	24	37	57	0	54	56	5. 700435
12	0	25	42	19	0	53	50	5. 700706
13	0	26	46	36	0	52	44	5. 700982
14	0	27	50	46	0	51	36	5. 701264
15	0	28	54	53	0	50	27	5. 701549
16	0	29	38	55	0	49	17	5. 701839
17	1	1	2	52	0	48	6	5. 702133
18	1	2	6	43	0	46	54	5. 702432
19	1	3	10	29	0	45	41	5. 702735
20	1	4	14	10	0	44	28	5. 703041
21	1	5	17	45	0	43	14	5. 703351
22	1	6	21	15	0	41	59	5. 703665
23	1	7	24	40	0	40	43	5. 703982
24	1	8	27	58	0	39	26	5. 704302
25	1	9	31	10	0	38	9	5. 704626
26	1	10	34	17	0	36	51	5. 704954
27	1	11	37	19	0	35	33	5. 705284
28	1	12	40	14	0	34	14	5. 705617
29	1	13	43	5	0	32	54	5. 705954
30	1	14	45	49	0	31	34	5. 706293

Mean Anom	Sign 8.							
	Longit. ♃ from 1 ✱ ♈				Southern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	1	14	45	49	0	31	34	5. 706293
1	1	15	48	28	0	30	13	5. 706634
2	1	16	51	0	0	28	52	5. 706978
3	1	17	53	26	0	27	31	5. 707324
4	1	18	55	46	0	26	9	5. 707672
5	1	19	58	0	0	24	46	5. 708023
6	1	21	0	9	0	23	23	5. 708376
7	1	22	2	11	0	22	0	5. 708729
8	1	23	4	7	0	20	37	5. 709085
9	1	24	5	57	0	19	13	5. 709443
10	1	25	7	41	0	17	49	5. 709820
11	1	26	9	18	0	16	25	5. 710162
12	1	27	10	51	0	15	1	5. 710524
13	1	28	12	16	0	13	37	5. 710887
14	1	29	13	35	0	12	12	5. 711250
15	2	0	14	48	0	10	48	5. 711614
16	2	1	15	55	0	9	23	5. 711978
17	2	2	16	56	0	7	58	5. 712344
18	2	3	17	51	0	6	34	5. 712711
19	2	4	18	39	0	5	9	5. 713078
20	2	5	19	21	0	3	44	5. 713444
21	2	6	19	57	0	2	20	5. 713810
22	2	7	20	27	0	0	55	5. 714178
23	2	8	20	51	Nor.	0	29	5. 714545
24	2	9	21	8	0	1	53	5. 714911
25	2	10	21	20	0	3	17	5. 715278
26	2	11	21	25	0	4	41	5. 715644
27	2	12	21	25	0	6	5	5. 716008
28	2	13	21	18	0	7	28	5. 716373
29	2	14	21	5	0	8	51	5. 716737
30	2	15	20	46	0	10	14	5. 717099

Mean Anom	Sign 9.							
	Longit. ♃ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	2	15	20	46	0	10	14	5. 717099
1	2	16	20	21	0	11	36	5. 717462
2	2	17	19	50	0	12	58	5. 717823
3	2	18	19	14	0	14	20	5. 718182
4	2	19	18	31	0	15	41	5. 718540
5	2	20	17	44	0	17	2	5. 718898
6	2	21	16	49	0	18	23	5. 719253
7	2	22	15	49	0	19	43	5. 719607
8	2	23	14	43	0	21	2	5. 719959
9	2	24	13	31	0	22	21	5. 720309
10	2	25	12	14	0	23	40	5. 720658
11	2	26	10	52	0	24	58	5. 721005
12	2	27	9	23	0	26	15	5. 721349
13	2	28	7	49	0	27	32	5. 721691
14	2	29	6	9	0	28	48	5. 722031
15	3	0	4	24	0	30	4	5. 722368
16	3	1	2	34	0	31	19	5. 722704
17	3	2	0	38	0	32	33	5. 723038
18	3	2	58	37	0	33	47	5. 723367
19	3	3	56	30	0	35	0	5. 723694
20	3	4	54	19	0	36	12	5. 724020
21	3	5	52	2	0	37	24	5. 724342
22	3	6	49	40	0	38	35	5. 724661
23	3	7	47	13	0	39	45	5. 724977
24	3	8	44	41	0	40	54	5. 725290
25	3	9	42	4	0	42	3	5. 725601
26	3	10	39	23	0	43	10	5. 725906
27	3	11	36	36	0	44	17	5. 726209
28	3	12	33	45	0	45	23	5. 726510
29	3	13	30	49	0	46	29	5. 726806
30	3	14	27	49	0	47	33	5. 727099

Mean Anom	Sign 10.							
	Longit. ♃ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	3	14	27	49	0	47	33	5. 727099
1	3	15	24	42	0	48	37	5. 727390
2	3	16	21	33	0	49	39	5. 727676
3	3	17	18	18	0	50	41	5. 727958
4	3	18	15	0	0	51	42	5. 728236
5	3	19	11	36	0	52	42	5. 728510
6	3	20	8	9	0	53	41	5. 728781
7	3	21	4	38	0	54	39	5. 729047
8	3	22	1	2	0	55	36	5. 729310
9	3	23	57	22	0	56	32	5. 729568
10	3	24	53	38	0	57	27	5. 729823
11	3	24	49	51	0	58	21	5. 730073
12	3	25	45	59	0	59	14	5. 730320
13	3	26	42	4	1	0	6	5. 730563
14	3	27	38	6	1	0	58	5. 730800
15	3	28	34	3	1	1	48	5. 731032
16	3	29	29	57	1	2	37	5. 731261
17	4	0	25	47	1	3	25	5. 731485
18	4	1	21	34	1	4	12	5. 731705
19	4	2	17	18	1	4	58	5. 731920
20	4	3	12	58	1	5	43	5. 732132
21	4	4	8	35	1	6	26	5. 732337
22	4	5	4	10	1	7	9	5. 732538
23	4	5	59	41	1	7	51	5. 732734
24	4	6	55	8	1	8	31	5. 732927
25	4	7	50	34	1	9	11	5. 733113
26	4	8	45	56	1	9	49	5. 733295
27	4	9	41	16	1	10	26	5. 733473
28	4	10	36	33	1	11	2	5. 733645
29	4	11	31	47	1	11	37	5. 733812
30	4	12	26	58	1	12	11	5. 733974

TABLE of the Heliocentrick Place of *Jupiter*.

Mean Anom	Sign. 11.							
	Longit. ♃ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	4	12	26	58	1	12	11	5. 733974
1	4	13	22	7	1	12	43	5. 734131
2	4	14	17	14	1	13	15	5. 734283
3	4	15	12	19	1	13	45	5. 734430
4	4	16	7	21	1	14	14	5. 734572
5	4	17	2	22	1	14	42	5. 734708
6	4	17	57	20	1	15	9	5. 734841
7	4	18	52	17	1	15	35	5. 734968
8	4	19	47	12	1	16	0	5. 735089
9	4	20	42	4	1	16	23	5. 735206
10	4	21	36	55	1	16	45	5. 735317
11	4	22	31	45	1	17	6	5. 735422
12	4	23	26	32	1	17	26	5. 735522
13	4	24	21	19	1	17	45	5. 735617
14	4	25	16	4	1	18	2	5. 735706
15	4	26	10	48	1	18	8	5. 735791
16	4	27	5	30	1	18	33	5. 735870
17	4	28	0	11	1	18	47	5. 735944
18	4	28	54	52	1	19	0	5. 736011
19	4	29	39	31	1	19	11	5. 736074
20	5	0	44	9	1	19	21	5. 736131
21	5	1	38	47	1	19	31	5. 736183
22	5	2	33	24	1	19	38	5. 736229
23	5	3	28	0	1	19	45	5. 736271
24	5	4	22	35	1	19	50	5. 736307
25	5	5	17	10	1	19	55	5. 736337
26	5	6	11	45	1	19	58	5. 736361
27	5	7	6	20	1	19	59	5. 736380
28	5	8	0	54	1	20	0	5. 736394
29	5	8	55	28	1	19	59	5. 736402
30	5	9	50	2	1	19	58	5. 736406

TABLE of the mean Motion of *Mars* from the *Aphelion*.

Years of Christ current.	Anomaly of ♂ s ° ′ ″	In the Years	Mot. of the Anom. s ° ′ ″
1	9 2 3 36	1	6 11 16 22
1501	3 7 33 36	2	0 21 32 43
1581	9 19 51 12	3	7 3 49 5
1601	5 7 55 36	4	1 15 36 53
1621	0 26 0 0	5	7 26 53 14
1641	8 14 4 24	6	2 8 9 30
1661	4 2 8 48	7	8 19 25 58
1681	11 20 13 12	8	3 1 13 46
1701	7 8 17 36	9	9 12 30 7
1721	2 26 22 0	10	3 23 46 29
1741	10 14 26 24	11	10 5 2 50
1761	6 2 30 48	12	4 16 50 38
1781	1 20 35 12	13	10 28 7 0
1801	9 8 39 36	14	5 9 23 22
1901	11 9 1 36	15	11 20 39 43
2001	1 9 23 36	16	6 2 27 31
In the Years	Motion of the Anomaly.	17	0 13 43 53
		18	6 25 0 14
20	7 18 4 24	19	1 6 16 36
40	3 6 8 48	20	7 18 4 24
60	10 24 13 12	Months of the common Year	Mot. of the Anom. s ° ′ ″
80	6 12 17 36		
100	2 0 22 0	*January*	0 0 0 0
200	4 0 44 0	*February*	0 16 14 42
300	6 1 6 0	*March*	1 0 55 5
400	8 1 28 0	*April*	1 17 9 47
500	10 1 50 0	*May*	2 2 53 3
600	0 2 12 0	*June*	2 19 7 45
700	2 2 34 0	*July*	3 4 51 1
800	4 2 56 0	*August*	3 21 5 43
900	6 3 18 0	*September*	4 7 20 26
1000	8 3 40 0	*October*	4 23 3 41
2000	4 7 20 0	*November*	5 9 18 24
3000	0 11 0 0	*December*	5 25 1 39
4000	8 14 40 0	In the Bissextile Year, after *February*, add a Day, and the Motion of a Day.	
5000	4 18 20 0		
6000	0 22 0 0		

TABLE of the mean Motion of *Mars* from the *Aphelion*.

Days.	Mot. of the Anomaly. ° ′ ″	H. ′	Motion of the Anom. ′ ″ ″′	H. ′	Motion of the Anom. ° ′ ″ ′ ″ ″′
1	0 31 27	1	1 19	31	0 40 37
2	1 2 53	2	2 37	32	0 41 55
3	1 34 20	3	3 56	33	0 43 14
4	2 5 46	4	5 14	34	0 44 33
5	2 37 13	5	6 33	35	0 45 51
6	3 8 39	6	7 52	36	0 47 10
7	3 40 6	7	9 10	37	0 48 28
8	4 11 32	8	10 29	38	0 49 47
9	4 42 59	9	11 47	39	0 51 6
10	5 14 25	10	13 6	40	0 52 24
11	5 45 52	11	14 25	41	0 53 43
12	6 17 18	12	15 43	42	0 55 1
13	6 48 45	13	17 2	43	0 56 20
14	7 20 11	14	18 20	44	0 57 39
15	7 51 38	15	19 39	45	0 58 57
16	8 23 4	16	20 58	46	1 0 16
17	8 54 31	17	22 16	47	1 1 34
18	9 25 57	18	23 35	48	1 2 53
19	9 57 24	19	24 53	49	1 4 12
20	10 28 50	20	26 12	50	1 5 30
21	11 0 17	21	27 31	51	1 6 49
22	11 31 44	22	28 49	52	1 8 7
23	12 3 10	23	30 8	53	1 9 26
24	12 34 37	24	31 27	54	1 10 45
25	13 6 3	25	32 45	55	1 12 3
26	13 37 30	26	34 4	56	1 13 22
27	14 8 56	27	35 22	57	1 14 40
28	14 40 23	28	36 41	58	1 15 59
29	15 11 49	29	38 0	59	1 17 18
30	15 43 16	30	39 18	60	1 18 36
31	16 14 42				
32	16 46 9				

	s	°	′	″
Long. of the Aph. ♂ from 1 ✱ ♈	4	1	12	0
Longit. ☊ ♂ from the 1 ✱ ♈	0	19	10	0
Inclination of the Orbit ♂		1	52	0
Mean Distance ♂ from ☉		152369		
Eccentricity		14100		

TABLE of the Heliocentrick Place of *Mars*.

Mean Anom	Sign. 0.							
	Longit. ♂ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	4	1	12	22	1	49	32	5 221113
1	4	2	2	27	1	49	11	5. 221110
2	4	2	52	32	1	48	49	5. 221098
3	4	3	42	37	1	48	25	5. 221076
4	4	4	32	42	1	48	0	5. 221044
5	4	5	22	47	1	47	33	5. 221003
6	4	6	12	53	1	47	5	5. 220953
7	4	7	3	1	1	46	36	5. 220894
8	4	7	53	8	1	46	5	5. 220826
9	4	8	43	17	1	45	33	5. 220748
10	4	9	33	27	1	44	59	5. 220661
11	4	10	23	38	1	44	24	5. 220565
12	4	11	13	51	1	43	48	5. 220460
13	4	12	4	6	1	43	11	5. 220345
14	4	12	54	22	1	42	32	5. 220221
15	4	13	44	39	1	41	52	5. 220088
16	4	14	34	58	1	41	10	5. 219946
17	4	15	25	19	1	40	27	5. 219795
18	4	16	15	43	1	39	43	5. 219634
19	4	17	6	8	1	38	57	5. 219464
20	4	17	56	37	1	38	11	5. 219285
21	4	18	47	8	1	37	22	5. 219097
22	4	19	37	40	1	36	33	5. 218900
23	4	20	28	17	1	35	42	5. 218694
24	4	21	18	56	1	34	50	5. 218478
25	4	22	9	38	1	33	57	5. 218254
26	4	23	0	24	1	33	2	5. 218020
27	4	23	51	12	1	32	6	5. 217777
28	4	24	42	4	1	31	9	5 217526
29	4	25	32	59	1	30	11	5. 217267
30	4	26	23	59	1	29	11	5. 216997

TABLES of the Heliocentrick Place of *Mars*.

Mean Anom	Sign. 1.							
	Long. ♂ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	04	26	23	59	01	29	11	5. 216997
1	04	27	15	02	01	28	10	5. 216719
2	04	28	06	09	01	27	08	5. 216433
3	04	28	57	20	01	26	04	5. 216137
4	04	29	48	34	01	25	00	5. 215832
5	05	00	39	54	01	23	54	5. 215519
6	05	01	31	18	01	22	47	5. 215197
7	05	02	22	47	01	21	39	5. 214866
8	05	03	14	20	01	20	29	5. 214527
9	05	04	05	58	01	19	18	5. 214179
10	05	04	57	41	01	18	06	5. 213823
11	05	05	49	29	01	16	53	5. 213458
12	05	06	41	22	01	15	39	5. 213084
13	05	07	33	21	01	14	24	5. 212702
14	05	08	25	26	01	13	07	5. 212312
15	05	09	17	36	01	11	49	5. 211914
16	05	10	09	52	01	10	30	5. 211507
17	05	11	02	13	01	09	10	5. 211092
18	05	11	54	41	01	07	49	5. 210668
19	05	12	47	15	01	06	27	5. 210237
20	05	13	39	55	01	05	03	5. 209798
21	05	14	32	42	01	03	39	5. 209351
22	05	15	25	35	01	02	13	5. 208896
23	05	16	18	35	01	00	47	5. 208433
24	05	17	11	41	00	59	19	5. 207962
25	05	18	04	55	00	57	50	5. 207484
26	05	18	58	15	00	56	21	5. 206998
27	05	19	51	43	00	54	50	5. 206504
28	05	20	45	19	00	53	18	5. 206003
29	05	21	39	02	00	51	45	5. 205495
30	05	22	32	53	00	50	12	5. 204979

Mean Anom	Sign. 2.							
	Long. ♂ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	05	22	32	53	00	50	12	5. 204979
1	05	23	26	51	00	48	37	5. 204456
2	05	24	20	57	00	47	01	5. 203925
3	05	25	15	12	00	45	25	5. 203388
4	05	26	09	34	00	43	47	5. 202844
5	05	27	04	04	00	42	09	5. 202292
6	05	27	58	42	00	40	30	5. 201734
7	05	28	53	29	00	38	49	5. 201169
8	05	29	48	25	00	37	08	5. 200598
9	06	00	43	30	00	35	26	5. 200020
10	06	01	38	44	00	33	44	5. 199436
11	06	02	34	07	00	32	00	5. 198846
12	06	03	29	39	00	30	16	5. 198249
13	06	04	25	21	00	28	31	5. 197646
14	06	05	21	12	00	26	45	5. 197038
15	06	06	17	11	00	24	58	5. 196424
16	06	07	13	21	00	23	11	5. 195804
17	06	08	09	41	00	21	23	5. 195178
18	06	09	06	10	00	19	35	5. 194546
19	06	10	02	49	00	17	45	5. 193909
20	06	10	59	38	00	15	56	5. 193267
21	06	11	56	38	00	14	05	5. 192620
22	06	12	53	48	00	12	14	5. 191969
23	06	13	51	09	00	10	23	5. 191313
24	06	14	48	39	00	08	31	5. 190652
25	06	15	46	21	00	06	38	5. 189987
26	06	16	44	13	00	04	45	5. 189318
27	06	17	42	16	00	02	52	5. 188644
28	06	18	40	29	00	00	58	5. 187966
29	06	19	38	54	Southoo		57	5. 187285
30	06	20	37	31	00	02	51	5. 186600

Mean Anom	Sign. 3.							
	Long. ♂ fr. 1 ✱ ♈				South. inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	06	20	37	31	00	02	51	5. 186600
1	06	21	36	18	00	04	46	5. 185911
2	06	22	35	17	00	06	41	5. 185219
3	06	23	34	27	00	08	37	5. 184525
4	06	24	33	48	00	10	32	5. 183827
5	06	25	33	21	00	12	28	5. 183127
6	06	26	33	07	00	14	24	5. 182424
7	06	27	33	03	00	16	20	5. 181719
8	06	28	33	12	00	18	16	5. 181012
9	06	29	33	32	00	20	13	5. 180302
10	07	00	34	05	00	22	09	5. 179592
11	07	01	34	49	00	24	05	5. 178880
12	07	02	35	45	00	26	01	5. 178167
13	07	03	36	55	00	27	57	5. 177452
14	07	04	38	15	00	29	53	5. 176737
15	07	05	39	48	00	31	49	5. 176021
16	07	06	41	34	00	33	44	5. 175305
17	07	07	43	31	00	35	39	5. 174589
18	07	08	45	41	00	37	34	5. 173872
19	07	09	48	03	00	39	29	5. 173156
20	07	10	50	38	00	41	23	5. 172442
21	07	11	53	25	00	43	17	5. 171728
22	07	12	56	24	00	45	10	5. 171015
23	07	13	59	37	00	47	02	5. 170304
24	07	15	03	02	00	48	54	5. 169594
25	07	16	06	39	00	50	46	5. 168886
26	07	17	10	29	00	52	37	5. 168180
27	07	18	14	31	00	54	27	5. 167478
28	07	19	18	46	00	56	16	5. 166777
29	07	20	23	13	00	58	04	5. 166079
30	07	21	27	53	00	59	52	5. 165385

Mean Anom	Sign 4.							
	Longit. ♂ from 1 ✱ ♈				Southern Inc.			Dif. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	7	21	27	53	1	59	52	5. 165385
1	7	22	32	44	1	01	38	5. 164695
2	7	23	37	49	1	03	24	5. 164008
3	7	24	43	05	1	05	08	5. 163326
4	7	25	48	34	1	06	52	5. 162648
5	7	26	54	16	1	08	34	5. 161976
6	7	28	00	09	1	10	15	5. 161308
7	7	29	06	15	1	11	55	5. 160645
8	8	00	12	33	1	13	33	5. 159988
9	8	01	19	03	1	15	11	5. 159337
10	8	02	25	44	1	16	46	5. 158692
11	8	03	32	37	1	18	21	5. 158054
12	8	04	39	43	1	19	53	5. 157423
13	8	05	47	00	1	21	25	5. 156798
14	8	06	54	29	1	22	54	5. 156182
15	8	08	02	08	1	24	22	5. 155573
16	8	09	09	59	1	25	49	5. 154972
17	8	10	18	01	1	27	13	5. 154379
18	8	11	26	15	1	28	36	5. 153795
19	8	12	34	39	1	29	56	5. 153220
20	8	13	43	14	1	31	15	5. 152655
21	8	14	51	59	1	32	32	5. 152099
22	8	16	00	55	1	33	47	5. 151553
23	8	17	10	02	1	35	00	5. 151017
24	8	18	19	18	1	36	10	5. 150491
25	8	19	28	44	1	37	18	5. 149976
26	8	20	38	20	1	38	25	5. 149472
27	8	21	48	06	1	39	28	5. 148979
28	8	22	58	01	1	40	30	5. 148497
29	8	24	08	04	1	41	29	5. 148028
30	8	25	18	17	1	42	26	5. 147570

TABLES of the Heliocentrick Place of *Mars*.

Mean Anom	Sign 5.							
	Long. ♂ fr. 1 ✱ ♈				South inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	8	25	18	17	1	42	26	5. 147570
1	8	26	28	39	01	43	20	5. 147125
2	8	27	39	9	01	44	12	5. 146692
3	8	28	49	48	01	45	1	5. 146273
4	9	0	0	34	01	45	48	5. 145866
5	9	1	11	27	01	46	32	5. 145472
6	9	2	22	29	01	47	14	5. 145093
7	9	3	33	37	01	47	52	5. 144727
8	9	4	44	53	01	48	28	5. 144375
9	9	5	56	16	01	49	2	5. 144037
10	9	7	7	44	01	49	32	5. 143713
11	9	8	19	19	01	50	0	5. 143405
12	9	9	31	0	01	50	25	5. 143110
13	9	10	42	46	01	50	47	5. 142831
14	9	11	54	38	01	51	6	5. 142567
15	9	13	6	35	01	51	23	5. 142318
16	9	14	18	36	01	51	36	5. 142085
17	9	15	30	43	01	51	46	5. 141867
18	9	16	42	53	01	51	54	5. 141666
19	9	17	55	7	01	51	58	5. 141480
20	9	19	7	25	01	52	0	5. 141309
21	9	20	19	45	01	51	58	5. 141156
22	9	21	32	9	01	51	54	5. 141018
23	9	22	44	35	01	51	47	5. 140896
24	9	23	57	4	01	51	37	5. 140791
25	9	25	9	34	01	51	23	5. 140702
26	9	26	22	6	01	51	7	5. 140629
27	9	27	34	49	01	50	48	5. 140572
28	9	28	47	13	01	50	26	5. 140533
29	9	29	59	47	01	50	0	5. 140511
30	10	1	12	22	01	49	32	5. 140505

Mean Anom	Sign 6.							
	Long. ♂ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	10	1	12	22	1	49	32	5. 140505
1	10	2	24	57	01	49	01	5. 140515
2	10	3	37	31	01	48	27	5. 140541
3	10	4	50	5	01	47	50	5. 140584
4	10	6	2	38	01	47	11	5. 140645
5	10	7	15	10	01	46	28	5. 140722
6	10	8	27	40	01	45	43	5. 140815
7	10	9	40	8	01	44	55	5. 140924
8	10	10	52	34	01	44	4	5. 141049
9	10	12	4	57	01	43	10	5. 141190
10	10	13	17	26	01	42	14	5. 141348
11	10	14	29	33	01	41	15	5. 141522
12	10	15	41	46	01	40	13	5. 141711
13	10	16	53	55	01	39	9	5. 141916
14	10	18	6	0	01	38	2	5. 142137
15	10	19	18	0	01	36	52	5. 142374
16	10	20	29	56	01	35	41	5. 142626
17	10	21	41	48	01	34	26	5. 142893
18	10	22	53	33	01	33	10	5. 143174
19	10	24	5	13	01	31	51	5. 143471
20	10	25	16	46	01	30	29	5. 143783
21	10	26	28	13	01	29	9	5. 144109
22	10	27	39	34	01	27	40	5. 144449
23	10	28	50	49	01	26	13	5. 144804
24	11	0	1	55	01	24	43	5. 145172
25	11	1	12	55	01	23	11	5. 145554
26	11	2	23	48	01	21	37	5. 145950
27	11	3	34	32	01	20	1	5. 146358
28	11	4	45	9	01	18	24	5. 146779
29	11	5	55	37	01	16	44	5. 147213
30	11	7	5	56	01	15	3	5. 147659

Mean Anom	Sign 7.							
	Long. ♂ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	11	7	5	56	1	15	3	5. 147659
1	11	8	16	8	01	13	21	5. 148118
2	11	9	26	10	01	11	36	5. 148589
3	11	10	36	4	01	9	50	5. 149071
4	11	11	45	47	01	8	3	5. 149564
5	11	12	55	21	01	6	14	5. 150069
6	11	14	4	46	01	4	24	5. 150585
7	11	15	14	0	01	2	32	5. 151111
8	11	16	23	5	01	0	39	5. 151647
9	11	17	31	59	00	58	45	5. 152193
10	11	18	40	42	00	56	50	5. 152749
11	11	19	49	15	00	54	54	5. 153314
12	11	20	57	37	00	52	57	5. 153888
13	11	22	5	49	00	50	59	5. 154471
14	11	23	13	50	00	49	0	5. 155063
15	11	24	21	40	00	47	0	5. 155663
16	11	25	29	18	00	45	0	5. 156271
17	11	26	36	44	00	42	58	5. 156886
18	11	27	43	59	00	40	56	5. 157509
19	11	28	51	3	00	38	54	5. 158139
20	11	29	57	54	00	36	51	5. 158776
21	00	1	4	35	00	34	47	5. 159419
22	00	2	11	3	00	32	43	5. 160068
23	00	3	17	20	00	30	39	5. 160723
24	00	4	23	24	00	28	35	5. 161383
25	00	5	29	16	00	26	30	5. 162049
26	00	6	34	56	00	24	25	5. 162719
27	00	7	40	24	00	22	19	5. 163395
28	00	8	45	40	00	20	14	5. 164075
29	00	9	50	44	00	18	9	5. 164749
30	00	10	55	34	00	16	4	5. 165446

Mean Anom	Sign 8.							
	Long. ♂ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	0	10	55	34	0	16	4	5. 165446
1	00	12	0	13	00	13	58	5. 166137
2	00	13	4	39	00	11	53	5. 166832
3	00	14	8	53	00	9	48	5. 167530
4	00	15	12	54	00	7	43	5. 168230
5	00	16	16	43	00	5	39	5. 168932
6	00	17	20	19	00	3	35	5. 169638
7	00	18	23	43	00	1	31	5. 170345
8	00	19	26	54	North	0	33	5. 171053
9	00	20	29	53	00	2	30	5. 171762
10	00	21	32	40	00	4	39	5. 172473
11	00	22	35	14	00	6	41	5. 173184
12	00	23	37	36	00	8	43	5. 173897
13	00	24	39	45	00	10	44	5. 174610
14	00	25	41	42	00	12	44	5. 175323
15	00	26	43	27	00	14	44	5. 176036
16	00	27	45	1	00	16	43	5. 176748
17	00	28	46	21	00	18	42	5. 177460
18	00	29	47	30	00	20	39	5. 178171
19	01	0	48	26	00	22	36	5. 178882
20	01	1	49	11	00	24	32	5. 179590
21	01	2	49	43	00	26	28	5. 180297
22	01	3	50	3	00	28	22	5. 181003
23	01	4	50	12	00	30	16	5. 181707
24	01	5	50	9	00	32	8	5. 182409
25	01	6	49	55	00	34	0	5. 183109
26	01	7	49	28	00	35	51	5. 183806
27	01	8	48	50	00	37	40	5. 184500
28	01	9	48	1	00	39	29	5. 185191
29	01	10	47	0	00	41	16	5. 1858[illegible]0
30	01	11	45	47	00	43	3	5. 186566

TABLES of the Heliocentrick Place of *Mars*.

Mean Anom	Sign. 9. Long. ♂ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
	s	°	′	″	°	′	″	Logarithm.
0	01	11	45	47	00	43	03	5. 186566
1	01	12	44	24	00	44	48	5. 187248
2	01	13	42	50	00	46	33	5. 187926
3	01	14	41	04	00	48	16	5. 188601
4	01	15	39	09	00	49	58	5. 189272
5	01	16	37	02	00	51	39	5. 189939
6	01	17	34	45	00	53	18	5. 190601
7	01	18	32	16	00	54	57	5. 191260
8	01	19	29	37	00	56	34	5. 191913
9	01	20	26	48	00	58	10	5. 192562
10	01	21	23	48	00	59	45	5. 193206
11	01	22	20	38	01	01	18	5. 193846
12	01	23	17	18	01	02	51	5. 194480
13	01	24	13	48	01	04	21	5. 195110
14	01	25	10	09	01	05	51	5. 195733
15	01	26	06	20	01	07	19	5. 196351
16	01	27	02	21	01	08	46	5. 196964
17	01	27	58	12	01	10	12	5. 197570
18	01	28	53	55	01	11	36	5. 198172
19	01	29	49	29	01	12	59	5. 198767
20	02	00	44	53	01	14	21	5. 199355
21	02	01	40	07	01	15	41	5. 199938
22	02	02	35	13	01	17	00	5. 200514
23	02	03	30	11	01	18	17	5. 201084
24	02	04	24	59	01	19	33	5. 201648
25	02	05	19	39	01	20	48	5. 202205
26	02	06	14	11	01	22	01	5. 202755
27	02	07	08	35	01	23	13	5. 203299
28	02	08	02	51	01	24	23	5. 203835
29	02	08	56	58	01	25	32	5. 204365
30	02	09	50	57	01	26	40	5. 204887

Mean Anom	Sign. 10. Long. ♂ fr. 1 ✱ ♈				North inc.			Dif. fr. ☉ cur.
	s	°	′	″	°	′	″	Logarithm.
0	02	09	50	57	01	26	40	5. 204887
1	02	10	44	49	01	27	46	5. 205402
2	02	11	38	33	01	28	50	5. 205910
3	02	12	32	10	01	29	53	5. 206411
4	02	13	25	40	01	30	55	5. 206904
5	02	14	19	02	01	31	55	5. 207390
6	02	15	12	17	01	32	54	5. 207868
7	02	16	05	25	01	33	52	5. 208339
8	02	16	58	27	01	34	47	5. 208802
9	02	17	51	21	01	35	42	5. 209257
10	02	18	44	09	01	36	35	5. 209705
11	02	19	36	50	01	37	26	5. 210144
12	02	20	29	26	01	38	16	5. 210576
13	02	21	21	55	01	39	05	5. 211000
14	02	22	14	18	01	39	52	5. 211415
15	02	23	06	35	01	40	37	5. 211823
16	02	23	58	46	01	41	21	5. 212222
17	02	24	50	52	01	42	04	5. 212613
18	02	25	42	52	01	42	45	5. 212995
19	02	26	34	47	01	43	25	5. 213369
20	02	27	26	37	01	44	03	5. 213736
21	02	28	18	21	01	44	40	5. 214094
22	02	29	10	00	01	45	15	5. 214443
23	03	00	01	35	01	45	49	5. 214783
24	03	00	53	04	01	46	21	5. 215115
25	03	01	44	29	01	46	52	5. 215438
26	03	02	35	50	01	47	21	5. 215753
27	03	03	27	06	01	47	49	5. 216059
28	03	04	18	18	01	48	15	5. 216357
29	03	05	09	26	01	48	40	5. 216645
30	03	06	00	30	01	49	04	5. 216925

TABLE of the Heliocentrick Place of *Mars*.

Mean Anom	Sign. 11. Long. ♂ fr. 1 ✱ ♈				North. inc.			Dif. fr. ☉ cur.
	s	°	′	″	°	′	″	Logarithm.
0	03	06	00	30	01	49	04	5. 216925
1	03	06	51	30	01	49	26	5. 217196
2	03	07	42	27	01	49	46	5. 217458
3	03	08	33	19	01	50	05	5. 217710
4	03	09	24	08	01	50	23	5. 217955
5	03	10	14	55	01	50	39	5. 218191
6	03	11	05	37	01	50	53	5. 218417
7	03	11	56	17	01	51	07	5. 218635
8	03	12	46	54	01	51	18	5. 218843
9	03	13	37	28	01	51	29	5. 219042
10	03	14	28	00	01	51	37	5. 219233
11	03	15	18	29	01	51	45	5. 219415
12	03	16	08	55	01	51	51	5. 219587
13	03	16	59	19	01	51	55	5. 219750
14	03	17	49	41	01	51	58	5. 219904
15	03	18	40	02	01	52	00	5. 220048
16	03	19	30	20	01	52	00	5. 220184
17	03	20	20	36	01	51	59	5. 220311
18	03	21	10	51	01	51	56	5. 220428
19	03	22	01	04	01	51	52	5. 220536
20	03	22	51	15	01	51	46	5. 220634
21	03	23	41	26	01	51	39	5. 220724
22	03	24	31	36	01	51	31	5. 220804
23	03	25	21	43	01	51	21	5. 220875
24	03	26	11	51	01	51	10	5. 220937
25	03	27	01	57	01	50	57	5. 220990
26	03	27	52	03	01	50	43	5. 221033
27	03	28	42	08	01	50	27	5. 221067
28	03	29	32	14	01	50	10	5. 221092
29	04	00	22	18	01	49	52	5. 221107
30	04	01	12	22	01	49	32	5. 221113

TABLE of the mean Motion of *Venus*, from the *Aphelion*.

Years of Christ current.	Anomaly of ♀ s	°	′	″	In the Years	Mot. of the Anom. s	°	′	″
1	4	3	48	55	1	7	14	46	38
1501	7	0	22	40	2	2	29	33	16
1581	7	14	35	40	3	10	14	19	54
1601	1	18	8	55	4	6	0	42	39
1621	7	21	42	10	5	1	15	29	17
1641	1	25	15	25	6	9	0	15	55
1661	7	28	48	40	7	4	15	2	33
1681	2	2	21	55	8	0	1	25	18
1701	8	5	55	10	9	7	16	11	56
1721	2	09	28	25	10	3	0	58	34
1741	8	13	1	40	11	10	15	45	12
1761	2	16	34	55	12	6	2	7	57
1781	8	20	8	10	13	1	16	54	35
1801	2	23	41	25	14	9	1	41	13
1901	9	11	27	40	15	4	16	27	51
2001	3	29	13	55	16	0	2	50	36
In the Years	Motion of the Anomaly.				17	7	17	37	14
					18	3	2	23	52
20	6	3	33	15	19	0	17	10	30
40	0	7	6	30	20	16	03	33	15
60	6	10	39	45	Months of the common Year	Mot. of the Anom.			
80	0	14	13	0		s	°	′	″
100	6	17	46	15	*January*	0	0	0	0
200	1	5	33	30	*February*	1	19	39	58
300	7	23	18	45	*March*	3	4	31	32
400	2	11	5	0	*April*	4	24	11	30
500	8	28	51	15	*May*	6	12	15	20
600	3	16	37	30	*June*	8	1	55	17
700	10	4	23	45	*July*	9	19	59	7
800	4	22	10	0	*August*	11	9	39	5
900	11	09	56	15	*September*	0	29	19	3
1000	5	27	42	30	*October*	2	17	22	53
2000	11	52	25	0	*November*	4	7	2	50
3000	5	23	7	30	*December*	5	25	6	40
4000	11	20	50	0	In the Bissextile Year, after *February*, add a Day, and the Motion of a Day.				
5000	5	18	32	30					
6000	11	16	15	0					

TABLE of the mean Motion of *Venus* from the *Aphelion*.

Days.	Mot. of the Anomaly. s ° ′ ″	H. ′	Motion of the Anom. ° ′ ″ / ″ ‴	H. ′	Motion of the Anom. ° ′ ″ / ″ ‴
1	0 1 36 8				
2	0 3 12 15				
3	0 4 48 23	1	0 4 0	31	2 4 10
4	0 6 24 31	2	0 8 1	32	2 8 10
5	0 8 0 38	3	0 12 1	33	2 12 11
6	0 9 36 46	4	0 16 1	34	2 16 11
7	0 11 12 54	5	0 20 2	35	2 20 11
8	0 12 49 1	6	0 24 2	36	2 24 11
9	0 14 25 9	7	0 28 2	37	2 28 12
10	0 16 1 17	8	0 32 3	38	2 32 12
11	0 17 37 24	9	0 36 3	39	2 36 12
12	0 19 13 32	10	0 40 3	40	2 40 13
13	0 20 49 40	11	0 44 4	41	2 44 13
14	0 22 25 47	12	0 48 4	42	2 48 13
15	0 24 1 55	13	0 52 4	43	2 52 14
16	0 25 33 3	14	0 56 4	44	2 56 14
17	0 27 14 10	15	1 0 5	45	3 0 14
18	0 28 50 18	16	1 4 5	46	3 4 15
19	1 0 26 26	17	1 8 5	47	3 8 15
20	1 2 2 33	18	1 12 6	48	3 12 15
21	1 3 38 41	19	1 16 6	49	3 16 16
22	1 5 14 49	20	1 20 6	50	3 20 16
23	1 6 50 56	21	1 24 7	51	3 24 16
24	1 8 27 4	22	1 28 7	52	3 28 17
25	1 10 3 12	23	1 32 7	53	3 32 17
26	1 11 39 19	24	1 36 8	54	3 36 17
27	1 13 15 27	25	1 40 8	55	3 40 18
28	1 14 51 35	26	1 44 9	56	3 44 18
29	1 16 27 42	27	1 48 9	57	3 48 18
30	1 18 3 50	28	1 52 9	58	3 52 19
31	1 19 39 58	29	1 56 9	59	3 56 19
32	1 21 16 5	30	2 0 10	60	4 0 10

	s	°	′	″
Long. of the Aph. ♀ from 1 ✱ ♈	9	5	0	0
Longit. ☊ ♀ from the 1 ✱ ♈	1	15	16	0
Inclination of the Orbit ♀ ———		3	24	0
Mean Distance ♀ from ☉ ———		72333		
Eccentricity ———		517		

TABLE of the Heliocentrick Place of *Venus*.

Mean Anom	Sign 0. Long. ♀ fr. 1 ✱ ♈ s ° ′ ″	South Inc. ° ′ ″	Dif. fr. ☉ cur. Logarithm.
0	9 4 57 1	2 35 37	4. 861985
1	9 5 56 11	02 37 52	4. 861971
2	9 6 55 21	02 40 4	4. 861957
3	9 7 54 32	02 42 13	4. 861941
4	9 8 53 42	02 44 20	4. 861926
5	9 9 52 53	02 46 23	4. 861909
6	9 10 52 5	02 48 23	4. 861892
7	9 11 51 17	02 50 21	4. 861874
8	9 12 50 29	02 52 15	4. 861854
9	9 13 49 42	02 54 6	4. 861834
10	9 14 48 55	02 55 55	4. 861814
11	9 15 48 7	02 57 40	4. 861793
12	9 16 47 20	02 59 22	4. 861772
13	9 17 46 34	03 1 1	4. 861750
14	9 18 45 48	03 2 36	4. 861726
15	9 19 45 2	03 4 9	4. 861703
16	9 20 44 17	03 5 38	4. 861679
17	9 21 43 32	03 7 3	4. 861654
18	9 22 42 48	03 8 26	4. 861628
19	9 23 42 4	03 9 45	4. 861602
20	9 24 41 20	03 11 1	4. 861575
21	9 25 40 37	03 12 13	4. 861548
22	9 26 39 55	03 13 22	4. 861521
23	9 27 39 12	03 14 27	4. 861492
24	9 28 38 31	03 15 29	4. 861463
25	9 29 37 50	03 16 28	4. 861434
26	10 0 37 9	03 17 23	4. 861405
27	10 1 36 29	03 18 15	4. 861375
28	10 2 35 50	03 19 3	4. 861345
29	10 3 35 10	03 19 47	4. 861315
30	10 4 34 31	03 20 28	4. 861284

TABLES of the Heliocentrick Place of *Venus*.

Mean Anom	Sign 1. Long. ♀ fr. 1 ✱ ♈ s ° ′ ″	South Inc. ° ′ ″	Dif. fr. ☉ cur. Logarithm.
0	10 4 34 31	3 20 28	4. 861284
1	10 5 33 53	03 21 5	4. 861253
2	10 6 33 15	03 21 39	4. 861221
3	10 7 32 38	03 22 9	4. 861189
4	10 8 32 1	03 22 36	4. 861155
5	10 9 31 25	03 22 59	4. 861122
6	10 10 30 49	03 23 18	4. 861088
7	10 11 30 14	03 23 34	4. 861055
8	10 12 29 40	03 23 46	4. 861021
9	10 13 29 6	03 23 54	4. 860987
10	10 14 28 33	03 23 59	4. 860952
11	10 15 28 0	03 24 0	4. 860917
12	10 16 27 27	03 23 57	4. 860882
13	10 17 26 56	03 23 41	4. 860847
14	10 18 26 25	03 23 14	4. 860811
15	10 19 25 51	03 23 28	4. 860776
16	10 20 25 25	03 23 11	4. 860740
17	10 21 24 56	03 22 50	4. 860704
18	10 22 24 27	03 22 25	4. 860668
19	10 23 23 59	03 21 57	4. 860631
20	10 24 23 31	03 21 25	4. 860594
21	10 25 23 4	03 20 50	4. 860557
22	10 26 22 38	03 20 11	4. 860520
23	10 27 22 12	03 19 29	4. 860483
24	10 28 21 46	03 18 42	4. 860446
25	10 29 21 22	03 17 53	4. 860408
26	11 0 20 59	03 16 59	4. 860371
27	11 1 20 35	03 16 2	4. 860334
28	11 2 20 13	03 15 2	4. 860295
29	11 3 19 51	03 13 58	4. 860256
	11 4 19 30	03 12 51	4. 860218

Mean Anom	Sign 2. Long. ♀ fr. 1 ✱ ♈ s ° ′ ″	South Inc. ° ′ ″	Dif. fr. ☉ cur. Logarithm.
0	11 4 19 30	3 12 51	4. 860218
1	11 5 19 9	03 11 40	4. 860181
2	11 6 18 48	03 10 25	4. 860142
3	11 7 18 29	03 9 7	4. 860104
4	11 8 18 10	03 7 46	4. 860065
5	11 9 17 52	03 6 21	4. 860027
6	11 10 17 35	03 4 53	4. 859988
7	11 11 17 18	03 3 22	4. 859949
8	11 12 17 2	03 1 47	4. 859910
9	11 13 16 46	03 0 9	4. 859870
10	11 14 16 32	02 58 27	4. 859831
11	11 15 16 17	02 56 43	4. 859792
12	11 16 16 4	02 54 55	4. 859753
13	11 17 15 51	02 53 4	4. 859713
14	11 18 15 39	02 51 10	4. 859673
15	11 19 15 27	02 49 12	4. 859634
16	11 20 15 16	02 47 12	4. 859594
17	11 21 15 6	02 45 8	4. 859554
18	11 22 14 56	02 43 2	4. 859514
19	11 23 14 47	02 40 52	4. 859474
20	11 24 14 39	02 38 40	4. 859434
21	11 25 14 31	02 36 24	4. 859394
22	11 26 14 24	02 34 6	4. 859353
23	11 27 14 18	02 31 45	4. 859313
24	11 28 14 12	02 29 21	4. 859273
25	11 29 14 7	02 26 54	4. 859232
26	00 0 14 3	02 24 25	4. 859192
27	00 1 13 59	02 21 53	4. 859151
28	00 2 13 56	02 19 18	4. 859110
29	00 3 13 54	02 16 41	4. 859070
30	00 4 13 52	02 14 1	4. 859029

TABLES of the Heliocentrick Place of *Venus*.

Mean Anom.	Sign 3.							
	Longit. ♀ from 1 ✱ ♈				Southern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	0	4	13	52	2	14	1	4. 859029
1	0	5	13	51	2	11	19	4. 858988
2	0	6	13	51	2	8	34	4. 858946
3	0	7	13	50	2	5	47	4. 858905
4	0	8	13	52	2	2	58	4. 858864
5	0	9	13	54	2	0	6	4. 858823
6	0	10	13	56	1	57	12	4. 858782
7	0	11	13	59	1	54	16	4. 858740
8	0	12	14	3	1	51	18	4. 858698
9	0	13	14	7	1	48	17	4. 858657
10	0	14	14	12	1	45	15	4. 858615
11	0	15	14	18	1	42	11	4. 858573
12	0	16	14	25	1	39	4	4. 858532
13	0	17	14	32	1	35	56	4. 858490
14	0	18	14	40	1	32	46	4. 858448
15	0	19	14	49	1	29	35	4. 858406
16	0	20	14	58	1	26	21	4. 858364
17	0	21	15	8	1	23	6	4. 858321
18	0	22	15	18	1	19	50	4. 858279
19	0	23	15	30	1	16	31	4. 858236
20	0	24	15	42	1	13	12	4. 858194
21	0	25	15	55	1	9	51	4. 858152
22	0	26	16	9	1	6	29	4. 858110
23	0	27	16	24	1	3	5	4. 858068
24	0	28	16	39	0	59	40	4. 858026
25	0	29	16	54	0	56	34	4. 857983
26	1	0	17	10	0	52	47	4. 857941
27	1	1	17	27	0	49	19	4. 857898
28	1	2	17	45	0	45	50	4. 857855
29	1	3	18	4	0	42	21	4. 857813
30	1	4	18	23	0	38	50	4. 857770

Mean Anom	Sign 4.							
	Longit. ♀ from 1 ✱ ♈				Southern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	1	4	18	23	0	38	50	4. 857770
1	1	5	18	43	0	35	18	4. 857728
2	1	6	19	4	0	31	46	4. 857685
3	1	7	19	25	0	28	13	4. 857643
4	1	8	19	48	0	24	40	4. 857601
5	1	9	20	11	0	21	6	4. 857559
6	1	10	20	34	0	17	32	4. 857516
7	1	11	20	58	0	13	57	4. 857474
8	1	12	21	22	0	10	22	4. 857433
9	1	13	21	48	0	6	47	4. 857391
10	1	14	22	14	0	3	12	4. 857350
11	1	15	22	41	Nor. 0		24	4. 857308
12	1	16	23	8	0	3	59	4. 857267
13	1	17	23	37	0	7	35	4. 857226
14	1	18	24	6	0	11	10	4. 857185
15	1	19	24	36	0	14	45	4. 857143
16	1	20	25	6	0	18	20	4. 857103
17	1	21	25	37	0	21	55	4. 857062
18	1	22	26	9	0	25	29	4. 857022
19	1	23	26	42	0	29	3	4. 856981
20	1	24	27	15	0	32	37	4. 856941
21	1	25	27	49	0	36	9	4. 856902
22	1	26	28	23	0	39	41	4. 856863
23	1	27	28	58	0	43	13	4. 856824
24	1	28	29	34	0	46	44	4. 856786
25	1	29	30	10	0	50	13	4. 856748
26	2	0	30	47	0	53	42	4. 856709
27	2	1	31	24	0	57	10	4. 856672
28	2	2	32	2	1	0	37	4. 856635
29	2	3	32	41	1	4	3	4. 856598
30	2	4	33	20	1	7	28	4. 856562

Mean Anom	Sign 5.							
	Longit. ♀ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	2	4	33	20	1	7	28	4. 856562
1	2	5	34	0	1	10	51	4. 856526
2	2	6	34	42	1	14	13	4. 856491
3	2	7	35	24	1	17	34	4. 856456
4	2	8	36	5	1	20	53	4. 856422
5	2	9	36	47	1	24	11	4. 856388
6	2	10	37	30	1	27	27	4. 856354
7	2	11	38	13	1	30	42	4. 856322
8	2	12	38	58	1	33	55	4. 856290
9	2	13	39	43	1	37	6	4. 856259
10	2	14	40	28	1	40	15	4. 856228
11	2	15	41	14	1	43	23	4. 856198
12	2	16	42	0	1	46	29	4. 856169
13	2	17	42	47	1	49	32	4. 856140
14	2	18	43	33	1	52	34	4. 856112
15	2	19	44	20	1	55	33	4. 856085
16	2	20	45	8	1	58	31	4. 856058
17	2	21	45	57	2	1	26	4. 856032
18	2	22	46	46	2	4	19	4. 856007
19	2	23	47	36	2	7	10	4. 855983
20	2	24	48	25	2	9	58	4. 855960
21	2	25	49	15	2	12	43	4. 855937
22	2	26	50	6	2	15	27	4. 855915
23	2	27	50	57	2	18	7	4. 855894
24	2	28	51	48	2	20	46	4. 855875
25	2	29	52	39	2	23	21	4. 855856
26	3	0	53	30	2	25	54	4. 855838
27	3	1	54	22	2	28	24	4. 855821
28	3	2	55	15	2	30	51	4. 855805
29	3	3	56	8	2	33	16	4. 855790
30	3	4	57	1	2	35	37	4. 855776

Mean Anom	Sign 6.							
	Longit. ♀ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	3	4	57	1	2	35	37	4. 855776
1	3	5	57	54	2	37	56	4. 855763
2	3	6	58	48	2	40	12	4. 855751
3	3	7	59	41	2	42	24	4. 855741
4	3	9	0	35	2	44	34	4. 855731
5	3	10	1	28	2	46	41	4. 855722
6	3	11	2	22	2	48	44	4. 855715
7	3	12	3	16	2	50	44	4. 855709
8	3	13	4	11	2	52	41	4. 855704
9	3	14	5	5	2	54	35	4. 855700
10	3	15	5	59	2	56	25	4. 855698
11	3	16	6	53	2	58	13	4. 855696
12	3	17	7	48	2	59	56	4. 855696
13	3	18	8	42	3	1	37	4. 855697
14	3	19	9	37	3	3	14	4. 855699
15	3	20	10	31	3	4	47	4. 855702
16	3	21	11	25	3	6	17	4. 855707
17	3	22	12	19	3	7	44	4. 855713
18	3	23	13	13	3	9	7	4. 855720
19	3	24	14	7	3	10	6	4. 855728
20	3	25	15	0	3	11	42	4. 855737
21	3	26	15	53	3	12	54	4. 855748
22	3	27	16	47	3	14	3	4. 855760
23	3	28	17	40	3	15	8	4. 855773
24	3	29	18	33	3	16	9	4. 855788
25	4	0	19	25	3	17	7	4. 855804
26	4	1	20	18	3	18	1	4. 855821
27	4	2	21	10	3	18	51	4. 855839
28	4	3	22	2	3	19	38	4. 855859
29	4	4	22	54	3	20	20	4. 855880
30	4	5	23	45	3	20	59	4. 855903

TABLES of the Heliocentrick Place of *Venus*.

Mean Anom	Sign. 7.							
	Longit. ♀ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	4	5	23	45	3	20	59	4. 855903
1	4	6	24	35	3	21	34	4. 855927
2	4	7	25	25	3	22	6	4. 855952
3	4	8	26	15	3	22	33	4. 855978
4	4	9	27	4	3	22	57	4. 856005
5	4	10	27	53	3	23	17	4. 856934
6	4	11	28	42	3	23	33	4. 856064
7	4	12	29	30	3	23	46	4. 856095
8	4	13	30	17	3	23	54	4. 856128
9	4	14	31	3	3	23	59	4. 856161
10	4	15	31	50	3	24	0	4. 856196
11	4	16	32	35	3	23	57	4. 856232
12	4	17	33	21	3	23	50	4. 856270
13	4	18	34	5	3	23	40	4. 856308
14	4	19	34	48	3	23	25	4. 856348
15	4	20	35	32	3	23	7	4. 856389
16	4	21	36	14	3	22	45	4. 856431
17	4	22	36	55	3	22	20	4. 856474
18	4	23	37	37	3	21	50	4. 856518
19	4	24	38	16	3	21	17	4. 856563
20	4	25	38	55	3	20	40	4. 856610
21	4	26	39	34	3	19	59	4. 856657
22	4	27	40	12	3	19	15	4. 856705
23	4	28	40	48	3	18	27	4. 856754
24	4	29	41	25	3	17	35	4. 856804
25	5	0	42	0	3	16	40	4. 856856
26	5	1	42	34	3	15	41	4. 856909
27	5	2	43	8	3	14	38	4. 856962
28	5	3	43	41	3	13	31	4. 857016
29	5	4	44	13	3	12	22	4. 857071
30	5	5	44	44	3	11	8	4. 857126

Mean Anom	Sign 8.							
	Longit. ♀ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	5	5	44	44	2	11	8	4. 857126
1	5	6	45	13	3	9	51	4. 857183
2	5	7	45	42	3	8	31	4. 857241
3	5	8	46	10	3	7	7	4. 857299
4	5	9	46	37	3	5	39	4. 857358
5	5	10	47	3	3	4	8	4. 857418
6	5	11	47	28	3	2	34	4. 857478
7	5	12	47	52	3	0	57	4. 857539
8	5	13	48	15	2	59	16	4. 857600
9	5	14	48	37	2	57	32	4. 857662
10	5	15	48	58	2	55	44	4. 857725
11	5	16	49	18	2	53	54	4. 857788
12	5	17	49	37	2	52	0	4. 857852
13	5	18	49	54	2	50	3	4. 857917
14	5	19	50	11	2	48	3	4. 857982
15	5	20	50	26	2	46	0	4. 858047
16	5	21	50	41	2	43	53	4. 858112
17	5	22	50	54	2	41	44	4. 858178
18	5	23	51	6	2	39	32	4. 858244
19	5	24	51	18	2	37	17	4. 858310
20	5	25	51	28	2	34	59	4. 858377
21	5	26	51	37	2	32	39	4. 858444
22	5	27	51	44	2	30	15	4. 858511
23	5	28	51	50	2	27	49	4. 858578
24	5	29	51	57	2	25	20	4. 858646
25	6	0	52	1	2	22	49	4. 858713
26	6	1	52	4	2	20	15	4. 858780
27	6	2	52	7	2	17	38	4. 858848
28	6	3	52	7	2	14	59	4. 858915
29	6	4	52	7	2	12	18	4. 858983
30	6	5	52	6	2	9	34	4. 859050

Mean Anom	Sign 9.							
	Long. ♀ fr. ♈				North. inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	6	5	52	6	02	9	34	4. 859050
1	6	6	52	4	02	6	48	4. 859117
2	6	7	52	0	02	4	0	4. 859184
3	6	8	51	57	02	1	9	4. 859251
4	6	9	51	51	01	58	16	4. 859318
5	6	10	51	44	01	55	21	4. 859384
6	6	11	51	37	01	52	25	4. 859451
7	6	12	51	27	01	49	26	4. 859517
8	6	13	51	17	01	46	25	4. 859582
9	6	14	51	6	01	43	22	4. 859648
10	6	15	50	54	01	40	17	4. 859712
11	6	16	50	41	01	37	11	4. 859776
12	6	17	50	27	01	34	3	4. 859840
13	6	18	50	12	01	30	53	4. 859903
14	6	19	49	56	01	27	42	4. 859966
15	6	20	49	38	01	24	29	4. 860029
16	6	21	49	19	01	21	15	4. 860091
17	6	22	49	0	01	17	59	4. 860152
18	6	23	48	40	01	14	42	4. 860212
19	6	24	48	19	01	11	23	4. 860272
20	6	25	47	56	01	8	4	4. 860331
21	6	26	47	34	01	4	43	4. 860390
22	6	27	47	10	01	1	21	4. 860448
23	6	28	46	44	00	57	58	4. 860505
24	6	29	46	18	00	54	34	4. 860561
25	7	0	45	50	00	51	9	4. 860617
26	7	1	45	22	00	47	43	4. 860671
27	7	2	44	54	00	44	16	4. 860725
28	7	3	44	24	00	40	49	4. 860778
29	7	4	43	53	00	37	20	4. 860830
30	7	5	43	21	00	33	52	4. 860881

Mean Anom	Sign. 10.							
	Longit. ♀ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	7	5	43	21	0	33	52	4. 860881
1	7	6	42	49	0	30	22	4. 860931
2	7	7	42	16	0	26	53	4. 860981
3	7	8	41	42	0	23	22	4. 861030
4	7	9	41	7	0	19	52	4. 861077
5	7	10	40	32	0	16	21	4. 861123
6	7	11	39	56	0	12	50	4. 861169
7	7	12	39	19	0	9	18	4. 861213
8	7	13	38	41	0	5	47	4. 861256
9	7	14	38	2	0	2	15	4. 861299
10	7	15	37	24	South 1		16	4. 861340
11	7	16	36	44	0	4	48	4. 861380
12	7	17	36	3	0	8	19	4. 861420
13	7	18	35	22	0	11	50	4. 861458
14	7	19	34	41	0	15	21	4. 861495
15	7	20	33	58	0	18	52	4. 861530
16	7	21	33	15	0	22	22	4. 861565
17	7	22	32	32	0	25	52	4. 861599
18	7	23	31	48	0	29	21	4. 861631
19	7	24	31	3	0	32	50	4. 861663
20	7	25	30	18	0	36	18	4. 861693
21	7	26	29	33	0	39	46	4. 861722
22	7	27	28	47	0	43	12	4. 861750
23	7	28	28	2	0	46	38	4. 861777
24	7	29	27	15	0	50	3	4. 861802
25	8	0	26	27	0	53	27	4. 861827
26	8	1	25	40	0	56	51	4. 861851
27	8	2	24	51	1	0	13	4. 861873
28	8	3	24	3	1	3	34	4. 861894
29	8	4	23	14	1	6	54	4. 861914
30	8	5	22	25	1	10	12	4. 861932

TABLE of the Heliocentrick Place of *Venus*.

Mean Anom	Sign. 11. Long. ♀ fr. 1 ✱ ♈				South inc.			Dif. fr. ☉ cur.
	s	°	′	″	°	′	″	Logarithm.
0	08	05	22	25	01	10	12	4. 861932
1	08	06	21	46	01	13	30	4. 861950
2	08	07	20	47	01	16	46	5. 861966
3	08	08	19	57	01	20	00	4. 861981
4	08	09	19	07	01	23	13	4. 861995
5	08	10	18	17	01	26	25	4. 862007
6	08	11	17	26	01	29	35	4. 862019
7	08	12	16	36	01	32	44	4. 862029
8	08	13	15	45	01	35	51	4. 862039
9	08	14	14	54	01	38	56	4. 862048
10	08	15	14	03	01	41	59	4. 862055
11	08	16	13	12	01	45	01	4. 862061
12	08	17	12	20	01	48	01	4. 862067
13	08	18	11	29	01	50	58	4. 862071
14	08	19	10	38	01	53	54	4. 862074
15	08	20	09	46	01	56	48	4. 862075
16	08	21	08	54	01	59	40	4. 862076
17	08	22	08	03	02	02	29	4. 862076
18	08	23	07	12	02	05	16	4. 862075
19	08	24	06	20	02	08	02	4. 862072
20	08	25	05	28	02	10	44	4. 862069
21	08	26	04	37	02	13	25	4. 862064
22	08	27	03	46	02	16	03	4. 862059
23	08	28	02	55	02	18	39	4. 862054
24	08	29	02	04	02	21	12	4. 862047
25	09	00	01	13	02	23	43	4. 862038
26	09	01	00	22	02	26	11	4. 862029
27	09	01	59	32	02	28	37	4. 862019
28	09	02	58	41	02	31	00	4. 862009
29	09	03	57	51	02	33	20	4. 861997
30	09	04	57	01	02	35	37	4. 861985

TABLE of the mean Motion of *Mercury* from the *Aphelion*.

Days.	Mot. of the Anomaly. s	°	′	″	H. ′	Motion of the Anom. °	′	″	H. ′	Motion of the Anom. °	′	″
1	0	4	5	32		0	16	14	31	5	37	9
2	0	8	10	5		0	30	28	32	5	17	23
3	0	12	16	37	1	0	30	42	33	5	33	37
4	0	16	22	10	2	0	40	55	34	5	48	51
5	0	20	27	42	3	0	51	9	35	5	58	5
6	0	24	33	14	4	1	01	23	36	6	8	19
7	0	28	38	47	5	1	11	37	37	6	18	32
8	1	2	44	19	6	1	21	51	38	6	28	46
9	1	6	49	52	7	1	32	5	39	6	39	0
10	1	10	55	24	8	1	42	18	40	6	49	14
11	1	15	0	56	9	1	52	32	41	6	59	28
12	1	19	6	29	10	2	02	46	42	7	9	42
13	1	23	12	1	11	2	13	0	43	7	19	46
14	1	27	17	34	12	2	23	14	44	7	30	9
15	2	1	23	6	13	2	33	28	45	7	40	23
16	2	5	28	38	14	2	43	42	46	7	50	37
17	2	9	34	11	15	2	53	55	47	8	0	51
18	2	13	39	43	16	3	4	9	48	8	11	5
19	2	17	45	16	17	3	14	23	49	8	21	19
20	2	21	50	48	18	3	24	37	50	8	31	32
21	2	25	56	20	19	3	34	51	51	8	41	46
22	3	0	1	53	20	3	45	5	52	8	52	0
23	3	4	7	25	21	3	55	19	53	9	2	14
24	3	8	12	58	22	4	5	32	54	9	12	28
25	3	12	18	30	23	4	15	46	55	9	22	42
26	3	16	24	2	24	4	26	0	56	9	32	56
27	3	20	29	35	25	4	36	14	57	9	43	9
28	3	24	35	7	26	4	46	28	58	9	53	23
29	3	28	40	40	27	4	56	42	59	10	3	37
30	4	2	46	12	28	5	6	55	60	10	13	51
31	4	6	51	44	29							
32	4	10	57	17	30							

	s	°	′	″
Long. of the Aph. ☿ from 1 ✱ ♈	7	13	48	0
Longit. ☊ ☿ from the 1 ✱ ♈	0	15	42	0
Inclination of the Orbit ☿		6	54	0
Mean Distance ☿ from ☉		38710.		
Eccentricity		7970		

TABLE of the mean Motion of *Mercury*, from the *Aphelion*.

Years of Christ current.	Anomaly of ☿ s	°	′	″	In the Years	Mot. of the Anom. s	°	′	″
1	3	1	32	0	1	1	23	42	7
1501	3	9	2	0	2	3	17	24	14
1581	5	7	2	0	3	5	11	6	21
1601	5	21	32	0	4	7	8	54	0
1621	6	6	2	0	5	9	2	36	7
1641	6	20	32	0	6	10	26	18	14
1661	7	5	2	0	7	0	20	0	21
1681	7	19	32	0	8	2	17	48	0
1701	8	4	2	0	9	4	11	30	7
1721	8	18	32	0	10	6	5	12	14
1741	9	3	2	0	11	7	28	54	21
1761	9	17	32	0	12	9	26	42	0
1781	10	2	2	0	13	11	20	24	7
1801	10	16	32	0	14	1	14	6	14
1901	0	29	2	0	15	3	7	48	21
2001	3	11	32	0	16	5	5	36	0
In the Years	Motion of the Anomaly.				17	6	29	18	7
					18	8	23	0	14
20	0	14	30	0	19	10	16	42	21
40	0	29	0	0	20	0	14	30	0
60	1	13	30	0	Months of the common Year	Mot. of the Anom. s	°	′	″
80	1	28	0	0					
100	2	12	30	0	*January*	0	0	0	0
200	4	25	0	0	*February*	4	6	51	44
300	7	7	30	0	*March*	8	1	26	52
400	9	20	0	0	*April*	0	8	18	36
500	0	2	30	0	*May*	4	11	4	48
600	2	15	0	0	*June*	8	17	56	33
700	4	27	30	0	*July*	0	20	42	45
800	7	10	0	0	*August*	4	27	34	29
900	9	22	30	0	*September*	9	4	26	14
1000	0	5	0	0	*October*	1	7	12	26
2000	0	10	0	0	*November*	5	14	4	10
3000	0	15	0	0	*December*	9	16	50	22
4000	0	20	0	0	In the Bissextile Year, after *February*, add a Day, and the Motion of a Day.				
5000	0	25	0	0					
6000	1	0	0	0					

TABLE of the Heliocentrick Place of *Mercury*.

Mean Anom	Sign. 0. Long. ☿ fr. 1 ✱ ♈				South. inc.			Dif. fr. ☉ cur.
	s	°	′	″	°	′	″	Logarithm.
0	07	13	37	38	03	14	38	6. 668435
1	07	14	17	50	03	18	54	6. 668395
2	07	14	58	04	03	23	9	6. 668340
3	07	15	38	18	03	27	22	6. 668269
4	07	16	18	34	03	31	34	6. 668184
5	07	16	58	49	03	35	43	6. 668082
6	07	17	39	06	03	39	51	6. 667963
7	07	18	19	24	03	43	58	6. 667829
8	07	18	59	45	03	48	2	6. 667678
9	07	19	40	06	03	52	5	6. 667512
10	07	20	20	29	03	56	6	6. 667330
11	07	21	00	54	04	00	6	6. 667132
12	07	21	41	21	04	04	3	6. 666918
13	07	22	21	51	04	07	59	6. 666687
14	07	23	02	23	04	11	53	6. 666441
15	07	23	42	58	04	15	45	6. 666180
16	07	24	23	35	04	19	34	6. 665904
17	07	25	04	14	04	23	22	6. 665610
18	07	25	44	58	04	27	9	6. 665301
19	07	26	25	44	04	30	53	6. 664976
20	07	27	06	34	04	34	35	6. 664636
21	07	27	47	27	04	38	15	6. 664280
22	07	28	28	25	04	41	53	6. 663908
23	07	29	09	26	04	45	29	6. 663522
24	07	29	50	31	04	49	3	6. 663119
25	08	00	31	40	04	52	34	6. 662700
26	08	01	12	54	04	59	4	6. 662266
27	08	01	54	12	04	59	31	6. 661817
28	08	02	35	35	05	02	56	6. 661351
29	08	03	17	03	05	06	19	6. 660870
30	08	03	58	36	05	09	40	6. 660373

TABLES of the Heliocentrick Place of *Mercury*.

Mean Anom	Sign. 1.							
	Long. ☿ fr. 1 ✱ ♈				South. inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	08	03	58	36	05	9	40	4. 660373
1	08	4	40	16	05	12	58	4. 659860
2	08	5	22	1	05	16	14	4. 659332
3	08	6	3	51	05	19	27	4. 658789
4	08	6	45	47	05	22	38	4. 658231
5	08	7	27	50	05	25	47	4. 657656
6	08	8	9	56	05	28	53	4. 657066
7	08	8	52	15	05	31	57	4. 656459
8	08	9	34	37	05	34	58	4. 655838
9	08	10	17	6	05	37	57	4. 655201
10	08	10	59	41	05	40	53	4. 654549
11	08	11	42	24	05	43	46	4. 653882
12	08	12	25	15	05	46	37	4. 653199
13	08	13	8	15	05	49	25	4. 652500
14	08	13	51	22	05	52	10	4. 651787
15	08	14	34	37	05	54	52	4. 651059
16	08	15	18	1	05	57	32	4. 650314
17	08	16	1	33	06	0	8	4. 649555
18	08	16	45	14	06	2	41	4. 648780
19	08	17	29	4	06	5	12	4. 647989
20	08	18	13	4	06	7	40	4. 647183
21	08	18	57	15	06	10	4	4. 646363
22	08	19	41	35	06	12	25	4. 645526
23	08	20	26	5	06	14	44	4. 644674
24	08	21	10	45	06	16	58	4. 643808
25	08	21	55	36	06	19	10	4. 642925
26	08	22	40	37	06	21	18	4. 642028
27	08	23	25	50	06	23	23	4. 641115
28	08	24	11	14	06	25	25	4. 640187
29	08	24	56	51	06	27	22	4. 639244
30	08	25	42	39	06	29	17	4. 638286

Mean Anom	Sign 2.							
	Long. ☿ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	8	25	42	39	6	29	17	4. 638286
1	8	26	28	39	06	31	7	4. 637312
2	8	27	14	51	06	32	54	4. 636323
3	8	28	1	17	06	34	37	4. 635320
4	8	28	47	57	06	36	17	4. 634303
5	8	29	34	39	06	37	52	4. 633270
6	9	0	21	54	06	39	24	4. 632221
7	9	1	9	14	06	40	51	4. 631158
8	9	1	56	48	06	42	14	4. 630081
9	9	2	44	37	06	43	33	4. 628988
10	9	3	32	40	06	44	48	4. 627880
11	9	4	21	0	06	45	59	4. 626757
12	9	5	9	33	06	47	5	4. 625620
13	9	5	58	22	06	48	6	4. 624469
14	9	6	47	29	06	49	3	4. 623302
15	9	7	36	51	06	49	55	4. 622121
16	9	8	26	30	06	50	43	4. 620926
17	9	9	16	26	06	51	25	4. 619717
18	9	10	6	39	06	52	3	4. 618492
19	9	10	57	10	06	52	36	4. 617253
20	9	11	48	0	06	53	3	4. 616001
21	9	12	39	7	06	53	25	4. 614734
22	9	13	30	34	06	53	42	4. 613454
23	9	14	22	20	06	53	53	4. 612159
24	9	15	14	24	06	53	59	4. 610851
25	9	16	6	49	06	53	59	4. 609529
26	9	16	59	33	06	53	54	4. 608194
27	9	17	52	38	06	53	42	4. 606845
28	9	18	46	5	06	53	25	4. 605482
29	9	19	39	52	06	53	1	4. 604107
30	9	20	34	1	06	52	31	4. 602718

Mean Anom	Sign 3.							
	Long. ☿ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	9	20	34	1	6	52	31	4. 602718
1	9	21	28	31	06	51	55	4. 601318
2	9	22	23	25	06	51	12	4. 599905
3	9	23	18	40	06	50	23	4. 598478
4	9	24	14	18	06	49	27	4. 597040
5	9	25	10	20	06	48	25	4. 595590
6	9	26	6	45	06	47	15	4. 594129
7	9	27	3	34	06	45	58	4. 592655
8	9	28	0	47	06	44	34	4. 591170
9	9	28	58	26	06	43	2	4. 589674
10	9	29	56	30	06	41	24	4. 588166
11	10	0	54	59	06	39	37	4. 586648
12	10	1	54	54	06	37	43	4. 585119
13	10	2	53	14	06	35	41	4. 583581
14	10	3	53	1	06	33	31	4. 582034
15	10	4	53	16	06	31	12	4. 580478
16	10	5	53	56	06	28	46	4. 578912
17	10	6	55	5	06	26	11	4. 577338
18	10	7	5[illegible]	42	06	23	27	4. 575755
19	10	8	5[illegible]	46	06	20	35	4. 574164
20	10	10	1	19	06	17	34	4. 572565
21	10	11	4	21	06	14	24	4. 570960
22	10	12	7	53	06	11	5	4. 569348
23	10	13	11	54	06	7	36	4. 567730
24	10	14	16	24	06	3	59	4. 566107
25	10	15	21	24	06	0	12	4. 564479
26	10	16	26	54	05	56	15	4. 562845
27	10	17	32	55	05	52	9	4. 561207
28	10	18	39	27	05	47	51	4. 559567
29	10	19	46	30	05	43	26	4. 557924
30	10	20	54	4	05	38	50	4. 556279

Mean Anom	Sign 4.							
	Long. ☿ fr. 1 ✱ ♈				South Inc.			Dif. fr. ☉ cur.
°	s	°	′	″	°	′	″	Logarithm.
0	10	20	54	4	5	38	50	4. 556279
1	10	22	2	10	05	34	4	4. 554631
2	10	23	10	48	05	29	7	4. 552984
3	10	24	19	58	05	24	1	4. 551335
4	10	25	29	39	05	18	44	4. 549687
5	10	26-	39	53	05	13	16	4. 548040
6	10	27	50	40	05	7	38	4. 546395
7	10	29	1	58	05	1	49	4. 544752
8	11	0	13	49	04	55	50	4. 543114
9	11	1	26	14	04	49	40	4. 541479
10	11	2	39	12	04	43	19	4. 539849
11	11	3	52	42	04	36	48	4. 538226
12	11	5	6	46	04	30	6	4. 536608
13	11	6	21	23	04	23	13	4. 534999
14	11	7	36	32	04	16	10	4. 533397
15	11	8	52	15	04	8	56	4. 531805
16	11	10	8	31	04	1	31	4. 530225
17	11	11	25	20	03	53	56	4. 528655
18	11	12	42	42	03	46	11	4. 527097
19	11	14	0	38	03	38	15	4. 525553
20	11	15	19	5	03	30	8	4. 524023
21	11	16	38	5	03	21	52	4. 522509
22	11	17	57	38	03	13	26	4. 521011
23	11	19	17	42	03	4	50	4. 519531
24	11	20	38	18	02	56	4	4. 518069
25	11	21	59	26	02	47	9	4. 516626
26	11	23	21	5	02	38	4	4. 515205
27	11	24	43	16	02	28	51	4. 513806
28	11	26	5	58	02	19	29	4. 512430
29	11	27	29	9	02	9	58	4. 511079
30	11	28	52	50	02	0	20	4. 509752

TABLES of the Heliocentrick Place of *Mercury*.

Mean Anom	Sign 5.							
	Longit. ☿ from 1 ✱ ♈				Southern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	11	28	52	50	2	0	20	4. 509752
1	0	0	17	0	1	50	33	4. 508451
2	0	1	41	39	1	40	39	4. 507179
3	0	3	6	47	1	30	38	4. 505935
4	0	4	32	22	1	20	31	4. 504721
5	0	5	58	25	1	10	16	4. 503537
6	0	7	24	54	0	59	56	4. 502386
7	0	8	51	49	0	49	31	4. 501268
8	0	10	19	9	0	39	1	4. 500185
9	0	11	46	55	0	28	26	4. 499137
10	0	13	15	3	0	17	47	4. 498126
11	0	14	43	35	0	7	4	4. 497152
12	0	16	12	30	Nor.	3	41	4. 496217
13	0	17	41	45	0	14	29	4. 495321
14	0	19	11	21	0	25	19	4. 494467
15	0	20	41	16	0	36	10	4. 493655
16	0	22	11	30	0	47	2	4. 492885
17	0	23	42	2	0	57	54	4. 492158
18	0	25	12	50	1	8	45	4. 491476
19	0	26	43	54	1	19	35	4. 490840
20	0	28	15	13	1	30	24	4. 490248
21	0	29	46	45	1	41	10	4. 489702
22	1	1	18	30	1	51	54	4. 489204
23	1	2	50	26	2	2	33	4. 488755
24	1	4	22	32	2	13	9	4. 488354
25	1	5	54	47	2	23	39	4. 488003
26	1	7	27	10	2	34	4	4. 487702
27	1	8	59	41	2	44	23	4. 487451
28	1	10	32	16	2	54	36	4. 487252
29	1	12	4	55	3	4	41	4. 487104
30	1	13	37	38	3	14	38	4. 487008

Mean Anom	Sign 6.							
	Longit. ☿ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	1	13	37	38	3	14	38	4. 487008
1	1	15	10	23	3	24	27	4. 486962
2	1	16	43	8	3	34	7	4. 486969
3	1	18	15	52	3	43	36	4. 487029
4	1	19	48	35	3	52	56	4. 487140
5	1	21	21	14	4	2	5	4. 487304
6	1	22	53	48	4	11	3	4. 487521
7	1	24	26	17	4	19	50	4. 487789
8	1	25	58	40	4	28	24	4. 488109
9	1	27	30	55	4	36	46	4. 488481
10	1	29	3	0	4	44	55	4. 488905
11	2	0	34	53	4	52	51	4. 489378
12	2	2	6	36	5	0	33	4. 489901
13	2	3	38	6	5	8	1	4. 490474
14	2	5	9	21	5	15	15	4. 491097
15	2	6	40	21	5	22	14	4. 491768
16	2	8	11	5	5	28	58	4. 492488
17	2	9	41	32	5	35	27	4. 493254
18	2	11	11	38	5	41	42	4. 494068
19	2	12	41	26	5	47	40	4. 494928
20	2	14	10	54	5	53	23	4. 495835
21	2	15	40	0	5	58	51	4. 496782
22	2	17	8	43	6	4	3	4. 497773
23	2	18	37	2	6	8	58	4. 498807
24	2	20	4	58	6	13	38	4. 499882
25	2	21	32	28	6	18	3	4. 500997
26	2	22	59	32	6	22	11	4. 502151
27	2	24	26	8	6	26	3	4. 503342
28	2	25	52	17	6	29	40	4. 504569
29	2	27	17	57	6	33	1	4. 505832
30	2	28	43	10	6	36	7	4. 507129

Mean Anom	Sign 7.							
	Longit. ☿ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	3	28	43	10	6	36	7	4. 507129
1	3	0	7	52	6	38	57	4. 508458
2	3	1	32	3	6	41	32	4. 509819
3	3	2	55	46	6	43	51	4. 511209
4	3	4	18	56	6	45	56	4. 512629
5	3	5	41	33	6	47	46	4. 514078
6	3	7	3	38	6	49	21	4. 515553
7	3	8	25	9	6	50	42	4. 517052
8	3	9	46	9	6	51	48	4. 518576
9	3	11	6	34	6	52	41	4. 520121
10	3	12	26	25	6	53	20	4. 521688
11	3	13	45	44	6	53	46	4. 523276
12	3	15	4	28	6	53	59	4. 524882
13	3	16	22	36	6	53	58	4. 526505
14	3	17	40	10	6	53	45	4. 528144
15	3	18	57	10	6	53	20	4. 529798
16	3	20	13	35	6	52	43	4. 531467
17	3	21	29	23	6	51	54	4. 533148
18	3	22	44	37	6	50	54	4. 534841
19	3	23	59	16	6	49	43	4. 536543
20	3	25	13	19	6	48	21	4. 538255
21	3	26	26	48	6	46	48	4. 539975
22	3	27	39	42	6	45	6	4. 541702
23	3	28	52	1	6	43	13	4. 543434
24	4	0	3	45	6	41	11	4. 545172
25	4	1	14	55	6	38	59	4. 546914
26	4	2	25	30	6	36	39	4. 548659
27	4	3	35	30	6	34	9	4. 550406
28	4	4	44	56	6	31	32	4. 552154
29	4	5	53	48	6	28	46	4. 553902
30	4	7	2	8	6	25	52	4. 555650

Mean Anom	Sign 8.							
	Longit. ☿ from 1 ✱ ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	4	7	2	8	6	25	52	4. 555650
1	4	8	9	53	6	22	51	4. 557396
2	4	9	17	4	6	19	43	4. 559139
3	4	10	23	44	6	16	27	4. 560881
4	4	11	29	49	6	13	5	4. 562618
5	4	12	35	23	6	9	36	4. 564352
6	4	13	40	25	6	6	1	4. 566080
7	4	14	44	54	6	2	20	4. 567801
8	4	15	48	52	5	58	33	4. 569516
9	4	16	52	21	5	54	41	4. 571225
10	4	17	55	17	5	50	43	4. 572926
11	4	18	57	44	5	46	41	4. 574619
12	4	19	59	59	5	42	33	4. 576302
13	4	21	1	5	5	38	21	4. 577977
14	4	22	2	2	5	34	4	4. 579641
15	4	23	2	30	5	29	44	4. 581295
16	4	24	2	31	5	25	19	4. 582939
17	4	25	2	3	5	20	50	4. 584570
18	4	26	1	5	5	16	18	4. 586191
19	4	26	59	42	5	11	42	4. 587801
20	4	27	57	52	5	7	52	4. 589398
21	4	28	55	35	5	2	21	4. 590983
22	4	29	52	52	4	57	36	4. 592555
23	5	0	49	44	4	52	48	4. 594113
24	5	1	46	9	4	47	57	4. 595658
25	5	2	42	9	4	43	4	4. 597188
26	5	3	37	47	4	38	8	4. 598705
27	5	4	32	57	4	33	10	4. 600207
28	5	5	27	48	4	28	11	4. 601696
29	5	6	22	14	4	23	9	4. 603169
30	5	7	16	16	4	18	5	4. 604628

TABLES of the Heliocentrick Place of *Mercury*.

Mean Anom	Sign. 9.							
	Longit. ☿ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	5	7	16	16	4	18	5	4. 604628
1	5	8	9	56	4	13	0	4. 606072
2	5	9	3	14	4	7	53	4. 607500
3	5	9	56	10	4	2	44	4. 608914
4	5	10	48	45	3	57	34	4. 610311
5	5	11	40	58	3	52	23	4. 611693
6	5	12	32	51	3	47	10	4. 613059
7	5	13	24	24	3	41	57	4. 614408
8	5	14	15	38	3	36	42	4. 615743
9	5	15	6	31	3	31	27	4. 617060
10	5	15	57	6	3	26	10	4. 618362
11	5	16	47	23	3	20	53	4. 619647
12	5	17	37	21	3	15	36	4. 620916
13	5	18	27	0	3	10	17	4. 622168
14	5	19	16	22	3	4	58	4. 623404
15	5	20	5	27	2	59	39	4. 624623
16	5	20	54	15	2	54	19	4. 625825
17	5	21	42	47	2	48	59	4. 627011
18	5	22	31	3	2	43	39	4. 628180
19	5	23	19	3	2	38	18	4. 629332
20	5	24	6	48	2	32	57	4. 630468
21	5	24	54	17	2	27	36	4. 631587
22	5	25	41	31	2	22	16	4. 632688
23	5	26	28	31	2	16	55	4. 633772
24	5	27	15	17	2	11	34	4. 634841
25	5	28	1	48	2	6	13	4. 635892
26	5	28	48	6	2	0	52	4. 636927
27	5	29	34	12	1	55	32	4. 637943
28	6	0	20	4	1	50	12	4. 638943
29	6	1	5	43	1	44	52	4. 639927
30	6	1	51	11	1	39	32	4. 640894

Mean Anom	Sign 10.							
	Longit. ☿ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	6	1	51	11	1	39	32	4. 640894
1	6	2	36	26	1	34	13	4. 641844
2	6	3	21	30	1	28	54	4. 642777
3	6	4	6	22	1	23	35	4. 643693
4	6	4	51	3	1	18	17	4. 644592
5	6	5	35	33	1	13	0	4. 645474
6	6	6	19	53	1	7	43	4. 646340
7	6	7	4	1	1	2	26	4. 647188
8	6	7	48	0	0	57	10	4. 648019
9	6	8	31	50	0	51	55	4. 648834
10	6	9	15	31	0	46	40	4. 649632
11	6	9	59	1	0	41	26	4. 650412
12	6	10	42	23	0	36	13	4. 651177
13	6	11	25	35	0	31	0	4. 651924
14	6	12	8	39	0	25	48	4. 652655
15	6	12	51	35	0	20	37	4. 653369
16	6	13	34	23	0	15	26	4. 654066
17	6	14	17	3	0	10	17	4. 654745
18	6	14	59	36	0	5	8	4. 655410
19	6	15	42	2	South 0		0	4. 656057
20	6	16	24	20	0	5	7	4. 656688
21	6	17	6	30	0	10	13	4. 657301
22	6	17	48	35	0	15	19	4. 657899
23	6	18	30	33	0	20	23	4. 658479
24	6	19	12	26	0	25	27	4. 659044
25	6	19	54	12	0	30	29	4. 659592
26	6	20	35	52	0	35	31	4. 660123
27	6	21	17	27	0	40	32	4. 660637
28	6	21	58	56	0	45	31	4. 661134
29	6	22	40	20	0	50	30	4. 661615
30	6	23	21	40	0	55	27	4. 662081

Mean Anom	Sign. 11.							
	Longit. ☿ from ♈				Northern Inc.			Dist. from ☉ curr.
°	s	°	′	″	°	′	″	Logarithm.
0	6	23	21	40	0	55	27	4. 662081
1	6	24	2	54	1	0	24	4. 662529
2	6	24	44	4	1	5	19	4. 662961
3	6	25	25	9	1	10	13	4. 663376
4	6	26	6	10	1	15	6	4. 663775
5	6	26	47	6	1	19	58	4. 664157
6	6	27	28	0	1	24	49	4. 664524
7	6	28	8	49	1	29	39	4. 664873
8	6	28	49	35	1	34	27	4. 665206
9	6	29	30	18	1	39	14	4. 665523
10	7	0	10	58	1	44	0	4. 665824
11	7	0	51	34	1	48	45	4. 666109
12	7	1	32	8	1	53	29	4. 666377
13	7	2	12	40	1	58	11	4. 666629
14	7	2	53	8	2	2	52	4. 666865
15	7	3	33	34	2	7	32	4. 667084
16	7	4	13	59	2	12	10	4. 667287
17	7	4	54	22	2	16	47	4. 667474
18	7	5	34	44	2	21	23	4. 667646
19	7	6	15	4	2	25	57	4. 667800
20	7	6	55	21	2	30	30	4. 667939
21	7	7	35	37	2	35	1	4. 668060
22	7	8	15	53	2	39	31	4. 668166
23	7	8	56	9	2	44	0	4. 668257
24	7	9	36	22	2	48	27	4. 668330
25	7	10	16	35	2	52	53	4. 668388
26	7	10	56	48	2	57	17	4. 668429
27	7	11	37	1	3	1	39	4 668453
28	7	12	17	13	3	6	0	4. 668463
29	7	12	57	26	3	10	20	4. 668456
30	7	13	37	38	3	14	38	4. 668435

Calculus of the Place of the Moon in the Month of *March*, of the Year P. J. 4710.

		Mean Motion of the M.				Apog.				Node retrog.			
		s	°	′	″	s	°	′	″	s	°	′	″
Years of Christ	1.	4	2	2	45	9	12	7	5	8	28	35	35
Before Christ	4. S.	5	20	42	49	5	12	46	7	2	17	22	3
Remain.		10	11	19	56	3	29	21	1	11	15	57	38
March. Days	12.	7	5	31	26	0	7	54	36	0	3	45	36
H.	15.		8	14	7	0	0	4	11	0	0	1	59
Min.	46.			25	15				13				6
										0	3	47	41
Mean Motion		5	26	30	44	4	7	20	1	11	12	9	57
Mean Anom. of the Sun		9	4	28	37	11	20	24	39	11	20	24	39
Physical Parts S.		0	0	11	27	True place of the S.				True place of the S.			
Place M. cor.		5	25	19	17	7	13	4	36	8	14	42	
Apog substract		4	18	42	18	Argum. of the year				Dist. of the S. from the Node		27	49
Mean Anom.		1	6	36	59	11	22	17		Equat. add			
Equat. substract		0	3	37	17	Equat. add				11	12	37	46
Place of the Equat. in the Orbit		5	21	42	0	4	18	42	18	True place of the Node			
True Place of the Sun		11	20	24	39	Place of the true Ap. great Eccentric				5	17	37	
Distance from the Sun		6	1	17	21	66850				Inclin. of the Lim.			
Variat. add		0	0	1	43	True Eccentric							
True Place in the Orbit		5	21	43	43	56016							
Place of the Node		11	12	37	46	Mean	55237						
Argum. of Latitude		6	9	5	57	Diff.	779						
Reduct S.		0	0	2	16	Mean and great Diff.							
True Place in the Eclipt.		5	21	41	27	11617							
True southern Lat.		0	0	50	14								

Horary Motion of the Moon 30 31.
Horary Motion of the Sun 2 27.
Horary Motion from the Sun 28 4.
1684 : 60 : : 4744 : h 2 ′ 49.
Whence the Time of the true Sizigy, was h 12 ′57.

Calculus of the Place of the Moon, at the Time of the true Syzygy, A. P. J. 4710.

		Mean Motion of the M.				Apog.				Node retrogr.			
		s	°	′	″	s	°	′	″	s	°	′	″
Year of Christ	1.	4	2	2	46	9	12	7	5	8	28	35	35
Before Christ	4. S.	5	20	42	49	5	12	46	4	2	17	22	3
Remain		10	11	19	56	3	29	21	1	11	15	57	38
March. Days	12.	7	5	31	26	0	7	54	36	0	3	45	36
H.	12.		6	35	18			3	21			1	35
Min.	57.			31	18				16				8
										0	3	47	19
Mean Motion		5	23	57	48	4	7	19	14	11	12	10	19
Mean Anom. of the Sun		9	4	21	40	11	20	17	44	11	20	17	44
Physical Parts S.		0	0	11	27	True place of the S.				True place of the S.			
Place of the M. cor.		5	23	46	31	7	12	58	30	0	8	7	25
Apog. subt.		4	18	40	51	Argum. of the year				Dist. of the S. from the Node			
Mean Anom.		1	5	5	40	11	21	37		Equat. add.		27	26
Equat. subt.		0	3	27	55	Equat. add.				11	12	37	45
Place of the Equat. in the Orbit		5	20	18	36	4	18	40	51	True place of the nod.			
True Place of the Sun		11	20	17	44	True place of the Ap.				5	17	37	
Distance of the M. from the S.		6	0	0	52	great Eccent.	66850			Inclinat. of the Limit.			
Variat. add		0	0	0	1	True	56057						
True Place in the Orbit		5	20	18	37	Mean	55237						
Node subt.		11	12	37	45	Diff.	820						
Argum. of Lat.		6	7	40	52	Mean and great Diff.							
Reduct. subt.		0	0	1	56	11617							
True Place in the Eclipt.		5	20	16	41								
True South Latit.		0	0	40	4								

Therefore the apparent Time of the true Sizygy in the Orbit, 12 h. 46′ 16″, the Reduction to be substracted 4′ 50″, then the apparent Time of the lesser Distance of the Centres 12 h. 41′ 6″, or of *March*, 13°, a little after 12 at Noon, at the Meridian of *London*, but at the Meridian of *Jerusalem* the lesser Distance of the Centres, was 3 h. 21′ 26″ after Noon.

Horizont. parall. of the M.	55 18
—— of the Sun to be add.	0 10
Sum.	55 28
Of the Semid. of the S. to be subst.	16 4
—— Semid. of the Shadow,	39 24
—— Semid. of the Moon,	14 59
Sum of both,	54 23
Equat. of Time to be added to the former,	7 37
—— to the latter,	3 7
Sum to be substract. here	10 44
Sum of the Semid.	54 23
Dist. of the lest. Centre	40 4
Diff.	14 19

14′ 59″ : 6 Dig. 14′ 19″, 5 Dig. 28′, 54′ 23″, 10000, 40′ 4″ : 7367 = Cosin. 42° 33′ = Angle of Incid. 10000 : 6762 : : 3263″ : 2206″ = to the Motion of the half Stay 1684″ : 60′ : 2206″ : 49′ = 1 h. 19′ = to the Time of the half Stay; Angle of the Way seen with the Eclypt. 5. 43′.

Calculus of the Place of the Moon in the Month of *April*, A. D. 1707.

	Mean Motion of the M.				Apog.				Nod. Retrog.			
	s	°	′	″	s	°	′	″	s	°	′	″
Radix 1701.	10	15	19	50	11	8	18	20	4	27	24	20
Years 6.	2	9	28	55	8	4	5	44				
April Days 5.	5	21	45	27	0	10	35	2	3	26	1	29
H. 13.	0	7	8	14	0	0	3	37	0	5	1	51
Min. 46.	0	0	25	25	0	0	0	13	0	0	1	43
									0	0	0	6
									4	1	5	9
Mean Motion	6	24	7	41	7	23	2	56	0	26	19	11
Mean Anom. of the Sun	9	17	43	41	0	26	14	57	0	26	14	57
Physical Parts S.	0	0	10	53	True Place of the Sun				True Place of the Sun			
Place M. cor.	6	23	56	48	5	3	12	1	11	29	55	46
Apog. Subst.	7	14	42	23	Argum. of the Year				Dist. of S. fr. the Nod.			
Mean Anom.	11	9	14	25		8	20	33		0	0	5
Equat. add.	0	2	21	0	Equat. Subst.				Equat. add.			
Place of the Equat. in the Orbit	6	26	17	48	7	14	42	23		26	19	16
True Place of the Sun	0	26	14	57	True Place of Apog.				True Place of Nod.			
Distance from the Sun	6	0	2	51	Great Eccent. 66850					5	18	0
Var. add.	0	0	0	1	True 62131				Inclin. of the Lim.			
True Place in the Orbit	6	26	17	49	Mean 55237							
Nod. Subst.	0	26	19	16	Differ. 06894							
Argum. of Latit.	5	29	58	33	Mean and great Differ. 11617							
Reduct. add.	0	0	0	0								
True Place in the Ecliptick	6	26	17	49								
True Northern Latitude	0	0	0	8								

	′	″
Former Equat. add.	7	15
Latter Equat. Subst.	7	39
Equat. here add.	0	24
Therefore the apparent Time		
Of the Beginning	11 42	42
Middle	13 40	9
End	15 37	36

	′	″
Horary Motion of the Moon	29	56
Horary Motion of the Sun	2	26
Horary Motion of the Moon from the Sun	27	30
1650″ : 60′ :: 172 : 6¼. whence the Difference of Time to be substracted 6¼. and the Middle of the Eclipse happened 13 H. 39′ 45″		
Horizontal Parallax of the Moon	54	48
——— of the Sun add.	0	10
Sum	54	58
Semid. of the Sun Subst.	16	1
Semid. of the Shadow	38	57
Semid. of the Moon	14	52
Sum	53	49
27. 5 : 60 :: 53.8 : 117,⅛ 1 H. 57 7/8′ whence the Duration is 3 H. 55′.		
the Beginning 11 H. 42′ 18″		Mean
The End 15 H. 37′ 12″		Time

Calculus of the Place of the Moon at the Time of the mean Syzygy in the Month of *August*, A. P. J. 4283.

	Mean Motion of the M.				Apog.				Nod. Retrog.			
	s	°	′	″	s	°	′	″	s	°	′	″
Year of Christ. 1.	4	2	2	46	9	12	7	5	8	28	35	35
Before Christ 400.	5	1	21	40	2	16	45	0	5	26	45	7
20.	4	13	34	5	3	3	50	15	0	26	50	15
11.	0	9	34	48	2	27	31	38	7	2	43	16
Sum from the Root S.	9	24	30	33	8	18	6	53				
Mean Motion.	6	7	32	12	0	24	0	12	10	24	54	13
Aug. D. 1	9	16	34	19	0	23	43	47	0	11	16	47
H. 22	0	12	4	42	0	0	6	8	0	0	2	55
′ 11	0	0	6	2	0	0	0	3	0	0	0	1
″ 34	0	0	0	19								
									0	11	19	43
Mean Motion	4	6	17	34	1	17	50	10	10	13	34	30
Mean Anom. of the Sun	1	28	8	26	4	4	35	47	4	4	35	47
Physical Parts add.	0	0	9	39	True Place of the Sun				True Place of the Sun			
Place M. cor.	4	6	27	13	2	16	45	37	5	21	1	17
Apog. Subst.	1	24	11	47	Argum. of the Year				Dist. of S. from Nod.			
Mean Anom.	2	12	15	26		6	21	37		0	30	8
Equat. Substract.	0	4	48	14	Equat. add.				Equat. Subst.			
Place of the Equat in the Orbit	4	1	38	59	1	24	11	47	10	13	4	22
True Place of the Sun	4	4	35	47	True Place of Apog.				True Place of Nod.			
Distance from the Sun	11	27	3	12						5	17	34
Variat. Subst.	0	0	3	54					Inclin. of the Lim			
True Place in the Orbit	4	1	35	5								
Nod. Subst.	10	13	4	22								
Argum. of Latit.	5	18	30	43								
Reduct. add.	0	0	2	51								
True Place in the Eclipt.	30	1	37	56								
True North Latitude	0	1	3	11								

Less	43619
Mean Eccent.	55237
True Eccent.	44838
Diff.	10399
Mean and less Diff.	11617
4 4 35 47 True Place of the Sun.	
4 1 35 5 True Place of the Moon in the Orbit.	
Diff. 3 0 42	
Horary Motion of the Moon	32 34
Horary Motion of the Sun	2 25
Horary Motion of the M. from the S.	30 9
Difference of Time added	5 59 6

Calculus of the Place of the Moon at the Time of the true Syzygy, in the Month of *August*, A. P. J. 4283.

	Mean Motion of the M.				Apog.				Nod. Retrog.			
	s	°	′	″	s	°	′	″	s	°	′	″
Year of Christ — 1.	4	2	2	45	9	12	7	5	8	28	35	35
Before Christ — 400.	5	1	21	40	2	16	45	0	5	26	45	7
20.	4	13	34	5	3	3	50	15	0	26	50	15
11.	0	9	34	48	2	27	31	38	7	2	43	26
Sum from the Root S.	9	24	30	33	8	18	6	53				
Mean Motion.	6	7	32	12	0	24	0	12	10	24	54	13
August. Days 2.	9	29	44	54	0	23	50	28	0	11	19	58
H. 4.	0	2	11	46	0	0	1	7	0	0	0	32
Min. 11.	0	0	6	2				3				1
									0	11	20	31
Mean Motion	4	09	34	54	1	17	51	50	10	13	33	42
Mean Anom. of the Sun	1	28	28	17	4	4	50	22	4	4	50	22
Physical Parts add.	0	0	9	41	True Place of the Sun							
Place of M. cor.	4	9	44	35	2	16	58	32	True Place of the Sun			
Apog. subt.	1	24	8	7	Argum. of the Year				5	21	16	40
Mean Anom.	2	15	36	28		6	16	17	Dist. of S. from Nod.			
Equat. subt.	0	4	53	48	Equat. add.				Equat. sub. 29			20
Place of the Equat. in the Orbit	4	4	50	47	1	24	8	7	10	13	24	22
True Place of the Sun	4	4	50	22	True Place of Apog.				True Place of Node			
Distance from the Sun	0	0	0	25						5	17	13
Variat. add	0	0	0	0					Inclina. of the Limit			
True Place in the Orbit	4	4	50	47								
Node subt.	10	13	4	22								
Argum. of Lat.	5	21	46	25								
Reduct. subt.			2	3								
True Place in the Eclipt.	4	4	52	50								
True Nothern Lat.	0	0	42	56								

Mean Eccentricity		55237
True		44790
Differ.		10447
Mean and less Differ.		11617
	′	″
Horary Motion of the Moon	32	34
Horary Motion of the Sun	2	25
Horary Mot. of the M. from the S.	30	9
Former Equat. subt.	6	28
Latter add	9	24
Difference here subt.	2	56
Reduct. subt.	4	11
Mean dist. of the cent.	4 H. 2′	53″
Apparent Time after Noon		
Horizontal parallax of the M.	57	15
Of the Sun	0	10
Semid. of the dif.	57	5
Semid. of the Moon	15	24
Of the Sun	16	2
Semid. of the Penumb.	31	26
Ang. of the way seen with the Sun	5 40	0

Therefore the Middle of the Eclipse of the Sun, happened at the Meridian of *London*, August 3. (because of the Bissextile Day) 4 H. 2′ 53″ in the Afternoon, at the apparent Time; and at *Athens*, 5 H. 47′ 53″.

Calculus of the Place of the Moon at the Time of the true Syzygy, in the Month of *May*, A. D. 1706.

	Mean Motion of the M.				Apog.				Nod. Retrog.			
	s	°	′	″	s	°	′	″	s	°	′	′
A. D. — 1701.	10	15	19	50	11	8	18	20	4	27	24	20
Years. — 5.	10	0	5	52	6	23	25	54				
April. Days 30.	4	21	10	3	0	13	22	8	3	6	41	46
H. 21.	0	11	31	46	0	0	5	51	0	6	21	17
′ 30.	0	0	16	28	0	0	0	8	0	0	2	47
									0	0	0	4
									3	13	05	54
Mean Motion	11	18	23	59	6	15	12	21	1	14	18	26
Mean Anom. of the Sun	0	11	56	29	1	21	6	11	1	21	6	11
Physical Parts S,	0	0	8	25	True Place of the S.				True Place of the S.			
Place M cor.	1	18	15	34	7	05	53	50	0	06	47	45
Apog. subt.	6	25	32	42	Argum. of the Year				Dist. of S. from Nod.			
Mean Anom.	6	22	42	52		10	20	21			23	8
Equat add.	0	2	48	22	Equat. add.				Equat. add.			
Place of the Equat. in the Orbit.	1	21	3	56	6	25	32	42	1	14	41	34
True Place of the Sun	1	21	6	11	True Place of Apog.				True Place of Node			
Distance from the Sun	11	28	7	45	Great Eccent. 66850					5	17	44
Variat subt.			1	9	True — 58894				Inclin. of the Limit.			
True Place in the Orbit.	1	21	2	47	Mean — 55237							
Nod. subt.	1	14	41	34	Dist. — 03657							
Argum. of Lat.	0	6	21	13	Mean and Great							
Reduct. subt.	0	0	1	37	Differ. — 11617							
Place of the Moon in the Eclip.	1	21	1	10								
True North. Latit.	0	0	35	9								

	′	″
Horizontal parallax of the Moon	61	8
Of the Sun	0	10
Differ. or Semid. of the Dif.	60	58
Semid. of the Moon	16	38
Of the Sun	15	55
Semid. of the Penumb.	32	33
Ang. of the way seen with the Sun	5	36

	′	″
Horary Motion of the Moon	37	32
Horary Motion of the Sun	2	24
Hor. Motion of the M. from the Sun	35	8
2018″ : 60′ : 194″ 51′		
Prior. Aquat. add.	5	37
Post. Aquat. subt.	9	47
Diff. here add.	4	10
Whence the less Dist. of the Centr.		
21 H. 31′ 23″		
Full Moon Eclipt. 21 H. 36′ 57″		

Therefore the Middle of the Eclipse of the Sun, happened, may, 10 H. 31′ 23″, after Nine in the Morning, at the Meridian of *London*.

Calculus of the Time of the Conjunction of the Sun and Moon, in the Month of August. A. P. J. 4283.

		s	°	′	″
A. D.	1	6	24	9	42
Before Christ —	400	4	28	24	20
	20	4	13	25	13
	11	0	10	14	17
Sum. subtract. —		9	22	3	50
Remain —		9	2	5	52
Add to *August* —		2	4	26	19
Motion of the Moon from the Sun		11	6	32	11
Complement —	—	0	23	27	49
Days —	1	0	12	11	27
Remain —		0	11	16	22
Hours —	22	0	11	10	30
Remain —	′	0	0	5	52
	11	0	0	5	35
Remain —	″	0	0	0	17
	34	0	0	0	17

Whence the mean Conjunction of the Sun and Moon happened A. P. J. 4283. *Aug.* 3. (because of the Bissextile Day) 10 h. 11½′, on the Forenoon, according to the Meridian of *London*; but according to that of *Athens* 11 h. 56½. in the mean Time.

Calculus of the Time of the Winter Solstice, from *Flamstead*'s Tables corrected.

		s	°	′	″	s	°	′	″
December 8.	1701	9	20	43	50	3	7	40	10
		11	7	5	28	0	0	0	47
Mean Motion		8	27	49	18	3	7	40	57
Æquat. subtract.		0	0	20	15	8	27	49	18
True Place of the Sun		8	27	29	3	Mean Place of the Sun			
Complement —		0	2	30	57	5	20	8	21
Days —	2	0	1	58	17	Mean Anomaly			
Remain —		0	0	32	40				
Hours —	13	0	0	32	2	Therefore the Sun enters Capricorn, *Decemb.* 11° following, *viz.* 1 h. 15′ 24″ after Midnight.			
Remain —	′	0	0	0	38				
	15	0	0	0	37				
Remain —	″	0	0	0	1				
	24	0	0	0	1				

Right Ascension of the Points of the Ecliptick of *Saturn*.

Degr. of the Ecliptick.	Right Ascension °	′	Degr. of the Ecliptick	Right Ascension °	′	Degr. of the Ecliptick	Right Ascension °	′
1	0	52	31	27	15	61	57	7
2	1	43	32	28	10	62	58	12
3	2	35	33	29	6	63	59	17
4	3	26	34	30	2	64	60	22
5	4	18	35	30	58	65	61	27
6	5	10	36	31	55	66	62	33
7	6	1	37	32	52	67	63	39
8	6	53	38	33	49	68	64	46
9	7	44	39	34	46	69	65	53
10	8	36	40	35	43	70	67	0
11	9	28	41	36	41	71	68	7
12	10	20	42	37	39	72	69	14
13	11	12	43	38	38	73	70	22
14	12	4	44	39	37	74	71	30
15	12	56	45	40	36	75	72	38
16	13	48	46	41	36	76	73	47
17	14	41	47	42	36	77	74	56
18	15	34	48	43	36	78	76	5
19	16	27	49	44	36	79	77	14
20	17	20	50	45	37	80	78	23
21	18	13	51	46	38	81	79	32
22	19	6	52	47	40	82	80	41
23	19	59	53	48	42	83	81	50
24	20	53	54	49	44	84	83	0
25	21	47	55	50	46	85	84	10
26	22	41	56	51	49	86	85	20
27	23	35	57	52	52	87	86	30
28	24	30	58	53	55	88	87	40
29	25	25	59	54	59	89	88	50
30	26	20	60	56	3	90	90	0

Calculus of the Planet round *Saturn*, discover'd by *Huygens*.

1657. *May*	° 9	h. 9	′ 40	*London*
Place of *Saturn*	♏	28	57	
♄ from 1 ✱ ♈	5	0	32	
Æquin. subt.	10	22	00	
♄ from the Æquin.	6	8	32	
Right Ascension	6	7	19	
Apog.	4	29	19	
Southern Inclin.		4	23	

Mean Mot. of the Satellit.

	s	°	′
1641.	8	29	17
16	5	29	54
May	6	9	14
9	6	23	13
9 h. 40′		9	5
Mean Long. of *Sat.*	4	10	42
Apocron.	10	22	00
Anom.	5	18	42
Æquat. subt.			31
True Long. of *Sat.*	4	10	11
Apog.	4	29	19
Resid.	11	10	52
h. e. before the Apog.		19	8

Therefore $2\frac{6}{100}$ of the Semidiameter of the Ring Westward, and $\frac{58}{100}$ Northward.

1658. *March* 1	°	h. 10	
	s	°	′
Place of *Saturn*	♎	16	25
♄ from 1 ✱ ♈	5	17	20
Æquinox	10	22	00
♄ from the Æquin.	6	25	59
Right Ascension	6	22	40
South Declinat.		13	3

Mean Mot. of the Satellit.

	s	°	′
1641	8	29	17
17	4	20	30½
March	8	12	2½
1 Day	0	22	34½
10 H.		9	24½
Mean Longit. of *Sat.*	11	3	49
Apocron.	10	22	00
Anomal.	0	11	49
Æquat. subt.		0	30
True Longit. of *Sat.*	11	3	19
Apog.	5	14	40
Resid.	5	18	39
h. e. before the Perig.		11	21

Hence happens $1\frac{6}{100}$ of the Semid. of the Ring, at the East; and $1\frac{5}{100}$ at the South. or under.

INDEX,

INDEX

TO THE

SECOND VOLUME.

A, Letter of the Alphabet, in Grammar; History thereof, 59.
—— Sentiment of Julius Scaliger thereupon, *ibid.*
—— How pronounced by the French and English, *ibid.*
—— By the Italians and Germans, *ibid.*
Abatement, Term of Heraldry; Explication thereof, 120.
Abdal, a Kind of Dervises, in Persia; their History, 373.
Abdal Cadi, a Mahometan Philosopher and Lawyer; his History, *ibid.*
Ablative, a Case in Grammar, not particularly distinguished in the English and French from the other Cases, 70.
Abraham Blomart, Painter, of the Flemish School; his Character and particular Talent, 784.
Abraham Dypembeck, his Character, 786.
Abraham Janson, a Painter, of the Flemish School; his Character and particular Talent, 784.
Abstinents, Hereticks, why thus called, their Errors, 137.
Acceleration of heavy Bodies in the Descent; Doctrine thereof, 389.
Accident, in Logick; Definition thereof, 327.
Accidental Relation, in Metaphysick; Definition thereof, 404.
Accessimento, Term of Musick, Signification thereof, 537.
Accusative, in Grammar, 69.
Acid Humour, in Physick; Definition thereof, 910.
Acrimonious Humour, in Physick; Definition thereof, *ibid.*
Act, in Metaphysick; Definition thereof, 403.
—— Metaphysical; Definition thereof, *ibid.*
—— Physical; Definition thereof, *ibid.*
Act, in Poetry, Definition and Rules thereof, 965, 966.
Action, and Re-action, in Mechanicks, Theory thereof, 380.
Action, in Law; Definition thereof, 295.
—— divided by Justinian into real and personal, *ibid.*
Action, in the common Law, divided into real, personal, and mixed, *ibid.*
Action, Ancestral, or Preparatory; Definition thereof, 296.
—— of Accounts; Definition and History thereof, 297, 298.
—— civil; Definition thereof, 295.
—— of Covenant; Definition and History thereof, 301.
—— of a Debt; Definition and History thereof, 296, 297.
—— of a Detinue; Definition and History thereof, 298.
—— of a Dower; Definition thereof, 303.
—— of Ejectment; Definition and History thereof, 301.
—— mixed; Definition thereof, 295.
—— penal; Definition and History thereof, *ibid.*
—— personal; Definition thereof, *ibid.*
—— popular; Definition and History thereof, 296.
—— prejudicial; Definition and History thereof, *ibid.*
—— of Scandalum Magnatum, Definition and History thereof, 299, 300.
Action of Slander; Definition and History thereof, 299, 300.
—— of Trespass; Definition and History thereof, 300, 301.
—— upon the Case; Definition and History thereof, 296.
—— upon the Statute; Definition and History thereof, 296.
—— of Waste; Definition and History thereof, 304.
—— of a Writ; Definition and History thereof, 303.
Action, in Painting; of Nature, of Habit, or Education; how to be expressed, 742.
Action, a Category, in Logick; Definition thereof, 323.
Actual whole, in Metaphysick, its Definition, 405.
Actual Faith, in Theology; its Definition, 1086.
—— not necessary to Salvation of a Necessity of Means, 1087.
Acute, Term of Musick; Signification thereof, 537.
Adagio, Term of Musick; Signification thereof, *ibid.*
Adam Elseimer, a Painter, of the Flemish School; his Character and particular Talent, 784.
Adam Van Ort, a Painter, of the Flemish School; his Character and particular Talent, 782.
Adjectives, in Grammar; why thus called, how placed in French and English, 67.
Adonick, a Verse in Poetry; Rules thereof, 962.
Adrian Baur, Painter, of the Flemish School; his Character and particular Talent, 785.
A Due, a Term of Musick; Signification thereof, 537.
Adverb, in Grammar, Definition thereof, how formed; to what confined; how joined sometimes, 76.
Adverbs of Time, Place, Order, Quantity, Quality, &c. *ibid.*
Adultery, how it invalidates Matrimony, 1031.
Adumbration, Term of Heraldry, Explanation thereof, 120.
Ætius, Heresiarch, his Errors, 137.
Æneas, in Painting, how painted, 751.
Æonomaus, his Sentiment of Oracle, 365, 366.
Affinity in Sacraments, how far it dissolves Marriage, 1032.
After-Birth, in Midwifry; Extraction thereof, how performed, 455.
—— what, if left in the Matrice, by breaking the Navel-string; Remarks thereupon, *ibid.*
—— how to procure its Expulsion, 456.
After-Pains of lying-in Women; their Symptoms; Remarks thereupon; Cure thereof, 473.
Agat, precious Stone; Description and various Kinds thereof; very rare and curious ones, 274.
Agats Sardonyx, very valuable; their Colours, *ibid.*
Agats, Roman, Egyptian, *ibid.*
Agats, esteemed for Seals. Their Virtues, according to Pliny, Art of staining them, *ibid.*
Agility, one of the Perfections of a glorified Body, after the general Resurrection; Proofs thereof, 263.
Agnoites, Hereticks, their Errors, 154.
Agricola, Naturalist, his Opinion on the Nature of Glass, 1.
Aiguillon, Dutchy in France; when erected, and by whom, 616.
Air, in Pneumaticks; its Nature, and Origin, according to Dr. Hook, Sir Isaac Newton, and Mr. Boyle, 944.
—— its Fluidity, *ibid.*
—— Weight, according to Mersenus, Galileo, Boyle, Hawksbee, and Dr. Jurin, 945, 946.
—— how measured, *ibid.*
—— Its Elasticity, 950, Theory thereof, 951, 952.
Air-Pump, in Pneumaticks; when invented, and by whom, 950.
—— Mechanism thereof, 957.
—— Its Application and Phænomena, 951, 952.
Airing of Horses, in Horsemanship; Remarks thereupon, 177, 178.
Albert Aldegraf, a Painter, of the Flemish School; his Character and particular Talent, 780.
Albert Durer, a Painter, of the Flemish School; his Character, and particular Talent, 779.
—— Remarks on his Works, 780.
Alberti, a Grammarian; his curious Researches in the Hebrew Language, 77.
Albigenses, their Dogma's, 158.
Albret, Dutchy, in France; when erected, and by whom, 616.
Albumen, White of an Egg; Theory thereof, 567.
Alciat, a famous Lawyer; his Sentiment on the Precedence of a Marquis, or Count, in Nobility, 618.
Alcoran, Book of the Law of Mahomet; History thereof; its Division and Subdivision; principal Editions; Commentaries thereupon, 372.
Alençon, Dutchy in France; when erected, and by whom, 616.
Alerions, Pieces in Heraldry; blazon thereof, 120.
Alexander Aphroditæus, the first Author that makes Mention of Glass, 6.
Alexander the Great, in Painting; how painted, 751.
Alexander, John, the Pope's Nuncio at the Diet of Worms, assembled on the Affair of Lutheranism; his Harangue to the Assembly, 349.
Allantoides, Chimerical Membrane of the Fœtus, 451.
Allegory, Figure of Rhetorick; Definition and Examples thereof, 1014.
Allegretto, Term of Musick; Signification thereof, 537.
Allegro, Term of Musick; Signification thereof, 537.
All-Souls, College, in Oxford, when founded, 1131.
Almarick, Dr. of Paris, his Errors, 158.
Alms, in Theology, Precept thereof, 1094.
—— of what Goods given; and to whom, 1095.
Aloes-Tree, in Natural History, where found, its Size, Figure, Texture, Virtues, Value, Fables thereupon, 560.
Aloph de Vignacourt, Grand-Master of Malta, 683.
Alphabets, in Grammar, English, French, Latin, Hebrew, Greek; their several Characters, and Number thereof, 55.

Alphabets, Chaldee, Syriack, Samaritan, Arabick, Persian, Turkish, Georgian, Cophtick, Muscovite, Sclavonian, Dutch, Spanish, Italian, of Bengal, of the Brama's, Ethiopick, Tartarian; Number of their respective Letters, 55.
Alphabets, when framed and alter'd, their Irregularities, according to Dr. Wilkins, *ibid.*
Alterating Apozem, in Pharmacy; how composed, 813.
Alterative Remedies, in Pharmacy, what, 807.
Altitude, in Navigation; how observed with the Fore-Staff, 598.
Altitude of the Pole, at Sea; how taken, by Means of a Watch, according to M. Parent's Method; Remarks thereupon, 599.
Alvin, Dutchy, in France; when erected, and by whom, 616.
Amber, yellow, Succinum or Karabe; Definition thereof; its Origin, Sentiment of the antient and modern Naturalists thereupon; its most remarkable Property; Sentiment of the Peripateticians, and of *Gassendus* thereupon, 425. Of Des Cartes, of De Coetlogon, 496.
Ambrogio Lorenzetti, a Painter, of the Roman School; his Character, and particular Talent, 759.
Americ d'Amboise, Grand-Master of Malta, 683.
Amethyst, precious Stone, its Colour, where dug, different Sorts thereof, their Value, 273.
Amethyst, Hieroglyphick, Explanation thereof, 167.
Ammian Marcellin, his Sentiment on the Quality and Rank of a Squire, 623.
Amnios, one of the Membranes which envelopes the Child in the Womb; Description thereof, 451.
Amontons, M. his Sentiment on the Causes of an Earthquake, 434.
Amphibrachis, the Foot of a Verse in Poetry, 961.
Amplification, in Rhetorick; Definition and Examples thereof, 1016.
Amplification of Things and Words, 1017.
Amplitude, in Navigation; Definition thereof, Eastern, Western, Northern, Southern, Magnetical, 592.
Anagogick Sense of the Scripture, in Theology; Definition thereof, 1085.
Anapest, the Foot of a Verse in Poetry, 961.
Anasarca, a Kind of Dropsy, in Physick; Causes, Symptoms, and Cure thereof, 932.
Anchor, Hieroglyphick; Explication thereof, 168.
Anchored, Term of Heraldry; Explanation thereof, 120.
Andate, Term of Musick; Signification thereof, 538.
Andrew Carlostad, Luther's Disciple; his History and Dogma's, 339, 350.
Andrew Mantegne, Painter, of the Roman School; his History, Character, particular Talent, and best Pieces; Remarks thereupon, 761.
Andrew Orgognia, Painter, of the Roman School; his Character and particular Talent, 759, 760.
Andrew Osiander, a Confessionist; his Dogma's, 158.
Andrew Tatti, of Florence; a Painter, of the Roman School; his Character, and particular Talent, 759.
Andrew Verrochio, a Painter, of the Roman School; his Character and particular Talent, 760.
Andrew Boscoli, a Painter, of the Roman School; his Foresight of the clair-obscure 741.
Ancometer, in Pneumaticks; Mechanism thereof, 958.
——— Application of that Mechanism, 959.
——— invented by Wolfius and d'Ofembray, 959.
Anet de Clermont, Grand Master of Malta, 683.
Angels, in Heraldry, how blazon'd, 113.
Angle, in Surveying; how taken with a Semicircle, 1076.
——— with the plain Table, consider'd as a Theodolite, 1077.
——— consider'd as a Circumferentor, *ibid.*
Angoulem, Dutchy, in France; when erected, and by whom, 616.
Animals, in Painting; how characterized, 741.
Animals, in Heraldry; how blazon'd, 113.
Animé, Term of Heraldry; Signification thereof, 120.
Annibal Caracci, a Painter, of the School of Lombardy; his Character and particular Talent, 755. Remarks on his Works, 776.
Annual Leaves, in Natural History, 569.
Annulet, in Heraldry, what, 115.
Anonimous Society, Definition thereof, 1065.
Antecedent, in Logick; Definition thereof, 333.
Antibacchius, Foot of a Verse, in Poetry, 961.
Anthem, in Musick; Signification thereof, 538.
Anthropomorphites, Hereticks; their Errors, 158.
Antiepileptick Elixir, in Pharmacy; its Virtues, 865.
Antimony, in Minerals, Definition thereof, Explanation of the Definition; where found, how found, its first Preparation and Uses; Sentiment of the Chymists thereupon, 493.
Antinephretick Potion, in Pharmacy; Preparation, Virtues, and Doses thereof, 815.
Antique, in Painting; how to be imitated, 742.
Antique Painting of a Wedding in the Aldobrandine Vineyard at Rome; Description and Taste thereof, 757.
Antithesis, in Rhetorick; Definition and Examples thereof, 1012.
Antonomasy, Figure, in Rhetorick; Definition and Examples thereof, 1014.
Antony Flaviano, Grand-Master of Malta, 683.
Antony of Messina, a Painter of the Roman School, the first Italian who painted in Oil; his Character and particular Talent, 760.
Antony Corregio, a Painter, of the School of Lombardy; his Character and particular Talent, 774.
——— Remarks on his Works, 775.
Antony Vandyke, a Painter, of the Flemish School; his Character, and particular Talent, 784.
——— Remarks on his Works, 785.
Apelles, Marcion's Disciple, and Heresiarch; his Errors, 134.
Apelles, Painter; his Strength of Genius, Correctness, grand Taste; his Means to know the Publick's Opinion; painted often Alexander the Great, 758.
Aperitive, Emulsion, in Pharmacy; Preparation, Virtues, and Doses thereof, 814.
Aperitive Tizane, in Pharmacy; Preparation, Virtues, and Doses thereof, 812.
Aphæresis, Figure, in Grammar; Definition thereof, 76.
Aphts, Ulcers, or Cankers of the Mouth of new-born Children; Causes, Symptoms, and Cure thereof, 484.
Apobaterion, in Poetry; what, 962.
Apocope, Figure, in Grammar, Definition thereof, 76.
Apogiatura, Term of Musick; Signification thereof, 538.
Apollinaris, Heresiarch, 138.
Apollinarists, Hereticks; their Errors, *ibid.*
Apollo, in Painting; how painted, 757.
Apoplexy, Causes, Symptoms, and Cure thereof, 917.
Apostrophe, in Grammar; Definition thereof, 76.
Apostrophe, Figure, in Rhetorick; Definition and Examples thereof, 1013.
Apotheosis, in Mythology, what, 550. that of Jesus Christ, proposed by Tiberius; that of Claudius ridiculed by Seneca; Ceremonies thereof, as related by Herodian, *ibid.*
Apotheosis, called also Consecration, how represented on Medals, *ibid.*
Apotane, Term of Musick; Signification thereof, 538.
Apozem, in Pharmacy; Definition and Preparation thereof, 76.
Apparent Magnitude, in Opticks; Definition thereof, 634.
Apparent Magnitudes of the Sun and Moon, in Opticks, *ibid.*
——— Theory thereof, according to *Alhazen, Vitellio, Kepler, Peckam, Roger Bacon, Wallis, Des Cartes, Father Goye, Gassendus*, &c. 638.
Appearance, in the Common Pleas, History thereof, 310.
Application of the Weight, or Power, to the Lever, in Mechanicks, 375.
April, Month, in Painting; how painted, 752.
Aqua absinthii Pontici; Preparation, Virtues, and Doses thereof, 863.
Aqua ad Gonorrhœam virulentam; Preparation, Virtues, and Doses thereof, *ibid.*
Aqua ad Gutturis affectus; Preparation, Virtues, and Doses thereof, *ibid.*
Aqua Anticolica; Preparation, Virtues, and Doses thereof, *ibid.*
Aqua Antihectica; Preparation, Virtues, and Doses thereof, 861, 862.
Aqua Antihydropica; Preparation, Virtues, and Doses thereof, 863.
Aqua Antiscorbutica, in Pharmacy; Preparation, Virtues, and Doses thereof, 862.
Aqua Apoplectica; Preparation, Virtues, and Doses thereof, 861.
Aqua Asthmatica; Preparation, Virtues, and Doses thereof, 863.
Aqua caponis quercetani; Preparation, Virtues, and Doses thereof, 861.
Aqua Carminativa; Preparation, Virtues, and Doses thereof, *ibid.*
Aqua Castorei; Preparation and Virtues thereof, 862.
Aqua Cephalica Caroli quinti; Preparation and Virtues, and Doses thereof, *ibid.*
Aqua contra Vermes; Preparation, Virtues, and Doses thereof, *ibid.*
Aqua contra ardorem Urinæ; Preparation, Virtues, and Doses thereof, *ibid.*
Aqua divina; Preparation, Virtues, and Doses thereof, 862.
Aqua epidemica; Preparation, Virtues, and Doses thereof, 864.
Aqua hysterica fabrici; Preparation, Virtues, and Doses thereof, 861.
Aqua imperialis; Preparation, Virtues, and Doses thereof, 860.
Aqua lactis Alexiteria; Preparation, Virtues, and Doses thereof, 864.
Aqua Lavendulæ composita; Preparation, Virtues and Doses thereof, 865.
Aqua limacum magistralis; Virtues thereof, 864.
Aqua mirabilis; Preparation, Virtues, and Doses thereof, 861.
Aqua nephretica; Preparation, Virtues, and Doses thereof, 863.
Aqua oculoris interna; Preparation and Virtues thereof, 864.
Aqua Paralytica; Preparation, Virtues, and Doses thereof, 861.
Aqua Pectoralis; Preparation, Virtues, and Doses thereof, 862.
Aqua Theriacalis; Preparation, Virtues, and Doses thereof, 860.
Aqua viridis correcta; Preparation and Virtues thereof, 864.
Aqua vitæ mulierum; Preparation, Virtues, and Doses thereof, *ibid.*
Aquilian Law; by whom instituted; Chiefs thereof, 295.
Aquilius, Mythologist; his Sentiment of the domestick Laws, 548.
Arabick Language, in Grammar; Copiousness thereof, 77.
Archimedes, his Sentiment on the Burthen of a Ship, 594.
Architrave over the Tillar Transom, in Naval Architecture; Dimensions thereof, 578.
Archonticks, Hereticks; their Errors, 135.
Arch-Pump, in Naval Architecture; Dimensions thereof, 577.
Ardent, or burning Fevers, in Physick; Causes, Prognostick, and Cure thereof, 927.
Aretin, Guido; his System of Musick; Explication thereof; Remarks thereupon, 512.
Argent, a Metal, in Heraldry; how blazon'd, 108.
Argument, in Rhetorick; Division thereof into artificial or intrinsick, and inartificial, or extrinsick, 1007.
Argument, by Etymology, in Logick; Definition thereof, 333.
Argumentation, in Logick; its Definition, 333.
——— seven Species thereof, 334.
Aristocracy, Form of Government; History thereof, 51.
Aristoxenus, his Sentiment on the Motion of the Voice in Musick, 530.
Arius, Heresiarch, 137.
Armed, Term of Heraldry; Signification thereof, 120.
Armenian Bole, in Minerals; its Virtues, 500.
Armenian Stone; Definition thereof, its Colour, where found, Sentiment of Boerhaave thereupon; its Uses, 495.
Arminians, a Sect, their Dogma's, 159.
Arminius, Heresiarch; his Errors, *ibid.*
Arms, in Heraldry, 127.
——— of the King of France; how blazoned, *ibid.*
——— of the King of England; how blazoned, *ibid.*
——— of the King of Spain; how blazoned, *ibid.*
——— of the King of Denmark; how blazoned, *ibid.*
——— of the King of Sweden; how blazoned, 127, 128.
——— of the King of Poland; how blazoned, 128.
——— of the King of Prussia; how blazoned, *ibid.*
——— of the Queen of Hungary; how blazoned, 127.

Arms of the Duke of Savoy; how blazoned, 128. why he quarters with the Arms of Jerusalem, *ibid.*
—— of the Grand Duke of Tuscany; how blazoned, *ibid.*
—— of the Duke of Mantua; how blazoned, *ibid.*
—— of the Duke of Modena; how blazoned, *ibid.*
—— of the Duke of Parma and Placentia; how blazoned, *ibid.*
—— of the Elector and Archbishop of Mentz; how blazon'd; Origin of the Wheel in that Escutcheon, *ibid.*
—— of the Elector and Archbishop of Cologne; how blazoned, *ibid.*
—— of the Elector of Bavaria, how blazoned; Remarks thereupon, *ibid.*
—— of the Elector of Brandeburg; how blazoned, *ibid.*
—— of the Elector of Saxony; how blazoned, *ibid.*
—— of the Elector Palatine; how blazoned, *ibid.*
—— of the Empress of Russia; how blazoned, Remarks thereupon, *ibid.*
—— of the Emperor of the Turks; how blazoned, *ibid.*
—— of the Republick of Venice; how blazoned, *ibid.*
—— of the Republick of Genoa; how blazoned, *ibid.*
—— of the Republick of Ragusa; how blazoned, *ibid.*
—— of the Republick of Holland; how blazoned, 128.
—— of the Republick of Geneva; how blazoned, *ibid.*
—— of the Canton of Zurich; how blazoned, *ibid.*
—— of the Canton of Bern; how blazoned, *ibid.*
—— of the Canton of Lucern; how blazoned, 128, 129.
—— of the Canton of Zuri; how blazoned, *ibid.*
—— of the Canton of Switz; how blazoned, *ibid.*
—— of the Canton of Underval; how blazoned, *ibid.*
—— of the Canton of Zug; how blazoned, *ibid.*
—— of the Canton of Glaris; how blazoned, *ibid.*
—— of the Canton of Bazil; how blazoned, *ibid.*
—— of the Canton of Fribourg; how blazoned, *ibid.*
—— of the Canton of Soleure; how blazoned, 129.
—— of the Canton of Appenzel; how blazoned, *ibid.*
—— of the great Cham of Tartary; how blazoned, *ibid.*
—— of the Emperor of China; how blazoned, *ibid.*
—— of the Great Mogul; how blazoned, *ibid.*
—— of the Sophy of Persia; how blazoned, 129.
—— of the Emperor of Japan; how blazoned, *ibid.*
—— of the Emperor of Fez and Morocco; how blazoned, *ibid.*
—— of the Emperor of Ethiopia; how blazoned, *ibid.*
Arms; Remarks upon those of the Sovereigns of Asia and Africa, 129.
Arms, their Origin; according to Favin, Segoin, Chorier, Camden, Spelman, and others.
—— of Arms in France, and England; of hereditary Arms in England, according to Camden, *ibid.*
Arms used for Hieroglyphicks, by the Greeks and Lacedemonians, 167.
Arnould de Troye; Grand Master of the Knights Templar; his History, 688.
Arrache, Term of Heraldry; Signification thereof, 120.
Arsis, Term of Musick; Signification thereof, 538.
Artemon, Heresiarch; his Errors, 135.
Artificial Taste, in Painting; what, 795.
Ascension of Christ into Heaven; how effected, by what Virtue, Conveniency thereof, 260, 261.
Ashes, in Glass-making; what, 2.
Asiatick Style, in Rhetorick; Definition thereof, 1011.
Asphaltum, or Asphaltos, in Minerals; Definition thereof, where found, its Use among the Arabs; its Virtues, 496.
Aspirate, in Grammar; History thereof, 58.
Aspiration, in Grammar; Sign thereof among the Greeks, *ibid.*
Ass, Hieroglyphick; Explanation thereof, 163.
Assart, in Hunting; what, 190.
Assize, Writ, in Law; Definition and History thereof; Littleton's Opinion thereupon, 301.
Assize of Novel Disseism; Definition and History thereof, 301, 302.
Assize of Mort d'Ancestor; Definition and History thereof, 302.
Assize of Darein Presentment; Definition and History thereof, *ibid.*
Assodes, a burning Fever; in Physick, 927.
Assaying, in Refining, Gold; Method thereof, 999.
——— Silver; Method thereof, 1000.
——— Tin; Method thereof, *ibid.*
——— Lead; Method thereof, *ibid.*
Asterism, in Grammar; Signification thereof, 76.
Asthma, a Disease, in Physick; Division thereof, its Causes, Symptoms, Prognostick, Cure, 922.
Astrea, in Painting; how painted, 752.
Astringent Remedies, in Pharmacy; in how many different Manners they operate, 808.
Astringent Emulsion, in Pharmacy; Preparation, and Virtues thereof, 814.
Astringent Potion, in Pharmacy; Preparation and Virtues thereof, *ibid.*
Astringent solid Errhina; Preparation, Virtues, and Doses thereof, 816.
Astringent Tizane; Preparation and Virtues thereof, 812.
Astronomical Telescope, in Opticks; Definition, Construction, and Theory thereof, 650.
——— how shortned, 651.
——— Huygen's Observations thereupon, 651, 652.
Astronomy, in Painting; how painted, 752.
Attitude, in Painting, Definition and Rules thereof, 741.
Atto, Term of Musick; Signification thereof, 538.
Attorney, in common Law; their Admission, Duties, Office, 308, 309.
Attorney General; his Office, 309.
Attractive Faculty of the Magnet, Theory thereof; Sentiment of Gassendi, Mersenus, Whiston, Huygens, Des Cartes, De Coetlogon's thereupon, 369.
Auditors of the Exchequer, in Law; their Office, 307.
Auditors of the Prest, or Imprest; their Office, *ibid.*
Auditors of the Receipts; their Office, *ibid.*
Avelane, Term of Heraldry; Signification thereof, 120.
August, Month, in Painting; how painted, 752.
Augustin Caracci, a Painter, of the School of Lombardy; his Character, and particular Talent, 775. Remarks on his Works, 776.
Aumont, Dutchy, in France; when, and by whom erected, 617.
Aura Serotina, an aqueous Meteor, in Meteorology; Definition and Theory thereof, 423.
Aurora, in Painting; how painted, 752.
Auster, South-Wind; how painted, 753.
Auvergne, Dutchy, in France; when, and by whom erected, 615.
Auxiliary Verbs, in Grammar; how distinguished by the Abbot Dangeau, 71.
Axian, in Metaphysick; Definition and Rules thereof, 407.
Axioms, in Logick; Rules thereof, 344, 345.
Axis in Peritochio, in Mechanicks; Definition thereof, takes Place in the Motion of every Machine, is to be referred to the Lever of the first Kind, 377.
Azimuth Compass, in Navigation; Description and Use thereof, 592.
Azimuth of the Sun, in Navigation; Definition and Theory thereof, *ibid.*
Azure, a Colour, in Heraldry; blazon thereof, why preferred by the French to all the other Colours, 108.

B.

B, Letter of the Alphabet, in Grammar; Definition, History, and Pronunciation thereof, 59.
Bacchius, Foot of a Verse, in Poetry, 961.
Bachelor of Arts, in the University of Oxford; Time required for their Admission, 1192.
——— of Divinity; Time required for their Admission, *ibid.*
——— of Medicine; Time required for their Admission, *ibid.*
Bachelors in the University of Cambridge; their Admission, 1194.
Back, Hieroglyphick; Explication thereof, 161.
Backbone, Hieroglyphick; Explication thereof, *ibid.*
Badger, in Hunting; its different Names according to the Difference of its Age; two Sorts thereof mentioned by M. Tuberville, 195. Its Qualities, and how to be hunted, 196.
Baglivi, his Remedy for the Cholick, 935.
Bagpipe, Instrument of Musick of the Wind-Kind; Description thereof, how used, 535.
Bajans, or Greek Class, in the University of Edinburgh; how govern'd, 1199.
Bail, in Law; Definition thereof; why so called, Difference between Bail, and Mainprise, by Manwood, 310.
Bail, common; Definition thereof, *ibid.*
Bail, special; Definition thereof, *ibid.*
Bail-piece, two Sorts thereof; how written, *ibid.*
Bail above, and Bail below; what,
Bail, how put, and taken, in the common Pleas, 317.
Balass Ruby, in Lapidary; Colours thereof, 272.
Baliol College, in the University of Oxford; when founded, and by whom, 1191.
Ball and Socket, an Instrument contrived to give to another full Motion every Way, in Surveying; Description thereof, 1076.
Ballance, or Balance, in Mechanicks, Definition and Description thereof, 375.
Ballance, antient, or Roman, modern; Mechanism of both, *ibid.*
Ballance, various Application thereof, 375, 376.
——— deceitful; where the Fraud consists, 376.
Ballast of a Ship, in Navigation, how to be order'd, 595.
Balsam, in Pharmacy; Definition and Division thereof into natural and artificial, 871.
Balsam to make Children cut their Teeth easy; Preparation thereof, 873.
Balsam of Arcæus; Preparation and Virtues thereof, 872.
Balsamum Apoplecticum reformatum, or the apoplectick Balsam; Preparation and Virtues thereof, 871.
Balsamum Angelicæ reformatum, or Balsam of Angelico, reformed; Preparation and Virtues thereof, 872.
Balsamum Polycrestum, or Polychrest Balsam; Preparation and Virtues thereof, 871.
Balsamum Solimani; or Soliman's Balsam; Preparation and Virtues thereof, 872.
Balsamum Guidonis; or Guido's Balsam; Preparation and Virtues thereof, 873.
Balsamum Bezoardium, or Balsam of Bezoard; Preparation and Virtues thereof, 872.
Balsamum vulgare, or vulgar Balsam; Preparation and Virtues thereof, *ibid.*
Balsamum Paralyticum, or Balsam for the Palsy; Preparation and Virtues thereof, 873.
Balsamum Uterinum, or Balsam for the Maladies of the Womb; Preparation and Virtues thereof, *ibid.*
Balsamum Stypticum, or Styptick Balsam; Preparation and Virtues thereof, 874.
Balsamum Lucatelli, or Lucatellus's Balsam; Preparation and Virtues thereof, *ibid.*
Balsamum Tranquillum, or the tranquil Balsam of the Abbot Rousseau; Preparation and excellent Virtues thereof, *ibid.* Remarks thereupon, 875.
Balsamum Antipodagrium, or Balsam to ease Pains of the Gout; Preparation thereof, 875.
Balsamum Nephriticum, or Balsam for the Nephritick; Preparation thereof, *ibid.*
Balsamum ad Nervorum Puncturas, or Balsam for the Punctures of the Nerves; Preparation thereof, 874.
Balsamum mirabile Fulleri, or marvellous Balsam of *Fuller*; Preparation and Virtues thereof, 876.
Balsamum sulphuris, or Balsam of Sulphur; Preparation and Virtues thereof, 874. Simple, or with Oil of Aniseed, *ibid.*
Balsamum Christi, Paracelsi, reformatum, or reformed Balsam of Christ, of Paracelsus; Preparation, and Virtues thereof, 873.
Balsamum album, or white Balsam; Preparation, and Virtues thereof, 873.
Balthazard Keler, his Method for the Proportions to be given to Pieces of Ordnance, 101.
Balthazard Pacimontanus, and *Bernard Rothman*, instituted the Sect of the Anabaptists, 158.
Bandelet, in Heraldry; Signification, and Disposition thereof, 112.

Banneret,

Banneret, Knight, in Nobility; what, according to Spelman; their History, and Qualifications, 622. Their Power, according to Froissart; and Form of Creation, 623.
Baptism of Christ, in Incarnation, Conveniency thereof, according to all its Circumstances, 253.
Baptista Porta, wrote on Magick, 363.
Baptista Ursini, Grand Master of the Order of Malta, 683.
Bar, in Musick; Definition and Use thereof, 538.
Bar, an honourable Ordinary, in Heraldry; Disposition thereof, 120.
Bar Gemel, in Heraldry; Signification thereof, 120.
Barb, a Horse, in Horsemanship; its Qualities, and Value: Mountain-barb preferable to others, why, 172.
Barbed, or Crested, Term of Heraldry; Signification thereof, 120.
Barbiton, an Instrument of Musick, used by the Romans, 531.
Barilla, Salt thereof, used in Glass-making, 4.
Bar-le-Duc, Dutchy in France; when, and by whom erected, 615.
Barometer, in Pneumaticks; Structure thereof, 946, 947.
Barometers, their Phœnomena, Uses, and Theory; Drs. Beal, and Halley, and Leibnitz's Remarks thereupon, 948, 949.
Barometers, Wheel, Pendant; Structure, and Conveniency thereof, 947.
Baron, in Nobility, Definition thereof; Origin of the Term, 620.
Baron's Helmet, in Heraldry; how disposed, how surmounted, 115.
Barons, in England; their Rank, and Prerogatives, 620.
Barons by antient Tenure, what; divided, after the Conquest, into Majores, and Minores, *ibid.*
Baronet, Knight, their Dignity, Privileges, Place, 623.
Baronies; History thereof, from their first Creation till now, 620.
Baronies belonging to Bishops in England; how called by some, *ibid.*
Baronies, what, according to Bracton, 620, 621.
Baroscope, or statical Barometer; Mechanism, and Uses thereof, 947.
Barrel, of a common Musket, in Gunnery; Structure, and Proportions thereof, 115.
——— of a Carbine; Structure, and Proportions thereof, *ibid.*
——— of a Musquetoon; Structure, and Proportions thereof. *ibid.*
——— of a Pistol; Structure, and Proportions thereof, *ibid.*
Barrelet, or Barrulet, in Heraldry; Signification, and Description thereof, 120.
Barruly, Term of Heraldry; Signification thereof, *ibid.*
Barry, Term of Heraldry; Signification thereof, *ibid.*
Barry-pily, Term of Heraldry; Signification thereof, *ibid.*
Bartholdus Schwartz, Inventor of Gunpowder, 105.
Base, a Cannon, in Geometry, its Weight, and that of its Ball; its Length, as it obtains here in England, 84.
Basilick, antient Cannon; its Caliber, Weight, and Length, 84.
Basilisk, Hieroglyphick, Explication thereof; seen on some Obelisks, 164.
Bassoon, Instrument of Musick; Description thereof, 535.
Bastard Galley, in Naval Architecture, 584.
Bat, Hieroglyphick; Signification thereof, 166.
Batchelor, Knight, their History, 622. Both Batchelor, and Banneret, extinguished in France, 623.
Batteries, to beat in Breach, how raised, 100.
Batteries, either for Cannon or Mortars, how raised, 99.
Battering Ram, Instrument of War among the Antients; Description thereof by Josephus, and Fellibien; how managed, 105.
Battoon, Term of Heraldry; Signification thereof, 120.
Battoon, and Semi-battoon, their Value, in Musick, 523.
Baudelot, Mythologist; his Sentiment on the Rise of the Panthea among the Romans, 549.
Beadles, in the University of Oxford; Squire, Yeoman; their Office, 1190.
Beagle, a Kind of Dogs, in Hunting; its Qualities, where most used, 128. What, when they bark, and cry, 189.
Bear, in Hunting; its Nature, and Qualities; how to be hunted, and where hunted, 199.
Beatifick Vision, in God and his Attributes; Possibility thereof, how demonstrated. Its Existence, how proved; never enjoyed by any Man living, such as it is, not even by Moses, and St. Paul, 23. Principles concurring towards it, *ibid.*
Beatifick Vision; a certain, evident, and perfectly scientifick Knowledge, 26.
Beams of the first Deck, in Naval Architecture; Dimensions thereof, 577. Of the second Deck, Dimensions thereof, *ibid.* Of the upper Deck; Dimensions thereof, *ibid.*
Beavers, in Hunting; their Nature, Qualities; how, and where hunted, 199.
Beaufort, Dutchy, in France; when, and by whom erected, 617.
Beaumont le Sennonois, Dutchy in France; when, and by whom erected, 616.
Becke, Term of Heraldry; Signification thereof, 120.
Bee, Hieroglyphick; Signification thereof, 166.
Belfroy, in Heraldry; how known, 114.
Begards, and *Beghines*, Hereticks; their Errors, 158.
Bend, honourable, ordinary in Heraldry, 111.
Bend, in Heraldry; Divisions thereof, 112.
Benedictine Monks, in Orders; their History, 666.
Benedictine Nuns, in Orders; their History, 675.
Berengarius, Chief of the Sacramentarians, his History, and Dogma's, 157, 158.
Bernard de Tremulay, Grand Master of the Knights Templars, 688.
Bernardine Monks, in Orders; their History, 667.
Bernardine Nuns, in Orders; their History, 675.
Bernard's Inn, in London; when, and by whom founded, and to what Purpose, 1195.
Berry, Dutchy, in France; when, and by whom erected, 615.
Bertrand de Blancfort, Grand Master of the Knights Templar; his History, 688.
Bertrand de Campz, Grand Master of the Order of Malta, 682.
Bertrand de Foix, Grand Master of the Order of Malta, *ibid.*
Bertrand, M. Archbishop of Narbonne, founded a College of the same Name at Paris; History thereof, 1189.
Beryl, in Lapidary, Colour thereof; whence brought; its Difference from the Chrysoberyl, 273.
Beryl of the Antients, what; Sentiment of some Authors thereupon, 273, 274.
Beryl, how found, 274.
Bilious Colic, in Physick; Causes, Symptoms, Prognostic, and Cure thereof, 934, 935.
Bill in Chancery, in Law; Definition thereof; to whom addressed, how answered, 305.
Billets, Pieces of Heraldry; Signification thereof, in England, according to Mackenzie, 121.
Billetty, Term of Heraldry; Signification thereof, 121.
Bismuth, in Minerals; Nature thereof, 493.
Bismuth, artificial; Preparation thereof, 494.
Bisyllable Words, in Grammar; History thereof, 66.
Bitter Apozem, in Pharmacy; Preparation thereof, 813.
Bitumens, soft, in Minerals; Nature thereof, 496.
Blacksmith, his Shop, how fitted; Description of his Forge, 1063.
Bleach, to, coarse Linnen; Method thereof, 1207.
Blemish, in Hunting; Signification thereof, 189.
Block, great of the Drisse, in Naval Architecture; Proportions thereof, 581.
Blondel, M. an excellent Engineer, 91.
Bloody Rain, in Meteorology; History thereof, 424. Whence it can proceed, according to Dr. Merret, and Pierese, *ibid.*
Blowing Iron, in Glass-making; Description, and Use thereof, 3.
Blowing Round Glasses, in Glass-making; Operation thereof, *ibid.*
——— Window, or Table-glasses; Operation thereof, 4.
——— Looking Glasses; Operation thereof, 4, 5. First communicated to the English by the French, 5, 6.
Blown Bladders, a great Help in Swimming, 1082.
Boar, wild, in Hunting; its different Names according to the Difference of its Age, 188. its Nature, Qualities, how to be hunted, 197, 198.
Boats in Gunnery, their Utility in Sieges, 98.
Bocca, or Working-Hole, in a Glass-House, Description and Use thereof, 3.
Bochart, Mythologist, his Sentiment on the Origin of the Name of *Silenus*, in Mythology, 552.
Boileau, in Poetry, his Rules for the Tragedy, 969.
——— for the Satyr, 972.
——— for the Idyles, 975.
Boil'd Silks, in Weaving, Method thereof, 1205.
Bollito, in Glass making, a Kind of Composition to make white Glass with; Preparation thereof, 3.
Bolster of the Helm, in Naval Architecture, Situation and Dimension thereof, 578.
Bolus, in Pharmacy, Preparation thereof, 815.
Bomb, in Gunnery, how charged, 90.
Bombardiers, in Gunnery, 91.
Bonamico, Bufamalco, a Painter of the Roman School, his History, Character, and particular Talent, 759.
Binnet, William, founded a College of the same Name in the University of Paris, 1189.
Bononian Stone, in Opticks, its Nature, where found, its Figure and Calcination into a Phosphorus, 639, 640.
——— Phosphorus prepared of it, its Effects, 662.
Borders, in Printing, Description thereof, 985.
Bordure, in Heraldry, Definition thereof, 109.
——— Simple and Compound, *ibid.*
Bore of a Concave Mortar, Dimensions thereof, 87.
Borri, his Remedies for the Dysentery, 934.
Bossu, in Poetry, his Division of the Catastrophe of a dramatick Poem, 965.
——— his Character of a Hero, in Tragedy, 969.
Boutefeu, in Gunnery, Definition thereof, 87.
Bow-line of the Fore-top Mast, in Naval Architecture, length thereof, *ibid.*
Bow-line of the Main-Mast, length thereof, *ib.*
Boxhornius, his Sentiment on the Invention of Printing, 990.
Brass, called Rosetta, in Gunnery, Mines thereof, where found, 101.
Brazen-Nose College, in the University of Oxford, when and by whom founded, 1191.
Bread of Munition for 32000 Foot and 18000 Horse, &c. in Gunnery, 97.
Breeding of grey Hounds, in Hunting, Method thereof, 187, 188.
Brevity, a Thing requisite in an Exordium, in Rhetorick, Rules thereof, 1009.
Brienne, Dutchy, in France, when and by whom erected, 616.
Brigade of Artillery, how composed, their Duties, 95.
Brigade of the Park of Artillery, their Duties, *ibid.*
Brilliant Diamond, how formed, 217.
Brisé, Term of Heraldry, Signification thereof, 121.
Brissac, Dutchy, in France, when, and by whom erected, 617.
Brisure, Term of Heraldry, Signification thereof, 121.
British, or Welch Language, History thereof, 80.
Brown Sugar, in Sugar-Refining, Preparation thereof, 1075.
Brunswick, Herald, in England, when and by whom instituted, 131.
Buck, in Hunting, its different Names according to the Difference of its Age, how to be hunted, 193.
Bullet, in Gunnery, Definition, and different Sorts thereof, 85.
——— hollow, branched, two-headed, Chain, Definition therof, 86.
——— their Weight according to their Caliber, 86, 87.
Bullets, red, when fired, 86.
Bunt-lines, in Naval Architecture, length thereof, 574.
Burchard of Shunden, Grand-Master of the Teutonic Order, 691.
Burdens of the Deck, in Naval Architecture, Dimensions thereof, 580.
Burgess, M. one of the most famous Masters of the Spinnet in England, 533.
Burial of Christ, in Incarnation; Truth, and Conveniency thereof, 257, 258.
Bursars, in Marshal College, at Aberdeen in Scotland; by whom founded, 1199.
Butler, Earl of Arran, Chancellor of the University of Oxford, 1191.
Buttock of a Ship, in Naval Architecture; Construction thereof, 571.

C.

C, Letter of the Alphabet, in Grammar; Definition, History, and Pronunciation thereof, 59.

C, in Musick, Signification thereof, 538.
Cabbala, a mysterious Science among the Jews; Definition thereof, its Origin, four Kinds of Cabbala, 268, 269.
Cable, in Naval Architecture, Dimensions thereof, 575.
Cabosse, Term of Heraldry, Signification there of, 121.
Cadence, in Musick, Definition thereof, 538.
Cadence, in Musick, two Sorts of it, distinguished by M. Bourseau, *ibid.*
Cadence, perfect, imperfect, broken, with a Rest, without a Rest, *ibid.*
Cadences, simple and double, several Sorts of the last Kind, *ibid.*
Caducee, Hieroglyphick, Explication thereof, 164.
Calcar, a Furnace used in Glass-making, Description thereof, 2.
Caliber Rule, in Gunnery, Description an Use thereof, 86.
Call, in Hunting, a Lesson blown on the Horn to comfort the Hounds, 189.
Camel, Hieroglyphick, Definition thereof, 163.
Camelion, Hieroglyphick, Signification thereof, 166.
Cancherizato, Term of Musick, Signification thereof, 538.
Cannon, in Gunnery, Definition and Dimensions thereof, 84.
Cannon, brass, the Weight, Length, Caliber of those antiently cast; of those that obtain in England, *ibid.*
Canone Mieso, in Musick, Signification thereof, 538.
Canone in Partito, Term of Musick, Signification thereof, 538.
Canow, in Naval Architecture, Description thereof, 583.
Cap, Hieroglyphick, Explication thereof, 167.
Capades, in Hat-making, Method of making them, 107.
Capella, Term of Musick, Signification thereof, 538.
Capitane, Galley, in Naval Architecture, what, 584.
Capston, in Naval Architecture, great and little; Situation and Dimensions thereof, 577.
Capuchins, a Reformation of the Order of St. Francis, their Character and History, 670.
Carabine, in Gunnery, Proportions thereof, 105.
Caraites, anti nt and modern, a Sect among the Jews, their History, 266, 267.
Caravanserai, Hospitals, in Use in Turky, Description thereof, 373.
Cardinal Winds, in Navigation, History thereof, 516.
Careening a Ship, in Naval Architecture; Art thereof, 583.
Carignan, Dutchy, in France, when and by whom instituted, 617.
Carline, the biggest Piece of Timber in the Hold of a Ship, Dimensions thereof, 581.
Carmelites, a religious Order, History thereof, 671, 672.
Carminative Remedies, in Pharmacy, Definition thereof, their Manner of operating, 809.
Carquasse, Furnace to melt the Materials for casting Looking-glasses, Description thereof, 4.
Carriage of a Cannon in Gunnery, different Sorts thereof, 87.
Carriage of a Field-piece, Description thereof, *ibid.*
Carriage of Pieces for Places, Description thereof, *ibid.*
Carriage for Ship-guns, Description thereof, *ibid.*
Carriage, a Member of the Printing-Press, Description thereof, 986.
Cartesian, Philosophy, System thereof, 901. De Cordemoy's Sentiment thereupon, 902.
Cartesians, their Sentiment on the human Understanding, 412.
Carthusian Monks, a religious Order, History thereof, 668.
Cartouches, in Gunnery, different Forms, and Sorts thereof, Method of making them, 87.
Carus, Disease, in Physick, Causes, Symptoms and Cure thereof, 918.
Cassian, Author of the Semi-Pelagianism, his History and Errors, 149, 150.
Casting of Cannon, in Gunnery, Art thereof, 100, 101.
Casting large Looking-glass Plates; Art thereof, by whom invented, 5.
Castor, Hieroglyphick, Explication thereof, 163.
Cat, Hieroglyphick, Explication thereof, 164.
Cataplasm, in Pharmacy, Definition thereof, 821.
Cataplasms, anodyne, emollient, Preparation thereof, *ibid.*
Catapulta, Machine of War, among the Antients, Description thereof, 106.
Catastrophe of the Drama; Rules thereof, 965.
Cathetus of Incidence, in Opticks, Definition thereof, 639.
Catholicum simplex reformatum, in Pharmacy, Preparation and Virtues thereof, 856.
Catholicum duplicatum, reformatum, Preparation and Virtues thereof, *ibid.*
Catholicum Frambesarii, reformatum, Preparation and Virtues thereof, *ibid.*
Catholicum Quercetani, Reformatum, Preparation and Virtues thereof, *ibid.*
Catholicum pro Clysteribus, Reformatum, Preparation and Virtues thereof, *ibid.*
Catoptrick Sistula; Method of making it, 639.
Cavallini, a Painter of the Roman School, in Painting, his particular Talent, 759.
Causal Propositions, in Logic, Rules thereof, 331.
Cause, in Logic, Definition thereof, *ibid.*
Cause, in Metaphysick, final, efficient, formal, material, 406.
Celestial Magick, in Magick, Definition thereof, 366.
Celestius, Disciple of Pelagius, his Errors, 143.
Cephalians, their Hieroglyphicks, History thereof, 162.
Cephalick Potion, in Pharmacy; Preparation and Virtues thereof, 814.
Cephalick Remedies, in Pharmacy, Preparation and Virtues thereof, 808.
Ceratum Album, in Pharmacy, Preparation and Virtues thereof, 881.
Ceratum a Commotionem, cerebri, Preparation and Virtues thereof, *ibid.*
Ceratum Barbarum, Preparation and Virtues thereof, *ibid.*
Ceratum Diapyretes, Preparation and Virtues thereof, *ibid.*
Ceratum Polychrestum, Preparation and Virtues thereof, *ibid.*
Cerdon, Heresiarch, his Errors, 134.
Ceremonies observed in giving the Habit of the Order of Malta, 680, 681. At the Election of a grand Master, 681, 682.
Ceres, in Painting, how painted, 781.
Cerinthians, Hereticks, their Errors, 132.
Chain-Bullet, in Gunnery, Description thereof, 86.
Chains, Hieroglyphick, Explication thereof, 168.
Chaliastes, Hereticks, their Errors, 132.
Chamberlains of the Exchequer, their Number and Office, 307.
Champagne, a Painter of the French School, his particular Talent, Remarks on his Works, 792.
Chancellor, High of England, his Office, Privileges, Duties, Rank, 304, 305.
Chancellor of the Exchequer, his Office, Privileges, Duties, 306.
Chancery, a Court, in Law, History and Rules thereof, 304.
Chaperon, Piece of Heraldry, Description thereof, 121.
Chaperonné, Term of Heraldry, Signification thereof, *ibid.*
Characters of the Alphabet, in Grammar, divided into universal and particular, 57.
Characters of the Alphabet, numeral among the Antients, History thereof, 64.
Characters, Numeral among the Romans, History thereof, 65.
Characters, Numeral of the Greeks, History thereof, *ibid.*
Characters, Numeral of the French, History thereof, *ibid.*
Characters, or Types, in Printing, Definition and Description thereof, 985.
Charity, in Painting, how painted, 752.
Charity, in Theology, Definition and Doctrine thereof, 1092, 1093, 1094.
Charles I. King of England, in Painting, how painted, 751.
Charles Vermander, a Painter of the Flemish School; his Character and particular Talent, 782.
Charles Alphonse du Fresnoy, a Painter of the French School, his Character and particular Talent, 791. Remarks on his Works, 791, 792.
Charles le Brun, a Painter of the French School, his History, Character, and particular Talent, 793. Remarks on his Works, 794.
Chart, a Sea-Chart, three Kinds thereof, 586.
Chart, plain, in Navigation, Definition thereof, rejected by Ptolemy, in his Geography, approved by others, how made and used, *ibid.*
Chart of Mercator, in Navigation, how made, 587. Particularities thereof, 588. How used, *ibid.*
Chartres, Dutchy in France, when, by whom erected, 616.
Chase, in Hunting, Definition thereof, 190.
Chase, Frank, Definition thereof, *ibid.*
Chatel-Eraud, Dutchy in France, when and by whom erected, 616.
Chateau Thierry, Dutchy in France, when and by whom erected, *ibid.*
Chateau-roux, Dutchy in France, when and by whom erected, *ibid.*
Chaulnes, Dutchy in France, when and by whom erected, *ibid.*
Checky, an honourable Ordinary in Heraldry, according to *Guillim*, Description and History thereof, 113.
Chevalier Leander, a Painter of the Venetian School, his Character and particular Talent, 774.
Chevalieresses of the Order of Malta, their History, 683, 684.
Chevreuse, Dutchy in France, when and by whom erected, 617.
Chevron, an honourable Ordinary in Heraldry, Description and History thereof, 112.
Chicken-Pox, in Midwifry, Causes, Symptoms and Cure thereof, 489.
Chief, Piece of Heraldry, Blazon thereof, 121.
Chiminage, in Hunting, Signification thereof, 190.
Chorinthians, their Hieroglyphicks, History thereof, 160.
Chorus, in Musick, Signification thereof, 529.
Chorus of the antient Tragedy, in Poetry, Definition and History thereof, 966. M. Dacier's Remarks thereupon, *ibid.*
Christ's Passion in Incarnation, Effects thereof, 256, 257.
Christian Religion, Origin and Progress thereof, 1001, 1002, 1003.
Christopher Shouartz, a Painter of the Flemish School, his Character and particular Talent, 782.
Chronology of the Grand Masters of the Order of Malta, 681, 682.
——— of the Grand Masters of the Knights Templars, 687, 688.
——— of the Grand Masters of the Order of St. Lazare, 689.
——— of the Grand Masters of the Teutonic Order, 691, 692.
——— of the Grand Masters of the Order of Calatrava in Spain, 693.
——— of the Chief Sovereigns and Knight of the Holy Ghost in France, 704, 705.
——— of the Grand Masters of the Order o the Bath in England, 713.
——— of the Sovereign Chiefs and Knights of the Order of the Garter in England, 716.
——— of the Grand Masters of the Order of the Thistle in Scotland, 721.
——— of the Sovereign Chiefs and Knights of the Order of the Golden Fleece in Spain, 727.
——— of the Grand Master and Knights of the Order of the Annunciad in Savoy, 731, 732.
Cimabué, a Painter of the Roman School, and Restorer of Painting in Italy, 759.
Cinnabar, in Minerals, Definition thereof, 493.
——— Native, Definition thereof, how distinguished from the artificial; its Uses, *ibid.*
——— Artificial, how prepared, Uses thereof, *ibid.*
——— called Vermillion, how prepared, *ibid.*
——— blue, Preparation thereof, *ibid.*
Circle, Hieroglyphick, Explication thereof, 167.
Circolo, Term of Musick, Signification thereof, 538.
Circolo Mezzo, Term of Musick, Signification thereof, 538.
Circumferentor, Instrument used in surveying, Description and Use thereof, 1078.
Cistercian Monks, a religious Order, History thereof, 666.
Cisterns which contain the melted Matter for casting Looking-Glass Plates, Description thereof, 5.
Cittra, Term of Musick, Signification thereof, 538.
Civil Law, Definition thereof, 275.
Civil Wars excited by the Calvinists in France, Sketch thereof in Government, 46.
Clair obscure, in Painting, Definition and Taste thereof, 741. Its Principles established by Andrew Boscoli, and Otho Venius, 742.
Claudius Gelée, a Painter of the French School, his History, Character, and particular Talent, 794.

Clau-

Claudius Vignon, a Painter of the French School, his Character and particular Talent, 792.
Clear and intuitive Vision of God; in God and his Attributes; Possibility thereof, 20, 21.
Cleche, Term of Heraldry, Signification thereof, 121.
Clementines, in the Canon-Law; why thus called, and by whom published, 281.
Clerk of the Crown, in Law, his Office, 365.
—— in Chancery, their Number and Office, *ibid.*
—— of the Court of King's Bench, their Office, 308.
—— of the Papers in the King's Bench, his Office, *ibid.*
—— of the Declarations in the King's-Bench, his Office, *ibid.*
—— of the Signet in the King's-Bench, his Office, *ibid.*
—— of the Rules in the King's-Bench, his Office, *ibid.*
—— of the Bails in the King's-Bench, his Office, *ibid.*
—— of the Errors in the King's-Bench, his Office, *ibid.*
—— of the Docquets in the King's-Bench, his Office, *ibid.*
—— of the Warrants in the Common-Pleas, his Office, 316.
—— of the Essoigns in the Common-Pleas, his Office, *ibid.*
—— of the Outlawries in the Common-Pleas, his Office, *ibid.*
—— of the Juries in the Common-Pleas, his Office, *ibid.*
—— of the Treasury in the Common-Pleas, his Office, *ibid.*
—— of the Errors in the Common-Pleas, his Office, *ibid.*
—— of the King's Silver in the Common-Pleas, his Office, *ibid.*
—— of the Enrolments in the Common-Pleas, his Office, *ibid.*
Clew-line of the Top-gallant of the Bowsprit, in Naval Architecture, Length thereof, 574.
—— of the Fore-top Mast; Length thereof, *ibid.*
—— of the Fore-Mast; Length thereof, *ibid.*
—— of the Main-top Mast; Length thereof, *ibid.*
—— of the Main-Mast; Length thereof, *ibid.*
—— of the Mizen-Mast, and Mizen-top-Gallant; Length thereof, *ibid.*
Clifford's-Inn, in London, when, and by whom founded, and to what Purpose, 1195.
Close, Term of Heraldry; Signification thereof, 121.
Closet, Piece of Heraldry; Description thereof, *ibid.*
Cloth, in Weaving; Art of Weaving it, 1200, 1201.
Cluny, a celebrated Abbey in France; History thereof, 667.
Codex, in the civil Law; History thereof, 281, 282.
Coetlogon, De, Author of this Work; his new System of the Formation of Metals; and his Refutation of that of Dr. Woodward, 392.
—— His Refutation of the Sentiment of Boerhaave, on the general Nature of Metals, 393, 394.
—— His Sentiment on the human Understanding, 412.
—— His new System of the Formation and Phænomena of Thunder, 419.
—— his new System of the Causes of Earthquakes, 435.
—— His new System of the Object of Vision, 636.
—— His new Philosophy, 905, 906.
Coiffe, Dutchy, in France; when, and by whom erected, 617.
Cold, Disease, of Horses; how cured, 184.
Colick, Disease, in Physick; different Sorts thereof, 934.
Colleges of the University of Paris; their Number, Name, and Foundation, 1189.
—— of the University of Orleans; their Number, Name, and Foundation, 1190.
—— of the University of Angiers; their Number, Names, and Foundation, 1190.
—— of the University of Oxford; their Number, Names, Foundation, Discipline, and Privileges, 1191.
—— of the University of Cambridge; their Number, Names, Foundation, Discipline, and Privileges, 1192.
—— of the University of St. Andrew, in Scotland; their Number, Names, Foundation, Discipline, and Privileges, 1197.
—— of the University of Glasgow, in Scotland; their Number, Names, Foundation, Discipline, and Privileges, 1198.
—— of the University of Aberdeen, in Scotland; their Number, Names, Foundation, and Discipline, 1199.
—— of the University of Edinburgh, in Scotland; their Number, Names, Foundation, and Discipline, 1199, 1200.
Colobarsius, Heresiarch, his Errors, 135.
Colour of Horses, in Horsemanship; different Sorts thereof, Signs of a good or bad Horse, 171.
Colours for Japanning, how prepared, 133.
Colours, in Opticks, original, heterogeneous, Definition of both, 630.
Colours, Theory thereof, 631.
Colours of thin Laminæ, or Plates; Definition and Theory thereof, 631, 632.
Colours of natural Bodies; Theory thereof, 632.
Colours, in Painting; different Sorts thereof, how prepared, mixed, and applied, 748, 749.
Coma, Disease, in Physick; Causes, Symptoms, and Cure thereof, 918.
Combatant, Term of Heraldry, Signification thereof, 121.
Comma, in Grammar, Definition and Use thereof, 75.
Commander of the Artillery, his Duties in a Siege, 98, 99.
Commander, a Tool used in Hat-making; Description and Use thereof, 106.
Comedy, in Poetry, Definition, Rules, and History thereof, 969.
Commissary of Artillery, in Gunnery; his Duties in a Siege, 98, 99.
Committees of the House of Commons, in England; how regulated, 49, 50.
Common Musket, in Gunnery; Proportions thereof, 105.
Common Navigation, in Navigation; Definition and Rules thereof, 585.
Common Sea-Compass, in Navigation; Description and Use thereof, 585.
—— by whom invented, 586.
Common Needles, in Needle-making; Goodness thereof, 613.
Common Visibles, in Opticks; Definition and Theory thereof. Five Kinds of them according to Aristotle, 636.
Common Cathartick, in Pharmacy; Preparation thereof, Remarks thereupon, 812, 813.
Common Emulsion, in Pharmacy; Preparation thereof, 814.
Common, or Sucking-Pump, in Hydraulicks; Description and Uses thereof, 205.
Commons of the Parliament of England; their History, in Government, 49, 50.
Companies of the City of London; History thereof, 54.
Comparison, a Figure, in Rhetorick; Definition, Rules, and Examples thereof, 1015.
Complex Term, in Logick; Rules thereof, 329, 330.
Complexion, in Rhetorick; Definition, Rules, and Examples thereof, *ibid.*
Company, Term of Heraldry; Signification thereof, 121.
Composed Remedies, in Pharmacy; Definition and Preparation thereof, 807.
Composed Propositions, in Logick; different Sorts thereof; their Rules, 331.
Composing-Stick, in Printing; Description and Use thereof, 986.
Compositor, in Printing; Rules of his Art, 987.
Compound Interval, in Musick; Definition and Rules thereof, 570.
Compound Harmony, in Musick; Definition and Rules thereof, 526.
Compound Tense, in Grammar; Use thereof; how denoted in the Greek and Latin; how in the French and English; three Sorts thereof, 72.
Conception, false, in Midwifry; Remarks thereupon, 438.
Concert, in Musick; Definition and Rules thereof, 536.
Concinnous System, in Musick, 511.
Conclusive Conjunction, in Grammar; Definition and Use thereof, 73.
Conclusion, in Logick; Rules thereof, 335.
Concord, in Musick, simple, and compound; Rules thereof, 528.
Concord, in Painting; how painted, 752.
Conditional Futures, with Regard to God; what, 28.
Conditional Conjunction, in Grammar; Definition and Use thereof, 73.
Conditional Consent, in Sacraments; if sufficient to the Validity of Marriage, 1028.
Confectio Narcotica, in Pharmacy; Preparation and Virtues thereof, 854.
Confectio Alkermes; Preparation and Virtues thereof, *ibid.*
Confectio Cardiaca Collegii Lugdunen. Preparation and Virtues thereof, 854.
Confection against Worms; Preparation and Virtues thereof, *ibid.*
Confectio Cephalica, Preparation and Virtues thereof, *ibid.*
Confectio Pretiosa, Preparation and Virtues thereof, 855.
Confection against Melancholy; Preparation and Virtues thereof, *ibid.*
Confectio hamec, reformata, Preparation and Virtues thereof, 856.
Confidence, in Painting, how painted, 752.
Confirmation, in Sacraments; how called by the Antients; by whom conferred; retained in the Church of England, 1022.
Conjunction, in Grammar; copulative, adversative, causal, conclusive, conditional, continuative, disjunctive, dubitative, exceptive, Boileau's Sentiment thereupon, 73.
Conjunctive Syllogism, in Logick; Rules thereof, 337.
Consanguinity, in Sacraments; when an Impediment to Marriage, 1029.
Consequent, in Logick; Definition and Rules thereof, 333.
Conserve, in Pharmacy; Definition thereof, 826.
Conserve of Violets, in Pharmacy; Preparation and Virtues thereof, *ibid.*
Conserve of Roses; Preparation and Virtues thereof, *ibid.*
Conserve of Flowers of Tussilage; Preparation and Virtues thereof, 827.
Conserve of the Root of Enula Campana; Preparation and Virtues thereof, *ibid.*
Conserve of Mallow Roots; Preparation and Virtues thereof, *ibid.*
Conserve of Juniper-berries; Preparation and Virtues thereof, *ibid.*
Consonanti, or Consonant Intervals, in Musick, Definition and Rules thereof, 510.
Consonants, in Grammar; Division thereof into simple and double, liquid and mute, into five Classes, by the Hebrew Grammarians, five French labical Consonants, 57.
Consumption, Tabes, a Disease, in Physick; Causes, Symptoms, and Cure thereof, 924, 925.
Contingent Futures, with Regard to God, two Sorts thereof, 27.
Contradictories, in Metaphysick; Definition and Rules thereof, 405.
Contradictory Propositions, in Logick; Rules thereof, 329.
Contrary Propositions, in Logick; Rules thereof, *ibid.*
Contusions of the external Parts of the Matrice, caused by the Delivery; how remedied, 472.
Conventuals, a Branch of the Order of St. Francis; their History, 669.
Conversion, a Figure, in Rhetorick; Definition and Examples thereof, 1015.
Convex Mirrours, in Opticks; Description and History thereof, 639, 640.
Cook's Room, in Naval Architecture; Situation, and Dimensions thereof, 577.
Coptick Language, in Grammar; History thereof; maintain'd to be a Mother Tongue by Kircher; Vossius and Simon's Sentiment thereupon, 79.
Copper, in Metals; Definition, History, and Purification thereof, 396.
Copulative Conjunction, in Grammar; Definition, and Use thereof, 73.
Cordeliers, a Branch of the Order of St. Francis; their History, 670.
Cordial, or Cardiack Remedies, in Pharmacy; Preparation and Virtues thereof, 808.
Cordial Potion, in Pharmacy; Preparation and Virtues thereof, 814.
Cornelius Englebert, a Painter, of the Flemish School; his Character and particular Talent, 782.
Cornelius Shwartz, a Painter, of the Flemish School; his Character and particular Talent, 684.
Cornelius Polemberg, a Painter, of the Flemish School; his Character and particular Talent, 685.
Cornelius Jansenius, Bishop of Ypres; his History, and Doctrine, 209, 210.
Cornu Ammonis, a Stone, in Natural History; Description thereof, where found, 562.
Coronet, in Heraldry; how blazoned, 115.
Coronet of a Baron, Viscount, Earl, Marquis, Duke, Prince, *ibid.*
—— of an Elector of the Empire, 116.
Corrector of the Press, in Printing; his Office, 987.

Cotice, or Cotise, Piece of Heraldry; blazon thereof, 122.
Cotton-Paper, in Paper-making; Method of making it, 798, 799.
Couchant, Term of Heraldry; Signification thereof, 122.
Covenant, in Law; Definition and Conditions thereof, 301.
Covenant between a Lessor and a Lessee, *ibid.*
Cough, Disease, in Physick; Causes, Symptoms, and Cure thereof, 925.
Count, in Nobility; Definition thereof; by what Title distinguished in England, 618.
Counts, their Right, what originally, what among the Romans in the Time of the Commonwealth, under the Emperors, among the Franks and Germans; under the last of the second Race of the Kings of France, *ibid.*
Counts, their Quality, very different from what it was antiently; the Point of Precedence between them and Marquisses; how created by William the Conqueror; how created at present in England, 619.
——— a Sequel of their History, 620.
Counter-changed, Term of Heraldry; Signification thereof, 121.
Counter-cheveroned, in Heraldry, Signification thereof, 112.
Counter-Company, Term of Heraldry; Signification thereof, 121.
Counter-passant, Term of Heraldry; Signification thereof, 121.
Counter-point, in Musick; Definition thereof, 526.
Counter-saliant, Term of Heraldry; Signification thereof, 122.
Counter-tripping, Term of Heraldry; Signification thereof, 122.
Couped, Term of Heraldry; Signification thereof, 122.
Couple Close, Term of Heraldry; Signification thereof, 122.
Courant, Term of Heraldry; Signification thereof, *ibid.*
Courantine, in Pyrotechny; Method of making it, 993.
Courts of the Lord Mayor of London; History thereof, 53, 54.
Cousu, Term of Heraldry; Signification thereof, 122.
Creatures, in what semblable to God; Proofs of that Resemblance, 12, 13.
Crescent, Piece of Heraldry; Blazon thereof, 122.
Crest, in Heraldry; Blazon thereof, its Origin according to Herodotus; bore by the antient Warriors, 117.
Crinitus, his Sentiment on the Invention of the Hebrew Letters, in Grammar, 65.
Crocodile, Hieroglyphick; Signification thereof, 166.
Croisiers, a Religious Order; History thereof, 669.
Croslet, in Heraldry; Signification thereof, 166.
Cross, an honourable Ordinary, in Heraldry; Definition thereof, by Guillim; their different Contents; when first used in Armories, 110.
Cross wided, in Heraldry; Blazon thereof, Patee, Patee fitched, Patee on three Parts, Engrailed, Potencee, Fleury, Velane, Botone, Panel, &c. 110, 111.
Crossways, Term of Heraldry; Signification thereof, 122.
Crow, Hieroglyphick; Signification thereof, 165.
Crown, Hieroglyphick, Signification thereof, 167.
Crown, in Heraldry; Spanish, English, French, Description thereof, 116.
Crowns, to whom given in Antiquity; first Crowns, Form thereof. How used by the Argonothetae, *ibid.*
Crowns of the Roman Emperors; four Kinds thereof, *ibid.*
Crowns, among the Romans, distributed as Rewards, *ibid.*
Crown, oval; Description thereof, *ibid.*
——— naval; Description thereof, *ibid.*
——— vallaris; Description thereof, *ibid.*
——— mural; Description thereof, *ibid.*
——— civick; Description thereof, *ibid.*
——— triumphal; Description thereof, *ibid.*
——— obsidionalis; Description thereof, *ib.*
——— athletick; Description thereof, *ibid.*
Crown of Thorns of Jesus Christ, ransom'd by *St. Louis*, King of France, *ibid.*
Crudity, in Physick; Definition and Signs thereof, 913.
Cryer of the Court of King's Bench; his Office, 308.
Crystal Glasses, in Glass-making; how made, 3.
Crystalline Humour of the Eye, in Opticks; Definition thereof, 625.
Ctesebes's Pump, in Hydraulicks; Definition, and Use thereof, 205.
Cuogolo, a Sort of Pibbles, used in Glass-making; where found, 2.
Cupid, in Painting; how painted, 751.
Currents, in Navigation; Definition, History, and Theory thereof, 597, 598.
Cursitors Inn, in London; when, and by whom founded, 1196.
Custos Brevium, in the Common Pleas; his Office, 316.
Cutaneous Diseases; different Sorts thereof, 938.
Cut-water, in Naval Architecture; Proportions thereof, 578.
Cylindrical, conical, parabolical, and elleptical Mirrours, how prepared; Theory thereof, 642.
Cypress, Hieroglyphick; Explication thereof, 169.
Cyrus, Bishop of Jerusalem, a Monothelite; his History and Errors, 154.

D.

D, Fourth Letter of the Alphabet, History thereof, 52.
——— Its Signification among the numeral Characters of the Antients, 64.
D, Majuscule, in Musick; Use thereof, 539.
Dactyle, the Foot of a Verse, in Poetry; Rules thereof, 961.
Dæmons, in Mythology; their History, 550.
Dancette, Term of Heraldry; Signification thereof, 109.
Daniel Ricciarelli, a Painter of the Roman School; his Character and particular Talent, 768.
Daniel Segrey, a Painter of the Flemish School; his Character and particular Talent, 786.
Dative, a Case in Grammar; Definition and History thereof, 69.
David, in Painting, how painted, 751.
David Teniers, a Painter, of the Flemish School; his Character and particular Talent, 785.
David Teniers, the Younger, a Painter, of the Flemish School; his Character and particular Talent, 786.
Deacons, in Sacraments; their first Institution, Ordination, Office, 1023.
Declaration, in Law; Definition, and Form thereof, 311.
Declaration, its Defects, how remedied, *ibid.*
Declension, in Grammar; Definition and History thereof, 68, 69.
Decoction, in Pharmacy; Definition thereof, 811.
——— bitter; Preparation and Virtues thereof, *ibid.*
——— cephalick; Preparation and Virtues thereof, *ibid.*
——— cordial; Preparation and Virtues thereof, *ibid.*
——— detersive; Preparation and Virtues thereof, 812.
——— sudorifick; Preparation and Virtues thereof, 811.
Decree of Gratian, in Law; History thereof, 280.
Decrees in Chancery; Definition thereof, 305.
Decretals, in the Canon Law; History thereof, 280.
Deductione, Term of Musick; Signification thereof, 539.
Definition of Things, in Logick; two Sorts, and Rules thereof, 333.
Delivery, in Midwifry; laborious, difficult; Causes thereof, 456, 457.
Deliveries against Nature; whence they proceed, 459.
Demi, Term of Heraldry; Signification thereof, 123.
Demi-batoon, in Musick; its Value, 521.
Demi-Gods, in Mythology; their History, 549, 550.
Democracy, a Kind of Government; Definition and History thereof, 68.
Demonstrative Pronouns, in Grammar; Definition thereof, 68.
Dentrifick Remedies, in Pharmacy; Preparation and Virtues thereof, 808.
Depart, in Refining; Art thereof, 998, 999.
Derivative Words, in Grammar; what, 66.
Dervizes, in Mahometanism; their Character and History, 373.
Des Cartes's Hypothesis on the Virtues of the Magnet, 368.
Description of Colours, in Painting; Art thereof, 742.
Detail of the Artillery employed in a very famous Siege, 100.
Device, or Motto, in Heraldry; Definition and History thereof, 117.
Dew, in Meteorology; Theory thereof, 423.
Diadem, Hieroglyphick; Explication thereof, 167.
Dialectical Places, in Logick; what, 340.
Diamond, Hieroglyphick; Explication thereof, 167.
Diamond, in Lapidary, Art of cutting them into a Brilliant, Rose, Table, 270.
——— their Goodness and Beauty how discovered; how distinguished from other Stones, while rough; where found, how dug, six Mines thereof, 271.
Diamonds, factitious, made in France; History thereof, 272.
Diana, in Painting; how painted, 751.
Diaphoretick Remedies, in Pharmacy; Virtues thereof, 807.
Diapré, Term of Heraldry; Signification thereof, 123.
Diarrhæa, a Disease, in Physick; Definition, Cure and Causes, Symptoms, thereof, 934.
Diatonick Chorus, of the System of the Antients, in Musick; Table thereof, 511.
Diatonick Genus, in Musick; Rules thereof, 516.
Dido, in Painting; how painted, 751.
Diet of Worms, assembled on the Affair of Lutheranism; Deliberations thereof, 348.
——— of Ausbourg, on the same Affair; magnificent Entry of the Emperor Charles V. on that Occasion, 357. Deliberations thereof, 351, 352.
——— of Ratisbon, assembled on the same Affair; Deliberations thereof, 355, 356.
——— the second of Ratisbon, assembled on the same Affair; Deliberations thereof, 357, 358.
Dieuretick Remedies, in Pharmacy; Virtues thereof, 807.
Difference and Affinity of several Languages, in Grammar, 83.
Digest, in the Civil Law; History thereof, 287.
Digestion, in Physick; Definition thereof, 913.
Dii Viales, in Mythology; their History, 549.
Dilemma, in Logick; Definition, Rules, and Examples thereof, 339.
Diminution of the Chief, in the civil Law, less, middle, and greatest, 283.
Diophantus of Alexandria, in Mathematicks; first Inventor of Algebra, 374.
Dioptricks, in Opticks; Definition and Laws thereof, 643.
Diphthong, in Grammar; Definition thereof, 58.
——— Greek and Latin; how pronounced, *ibid.*
Diphthong, distinguished, in French and English, into those with Regard to the Eye, and with Regard to the Ear, *ibid.*
Diphthongs, English; History thereof, *ibid.*
Diptote, in Grammar; what, 67.
Discord, in Musick; Rules thereof, 526.
Disease, in Physick; Definition thereof, 970.
Diseases; their original Cause, according to De Coetlogon, *ibid.*
Diseases of the Fluids; Causes thereof, *ibid.*
Diseases of the animal Spirits; Causes thereof, *ibid.*
Diseases of the Solids; Causes thereof, 911.
Diseases, organical; Definition and Causes thereof, *ibid.*
Diseases, hereditary; what, 912.
——— endemical; Definition thereof, *ibid.*
——— epidemical; Definition thereof, *ibid.*
——— chronical; Definition thereof, *ibid.*
Diseases of the Head; their Number, Causes, Symptoms, and Cure, 917, 918.
Diseases of the Throat; their Number, Causes, Symptoms, and Cure, 921, 922.
Diseases of the Thorax; their Number, Causes, Symptoms, and Cure, 922, 923, 924.
Diseases of the Abdomen; their Number, Causes, Symptoms, and Cure, 931, 932, 933.
Diseases of the Extremities; their Number, Causes, Symptoms, and Cure, 936, 937, 938.
Diseases of the Eyes; Cure thereof, 940.
Disinheritance of Children, in the civil Law, Conditions thereof, 289.
Disjunctive Propositions, in Logick; Definition and Rules thereof, 331.
Dissimulation, in Painting; how painted, 752.
Distinction, in God and his Attributes, Definition thereof, 9.
Distinction, formal; in God and his Attributes, *ibid.*
——— virtual; Definition thereof, *ibid.*
Distinction, in Metaphysick; two Kinds thereof, 403.

Distinc-

Distinction, real; Definition and Division thereof, *ibid.*
Distinction, adequate; Definition thereof, 404.
Distinction of the Keys, in Musick; Rules thereof, 513.
Diterick Barent, a Painter, of the Flemish School; his Character and particular Talent, 781.
Divine Essence, in God and his Attributes; Definition thereof, 7. In what it consists essentially; not placed formally in the divine Understanding, 8.
Divine Attributes, Definition thereof, how divided, how distinguished either between themselves, or from the divine Essence, 8, 9.
Division of Things, in the civil Law; History thereof, 285.
Division, in Logick; Rules thereof; 332.
Division of Signs, in Logick, three Kinds thereof, 324.
Division, in Rhetorick, Definition and Rules thereof, 1008.
Divorce, in Sacraments, legitimate Causes thereof, 1033, 1034.
Doe, in Hunting; his different Names, according to the Difference of his Age, 186.
Dog, Hieroglyphick, Explication thereof, 163.
Dogs, their Maladies; Number, Symptoms, and Cure thereof, 189, 190.
Dogmatick Physicians, in Physick, their History, 941.
Dolphin, Hieroglyphick, Explication thereof, 166.
Dominican Friars, a Religious Order; their History, 671.
Dominican Nuns, a Religious Order; their History, 675.
Dominick Ghirlandai, a Painter, of the Roman School; his Character and particular Talent, 760.
Dominico Zampieri, a Painter, of the School of Lombardy; his Character and particular Talent, 777. Remarks on his Works, *ibid.*
Domesday, or Domesday-Book, in the Exchequer; History thereof, 307.
Donation, in the Civil Law; Definition thereof, 288.
Donation, occasioned by Death. Between Livings. On Account of Marriage; Conditions thereof, *ibid.*
Dorick Mode, in Musick; Definition and Rules thereof, 516.
Double Rhymes, in Poetry; Definition thereof thereof, 978.
Doubting, a Figure, in Rhetorick; Definition and Rules thereof, 1012.
Dower, in Law, Definition thereof, what among the Goths; five Kinds thereof among the English, 303.
Dower, by common Law, by Custom, *ex affensu Patris*; *de la plus belle*; three Things intitle to a Dower; how assigned at common Law, *ibid.*
Draco volans, in Meteorology; Theory thereof, 419.
Drama, in Poetry, Definition, Rules, and History thereof 964, 965.
Draperies, in Painting, how to be managed according to the Figures, 741.
Drift of a Forest, in Hunting; Signification thereof, 190.
Dropsy, a Disease, in Physick; different Sorts thereof, their Causes, Symptoms, and Cure, 932.
Drought, in Painting; Rules thereof, 741.
Druids, in Mythology, their History, 551.
Drum, in Musick, Definition and Description thereof, 536.
Dryades, in Mythology, their History, 551.
Dryades, in Painting, how painted, 752.
Du Breuil, a Painter, of the French School; his Character, and particular Talent, 788.
Dukes, in Nobility, their History, 615.
Dukes, in England, how stiled, 617.
Dukes; sovereign Princes who bear that Title, *ibid.*
Dulcimer, Instrument of Musick; Definition, and Use thereof, 536.
Dun-Hounds, in Hunting; their Qualities, 187.
Duration, in Metaphysick; Definition thereof, 404.
Dysentery, a Disease, in Physick; Definition, Causes, Symptoms, and Cure thereof, 933, 934.

E.

E, Fifth Letter of the Alphabet, and the second Vowel, how pronounced by the Greeks and Latins, 59.
——— by the English and French, 60.
——— whence its Figure, *ibid.*
E, its Signification among the numeral Character of the Antients, 64.
E, on the Key of an Organ, or Harpsichord, its Signification, 539.
Earl Marshal of England; his Dignity and Office, in Nobility, 619.
Earls, in England, how created, *ibid.*
Earth, how represented, in Heraldry, 113.
Earthquake, in Meteorology; Definition thereof, 431.
Earthquakes, two Kinds thereof, according to Aristotle and Pliny; four Kinds, according to Agricola, *ibid.*
Earthquakes, their Causes, according to the different Sentiments of Authors, 432.
——— their Phænomena, History thereof, 435, 436.
Easter Term, in Law, when it begins and ends; the Number of its Returns, 319.
Ebion, Heresiarch, his History and Errors, 133.
Ebionites, Hereticks, their History and Errors, *ibid.*
Ecclesiastical Law, Definition theroof, 275. whence taken, 279.
Eclogue, in Poetry; Definition, History, and Rules thereof, 974.
Efficacious Grace, in Jansenism; Definition thereof, whence it borrows its Efficacy, does not determine the Will physically, 229.
——— Its Conciliation with the human Will, 225.
Egg, in Natural History, Definition and Description thereof, 567.
Eggs, Oliver's and Bonetus's curious Remarks on those of Women, 568.
Eggs, how hatched in Egypt, *ibid.*
Egyptians, their Hieroglyphicks, 160, 161.
Ekius, Professor of Theology at Ingolstadt; writes against Luther, 346.
Elbœuf, Dutchy, in France; when, and by whom erected, 616.
Electuarium Diacarthami, Preparation and Virtues thereof, 848.
Electuarium Orvietanum, Preparation and Virtues thereof, 853.
Electuarium Diasulphuris reformatum, Preparation and Virtues thereof, *ibid.*
Electuarium Diascordium Fracastorii reformatum; Preparation and Virtues thereof, *ibid.*
Electuarium Sassafras reformatum, Preparation and Virtues thereof, 854.
Electuarium Pectorale, Preparation and Virtues thereof, 855.
Electuarium Scorbuticum, Preparation and Virtues thereof, *ibid.*
Electuarium contra Dysenteriam; Preparation and Virtues thereof, *ibid.*
Electuarium Terebinthinatum; Preparation and Virtues thereof, *ibid.*
Electuarium Aperiens, Preparation and Virtues thereof, 857.
Electuarium Antihydropicum, Preparasion and Virtues thereof, *ibid.*
Electuarium Diaturbith mineral., Preparation and Virtues thereof, *ibid.*
Elixirs, in Pharmacy; Definition and Theory thereof, 865.
Elixir proprietatis, Preparation and Virtues thereof, *ibid.*
Elixir pestilentiale, Preparation and Virtues thereof, *ibid.*
Elixir de tribus, Preparation and Virtues thereof, *ibid.*
Elixir Antiepileptick, Preparation and Virtues thereof, *ibid.*
Elixir Febrile, Preparation and Virtues thereof, *ibid.*
Elixir Citri, Preparation and Virtues thereof, *ibid.*
Elixir Sincopticum, Preparation and Virtues thereof, *ibid.*
Elixir vitrioli veneris, Preparation and Virtues thereof, *ibid.*
Elixir Nephreticum, Preparation and Virtues thereof, *ibid.*
Elixir Lithontripticum, Preparation and Virtues thereof, *ibid.*
Elixir Uterinum, Preparation and Virtues thereof, 867.
Elixir Antipodagricum, Preparation and Virtues thereof, *ibid.*
Emerald, precious Stone, in Lapidary; Definition and History thereof, 273.
Emeralds, several of an incredible Bigness; their different Value, according to their different Degrees of Beauty, *ibid.*
Emetick Remedies, in Pharmacy; Theory thereof, 807.
Emparlance, in Law, Definition thereof, 311.
Empedocles, in Painting, how painted, 751.
Empiricks, a Sect of Physicians; their History, 941.
Emplastrum Diachalceos, Preparation and Virtues thereof, 882.
Emplastrum Diachilon album, Preparation and Virtues thereof, *ibid.*
Emplastrum Diachilon de Gummis, Preparation and Virtues thereof, *ibid.*
Emplastrum de Betonica, Preparation and Virtues thereof, 883.
Emplastrum Cephalicum, Preparation and Virtues thereof, *ibid.*
Emplastrum Divinum, Preparation and Virtues thereof, *ibid.*
Emplastrum Diasulphuris, Preparation and Virtues thereof, 884.
Emplastrum Regium, Preparation and Virtues thereof, *ibid.*
Emplastrum Dentium, Preparation and Virtues thereof, *ibid.*
Emplastrum pro Matrice, Preparation and Virtues thereof, 885.
Emplastrum Febrifugum, Preparation and Virtues thereof, *ibid.*
Emption, and Vendition, in Law; different Kinds thereof, 293.
Empyema, a Disease, in Physick; Causes, Symptoms, and Cure thereof, 922.
Emulsion, in Pharmacy, Definition thereof, 814.
——— common, Preparation and Virtues thereof, *ibid.*
——— astringent, Preparation and Virtues thereof, *ibid.*
——— pectoral, Preparation and Virtues thereof, *ibid.*
——— cooling and aperitive, Preparation, Virtues, and Doses thereof, *ibid.*
Endless Screw, in Mechanicks, Definition, Description, Use, and Doctrine thereof, 380.
Endorsed, Term of Heraldry, Signification thereof, 123.
Enharmonick, a Gender, in Musick; History thereof, 511.
English, or English Tongue, History thereof, 80, 81, 82, 83.
English Navigation, Art thereof, 611, 612.
Engrailed, Term of Heraldry, Signification thereof, 123.
Ente, Term of Heraldry, Signification thereof, *ibid.*
Environe, Term of Heraldry, Signification thereof, *ibid.*
Epathick Epithema, in Pharmacy, Preparation and Virtues thereof, 819.
Epenthesis, in Grammar, Definition thereof, 76.
Epic Poem, in Poetry, Definition thereof, 963.
Epic Poem, its Nature according to Sir R. Blackmore, Bossu, de la Motte, *ibid.*
——— Its History, 964.
——— Rules thereof, given by Boileau, *ibid.*
Epic Action, its Unity, in what it consists, three Things requisite thereunto, according to Bossu, 964.
——— Importance thereof, *ibid.*
Epicedion, in Rhetorick, Definition and Rules thereof, 1017.
Epicœne, in Grammar, Definition thereof, 68.
Epicuræan Philosophy, System thereof, 896.
——— Explication of that System, 897.
Epigram, in Poetry, Definition and Rules thereof, 975.
Epilaterion, in Poetry, History thereof, 963.
Epilogue, in the Drama, Definition and Rules thereof, 966, 967.
Epinicion, in Poetry, History thereof, 963.
Episodes, in Poetry, Definition and Rules thereof, 966, 967.
Episynaphe, Term of Musick; Signification thereof, 539.
Epithalamium, in Poetry, History thereof, 963.
Epithema, in Pharmacy, Signification thereof, 819.
Epithema, liquid, Use thereof, *ibid.*
——— solid, Use thereof, *ibid.*
Epithema, liquid and cordial, Preparation and Virtues thereof, *ibid.*
Epithema, liquid, for Children newly-born; Preparation and Virtues thereof, *ibid.*
Epitrito, Term of Musick, Signification thereof, 539.
Epode, in Poetry, Definition and Rules thereof, 974.
Equality, in Painting, how painted, 753.
Equinoctial Compass, in Navigation, Description and Use thereof, 592, 593.
Equivocal Words, in Grammar, Definition and History thereof, 66.
Erased, Term of Heraldry, Signification thereof, 123.
Errata, in Printing, History thereof, 988.

Errhina, in Pharmacy, Definition and Use thereof, 815.
Errhina, liquid, Preparation and Virtues thereof, *ibid.*
Errhina, in Form of Unguent; Preparation and Virtues thereof, 816.
——— solid and astringent, Preparation and Virtues thereof, *ibid.*
Erroneous Judgment, in the Court of Exchequer, by whom examined, 315.
Escutcheon, in Heraldry; Etymology thereof, 109.
Escutcheon of Pretence, Definition and Blazon thereof, *ibid.*
Escutcheons, their Form among the English and French about two hundred Years ago, *ibid.*
——— how placed among the Antients, *ibid.*
Espernon, Dutchy, in France, when, and by whom erected, 616.
Esquire, in Nobility, Origin of the Name very obscure, 623.
Esquires, in Nobility, their History, 623, 624.
Essence, in Metaphysick, Definition thereof, 402.
Essenians, a Sect among the Jews, their History, 265.
Essoin, or Essoing, in Law, Definition and History thereof, 319.
Estouteville, Dutchy, in France, when, and by whom erected, 616.
Etampes, Dutchy, in France, when, and by whom erected, 616.
Eternal Law, the Source of all others, different from Providence, 276.
Eternity, in God and his Attributes, Definition thereof; Explication of the Definition, 18.
Eternity, distinguished both from continued and discreet Time; how distinguished from Age, *ibid.*
Eternity of God, Doctrine thereof contained in seven Verses of St. Prosper, 19.
Ethiopian Tongue, in Grammar, History thereof, 83.
Ethopœia, in Rhetorick, Definition and Division thereof, 1013.
Etrees, Dutchy, in France, when, and by whom erected, 616.
Euphorbium, in Pharmacy, Preparation thereof, 822.
Evreux, Dutchy, in France, when, and by whom erected, 616.
Euridice, her Figure, Hieroglyphick, Explication thereof, 170.
Examiners, in Chancery, their Number and Office, 305.
Exception, in Law, Definition thereof, 190.
——— three Kinds of Exceptions according to Civilians, *ibid.*
Exchequer, in Law, Etymology thereof, according to Du Cange, Nicod, and Pithou, 307.
Execution, in Law, Definition thereof, 314.
Executions, two Sorts thereof, *ibid.*
Existence, in Metaphysick, Definition thereof, 402.
Exordium, in Rhetorick, Definition and Rules thereof, 1008.
Expediate, in Hunting, Signification thereof, 190.
Experimental Philosophy, System thereof, 904.
Extraction of a dead Child, in Midwifry, how perform'd, 468.
Extreme Unction, in Sacraments, History and Proofs thereof, 539.
Eyes of Horses, their Maladies, Cure thereof, 185.

F.

F, The sixth Letter of the Alphabet, and fourth Consonant; how divided, how pronounced, 60.
—— Its Signification among the numeral Characters of the Antients, 64.
F, in Musick, its Signification, 539.
Fa, in Musick, Signification thereof, *ibid.*
Fables, in Poetry, Definition, Division, and History thereof, 976, 977.
Faith, necessary for Men for their Justification, Proofs thereof, 230.
Faith, in Theology, Definition thereof, 1085.
— Its Division into actual and habitual, 1086.
Faith, habitual, Definition thereof, *ibid.*
— actual, Definition thereof, *ibid.*
False Conception, in Midwifry, Definition and Signs thereof, 438.
— to whom it most commonly happens, 439.
— how extracted, 469.
Fame, in Painting, how painted, 752.
Farce, in Poetry, what, according to Aristotle, of how many essential Parts it consists, according to the same, 967.
Farce, Epic; to what confined according to Bossu; how specified, according to the same, *ibid.*
Farces, different at present from what they were originally, 970.
Farcy, a Disease of Horses, Definition and Division thereof, 183.
——— Its Symptoms and Cure, 183, 184.
Fargues, in Naval Architecture, Definition, Description, and Use thereof, 582.
Fathers of the Oratory, a religious Congregation, History thereof, 674.
Fathers of the Mission, a religious Congregation, History thereof, 675.
Fathers of St. Lazarus, a religious Congregation, History thereof, *ibid.*
Faustinus Socinus, Heresiarch; his History and Errors, 159.
Fealty, in Law, what; contains six Things, 303.
Fealty, special; how performed in England, *ibid.*
Feet, Hieroglyphick, Explication thereof, 161.
Felicity, in Painting, how painted, 752.
Feminine Rhymes, in the French Poetry; what, 978.
Fence-Mouth, in Hunting, Signification thereof, 190.
Fer de Mouline, in Heraldry, Signification thereof, 123.
Fertility, in Painting, how painted, 752.
Fesse, an honourable Ordinary in Heraldry; Blazon thereof, *ibid.*
Fever, in Physick, Definition thereof, by Sydenham, Quincy, De Coetlogon, 925.
——— Explication of De Coetlogon's Definition, 925, 926.
Fevers, their Causes, Symptoms, and Cure, 926.
——— their Division, 926, 927.
——— intermitting, their Causes, Symptoms, Prognostick, and Cure, 927.
——— Causes of the Intermission, according to De Coetlogon, 928.
——— malignant, Causes, Symptoms, and Cure thereof, *ibid.*
Feuillants, a Religious Order, their History, 667.
Feuillantine Nuns, a Religious Order, their History, 675.
Fewmet, in Hunting, Signification thereof, 191.
Fide-Jussores, in Law, History thereof, 292.
Field, in Heraldry, Signification thereof, how charged, 109.
Fifth-Rate Man of War, in Naval Architecture, Description thereof, 570.
Figures, naked; when they can be used in Painting, 747, 748.
Figure, in Rhetorick, Definition thereof, 1011.
Figures, Division thereof into Figures of Sentences, and Figures of Words, 1012.
Figures of Sentences, Definition, Rules, and Examples thereof, 1012, 1013.
Figures of Words, Definition, Division, Rules, and Examples thereof, 1013, 1014.
Filazers, in the Court of Common Pleas, their Number, and Office, 816.
Fillet, an Ordinary, in Heraldry; Blazon thereof, 123.
Fimbriated, an Ordinary, in Heraldry; Blazon thereof, 123.
First Rate English Man of War, in Naval Architecture; Description thereof, 570.
Flag, in Navigation, Royal of France, Blazon thereof, 603.
—— of the French Galleys, Blazon thereof, *ibid.*
—— of the French Merchant Ships, both old and new, Blazon thereof, *ibid.*
—— of each Division of a French Fleet, Blazon thereof, *ibid.*
—— of the Admiral of England, Blazon thereof, *ibid.*
—— of the white Squadron, Blazon thereof, *ibid.*
—— particular of England, Blazon thereof, *ibid.*
—— red of England, Blazon thereof, *ibid.*
—— of England, called the Union, Blazon thereof, *ibid.*
—— new of the Union, Blazon thereof, *ibid.*
—— new of the Admiral of England, Blazon thereof, *ibid.*
—— of the Bowsprit of England, Blazon thereof, *ibid.*
—— of the East-India Company of England, Blazon thereof, 604.
—— of New England, in America, Blazon thereof, *ibid.*
—— of St. George, Blazon thereof, *ibid.*
—— of Scotland, Blazon thereof, *ibid.*
—— of Ireland, Blazon thereof, *ibid.*
Flag Royal of Spain, Blazon thereof, 604.
Flag of the Spanish Galleys, Blazon thereof, *ibid.*
—— particular of Spain, Blazon thereof, *ibid.*
Flag Royal of Portugal, Blazon thereof, *ibid.*
—— military of Portugal, Blazon thereof, *ibid.*
—— of Portuguese Merchant-Ships, Blazon thereof, *ibid.*
—— of Oporto, Blazon thereof, *ibid.*
—— particular of Portugal, Blazon thereof, *ibid.*
Flag of Rome, Blazon thereof, *ibid.*
—— of the Pope, Blazon thereof, *ibid.*
Flag of the Emperor of Germany, Blazon thereof, *ibid.*
—— of Flanders, Blazon thereof, *ibid.*
—— of Ostend, Blazon thereof, *ibid.*
—— of Brabant, Blazon thereof, *ibid.*
Flag of the States General, Blazon thereof, *ibid.*
—— of the Bowsprit of the States General, *ibid.*
—— of Amsterdam, Blazon thereof, *ibid.*
—— of the East-India Company of Holland, Blazon thereof, *ibid.*
—— of the West-India Company, Blazon thereof, *ibid.*
—— of Zeland, Blazon thereof, *ibid.*
—— of Middlebourg, Blazon thereof, *ibid.*
—— of Flessingues, Blazon thereof, 605.
—— of West-Frizeland, Blazon thereof, *ibid.*
—— of Rotterdam, Blazon thereof, *ibid.*
—— of Embdem, Blazon thereof, *ibid.*
—— of Bremen, Blazon thereof, *ibid.*
—— of Lubeck, Blazon thereof, *ibid.*
—— of Lunebourg, Blazon thereof, *ibid.*
—— of Wismar, Blazon thereof, *ibid.*
—— of Rostock, Blazon thereof, *ibid.*
—— of Stralsund, Blazon thereof, *ibid.*
—— of Stetin, Blazon thereof, *ibid.*
Flag of Brandebourg, Blazon thereof, *ibid.*
—— of Dantzick, Blazon thereof, *ibid.*
Flag of the King of Poland, Blazon thereof, *ibid.*
—— of Poland, Blazon thereof, *ibid.*
Flag Royal of Sweden, Blazon thereof, *ibid.*
Flag of Denmark, Blazon thereof, *ibid.*
Flag Royal of Denmark, Blazon thereof, *ibid.*
Flag of the King of Sardinia, Blazon thereof, *ibid.*
—— of the Duke of Modena, Blazon thereof, *ibid.*
—— of the Island of Corsica, Blazon thereof, *ibid.*
—— of Leghorn, Blazon thereof, *ibid.*
—— of the Galleys of Leghorn, Blazon thereof, *ibid.*
—— of Venice, Blazon thereof, 606.
—— of Mantua, Blazon thereof, *ibid.*
—— of Sicily, Blazon thereof, *ibid.*
—— of Malta, Blazon thereof, *ibid.*
—— of Naples, Blazon thereof, *ibid.*
Flag of the Empress of Russia, Blazon thereof, *ibid.*
—— of Russia, Blazon thereof, *ibid.*
—— of the Russia Admiral, Blazon thereof, *ibid.*
Flag of the Great Mogul, Blazon thereof, *ibid.*
Flag of the Grand Seignor, Blazon thereof, *ibid.*
Flag of the Sophy of Persia, Blazon thereof, *ibid.*
—— of Tripoli, Blazon thereof, *ibid.*
—— of Salle, Blazon thereof, *ibid.*
—— of Tunis, Blazon thereof, *ibid.*
—— of the Corsairs of Barbary; Blazon thereof, *ibid.*
Flagellants, Hereticks, their History and Errors, 158.
Flamens, a particular Kind of Priests of the Heathen Divinities, in Mythology, when, and by whom instituted, their Number at first, 553.
——— their several Names, 554.
Fleas, in Natural History, their Eggs, how deposited and hatched, 568, 569.
Fleury, Term of Heraldry, Signification thereof, 123.
Flooding, or Loss of Blood happening to Women in Labour, or after their Delivery; Causes, and Dangers thereof, how remedied, 470.
Flowers, in Heraldry, how blazon'd, 113.
Flute, Hieroglyphick, Explication thereof, 168.
Flute, Instrument of Musick, Description and Use thereof, 534.
Foci of Glasses, in Opticks, Laws thereof, 647.
Focus, in Opticks, Definition thereof, 647.
Foix Rendan, Dutchy, in France, when, and by whom erected, 617.
Fomentation, in Pharmacy, Definition thereof, and how most commonly composed, 817.
——— emollient and cooling, Preparation thereof, *ibid.*

Fomentation for Dislocations and Contusions, Preparation and Virtues thereof, 817, 818.
Force and Velocity of the Wind, in Meteorology, Theory thereof, 421.
Forcing Pump, in Hydraulicks, Description and Theory thereof, 205.
Formal Distinction in God and his Attributes, Definition thereof, 9.
Fountain, artificial, in Hydraulicks, different Sorts thereof, 207.
Fountain-playing by the Spring and Elasticity of the Air, Mechanism and Theory thereof, *ibid.*
Fountain to play by the Pressure of the Water, Mechanism and Theory thereof, *ibid.*
Fountain which spouts Water in various Directions, Mechanism and Theory thereof, *ibid.*
Fountain playing by the Draught of the Breadth, Mechanism and Theory thereof, *ibid.*
Fountain, the Stream whereof rises, and plays thro' a brass Ball, Mechanism and Theory thereof, *ibid.*
Fountain which spouts Water in Form of a Shower, Mechanism thereof, *ibid.*
Fountain which spreads Water in Form of a Table-cloth, Mechanism and Theory thereof, *ibid.*
Fountain, which, when it has done spouting, may be turned into an Hour-Glass, Mechanism and Theory thereof, 208.
Fountain, which begins to play upon the lighting of Candles, and ceases when they go out, Mechanism and Theory thereof, *ibid.*
Fourth Rate Man of War, in Naval Architecture, Description thereof, 570.
Fowler, Peter, Bishop of Antioch, his History and Errors, 153.
Fox, Hieroglyphick, Explication thereof, 163.
Fox, in Hunting; its different Names according to the Difference of its Age, 186.
Fox-hunting, Art thereof, 195.
Fra. Bastian, a Painter of the Roman School, his Character and particular Talent. 768.
Francis Maroli, called the *Parmesan*, a Painter of the Roman School, his Character and particular Talent, 766.
Francis Primatice, a Painter of the Roman School, his History, Character, and particular Talent, 768.
Francis Vecelli, a Painter of the Venetian School, his Character and particular Talent, 772.
Francis Albane, a Painter of the School of Lombardy, his Character and particular Talent, 778.
Francis David, Heretick, his Errors, 159.
Franciscans, a religious Order, History thereof, 669.
Frank-Chase, in Hunting, Signification thereof, 190.
Fratricelli, Hereticks, their History and Errors, 158.
Frederick, Duke of Saxony, first Promoter of Lutheranism in Germany, 346, 347. Oblig'd Luther to appear before Cardinal Cajetan, *ib.* Espouses his Interests at the Diet of Augsbourg, and presents to the Emperor the Confession of Faith of the Lutherans, 351, 352.
French Tongue, in Grammar, its Origin, Progresses, Improvements under Francis I. and Henry IV. Purity under Louis XIV. 79. Its Advantages over the other Languages, both antient and modern, its Extensiveness, &c. 80.
French-Horn, Instrument of Musick, Description thereof, how play'd upon, 537.
Fresco, in Painting, History thereof, 749.
Fretty, Term of Heraldry, Signification thereof, 123.
Frog, Hieroglyphick, Explication thereof, 167.
Frontiac, Dutchy in France, when and by whom erected, 616.
Fuga Doppia, in Musick, Definition and Use thereof, 539.
Fugue, in Musick, three Kinds thereof, *ibid.*
Fugue, single or simple, in Musick, Definition and Use thereof, *ibid.*
Fugue, Counter, Authentick, Grave, Definition thereof, *ibid.*
Fusee, in Gunnery, different Sorts thereof, for Granadoes and Bombs, how prepared, 93.
Fusil, Term of Heraldry, Signification thereof, 123.
Fusilly, in Heraldry, Signification thereof, *ib.*
Future Tense, in Grammar, Definition and Rules thereof, 72.

G.

G, the seventh Letter of the Alphabet, and the fifth Consonant, frequently changed into V by the Northern Nations. Found instead of C on several Medals, 60. Form thereof, taken from the Latins, 61. Its Signification among the numeral Characters of the Antients, 64.
G, its Signification in Musick, 539.
Gaddo Gaddi, a Painter of the Roman School, his particular Talent, 459.
Galenical Pharmacy, reduced to three Operations, 809.
Gallenists, a Sect of Physicians, their History, 941, 942.
Galley, in Printing, Description thereof, 987.
Galley, in Naval Architecture, different Sorts thereof, Description of its principal Parts, 584.
Galleys of the King of France, where kept, by whom rowed, 584, 585.
Garbé, Term of Heraldry, Signification thereof, 123.
Gardant, Term of Heraldry, Signification thereof, *ibid.*
Garter, King at Arms, in Heraldry, his Rank and Office, his Oath, 130.
Gemara, an Explication of the Talmud, in Judaism, History thereof, 267.
Gematria, in Judaism, Definition and History thereof, 268.
Genders, in Grammar, Institution and Number thereof, frequently neglected in the oriental Languages, 68. How expressed by the Latins, Greeks, &c. by the French and and English, their Number in the Eastern Languages, *ibid.* Masculine, Feminine, Neuter, Definition thereof, *ibid.*
Genii, in Mythology, their History, 548.
Genitive, a Case, in Grammar, Definition thereof, 68.
Genius, in Mythology, what, among the Antients, 547.
Genius, in Painting, Necessity thereof, 742.
Gentil Belin, a Painter of the Venetian School, his History and particular Talent, 769. Remarks on his Works, 770.
Gentleman, in Nobility, his Rank, 624.
Genus, in Musick, three Sorts thereof, distinguished by the Antients, 516.
Geometry, in Painting, how painted, 752.
Georgion, a Painter of the Venetian School, his History and particular Talent, 770. Remarks on his Works, *ibid.*
German Taste, in Painting, History thereof, 797.
Gesture, in Rhetorick, how defined by Quintilian, in what it consists principally, 1017, 1018.
Ging-Seng, a Plant, in Natural History, Description and History thereof, 558, 559. Its Virtues, and how prepared, 559, 560.
Giotto, a Painter of the Roman School, his Character and particular Talent, 759.
Girandola, in Pyrotechny, Art of making it, 994.
Glass, in Glass-making, its Nature, according to Agricola, Fallopius, Dr. Merret, and De Coetlogon, 1. Its Origin, 6.
Glass, several Sorts thereof, and different Methods of making them, 2, 3, 4.
Glass-houses, in Glass-making, Description and Utensils thereof. 3.
Glass-houses for casting Looking-glass-plates, Description and Utensils thereof, 4, 5.
GLASS-MAKING, 1.
Glassopetra, a Kind of Stone, in natural History, Description and History thereof, 560, 561.
Gnosticks, Hereticks, their History and Errors, 132, 133.
Goat, Hieroglyphick, Explication thereof, 163.
GOD and his Attributes, 7.
GOD, how defined, *ibid.*
GOD, the exemplary Form of all Things, 10.
GOD's Attributes; what, 8.
——— how divided, how distinguish'd, 8, 9.
God Eneph, Hieroglyphick, among the Egyptians, Explication thereof, 169.
God Pan, Hieroglyphick, Explication thereof, *ibid.*
God, in Mythology, Definition thereof, 547.
Gods divided into several Classes, 545, 546.
Gold in Metals, Definition, Weight, Value, and Characters, or Properties thereof, 394, 395. Where found, how taken from the Mines, 395.
GOLD-BEATING, Art thereof, 36.
Goodness of God, Proofs thereof, 13.
Goods taken by Force, in Law, what, 294.
Goose, Hieroglyphick, Explication thereof, 166.
GOVERNMENT, Definition thereof, 37. Its Division into Monarchical, Aristocratical, and Democratical, *ibid.* Rules thereof, as proposed by De Coetlogon, *passim*
——— French, History thereof, 44, 45, 46.
——— English, History thereof, 47, 48, 49, 50.
Government of Venice, History thereof, 51, 52.
——— of the United Provinces, History thereof, 52, 53.
——— of the City of London, 53, 54.
——— of the City of Paris, History thereof, 54.
——— in Painting, how painted, 752.
Gout, a Disease, in Physick, Definition thereof, called by different Names, according to the Part affected, 936. Immediate Cause thereof, according to De Coetlogon, *ibid.* Its Periodical Paroxisms and extraordinary Symptoms accounted for by De Coetlogon, 937, 938.
Grace, in Jansenism, Definition and Division thereof, 210.
——— *Gratum faciens*, Definition thereof, 212.
——— *Gratis data*, Definition thereof, *ibid.*
——— actual, habitual, Definition and Subdivision thereof, 213.
——— sufficient, Definition and Proofs thereof, 214, 215. Remarks thereupon, by De Coetlogon, 220, 221.
——— efficacious, Definition thereof, 223. Its manner of operating, Proofs thereof, 224, 225, 226.
——— in Painting, Utility thereof, 742.
Gradation, in Rhetorick, Definition thereof, 1015.
GRAMMAR, Treatise thereof, 54.
Grammarians, their History, 83.
Gramont, Dutchy, in France, when, and by whom erected, 616.
Granado, in Gunnery, Description thereof, 92. Their different Preparation, and how they are charged, 92, 93.
Granates, in Lapidary, several Sorts thereof, 274.
Graving a Ship, in Naval Architecture, Art thereof, 579.
Gravity, in Mechanicks, absolute, relative, Center thereof, 375.
Gray's-Inn, in London, when, by whom, and to what Purpose founded, 1195.
Greek Language, in Grammar, History thereof, 78.
Green Hue, or Vert, a Term of Forest, Signification thereof, 190.
Gresham-College, in London, when, and by whom founded, and to what Purpose, 1196.
Grey-hounds, in Hunting, their Qualities, how chosen, how bred, 187, 188.
Gripes, a Disease of Children newly born, how cured, 483.
Guelphs and *Gibelins*, two Factions in Italy, their History, 1123.
Guida, in Musick, Signification thereof, 539.
Gules, Colour, in Heraldry, Definition and History thereof, 108.
GUNNERY, Treatise thereof, 84.
Gun-powder, in Gunnery, different Sorts thereof, 85.
Gun-room of a Ship, in Naval Architecture, Dimensions thereof, 577.
Gutta Serena, a Disease of the Eyes, in Physick, Definition thereof, 940.
Gutty, Term of Heraldry, Signification thereof, 123.
Gypsum, in Painting, what, and how prepared, 575.

H.

H, The Eighth Letter of the Alphabet, and the sixth Consonant, how pronounced, according to *Martianus Capella*, 61.
— whether it be a real Letter; not put by the Greek in the Lines with the other Letters; rejected by the Latins, *ibid.*
H, two Kinds thereof, distinguished by Menage; antiently put for *ch*, *ibid.*
— Signification thereof among the numerical Characters of the Antients, 64.
Habitudo and *Differentia*, Terms of Musick; Signification thereof, 539.
Halo, in Meteorology, Definition and Theory thereof, 429.
Hanneman, a Painter, of the Flemish School; his Character and particular Talent, 787.
Hard Soap, in Soap-making, Method of making it, 1064.
Hare, Hieroglyphick, Explication thereof, 165.
Harmony, in Musick, Definition thereof, 505.
Harmonies, their Number, and Preference, how determined, their necessary Conditions, 525.
Harmony divided into simple and compound; into that of Concords and Discords, 526.
HAT-MAKING, Art thereof, 106.
Hats, when first seen in Europe, 107.
Hauriant, Term of Heraldry, Signification thereof, 123.

Hawksbee,

Hawksbee, M. his Reflections on the several Experiments made on the artificial Production of Light in Opticks, 627.
Heavenly Bodies, in Heraldry, how blazoned, 113.
Hebrew Language, the most antient of all Languages; Sentiment of *Alberti*, Dr. *Newman*, and *Loescher* thereupon, 77.
——— Regularity thereof; consists of 22 Letters, and of a great Number of Accents, Use of those Accents, *ibid.*
Hebrew, Rabbinical, Sentiment of M. *Simon* thereupon, *ibid.*
Hebrew Names, how declined, 69.
Heirax, Heresiarch, in Heresies; his History, and Errors, 137.
Hen, Hieroglyphick, Explication thereof, 166.
Hemiolia, Term of Musick, Signification thereof, 539.
Hemorrhoides, or Piles, in breeding Women; Causes, Symptoms, and Cure thereof, 443.
Henry Stenwick, a Painter, of the Flemish School, his Character and particular Talent, 784.
Henry Verscure, a Painter, of the Flemish School; his Character and particular Talent, 787, 788.
Henry Cool, an English Painter, his Character and particular Talent, 795.
HERALDRY, Treatise thereof, 107.
Herbs, vulnerary, in Pharmacy; their Catalogue, 809.
——— emollient, their Catalogue, *ibid.*
Hercules, Hieroglyphick; Explication thereof, 166.
HERESIES, Treatise thereof, 131, 132.
Hermaphrodites, in Natural History; four Kinds thereof distinguished by Naturalists, 554.
——— Dr. *Merret*'s Sentiment thereupon, *ibid.*
——— Histories of real Hermaphrodites, 554.
——— Hermaphrodite applied metaphorically to divers other Things besides the human Species, 555.
Hermits, in Orders, several Sorts of them, 673.
Hermits of Brittini, their History, *ibid.*
——— of St. Jerom, their History, *ibid.*
——— of St. Paul, their History, *ibid.*
——— of St. John Baptist, their History, *ibid.*
Heroes, in Mythology, their History, 549.
——— whence the Word, 550.
Herp, a cutaneous Disease, in Physick; divers Kinds thereof, 939.
Hexameter Verses, in Poetry; their Definition and Rules, 260.
Hexameron, a Work of the six Days, Treatise thereof, 1115, 1116, 1117.
Hieroglyphical Books, what, 170.
HIEROGLYPHICKS, Treatise thereof, 160.
——— by whom invented, 170.
Hieroglyphicks of the Egyptians, of the Christians, of the Corinthians, 160.
Hilary Term, in Law, Number of its Returns, 319.
Hog, Hieroglyphick, Explication thereof, 163.
Hogarth, English Painter, his particular Talent, 795.
Honey of Roses, in Pharmacy, Preparation thereof, its Virtues, 823.
——— of Violets, Mint, Nenuphar, Mercurialis, Flowers of Rosmarin, Parietary, Hellebore, and Raisins, Preparation and Virtues thereof, *ibid.*
Hoof of a Horse, in Horsemanship, its Qualities, 170.
Hope, in Painting, how painted, 752.
Hope, a theological Virtue, in Theology; Doctrine thereof, 1090, 1091, 1092.
Horatio Vecelli, a Painter, of the Venetian School, his Character and particular Talent, 772.
Horn, a musical Instrument of the Wind Kind in Musick; Description and Use thereof, 535.
Horse, Hieroglyphick, Explication thereof, 160.
Horse, in Horsemanship, Definition thereof, *ibid.*
——— their Goodness, in what it consists, *ibid.* distinguished with Regard to their Colour, and with Regard to their Strain; Method of gelding them, How stabled and fed, How shoed, How curried, How aired, *ibid.*
HORSEMANSHIP, Definition and Art thereof, 170.
Hosbratin, *James*, a Dominican Inquisitor, his Advices against Luther, 340.
Hounds, in Hunting, different Kinds thereof, 187.
——— Marks of their Goodness, How enter'd when young, *ibid.*
Hugonots, a formidable Faction in France; Sketch of their History, 1123.
Human Law, Definition thereof, 275. How divided, 279.
Human Soul, in Metaphysick; its Nature, 408.
——— Sentiment of the Epicureans thereupon, *ibid.*
——— Its Knowledge; Doctrine thereof, 409.
——— Its Immortality; how demonstrated, 409, 410.
Human Understanding, in Metaphysick; Sentiment of Des Cartes, and De Coetlogon thereupon, 412.
Humours of the Eye, in Opticks, their Number, 625.
HUNTING, Definition thereof, how practised, 185.
Hunting a Hart, 190. A Buck, 193. A Roebuck, *ibid.* A Rein-Deer, Method thereof, *ibid.* A Hare, 193, 194. A Fox, 195. A Badger, 195, 196. An Otter, *ibid.* A Wolf, 197. A wild Boar, 197, 198. A wild Goat, *ibid.* Beavers, 199. A Bear, 198, 199. The Elk; Art thereof, *ibid.*
Hunting used by the Antients, and by the Sicilians, 200.
Hus, *John*, his History and Dogma's, 158.
Hussites, their History and Dogma's, *ibid.*
Hyacinth, a precious Stone, in Lapidary; four Sorts thereof, 273.
——— distinguished besides into oriental and occidental, *ibid.*
Hyæna, Hieroglyphick, Explication thereof, *ibid.*
Hydraulick Machine, to extinguish Fire; Description thereof, 208.
HYDRAULICKS, Definition and Doctrine thereof, 201, 202.
Hydromel, in Pharmacy, Definition thereof, 827.
——— common, Preparation and Virtues thereof, *ibid.*
——— vinous, Preparation and Virtues thereof, *ibid.*
HYDROSTATICKS, Definition and Doctrine thereof, 201, 202.
Hygrometers, in Pneumaticks, Definition and Description thereof, 957.
Hygrometers, different Kinds thereof, how made, their Manner of acting, 957, 958.
Hypochondriack, a Disease, in Physick, Causes, Symptoms, and Cure thereof, 931.
Hysterick, a Disease, in Physick, Causes, Symptoms, and Cure thereof, 931.

I.

I, The Ninth Letter of the English Alphabet, in Grammar; both a Vowel and a Consonant, 61.
J, Consonant, how called by the Hebrews; two Kinds thereof among the French, and English; none among the Greeks, *ibid.*
I, Vowel, how expressed by the Romans; Properties thereof according to Plato, *ibid.*
I, its Signification among the numeral Characters of the Antients, 64.
Iambick Verse, in Poetry, Definition and Rules thereof, 961.
James Bellini, a Painter, of the Venetian School; his particular Talent, 769.
——— Remarks on his Works, 770.
James Robusti, called Tintoretto, a Painter, of the Venetian School; his History and particular Talent, 772.
——— Remarks on his Works, *ibid.*
James Palma, called *Palma vecchio*, a Painter, of the Venetian School; his Character and particular Talent, 774.
James del Ponte, called *Bassano*, a Painter, of the Venetian School; his Character and particular Talent, 774.
——— Remarks on his Works, *ibid.*
James Fouquier, a Painter, of the Flemish School; his Character and particular Talent, 785.
James Jordans, a Painter, of the Flemish School; his History and particular Talent, 787.
James Blanchart, a Painter, of the French School; his History and particular Talent, 788.
James Stella, a Painter, of the French School; his Character and particular Talent, 791.
——— Remarks on his Works, *ibid.*
JANSENISM, a new Sect, in France; History thereof, 209.
Japanese Language, in Grammar; History thereof, 83.
JAPANNING, Art thereof, 233.
Ichnography, in Perspective; Definition thereof, 802.
Iconoclastes, Hereticks, their History and Errors, 157.
Idea, in Logick; Definition thereof, 320.
Ideas, ours; Mr. *Locke*'s Opinion thereupon, refuted by De Coetlogon, 322.
——— three Kinds thereof distinguished by the Cartesians, *ibid.*
Ideas of Things, and Ideas of Signs, considered according to their Composition and Simplicity, 324.
——— according to their Generality, Particularity, and Singularity, 325.
Idyl, in Poetry; History and Rules thereof, 975.
Jerom Mutiano, a Painter, of the Venetian School; his History and particular Talent, 773, 774.
Jesuits, a religious Congregation, in Orders, their History, 674, 675.
Jesus Christ's Conception, in Incarnation, 251, 252. His Nativity, 252, 253. Manifestation, 253, 254. Baptism, 254, 255. Doctrine, 254, Passion, 255. Death, 257. Burial, 257, 258. Descent into Hell, 258. Resurrection, 258, 259. Ascension, 260. Mission of the Holy Ghost, Proofs thereof, 261.
Jissant, Term of Heraldry, Signification thereof, 124.
Iliack Passion, a Disease in Physick; Causes, Symptoms, and Cure thereof, 935.
Images, in Rhetorick; recommended by Longinus, Examples thereof, 1016.
Imbattelled, Term of Heraldry; Signification thereof, 124.
Imitazzione, Term of Musick; Signification thereof, 539.
Immensity of God, in God and his Attributes, Doctrine and Proofs thereof, 15.
——— a special Attribute of God, 17.
Immutability of God, in God and his Attributes, Doctrine and Proofs thereof, *ibid.*
Impaling, Term of Heraldry; Signification thereof, 124.
Imperative, a Mood, in Grammar, 71.
Imperfect Ideas of Painting; History thereof, 744.
Imprecation, in Rhetorick, Definition and Examples thereof, 1012.
Inartificial Arguments, in Rhetorick; Definition thereof, 1007.
INCARNATION, a Mystery of the Christian Religion, called by several different Names by the antient Fathers; considered in two Manners, 235.
——— can be demonstrated possible; Proofs thereof, 236.
——— can be proved positively, 237.
——— effectual Cause thereof, 242.
——— its general End, 245.
Incessus, walking, in Rhetorick; Rules thereof, 1018.
Incompleat Phrase, in Grammar; Definition and History thereof, 75.
Indian Sattins, in Weaving; Goodness and Beauty thereof, 1206.
Indications, in Physick; Definition thereof, 914.
——— curative, Definition thereof, and Remarks thereupon, *ibid.*
——— palliative, Definition thereof, and Remarks thereupon, *ibid.*
——— preservative, Definition thereof, and Remarks thereupon, *ibid.*
——— vital, Definition thereof, and Remarks thereupon, *ibid.*
Indications, counter, in Physick; Definition thereof, and Remarks thereupon, 912, 913.
Indicative, a Mood, in Grammar, 71.
Indices, or expurgatorii Indices, Catalogues of prohibited Books; their History, 159.
Indorsed, Term of Heraldry; Signification thereof, 124.
Inescutcheon, Term of Heraldry; Signification thereof, 124.
Infinitive, a Mood, in Grammar, 71.
——— how distinguished in the antient and modern Languages, 72.
Inflammation of the Matrice, in Midwifry, Signs, and Cure thereof, 474.
Inflammation of the Navel of a new-born Child; Causes and Cure thereof, 483.
Inflammation of the Groins, Buttocks, and Thighs of a new-born Child; Causes and Cure thereof, 484.
Ingrailed, Term of Heraldry; Signification thereof, 124.
Inheritance, by an Intestate, in Law; Doctrine thereof, 290.
Innanimate Contract, in Law; Definition thereof, 291.
Inofficious Testament, in Law, what, 290.

Inno-

Innocence, in Painting; how painted, 752.
Institution of Heirs, in Law, Doctrine thereof, 289.
Instrumental Musick, Definition and Theory thereof, 531.
Instruments, in Musick, two Kinds thereof, *ibid.*
Interjection, in Grammar; Definition and History thereof, 73.
Interrogation, a Figure in Rhetorick, Definition and History thereof, 1008.
Invecked, Term of Heraldry, Signification thereof, 124.
Invention, in Law; Doctrine thereof, 286.
Invention, in Rhetorick; Definition thereof, 1007.
Inventory, in Law; Definition thereof, 290.
Invisibility of God, Doctrine and Proofs thereof, 20.
Joachim Sandrat, a Painter, of the Flemish School; his History and particular Talent, 787.
John Brentius, a Confessionist; his Errors, 158.
John Angelick, a Painter, of the Roman School; his Character and particular Talent, 760.
John Francis Penni, a Painter, of the Roman School; his Character and particular Talent, 764.
John of Udine, a Painter, of the Roman School; his History and particular Talent, 767.
John Bellini, a Painter, of the Venetian School; his particular Talent, 770.
John Antony Regillo, called *Pordenon*, a Painter, of the Venetian School; his History and particular Talent, 773.
John Vandyck, a Painter, of the Flemish School, his History and particular Talent, 779.
John Mabuse, a Painter, of the Flemish School; his History and particular Talent, 780.
John Olbein, a Painter, of the Flemish School; his History and particular Talent, *ibid.*
John Cornelius Vermeyen, a Painter, of the Flemish School; his History and particular Talent, *ibid.*
John Bol, a Painter, of the Flemish School; his History and particular Talent, 781, 782.
John Stradan, a Painter, of the Flemish School; his Character and particular Talent, 782.
John Dac, a Painter of the Flemish School; his particular Talent, *ibid.*
John Rotenmar, a Painter of the Flemish School; his particular Talent, *ibid.*
John Torentius, a Painter of the Flemish School; his History, and particular Talent, 785.
John Lanfranc, a Painter of the School of Lombardy; his Character, and particular Talent, 777. Remarks on his Works, 777, 778.
John Cousin, a Painter of the French School; his particular Talent, 788.
John Hoskins, an English Painter; his particular Talent, 788.
John Riley, an English Painter; his particular Talent, *ibid.*
Joyeuse, Dutchy, in France; when, and by whom erected, 616.
Irony, Figure in Rhetorick; Definition and Examples thereof, 1014.
Irregular, or anamolous Verbs, in Grammar; where the Irregularity lies in English, 71.
Isaac Fuller, an English Painter; his particular Talent, 795.
Issuant, Term of Heraldry; Signification thereof, 124.
Issue, in Law, Distinction thereof, 313.
Issue, general; Definition thereof, *ibid.*
—— special; Definition thereof, *ibid.*
Italian Language, in Grammar; History thereof, 80.
Judaism, History thereof, 264, 265.
Judgment, in Law; Definition and History thereof, 314.
Juices, in Pharmacy; how extracted, 824.
—— black, of Liquorice; Preparation thereof, *ibid.*
—— white of Liquorice; Preparation thereof, *ibid.*
Julep, in Pharmacy; Definition thereof, 813.
—— pectoral; Preparation, Doses, and Virtues thereof, *ibid.*
—— hysterick; Preparation, Doses, and Virtues thereof, 813, 814.
—— fœtid hysterick; Preparation, Doses, and Virtues thereof, 814.
—— camphorate hysterick; Preparation, Doses and Virtues thereof, *ibid.*
Julio Romano, a Painter of the Roman School; his History, and particular Talent, 764.
Julio Licino, called Pordenon the Younger, a Painter of the Venetian School; his History, and particular Talent, 774.
July, Month, in Painting, how painted, 752.
Jumelle, a double Cannon, in Gunnery; Invention, and Description thereof, 85.
June, a Month, in Painting; how painted, 752.
Jurisprudence, in Law; Definition thereof, 282.
Jurors, in Law, how impanelled, both in civil and criminal Cases; their History, 313.
Justice, and Law; Definition and History thereof, 282.
Justification, in Jansenism; Definition thereof, 229.
Justification, first active; Definition thereof, *ib.*
—— first passive; Definition thereof, *ib.*
—— second active; Definition thereof, *ib.*
—— second passive; Definition thereof, *ib.*
Justification of the Impious; how effected, *ib.*
Justification; Disposition required to it, 229, 230.

K.

K, the tenth Letter of the Alphabet, and a double Consonant, in Grammar, 61. borrowed from the Greek *Kappa*; a superfluous Letter, according to *Prescian*, unknown to the antient Romans; Remarks of M. *Beger* thereupon, *ibid.*
K, has various Significations; never used by the French; Remarks of *Ablancourt* thereupon, *ibid.* Much used in the English, *ibid.* Its Signification among the numeral Characters of the Antients, 64.
Kalig-ashes, used in Glass-making, 5.
Keber, Name of a Sect among the Persians; History thereof, 269.
Keel of a Ship, in naval Architecture; how placed well on the Stocks, 582.
King's Evil, a Disease, in Physick; Causes and Cure thereof, 930. History of couching for it, *ibid.*
Keys, in Musick; Invention, and Doctrine thereof, 512.
Keys, their Distinction, into sharp and flat; Remarks of Mr. *Malcolm* thereupon, 513.

L.

L, the eleventh Letter of the Alphabet, and a Semi-vowel; Remarks of *Passerat* thereupon, 62. Its Signification among the numeral Characters of the Antients, 64.
Label, an honourable Difference in Heraldry; Blazon thereof, 115.
Lacedemonians, their Hieroglyphicks; Explication thereof, 167.
Laconic Style, in Rhetorick; Definition, Rules and Examples thereof, 1011.
La Ferte Senneterre, Dutchy, in France; when and by whom erected, 617.
La Force, Dutchy in France; when, and by whom erected, 616.
Lambrequin, Term of Heraldry; Signification thereof, 124.
La Meilleraye, Dutchy in France; when, and by whom erected, 617.
Language, in Grammar; Definition thereof, 76.
Languages, their first Principles, according to Father Bussier; their Use, as defined by *Vaugelas*; their Diversity whence it arose, *ib.* Antiquity and Priority between them, much controverted, 77. Their Division, *ibid.*
Langued, Term of Heraldry; Signification thereof, 124.
Lapidary, Art thereof, 270, 271.
Lapidaries, in Europe, their Manner of examining their rough Diamonds, 271.
Lares, in Mythology; Definition thereof, 548.
Lares, distinguished by *Plutarch*, into Good and Evil, *ibid.*
Lares, Domestick, what, according to *Aquilius*, *ibid.*
—— publick; their Office, *ibid.*
—— private; their Office, *ibid.*
—— of Cities; their Office, *ibid.*
Lares, their Origin; when first worshipped, and on what Occasion, according to *Tertullian*; Victims offered to them. *ibid.*
Largo, Term of Musick; Signification thereof, 539.
Latin Language; History thereof, 78, 79.
La Trappe, in Orders; a Reformation of the Order of Citeaux; History thereof, 667, 668.
Laughter, in Painting; how painted, 752.
Law, Definition and Etymology thereof, 275.
—— called by five different Names, *ibid.*
—— either natural or positive, *ibid.*
Law, positive, Definition thereof; either divine or human, *ibid.*
Law, divine; Definition thereof, either antient or new, *ibid.*
Law, antient or old; Definition thereof, *ib.*
—— its Precepts, 278.
—— new; Definition thereof, 275.
—— its Precepts, 279.
Law, human; either ecclesiastical or civil, 275.
Law, ecclesiastical; Definition thereof, *ibid.*
—— civil; Definition thereof, *ibid.*
Law, Matter subject to it, 275, 276.
Law, eternal; History thereof, 276.
—— natural History thereof, *ibid.*
—— Precepts thereof, 277.
Law of Nations, Definition thereof; and Explication of the Definition, *ibid.*
—— Precepts thereof, 277, 278.
Law, *falcidian*; Doctrine thereof, 290.
Laws, three of the local Motion, established by the Cartesians; Doctrine thereof, 385.
Laws of the Foci of Glasses, in Opticks; and the Method of finding them, 647, 648.
Law, in Painting; how painted, 752.
Lead, in Metals; Definition thereof, 398.
—— where, and how found, how melted; Reflections of the Naturalists thereupon, *ib.*
Leaf, in natural History; Definition and Description thereof, 569.
League, famous of Smalcalde, in Lutheranism; History thereof, 353.
Leaves, how considered by Botanists, 569.
Leaves, annual; Definition thereof, *ibid.*
—— crenated; Definition thereof, *ibid.*
—— dissimilar; Definition thereof, *ibid.*
—— procumbent; Definition thereof, *ibid.*
—— segment; Definition thereof, *ibid.*
—— vernal; Definition thereof, *ibid.*
Ledger Lines, in Musick; what, 533.
Lediguieres, Dutchy in France; when, and by whom erected, 616.
Legacy, in Law; Definition and Doctrine thereof, 290.
Lemures, in Mythology; their History, and Remarks thereupon, 549.
Lens in Dioptricks; various Figures thereof, 645.
Lenses, in Dioptricks; distinguished into Ground and Blown, 646.
—— convex; Laws of Refraction with respect to them, *ibid.*
—— concave; Laws thereof, 647.
Leonardo da Vinci, a Painter of the Roman School; his History, and particular Talent, 761. Remarks on his Works, 762.
Leonian Society, in Law; what, 293.
Leprosy, a cutaneous Distemper, in Physick; History, Causes, Symptoms, and Cure thereof, 938, 939.
Letters of the Alphabet; their History, 59, 60.
Letters Patent, in Chancery; History thereof, 306.
Lever, in Mechanicks, Definition and Description thereof, 376. Three Things to be considered in a Lever, *ibid.*
Levers, three Kinds thereof, *ibid.*
Levers of the first Kind; Theory thereof, *ibid.*
—— of the second Kind; Theory thereof *ibid.*
—— of the third Kind; Theory thereof, *ib.*
Leviner, or Leymer, a hunting Dog; its Qualities, 188.
Liancourt, Dutchy, in France; when, and by whom erected, 617.
Liberty, in Metaphysick, Definition thereof; two Sorts of Liberty, 415.
Liberty from Coaction; Definition thereof, and Remarks thereupon, *ibid.*
Liberty from Necessity; Definition thereof, and Remarks thereupon, *ibid.*
Lientry, a Disease, in Physick; Causes and Cure thereof, 934.
Light, in Opticks; Nature thereof, as explained by *Aristotle*, the *Cartesians*, and F. *Malebranche*, 625, 626.
—— by the *Newtonians*, 626.
Light, Reflexion and Refraction thereof, 627, 628.
Light, but three Affections thereof, 629.
Line of equal Parts, or Line of Lines, marked on the Sector, or Compass of Proportion; how divided and subdivided, on which Side of the Compass found, how numbered, 593.
Line of Cords; how divided and numbered, *ib.*
Line of Tangents; how divided and numbered, *ibid.*
Line of Secants; how divided and numbered, *ibid.*
Line of Polygons; how divided and numbered, *ibid.*
Line, in Navigation, Sounding; two Sorts thereof; its Description and Use, 587.
Line of the Log; Description and Use thereof, 594.
Line for Linen Cloth, in Weaving; how prepared, 1207.
Lines, in Perspective; different Sorts thereof, 802.
Linen Cloth, in Weaving; different Sorts thereof, 1207.

Linen

Linen Manufacture, in Weaving, History thereof, *ibid.*
Lion rampant, Hieroglyphick; Explication thereof, 162.
Lions set to the Chariot of *Cybel*, Hieroglyphick; Explication thereof, *ibid.*
Lions, how borne in Heraldry, 113.
Lion's Skin, Hieroglyphick; Explication thereof, 162.
Lioness, Hieroglyphick; Explication thereof, *ibid.*
Lippo of Florence, a Painter of the Roman School; his History, and particular Talent, 760.
Liquids, in Grammar; what, 58.
Local Motion, in Mechanicks; Affections, Causes, &c. thereof, 381.
Location Conduction, in Law; Definition thereof, 293.
Location, tacit, in Law, Definition thereof, *ib.*
Log, in Navigation; Description and Use thereof, 594.
LOGIC, Definition and Division thereof, 320.
Longitude, in Navigation, the Invention thereof a true Powder of Projection; of what Utility, if it was found, 600.
——— various Methods of finding it at present, 600, 601.
Looch, in Pharmacy; Definition thereof, 837.
——— pectoral; Preparation and Virtues thereof, *ibid.*
——— to stop Vomiting; Preparation and Doses thereof, *ibid.*
——— of red Cabbages; Preparation and Virtues thereof, *ibid.*
——— of Squill; Preparation and Virtues thereof, *ibid.*
——— of Poppies, Preparation and Virtues thereof, *ibid.*
——— of Garlick; Preparation and Virtues thereof, *ibid.*
——— of Jar-Raisins; Preparation and Virtues thereof, *ibid.*
——— of Althæa; Preparation and Virtues thereof, 837, 838.
Lotion, in Pharmacy; Definition and Use thereof, 818.
Lotion to kill Lice in the Head; Preparation thereof, *ibid.*
Lotion to render red Hairs black; Preparation thereof, *ibid.*
Loudun, Dutchy, in France; when, and by whom erected, 616.
Louis XIV. King of France, in Painting; how painted, 751.
Lozange, an honourable Ordinary, in Heraldry; Blazon thereof, 124.
Lozangy, Term of Heraldry; Signification thereof, *ibid.*
Luca Seignorelli, a Painter, of the Roman School; his History and particular Talent, 761.
Lucas of Leyden, a Painter, of the Flemish School; his Character and parricular Talent, 780.
Luther, Martin, Author of Lutheranism, his Birth and Education; begins to preach his new Doctrine, on what Occasion, 346.
——— appears before the Pope's Legate, 346, 347.
——— forty one of his Propositions condemned by the Pope, 347.
——— appears at the Diet of Worms, and is banished by the Emperor, 348.
——— is condemned by the Sorbonne, to whom he had appealed, and submitted his Writings, 349.
——— his Treatment of *Henry* VIII. King of England, *ibid.*
——— marries a Nun, 350.
——— writes several Things against the Emperor and Bishops, 353.
——— died of an Indigestion at *Isbel*, the Place of his Birth; his Character, 357.
LUTHERANISM, History thereof, 347, 348.
Lyre, Hieroglyphick; Explication thereof, 168.

M.

M, A liquid Consonant, and the twelfth Letter of the Alphabet; how pronounced, 62.
—— Remarks of Quintillian thereupon, *ibid.*
—— Its Signification among the numeral Characters of the Antients, 64.
Macaronick Poetry, History thereof, 978.
Macedonius, Heresiarch, his History and Errors, 138.
Machines, in Mechanicks; two Sorts thereof, 375.
——— simple, six Sorts thereof, *ibid.*
——— compound, their Number almost infinite, *ibid.*
MAGICK, Treatise thereof, 363, 364.
Magna Charta, in Law, the Basis of the English Liberties; History thereof, 306.
MAGNET, Treatise thereof, 366, 367.
Mahomet, the Impostor; his History, 371.
Mahomet, in Painting; how painted, 757.
MAHOMETANISM, History thereof, 371, 372, 373.
Mahometans, their Theology, 372.
Maille Luynes, Dutchy, in France; when, and by whom erected, 616.
Man of War, in Naval Architecture, its several Dimensions, 570, 579.
Mandate, in Law, Doctrine thereof, 294.
Manganese, a Kind of Pseudo-Load-stone, which enters the Composition of Glass; where found, 2.
Mania, a Disease, in Physick; Causes, Symptoms, and Cure thereof, 919.
Manicheans, Hereticks; their History and Errors, 136, 137.
Manner of Things, or Modes in Logick; Definition and Doctrine thereof, 322, 323.
Manner of treating a Child, newly born, in Midwifry, 479.
Manner of hindering Children from being squint-ey'd, awry, crooked, and lame, in Midwifry, 491.
Manners, in Poetry; Definition and Rules thereof, 968, 969.
Mantle, in Heraldry, Blazon thereof, 124.
Manumission, by Testament, in Law; three solemn Manners of Manumission, 283.
Marcasite, in Natural History, History thereof,
March, Month, in Painting, how painted, 753.
Marcian, Heresiarch, his History and Errors, 134.
Mares, in Horsemanship; the fittest to breed out of, 172.
—— how kept during the Time of their being with Foal, 173.
Mark, Heretick; his History and Errors, 135.
Mariotte, his Experiments on Hydraulicks, 204.
Marriage, Maritagium, in Law; Signification thereof, 285.
Martin de Vos, a Painter, of the Flemish School; his particular Talent, 782.
Martlets, honourable Ordinary, in Heraldry; Blazon thereof, 124.
Mascle, honourable Ordinary, in Heraldry; Blazon thereof, *ibid.*
Massoned, Term of Heraldry; Signification thereof, *ibid.*
Mast, in Naval Architecture; Proportions thereof, 570.
Masts, their Number in a Ship, *ibid.*
—— Main, its Position and Rigging, *ibid.*
—— Fore, its Position and Rigging, *ibid.*
—— Mizen, its Position and Rigging, *ibid.*
—— Bowsprit, its Position and Rigging, *ib.*
Master of Musick, his Skill, in what it consists, 529.
Master Roux, a Painter, of the Roman School, his History, and particular Talent, 782.
MATHEMATICKS, Definition and Division thereof, 374.
Mathematicks, speculative, Definition thereof, *ibid.*
——— practical, pure, mixed; Definition thereof, *ibid.*
——— their Origin, *ibid.*
Matrimony, in Sacraments; Treatise thereof, 1027, 1028, 1029.
Matthew and *Paul Bril*, Painters, of the Flemish School, their particular Talent, 782.
MECHANICKS, Treatise thereof, 375, 376.
Medicines, in Physick, Definition and Division thereof, 915.
——— their Manner of operating, mechanically explain'd, 915, 916.
——— refuted by *De Coetlogon*, 916.
Melpomene, in Painting, how painted, 751.
Melting Pots to contain the Materials for Looking-Glass Plates; their Bigness and Use, 3.
Membred, Term of Heraldry; Signification thereof, 124.
Memorial, presented to Don Pedro, Prince of Portugal, by one of his Ministers, on the insulting Conduct of Spain, 1156, 1157.
Memory, in Rhetorick, Necessity thereof, 1017.
Menander, Heresiarch, his History and Errors, 132.
Mercœur, Dutchy, in France, when, and by whom erected, 616.
Mercury, in Metals, known under several Denominations, 398.
——— its Properties, 398, 399.
——— where found, how separated from the Ore or Earth, 398, 400.
Mercury, in Painting, how painted, 751.
Mercy, in Painting, how painted, 752.
Merit, in Jansenism, in how many Parts it can be taken, 231.
Merit, three Sorts thereof, *ibid.*
Meritorious Action, in Jansenism, Conditions requisite to it, 231, 232.
Mermaid, in Natural History, History thereof, 566.
Messalians, Hereticks, their History and Errors, 138.
METALS, six or seven Sorts thereof, 390.
——— their Nature, how produced; Sentiments of M. *Tournefort*, Dr. *Woodward*, *Geofroy*, and *l'Emery* thereupon, 390, 391.
——— Refutation of those Sentiments, by *De Coetlogon*, and his own Sentiment, 392.
——— that of *Boerhaave*, refuted by the same, 393, 394.
Metals, Determination of their specifick Weight, 700.
Metaphor, in Rhetorick, History, Rules and Examples thereof, 1013.
Metaphysical Degrees, in Metaphysick, Doctrine thereof, 401, 402.
METAPHYSICK, Definition and Division thereof, 400.
Metaphysick Act, in Metaphysick; Definition thereof, 403.
Metaphysick Truth, Definition thereof, 404.
Metaphysick Goodness, Definition thereof, *ib.*
Meteor, Definition, and Division thereof, 417.
——— igneous, or fiery; their Number and History, 418, 419.
——— aerial, or airy, their Number and History, 420, 421.
Method of casting Cannons, in Gunnery, 100, 101.
Method of dressing a Horse, for Hunting, in Horsemanship, 177, 178, 179.
Method, in Logick, Definition and Doctrine thereof, 342, 343, 344.
Method of helping a Woman in Labour, when the Child presents one or two Feet foremost, 460.
——— when he pushes out foremost the Neck of the Matrice, 462.
——— when he presents one Side of the Head, 763.
——— when his Body is stopped at the Passage by the Shoulders, *ibid.*
——— when he presents one or both Hands together with the Head, *ibid.*
——— when he presents one or both Hands alone, 464.
——— when he presents his Feet and Hands, *ibid.*
——— when he presents his Knees, *ibid.*
——— when he presents his Shoulders, Back, or Buttock, *ibid.*
——— when he presents the Belly, Breast, or Side, 465.
——— when there are several Children, who present themselves in the different Postures heretofore mentioned, *ibid.*
——— when the Navel-string comes foremost, 466.
——— when the After-birth presents itself foremost; or is entirely come out before the Child, *ibid.*
——— when a Delivery is attended with a great Loss of Blood, or with Convulsions, 467.
METHODISM, History thereof, 436, 437.
Methodists, a Sect of Physicians, History thereof, 941.
Michaelmas-Term, Number of its Returns, 319.
Michel Angelo, a Painter, of the Roman School; his History and particular Talent, 767.
——— Remarks on his Works, 768.
Michel Angelo Caravagio, a Painter, of the School of Lombardy, 779.
——— Remarks on his Works, *ibid.*
Michel Servetus, Heresiarch; his History and Errors, 158.
Michel Coxis, a Painter, of the Flemish School; his History and particular Talent, 780.
Michel Johnson, a Painter, of the Flemish School; his History and particular Talent, 784.
Microscope, in Dioptricks, Definition and Division thereof, 652.
——— single, Description and Laws thereof, 652, 653.
——— Water's Description and Laws thereof, 654.
MIDWIFRY, Treatise thereof, 438.
Milling, or throwing Silk, in Weaving; Art thereof, 1204.
MINERALS, De Coetlogon's System thereupon, 492, 493.
Minerals, in Pharmacy, their Number, 807.

Innocence, in Painting; how painted, 752.
Institution of Heirs, in Law, Doctrine thereof, 289.
Instrumental Musick, Definition and Theory thereof, 531.
Instruments, in Musick, two Kinds thereof, *ibid.*
Interjection, in Grammar; Definition and History thereof, 73.
Interrogation, a Figure in Rhetorick, Definition and History thereof, 1008.
Invecked, Term of Heraldry, Signification thereof, 124.
Invention, in Law; Doctrine thereof, 286.
Invention, in Rhetorick; Definition thereof, 1007.
Inventory, in Law; Definition thereof, 290.
Invisibility of God, Doctrine and Proofs thereof, 20.
Joachim Sandrat, a Painter, of the Flemish School; his History and particular Talent, 787.
John Brentius, a Confessionist; his Errors, 158.
John Angelick, a Painter, of the Roman School; his Character and particular Talent, 760.
John Francis Penni, a Painter, of the Roman School; his Character and particular Talent, 764.
John of Udine, a Painter, of the Roman School; his History and particular Talent, 767.
John Bellini, a Painter, of the Venetian School; his particular Talent, 770.
John Antony Regillo, called *Pordenon*, a Painter, of the Venetian School; his History and particular Talent, 773.
John Vandyck, a Painter, of the Flemish School, his History and particular Talent, 779.
John Mabuse, a Painter, of the Flemish School; his History and particular Talent, 780.
John Olbein, a Painter, of the Flemish School; his History and particular Talent, *ibid.*
John Cornelius Vermeyen, a Painter, of the Flemish School; his History and particular Talent, *ibid.*
John Bol, a Painter, of the Flemish School; his History and particular Talent, 781, 782.
John Stradan, a Painter, of the Flemish School; his Character and particular Talent, 782.
John Dac, a Painter of the Flemish School; his particular Talent, *ibid.*
John Rotenmar, a Painter of the Flemish School; his particular Talent, *ibid.*
John Torentius, a Painter of the Flemish School; his History, and particular Talent, 785.
John Lanfranc, a Painter of the School of Lombardy; his Character, and particular Talent, 777. Remarks on his Works, 777, 778.
John Cousin, a Painter of the French School; his particular Talent, 788.
John Hoskins, an English Painter; his particular Talent, 788.
John Riley, an English Painter; his particular Talent, *ibid.*
Joseph, Dutchy, in France; when, and by whom erected, 616.
Irony, Figure in Rhetorick; Definition and Examples thereof, 1014.
Irregular, or anamolous Verbs, in Grammar; where the Irregularity lies in English, 71.
Isaac Fuller, an English Painter; his particular Talent, 795.
Issuant, Term of Heraldry; Signification thereof, 124.
Issue, in Law, Distinction thereof, 313.
Issue, general; Definition thereof, *ibid.*
—— special; Definition thereof, *ibid.*
Italian Language, in Grammar; History thereof, 80.
Jesuits, History thereof, 264, 265.
Judgment, in Law, Definition and History thereof, 314.
Juice, in Pharmacy; how extracted, 824.
—— black, of Liquorice; Preparation thereof, *ibid.*
—— white of Liquorice; Preparation thereof, *ibid.*
Julep, in Pharmacy; Definition thereof, 813.
—— pectoral, Preparation, Doses, and Virtues thereof, *ibid.*
—— hysterick; Preparation, Doses, and Virtues thereof, 813, 814.
—— acid hysterick; Preparation, Doses, and Virtues thereof, 814.
—— camphorate hysterick; Preparation, Doses and Virtues thereof, *ibid.*
Julio Romano, a Painter of the Roman School; his History, and particular Talent, 764.
Julio Lavino, called Pordenon the Younger, a Painter of the Venetian School; his History, and particular Talent, 774.
July, Month, in Painting, how painted, 752.
Jumelle, a double Cannon, in Gunnery; Invention, and Description thereof, 85.
June, a Month, in Painting; how painted, 752.
Jurisprudence, in Law; Definition thereof, 282.
Jurors, in Law, how impanelled, both in civil and criminal Cases; their History, 313.
Justice, and Law; Definition and History thereof, 282.
Justification, in Jansenism; Definition thereof, 229.
Justification, first active; Definition thereof, *ib.*
—— first passive; Definition thereof, *ib.*
—— second active; Definition thereof, *ib.*
—— second passive; Definition thereof, *ib.*
Justification of the Impious; how effected, *ib.*
Justification; Disposition required to it, 229, 230.

K.

K, the tenth Letter of the Alphabet, and a double Consonant, in Grammar, 61. borrowed from the Greek *Kappa*; a superfluous Letter, according to *Prescian*, unknown to the antient Romans; Remarks of M. *Beger* thereupon, *ibid.*
K, has various Significations; never used by the French; Remarks of *Ablancourt* thereupon, *ibid.* Much used in the English, *ibid.* Its Signification among the numeral Characters of the Antients, 64.
Kalig-ashes, used in Glass-making, 5.
Kleber, Name of a Sect among the Persians; History thereof, 269.
Keel of a Ship, in naval Architecture; how placed well on the Stocks, 582.
King's Evil, a Disease, in Physick; Causes and Cure thereof, 930. History of touching for it, *ibid.*
Keys, in Musick; Invention, and Doctrine thereof, 512.
Keys, their Distinction, into sharp and flat; Remarks of Mr. *Malcolm* thereupon, 513.

L.

L, the eleventh Letter of the Alphabet, and a Semi-vowel; Remarks of *Passerat* thereupon, 62. Its Signification among the numeral Characters of the Antients, 64.
Label, an honourable Difference in Heraldry; Blazon thereof, 115.
Lacedemonians, their Hieroglyphicks; Explication thereof, 167.
Laconic Style, in Rhetorick; Definition, Rules and Examples thereof, 1011.
La Ferte Senneterre, Dutchy, in France; when and by whom erected, 617.
La Force, Dutchy in France; when, and by whom erected, 616.
Lambrequin, Term of Heraldry; Signification thereof, 124.
La Meilleraye, Dutchy in France; when, and by whom erected, 617.
Language, in Grammar; Definition thereof, 76.
Languages, their first Principles, according to Father Buffier; their Use, as defined by *Vangelas*; their Diversity whence it arose, *ib.* Antiquity and Priority between them, much controverted, 77. Their Division, *ibid.*
Langued, Term of Heraldry; Signification thereof, 124.
Lapidary, Art thereof, 270, 271.
Lapidaries, in Europe, their Manner of examining their rough Diamonds, 271.
Lares, in Mythology; Definition thereof, 548.
Lares, distinguished by *Plutarch*, into Good and Evil, *ibid.*
Lares, Domestick, what, according to *Aquilius*, *ibid.*
—— publick; their Office, *ibid.*
—— private; their Office, *ibid.*
—— of Cities; their Office, *ibid.*
Lares, their Origin; when first worshipped, and on what Occasion, according to *Tertullian*; Victims offered to them. *ibid.*
Largo, Term of Musick; Signification thereof, 539.
Latin Language; History thereof, 78, 79.
La Trappe, in Orders; a Reformation of the Order of Citeaux; History thereof, 667, 668.
Laughter, in Painting; how painted, 752.
Law, Definition and Etymology thereof, 275.
—— called by five different Names, *ibid.*
—— either natural or positive, *ibid.*
Law, positive, Definition thereof; either divine or human, *ibid.*
Law, divine; Definition thereof, either antient or new, *ibid.*
Law, antient or old; Definition thereof, *ib.*
—— its Precepts, 278.
—— new; Definition thereof, 275.
—— its Precepts, 279.
Law, human; either ecclesiastical or civil, 275.
Law, ecclesiastical; Definition thereof, *ibid.*
—— civil; Definition thereof, *ibid.*
Law, Matter subject to it, 275, 276.
Law, eternal; History thereof, 276.
—— natural History thereof, *ibid.*
—— Precepts thereof, 277.
Law of Nations, Definition thereof; and Explication of the Definition, *ibid.*
—— Precepts thereof, 277, 278.
Law, *falcidian*; Doctrine thereof, 290.
Laws, three of the local Motion, established by the Cartesians; Doctrine thereof, 385.
Laws of the Foci of Glasses, in Opticks; and the Method of finding them, 647, 648.
Law, in Painting; how painted, 752.
Lead, in Metals; Definition thereof, 398.
—— where, and how found, how melted; Reflections of the Naturalists thereupon, *ib.*
Leaf, in natural History; Definition and Description thereof, 569.
League, famous of Smalcalde, in Lutheranism; History thereof, 353.
Leaves, how considered by Botanists, 569.
Leaves, annual; Definition thereof, *ibid.*
—— crenated; Definition thereof, *ibid.*
—— dissimilar; Definition thereof, *ibid.*
—— procumbent; Definition thereof, *ibid.*
—— segment; Definition thereof, *ibid.*
—— vernal; Definition thereof, *ibid.*
Ledger Lines, in Musick; what, 533.
Lediguieres, Dutchy in France; when, and by whom erected, 616.
Legacy, in Law; Definition and Doctrine thereof, 290.
Lemures, in Mythology; their History, and Remarks thereupon, 549.
Lens in Dioptricks; various Figures thereof, 645.
Lenses, in Dioptricks; distinguished into Ground and Blown, 646.
—— convex; Laws of Refraction with respect to them, *ibid.*
—— concave; Laws thereof, 647.
Leonardo da Vinci, a Painter of the Roman School; his History, and particular Talent, 761. Remarks on his Works, 762.
Leonian Society, in Law; what, 293.
Leprosy, a cutaneous Distemper, in Physick; History, Causes, Symptoms, and Cure thereof, 938, 939.
Letters of the Alphabet; their History, 59, 60.
Letters Patent, in Chancery; History thereof, 306.
Lever, in Mechanicks, Definition and Description thereof, 376. Three Things to be considered in a Lever, *ibid.*
Levers, three Kinds thereof, *ibid.*
Levers of the first Kind; Theory thereof, *ibid.*
—— of the second Kind; Theory thereof *ibid.*
—— of the third Kind; Theory thereof, *ib.*
Leviner, or Leymer, a hunting Dog; its Qualities, 188.
Liancourt, Dutchy, in France; when, and by whom erected, 617.
Liberty, in Metaphysick, Definition thereof; two Sorts of Liberty, 415.
Liberty from Coaction; Definition thereof, and Remarks thereupon, *ibid.*
Liberty from Necessity; Definition thereof, and Remarks thereupon, *ibid.*
Lientry, a Disease, in Physick; Causes and Cure thereof, 934.
Light, in Opticks; Nature thereof, as explained by *Aristotle*, the *Cartesians*, and F. *Malebranche*, 625, 626.
—— by the *Newtonians*, 626.
Light, Reflexion and Refraction thereof, 627, 628.
Light, but three Affections thereof, 629.
Line of equal Parts, or Line of Lines, marked on the Sector, or Compass of Proportion, how divided and subdivided, on which Side of the Compass found, how numbered, 593.
Line of Cords; how divided and numbered, *ib.*
Line of Tangents; how divided and numbered, *ibid.*
Line of Secants; how divided and numbered, *ibid.*
Line of Polygons; how divided and numbered, *ibid.*
Line, in Navigation, Sounding; two Sorts thereof; its Description and Use, 587.
Line of the Log; Description and Use thereof, 594.
Line for Linen Cloth, in Weaving; how prepared, 1207.
Lines, in Perspective; different Sorts thereof, 802.
Linen Cloth, in Weaving; different Sorts thereof, 1207.

Linen Manufacture, in Weaving, History thereof, *ibid.*
Lion rampant, Hieroglyphick; Explication thereof, 162.
Lions set to the Chariot of *Cybel*, Hieroglyphick; Explication thereof, *ibid.*
Lions, how borne in Heraldry, 113.
Lion's Skin, Hieroglyphick; Explication thereof, 162.
Lioness, Hieroglyphick; Explication thereof, *ibid.*
Lippo of Florence, a Painter of the Roman School; his History, and particular Talent, 760.
Liquids, in Grammar; what, 58.
Local Motion, in Mechanicks; Affections, Causes, &c. thereof, 381.
Location Conduction, in Law; Definition thereof, 293.
Location, tacit, in Law, Definition thereof, *ib.*
Log, in Navigation; Description and Use thereof, 594.
LOGIC, Definition and Division thereof, 320.
Longitude, in Navigation, the Invention thereof a true Powder of Projection; of what Utility, if it was found, 600.
——— various Methods of finding it at present, 600, 601.
Looch, in Pharmacy; Definition thereof, 837.
——— pectoral; Preparation and Virtues thereof, *ibid.*
——— to stop Vomiting; Preparation and Doses thereof, *ibid.*
——— of red Cabbages; Preparation and Virtues thereof, *ibid.*
——— of Squill; Preparation and Virtues thereof, *ibid.*
——— of Poppies, Preparation and Virtues thereof, *ibid.*
——— of Garlick; Preparation and Virtues thereof, *ibid.*
——— of Jar-Raisins; Preparation and Virtues thereof, *ibid.*
——— of Althæa; Preparation and Virtues thereof, 837, 838.
Lotion, in Pharmacy; Definition and Use thereof, 818.
Lotion to kill Lice in the Head; Preparation thereof, *ibid.*
Lotion to render red Hairs black; Preparation thereof, *ibid.*
Loudun, Dutchy, in France; when, and by whom erected, 616.
Louis XIV. King of France, in Painting; how painted, 751.
Lozange, an honourable Ordinary, in Heraldry; Blazon thereof, 124.
Lozangy, Term of Heraldry; Signification thereof, *ibid.*
Luca Seignorelli, a Painter, of the Roman School; his History and particular Talent, 761.
Lucas of Leyden, a Painter, of the Flemish School; his Character and parricular Talent, 780.
Luther, Martin, Author of Lutheranism, his Birth and Education; begins to preach his new Doctrine, on what Occasion, 346.
——— appears before the Pope's Legate, 346, 347.
——— forty one of his Propositions condemned by the Pope, 347.
——— appears at the Diet of Worms, and is banished by the Emperor, 348.
——— is condemned by the Sorbonne, to whom he had appealed, and submitted his Writings, 349.
——— his Treatment of *Henry* VIII. King of England, *ibid.*
——— marries a Nun, 350.
——— writes several Things against the Emperor and Bishops, 353.
——— died of an Indigestion at *Isbel*, the Place of his Birth; his Character, 357.
LUTHERANISM, History thereof, 347, 348.
Lyre, Hieroglyphick; Explication thereof, 168.

M.

M, A liquid Consonant, and the twelfth Letter of the Alphabet; how pronounced, 62.
——— Remarks of Quintillian thereupon, *ibid.*
——— Its Signification among the numeral Characters of the Antients, 64.
Macaronick Poetry, History thereof, 978.
Macedonius, Heresiarch, his History and Errors, 138.
Machines, in Mechanicks; two Sorts thereof, 375.
——— simple, six Sorts thereof, *ibid.*
——— compound, their Number almost infinite, *ibid.*
MAGICK, Treatise thereof, 363, 364.
Magna Charta, in Law, the Basis of the English Liberties; History thereof, 306.
MAGNET, Treatise thereof, 366, 367.
Mahomet, the Impostor; his History, 371.
Mahomet, in Painting; how painted, 757.
MAHOMETANISM, History thereof, 371, 372, 373.
Mahometans, their Theology, 372.
Maille Luynes, Dutchy, in France; when, and by whom erected, 616.
Man of War, in Naval Architecture, its several Dimensions, 570, 579.
Mandate, in Law, Doctrine thereof, 294.
Manganese, a Kind of Pseudo-Load-stone, which enters the Composition of Glass; where found, 2.
Mania, a Disease, in Physick; Causes, Symptoms, and Cure thereof, 919.
Manicheans, Hereticks; their History and Errors, 136, 137.
Manner of Things, or Modes in Logick; Definition and Doctrine thereof, 322, 323.
Manner of treating a Child, newly born, in Midwifry, 479.
Manner of hindering Children from being squint-ey'd, awry, crooked, and lame, in Midwifry, 491.
Manners, in Poetry; Definition and Rules thereof, 968, 969.
Mantle, in Heraldry, Blazon thereof, 124.
Manumission, by Testament, in Law; three solemn Manners of Manumission, 283.
Marcasite, in Natural History, History thereof,
March, Month, in Painting, how painted, 753.
Marcian, Heresiarch, his History and Errors, 134.
Mares, in Horsemanship; the fittest to breed out of, 172.
——— how kept during the Time of their being with Foal, 173.
Mark, Heretick; his History and Errors, 135.
Mariotte, his Experiments on Hydraulicks, 204.
Marriage, Maritagium, in Law; Signification thereof, 285.
Martin de Vos, a Painter, of the Flemish School; his particular Talent, 782.
Martlets, honourable Ordinary, in Heraldry; Blazon thereof, 124.
Mascle, honourable Ordinary, in Heraldry; Blazon thereof, *ibid.*
Massoned, Term of Heraldry; Signification thereof, *ibid.*
Mast, in Naval Architecture; Proportions thereof, 570.
Masts, their Number in a Ship, *ibid.*
——— Main, its Position and Rigging, *ibid.*
——— Fore, its Position and Rigging, *ibid.*
——— Mizen, its Position and Rigging, *ibid.*
——— Bowsprit, its Position and Rigging, *ib.*
Master of Musick, his Skill, in what it consists, 529.
Master Roux, a Painter, of the Roman School, his History, and particular Talent, 782.
MATHEMATICKS, Definition and Division thereof, 374.
Mathematicks, speculative, Definition thereof, *ibid.*
——— practical, pure, mixed; Definition thereof, *ibid.*
——— their Origin, *ibid.*
Matrimony, in Sacraments; Treatise thereof, 1027, 1028, 1029.
Matthew and *Paul Bril*, Painters, of the Flemish School, their particular Talent, 782.
MECHANICKS, Treatise thereof, 375, 376.
Medicines, in Physick, Definition and Division thereof, 915.
——— their Manner of operating, mechanically explain'd, 915, 916.
——— refuted by *De Coetlogon*, 916.
Melpomene, in Painting, how painted, 751.
Melting Pots to contain the Materials for Looking-Glass Plates; their Bigness and Use, 3.
Membred, Term of Heraldry; Signification thereof, 124.
Memorial, presented to Don Pedro, Prince of Portugal, by one of his Ministers, on the insulting Conduct of Spain, 1156, 1157.
Memory, in Rhetorick, Necessity thereof, 1017.
Menander, Heresiarch, his History and Errors, 132.
Mercœur, Dutchy, in France, when, and by whom erected, 616.
Mercury, in Metals, known under several Denominations, 398.
——— its Properties, 398, 399.
——— where found, how separated from the Ore or Earth, 398, 400.
Mercury, in Painting, how painted, 751.
Mercy, in Painting, how painted, 752.
Merit, in Jansenism, in how many Parts it can be taken, 231.
Merit, three Sorts thereof, *ibid.*
Meritorious Action, in Jansenism, Conditions requisite to it, 231, 232.
Mermaid, in Natural History, History thereof, 566.
Messalians, Hereticks, their History and Errors, 138.
METALS, six or seven Sorts thereof, 390.
——— their Nature, how produced; Sentiments of M. *Tournefort*, Dr. *Woodward*, *Geofroy*, and *l'Emery* thereupon, 390, 391.
——— Refutation of those Sentiments, by *De Coetlogon*, and his own Sentiment, 392.
——— that of *Boerhaave*, refuted by the same, 393, 394.
Metals, Determination of their specifick Weight, 700.
Metaphor, in Rhetorick, History, Rules and Examples thereof, 1013.
Metaphysical Degrees, in Metaphysick, Doctrine thereof, 401, 402.
METAPHYSICK, Definition and Division thereof, 400.
Metaphysick Act, in Metaphysick; Definition thereof, 403.
Metaphysick Truth, Definition thereof, 404.
Metaphysick Goodness, Definition thereof, *ib.*
Meteor, Definition, and Division thereof, 417.
——— igneous, or fiery; their Number and History, 418, 419.
——— aerial, or airy, their Number and History, 420, 421.
Method of casting Cannons, in Gunnery, 100, 101.
Method of dressing a Horse, for Hunting, in Horsemanship, 177, 178, 179.
Method, in Logick, Definition and Doctrine thereof, 342, 343, 344.
Method of helping a Woman in Labour, when the Child presents one or two Feet foremost, 460.
——— when he pushes out foremost the Neck of the Matrice, 462.
——— when he presents one Side of the Head, 763.
——— when his Body is stopped at the Passage by the Shoulders, *ibid.*
——— when he presents one or both Hands together with the Head, *ibid.*
——— when he presents one or both Hands alone, 464.
——— when he presents his Feet and Hands, *ibid.*
——— when he presents his Knees, *ibid.*
——— when he presents his Shoulders, Back, or Buttock, *ibid.*
——— when he presents the Belly, Breast, or Side, 465.
——— when there are several Children, who present themselves in the different Postures heretofore mentioned, *ibid.*
——— when the Navel-string comes foremost, 466.
——— when the After-birth presents itself foremost; or is entirely come out before the Child, *ibid.*
——— when a Delivery is attended with a great Loss of Blood, or with Convulsions, 467.
METHODISM, History thereof, 436, 437.
Methodists, a Sect of Physicians, History thereof, 941.
Michaelmas-Term, Number of its Returns, 319.
Michel Angelo, a Painter, of the Roman School; his History and particular Talent, 767.
——— Remarks on his Works, 768.
Michel Angelo Caravagio, a Painter, of the School of Lombardy, 779.
——— Remarks on his Works, *ibid.*
Michel Servetus, Heresiarch; his History and Errors, 158.
Michel Coxis, a Painter, of the Flemish School; his History and particular Talent, 780.
Michel Johnson, a Painter, of the Flemish School; his History and particular Talent, 784.
Microscope, in Dioptricks, Definition and Division thereof, 652.
——— single, Description and Laws thereof, 652, 653.
——— Water's Description and Laws thereof, 654.
MIDWIFRY, Treatise thereof, 438.
Milling, or throwing Silk, in Weaving; Art thereof, 1204.
MINERALS, De Coetlogon's System thereupon, 492, 493.
Minerals, in Pharmacy, their Number, 807.

Mineral-Springs, in England, History thereof, 502, 503.
——— in France, History thereof, 503, 504.
MINERAL-WATERS, how produced, 500.
——— different Sentiments thereupon, 501.
——— Method of discovering their Qualities, 502.
Minos, in Painting, how painted, 751.
Mirrours, in Catoptricks, Doctrine thereof, on what founded, 638.
Mirrours, Division thereof, *ibid.*
Mirrours, plane, Description and Laws thereof, 638, 639.
——— convex, Description and Laws thereof, 639, 640.
——— concave, Description and Laws thereof, 640.
——— burning, History and Laws thereof, 641.
——— cylindrical, conical, parabolical; Description and Laws thereof, 642.
Mission of the divine Persons, in Trinity; Proofs thereof, 1179, 1180.
Mitre, in Heraldry; different Manner of placing it over the Escutcheon, 116.
Mixt Obligation, in Law; History thereof, 291.
Model, first of a Ship, in Naval Architecture; Explication thereof, 580.
——— second, Explication thereof, *ibid.*
Modes, in Musick; Definition and Division thereof, 516.
Modes, antient, Division thereof, *ibid.*
——— Dorick, History thereof, *ibid.*
——— Phrygian, History thereof, *ibid.*
——— Mynolodian, History thereof, *ibid.*
——— Continuo, History thereof, *ibid.*
——— Common, History thereof, *ibid.*
——— Misto, or Mixto, History thereof, 507.
Modes, Rules thereof, *ibid.*
Molossus, the Foot of a Verse, in Poetry, Rules thereof, 961.
Momus, in Painting; how painted, 751.
Monarchy, in Goverment, Origin thereof, among the Jews, 41.
Monarchies, antient, their Decadence, 42.
——— modern, their Distinction, *ibid.*
——— the most absolute and despotick in the World, 42, 43.
Monarchies, Persian; History thereof, 43, 44.
——— French, History thereof, 44, 45, 46.
Monarchicks, Hereticks; their History and Errors, 135.
Monochord, Instrument of Musick; Description and Use thereof, 539.
Monometer, in Pneumaticks, Description and Use thereof, 953.
Monothelites, Hereticks, their History and Errors, 554, 555.
Monsters, in Natural History, Definition and History thereof, 554.
Montanus, Heresiarch; his History and Errors, 134.
Montbazon, Dutchy, in France, when, and by whom erected, *ibid.*
Montmorency, Dutchy, in France; when, and by whom erected, 617.
Montmorency Luxembourg, Dutchy, in France; when and by whom erected, 616.
Montpensier, Dutchy, in France, when, and by whom erected, 616.
Mooted, Term of Heraldry; Signification thereof, 124.
Morgomatick, a Kind of Marriage, in Germany; History thereof, 284.
Mortar, in Gunnery, Definition and Description thereof, 87.
Mortars, two Kinds thereof, *ibid.*
Mortars for throwing Stones; Proportions thereof, *ibid.*
Mortars for throwing Bombs; Preparations thereof, *ibid.*
Mortars, common; Use thereof, 90.
Mortars, how mounted on their Carriage, *ibid.*
Mortars, called, *Obus*, or *Obits*, History thereof, 92.
Mortemar, Dutchy, in France; when, and by whom erected, 617.
Motion, in Mechanicks, Doctrine thereof, 381, 382, 383.
Motion, perpetual, Means used to find it, 380.
——— Local, Definition and Doctrine thereof, 381.
——— Tonick, Definition thereof, *ibid.*
Motion, its principal Affections, 382.
——— Quantity, Definition thereof, *ibid.*
——— Determination, Definition thereof, 382, 383.
——— Reflexion, Definition and Theory thereof, 383, 384.
——— true and proper Cause; Theory thereof, 384.
Motion, translated, Cause and Laws thereof, 385.
Motions of the intellective Appetite in God, what, 30, 31.
Motions of the Voice, in Musick; Difference thereof according to *Aristoxenes*, 530.
Movimento, Term of Musick; Signification and Use thereof, 540.
Mucilage, in Pharmacy; Definition thereof, 818.
——— common emollient; Preparation and Virtues thereof, *ibid.*
——— of Gum Traganth; Preparation and Virtues thereof, *ibid.*
——— to stop an Hemorrhage; Preparation and Virtues thereof, 819.
——— of a Ram's Skin; Preparation and Virtues thereof, *ibid.*
Mufti, Chief or Patriarch of the Mahometan Religion; his Dignity and Power, 372.
Mule, Hieroglyphick; Explication thereof, 163.
Mule, in Natural History; how propagated, 554.
Mullet, an honourable Ordinary, in Heraldry; Blazon thereof, 124.
Munitions for a Siege, in Gunnery, 97.
Musket, common, in Gunnery; Description and Caliber thereof, 105.
MUSICK, Definition and Division thereof, 507.
——— speculative; Definition thereof, *ibid.*
——— practical; Definition thereof, *ibid.*
Musick, how defined by *Hermes Trismegistus*, *Aristides*, *Quintilianus*, and *Bacchius*, 508.
——— divided into natural and artificial, *ibid.*
Musick, vocal; Definition and Rules thereof, 529, 530.
——— instrumental; Definition and History thereof, 531.
Musquetoon, in Gunnery; Proportions thereof, 105.
Mutations, in Musick; Etymology and Rules thereof, 519.
Mutuum, in Law; Definition and Doctrine thereof, 291, 292.
Myopes, in Opticks; what, 635.
MYTHOLOGY, Treatise thereof, 547.

N.

N, A liquid Consonant, and the thirteenth Letter of the Alphabet; History thereof, and Remarks of the Abbot thereupon, 62.
——— Its Signification among the numeral Characters of the Antients, 64.
Naked Figures, in Painting; when to be used, 747.
Naiades, in Painting; how painted, 752.
Names, essential, in God; their Signification, 1178.
——— to be appropriated to the Persons, 1179.
Names of the first Person in the Trinity; Number thereof, 1181.
——— of the second Person; their Number, 1182.
——— of the third Person; their Number, 1184.
Naphta, in Minerals; Description thereof, where found, different Sorts thereof, its Virtues, how called by the Turks, 497.
Nativities of Christ, Number and Proofs thereof, 251, 252.
Natural Law, Definition thereof, some of its Precepts more universally known than other, 276.
——— immutable with Regard to its first Principles, *ibid.*
——— admits of no Dispensation, nor Interpretation, by Epicky, 277.
Natural Habits of the human Soul; Doctrine thereof, 416, 417.
NATURAL HISTORY, Treatise thereof, 554.
Natural Magick, Definition thereof, 366.
——— that of the Chaldeans, its History, *ibid.*
Natural Philosophy, System thereof, 905.
Natures, two, in Christ; Proofs thereof in Incarnation, 243, 244.
NAVAL ARCHITECTURE, Treatise thereof, 569.
Navel, Hieroglyphick, Explication thereof, 161.
NAVIGATION, Definition and Division thereof, 585.
——— common, Definition thereof, *ibid.*
——— proper, Definition thereof, *ibid.*
Nazarians, a Sect among the Jews, their History, 266.
Nebuly, Term of Heraldry; Signification thereof, 125.
Necklace, Hieroglyphick, Explication thereof, 167.
Needle, in Needle-making; several Sorts thereof, 613.
Needles, in Commerce, 614.
Needles, magnetical; Division and Mechanism thereof, *ibid.*
NEEDLE-MAKING, Art thereof, 613.
Nemours, Dutchy, in France; when, and by whom erected, 615.
Nephretick Cholick, a Disease, in Physick; Causes, Symptoms, and Cure thereof, 935.
Neptune, in Painting; how painted, 751.
Netcher, *Gaspar*, a Painter, of the Flemish School; his History and particular Talent, 788.
——— Remarks on his Works, *ibid.*
Nevers, Dutchy, in France; when, and by whom erected, 616.
Newtonian Philosophy, System thereof, 902, 903.
Nicolas Poussin, a Painter, of the French School, called the *Raphael of France*; his History and particular Talent, 789.
——— Remarks on his Works, 790.
Nicolas Mignard, a Painter, of the French School; his History and particular Talent, 792.
Nicolas Loir, a Painter, of the French School; his History and particular Talent, 793.
Nicolaites, Hereticks; their History and Errors, 152.
Nightingale, Hieroglyphick, Explication thereof, 165.
Noailles, Dutchy, in France; when, and by whom erected, 617.
Nobility, Definition, and Origin thereof, according to De Coetlogon, 614.
——— the infamous Commerce of selling it, 615.
Nominative Case, in Grammar; Definition and Rules thereof, 69.
Nonsuit, in Law; Doctrine thereof, 314.
Nonupla, in Musick; Definition thereof, 540.
Nonupla di Semi-minime; how marked, and its Value, *ibid.*
Nonupla di Crome; how marked, and its Value, *ibid.*
Nonupla di Semi-Crome; how marked, and its Value, *ibid.*
Norbertine Nuns, a religious Congregation; History thereof, 675.
Norway, King of Arms, in England, 130.
Notaricon, in Judaism; two principal Kinds thereof, 268.
Notes of the System of Guido Aretin, in Musick; their Use, 514.
Notes of *John des Murs*; Utility, Form and Value thereof, *ibid.*
Notes and Characters, in Musick; History thereof, 533.
Novatian, Heresiarch; his History and Errors,
Novatians, Hereticks; their History and Errors, *ibid.*
Noun, in Grammar; Definition and Division thereof, 67.
Noun Substantive; why thus called, *ibid.*
——— Adjective; why thus called, *ibid.*
Nouns proper, Definition thereof, *ibid.*
——— appellative, Definition thereof, *ibid.*
——— heterogenous, Definition thereof, *ibid.*
Nouns, Heteroclite, Division thereof into,
——— Aptote, Definition thereof, *ibid.*
——— Diptote, Definition thereof, *ibid.*
——— Triptote, Definition thereof, *ibid.*
——— Pentaptote, Definition thereof, *ibid.*
Nouns, Inflection thereof, how called, 68.
Numa Pompilius, in Painting; how painted, 751.
Numbers, in Rhetorick; Definition and Necessity thereof, 1009.
Nuptials, or Marriage, in Law; Definition and Conditions thereof, 1175.
Nurse, for new-born Children; how to be chosen, 481, 481.

O.

O, The fourteenth Letter of the Alphabet, and the fourth Vowel, 62.
——— frequently confounded with the *u*, by the Latins; two *o* among the Greeks, *ibid.*
——— Its Signification among the numeral Characters of the Antients, 64.
O, majuscule, in Musick; Signification thereof, 540.
Obligation, in Law; three Kinds thereof, 291.
Obligations, natural; Definition and Conditions thereof, *ibid.*
——— civil, Definition and Conditions thereof, *ibid.*
——— mixt, Definition and Conditions thereof, *ibid.*
Obligations, whence they arise, *ibid.*

Obligations, in what Manner contracted, *ibid.*
——— verbal, Conditions thereof, 292.
——— arising from a Quasi-contract, 294.
——— arising from Quasi-crimes, 295.
Obligato, in Musick; Signification thereof, 540.
Obliquo, in Musick; Signification thereof, *ibid.*
Observation, in Rhetorick; Rules and Examples thereof, *ibid.*
Octave, in Musick; Definition and History thereof, 540.
October, a Month, in Painting; how painted, 752.
Ode, in Poetry; Etymology and Definition thereof, 973.
Ode of the Antients; Remarks of Vossius thereupon, *ibid.*
——— their true Signification then, *ibid.*
——— Rules thereof, 974.
Ode, Pindarick; History and Rules thereof, *ibid.*
Oil, in Pharmacy; Definition and History thereof, 867.
Oil of Olive; Preparation and Virtues thereof, *ibid.*
Oil, Amphacine; a chimerical one, *ibid.*
Oil of sweet Almonds; Preparation and Virtues thereof, 867, 868.
— of bitter Almonds; Preparation and Virtues thereof, 868.
— of Eggs; Preparation and Virtues thereof, *ibid.*
— of Roses; Preparation and Virtues thereof, *ibid.*
— of Iris, or *Irinum*; Preparation and Virtues thereof, *ibid.*
— of St. John-wort composed; Preparation and Virtues thereof, *ibid.*
— of Saffron; Preparation and Virtues thereof, 869.
— of Euphorbium; Preparation and Virtues thereof, *ibid.*
— of Tobacco; Preparation and Virtues thereof, *ibid.*
— of Mastich; Preparation and Virtues thereof, *ibid.*
Oleum nardinum, in Pharmacy; Preparation and Virtues thereof, 869.
——— *Aranearum*; Preparation and Virtues thereof, *ibid.*
——— *Balsami*; Preparation and Virtues thereof, *ibid.*
——— *Carminativum reformatum*; Preparation and Virtues thereof, *ibid.*
——— *Catellorum*; Preparation and Virtues thereof, 871.
——— *Contra Sarditatem*; Preparation and Virtues thereof, *ibid.*
——— *de piperibus reformatum*; Preparation and Virtues thereof, 869.
——— *Formicarum*; Preparation and Virtues thereof, 871.
——— *Lumbricorum*; Preparation and Virtues thereof, 869.
——— *Majoranæ*; Preparation and Virtues thereof, *ibid.*
——— *Mirabile*; Preparation and Virtues thereof, 871.
——— *Moschatum*; Preparation and Virtues thereof, 869.
——— *Nephreticum*; Preparation and Virtues thereof, *ibid.*
——— *Populeum*; Preparation and Virtues thereof, *ibid.*
——— *Ranarum*; Preparation and Virtues thereof, 871.
——— *Resolutivum*; Preparation and Virtues thereof, 869.
——— *Scarabæorum*; Preparation and Virtues thereof, *ibid.*
——— *Sicyonium compositum*; Preparation and Virtues thereof, *ibid.*
Ombre, French Term of Heraldry; Signification thereof, 124.
Onde, French Term of Heraldry; Signification thereof, *ibid.*
Ongle, French Term of Heraldry; Signification thereof, *ibid.*
Onion, Hieroglyphick; Explication thereof, 169.
Opera, in Musick; Dissertation thereupon, 545.
Ophites, Hereticks; their History and Errors, 133.
Opiata Salamonis, in Pharmacy; Preparation and Virtues thereof, 853.
Opiata Kermes; Preparation and Virtues thereof, 854.
Opiate, in Pharmacy; Definition and Preparation thereof, 857.
Opiate, Antinephretick; Preparation and Virtues thereof, 854.
Opposition, in Metaphysick; four Kinds thereof, 405.
Optative, the third Mood in the Conjugation of Verbs, in Grammar, 71.
Opthalmia, a Disease of the Eyes; Cause, Symptoms, and Cure thereof, 940.
OPTICKS, Treatise thereof, 624.
Or, Metal, in Heraldry; how painted and engraved, 108.
Oracles, in Magick, their History, Sentiment of *Bayle*, *Plutarch*, *Fontenelle*, *Van Dale*, *Balthus*, *Bacchet*, *Eusebius*, and *Oenomaus* hereupon, 365.
Oratorial Period, in Rhetorick; Rules thereof, 1009.
Oratorio, in Musick; Definition and History 537.
ORDERS, Definition and Division thereof, 664.
Orders, religious; Origin and Progresses thereof, 664.
——— military; Origin thereof, 678.
Order of St. John of Jerusalem, or of Malta; History thereof, 678, 679.
——— Abridgment of its Statutes and Canons, 679, 680.
——— Ceremonies observ'd in giving the Habit of the Order, 680, 681.
——— those at the Election of the Grand Master, 681, 682.
——— chronological Succession of the grand Masters, 682, 683.
Order of the Templars; History thereof, 683.
——— Abridgment of the Rules of the Order, 684.
——— chronological Succession of the grand Masters, 688.
——— their unhappy Catastrophe, *ibid.*
Order of St. Lazarus of Jerusalem; History thereof, 688, 689.
——— chronological Succession of the Grand Masters, 689.
Order teutonick; History thereof, 689, 690.
——— their antient Observance, 690, 691.
——— Election of the grand Master, 691.
——— chronological Succession of the grand Masters, 691, 692.
Order of Calatrava, in Spain; History thereof, 692.
——— Abridgment of their antient Rules, *ibid.*
——— chronological Succession of the grand Masters, 693.
Order of the Golden Angel; History thereof, 693, 694.
——— Ceremonies used at the Reception of the Knights, 695.
——— critical Remarks on this Order, 695, 696.
Order of the St. Sepulchre, History thereof, 696.
——— their Rules given by Charlemagne, *ibid.*
——— critical Remarks thereupon, 697.
Order of the Croisade; History thereof, 698.
Order of the Star, in France; History thereof, 701.
Order of St. Michael, in France; History thereof, 701.
Order of the Holy Ghost, in France, History thereof, 702, 703.
——— Vows made by the Chief of the Order; and by the Knights, 703.
——— chronological Succession of the grand Masters, 704, 705, 706, 707.
Order of St. Lazare, and of N. D. de Mount Carmel, in France, History thereof, 707, 708.
——— Ceremonies observed at the Reception of the Knights, 709.
——— chronological Succession of the grand Masters, *ibid.*
Order of St. Louis, in France; History thereof, 709, 710.
Order of the Bath, in England; History thereof, 711.
——— Ceremonies used antiently at the Reception of a Knight, 711, 712.
——— Chronology of the grand Masters, 713.
Order of the Garter, in England; History thereof, 713, 714.
——— Rules of the Order at its first Institution, 714.
——— modern Rules, 715.
——— chronological Succession of the grand Masters, and of the Knights Companions of the Order to this Day, 716, 717, 718.
Order of the Thistle, and of the Rue, in Scotland; History thereof, 720, 721.
——— antient Rules of the Order, 721.
——— chronological Succession of the grand Masters, 721, 722.
Order of St. James, or of St. Jago de la Spada, in Spain; History thereof, 722, 723.
——— Rules of the Order, 722.
Order of Alcantara, in Spain; History thereof, 723.
Order of the Golden Fleece, in Spain; History thereof, 723, 724, 725.
——— Privileges and Ceremonies of the Order, 724.
——— chronological Succession of the Grand Masters, and Knights, 724, 725, 726.
Order of Avis, in Portugal; History thereof, 728, 729.
Order of St. James, in Portugal; History thereof, 729.
Order of Christ, in Portugal; History thereof, *ibid.*
——— chronological Succession of the Grand Masters, 729, 730.
Order of the Annunciade, in Savoy; History thereof, 730.
——— Rules of the Order, *ibid.*
——— chronological Succession of the grand Masters, and Knights, 731, 732.
Order of St. Lazare, and St. Maurice, in Savoy; History thereof, 732, 733.
Order of St. Stephen, in Tuscany; History thereof, 733, 734.
Order of St. George, at Rome; History thereof, 734.
Order of St. Peter, at Rome; History thereof, *ibid.*
——— of the Spur, at Rome; History thereof, thereof, *ibid.*
——— of Loretto, at Rome; History thereof, *ibid.*
Order of the Stole, at Venice; History thereof, 735.
——— of St. Mark, at Venice; History thereof, *ibid.*
Order of the white Eagle, in Poland; History thereof, *ibid.*
Order of St. Andrew, in Muscovy; History thereof, *ibid.*
——— of St. Catherine, in Muscovy; History thereof, *ibid.*
Order of the Elephant, in Denmark; History thereof, 735, 736.
Order of the Seraphims, in Sweden; History thereof, 736.
——— of the Amarante, in Sweden; History thereof, 737.
Order of the Porte Glaives, or Sword-Bearers, in Livonia; History thereof, *ibid.*
Order of the black Eagle, in Prussia; History thereof, *ibid.*
Order, a Sacrament in the Roman Church; Doctrine thereof, 1022, 1023, 1024.
Ordering Testaments, in Law; Conditions thereof, 288.
Organ, in Musick; Definition and Description thereof, 535.
Organ of a Church, its Composition, *ibid.*
——— its Keys, how divided; how played upon, *ibid.*
——— its Pipes of two Kinds; Mechanism thereof, *ibid.*
——— when invented, 536.
Organ of Sight, in Opticks; Theory thereof, 624.
Oriental Languages; their Tenses, in Grammar, 72.
Orlé, English, and French Term of Heraldry, Signification thereof, 125.
Ostrich, Hieroglyphick; Explication thereof, 166.
Otho Venius, a Painter, of the Flemish School; his History and particular Talent, 782.
Overture, in Musick; Signification thereof, 540.
Owl, Hieroglyphick; Explication thereof, 165.
Oxymel, simple, in Pharmacy; Preparation and Virtues thereof, 827.
Oxymel of Squills; Preparation and Virtues thereof, 828.
Oxymel, Diuretick of Banderon; Preparation and Virtues thereof, *ibid.*
Oyster, Hieroglyphick thereof, 166.

P.

P, A Consonant, and the fifteenth Letter of the Alphabet; Remarks of Quintilian thereupon; how pronounced by the several Nations, 62.
——— Its Signification among the numeral Characters of the Antients, 64.
P, in the Italian Musick; Signification thereof, 540.
Painting on Glass, in Glass-making; Art thereof, 6, 7.
——— by whom invented, 7.
PAINTING, Treatise thereof, 740.
Painting, in fresco; Art thereof, 749.
Painting in Oil, Art thereof, *ibid.*
——— on a Wall; Rules thereof, *ibid.*

Painting

Painting on Wood; Rules thereof, *ibid.*
——— on Cloth, or Canvas; Rules thereof, *ibid.*
——— in Water-Colours; Art thereof, 753.
——— in Miniature; Art thereof, 753, 754.
——— in Mosaick; Art thereof, 754.
——— of Glass; Art thereof, *ibid.*
——— of Marble; Method thereof, *ibid.*
——— of precious Stones; Art thereof, 755.
——— of Wood; Art thereof, 982.
——— on Porcelain; Art thereof, 982.
Pale, an honourable Ordinary, in Heraldry; Blazon thereof, 111.
——— bore various Ways; its Origin, *ibid.*
Pallas, in Painting; how painted, 751.
Pallet, in the English Heraldry; Blazon thereof, 111.
Palsy, a Disease, in Physick; Definition, Causes, and Division thereof, 919.
——— universal; Definition, and Cause thereof, *ibid.*
——— lateral; Cause thereof, 920.
——— partial; Cause thereof, *ibid.*
Palsy, its Causes, according to De Coetlogon, *ibid.*
——— Its Prognostick and Cure, *ibid.*
Pamphilo, a Painter among the Antients; his History and particular Talent, 758.
Pannes, Term of Heraldry; Signification thereof, 125.
Panther, Hieroglyphick; Explication thereof, 163.
Paolo Galliari Veronese, a Painter, of the Venetian School; his History and particular Talent, 772.
Paper of various Kinds, how sold, 797.
Paper, History of the Manufacture thereof, 797, 798.
Paper, Linen; when first introduced among us, 798.
Paper, Egyptian; Art of making it, 799.
——— History of its Manufacture, *ibid.*
——— Æra of the Invention, *ibid.*
Paper, Bark; History thereof, 800.
Paper of the Maldive Islands, *ibid.*
PAPER-MAKING; Art thereof, 796, 797, 798.
Papyrus, History thereof, 799, 780.
Papillione, Term of Heraldry; Signification thereof, 125.
Paragage, in Grammar; Definition thereof, 76.
Paranomasy, a Figure, in Rhetorick; Rules and Examples thereof, 1015.
Paraselene, in Meteorology; Definition, and Formation thereof, 430.
Parchment, in Paper making; Art of making it, 801.
Parhelion, in Meteorology; History thereof, 429.
Park of Artillery, in Gunnery; how disposed, 93, 94, 95.
Parliament of England; History thereof, in Government, 47.
——— Members thereof, how elected; their necessary Qualifications, 48.
——— Manner of sitting in that august Assembly, 49.
——— How Affairs are transacted in it, 49, 50.
Parrhasius, a Painter, among the Antients, his History and particular Talent, 758.
Part, Hieroglyphick; Explication thereof, 163.
Parti, three Kind thereof in the French Heraldry, 110.
Parti per pale, in Heraldry; Blazon thereof, *ibid.*
Parti per fesse, in Heraldry; Blazon thereof, *ibid.*
Parti per bend dexter, in Heraldry; Blazon thereof, *ibid.*
——— per bend sinister, Blazon thereof, *ibid.*
Partlet, Term of Heraldry; Signification thereof, 125.
Passion of Christ, in Incarnation; Doctrine thereof, 255.
Pastiche, in Painting; what, 757.
Paternal Power, and Jurisdiction, in Law; Definition and Doctrine thereof, 283.
Peace, in Painting; how painted, 752.
Peacock, Hieroglyphick; Explication thereof, 161.
Peccant Humour, in Physick; Definition thereof, 911.
Pelagians, Hereticks; their History and Errors, 138, 139.
Pelagius, Heresiarch, called by St. Prosper, the British Serpent, 125.
——— his personal Character 138.
——— his first Errors, comes to Rome, and [illegible]; his Conduct in both Places, [illegible]
——— his second Letter to Demetriade, 141, [illegible]
——— [illegible] Augustin, 142.
Pelagius, is condemned by the Council of Carthage, and that of Milævium, 144.
——— is banished from Rome by a solemn Edict of the Emperor Honorius, 146.
Pelegrino Tibaldi, a Painter, of the Roman School; his History and particular Talent, 769.
Pelican, Hieroglyphick; Explication thereof, 165.
Penates, in Mythology; their History, 549.
Pencil, in Painting; different Kinds thereof; how chosen, 749.
Penis, in Hieroglyphicks; Explication thereof, 161.
Penitence, a Sacrament in the Roman Church, Doctrine thereof, 1024, 1025.
——— of the primitive Christians, 1025, 1026.
Perambulation, Term of Forest, Signification thereof, 1078. How used, 1079.
Perception, in Metaphysick, first Manner thereof, 413, 414.
——— Second Manner, by a clear Idea, 414.
——— Third Manner, by Conscience, *ibid.*
——— Fourth Manner, by Conjecture, *ib.*
Perfection, in God, Definition and Distinction thereof, 11.
——— *simply simple, in God, Definition* and Doctrine thereof, 11, 12.
——— in Part, Definition and Doctrine thereof, *ibid.*
Peri, French Term of Heraldry, Signification thereof, 125.
Perin del Vagua, a Painter of the Roman School, his History and particular Talent, 766.
Period, in Grammar, Definition thereof, 74,
——— celebrated Division thereof, by Aristotle, *ibid.*
——— three Kinds of them allowed in Oratory, 75.
——— Laws and Measures thereof, *ibid.*
——— square, Definition thereof, *ibid.*
——— round, Definition thereof, *ibid.*
——— Difficulties in the Use thereof, according to Father Buffier, *ibid.*
——— in Rhetorick, Definition and Division thereof, 1009.
——— strict Oratorial, Rules thereof, *ibid.*
——— of two Members, Rules thereof, *ibid.*
——— of three Members, Rules and Examples thereof, *ibid.*
——— of four Members, Rules and Examples thereof, *ibid.*
Peripatetick Philosophy, System thereof, 892.
——— refuted by De Coetlogon, 893, 894.
Periphrase, in Rhetorick, Definition and Rules thereof, 1016.
Peripneumony, a Disease, in Physick, Definition and Division thereof, 924.
——— true, Causes, Symptoms, Prognostick, and Cure thereof, *ibid.*
——— Bastard, or spurious, Causes, Symptoms, Prognostick, and Cure thereof, *ibid.*
Person, in Metaphysick, Definition thereof, 405.
——— in Trinity, how defined, Explication of the Definition, 1167.
——— considered in Concreto, how defined by Boëtius, *ibid.*
——— in Abstracto, or Personality, in Trinity, how defined, *ibid.*
——— three consubstantial, in the Trinity, 1177.
——— their Equality among themselves, Proofs thereof, *ibid.*
——— their Order, Proofs thereof, 1177, 1178.
Personal Services, in Law, Distinction thereof, 287
Personality, in Trinity, Doctrine thereof, 1167.
Perspective, in Painting, Rules thereof, 746.
PERSPECTIVE, Definition and Division thereof, 802.
——— Linear, Definition thereof, *ibid.*
——— Ærial, Definition thereof, *ibid.*
——— Specular, Definition thereof, *ibid.*
——— Planes, in Perspective, Definition and Division thereof, *ibid.*
——— Lines, several different Sorts thereof, *ibid.*
——— Pavement, how exhibited, *ibid.*
——— Circle, how exhibited, *ibid.*
——— of a regular Pentagon, how exhibited, *ibid.*
Peter and *Henry de Bruis*, Dogmatists, 158.
Peter Abellard, Heretick, his History and Errors, *ibid.*
Peter of *John*, Heretick, his History and Errors, *ibid.*
Peter Candito, a Painter of the Flemish School, his History and particular Talent, 780.
Peter and *Francis Pourbus*, Painters of the Flemish School, their History and particular Talent, 781.
Peter Paul Rubens, a Painter of the Flemish School, his History and particular Talent, 782, 783.
Remarks on his Works, 783, 784.
Peter Mignard, a Painter of the French School, his History and particular Talent, 794.
Phædrus, a Fabulist, in Poetry, his History, 977.
Phantasy, in Metaphysick, Definition thereof, 415.
Pharisees, a Sect among the Jews, in Judaism, History thereof, 264.
PHARMACY, Definition and Division thereof, 807.
——— Galenical, Definition thereof, *ibid.*
——— Chymical, Definition thereof, *ibid.*
Pheon, Term of Heraldry, Signification thereof, 125.
Philip Melancthon, Luther's Disciple, his History and particular Character, in Lutheranism, 357.
Philip Lippi, a Painter of the Roman School, his History and particular Talent, 760.
PHILOSOPHY, Definition thereof, by De Coetlogon, Explication of his Definition, 888.
——— by Pythagoras and Epictetus, 889.
——— by Gale, refuted by De Coetlogon, 889, 890.
——— Division thereof, 890.
——— speculative, Definition thereof, *ibid.*
——— practical, Definition thereof, *ibid.*
Phosphorus, in the Appendix to Opticks, Definition and Division thereof, 656.
——— Natural, History thereof, *ibid.*
——— Artificial, three Kinds thereof, *ibid.*
——— burning, Preparation thereof, 656, 657.
——— Phænomena thereof, 657.
——— by whom invented, 658.
——— Remarks thereupon, *ibid.*
——— extracted out of the phecal Matter, Preparation and Phænomena thereof, 659.
——— prepared out of the Bononian Stone, its Phænomena, 659, 660.
——— Hermetick of Balduinus, Preparation and Phænomena thereof, 663, 664.
Phrase, in Grammar, Definition and Division thereof, 75.
Phrase, compleat, Definition thereof, *ibid.*
——— incompleat, Definition thereof, *ibid.*
Phrenzy, a Disease, in Physick, Causes, Symptom and Cure thereof, 920.
Phthisis, a Disease, in Physick, Causes, Symptoms and Cure thereof, 922.
PHYSICK, or Medicine, Definition thereof, by De Coetlogon, Explication of his Definition, 909.
——— Division thereof, *ibid.*
Pietro Cosimo, a Painter of the Roman School, his History and particular Talent, 761.
Pietro Perugin, a Painter of the Roman School, his History and particular Talent, 762.
Pietro Beretini, a Painter, of the Roman School; his History and particular Talent, 769.
Pile, an Ordinary in Heraldry; Blazon thereof, 112.
——— Its Signification according to Mackenzy; how borne, 113.
Pills, in Pharmacy; Definition and History thereof, 844.
Pills of Agarick; Preparation, Virtues, and Doses thereof, *ibid.*
——— golden; Preparation, Virtues, and Doses thereof, *ibid.*
——— golden of Turbith; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Aloes and Mastich; Preparation, Virtues, and Doses thereof, *ibid.*
——— stomachick; Preparation, Virtues, and Doses thereof, *ibid.*
——— common; Preparation, Virtues, and Doses thereof, *ibid.*
——— hepatick; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Rhubarb; Preparation, Virtues, and Doses thereof, 845.
——— catholick; Preparation, Virtues, and Doses thereof, *ibid.*
——— for the Dropsy; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Tartar; Preparation, Virtues, and Doses thereof, *ibid.*
——— Magistral of Gum Ammoniack; Preparation, Virtues, and Doses thereof, *ibid.*
——— hysterick; Preparation, Virtues, and Doses thereof, *ibid.*

Pills Arthritick, Preparation, Virtues, and Doses thereof, *ibid.*
—— of Hellebore; Preparation, Virtues, and Doses thereof, *ibid.*
—— Mercurial; Preparation, Virtues, and Doses thereof, *ibid.*
—— of Sagapenum; Preparation, Virtues, and Doses thereof, 846.
—— for the Cholick; Preparation, Virtues, and Doses thereof, *ibid.*
—— for the Mania; Preparation, Virtues, and Doses thereof, *ibid.*
—— Cephalick; Preparation, Virtues, and Doses thereof, *ibid.*
—— for a quartan Ague; Preparation, Virtues, and Doses thereof, 847.
—— for the iliack Passion, or Miserere; Preparation, Virtues, and Doses thereof, *ibid.*
—— Magistral of Opium; Preparation, Virtues, and Doses thereof, *ibid.*
—— for a Cough; Preparation, Virtues, and Doses thereof, *ibid.*
—— of Turpentine reformed; Preparation, Virtues, and Doses thereof, *ibid.*
—— for a Hoarseness; Preparation, Virtues, and Doses thereof, 848.
Pilulæ coeciæ majores; Preparation, Virtues, and Doses thereof, 844.
—— *minores*; Preparation, Virtues, and Doses thereof, *ibid.*
Pilulæ angelicæ; Preparation, Virtues, and Doses thereof, *ibid.*
—— *sine quibus*; Preparation, Virtues, and Doses thereof, *ibid.*
Pilulæ fœtidæ majores; Preparation, Virtues, and Doses thereof, 845.
—— *minores*; Preparation, Virtues, and Doses thereof, 846.
Pilulæ de tribus; Preparation, Virtues, and Doses thereof, *ibid.*
—— *de duobus*; Preparation, Virtues, and Doses thereof, *ibid.*
—— *de sex*; Preparation, Virtues, and Doses thereof, 847.
Pilulæ narcoticæ; Preparation, Virtues, and Doses thereof, *ibid.*
—— *diureticæ*; Preparation, Virtues, and Doses thereof, 848.
—— *detergentes*; Preparation, Virtues, and Doses thereof, *ibid.*
Pilulæ ad sistendam gonorrhœam; Preparation, Virtues, and Doses thereof, *ibid.*
—— *ad gonorrhœam virulentem*; Preparation, Virtues, and Doses thereof, *ibid.*
—— sudorificæ; Preparation, Virtues, and Doses thereof, *ibid.*
—— *senectutis*; Preparation, Virtues, and Doses thereof, *ibid.*
Pincy Luxembourg, Dutchy in France; when, and by whom erected, 616.
Piston, in Hydraulicks; Description and Use thereof, 205.
Plague, a Disease, in Physick; History, Causes, Symptoms, and Cure thereof, 928.
Plain-Table, in Surveying; Definition and Description thereof, 1076.
Plain-Table, how used in Surveying, to find the Distance of any inaccessible Place, 1077.
—— to take an Angle by it, when considered as a Theodolite, *ibid.*
—— to make an Angle by it, when considered as a Semi-circle, *ibid.*
Plate, in Glass-making; how blown, 4.
—— how cast, 5.
Platonism, or Platonick Philosophy; System thereof, 891.
Plethora, in Physick; Definition and Causes thereof, 911.
Pleurisy, in Physick; Causes, Symptoms, and Cure thereof, 923, 924.
PLUMBERY; Art thereof, 942.
Pluto, Hieroglyphick; Explication thereof, 170.
Pluto, in Painting; how painted, 751.
PNEUMATICKS; Treatise thereof, 943.
Poem, in Poetry; several Kinds thereof, 963.
POETRY; Treatise thereof, 960.
Point, an Ordinary, in Heraldry; Blazon thereof, 125.
Polidore Caravagio, a Painter of the Roman School; his History and particular Talent. Remarks on his Works, 765.
Polverine, or Rochetta; Ashes which enter the Composition of Glass, 2.
Pondevaux, Dutchy in France, when, and by whom erected, 616.
Pone, in Law; what, 316.
Pone per vadium; what, *ibid.*
Pontegello, an Iron Instrument used in Glass-making, 3.
Porcelain, in Pottery; Art of making it, 981.
—— where made, 985.
—— French and Saxon; History thereof, *ibid.*
—— how joined when broken, *ibid.*
POTTERY; Art thereof, 980.
Powder, in Pharmacy; Definition, and History thereof, 339.
Powder diaturbith cum rheo; Preparation and Virtues thereof, *ibid.*
—— Saxon; Preparation, Virtues, and Doses thereof, *ibid.*
—— purgative, good for all the cold Distempers of the Brain, *ibid.*
—— for Worms; Preparation, Virtues, and Doses thereof, *ibid.*
—— laxative; Preparation, Virtues, and Doses thereof, *ibid.*
—— solutive de tribus; Preparation, Virtues, and Doses thereof, 340.
—— excellent Antiepileptick; Preparation, Virtues, and Doses thereof, *ibid.*
—— for the Dysenteria; Preparation, Virtues, and Doses thereof, *ibid.*
—— for the Phthisick; Preparation, Virtues and Doses thereof, 839.
—— Gascoyn; Preparation, Virtues, and Doses thereof, 840.
—— to help Digestion; Preparation, Virtues, and Doses thereof, *ibid.*
—— to appease the Cough of Children; Preparation, Virtues, and Doses thereof, *ib.*
—— for the Ulcers of the Throat; Preparation, Virtues, and Doses thereof, *ibid.*
—— of the Emperor Ferdinand, for the Plague; Preparation, Virtues, and Doses thereof, *ibid.*
—— of Diarrhodon Abbatis; Preparation, Virtues, and Doses thereof, *ibid.*
—— for the Piles; Preparation, Virtues, and Doses thereof, 841.
—— of Verbascum, for the same; Preparation, Virtues, and Doses thereof, *ibid.*
—— to embalm a dead Corpse; Preparation, Virtues, and Doses thereof, *ibid.*
—— to wrap in a dead Body; Preparation, Virtues, and Doses thereof, *ibid.*
—— to cleanse the Hands, Preparation, Virtues, and Doses thereof, *ibid.*
Powdering, Term of Heraldry; Signification thereof, 125.
Practical Musick; Definition thereof, 507.
Practical Philosophy; System thereof, 890.
Prædial Servitude, in Law; what, 287.
Precedency of the King of France, among Christian Kings, on what founded, according to Sir George Mackenzy, 127.
Precipe, in Law; what, 316.
Predestination, in God, and his Attributes; Definition and Doctrine thereof, 31.
—— Sentiment of the Pelagians thereupon, 32.
—— that of the Catholick Church, 32, 33.
Predestination; Signs thereof, 33.
Predestination, whether certain or uncertain, 33, 34.
Pregnancy, in Midwifry; Symptoms thereof, 438.
Prelude, in Musick; Definition thereof, 531.
Presa, Term of Musick; Signification thereof, 540.
Prescience, in God; Definition and Doctrine thereof, 31.
Prescription, in Law; how defined by Tourril, 287.
—— how understood in the common Law, 288.
—— in the civil Law, *ibid.*
—— in Normandy and France, *ibid.*
—— how in the Inquisition, *ibid.*
Preservative Indication, in Musick; Doctrine thereof, 912.
Pressure of the Fluids, in Hydraulicks; Doctrine thereof, 203.
Presto, Term of Musick; Signification thereof, 540.
Prestissimo, Term of Musick; Signification thereof, 540.
Preterition, in Rhetorick; Definition and Rules thereof, 1012.
Pricker, what, in Hunting, 189.
Printers; the most famous in Europe, 991.
PRINTING, Art thereof, 985, 986, 987.
Priscillian, Heresiarch; his History and Errors, 138.
Priscillianists, Hereticks; their History and Errors, *ibid.*
Prism, in Dioptricks; Phænomena and Use thereof, 655.
Problems; two of Aristotle upon Glass, 6.
Procello's, Iron Instruments, used to widen Glasses, in Glass-making, 3.
Processions, in the Trinity; their Number, and Proofs thereof, 1169.
Procession, of the second Person in God; Doctrine thereof, 1170.
Procession of the Holy Ghost; Doctrine thereof, 1171.
Processions, divine, their Principles; Doctrine thereof, 1172.
Proof of a Brass Cannon, in Gunnery; how made, 103.
—— of a Mortar, *ibid.*
Profil, in Perspective; Definition thereof, 806.
Prolation, in Musick, two Sorts thereof, 520.
Prolation, perfect and imperfect, Definition thereof, *ibid.*
Prologue, in Poetry, three Kinds thereof, 966.
Pronoun, in Grammar, Definition thereof; why thus called, 67.
Pronouns, incomplete, Definition thereof, *ibid.*
—— personal; Definition thereof, *ibid.*
—— relative; Definition thereof, *ibid.*
—— possessive; Definition thereof, 68.
—— demonstrative; Definition thereof, *ib.*
—— indefinite; Definition thereof, *ibid.*
—— substantive, and adjective; Definition thereof, *ibid.*
Prophylactick, in Physick; Signification and Doctrine thereof, 916.
Proper, Term of Heraldry; Signification thereof, 125.
Proportion of the Ingredients, which enter the Composition of Gunpowder, in Gunnery; Miesthus's Reflexions thereupon, 87.
Proportions observed by Keller, in the Mixture of the Metal for casting Pieces of Ordinance, 101, 102.
Proportions given to an Iron-piece of 36, for Land-Service, 103.
—— to an Iron-piece of 18, for Land-Service, 103, 104.
—— to an Iron-piece of 8. 104.
—— to an Iron-piece of 4, for Land-Service, *ibid.*
Proportion, in Musick; Definition, and Division thereof, 540.
Proportion of Equality, in Musick; Definition thereof, *ibid.*
—— of Inequality, in Musick; three Kinds thereof, *ibid.*
Proportions; Table thereof, 541.
Proposition, in Logick; Definition, and Difference thereof, 328.
Propositions, universal affirmative; Rules and Examples thereof, 328, 329.
—— simple; Explication thereof, 329.
—— composite; Explication thereof, *ib.*
—— incident; Nature thereof, 330.
—— copulative; Rules, and Examples thereof, 331.
—— disjunctive; Rules, and Examples thereof, *ibid.*
—— contradictory; Rules, and Examples thereof, *ibid.*
—— conditional; Rules, and Examples thereof, *ibid.*
—— causal; Rules, and Examples thereof, *ibid.*
—— disjunctive; Rules, and Examples thereof, *ibid.*
Prosopopœia, in Rhetorick; Definition and Rules thereof, 1013.
Prosper, St. his Letter to St. Augustin, occasioned by the Semi pelagianism, 149.
Protogenes, a celebrated Painter among the Antients; his History, and particular Talent, 758.
Protractor, in Surveying; Definition, Description, and Use thereof, 1080.
Providence, in Painting; how painted, 752.
Prosthesis, in Grammar; Definition thereof, 76.
Pulley, in Mechanicks; Description, and Use thereof, 377.
Pump, in Hydraulicks; Definition, and Division thereof, 205.
Pump, common or sucking; its Mechanism, and manner of acting, *ibid.*
—— forcing; Description thereof, and its manner of acting, *ibid.*
—— Ctezebes; Description thereof, and its manner of acting, *ibd.*
Puocoli, a kind of Pebbles which enter the Composition of Glass, in Glass-making, 2.
Purflew, Term of Heraldry; Signification thereof, 125.
Purification of the blessed Virgin, in Incarnation; Doctrine thereof, 253.
Purple, a Colour, in Heraldry; Blazon thereof, 108.
Pyramid, or Obelisk, in Hieroglyphick; Explication thereof, 167.
Pyrites, in Minerals; Definition, and History thereof, 494.
Pyromachy, a Kind of Stone, to line the Inside of Glass Furnaces, in Glass-making, 3.
PYROTECHNY; Treatise thereof, 991.

Pyrrhonian Philosophy, System thereupon, 895.
——— De Coetlogon's Remarks thereupon, 900.
Pythagorean Philosophy, System thereof, 895.
——— De Coetlogon's Sentiment thereupon, 896.

Q.

Q, A Consonant, and the sixteenth Letter of the Alphabet, form'd from the Hebrew Caph; never used by some Grammarians; its Sound and that of *k* very near a-kin in the French, 62.
—— made a double Letter by some Authors, *ibid.*
—— Its Signification among the numerical Characters of the Antients, 64.
Quadrate, or Quadro, in Musick; Signification thereof, 290.
QUAKERISM, History thereof, 995.
Qualities of the Colours, in Painting; History thereof, 751.
Quality, and Difference of Heirs, in Law; Doctrine thereof, 290.
Quarter, in Heraldry; Form and Blazon thereof, 125.
Quartering, Term of Heraldry; Signification thereof, *ibid.*
Questions, in Rhetorick, either of Words or Things, 372.
Questions of Things, four principal Kinds thereof, 342, 343.
Quinsy, a Disease, in Physick; Causes, Symptoms, and Cure thereof, 921, 922.
Quintin Messis, a Painter, of the Flemish School; his History and particular Talent, 980.

R.

R, A Consonant, and the seventeenth Letter of the Alphabet, 62.
—— what among the Hebrews; how called by Persius, *ibid.*
—— Its Sound among the Romans, 62, 63.
—— when pronounced in the French, *ibid.*
—— Its Signification among the numerical Characters of the Antients, 64.
Racourci, French Term of Heraldry; Signification thereof, 125.
Radiant Point, in Opticks; Definition thereof, 633.
Radish, Hieroglyphick; Explication thereof, 169.
Rain, in Meteorology; Definition and Theory thereof, 423, 424.
Rains, preternatural; History thereof, 424.
Rainbow, in Meteorology; first accounted for by *Anton. de Dominis*, 425.
——— Theory thereof, 426, 427.
——— Its Dimensions first taken by *Des Cartes*; and its Diameter determined by Dr. *Halley*, 428.
——— Its Phænomena, *ibid.*
Rainbow marine, History and Theory thereof, 429.
Ram, a Machine of War, among the Antients; four Kinds thereof, 105.
—— compound, how described by Josephus, *ibid.*
—— fourth Kind described by Fellibien, *ibid.*
—— when invented, according to Vitruvius; Improvements made to it by Pephasmenos, *ibid.*
—— how managed, *ibid.*
Rampant, Term of Heraldry; Signification thereof, 125.
Range, French Term of Heraldry; Signification thereof, *ibid.*
Raphael Sanzio, a Painter, of the Roman School; his History and particular Talent, 462, 463.
——— Remarks on his Works, 463.
Ratiocination, or Reasoning, in Logick; Nature thereof, 169.
—— short and long, *ibid.*
—— how called when founded on a false Argument, *ibid.*
Ray, in Opticks; Definition thereof, 632.
Rays, in Opticks; their Phænomena, 633.
Rebas's in Heraldry; Blazon thereof, 125.
Recher, in Hunting; what, 189.
Recreate, French Term of Heraldry; Signification thereof, 125.
REFINERY, Art thereof, 998.
Refining Gold with Antimony; Process thereof, 999
——— with sublimate; Process thereof, *ibid.*
——— with Lead and Alum, Process thereof, *ibid.*
Refining Silver with Lead; Process thereof, 1000.
——— with Salt-petre; Process thereof, *ib.*
Refining Copper, Process thereof, *ibid.*
——— Tin, Process thereof, *ibid.*
——— Lead, Process thereof, *ibid.*
Reflexion of Light, in Opticks; how effected, 628.
——— Phænomena thereof, *ibid.*
Refraction of Light, in Opticks; how effected, 628, 629.
Refraction; Laws thereof, 643.
——— on a plain Surface; Laws thereof, 644.
——— in spherical Surfaces; Laws thereof, 645.
——— with Regard to Lens's; Phænomena thereof, 646.
Regardant, Term of Heraldry; Signification thereof, 125.
Rein-Deer, in Hunting; History thereof, 189.
Relation in the Trinity; Definition and Division thereof, 1172.
——— real; Proofs thereof, *ibid.*
——— transcendental; Proofs thereof, 1173.
Relations, four of them of Origin, in the Divinity, *ibid.*
Relative Gravity, in Mechanicks, Definition thereof, 375.
RELIGION, Definition and Division thereof, 1001.
——— natural; Definition thereof, *ibid.*
——— revealed; Definition thereof, *ibid.*
——— Jewish; Definition thereof, *ibid.*
——— Christian; History thereof, 1003, 1004, 1005.
Religions taken in a modern Signification; Dissertation thereupon, 1003, 1004.
Religion, Pagan, or Idolatry; History thereof, 1005.
Remedy, in Pharmacy; Definition thereof, 807.
Remedies, in Pharmacy, simple; Definition thereof, *ibid.*
——— compound; Definition thereof, *ibid.*
——— alterative; Definition and Virtues thereof, *ibid.*
——— purgative; Definition and Virtues thereof, *ibid.*
——— cathartick; Definition and Virtues thereof, *ibid.*
——— phlegmagogue; Definition and Virtues thereof, *ibid.*
——— chalogogues; Definition and Virtues thereof, *ibid.*
——— melanagogue; Definition and Virtues thereof, *ibid.*
——— hidragogue; Definition and Virtues thereof, *ibid.*
——— panchymagogue; Definition and Virtues thereof, *ibid.*
——— emetick; Definition and Virtues thereof, *ibid.*
——— diaphoretick; Definition and Virtues thereof, *ibid.*
——— dieuretick; Definition and Virtues thereof, *ibid.*
——— strengthening; Definition and Virtues thereof, *ibid.*
——— cordial, or cardiack; Definition and Virtues thereof, 808.
——— cephalick; Definition and Virtues thereof, *ibid.*
——— opthalmick; Definition and Virtues tues thereof, *ibid.*
——— dentrifick; Definition and Virtues thereof, *ibid.*
——— pectoral; Definition and Virtues thereof, *ibid.*
——— stomachick; Definition and Virtues thereof, 809.
——— hepatick; Definition and Virtues thereof, *ibid.*
——— splenick; Definition and Virtues thereof, *ibid.*
——— hysterick; Definition and Virtues thereof, *ibid.*
——— carminative; Definition and Virtues thereof, *ibid.*
Replications, in Law; Doctrine thereof, 304.
Reprobation, in God and his Attributes; Definition thereof, 35.
Reprobation, negative of the Tomists; Doctrine thereof, 35, 36.
Republick of Venice; Government thereof, 51.
——— of Holland; Government thereof, 52, 53.
Resurrection of Christ, in Incarnation, by what Virtue effected, 258.
——— in what Manner effected, 259.
——— Necessity thereof, *ibid.*
——— the Cause of ours, and our Salvation; Proofs thereof, 259, 260.
Resurrection universal of the Bodies, in Incarnation; Proofs thereof, 262.
——— in what Manner to be effected, *ibid.*
Rethelois, Dutchy, in France; when, and by whom erected, 617.
Reversed, Term of Heraldry; Signification thereof, 125.
Rhetorick; Definition and Division thereof, 1007.
Rheumatick Madness, a Disease of Dogs, in Hunting; Cure thereof, 189.
Rheumatism; Definition and Division thereof, 938.
——— universal; Definition thereof, *ibid.*
——— particular; Definition thereof, *ibid.*
Rheumatism, Causes, Symptoms, Prognostick, and Cure thereof, *ibid.*
Rhinoceros, Hieroglyphick; Explication thereof, 162.
Rhumb, in Navigation; Definition, Division, and Theory thereof, 589.
Rhumb-line, in Navigation, Description, Origin, and Properties thereof, *ibid.*
Ribband, or Ribbon, in Weaving; several Sorts thereof, 1205.
Richelieu, Dutchy, in France; when, and by whom erected, 617.
Rigging a Ship of 123 Feet in Length, and 28 in Breadth; Method thereof, 573.
Right of Persons, in Law; Doctrine thereof, 282, 283.
Ring, in Jewellers, Origin thereof, 234.
—— when first introduced among the *Hebrews*, *Chaldeans*, *Persians*, *Sabines*, &c. *ibid.*
Rings, different Kinds thereof among the Antients; became the Badge of Knights, *ibid.*
Rings, Rush; History thereof, *ibid.*
Rings, Manner of wearing them, *ibid.*
Ripieno, Term of Musick; Signification thereof, 541.
Ripresa, in Musick; Signification thereof, *ibid.*
——— Maggiore; Signification and Rules thereof, *ibid.*
——— Minore; Signification and Rules thereof, *ibid.*
Rivers, in Hydraulicks and Hydrostaticks; History and Theory thereof, 208, 209.
Rivoltare, Term of Musick; Signification and Rules thereof, 541.
Rochefoucault, Dutchy, in France; when, and by whom erected, 616.
Roe-buck, in Hunting; its different Names according to the Difference of its Age; how hunted, 193.
Rohan, Dutchy, in France; when, and by whom erected, 616.
Roman Taste, in Painting, 795.
Rompu, French Term of Heraldy, Signification thereof, 126.
Rose, Hieroglyphick; Explication thereof, 169.
Rouanez, Dutchy, in France; when, and by whom erected, 617.
Round-Glasses, in Glass-making; how blown, 3.
Roundle, an Ordinary, in Heraldry; Blazon thereof, 126.
Ruby, in Lapidary; three Kinds thereof, 272.
—— how formed, *ibid.*
—— how counterfeited, *ibid.*
—— where found, *ibid.*
—— their Value, *ibid.*
Rudder, Hieroglyphick; Explication thereof, 168.
——— seen on the Coins of *Septimus Geta*, and of *Domitian*, *ibid.*
Rudder of a Ship; Proportions thereof, 578.
—— of a Galley; how placed, 584.
Rules of a Syllogism, in Logick; Number thereof, 334.
—— first; *ibid.* second; 355. third; *ibid.* fourth; *ibid.* fifth, sixth, seventh, eighth, Doctrine thereof, *ibid.*
Rules of the first Figure, in Logick; Number, Doctrine, and Examples thereof, 335, 336.
—— of the second; Number, Doctrine, and Examples thereof, 336.
—— of the third; Number, Doctrine, and Examples thereof, 336, 337.
—— of the fourth Figure; Number, Doctrine, and Examples thereof, 337.
Rules of Axioms, in Logick; Number and Doctrine thereof, 345.
Rules of the Communication of Motions, in Mechanicks; their Number, according to Des Cartes, 386, 387.
Running Madness, a Disease of Dogs; Cure thereof, 189.

S.

S.

S, A Consonant, and the Eighteenth Letter of the Alphabet, in Grammar; studiously avoided by some of the Antients; variously changed in the Inflections of Nouns; how used in the French, 63.
—— Its Signification among the numeral Characters of the Antients, 64.
Saboans, a Sect among the Jews, in Judaism; History thereof, 265, 266.
Sabellians, Hereticks; their History and Errors, 136.
Sabellius, Heresiarch; his History and Errors, *ibid.*
Sable, a Colour, in Heraldry; Blazon thereof, 108.
SACRAMENTS; Treatise thereof, 1021.
Sacraments of the Law of Moses; Number thereof, 1021.
Sacraments of the Law of Grace; their Number, *ibid.*
—— their Causes, Matter, Form, and Effects, 1022.
SACRED HISTORY, 1035.
Sadducees, a Sect among the Jews, in Judaism; History thereof, 264, 265.
Sail, in Naval Architecture; very unequal, in their Measures, 576.
—— different Kinds thereof, 577.
—— main; its Breadth and Length, 576.
—— net-marsh-bonet, Breadth and Length thereof, *ibid.*
—— fore; its Breadth and Length, *ibid.*
—— main-top; its Breadth and Length, *ibid.*
—— fore-top; its Breadth and Length, *ibid.*
—— sprit; its Breadth and Length, *ibid.*
—— mizzen; its Breadth and Length, *ibid.*
—— of the Main-stay; its Breadth and Length, *ibid.*
—— of the Mizzen-stay; its Breadth and Length, *ibid.*
—— of the Mizzen-top Gallant; its Breadth and Length, *ibid.*
—— of the Stay of the Main-top-Mast; its Breadth and Length, *ibid.*
—— of the Top-gallant of the Browsprit; its Breadth and Length, *ibid.*
Salamander, Hieroglyphick; Explication thereof, 164.
Saliant, Term of Heraldry; Signification thereof, 126.
Saltier, in Heraldry; History and Blazon thereof, 111.
Salutation, at Sea, in Navigation; different Manners thereof, 610.
Saluting with the Flag, at Sea; how performed, *ibid.*
—— with the Sails; how performed, *ibid.*
Samosate, Paul; his History and Errors, 136.
Samuel Copper, an English Painter; his particular Talent, 795.
Sand to make Glass with, the best, in Glass-making, 2.
Sanguine, a Colour, in the English Heraldry; Blazon thereof, 108.
Sapphick Verse, in Poetry; Rules thereof, 962.
Sapphire, Hieroglyphick; Explication thereof, 167.
Sapphire, in Lapidary; different Sorts thereof, where found, and their different Value, 272.
Sarcasm, in Rhetorick; Definition thereof, 1014.
Sardonyx, a precious Stone, in Lapidary; its Beauty and Value, 274.
Sarofel, in Glass-making; what, 3.
Satin, in Weaving; different Sorts thereof, 1206.
—— Indian; Description and History thereof, *ibid.*
Satinade, in Weaving; Description thereof, *ibid.*
Satisfaction of Christ, in Incarnation; Doctrine thereof, 240, 241.
Satyr, in Poetry; Definition and Rules thereof, 971.
Satyr; Division thereof, 972.
—— narrative; Definition and Rules thereof, *ibid.*
—— dramatick; Definition and Rules thereof, *ibid.*
—— mixt; Definition and Rules thereof, *ibid.*
—— grave; Definition and Rules thereof, *ibid.*
—— sportive; Definition and Rules thereof, *ibid.*
—— general; Definition and Rules thereof, *ibid.*
Satyr, personal; Definition and Rules thereof, *ibid.*
Satyr; Remarks of *Casaubon*, *Scaliger*, and *Dacier* thereupon, *ibid.*
Satyrs, antient Roman; History thereof, 973.
Satyrs, in Mythology; their History, 552.
Satyrists, antient and modern, 971.
—— Italians, 972.
Saucisson, in Pyrotechny; how composed, 993, 994.
Saucissons, flying; how made, *ibid.*
Scab, which sometimes covers the Head and Face of young Children; Causes, Symptoms, and Cure thereof; in Midwifry, 487.
Scarp, Term of Heraldry; Signification thereof, 126.
Scene, in Drama; Rules thereof, 965.
Scenographick Perspective; Doctrine thereof, 824.
Scenographick Perspective of a Cube, how exhibited, *ibid.*
Scenography of a hollow quinquangular Prism, *ibid.*
Scenography of a Cylinder; how exhibited, *ib.*
—— of a Pyramid standing on its Base;
—— of a truncated Pyramid; how exhibited, *ibid.*
—— of Walls, Columns, &c. how exhibited, *ibid.*
—— of a Door, in Building; how exhibited, *ibid.*
Scepter, Hieroglyphick; Explication thereof, 167.
Science of God, Definition thereof, 27.
—— of simple Intelligence, otherwise called Architype Idea; Doctrine thereof, *ibid.*
—— of Vision; Doctrine thereof, 27, 28.
—— of conditional Futures; Doctrine thereof, 28.
Science of Adam, in the State of his Innocence; what, 1119.
Scorpion, Hieroglyphick; Explication thereof, 164.
Scorpion, a Machine of War, among the Antients; Description and Use thereof, 106.
Screw, in Mechanicks; Description and Use therof, 379, 380.
SCULPTURE, Definition, Division, and History thereof, 1059.
Scurvy, a Disease, in Physick; Causes, Symptoms, Prognostick, and Cure thereof, 931.
Scyrrhe, of the Matrice, in Midwifry; Causes, Symptoms, and Cure thereof, 474.
Sea, in Heraldry; Blazon thereof, 113.
Seal-Skin, used in Hat-making, 106.
Sebastian Bourdon, a Painter of the French School; his History and particular Talent, 792.
Secant, in Trigonometry; Definition thereof, 1162.
Section, in Grammar, how marked, 76.
Secundary, a Derivation in Languages; what, 77.
Security, in Painting; how painted, 752.
Seed, in Natural History; Definition thereof, 563.
Seed, in the Animal Œconomy, Theory thereof, 564.
Seed, in Botany; Theory thereof, 564, 565.
Seeds of Fern, and of the capillary Plants; by whom first discovered, 565.
Segreant, Term of Heraldry; Signification therof, 126.
Semi-circle, an Instrument in Surveying; Description and Use thereof, 1076.
Semicolon, in Grammar; Description and Use thereof, 75.
Semipelagianism, Heresy; History thereof, 148, 149.
Sentences, in Grammar; Doctrine thereof, 73.
—— simple, Definition and Use thereof, 74.
—— conjunct, Definition and Rules thereof, *ibid.*
Sentences, in Rhetorick; Figures thereof, 1012.
September, a Month, in Painting; how painted, 752.
Sequestration, in Law; Definition and Rules thereof, 292.
Sergius, Patriarch of Constantinople, a famous Monothelite; his History and Errors, 155.
Sergius, an abominable Monk; his History, in Mahometanism, 371.
Serious Reflections on the Power and Conduct of the House of Commons of the Parliament of England, by De Coetlogon, 47, 48.
—— on the English Government, by the same, 51.
Serpent, Hieroglyphick; Explication thereof, 164.
Servitude, in Law; two Sorts thereof, 287.
Servitude urbane, Definition thereof, *ibid.*
—— rustick; Definition thereof, *ibid.*
Severians, Hereticks; their History and Errors, 134.
Severus, Heresiarch; his History and Errors, *ib.*
Seurre Bellegarde, Dutchy in *France*; when, and by whom erected, 616.
Shagreen, in Shamoising; how prepared, 1062.
SHAMOISING; Art and History thereof, 1061.
Sheep, Hieroglyphick; Explication thereof, 163.
Sheets of Lead; how cast, in Plumbery, 942, 943.
Shell-gold, in Gold-beating; how prepared, 36.
Shells, in Natural History; their History and Use, 561.
—— a great Ornament in the Cabinet of the Curious; their respective Names as such, *ib.*
Shells frequently found far from the Sea, or under Ground; Dr. Lister's Remarks thereupon, *ibid.*
Shells, litoral; what, *ibid.*
Ship, Hieroglyphick; Explication thereof, 168.
—— what among the Athenians, Tyrians and Romans, *ibid.*
Ships, in Naval Architecture; their Proportions, 579.
Shoes for Horses, several Sorts thereof, 176.
Shoes with Rings; Description and Use thereof, *ibid.*
—— with Calkings; Description and Use thereof, *ibid.*
—— with swelling Welts, or Borders; Description and Use thereof, *ibid.*
—— Panton or Pantable; Description and Use thereof, *ibid.*
—— Patten; Description and Use thereof, *ib.*
Shoeing of Horses, in Horsemanship; Art thereof, *ibid.*
Shores, or Supporters, in Naval Architecture, Proportions thereof, 577.
Sight, in Opticks, Excellence and Organ thereof, 624. Description of that Organ, 625.
Signals used at Sea, in Navigation; several Sorts thereof, 607.
Signals by Day; Number, Difference, and Rules thereof, 607, 608.
Signals by Night; Number, Difference, and Rules thereof, 608.
—— for calling the Officers on board the Admiral; Number, Difference, and Rules thereof, 609.
—— when a Fleet fails in a Fog, 608, 609.
—— for managing a Sea-Fight; Number, Difference and Rules thereof, 609, 610.
Signals, French; Manner thereof, *ibid.*
Signs, in Logick; three Divisions thereof, 324.
Signs, in Physick; Definition and Division thereof, 913.
—— dignostick; Definition thereof, *ibid.*
—— prognostick; Definition thereof, *ibid.*
—— pathognomonick; Definition thereof, *ib.*
Signs of a Crisis; what, *ibid.*
Silk, in Weaving; Definition thereof, 1203.
—— Manufacture thereof, when first invented, *ibid.*
—— when first brought into Europe, and by whom, *ibid.*
—— how winded from the Balls, 1203, 1204.
Silenus, his Figure, in Hieroglyphicks; Explication thereof, 170.
Silks, different Kinds thereof, 1204.
—— raw, Description thereof, *ibid.*
—— boiled, Preparation thereof, *ibid.*
—— thrown or twisted; Preparation thereof, *ib.*
—— slack, Description thereof, *ibid.*
—— eastern, History and Qualities thereof, *ib.*
—— French, History and Qualities thereof, *ib.*
—— Spanish, History thereof, 1205.
—— Turky, History and Qualities thereof, *ib.*
—— Persian, History thereof, *ibid.*
—— China, History thereof, *ibid.*
—— Japan, History thereof, *ibid.*
—— of the Moguliſtan; History and Qualities thereof, *ibid.*
Silver, in Metals; where found, 395.
—— how separated from the Ore, *ibid.*
—— Manner of making it into Pinea's, 396.
—— how separated from the Ore in Europe, *ib.*
Simon Magus, first Heresiarch; his History and Errors, 131, 132.
Simon Vouet, a Painter of the French School; his History and particular Talent, 789.
Simple Deposite, in Law; Definition thereof, 292.
Simple Machines, in Mechanicks; Definition and Number thereof, 375.
Simple Counterpoint, in Musick; Rules thereof, 526.
Sine, in Trigonometry; Definition thereof, 1169.
—— whole; Definition thereof, *ibid.*

Sine verſed, Definition thereof, *ibid.*
—— of Tangents, Definition thereof, *ibid.*
Sinecomplement, Definition thereof, *ibid.*
Siphon, in Hydraulicks; Definition and Theory thereof, 206.
Sir Godfrey Kneller, a Painter, in England; his Hiſtory and particular Talent, 795.
Sir James Thornhill, his particular Talent, *ib.*
Site, or Scite, in Painting; what, 746.
Situation, one of the Categories of Ariſtotle, in Logick; Definition thereof, 323.
Sky-rockets, in Pyrotechny; Art of making them, 991, 992.
Slipped, Term of Heraldry; Signification thereof, 126.
Slot, in Hunting; Signification thereof, 191.
Small Pox, in Midwifry; two Kinds thereof, 487.
——— diſtinct, Symptoms thereof, 487, 488.
——— confluent, Symptom thereof, 488.
Small Pox divided into four Stages, by Morton, *ibid.*
——— Prognoſtick thereof, *ibid.*
——— accounted for, by Dr. Drake, *ibid.*
——— De Coetlogon's Sentiment thereupon, 488.
——— Cure thereof, 488, 489.
——— Method of inoculating it, rejected by De Coetlogon, his Reaſons for ſo doing, 490, 491.
SMITHS, their Art demonſtrated, 1062.
Smith, William, inſtead of John, a Native of Chicheſter, an Engliſh Face Painter; his particular Talent, 795.
Snow, in Meteorology; Definition and Hiſtory thereof, 425
Soap, in Soap-making; different Sorts thereof, 1064.
—— hard, Preparation thereof, *ibid.*
—— ſoft, Preparation thereof, *ibid.*
SOAP-MAKING, Art thereof, 1064.
Society, in Law; Hiſtory thereof, 293.
SOCIETY, Treatiſe; different Kinds thereof, 1065.
——— Trading, Hiſtory thereof, *ibid.*
——— in commendam, Hiſtory thereof, *ib.*
——— anonymous, Hiſtory thereof, *ibid.*
——— religious, Hiſtory thereof, *ibid.*
——— for the Reformation of Manners, Hiſtory thereof, *ibid.*
——— for propagating the Goſpel into foreign Parts; Hiſtory thereof, *ibid.*
——— for propagating Chriſtian Knowledge, Hiſtory thereof, *ibid.*
Socinians, Hereticks; their Hiſtory and Errors, 159.
Socinus Fauſtus, Hereſiarch; his Hiſtory and Errors, *ibid.*
Socratick Philoſophy, Syſtem thereof, 890.
Solfaing, in Muſick; Rules and Uſe thereof, 541.
Solidity, in Stereometry; Definition thereof, 1071.
Solution of right angled ſpherical Triangles, by the common Rule in Trigonometry, 1164.
——— by a Catholick Rule, *ibid.*
Sonata, in Muſick; Definition and different Sorts thereof, 537.
Sonata di Chieſa, in Muſick; Hiſtory thereof, *ibid.*
Sonata di Camera; Hiſtory thereof, *ibid.*
Song, in Muſick; Definition and Execution thereof, 530.
Soul, human, in Metaphyſick; how defined by St. Auguſtin, 409.
—— its Knowlege demonſtrated, *ibid.*
—— its Immortality, Doctrine thereof, 409, 410.
Sound, in Muſick; Definition and principal Affections thereof, 508.
——— their Diſtinction, *ibid.*
Sound, ſimple; Definition and Doctrine thereof, 508, 509.
——— compound, Definition and Doctrine thereof, 509.
——— ſmooth, Definition and Doctrine thereof, *ibid.*
——— rough, accounted for by M. Perrault, their Phenomena, *ibid.*
——— harmonical; Definition and Doctrine thereof, *ibid.*
Sounds, their Relations, *ibid.*
Spanish Oppreſſion, the Foundation of the Dutch Republick; in Government, 52.
Spanish Language, in Grammar; Hiſtory thereof, 80.
Spanish Horſe, in Horſemanſhip; its Qualities, 172.
Spar, in Natural Hiſtory; Formation thereof, accounted for by M. Beaumont, 501
Spatula, Hieroglyphick; Explication thereof, 165.
Spaſm, a Diſeaſe, in Phyſick; Cauſes thereof, 920.
Spaſms, two Kinds thereof, diſtinguiſhed by Cardan, *ibid.*
Spaſms, accidental; Definition and Hiſtory thereof, 921.
——— Cynick, Definition and Hiſtory thereof, *ibid.*
——— their Prognoſtick and Cure, *ibid.*
Speaker of the Houſe of Commons of the Parliament of England; his Rank and Office, 49.
Species impreſſed in God; Poſſibility thereof, 24.
——— expreſſed, Definition thereof, *ibid.*
Specimen of the Engliſh, as ſpoke in the Year 1385, in Grammar, 81.
——— in the Year 1400, *ibid.*
——— in the Year 1537, *ibid.*
Speculative Muſick, Definition thereof, 507.
Spelman, his Remarks on the purple Colour, in Heraldry, 108.
Spencer, an Engliſh Poet; his Improvements of the Engliſh Tongue, in Grammar, 82.
Spider, Hieroglyphick; Explication thereof, 167.
Spinet, an Inſtrument of Muſick; Deſcription and Uſe thereof, 533, 534.
Spondee, the Foot of a Verſe, in Poetry; Quantity thereof, 961.
Spunge, in Gunnery; Deſcription thereof, 87.
St. Colombe, the charitable French Miniſter, here mentioned, 1095.
St. Luke, writes his Goſpel; his Hiſtory, 1056.
St. Matthew wrote his Goſpel in Hebrew; Remarks thereupon, 1049.
St. Paul, the Apoſtle of the Nations; his miraculous Converſion, 1048.
——— his Raviſhment to the third Heaven, 1052.
——— oppoſes St. Peter, in the Council of Jeruſalem; Remarks thereupon, 1053.
——— preaches at Athens, 1054.
——— appoints Timothy, his Diſciple, Biſhop of Epheſus, 1055.
——— returns to Rome; Remarks of St. Chryſoſtom on the Temptation the Apoſtle complains of, 1056.
——— is taken Priſoner at Jeruſalem, 1057.
——— is ſent to Cæſar, to whom he had appealed, 1057, 1057.
St. Philip, preaches in Samaria, 1049.
St. Peter goes to Rome, Proofs thereof, 1051.
St. Stephen, Protomartyr, his Hiſtory, 1047.
St. Fargeau, Dutchy in France, and by whom erected, 616.
St. Epiphanius, his Remarks of the Cerinthians, in Hereſies, 132.
——— on the Ebionites, 133.
St. Irenæus, his Remarks on the Gnoſticks, in Hereſies, 132.
Stable, in Horſmanſhip, how beſt ſituated, 175.
Stags, in Heraldry, how blazoned, 113.
Stale-board, a Tool uſed in Hat-making, 106.
Stallion, in Horſemanſhip; how to be managed, 173.
Stamper, a Tool uſed in Hat-making, 106.
Standard of Gold and Silver, 1062.
Star, in Heraldry; Blazon thereof, 113.
STARCH-MAKING, Art thereof, 1071.
Stars for Sky-rockets, how prepared, 992, 993.
State of Man, in Janſeniſm; two Sorts thereof, 225.
State of the Way; three Sorts thereof, *ibid.*
—— of the Term; two Sorts thereof, *ibid.*
State of Nature fallen, in Janſeniſm; Doctrine thereof, 226, 227, 228.
Statera Romana, in Mechanicks; Deſcription and Uſe thereof, 375.
States-General, in Government; Hiſtory thereof, 52.
States of Holland, in Government; Hiſtory thereof, *ibid.*
Stadholder, in the Dutch Government; Antiquity of his Dignity, his Power, 52.
——— — Abrogation thereof, 53.
Statue without Hands, Hieroglyphick; Explication thereof, 161.
Statue, in Sculpture; how defined by Daviler, 1058.
Statues, Diſtinction thereof, 1059.
——— allegorical, Definition thereof, *ibid.*
——— cyriatick, Definition thereof, *ibid.*
——— curule, Definition thereof, *ibid.*
——— equeſtrian, Definition thereof, *ibid.*
——— Greek, Definition thereof, *ibid.*
——— hydraulick, Definition thereof, *ibid.*
——— Pedeſtrian, Definition and Examples thereof, *ibid.*
——— Perſian, Definition thereof, *ibid.*
——— Roman, Definition thereof, *ibid.*
Statue, in Sculpture; Perfection thereof, 1059, 1060.
Statute of Henry VIII. relating to the Right of Hunting, 200.
Steaming-baſon, a Tool uſed in Hat-making, 106.
STEREOMETRY; Treatiſe thereof, 1071.
Stern-poſt, in Naval Architecture, Proportions thereof, 577.
STOCKING-MAKING; Art thereof, 1073.
Stockings; ſeveral Kinds thereof, *ibid.*
——— knit; Proceſs and Hiſtory thereof, *ibid.*
——— woven; Proceſs, and Hiſtory thereof, 1074.
Stoick Philoſophy; Syſtem thereof, 897, 898.
Stone to make Glaſs with; the beſt, 2.
Stone, a Diſeaſe, in Phyſick; Cauſes thereof, according to Etmuller and De Coetlogon, 935.
Stone in the Kidneys; Symptoms thereof, *ib.*
—— in the Bladder; Symptoms thereof, *ibid.*
Stone; Prognoſtick, and Cure thereof, 935, 936.
Stones, in Minerals; Hiſtory thereof, 497.
—— M. Tournefort's Theory on their Origin, and Formation, 498, 499.
—— M. Geoffroy's, 499.
—— both refuted by De Coetlogon; and his own Sentiment thereupon, 498, 499.
Stones; Diviſion thereof, by Biſhop Wilkins, 499.
—— vulgar; their Catalogue and Qualities, *ib.*
—— middle pierced; their Catalogue and Qualities, *ibid.*
—— of an incombuſtible Nature; their Catalogue, *ibid.*
—— ſtrange Original, *ibid.*
—— precious; Catalogue and Value thereof, *ibid.*
Strophe, in Poetry; Definition thereof, 973.
Style, in Rhetorick; Definition thereof, 1010.
—— grammatical; Definition and Doctrine thereof, *ibid.*
—— perſonal; Definition and Doctrine thereof, *ibid.*
Styles; three Kinds thereof, *ibid.*
——— ſublime; Definition thereof, *ibid.*
——— low or ſimple; Definition thereof, *ib.*
——— intermediate or equable; Definition thereof, *ibid.*
——— tumid; Definition thereof, 1011.
——— looſe; Definition thereof, *ibid.*
——— dry; Definition thereof, *ibid.*
——— aſiatick; Definition thereof, *ibid.*
——— laconick; Definition and Examples thereof, *ibid.*
Subaltern Propoſitions, in Logick; Doctrine thereof, 329.
Subcontrary Propoſitions, in Logick; Doctrine thereof, *ibid.*
Subjunctive, the fourth Mood in the Conjugation of Verbs, in Grammar; Rules thereof, 71.
Sublime, in Rhetorick; five Sources thereof, according to Longinus, 1011.
Subſequent Grace, in Janſeniſm, Definition and Doctrine thereof, 213, 214.
Subſtance, one of the Categories of Ariſtotle, in Logick; Definition thereof, 323.
Sufficient Grace, in Janſeniſm; Definition and Doctrine thereof, 214, 215.
Sully, Dutchy in France; when, and by whom erected, 616.
Sun, Hieroglyphick; Explication thereof, 160.
Supporters, in Heraldry; Hiſtory and Blazon thereof, 117.
Supporters of the Arms of England; Blazon thereof, *ibid.*
Supporters of the Arms of France; Blazon thereof, *ibid.*
Supporters, when blazoned, 118.
Suppoſition, in Muſick; ſeveral Kinds thereof, 524.
——— Rules thereof given by M. Broſſart, *ibid.*
Suppoſitum, in Metaphyſick; Definition and Doctrine thereof, 405.
Surface, or Face of the Eſcutcheon, in Heraldry; Blazon thereof, 109.
Surface, and Solidity of a Priſm; how meaſured in Stereometry, 1071.
——— of a Pyramid; how meaſured, *ibid.*
——— of a Sphere; how meaſured, 1071, 1072.
Surface, and Solidity of a Cube; how determined in Stereometry, 1072.
Suſpenſion, a Figure, in Rhetorick; Definition and Examples thereof, 1012.
Swallow, Hieroglyphick; Explication thereof, 165.
Swan, Hieroglyphick; Explication thereof, *ib.*
Syllæpſis, in Rhetorick; two Kinds thereof, 1014.
——— ſimple; Definition and Rules thereof, 105.

Syllæpſis,

Syllæpsis relative, Definition and Rules thereof, *ibid.*
Syllogisms, in Logick, several Sorts thereof, 338.
——— Demonstrative, Definition and Rules thereof, *ibid.*
——— Sophistical, Definition and Rules thereof, *ibid.*
——— Topical, Definition and Rules thereof, *ibid.*
Sympathy an Indisposition, in Physick, Definition and Signs thereof, 911.
Symphony, in Musick, what, 536.
Symptom, in Physick, Definition thereof, 915.
——— of the Cause, Definition thereof, *ibid.*
——— of a Symptom, Definition thereof, *ibid.*
Symptoms of a Disease, in Physick, Knowledge thereof, *ibid.*
Syncope, a Disease, in Physick, Causes, Symptoms, Prognostick and Cure thereof, 521.
Syncope, in Grammar, Signification thereof, 76.
Syncope, in Musick, Doctrine thereof, 523.
——— Remarks thereupon, 524.
Synecdoche, in Rhetorick, three Kinds thereof, 1014.
Synople, or Vert, a Colour, in Heraldry, Blazon thereof, 108.
Syntax, in Grammar, how defined by Father Buffier, its Use, 73. Two Kinds thereof, 74.
Syntax of Government, Definition and Rules thereof, *ibid.*
Syriack Language, in Grammar, Origin thereof, 78.
Syrup, in Pharmacy, History, Preparation, Clarification and Consistence thereof, 829.
—— of Pinks, Preparation and Virtues thereof, *ibid.*
—— of Maiden-Hairs, simple, Preparation and Virtues thereof, *ibid.*
—— of Wormwood, simple, Preparation and Virtues thereof, *ibid.*
—— composed, Preparation and Virtues thereof, *ibid.*
—— of Althæa, or Marshmallows, of Fernel, Preparation and Virtues thereof, 830.
—— of Mugwort, Preparation and Virtues thereof, *ibid.*
—— of Chicory, Preparation and Virtues thereof, *ibid.*
—— of Chicory composed with Rhubarb, Preparation and Virtues thereof, *ibid.*
—— of Flowers of Peach-Trees, Preparation and Virtues thereof, *ibid.*
—— of Flowers of Peach-Trees, composed, Preparation and Virtues thereof, *ibid.*
—— Solutive of Roses, Preparation, Virtues and Doses thereof, *ibid.*
—— of Roses composed with Senna and Agarick, Preparation, Virtues, and Doses thereof, 831.
—— Cathartick of Buckthorn, Preparation, Virtues and Doses thereof, *ibid.*
—— of Dodder, Preparation, Virtues and Doses thereof, *ibid.*
—— Simple of Fumitery, Preparation, Virtues and Doses thereof, *ibid.*
—— composed of Fumitery, Preparation, Virtues and Doses thereof, *ibid.*
—— Cathartick magistral, Preparation, tues and Doses thereof, *ibid.*
—— Astringent for the Dysenteria, Preparation, Virtues and Doses thereof, 832.
—— Cephalick of Moses Charras, Preparation, Virtues and Doses thereof, *ibid.*
—— of Scammony, Preparation, Virtues and Doses thereof, *ibid.* Remarks thereupon, *ib.*
—— of Mercurialis, Preparation, Virtues and Doses thereof, *ibid.*
—— composed, Preparation, Virtues and Doses thereof, *ibid.*
—— of Violets, simple, Preparation and Virtues thereof, *ibid.*
—— Solutive, Preparation, Virtues and Doses thereof, *ibid.*
—— of Rhubarb, Preparation, Virtues and Doses thereof, *ibid.*
—— de Tribus, Preparation, Virtues and Doses thereof, 833.
—— of Carthamum, Preparation, Virtues and Doses thereof, *ibid.*
—— of Polipody, Preparation, Virtues and Doses thereof, *ibid.*
—— Cathartick of Endive, Preparation, Virtues and Doses thereof, *ibid.*
—— Lientrick of M. D'Aquin, Preparation, Virtues and Doses thereof, *ibid.*
—— of Tobacco, simple, Preparations, Virtues and Doses thereof, *ibid.*
Syrup of Tobacco, composed, Preparation, Virtues and Doses thereof, *ibid.*
—— Emetick and Cathartick, Preparation, Virtues and Doses thereof, *ibid.*
—— of Barberries, Preparation and Virtues thereof, 834.
—— of Pomegranates, Preparation and Virtues thereof, *ibid.*
—— of Quinces, Preparation and Virtues thereof, *ibid.*
—— of Lemons, Preparation and Virtues thereof, *ibid.*
—— of Mulberries, Preparation and Virtues thereof, *ibid.*
—— composed, Preparation, Virtues, and Doses thereof, *ibid.*
—— of Tussilage, Preparation and Virtues thereof, *ibid.*
—— composed, Preparation and Virtues thereof, *ibid.*
—— of Jujubes, Preparation and Virtues thereof, *ibid.*
—— of Nenuphar, Preparation, Virtues and Doses thereof, *ibid.*
—— of Poppies, simple, Preparation and Virtues thereof, 835.
—— of red Poppies, simple, Preparation and Virtues thereof, *ibid.*
—— Narcotick of Succin, or yellow Amber, Preparation, Virtues and Doses thereof, *ibid.*
—— of Ground-Ivy, Preparation, Virtues and Doses thereof, *ibid.*
—— of Hyssop, Preparation, Virtues and Doses thereof, *ibid.*
—— of Botany, Preparation, Virtues and Doses thereof, *ibid.*
—— of Quinquina, Preparation, Virtues and Doses thereof, *ibid.*
—— of Orange-Flowers, Preparation and Virtues thereof, *ibid.*
—— of the Juice of Oranges, Preparation and Virtues thereof, 836.
—— of Flowers of Borage, Preparation and Virtues thereof, *ibid.*
—— of Camomile, Preparation and Virtues thereof, *ibid.*
—— of Radishes, Preparation and Virtues thereof, *ibid.*
—— of Mint, Preparation and Virtues thereof, *ibid.*
—— of Cinnamon, Preparation and Virtues thereof, *ibid.*
—— of Carduus Benedictus, Preparation and Virtues thereof, *ibid.*
—— of St. Johnwort; Preparation and Virtues thereof, *ibid.*
—— of Plantain; Preparation and Virtues thereof, *ibid.*
Syrup of Scordium, simple; Preparation and Virtues thereof, 837.
—— composed; Preparation, Virtues, and Doses thereof, 837.
Syrup of Kermes; Preparation, Virtues, and Doses thereof, *ibid.*
System, in Musick; Nature thereof, 510.
Systems, several Distinctions thereof, *ibid.*
——— concinnous; Definition thereof, *ibid.*
——— inconcinnous; Definition thereof, *ib.*
——— particular; Definition and History thereof, *ibid.*
——— universal; Definition and History thereof, *ibid.*
——— of Boetius; History and Rules thereof, 510, 511.
——— of Pythagoras; History and Rules thereof, 511.
——— of Timothy the Milesian; History and Rules thereof, *ibid.*
——— of Olympius; History and Rules thereof, *ibid.*
——— of Pope Gregory; History and Rules thereof, 512.
——— of Guido Aretin; History and Rules thereof, 512, 513.
——— Modern, History, Rules and Conveniency thereof, 513, 514.
——— of John des Murs; History, Rules, and Conveniency thereof, 514.
——— of M. Sauveur; History, Rules, and Conveniency thereof, 515.

T.

T, A Consonant and the nineteenth Letter of the Alphabet, in Grammar, 63.
——— Remarks of the Abbot Dangeau thereupon, *ibid.*
——— its Signification among the numeral Characters of the Antients, 64.
T, its Signification in Musick, 541.
Tabellæ, or Lozenges, or solid Electuaries, in Pharmacy; Invention thereof, to what Purpose, 848.
Tabellæ Diacharrami; Preparation, Virtues, and Doses thereof, 848, 849.
——— reformed; Preparation, Virtues, and Doses thereof, 849.
Tabellæ diaturpethi cum rheo; Preparation, Virtues, and Doses thereof, *ibid.*
——— *Purgantes Jacobi le Mort*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *contra vermes*, or against Worms; Preparation, Virtues, and Doses thereof, *ib.*
——— *cacheticæ ant. d'Aquin*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *de croco martis simplices*; Preparation, Virtues, and Doses thereof, 849, 850.
——— *de croco martis compositæ*; Preparation, Virtues, and Doses thereof, 850.
——— emetick; Preparation, Virtues, and Doses thereof, *ibid.*
——— *mercuriales*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *pectorales*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *de althæa simplices*, Preparation, Virtues, and Doses thereof, *ibid.*
——— *de althæa compositæ*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *diasulphuris*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *pectorales citrinæ*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *magnanimitatis*; Preparation, Virtues, and Doses thereof, 857.
——— *Cardiacæ*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *Lithonthripticæ fernelii reformatæ*; Preparation, Virtues, and Doses thereof, *ib.*
——— *Roborantes*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *Mithridaticæ preservantes*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *Catarrhales calidæ*; Preparation, Virtues, and Doses thereof, *ibid.*
——— *Catarrhales frigidæ*; Preparation, Virtues, and Doses thereof, *ibid.*
Tablatura, Term of Musick; its Signification, how marked, 542.
Tablature of the Lute, in Musick; how marked, *ibid.*
Table-Glasses, how blown, in Glass-making, 4.
——— how many anealed at a Time, *ib.*
Table of the Weight, Length, of the Balls, and Caliber of Brass Cannons, as they obtained antiently; in Gunnery, 84.
—— as they obtain in England, *ibid.*
Tables of the Caliber of the different Pieces of Ordnance in Gunnery, 86, 87.
Tables of the Randoms of the different Pieces of Ordinance, 88.
—— of the modern French Pieces, as recorded by M. Du Metz, *ibid.*
Tables of the different Chases of Mortars, as calculated by those who have followed the Rules of M. Blondel, in Gunnery, 91.
—— for Mortars of 12 Inches Caliber, *ibid.*
—— for Mortars of 8 Inches Caliber, 92.
Tables to find, at a Medium, the Depth of the Rain that falls yearly; in Meteorology, 424.
Tables of the fifteen diatonick Chords of the System of the Antients, in Musick; Explication thereof, 511.
Table of the authentick and plagal Tones, in Musick; Remarks thereupon, 518.
Table of Concords, in Musick, 524.
—— another of Concords, 527.
Table of simple Harmonies, in Musick, 526.
—— of Proportions, in Musick, 541.
Table of the Weight of Cables of a hundred Fathoms; in Naval Architecture, 572.
—— of the Thickness of the Threads, and of the Weight of the Cables, 575.
—— of the Thickness of the Cable, in Proportion to the Weight of the Anchor, 576.
Table of the Length and Breadth of some Ships; and of the Length and Thickness of the Masts, and of their Tacklings, 572, 573.
—— of the Proportions which the English observe in the Construction of their Ships, 576, 577.
Table of Reduction of the Minutes of each Parallel into Leagues, and geometrical Paces, in Navigation, 591.
Table of Proportions for the Construction of astronomical Telescopes, in Opticks, 651.
Tables, astronomical, 1210.
—— of Equation of Days, *ibid.*
—— of the mean Motion of the Earth, of the Place of the Perihelion, *&c.* 1211.
—— of the mean Motion of the Earth for every Day of the Year, *ibid.*
—— of the horary mean Motion of the Earth, 1213.

—— of the mean Motion of the Moon, and of the Apogæum of the Node, *ibid.*
—— of the mean Motions of the Moon for every Day of the Year, 1214.
—— of the mean Motions of the Moon, by Hours, and Parts of an Hour, 1216.
—— of Equations of the Center of the Moon, 1217.
—— of Variation, 1218.
—— of Equation of the Node, *&c. ibid.*
—— of the simple Latitude of the Moon, *ib.*
—— of Reduction appropriated to the lesser Inclination of of the Orbit, *&c. ibid.*
—— of the horary Motion of the Moon in the Eclipses, 1219.
—— of the horizontal Paralaxes, *&c. ibid.*
—— of the Angle which the true Motion of the Moon, from the Sun, forms with the Eclyptick in the Syzigies, *ibid.*
—— of the temporary Reduction between the true Syzigies, *&c. ibid.*
—— of the mean Motion of the Moon from the Sun, 1220.
—— of the mean Motion of Saturn's Satellites, *&c. ibid.*
—— of the Revolutions of the first Satellites of Jupiter in a Year, 1221.
—— of the first Satellites at Jupiter's Shadow, in the Meridian of London, *ibid.*
—— of the first Equation of the Conjunctions of the first Satellites of Jupiter, 1222.
—— *of the second Equation of the first Satellites of Jupiter, ibid.*
—— of the half Stay of the first Satellites in the Shadow of Jupiter, 1223.
—— of the mean Motion of Saturn from the Aphelion, *ibid.*
—— of the Heliocentrick Place of Saturn, 1222, 1223.
—— of the mean Motion of Jupiter from the Aphelion, 1226.
—— of the heliocentrick Place of Jupiter, 1227.
—— of the mean Motion of Mars from the Aphelion, 1230.
—— of the heliocentrick Place of Mars, 1230, 1231.
—— of the mean Motion of Venus from the Aphelion, 1233.
—— of the heliocentrick Place of Venus, 1234.
—— of the mean Motion of Mercury from the Aphelion, 1237.
—— of the heliocentrick Place of Mercury, 1237, 1238.
Tadeo di Gaddo Gaddi, a Painter of the Roman School, his History and particular Talent, 759.
Taillé, French Ter n of Heraldry, Signification thereof, 126.
Tan, in Tanning, what, how prepared, 1082.
Tangent, in Trigonometry, Definition and Division thereof, 1162.
—— of the Complement, Definition thereof, *ibid.*
—— Artificial, Definition thereof, *ibid.*
—— of a Conic Section, Definition thereof, *ibid.*
Tangents, Method thereof, 1162, 1163.
Tartarians, their Letters, in Grammar, 55.
Teeth of Children, in Midwifry, when they most commonly begin to appear, how bred, how cut, Method of helping them, 484, 485.
—— *De Coetlogon*'s Remarks on the Virtues of the Anodyne Necklace, *ibid.*
Teints, what, in Painting, 753.
Telescope, in Opticks, Composition thereof, 648.
—— when first invented, 652.
—— different Kinds thereof, 648.
—— Galilæan, or Dutch, how made, 648, 649.
—— Use and Theory thereof, 650.
—— Astronomical, Construction and Theory thereof, 650.
—— *Huygen*'s great, Construction and Theory thereof, 650, 651.
—— Land, or Day, Construction, Use and Theory thereof, 651, 652.
—— Binocular, Description thereof, 651.
Tellers of the Exchequer, in Law, their Office, 307.
Temperament, in Musick, Signification, Rules and History thereof, 542.
—— of the Lute, in Musick, how effected, 531.
Tenne, Tenny, or Tawny, a Colour, in Heraldry, Blazon thereof, 108.
Tenor, in Musick, Definition thereof, how marked, 529.
—— two Kinds thereof, distinguished by the Italians, *ibid.*
—— Concertante, Distinction and Rules thereof, *ibid.*
Tenor counter, Definition thereof, *ibid.*
Tense in the Conjugation of Verbs, in Grammar, Definition thereof, 72.
—— simple, their Number, *ibid.*
—— Present, Rules and Examples thereof, *ibid.*
—— Preter, Rules and Examples thereof. *ib.*
—— Future, Rules and Examples thereof, *ib.*
—— Compound, Rules and Examples thereof, *ibid.*
—— how denoted in the Greek and Latin, *ib.*
—— of the oriental Languages, *ibid.*
Term of the Beatifick Vision in God and his Attributes, Doctrine thereof, 24.
Terms used, in Hunting, for Beasts of Venery and Chace, as they are in Company, 186.
—— to express their Dislodging, *ibid.*
—— for their Copulation, *ibid.*
—— for the Footing and Treading, *ibid.*
—— for the Attire of Deer, *ibid.*
—— for Flaying, Stripping, and Casing all Manner of Chases, 187.
—— in Law, Number and History thereof, 319.
—— opposite, in Logic, four Sorts thereof, 341.
Ternary or Triple, Measures, in Musick, Definition and History thereof, 520.
Terra Sigillata, in Minerals, where found, its supposed Virtues, 500.
Terrier, or Harrier, a Kind of hunting Hounds, their Qualities, 188.
Testament, in Law, Definition thereof, 288.
—— several Sorts of them, *ibid.*
—— Nuncupative among the Romans, Definition and History thereof, *ibid.*
—— Holographical, how consider'd by the French Legislators, *ibid.*
—— how put in Force among the English, 288, 289.
Testudo, a Machine of War among the Antients, Description and History thereof, 106.
Teutonick Language, in Grammar, History thereof, 82.
Theocracy, in Government, its Antiquity, its Maxims at the Beginning of the World, as supposed by *De Coetlogon*, 37, 38.
—— among the Hebrews, according to the same, 40, 41.
Theodolite, an Instrument used in Surveying, Description and Use thereof, 1076.
THEOLOGY, Definition and Division thereof, 1083.
—— Positive, Definition thereof, *ibid.*
—— Scholastick, Definition thereof, *ibid.*
—— Speculative, Definition thereof, *ibid.*
—— Polemical, Definition thereof, *ibid.*
Theological Arguments, in Theology, whence deduced, 1084.
Theorbo, an Instrument of Musick, Description, History, and Use thereof, 531.
Theraphim, in Religion, History thereof, 1007.
Theriaca Andromachi, in Pharmacy, Preparation, Virtues, Doses, and History thereof, 852.
Theriaca Reformata, Preparation, Virtues and Doses thereof, 853.
Theriaca Diatessaron, Mesue, Preparation, Virtues and Doses thereof, *ibid.*
Thermometer, in Pneumatick, various Kinds thereof, 953.
—— depending on the Rarefaction of the Air, Construction and Theory thereof, *ibid.*
—— Mercurial, Construction and Theory thereof, *ibid.*
—— Florentine, common, Construction thereof, *ibid.*
—— Theory and Defects thereof, 954.
Thomas Giettino, a Painter of the Roman School, his History and particular Talent, 759.
Thorough-bass, in Musick, Definition and Use thereof, Remarks of M. Brossart thereupon, *ibid.*
Thunder, an igneous Meteor, in Meteorology, Theory thereof, according to *Des Cartes*, *Newton*, *Wallis*, and *De Coetlogon*, 418, 419.
—— its Phænomena accounted for by *De Coetlogon*, according to his own Hypothesis, 419.
Thunder-bolt, Definition, and History thereof, *ibid.*
Tides, in Meteorology, Theory thereof, as deduced from the Newtonian Principles, by Dr. *Halley*, 430, 431.
Tierce, French Term of Heraldry, Signification thereof, 126.
Timanthe, a celebrated Painter among the Antients; his History and particular Talent, 759.
Timbré, French Term of Heraldry, Signification thereof, 126.
Time, in Musick, Signification and Division thereof, 519.
—— perfect, how marked, *ibid.*
—— imperfect, how marked, *ibid.*
—— *Maggiore*, how marked, *ibid.*
—— *Minore*, how marked, *ibid.*
—— *di Buono*, Definition, and Rules thereof, *ibid.*
—— *di Cativo*, Definition and Rules thereof, *ibid.*
Titian Vetelli, a Painter of the *Venetian* School, his History and particular Talent, 770.
—— Remarks on his Works, 771.
Tizane, in Pharmacy, several Sorts thereof, 812.
—— Aperitive, Preparation and Virtues thereof, *ibid.*
—— astringent, Preparation and Virtues thereof, *ibid.*
Tones, eight of them, in the Gregorian System, commonly called *plain Chant*, in Musick, 517.
—— authentick, in the plain Chant, how formed, 517, 518.
—— Plagal, how formed, 518.
—— in Musick, taken for one of its Intervals, two Sorts thereof, *ibid.*
—— *Major*, Definition and Rules thereof, *ibid.*
—— *Minor*, Definition and Rules thereof, *ibid.*
—— Remarks thereupon, *ibid.*
Tongue, Hieroglyphick, Explication thereof, 161.
—— Mother, in Grammar, their Number in the East and West. 77.
Torce, French Term of Heraldry, Signification thereof, 126.
Torch, or Flambeau, Hieroglyphick, Explication thereof, 168.
TORIES, a formidable Party in England, their History, 1120, 1121.
—— Remarks thereupon by De Coetlogon, 1121.
Torpedo, in the natural History, Description thereof, Effects produced by touching it, or accounted for by the Antients, Perrault, Redi, Borelli, and Reaumur, 557.
—— its Mechanism, 557, 558.
Torteaux, Pieces of Heraldry, Blazon thereof, 126.
Tortoise, Hieroglyphick, Explication thereof, 166.
Towers of Wood, Machines of War used among the Antients, Description and Use thereof, 106.
Traditions, in Theology, several Kinds thereof, 1100.
—— of the Old Testament, their Authority, *ibid.*
—— of the New, several Kinds thereof, 1101.
—— Apostolical, their Authority, Proofs thereof, 1101, 1102.
—— Ecclesiastical, their Authority, Proofs thereof, 1102, 1103.
—— Objections against them, 1103, 1104.
Tragedy, in Poetry, what in its Origin, according to M. *Dacier*, 966.
—— what according to Hedeling, 967.
—— Faults found in those of Euripides, *ib.*
—— how defined by Aristotle, Remarks of Corneille thereupon, *ibid.*
—— modern, several Parts thereof, *ibid.*
—— Rules given by Boileau, 969.
Trourché, Term of Heraldry, Signification thereof, 126.
Transfiguration of Christ, in Incarnation, Proofs thereof, 254.
Transposition, in Musick, two Kinds thereof, 542.
—— with Respect to the Cleft, Definition, Rules and Use thereof, *ibid.*
—— from one Key to another, Rules and Use thereof, *ibid.*
—— Transposition of both Kinds, Use thereof, and Remarks thereupon, *ibid.*
TRAVELLING, Maxims thereof, as established by De Coetlogon, 1224, 1225.
TREATIES, how to be negotiated, according to De Coetlogon's new Maxims, 1136, 1137.
—— different Sorts thereof, 1137.
—— of Peace concluded at Westminster between the King of Great Britain Charles II. and the States General, 1138, 1139.
—— De Coetlogon's Remarks thereupon, 1139, 1140.
—— concluded between the King of France and the States General, 1141.
—— De Coetlogon's Remarks thereupon, *ibid.*

Treaty

Treaty of Pisa, between the King of France and the Pope, 1141, 1142, 1143.
—— De Coetlogon's Remarks thereupon, 1143.
—— Treaty between the King of Spain, and the French Calvinists, 1144.
—— De Coetlogon's Remarks thereupon, 1145.
Treaty of Munster, 1145.
—— De Coetlogon's Remarks thereupon, 1155.
Treble, in Musick; Rules and Division thereof, 529.
Trefoil, an Ordinary, in Heraldry, Blazon thereof, 113.
Treillé, French Term of Heraldry, Signification thereof, 126.
Tremolo, in Musick, Signification thereof, 543.
Triad, in Musick, Definition, Rules and Use thereof, *ibid.*
Trias, Term of Musick, Signification thereof, *ibid.*
Tribach, a Foot, in Poetry, Rules thereof, 961.
Trident, Hieroglyphick, Explication thereof, 168.
Trifera, in Pharmacy; Preparation and Virtues thereof, 855.
TRIGONOMETRY, Definition and Division thereof, 1162.
———— plain, Doctrine thereof, 1163.
———— spherical, Doctrine thereof, 1163, 1164.
Trigonometry; Utility thereof, 1166.
Trillo, in Musick; how marked, 543.
TRINITY; Treatise thereof, 1167, 1168.
Trinitarians, a religious Order, their History, 673.
Trio, in Musick; Definition and Rules thereof, 543.
Triple, simple, in Musick; five Kinds thereof, 520.
——— grand or maggiore; Doctrine thereof, how marked, both by the Antients and Moderns, 520, 521.
——— *minore*, Doctrine thereof; how marked both by the Antients and Moderns, 521.
——— *picciola*, or small; Doctrine thereof, how marked both by the Antients and Moderns, *ibid.*
——— *crometta*, or of Crotchets; Doctrine thereof, how marked both by the Antients and Moderns, *ibid.*
——— semi-crometta, or of double Crotchets; Doctrine thereof, how marked, *ibid.*
Triples composed; three Sorts thereof, 521.
——— *di semi-minima*; how marked, *ibid.*
——— *di crome*, Doctrine thereof; how marked, *ibid.*
——— *di semi-crome*, Doctrine thereof; how marked, 521, 522.
Triples mixt; Doctrine thereof, 522.
Triples at two Times; Doctrine thereof, *ibid.*
——— at four Times; Doctrine thereof, *ib.*
Tripping, Term of Heraldry; Signification thereof, 126.
Tritheites, Hereticks; their History and Errors, 154.
Tritis, Term of Forest; Signification thereof, 190.
Triton, in Mythology; History thereof, 552, 553.
Tritone, in Musick; Rules thereof, 531.
Troches, in Pharmacy; Etymology, and History thereof, 841.
Troches of Alhandal; Preparation, Virtues, and Doses thereof, *ibid.*
Troches of Agarick; Preparation, Virtues, and Doses thereof, 842.
Troches of Rhubarb; Preparation, Virtues, and Doses thereof, *ibid.*
Troches of Alkekengi; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Ramich; Preparation, Virtues, and Doses thereof, *ibid.*
——— against the Plague; Preparation, Virtues, and Doses thereof, *ibid.*
Troches, *gallicæ moschatæ*; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Camphire; Preparation, Virtues, and Doses thereof, *ibid.*
——— hysterick; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Myrrh; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Barberries; Preparation, Virtues, and Doses thereof, *ibid.*
——— Narcotick; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Karabe; Preparation, Virtues, and Doses thereof, 842, 843.
Troches of Gordon reformed; Preparation, Virtues, and Doses thereof, 843.
——— for a Gonorrhæa; Preparation, Virtues, and Doses thereof, *ibid.*
——— for the Asthma; Preparation, Virtues, and Doses thereof, *ibid.*
——— Bechick; Preparation, Virtues, and Doses thereof, *ibid.*
——— red Bechick; Preparation, Virtues, and Doses thereof, *ibid.*
——— Anodine; Preparation, Virtues, and Doses thereof, *ibid.*
——— to stop the vomiting of Blood; Preparation, Virtues, and Doses thereof, *ibid.*
——— to stop the immoderate Flux of the Piles; Preparation, Virtues, and Doses thereof, *ibid.*
——— for a Diarrhæa; Preparation, Virtues, and Doses thereof, *ibid.*
——— for the Diabetes; Preparation, Virtues, and Doses thereof, *ibid.*
——— for the Pleurisy; Preparation, Virtues, and Doses thereof, *ibid.*
——— of Kermes; Preparation, Virtues, and Doses thereof, 843, 844.
Trumpet, Hieroglyphick; Explication thereof, 168.
Trumpet, an Instrument of Musick; Description and Use thereof, 534.
Trumpet-marine, an Instrument of Musick; Description and Use thereof, 532.
Trunked, Term of Heraldry; Signification thereof, 126.
Trunque, French Term of Heraldry; Signification thereof, 126.
Turcoise, or Turquoise, in Lapidary; two Kinds thereof, 274.
——— oriental; Beauty and Value thereof, *ibid.*
——— occidental; Value, and History thereof, *ibid.*
Turks, three Kinds of Marriage among them in Law, 285.
Turkish Government; History thereof, 42, 43.
TURNING; Art thereof, 1187.
Turpentine, Preparation thereof; in Pharmacy, 823.
Tutorage, in Law; Definition, Doctrine, and History thereof, 285.
Tymbal, an Instrument of Musick; Description and Use thereof, 536.
Types, in Printing; their different Names, according to their Sizes, 985.
Tyranny, or despotick Power, in Government; its Origin according to De Coetlogon, 38, 39.

U.

U, in Grammar, the fifth Vowel of the twentieth Letter of the Alphabet; how pronounced by the English, French, &c. 63.
—— its Signification among the numeral Characters of the Antients, 64.
V, in Musick; Signification thereof, 543.
Vacuum, in Philosophy; two Kinds thereof distinguished by the Antients, 906.
Vacuum coacervatum; Definition and Doctrine thereof, *ibid.*
——— rejected by the later Philosophers, and particularly by the Cartesians, *ibid.*
Vacuum disseminatum; rejected by the Peripateticks, *ibid.*
Vacuum; not only its Existence, but even its Possibility denied by Des Cartes, and De Coetlogon, *ibid.*
——— its Existence asserted by Sir Isaac Newton, 907, 908.
Vair, in Heraldry; Origin, Description, and Blazon thereof, 114.
—— *Colombier*'s Remarks thereupon, *ibid.*
Vairy, Term of Heraldry; Signification thereof, *ibid.*
Valentin, Heresiarch; his History and Errors, 133.
Valentinois, Dutchy in France; when, and by whom erected, 616.
Van Dale, a Dutch Physician; his Sentiment on Oracles, 365.
Van-Helmont; his Experiments on Glass, in Glass-making, 1.
Varieties in the Application of the Ballance, in Mechanicks, 375.
Varnish, in Japanning; how prepared and applied, 233.
Veil, Hieroglyphick; how represented on antique Medals, and to what Purpose, 167.
Vellum, in Paper-making; Description thereof, 801.
Velvet, in Weaving; how wove, its best Manufactures; several Kinds thereof, 1206.
——— figured; Description thereof, *ibid.*
——— ramaged or branched; Description thereof, *ibid.*
——— shorn; Description thereof, *ibid.*
——— striped; Description thereof, *ibid.*
Venereal Disease, how cured in a Woman with Child, in Midwifry, 447.
Venetian Taste, in Painting; Remarks thereupon, 795, 796.
Ventadour, Dutchy in France; when, and by whom erected, 616.
Verb, in Grammar; Definition thereof, 70.
Verbs, their Origin and Office; how distinguished from Nouns, their Use, how defined by Aristotle, Buxtorf, and Scaliger, *ib.*
Verbs, variously divided, 71.
—— active; three Kinds thereof, *ibid.*
—— passive; Definition and Doctrine thereof, *ibid.*
—— Substantive; Definition and Doctrine thereof, *ibid.*
—— auxiliary; Definition and Doctrine thereof, *ibid.*
—— regular; Definition and Rules thereof, *ib.*
—— irregular; Definition and Rules thereof, *ibid.*
—— impersonal; Definition and Rules thereof, *ibid.*
Vermeuille, Dutchy, in France; when, and by whom erected, *ibid.*
Verse, in Poetry; Definition thereof, 960.
Verses; their various Kinds and Denominations, *ibid.*
——— Hexameter; two Kinds thereof, how composed, *ibid.*
——— heroick English; how composed, *ib.*
——— Pentameter; Definition and Rules thereof, *ibid.*
——— iambic; Definition, Distinction, Rules and Examples thereof, 961, 962.
——— saphick; Definition, Rules, and Examples thereof, 962.
——— adonick; Definition and Examples thereof, *ibid.*
Vertigo, a Disease in Physick; Causes, and Cure thereof, 921.
Vessels used in Pharmacy, 887.
Viboar, in Naval Architecture; Description thereof, 579.
Vices opposed to Charity, in Theology, 1096, 1097.
Victory, in Painting; how painted, 752.
Villars, Dutchy in France; when, and by whom erected, 616.
Villeroy, Dutchy in France; when, and by whom erected, 617.
Vine, Hieroglyphick; Signification thereof, 169.
Viola, an Instrument of Musick; Description and Use thereof, 532.
Violin, an Instrument of Musick; Description thereof, *ibid.*
——— how denoted in Compositions of Musick, *ibid.*
——— how play'd upon; what Cleff used to note the Musick for the Violin, *ibid.*
Violoncello, an Instrument of Musick; Description and Use thereof, *ibid.*
Viols; various Kinds thereof, *ibid.*
—— Bass; Description thereof, *ibid.*
—— Alto; Description thereof, *ibid.*
—— D'Amore; Description and Use thereof, *ibid.*
—— large; Description and Use thereof, *ib.*
—— Bastarda; Description and Use thereof, *ib.*
—— de Braccio; Description and Use thereof, 532.
—— Prima; Description and Use thereof, *ib.*
—— Secunda; Description and Use thereof, *ibid.*
—— Terza; Description and Use thereof, *ib.*
—— Quarta; Description and Use thereof, *ib.*
Violetta; Description and Use thereof, *ibid.*
Viper, Hieroglyphick; how represented by the Egyptian Priests, and to what Purpose, 164.
—— how on a Medal of the Empress Julia Mammæa, *ibid.*
Vipers, in Pharmacy; Preparation thereof, 823.
Virtue, in Painting; how painted, 752.
Viscount, in England; his Privileges, 620.
Viscount's eldest Sons, their Rank in England, 622.
Visible Mission, in the Trinity; Doctrine thereof, 1180.
Vision, beatifick, in God and his Attributes; Definition thereof, 20.
—— clear and intuitive, its Possibility; how proved, 20, 21.
—— Its Existence; how proved, 22.
—— Its Objects; Proofs thereof, 23.
—— Its Equality and Unequality; Proofs thereof, 26.
Vision, in Opticks; several different Systems thereof, 634.
—— of the *Platonicks* and *Stoicks*; how proved, *ibid.*
—— of the *Epicureans*; Proofs thereof, *ibid.*
—— of *Aristotle*, deliver'd in his Chapter *De aspectu*, *ibid.*

Vision

Vision of the *Peripateticks* improved, *ibid.*
—— of the *Cartesians* and *Newtonians*, supported by Demonstrations, 634, 635.
Vision, Laws thereof, with regard to the Figures of visible Objects, 637.
—— with Regard to the Motion of the Visibles, 637, 638.
Visitation, a religious Congregation of Nuns, in Orders; History thereof, 676.
Vitriol, in Minerals; how defined by Boerhaave; different Sorts thereof, 494.
—— Roman, whence brought, its Colour; how made, *ibid.*
—— white; its Qualities, *ibid.*
—— what they consist of, according to *Geoffroy* and *Boerhaave*, *ibid.*
Vitriol, native; History thereof, *ibid.*
—— green; its Qualities and Virtues, *ibid.*
Vitrous Humour of the Eyes, in Opticks, Description and Use thereof, 625.
Undé, Term of Heraldry; Signification thereof, 126.
Unguent, in Pharmacy; Etymology and Uses thereof, 876.
Unguentum of Roses; Preparation and Virtues thereof, *ibid.*
—— *Populeum*; Preparation and Virtues thereof, *ibid.*
—— Remarks thereupon, *ibid.*
Unguentum album; Preparation and Virtues thereof, *ibid.*
—— *Pampholigos*; Preparation and Virtues thereof, *ibid.*
—— *Desiccativum rubrum*; Preparation and Virtues thereof, 876, 877.
—— *Basilicum*; Preparation and Virtues thereof, 877.
—— Remarks thereupon, *ibid.*
Unguentum Apostolorum; Preparation and Virtues thereof, *ibid.*
—— *Mondificativum de Apio*; Preparation and Virtues thereof, *ibid.*
—— *Mondificativum de resina*; Preparation and Virtues thereof, *ibid.*
—— *Mondificativum Nic. l'Emery*; Preparation and Virtues thereof, *ibid.*
—— *Egyptiacum*; Preparation and Virtues thereof, *ibid.*
—— *de Althæa reformatum*; Preparation and Virtues thereof, *ibid.*
Unguentum aureum; Preparation and Virtues thereof, 878.
—— *Neapolitanum simplex*; Preparation and Virtues thereof, *ibid.*
—— *Neapolitanum quadruplicatum mercurio*; Preparation and Virtues thereof, *ibid.*
—— *Emulatum*; Preparation and Virtues thereof, *ibid.*
—— *Nicotianum*; Preparation and Virtues thereof, *ibid.*
—— *de Tuthia*; Preparation and Virtues thereof, *ibid.*
—— *Oxybricum*; Preparation and Virtues thereof, *ibid.*
—— *Pomatum officinale*; Preparation and Virtues thereof, *ibid.*
—— *Agrippa*; Preparation and Virtues thereof, 879.
—— *Stypticum*; Preparation and Virtues thereof, *ibid.*
—— *de Styrace*; Preparation and Virtues thereof, *ibid.*
—— *Definitivum*; Preparation and Virtues thereof, *ibid.*
—— *contra Vermes*; Preparation and Virtues thereof, *ibid.*
—— *de rapis pro Pernionibus*; Preparation and Virtues thereof, *ibid.*
—— *Nervinum*; Preparation and Virtues thereof, *ibid.*
—— *Anodinum ad Hemorrhoides*; Preparation and Virtues thereof, *ibid.*
Unguentum for Burns; Preparation and Virtues thereof, *ibid.*
Unguentum de Cadet; Preparation and Virtues thereof, *ibid.*
—— *de Calcatriva*; Preparation and Virtues thereof, *ibid.*
—— *ad Constipatos in meatu Urinario natos*; Preparation and Virtues thereof, 880.
—— *ad facilitandum partum*; Preparation and Virtues thereof, *ibid.*
—— *fusum Nicolai*; Preparation and Virtues thereof, *ibid.*
—— *de Verbenthina*; Preparation and Virtues thereof, *ibid.*
—— *Tonin*; Preparation and Virtues thereof, *ibid.*
Unguent to make the Hairs grow; Preparation and Virtues thereof, *ibid.*
Unisonance, in Musick; Definition and Rules thereof, 526.
Unity of God; Definition thereof, 19.
—— affirmative; Doctrine thereof, *ibid.*
—— numerical; Doctrine thereof, *ibid.*
Unity of the dramatick Action, in Poetry; in what it consists, 966.
Unity of Time; Laws thereof, *ibid.*
—— of Place and Scene; Rules thereof, *ibid.*
—— of Character; Rules thereof, *ibid.*
Universal Judgment, in Incarnation; Doctrine thereof, 263, 264.
UNIVERSITY, Definition thereof, 1188.
Universities, why thus called; the most famous in Europe, *ibid.*
University of Paris, when founded, and by whom; its several Faculties, Exercises, Governors, Professors, Privileges, *ibid.*
—— Its Colleges, their Foundation, Exercises, Privileges, Immunities, Revenues, 1188, 1189.
University of Montpellier, in France; when, and by whom founded; its Excellence in the Faculty of Medicine, 1190.
University of Orleans, in France; when, and by whom founded; very beneficial to Foreigners, *ibid.*
University of Angers, when, and by whom founded, *ibid.*
University of Oxford, the second in Europe; when, and by whom founded; its Government, Privileges, Immunities, Exercises, Colleges, sumptuous Buildings, 1190, 1191, 1192.
University of Cambridge, when, and by whom founded; its Government, Exercises, Privileges, Colleges, Buildings, Revenues, 1192.
University of St Andrew, in Scotland; when, and by whom founded; the Number of its Colleges, their Exercises, Government, Privileges, Revenues, Buildings, &c. 1197.
University of Glasgow, in Scotland; when, and by whom founded; and the rest of its History, 1197, 1198.
University of Aberdeen, in Scotland; when, and by whom founded, and the rest of its History, 1198, 1199.
University of Edinburgh, in Scotland; when, and by whom founded, and the rest of its History, 1199, 1200.
Vocal Musick; Definition, History, and Rules thereof, 529, 530.
Voice, in Musick; Definition and Division thereof, 530.
—— shrill; by whom performed, *ibid.*
—— mediate; Rules thereof, *ibid.*
—— deep; Rules thereof, *ibid.*
Voice, in Rhetorick; Advantages thereof, 1017.
Voided, Term of Heraldry; Signification thereof, 126.
Volant, Term of Heraldry; Signification thereof, 126.
Vomiting of a pregnant Woman, in Midwifry; Prognostick thereof, 442.
Vossius, his Sentiment on the Origin of the Cophtic Language, 79.
Vowel, in Grammar; Definition, Distinction, and History thereof, 57.
Vows monastick; their Origin, Number, Solemnity; Abuses committed in them; De Coetlogon's Remarks thereupon, 677.
Urania, in Painting; how painted, 752.
Urbane Servitude, in Law; what, 287.
Urbane Building, in Law, *ibid.*
Urbane Services, in Law; Doctrine thereof, *ib.*
Usage; its Utility in a Language, 76.
—— how defined by Vaugelas, *ibid.*
Use, and Habitation, in Law; Doctrine thereof, 287.
Use, in Law; Signification thereof, *ibid.*
Uses, when invented in England, *ibid.*
Uzez, Dutchy in France; when, and by whom erected, 616.
Uso, in Musick; Signification, and Doctrine thereof, 543, 544.
Usucaption, in Law; Definition thereof, 287.
Usucaptions; Doctrine thereof, *ibid.*
Usufruit, in Law; Definition and Doctrine thereof, *ibid.*
Usufractory, who, and his Right, *ibid.*
Utensils of the Glass-Houses, in Glass-making, 3, 5.
Utensils used in Pharmacy, various Kinds thereof, 887.
Vulcan, in Painting, how painted, 751.
Vulnerary Herbs, in Pharmacy, their Names and Number, 809.
Vulture, Hieroglyphick, how used by the Egyptian Priests, 164.

W.

W, in Grammar, a Letter particular to the Northern Languages and People 63.
W, sometimes admitted into the French for proper Names, *ibid.*
W, in the English, usually a Consonant, and sometimes a Vowel, how pronounced, *ibid.*
W. W. W. used in Musick, to what Purpose, 533.
Wad, in Gunnery, Use thereof, 89.
Wad-Screw, in Gunnery, Description and Use thereof, 87.
Waldo, a Dogmatist, his History and Dogma's, 158.
Waldenses, a Sect, in Heresies, their History, *ibid.*
Walking, incessus, in Rhetorick, Rules thereof, 1018.
Wallis, Dr. his Sentiment on the Origin and Etymology of many English Words, in Grammar, 81.
Walter Lollard, Heretick, his Errors, 158.
War, Definition and Distinction thereof, in Theology, 1098.
—— offensive, Definition and Doctrine thereof, 1098, 1099.
—— defensive, Definition and Doctrine thereof, *ibid.*
—— when lawful and just, 1099.
—— in whom resides the lawful Authority to declare it, *ibid.*
—— Whether that Authority resides in Ecclesiasticks, De Coetlogon's Sentiment thereupon, *ibid.*
—— Whether it be lawful to make Use of Ambushes in War, 1100.
Washing Rags for the Paper-mill, in Paper-making, Process thereof, 796.
Water-Camblets, Description thereof, in Weaving 1202.
Waters, in which the Child swims in the Matrice, their Origin and Uses, 451.
—— must be left to break of themselves, in the Delivery, when well prepared and formed, 453.
—— of the mineral Springs of the City of Bath in Somersetshire, their Qualities and Virtues, 502.
—— Dr. Astrendoff's Remarks thereupon, *ibid.*
—— of the Mineral Springs of Bourbon Lancy in France, their Qualities and Virtues, 503.
—— of Bourbon L'Archambault, their Qualities and Virtues, 503, 504.
—— of the mineral Springs of Spaw, their Qualities founded on Experiments made in the Royal Academy of the Sciences at Paris, 505.
—— Mineral, Remarks thereupon, 506.
—— Observations made on their divers Weights and Consistences, 507.
—— distilled, in Pharmacy, Process thereof, 858.
—— distilled, their Division, *ibid.*
—— simple, Definition thereof, *ibid.*
—— composed, Definition thereof, *ibid.*
—— of Plantain, Distillation and Virtues thereof, *ibid.*
—— of Sorrel, Distillation and Virtues thereof, *ibid.*
—— of Wormwood, Distillation and Virtues thereof, 859.
—— of Roses, Distillation and Virtues thereof, *ibid.*
—— of Strawberry, Distillation and Virtues thereof, *ibid.*
—— of Walnuts, Distillation and Virtues thereof, 859, 860.
—— of Cow-dung, Distillation and Virtues thereof, 860.
—— of a Thousand Flowers, Distillation and Virtues thereof, *ibid.*
—— of the Frey of Frogs, Distillation, and Virtues thereof, *ibid.*
—— of Snails, Distillation and Virtues thereof, *ibid.*
—— Hungary, Distillation and Virtues thereof, *ibid.*
—— to appease the Pains of the Gout, Distillation and Virtues thereof, 863.
—— for the Eyes, a very good one, Distillation and Virtues thereof, 863, 864.
—— Milk, Pectoral of George Bateman, Distillation and Virtues thereof, 864.
—— to prevent the Accidents which may be occasioned by a Fright, or Fall of a Woman with Child, Distillation and Virtues thereof, 865.
—— for the Hairs, Distillation and Virtues thereof, *ibid.*
Waved Camblets, in Weaving, Description thereof, 1202.
WEAVING, different Manners thereof, 1200.
—— of Cloth, Process thereof, 1200, 1201.
—— Camblet, Process thereof, 1201.
—— Druggets, Process thereof, 1202.
—— Serge, Process thereof, *ibid.*

Weaving, Rateens; Process thereof, *ibid.*
—— Frizes; Process thereof, *ibid.*
—— Bays; Process thereof, *ibid.*
—— Say; Process thereof, *ibid.*
—— Ribbands; Process thereof, 1205.
—— Taffety; Process thereof, 1205, 1206.
—— Sattin; Process thereof, 1206.
—— Damask; Process thereof, *ibid.*
—— Brocade; Process thereof, *ibid.*
—— Mohair; Process thereof, *ibid.*
—— Velvet; Process thereof, *ibid.*
—— Linen-Cloth; Process thereof, 1207.
Wedge, in Mechanicks; Description thereof, 379.
—— Principles whence it derives its Power, *ibid.*
Welch Language, in Grammar; Remarks thereupon, 80.
Welsted, M. his Sentiment on the Perfection of the English Language, in Grammar, 82.
Wesley John, his Definition of Methodism; his Character as given to me by a Friend, 436, 437.
Westminster School, by whom founded, 1195.
Wheel, a Machine, in Mechanicks; two Sorts thereof, 377.
—— simple; Description and Theory thereof, 377, 378.
—— *Aristotle*, *F. Touquet*, and *Dortus de Mayran*'s Remarks thereupon, 378.
—— their Power, whence it results, *ibid.*
Wheel dented; Description thereof, *ibid.*
—— their Power and Doctrine, *ibid.*
Wheel, in Pottery; Description thereof, 980.
—— how managed, 980, 981.
When, one of the Categories of Aristotle, in Logick, *ibid.*
Where, one of the Categories of Aristotle, in Logick, *ibid.*
Whigs, a formidable Party in England; their Origin and Distinction, 1121.
—— State Republicans; their Character and Maxims, *ibid.*
—— moderate State; their Character and Maxims, *ibid.*
—— Presbyterians; their Character and Principles, *ibid.*
—— *De Coetlogon*'s Remarks thereupon, 1121, 1122.
Whirl-wind, in Meteorology; Definition and divers Sorts thereof, 422.
—— distinguished by their particular Names, *ibid.*
—— *Prester*; Definition and History thereof, *ibid.*
—— *Ecnephias*; Definition and History thereof, *ibid.*
—— *Exhydria*; Definition and History thereof, *ibid.*
—— *Typho* or *Vortex*, Definition and History thereof, *ibid.*
—— *Hurricane*; Definition and History thereof, *ibid.*
Whitefield George; his Character, in Methodism; as given to me by a Friend, 436, 437.
Whole, in Metaphysick; Definition and Division thereof, 405.
—— actual; Definition and Doctrine thereof, *ibid.*
—— potential; Definition and Doctrine thereof, 405, 406.
Wild-Goat, in Hunting; History thereof, 198.
—— how hunted, *ibid.*
Wilkins, Bishop; his Attempts for a general Character, in Grammar, 56.
Will of God, in God and his Attributes; Definition and Division thereof, 29.
—— general; Definition and Doctrine thereof, *ibid.*
—— special; Definition and Sub-division thereof, *ibid.*
—— of Pleasure; Definition and Doctrine thereof, *ibid.*
—— of Sign; Definition and Doctrine thereof, *ibid.*
—— antecedent; Definition and Doctrine thereof, *ibid.*
—— consequent; Definition and Doctrine thereof, *ibid.*
Will of God, the Cause of Things, 30.
Wills of Christ, in Incarnation; two in Number, 248.
—— divine; Definition thereof, *ibid.*
—— human; Definition thereof, *ibid.*
—— what Kind of Subordination between both, 249.
Will, human, in Metaphysick; Definition and Doctrine thereof, 415.
William Kay, of Breda, a Painter of the Flemish School; his History and particular Talent, 781.
William Baur, of Strasbourg, a Painter, of the Flemish School; his History and particular Talent, 785.
William Dobson, of *London*, an English Painter; his particular Talent, 795.
William of St. Amour, Dr. of Paris; his particular Sentiments, 158.
Wind, in Meteorology; Definition thereof, 420.
Winds, general, accounted for by *Des Cartes*, *Rohault*, and Dr. *Halley*, *ibid.*
—— Phænomena of the general Trade-winds accounted for, 420, 421.
—— its Force and Velocity; Theory thereof, 421.
—— its Qualities and Effects, 421, 422.
Winds, Division thereof, 422.
—— perennial, or constant; Definition and Doctrine thereof, *ibid.*
—— stated, or periodical; Definition and Doctrine thereof, *ibid.*
—— variable, or erratick; Definition and Doctrine thereof, 422.
—— general; Definition and Doctrine thereof, *ibid.*
—— particular; Definition and Doctrine thereof, *ibid.*
Winds, in Navigation; their Number and Names, 586.
Winds, regular, in Navigation; why thus called; where they blow; and in what Season, 596.
Winds, called *Monsons*, by the Indians; where, and when they blow, *ibid.*
Wind, Rain and Tempest, at Sea, their Forerunners, as observed by Father Fournier, 597.
Wind, in Pneumaticks, Definition thereof, 959.
Wind-mill, in Pneumaticks, Construction and Apparatus thereof, *ibid.*
—— Theory of its Motion, *ibid.*
—— Eliptical, Theory thereof, 960.
Wind-Instruments of the Antients, in Musick, 544.
Wine Medicinal, in Pharmacy, Definition thereof, 825.
—— of Wormwood, Preparation and Virtues thereof, *ibid.*
—— of Mars, Preparation and Virtues thereof, *ibid.*
—— Magistral Purgative, Preparation and Virtues thereof, *ibid.*
—— Febrifuge, Preparation and Virtues thereof, *ibid.*
—— for the Hydropsy, Preparation and Virtues thereof, *ibid.*
Witchcraft, a Sort of natural Magick, 363.
—— Theory thereof refuted by De Coetlogon, and his own Sentiment, 364.
Wood caried to a Siege, in Gunnery, 98.
Wolf, in Hunting, History thereof, 196.
—— how hunted, different Manner of doing it, 197.
Wool, English, its Excellency, 1203.
Woollen Manufacture, in England, its History, *ibid.*
Word Divine, one of the Names of the second Person of the Trinity, Proofs thereof, 1182.
—— whence he proceeds, 1183.
Words, in Grammar, how defined by Messieurs of Port Royal, 66.
—— Division thereof, *ibid.*
—— Primitive, Definition, Doctrine and Examples thereof, *ibid.*
—— Derivative, Definition, Doctrine and Examples thereof, *ibid.*
—— Equivocal, Definition, Doctrine and Examples thereof, *ibid.*
—— Synonymous, Definition, Doctrine and Examples thereof, *ibid.*
—— Remarks thereupon, *ibid.*
—— Figures thereof, in Rhetorick, 1013.
Workmen carried to a Siege, in Gunnery, 98.
Worship, Disparity thereof, when it dissolves Marriage, in Sacrament, 1031.
Writ *quare impedit*, in Law, Definition and Rules thereof 302.
—— of Formedon, three Kinds thereof, *ibid.*
—— in the Desunder, Form thereof, *ibid.*
—— in the Remainder, Form and Rules thereof, *ibid.*
—— in the Reverter, Form thereof, *ibid.*
—— Remarks thereupon, *ibid.*
—— of Partition, in Law, Definition and Rules thereof, *ibid.*
—— of Replevin, Definition and Rules thereof, 303.
—— of Error, in Law, Definition and Doctrine thereof, 315.
—— of *precipe quod reddat*, Definition and Rules thereof, 316, 317.
—— of *Testatum*, Definition and Rules thereof, *ibid.*
—— of *non omittas*, Definition and Rules thereof, *ibid.*
—— Appearances thereupon, in the Common-Pleas, *ibid.*
—— of *scire facias*, Definition and Rules thereof, 318.
—— of *nisi prius*, Definition and Rules thereof, *ibid.*
—— of *Capias*, two Kinds thereof, *ibid.*
—— *ad Respondendum*, Definition and Rules thereof, *ibid.*
—— *Satisfaciendum*, Definition and Rules thereof, *ibid.*
—— *ad Proficiscendum*, Definition and Rules thereof, 319.

X.

X, a double Consonant, and the Twenty-second Letter of the English Alphabet, its Sound in the English and French, 63.
— not known in the Hebrew, *ibid.*
— its Signification among the numeral Characters of the Antients, 64.
— its Signification, in Musick, 544.
XEROPHAGIA, Definition and History thereof, 1207.

Y.

Y, the Twenty-third Letter of the English Alphabet, whence derived 63.
—— occasionally both a Vowel and a Consonant, *ibid.*
— Use thereof, to what attributed, *ibid.*
— how used by the Romans, 64.
— how in the modern Languages, *ibid.*
— its Signification among the numeral Characters of the Antients, *ibid.*
Yard, Main, in Naval Architecture, Proportions thereof, 572.
—— of the Foremast, Proportions thereof, *ib.*
—— of the Mizen-mast, Proportions thereof, *ibid.*
—— of the Boltsprit, Proportions thereof, *ibid.*
—— of the Main-top-mast, Proportions thereof, *ibid.*
—— of the Fore-top-mast, Proportions thereof, *ibid.*
—— of the Top-gallant of the Boltsprit, Proportions thereof, *ibid.*
YAWNING, Definition and Theory thereof, 1208.
YNCA, their History, 1209.

Z.

Z, the last Letter of the Alphabet, and one of the double Consonants, 64.
—— how pronounced, its Affinity with the Figure 9, *ibid.*
—— its Signification among the numeral Characters of the Antients, *ibid.*
—— its Signification in Musick, 544.
Zampagna, Term of Musick, Signification thereof, *ibid.*
Zephirus, in Painting, how painted, 753.
Zeuxis, a celebrated Painter among the Antients, his History and particular Talent, *ibid.*
ZOOTOMY, Definition and Treatise thereof, 1209.
Zoppo, Term of Musick, Signification thereof, 544.
Zuffolo, Term of Musick, *ibid.*

DIRECTIONS for the BINDER.

VOL. I.

FRontispiece to face the Title.
Osteology, —— pag. 43
Sarcology, —— —— 55
Myology *and* Angiology, —— 105
Animals, —— —— 111
Architecture, —— —— 162
Army, —— —— 223
Astronomy, —— —— 255
Botany, —— —— 349
Building, —— —— 389
Chymistry, —— —— —— 616
Dialling, —— —— 866
Fortification, —— —— 1012
Geography, —— —— 1073
Geometry, —— —— 1186

VOL. II.

GLass-House, —— pag. 1
Gunnery, —— —— 84
Heraldry, —— —— 107
Hieroglyphicks, —— —— 160
Hydraulicks, —— —— 201
The Cut of Seals, —— —— 275
Magnet, —— —— —— 366
Mechanicks, —— —— 375
Miscellanies, —— —— 512
Musick, —— —— —— 507
Natural History, —— —— 554
Naval Architecture, —— —— 569
Opticks, —— —— 624
Perspective, —— —— 802
Pneumaticks, —— —— —— 943
Refiners Shop, —— —— 998
Surveying, —— —— 1076
Tanners, Shop, —— —— 1082
Weavers, *&c*, —— —— 1201